A Resource Guide for Deepening the Understanding of Teachers' Professional Practices

In support of the

Revised Rubric for Evaluating Colorado Teachers

Summer 2019

COLORADO Department of Education

THE COLORADO EDUCATION INITIATIVE

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Introduction

Using the *Resource Guide for Deepening the Understanding of Teachers' Professional Practices: In Support of the Revised Rubric for Evaluating Colorado Teachers*

By providing this *Resource Guide* to Colorado school district employees, administrators, and teachers, the Colorado Education Initiative and the Colorado Department of Education aim to promote a widespread understanding of the Rubric for Evaluating Colorado Teachers. Our desire is that the *Resource Guide* will support observers and coaches in accurately identifying evidence of professional practices and will assist classroom teachers in reflecting on their teaching and planning for implementation of specific practices in their instruction. In addition, the research and examples, along with the glossary, can support the development of a common language among Colorado school district employees as they analyze, reflect on, and plan instruction.

This guide does not provide a classroom example for every grade level and content area. Rather, it describes how practices might be addressed. Educators should exercise discretion with the resources and examples here and apply them only as appropriate for their content and students. We anticipate multiple opportunities to review and fine-tune this guide so that it best represents the expectations for Colorado educators, and we encourage your feedback. For feedback, comments, questions or submission of resources, please contact Educator_Effectiveness@cde.state.co.us.

This *Resource Guide* contains a Teacher Quality Standards[1] and Elements section for:

- Teacher Quality Standard I: Elements A through C
- Teacher Quality Standard II: Elements A through D
- Teacher Quality Standard III: Elements A through F

For the elements within each standard, you will find explanations of professional practices under three rating levels: Level 1, Level 2, and Level 3 (meets state standard).

The content at the practice or element level presents research related to the practice and ideas for implementing it. Related research provides a rationale for the professional practices in the rubric and can be useful to principals, assistant principals, or others who provide training on an element or who provide feedback to a teacher. Using research to illustrate a specific practice increases understanding of why that practice is considered a best practice.
Ideas for implementation are suggestions for teachers to consider when planning for instruction. Additionally, evaluators can refer to them when providing feedback or ongoing support to teachers.

Also included are the following sections:

- External resources for additional information
- Internal resources for additional information
- Classroom examples
- Planning/coaching questions

External and Internal Resources provide further information or ideas for implementation of a practice. When resources are external to the *Resource Guide*, we include direct links to the various articles, videos, websites, and other supporting documents. When resources are internal, we include them as PDF documents. To access an internal resource document, simply click on the title; return to your original location by entering the page number in the page number field at the top of the document. In addition, all internal documents appear in the back and are organized alphabetically, by title.

[1] Throughout the *Resource Guide*, the word "standard(s)" is used routinely except in section headings, where Teacher Quality Standard I, Teacher Quality Standard II, and Teacher Quality Standard III are identified.

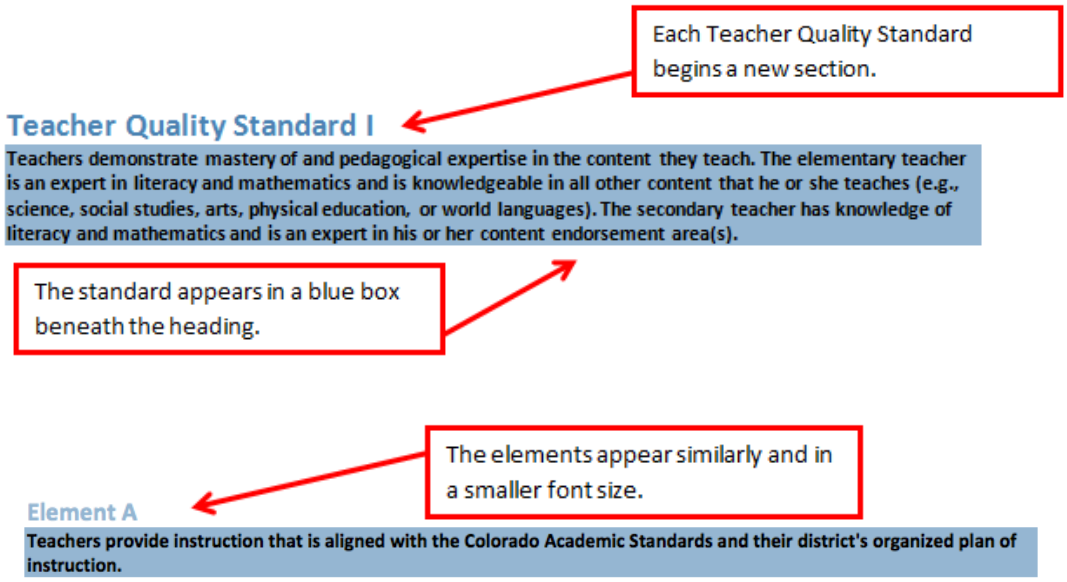
Classroom examples provide a model for how the practices can be implemented and are for illustrative purposes only. Within each example, the corresponding practices that are evident are referenced in parentheses. Please note that only the practices within the element being discussed are referenced; examples may include corresponding practices from other elements or standards that are not explicitly referenced. Principals, assistant principals, and/or observers can use the examples to provide feedback to teachers or to develop support and professional development. Teachers can use them to develop ways to implement the practices in their instruction. The examples do not represent the only way a practice can be implemented; instead, they are models for how the practice(s) *could* be implemented. The effectiveness of a practice will always depend on purposeful implementation and its impact on student learning.

Planning/coaching questions support teachers' thoughtful decision making. Recognizing that the implementation of practices referenced on the Rubric begins with deliberation and forethought, teachers can use the questions while planning to ensure the purposeful and strategic implementation of best practices in their instruction. The questions also are a resource for providing feedback to teachers during coaching sessions.

The final section of the *Resource Guide* contains a glossary, a bibliography for each Teacher Quality Standard, and an alphabetical (by title) index of all internal resource documents (includes a column indicating the standard and element to which the resource is aligned). As principals, assistant principals, observers, and classroom teachers develop knowledge and understanding of the Rubric, they can refer to the glossary for further clarification. Words located in the glossary are underlined and blue the first time they appear in an element and will hyperlink to the glossary.

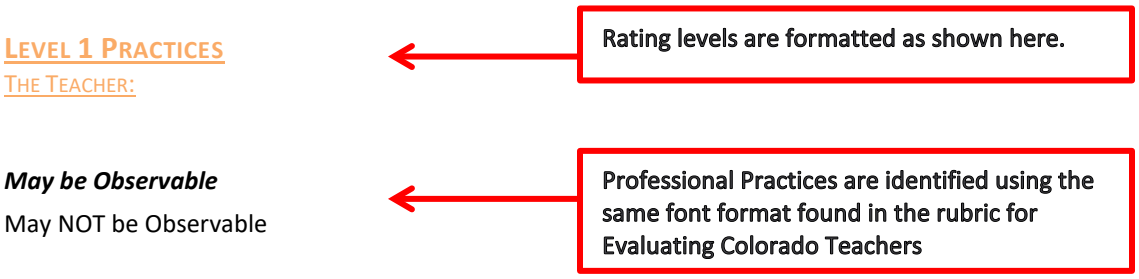
Throughout the *Resource Guide*, references to related elements or practices within the Rubric reveal its interconnectedness. They also assist in locating additional information for a practice and in supporting all educators in understanding how related practices potentially impact the implementation of a given practice.

Visual formatting of the *Resource Guide*:

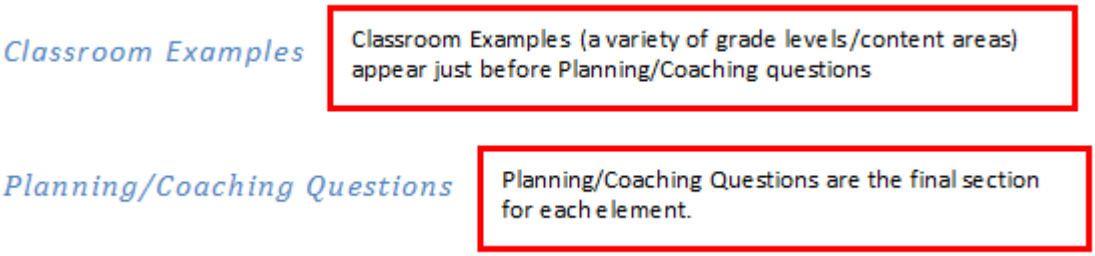


Each description of a professional practice under the Level 1, Level 2, and Level 3 (meets state standard) rating provides content and references to resources.[2] Professional practices under the Level 4 and Level 5 rating levels, however, appear only with references.

Professional practices that are ***Observable*** or Not Observable during a classroom observation appear as they do in the Rubric for Evaluating Colorado Teachers.



Each professional practice under Level 4 and Level 5 is referenced; however, content for these practices is not included in the *Resource Guide*.



[1] Professional practices referenced under each Element are cumulative. Therefore, for teachers to be meet state standard in an element, they must implement all practices under the Level 1, Level 2, and Level 3.

Teacher Quality Standard I

Teachers demonstrate mastery of and pedagogical expertise in the content they teach. The elementary teacher is an expert in literacy and mathematics and is knowledgeable in all other content that he or she teaches (e.g., science, social studies, arts, physical education, or world languages). The secondary teacher has knowledge of literacy and mathematics and is an expert in his or her content endorsement area(s).

The key to distinguishing the knowledge base of teaching rests at the intersection of content and pedagogy.
—L. S. Shulman

> To teach all students according to today's standards, teachers need to understand subject matter deeply and flexibly so they can help students create useful cognitive maps, relate one idea to another, and address misconceptions. Teachers need to see how ideas connect across fields and to everyday life. This kind of understanding provides a foundation for pedagogical content knowledge that enables teachers to make ideas accessible to others. (Shulman, 1987)

Although Shulman's work dates back to the late 1980s, the importance of teacher content knowledge and pedagogical expertise has never been more important than it is now as teachers ensure students are college and career ready for the demands of the 21st century.

Element A

Teachers provide instruction that is aligned with the Colorado Academic Standards and their district's organized plan of instruction.

A teacher translates instructional outcomes into learning experiences for students through the design of instruction; it is here that a teacher's knowledge of the content, knowledge of his/her students, clarity of instructional outcomes, and knowledge of resources come together to result in a plan of action. Even in classrooms where students assume considerable responsibility for their learning, the teacher is in charge of organizing the environment, managing the learning process, and establishing the framework for assessment.
—Charlotte Danielson

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for providing instruction that is aligned with the Colorado Academic Standards and their district's plan of instruction, they must plan lessons that reflect the Colorado Academic standards, relevant instructional objectives, and formative and summative assessment results. The teacher must subsequently implement lessons that align to the district's instructional plan and reflect the vertical and horizontal alignment of the grade or subject area, while also communicating the learning objectives and outcomes based on standards.

LEVEL 1 PRACTICES

THE TEACHER:

Plans lessons that reflect:

> Designing instruction is a different skill from implementing a plan in the classroom, and both skills are critical to the enhancement of learning. On the other hand, even the best-prepared lessons may need modification in the face of real students; so there is, inevitably, a balance between careful planning and flexibility in execution. (Danielson, 2007, p. 57)

1 ***Colorado Academic Standards*.**

The Colorado Academic Standards (CAS) are the expectations of what students need to know and be able to do at the end of each grade. They also stand as the values and content organizers of what Colorado sees as the future skills and essential knowledge for the next generation to be more successful. State standards are the basis for the state assessments.

Colorado Academic Standards are available at:
http://www.cde.state.co.us/standardsandinstruction/coloradostandards (*)

Colorado Academic Standards (CAS) are based on a trajectory of learning across grade levels and within a grade. For students to be successful with these **standards**, instruction at each grade must be aligned to the grade level standards. A strong alignment to academic standards ensures students have opportunities to gain the foundational knowledge and skills necessary for success at subsequent grades as well as to be college and career ready.

In addition, English Language Proficiency standards are required by Colorado state and federal law. In 2009, the state adopted the World-Class Instruction Design and Assessment standards as the Colorado English Language Proficiency standards. The standards, which center on the English language needed and used by English Language Learners (ELLs) to succeed in school, exceed minimum legal requirements. They guide all educators who teach ELLs and help students' access grade level academic content while learning English.

Learning objectives should align to grade-level appropriate CAS.

Colorado English Language Proficiency Standards are available at:
https://www.cde.state.co.us/coenglangprof/statestandards1 (*)

2 ***Relevant instructional objectives.***

Instructional objectives must be clear and stated in terms of student learning rather than student activity: "What will students *learn* as a result of the instructional and student activity?" Not, "What will students do?" That learning objectives are clearly stated does not imply that they should be low level in their cognitive challenge.

Instructional goals should be:

- Capable of assessment.
- Stated in clear language that permits viable methods of evaluation and the establishment of performance standards.
- Use verbs that define instructional goals
- Unambiguous and suggest assessment techniques.
- Appropriate to the diverse students in a teacher's charge, providing for the students' age and developmental levels, prior skills and knowledge, and interests and background. (Danielson, 1996)
- Standards based and use student friendly language to allow access to the learning outcome.

- Students will be able to determine subject/verb agreement in a variety of simple, compound, and complete sentences.
- Students will define the characteristics of fables, fairy tales, and tall tales.

Although activities are a crucial part of effective teaching, they constitute a means by which the ends or learning goals are accomplished. However, they are not learning goals." (Marzano, 2007, p. 17)

Guiding questions for the development of instructional objectives:

- What do students need to know about (concept or skill)?
  - What are the procedural skills students must have?
  - What are the enduring understandings students need to obtain?
- What do my students already know about (concept or skill)?
- How will I need to sequence and segment student learning for this standard?
- How will the language of the standard impact the language of instructional objectives?
- What sub-objectives will need to be reviewed versus those that will need to be taught?
- How will I measure student mastery of the standard and daily objectives?

Examples of measurable verbs for use in developing instructional objectives:

List	Identify	retell
Define	Describe	Solve
Summarize	Explain	Compare
determine	Contrast	Evaluate

When the teacher selects instructional objectives that have **relevance**, students connect the "what" and "why" of their learning to future learning, to other disciplines, and/or to life experiences.

The pressure to achieve and perform well on high-stakes tests has never been greater. In many classrooms, this has led to the goal of selecting tasks so students will "do well on the test." For some students, especially lower-performing students, this approach can mean they learn concepts in isolation of one another and disconnected to their experiences and culture.

> Administrators and teachers should work together to reframe the purpose of learning in their schools … use language that focuses on mastering knowledge, improving individual performance or seeing the value of schooling for enhancing one's future. (Nichols & Berliner, 2008, What Can We Do? Section 6, para. 2)

Refer to this internal resource for additional information:

- Learning Objectives vs Activity Statements
  Document provides examples of each for a variety of grade levels and content areas.

Refer to this external resource for additional information:

- Article: "Know Where Your Students Are Going" by Robyn Jackson
  http://tcrpalliance.files.wordpress.com/2011/07/objectives_know-where-your-students-are-going.pdf (*)
  Article provides guidelines for writing learning objectives.

See also Standard III, Element B.

3 ***Formative and summative assessment results***.

> Any lesson planning must begin with a deep understanding of what each student already knows and can do, and how the instruction is aimed at increasing the progress and levels of achievement for each of the students. The primary concern is to add value to all students, wherever they start from, and to get *all* students to attain the targeted outcomes. (Hattie, 2012, p. 42)

Instruction that meets the needs of all students is not only aligned to academic standards but is also aligned to student assessment results. For teachers to implement instruction that is differentiated based on students' academic needs, assessment results must drive decisions, such as the choice of student tasks, use of strategies and materials, grouping arrangements, and use of vocabulary. As students make progress towards mastery of learning objectives, teachers should use assessment results to identify increasing levels of mastery.

The lesson should be planned to give students opportunity to demonstrate learning through formative assessment, exit tickets, and informal checks for mastery. (APS, June 2018)

Refer to this internal resource for additional information:

- Research on the Use of Formative Assessments (*)
  Document provides research from a variety of sources on the benefits of using formative assessments.

See also Standard III, Element B.

LEVEL 2 PRACTICES

THE TEACHER:

Implements lessons that:

4 ***Align to the district's plan of instruction***.

It is each teacher's responsibility to become knowledgeable about the district's curriculum. This step is a prerequisite to using lesson plans that are connected to the approved curriculum. Instructional objectives and implementation of instruction should always align to state academic standards and district approved curriculum. When developing lesson plans, teachers should reference their district's scope and sequence and/or units of study or curriculum maps.

Lessons should align to: pacing guides, scope and sequence, instructional models or programs. (APS, June 2018).

5 ***Reflect vertical and horizontal alignment of the grade or subject area***.

- Horizontal Curriculum Alignment: Teachers closely align what is taught, share ideas and ideally develop common formative assessments. It can lead to more communication between grade level teachers, ensure that key concepts are emphasized in every classroom and allow each student the same quality education regardless of teacher. (Perez, June 2015) http://www.hotchalkeducationnetwork.com/curriculum-alignment-matters/ Jason Perez "Align Your Curriculum and Save Your Students." Hot Chalk Education Network
- Vertical Alignment: Organizing a curricula from one grade level or content area to the next. Learning objectives flow from a level of introduction through mastery. Each teacher builds upon the work of the previous teacher.
- Lessons should reflect above and below grade-level expectations according to the district plan of instruction, PLC planning or grade-level planning opportunities. (APS, June 2018)

LEVEL 3 PRACTICES

THE TEACHER:

6 ***Implements and communicates learning objectives and student outcomes based on standards.***

According to Marzano (2007), "Arguably, the most basic issue a teacher can consider is what she will do to establish and communicate learning goals, track student progress, and celebrate success."

Implementing effective lessons aligned to Colorado Academic Standards depends upon a teacher's ability to create and communicate clearly defined learning objectives appropriate for students and the content being taught. If a teacher is not clear about what she wants students to know and be able to do as a result of the lesson, it is difficult for the lesson to be properly developed or implemented. Both the students and the teacher must understand what is to be accomplished during each lesson and the goal for student learning.

Communicating learning objectives effectively goes beyond posting and/or stating an objective at the beginning of a lesson. It requires the teacher and students to continually reference the objective and ensure that each element of a lesson aligns to and supports the lesson goal.

Teacher may present the learning objective verbally and/or visually. The learning should be summarized at the end of the lesson in reference to the objective. (APS, June 2018)

Refer to this internal resource for additional information:

- Communicating Learning Objectives
  Document provides strategies for effectively communicating learning objectives to students.

Refer to these external resources for additional information:

- Article: "Objectives That Students Understand" by Robert Marzano http://tcrpalliance.files.wordpress.com/2011/07/objectives_objectives-that-students-understand.pdf.
  Article explains how teachers can effectively write learning objectives that are clear to students.
- Article: "What Drives Instruction" by Mark Prosise http://www.ascd.org/ascd-express/vol7/702-prosise.aspx

Article describes ways teachers can use essential questions to communicate learning objectives and engage students.

- Technique: "Post It" from Teach Like a Champion: 49 Techniques that Put Students on the Path to College by Doug Lemov, pages 63-64

  Techniques explain rationale for teachers visually displaying learning objectives.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element A will be students who demonstrate new skills based on standards and can provide a purposeful connection to the standard in their own words.

STUDENTS:

7 ***Demonstrate acquired skills based on standards.***

"Competency-based learning refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the knowledge and skills they are expected to learn as they progress through their education."

"Competency-based learning is a system of education, often referred to as proficiency or mastery-based, in which students advance and move ahead on their lessons based on demonstration of mastery."
http://www.ncsl.org/research/education/competency.aspx

- Students engage with the learning goal or outcomes through peer interaction, making connections etc.

8 ***Can provide a relevant connection to the standard in their words***.

When asked, a student can apply the material learned and make a connection to a particular standard.They can paraphrase the learning goal or intended outcomes and articulate what they are learning and why. (APS, June 2018)

Students can demonstrate their new learning through formative/summative assessments. (APS, June 2018)

"Assessments based on situations relevant to students' own experiences can motivate them to give their best performances."
https://www.ets.org/Media/Tests/TOEFL_Institutional_Testing_Program/ELLM2002.pdf

"Learning critical thinking leads students to develop other skills, such as a higher level of concentration, deeper analytical abilities, and improved thought processing."
http://www.nea.org/assets/docs/A-Guide-to-Four-Cs.pdf

Classroom Examples

Elementary mathematics: Students are working on Colorado Academic Standard 1: Number Sense, Properties, and Operations, Grade Level Expectation 2—Different models and representations can be used to compare fractional parts. ***(Plans lessons that reflect: Colorado Academic Standards)***

Prior to implementing the lesson, the 4th-grade teacher collaborates with 3rd-grade teachers to learn what misconceptions related to this skill students have based on last year's assessment results, so she can plan to address them in her instruction. ***(Plans lessons that reflect: Formative and summative assessment results.)*** The teacher then references the district's curriculum to plan for a coherent series of lessons aligned to build off of 3rd-grade standards. ***(Implements lessons that: Align to the district's plan of instruction and Reflect vertical and horizontal alignment of the grade or subject area.)***

The instructional objective for the lesson is: Students will be able to solve addition problems for fractions with like denominators and determine if the sum is greater than one. ***(Plans lessons that reflect: Relevant instructional objectives.)***

The teacher begins by reviewing the meanings of numerator, denominator, and greater than one. The teacher uses manipulatives (e.g., fraction strips) from the district curriculum kits to model two addition problems and shares her thinking for how she decides if the sum is a fraction greater than one. Working in partners, students solve three addition problems and explain in writing if the sum is a fraction greater than one. ***(Implements lessons that: Align to the district's plan of instruction. Students demonstrate new skills based on standards.)***

Middle school science: Students are working on Colorado Academic Standard 1: Physical Science, Grade Level Expectation 1—The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter and phase changes. ***(Plans lessons that reflect: Colorado Academic Standards.)***

The instructional objective for this middle school lesson is: Students will calculate the direction and magnitude of forces that act on an object and explain the results in the object's change of motion. The teacher states the objective and begins with a review of the process and steps students will follow for conducting experiments. ***(Plans lessons that reflect: Relevant instructional objectives. Implements and communicates learning objectives and student outcomes based on standards.)*** Working in groups of four, students conduct experiments on how objects of different weights impact the motion of a toy car. ***(Students demonstrate new skills based on standards.)***

High school reading, writing, and communicating: Students are working on Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 1 – Complex literary texts require critical reading approaches to effectively interpret and evaluate meaning. ***(Plans lessons that reflect: Colorado Academic Standards)***

The learning objective is: Students will analyze characters in a literary text in order to explain their conflicting motivations. ***(Plans lessons that reflect: Relevant instructional objectives.)*** Students are reading the book *Crime and Punishment,* which is on the district's approved list of high school texts. ***(Implements lessons that: Align to the district's plan of instruction.)*** The teacher begins this 11th-grade lesson with a review of the character Raskolnikov and provides quotes from previously read chapters that demonstrate his conflicting motivations. The teacher uses the same citation format they learned in both 9th and 10th grade. ***(Implements lessons that: Reflect vertical and horizontal alignment of the grade or subject area.)*** Students then work in groups of four to brainstorm other characters in the novel that exhibit conflicting motivations similar to those that Raskolnikov exhibited. Each group selects a character to analyze based on quotes from the text. Students are told to use their analysis to explain how the character advanced the plot of the novel. As they work, the teacher circulates and asks students to evaluate their progress as a group and individually. Students are able to identify what is working well and what they still need to accomplish to complete their analysis. ***(Students demonstrate new skills based on standards.)***

High school history: Students are working on Colorado Academic Standard 1: History, Grade Level Expectation 2—Analyze the key concepts of continuity and change, cause and effect, complexity, unity and diversity over time. ***(Plans lessons that reflect: Colorado Academic Standards.)***

Students are studying critical ideas, actions, and decisions that have led the United States to war/conflict (e.g., World War I, World War II, Vietnam, Korea). ***(Plans lessons that reflect: Relevant instructional objectives.)*** The teacher provides direct instruction through the use of a PowerPoint presentation with illustrations of the time period and models how to complete a graphic organizer on the causes and effects of each war. Students are provided a variety of primary and secondary sources to use for completing the organizer, including differentiated texts based on students' reading levels. ***(Plans lessons that reflect: Formative and summative assessment results.)*** Students choose to complete the organizer with a partner or to work independently, based on their learning preference. Based on results from a pre-assessment, students with prior knowledge of America's wars are provided extension activities that enhance their understanding for how the various causes of each war connect to the desire of people today to have a voice in their government. ***(Plans lessons that reflect: Formative and summative assessment results.)*** Before students are dismissed, the teacher brings the class together to review the learning objective and provide opportunities for students to share the information they recorded on their graphic organizers as well as the connections to current times. ***(Implements and communicates learning objectives and student outcomes based on standards.)***

Planning/Coaching Questions

- How will you identify which standards to teach (e.g., complexity, highly-tested, most challenging for students to master, district plan for instruction) in this lesson or unit?

- How will you create learning objectives appropriate for students and aligned to the unit of study and standards?
- How will the learning objective be communicated to students?
- How did you differentiate for this lesson?
- What collaborative opportunities have you had with school staff to ensure planning and instruction supports the needs of all students and align with the approved curriculum?
- How were formative assessments used to plan instruction?

Element B

Teachers develop and implement lessons that connect to a variety of content areas/disciplines and emphasize literacy and mathematical practices.

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for developing and implementing lessons that connect to a variety of content areas/disciplines and emphasize literacy and mathematical practices, they must be able to connect lessons to key concepts and themes within other disciplines and content areas and support literacy and mathematical practices in their content areas. Specifically, teachers must implement instructional strategies that include literacy, mathematical practices, and language development across content areas and make content-specific language and reading accessible to students. Furthermore, interdisciplinary connections must be made explicit to students and literacy skills and mathematical practices must be integrated across content areas.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Connects lessons to key concepts and themes within other disciplines and/or content areas***.

> An effective teacher utilizes her depth of content knowledge and an array of instructional strategies to lead students to connect what they are learning to other powerful ideas and concepts. This enhances students' understanding and provides additional relevance and context to what's being taught. Research shows that…students should consistently experience curricula rooted in the important ideas of a discipline that requires them to make meaning of information and think at high levels. (Tomlinson & McTighe, 2006, p. 84)

Key concepts are the essential learnings students must obtain in order to master the content being taught. These may include vocabulary terms, explanations of mathematical computation methods, causes of historical and scientific events, or elements of an artist's work. Without an understanding of the key concepts, it is difficult for students to move beyond the procedural or factual level of a content area to the more enduring conceptual understandings. Connecting these key concepts to other disciplines can provide students with an understanding of how learning is an interconnection of skills, events, and/or experiences that deepen their knowledge and conceptual understanding of the content.

The teacher who makes connections to other disciplines is able to communicate to students how concepts and skills they are learning in one content area are connected to concepts and skills in other content areas.

When making connections to other disciplines, the teacher should keep in mind the key concepts of the content being taught and how these concepts support student learning in other content areas. Any connections made should be for the purpose of enhancing student progress towards mastering the learning objective.

Examples of connections across disciplines:

- Art, Drama and Theatre Arts, and Social Studies/US History
  - Create a political cartoon of an issue in the era between the American Revolution and the Civil War.
  - Create murals to depict different geographical areas or to support an issue, such as environmental protection.
  - The teacher may provide guidance for characterization, and/or script development of historical figures or eras.
  - The teacher may guide research of costumes from certain historical eras.
- Dance, Physical Education and Science
  - As students learn about the importance of exercise and the impact of aerobic and anaerobic activities on the body, the teacher may discuss how a healthy heart impacts the health of the body. Students learn how inactivity and obesity impact heart disease.
  - The teacher may assist the students in understanding the application of energy and force as it relates to correct movement performance.

- Dance, Math and Science, Social Studies, and Physical Education
    - Students are presented with problems that include information related to what they are learning in other content areas, such as:
        - Distances between geographical locations
        - Speed at which a car is traveling and how this impacts distance travelled in a given time period
        - Batting average for a baseball player
        - Perimeter of a football field or basketball court
    - Students create body shapes, group shapes and pathways that imitate geometric shapes.
- Dance, Literacy and Science and Social Studies
    - Read texts based on topics students are studying in other content areas. Highlight information learned about the topic, and discuss how it connects to the information students are learning in the content class.
    - Write expository or persuasive essays using topics students are studying in other content areas. Students may incorporate information learned from content classes in their essays.
    - Make connections between multiple meaning words, roots, and/or affixes and what they mean in different content areas or applications. Use these connections to help students determine meanings of unknown words.
    - The teacher may share/model connections between composing a dance sequence to composing a piece of text.

2 ***Makes content-specific academic language accessible to students***

Content-area readings are the texts associated with a particular subject area and give students access to the content and language of that subject area. The reading associated with content areas other than language arts or reading courses reflects not only the concepts, ideas, and vocabulary important to these subjects, but also the features and structures used in the texts.

In their article, "Teaching Disciplinary Literacy to Adolescents: Rethinking Content," Timothy and Cynthia Shanahan provide the following definitions related to literacy skill development.

- Basic Literacy: Literacy skills such as decoding and knowledge of high-frequency words that are found in virtually all reading tasks.
- Intermediate Literacy: Literacy skills common to many tasks, including generic comprehension strategies, common word meanings, and basic fluency.
- Disciplinary Literacy: Literacy skills specialized to history, science, mathematics, literature, or other subject matter.

Disciplinary literacy is defined by the Colorado Academic Standards as "the intersection of content knowledge, experiences, and skills necessary to demonstrate understanding through the ability to read, write, communicate, and think critically using approaches unique to a specific discipline." (Hartman, 2013)

To become literate in the content areas, students also need to become effective oral communicators and develop the skills necessary to comprehend a variety of representations, including graphics and electronic media. As such, an important aspect of literacy instruction, especially in social studies, science, and math, is the ability to comprehend graphics, such as diagrams, graphs, timelines, maps, and tables. Teachers can make abstract activities, such as comparing and contrasting, concrete for students. Students also need to be able to create graphics to communicate their thinking.

<u>Tips for integrating literacy connections:</u>

- Balance fiction with non-fiction reading materials. Early childhood and elementary teachers may use informational text or historical fiction for read-aloud lessons.
    - Books for teaching elementary math skills: http://www.the-best-childrens-books.org/math-for-kids.html
- Use learning logs or reflection journals in content area subjects.
- Provide opportunities for students to write informational texts, such as reports, procedures (instructions), arguments (persuasion) and explanations, and/or respond to questions in writing by providing text-based evidence.

- Incorporate vocabulary activities that support students in communicating like a mathematician, historian, scientist, musician, artist, etc. This includes having vocabulary displays or visuals available for students to reference.
- Use organizers that support students in identifying main ideas, making inferences, comparing/contrasting, or summarizing what they read.
- Concept mapping helps readers gain a greater understanding of the content by helping them formulate mental plans of comprehending and composing as they read and write. By teaching students to understand text organization plans, content-area teachers enable students to cover meaningful content topics in greater depth and to connect new knowledge with prior knowledge (Sinatra, 2000).

The teacher demonstrates this understanding by modeling how to apply literacy skills to the content being taught. While there are numerous examples of how literacy skills apply to learning content, below are a few ways this may look in all grade levels and content areas.

- Vocabulary: Modeling use of morphology to define unknown words.
- Structure: Modeling how to use text features in an information text, such as graphics, headings, bold words, etc., to help the reader learn information and comprehend the text.
- Comprehension—Cause and Effect: Modeling how to identify events that cause other events. This may be applied to historical events, scientific events, events that impact a musician's or artist's work, etc.
- Previewing text: Modeling how to preview a text based on the cover, graphics, chapter titles or headings, etc., in order to make connections to the text and gain an understanding of the content.

Refer to this external resource for additional information:

- Article: "Teaching Science Literacy" by Maria Grant and Diane Lapp
  http://www.ascd.org/publications/educational-leadership/mar11/vol68/num06/Teaching-Science-Literacy.aspx
  Article describes ways to promote literacy in the science classroom.
- Article: "Integrating Writing and Mathematics" by Brad Wilcox and Eula Ewing Monroe
  http://www.readingrockets.org/article/52243
  Article provides strategies for the integration of writing and mathematics.
- Website: readwritethink maintained by the International Reading Association and National Council of Teachers of English
  http://www.readwritethink.org/
  Website provides instructional resources specific to many aspects of literacy development and instruction, including a variety of suggestions for integrating writing across the curriculum.
- Video: Reading Like a Historian
  https://www.teachingchannel.org/videos/reading-like-a-historian-curriculum
  Video explains how reading like a historian can support students in developing critical thinking skills while engaging in historical inquiry.

Many students fail to make the connections between learning math and their everyday lives. Some may even develop "math anxiety" because they do not think they are "good" at math or fail to see the usefulness of knowing math content and skills. Therefore, it is critical for teachers at all grade levels and in all content areas to recognize opportunities to emphasize the importance of learning math.

Mathematics enhances students' problem solving skills by providing the tools they need to think logically: define the problem, think of ways to solve it, implement a solution, and evaluate the results. Without math skills, students may find it hard to read maps, calculate taxes and percentages while shopping, create a budget, learn musical notes, or keep score in sporting events. In addition, many professions rely heavily on math skills: architects, contractors, landscape architects, engineers, and carpet and paint sales personnel. By communicating these uses and connecting them to the content being taught, the teacher can emphasize why students need to learn math content and skills.

Examples of math connections across content areas:

- Dance
  - Floor patterns and diagrams
  - Spatial relationships and shapes

    - Differentiate between beat and rhythm
- Drama and Theatre Arts
    - Spatial explorations and relationships
    - Tempo and pacing
    - Mathematical aspects of set building and technical theatre
- Science
    - Measurement
    - Data analysis
    - Graphs
    - Mathematical Thinking
- Social studies
    - Measurement (timelines, map scales)
    - Reading numbers such as dates, populations, and percentages
    - Statistics and graphs
- Art
    - Spatial relationships (e.g., point of view/perspective)
    - Logical reasoning, patterns/form, when creating an artwork
    - Sequencing in process-based art making
- Physical education
    - Measurement
    - Computation skills
    - Ratios
    - Percentages
- Music
    - Differentiation between beat and rhythm
    - Subdivision, patterns/form
    - Time signatures; simple vs. compound meters
    - Temporal/spatial experiences and integrating body and mind
    - Crossing the midline (reaching across the body when playing instruments; moving to rhythm)
    - Analysis/performance of marching band drill formations
    - Rhythmic analysis of multiple parts of a performance piece

See also Level 2 and 3 Practices on implementing instructional strategies that include literacy, mathematical practices, and language development and strategically integrating literacy skills and mathematical practice.

LEVEL 2 PRACTICES

THE TEACHER:

3 ***Implements instructional strategies that include literacy.***

Literacy:

Examples of strategies that integrate literacy across content areas:

- *Vocabulary development:* Explicitly teaching the vocabulary associated with a content area builds students' reading and communication skills. The use of concept maps (such as the Frayer model—http://www.readingeducator.com/strategies/frayer.htm), creating illustration of the words, using new vocabulary in oral and written communication, and making connections to words they already know can all support students in vocabulary development.
- *Annotating text:* The skill of annotating a text supports students in comprehending a text in order to gain content information. Purposes for annotating a text:
    - Locate evidence to support a claim.
    - Identify main idea and supporting details.
    - Analyze the validity of an argument or counter-argument.

    - Determine author's purpose.
    - Identify character traits/motivations.
    - Summarize and synthesize.
    - Define key vocabulary.
    - Identify patterns and repetitions.
- *KWL charts:* Students record what they currently know about a topic, what they want to know, and what they learn. This activity can support students in developing questions that guide their learning and reading of texts. As they read, students are engaged in actively asking questions and looking for answers to their questions, which supports their comprehension and engagement with a text.
- *Writing:* Students write for a variety of purposes. An essential skill for 21st century learning is the ability to communicate one's ideas. In all content areas, students need opportunities to communicate their thinking through writing, which can include the following:
    - Brochures
    - Editorials
    - Diary entries
    - Timelines
    - Research or expository writing
    - Constructed responses to text dependent questions
    - Advertisements
- *Answering questions*: Applying strategies that support students in responding to text-dependent questions and constructed-response questions. One of the key shifts in the Colorado Academic Standards is the expectation for students to cite text-based evidence when responding to questions. Students need multiple opportunities to apply this skill across a variety of genres to be successful with this shift.
- *Visuals*: Visuals that capture the steps or key concepts of literacy skills taught can be an effective way to provide continual support for student application of these skills. As the students are provided instruction on new skills, referring to these visuals can help students make connections to previously taught skills and communicate the expectation for students to apply these to new materials and situations.

4 ***Implements instructional strategies that include mathematical practices.***

Numeracy:

The teacher who employs instructional strategies that include numeracy:

- Identifies the specific numeracy demands of their content area.
- Provides learning experiences and opportunities that support the application of students' general mathematical knowledge and skills.
- Uses the language of numeracy in their teaching as appropriate.

Refer to this internal resource for additional information:

- Strategies for Employing Numeracy across Content Areas
  Document lists strategies for employing numeracy in all content areas.

5 ***Implements instructional strategies that include language development.***

Language:

Language development provides students with the skills they need to communicate their thinking. For students to communicate as mathematicians, scientists, historians, artists, musicians, writers, and/or authors, they need the appropriate academic language of the content as well as that of an educational setting.

> Academic language is the language used in textbooks and assessments. It is the language or vocabulary associated with concepts, skills, and content taught in classrooms. It is also the language of formal communication. For students to be able to comprehend the teacher's instruction, discuss what is being learned, communicate their ideas, read for different purposes, and write about their learning, they need to understand and be able to use academic language. (Scarcella, 2003)

Examples of academic language include these:

- *Mathematics*: equation, fraction, exponent, and monomial. Often mathematical terms have multiple meanings, which can lead to confusion in meaning (i.e., square, coordinate, degree).
- *Language arts:* theme, stanza, iambic pentameter, exposition, and denouement.
- *Educational settings:* explain, describe, justify, and determine.

Instructional strategies for academic language development:

- Identify the structure and genre of the text students will read and the vocabulary needed to comprehend it. (e.g., a lab report for chemistry requires different academic structure and language than a newspaper article for social studies or a novel for language arts).
- Provide explicit instruction and analysis of the text to support students' comprehension of the text (e.g., teaching students how to deconstruct a word problem in algebra requires different academic language than deconstructing a poem in language arts or a proof in geometry).
- Scaffold instruction on the use of academic language both orally and visually (e.g., display vocabulary that students will need to understand and use; provide graphics to support vocabulary meaning; incorporate academic language during direct instruction; provide sentence stems that include the academic language of the concept or skill being taught).
- Establish expectations for "accountable" talk students will use during student-to-student interactions and collaborative work (e.g., "Today when you explain your answers to a word problem, I expect to hear _____.").

Refer to these external resources for additional information:

- Document: Academic Vocabulary and CCSS by the Aspen Institute
  http://www.aspendrl.org/portal/browse/DocumentDetail?documentId=1416&download
  Document defines academic vocabulary, provides a checklist for selecting academic vocabulary, and discusses the connection of academic vocabulary and text dependent questions.
- Article: "Identifying Academic Language Demands in Support of the Common Core Standards" by Susan O'Hara, Robert Pritchard, and Jeff Zwiers
  http://www.ascd.org/ascd-express/vol7/717-ohara.aspx
  Article discusses the focus on academic language in the Common Core State Standards, especially as to how it needs to be a focus for instruction for ELL students.

LEVEL 3 PRACTICES

THE TEACHER:

6 ***Makes interdisciplinary connections explicit to students***.

The teacher who articulates **interdisciplinary** connections provides clear and concise explanations for how concepts and skills in one discipline impact those in another. Strategies may include summarizing in social studies and science or applying measurement skills in art. In language arts, students may learn how to use maps and graphs when reading informational text and then apply writing skills to describe the meaning and importance of the concepts presented by these visuals. By implementing these strategies, the teacher can help students connect what they are learning across disciplines.

Interdisciplinary connections help students explore overarching themes or concepts. In real life, we are not able to isolate math, writing, science, or history into 45 minutes of our day. Instead, we use all of our knowledge to help us solve everyday problems in the workplace and at home.

Early childhood students spend the majority of their time exploring and trying to make sense of their world. They engage in sorting, describing, building, and experimenting with objects. These activities are preparing them for more formal mathematics and science activities in school. The teacher of early childhood students should guide these activities so that writing, speaking, and listening skills, along with concept development, grow and expand beyond incidental or isolated learning.

The majority of middle and high school students learn content taught by different teachers in isolated settings. Therefore, the importance of articulating interdisciplinary connections for secondary students is critical. This requires teachers to be aware of topics being taught in multiple content areas for which they may not be the primary teacher. There must be opportunities for team collaboration during which time teachers can support one another in making connections to their content area. The teacher who clarifies and elaborates on interdisciplinary connections is able to challenge students' thinking so they are equipped to independently make connections that accelerate their learning.

The teacher who makes explicit connections across content areas:

- Identifies the specific demands from other content areas that exist within a given lesson.
- Provides learning experiences and opportunities that support the application of students' general knowledge and skills from other content areas.
- Uses the language of other content areas while teaching, as appropriate.
- Is aware of content being taught in other disciplines in order to make the explicit connection for students.

Refer to these external resources for additional information:

- Article: "The Art and Craft of Science" by Robert Root-Bernstein and Michele Root-Bernstein
  http://www.ascd.org/publications/educational-leadership/feb13/vol70/num05/The-Art-and-Craft-of-Science.aspx
  Article explains the importance of enhancing the teaching of science through teaching of the arts.
- Article: "The Art of Science Teaching" by Pam Galus
  http://www.ascd.org/publications/classroom-leadership/oct2001/The-Art-of-Science-Teaching.aspx
  Article provides strategies for the integration of art and science.
- Website: teachinghistory.org
  http://teachinghistory.org/
  Website provides strategies and resources for K–12 teachers to teach US history through interdisciplinary connections.
- Article: "Ten Ways to Integrate Curriculum" by Robin Fogarty
  http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199110_fogarty.pdf
  Article describes different models teachers may use for making interdisciplinary connections for students.
- Article: "Integrating Curriculum Planning Wheels Turn Curriculum Around" published by ASCD
  http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199110_palmer.pdf
  Article describes how a group of teachers in Maryland uses a planning wheel to make interdisciplinary connections for students.

7 ***Strategically integrates literacy skills (reading, writing, listening, speaking) across content areas***.

Authentic literacy is integral to both what and how we teach. It is the "spine" that "holds everything together" in all subject areas (Phillips & Wong, 2010).

Content is what we teach, but there is also the how, and this is where literacy instruction comes in. There are an endless number of engaging, effective strategies to get students to think about, write about, read about, and talk about the content you teach. The ultimate goal of literacy instruction is to build a student's comprehension, writing skills, and overall skills in communication. (Alber, 2010, para. 8)

Once a literacy skill has been taught, students must have opportunities to apply the skills to a variety of texts and types of communication in order to transfer these skills to new or unfamiliar material. By continually providing opportunities for students to apply skills both recently and previously taught, students can gain a deeper understanding of the mind of a reader and writer and how the skills learned support their literacy development. They can also begin to develop an awareness of those skills that best support their understanding of complex materials and communication skills so they can independently use them.

Refer to these external resources for additional information:

- Article: "The Six Ts of Effective Elementary Literacy Instruction" by Richard Allington
  Retrievable at http://www.readingrockets.org/article/96/

Article describes Allington's research on what matters most in teaching kids to read based on observations of effective and expert teachers. **(ELEMENTARY TEACHERS)**

- Website: Achieve the Core
  http://achievethecore.org/
  Website provides a variety of resources for teaching the Common Core Literacy Standards.

Suggested books on literacy instruction:

- *7 Keys to Comprehension How to Help Your Kids Read It and Get It!* by Susan Zimmerman and Chryse Hutchins
- *Comprehension Shouldn't be Silent From Strategy Instruction to Student Independence* by Michelle J. Kelley and Nicki Clausen-Grace
- *Improving Comprehension with Think-Aloud Strategie*s by Jeffrey D. Wilhelm
- *What Really Matters in Vocabulary Research-Based Practices across the Curriculum* by Patricia M. Cunningham

8 ***Strategically integrates mathematical practices across content areas***.

The teacher should build on the professional practices of encouraging students to make math connections across content and the use of instructional strategies that require students to transfer mathematical knowledge by emphasizing these connections in his demonstrations and models. When students have opportunities to witness the content "expert," or teacher, apply math to other content areas, the importance of these connections becomes stronger and more clear. Students are also more likely to independently make these connections, which can support them in understanding how mathematical information is relevant to their learning.

Examples of transferring math knowledge to different content areas:

- Dance
  - Creating dance patterns and forms based on musical counts and rhythms
  - Subdividing movement phrases and sequences
  - Analyzing the physics of a pirouette turn
- Drama and Theatre Arts
  - Applying mathematical thinking, problem solving and logic through blocking, spatial relationships and aspects of technical theatre
- Science
  - Creating graphs to present data collected from experiments or observations
  - Measuring weight, distance, size, and/or temperature of objects
- Social studies
  - Reading maps by using scales to calculate distance between locations
  - Calculating unemployment percentages and determining who is not counted in the reported figures and the impact this has on communities
  - Applying proportional reasoning to analyze a problem in the community (e.g., unemployment)
- Art
  - Applying measurement skills
  - Applying math to photography or set design
- Physical education
  - Counting by ones, twos, etc., as students do warm-up exercises
  - Measuring distances on a basketball court, baseball diamond, or obstacle course
  - Using formulas to calculate winning percentages, batting averages, or runners' distances and speeds
- Music
  - Applying math to rhythmic concepts
  - Applying mathematical thinking, problem solving, and logic through tempo

Refer to these external resources for additional information:

- Website: AIMS Education Foundation

https://www.aimsedu.org/2017/04/27/episode-33-what-role-can-literature-play-in-math-science-teaching/?highlight=integrating%20math%20into%20science
Website provides sample lessons for integrating math strategies into the teaching of science.

- Website: PE Central
  http://www.pecentral.org/lessonideas/searchresults.asp?category=55
  Website provides lesson ideas for integration of other content areas, including math, into physical education classes.
- Website: Math Songs, Teaching Math Facts & Concepts maintained by Songs for Teaching
  http://www.songsforteaching.com/mathsongs.htm
  Website provides a list of songs that can be used to integrate math concepts and skills.
- Website: Mathematics in Music sponsored by Pearson Education, Inc.
  https://www.teachervision.com/math/resource/10340.html
  Website provides sample lesson plans that incorporate math strategies into the teaching of music.
- Article: "You're Not In Math Class Anymore: Integrating Math Across the Curriculum" by Linda Starr Education World
  http://www.educationworld.com/a_curr/curr146.shtml
  Article provides ways math can be connected to students' everyday lives and to other disciplines.
- Article: "Bringing Mathematics to Life" by Scott Willis and Kathy Checkley
  http://www.ascd.org/publications/curriculum-update/summer1996/Bringing-Mathematics-to-Life.aspx
  Article explains the importance of real-world applications and includes ideas for classroom instruction.
- Article: "Making Math Relevant"
  https://www.maneuveringthemiddle.com/201522making-math-relevant/Article describes strategies for making math relevant to students' lives.
- Website: Content Connections Samples (Kindergarten through 5th Grade)
  http://www.cde.state.co.us/ContentAreas/ContentConnections/index.asp
  Website provides examples of cross-content (multi-disciplinary) connections within the Colorado Academic Standards at grades kindergarten through 5.
- Strategies for Employing Numeracy across Content Areas
  Document lists strategies for employing numeracy in all content areas.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element B will be students who are able to apply literacy and math skills across disciplines and accelerate their learning by elaborating on the current lesson within the content area and making real world connections to other content areas.

STUDENTS:

9 ***Apply literacy skills and concepts.***

Early Childhood Education
"Authentic learning occurs when activities or projects offer students an opportunity to directly apply their knowledge or skills to real-world situations."
https://www.nwea.org/blog/2013/authentic-learning-classroom-literacy-ideas-early-childhood/

Elementary Education
"Synthesize information – This higher order skill should be included in all reading assignments and discussions. Students need to read, make sense of what they read, compile and categorize information for a particular purpose and then apply what they read. This synthesis process is important to not only strengthen reading skills but also to gain a better understanding of new information so that it can be stored in long-term memory and easily accessed throughout a student's learning journey."
http://inservice.ascd.org/3-literacy-concepts-for-developing-students-skills-in-reading-writing-and-thinking/

10 ***Apply mathematical practices.***

"Instructional objectives for this lesson should include something about students explaining their reasoning (not just, "Students will solve problems using two-digit multiplication and addition"). You might give students learning targets like, "I can explain what I did and why I did it" or "I used mathematics language."" http://www.ascd.org/publications/educational-leadership/dec13/vol71/num04/Mathematical-Practices-for-Deep-Understanding.aspx

https://www.nwea.org/blog/2017/resources-bringing-mathematical-practices-classroom/

https://www.scholastic.com/teachers/blog-posts/meghan-everette/guide-8-mathematical-practice-standards/

Students accelerate their learning by:

11 ***Elaborating on current lesson within content area*.**

"As you become more skilled in this strategy, you will see remarkable changes in your students' abilities to process and understand new content because they are able to identify which content is critical and understand how learned content scaffolds in complexity."
https://www.learningsciences.com/media/catalog/product//i/c/icc_lookinside.pdf

"Guide Student practice: Successful teachers spend more time guiding students' practice of new material." Page 16, Number 5
https://www.aft.org/sites/default/files/periodicals/Rosenshine.pdf

12 ***Drawing real-world connections to other content area(s)*.**

"Chapter 3. Making a Real-World Connection (third paragraph)
A real-world connection means that students see a reason to do this project, other than the fact that you assigned it and they will get a grade on it. There are so many ways to connect to the real world that even beginners to the multimedia approach can design a project that students will find worthwhile."
http://www.ascd.org/publications/books/102112/chapters/Making_a_Real-World_Connection.aspx

"Introduce the skill and look for a connection to students' lives"
https://www.responsiveclassroom.org/making-learning-meaningful-its-all-about-the-why/

Classroom Examples

Elementary physical education: Students are learning how to play kickball while working on Colorado Academic Standard 1: Movement Competence and Understanding in Physical Education, Grade Level Expectation 2—Provide and receive feedback to and from peers using the major characteristics of mature locomotor and manipulative skills.

The 4th-grade teacher begins the lesson by leading a discussion about how knowing the rules keeps the game of kickball safe and fun. He displays a chart with the directions and safety rules. He labels the chart as an example of a "How-to Text or Procedural Text." ***(Makes interdisciplinary connections explicit to students.)*** Photographs of each direction and rule are included as a support for students who are second-language speakers or on lower reading levels. The teacher makes sure to teach the vocabulary associated with kickball and relates it to the game of baseball to help students make connections. ***(Implements instructional strategies that include literacy, mathematical practices, and language development across content areas. Makes content-specific language and reading accessible to students.)*** Before students play the game, he has them share with a partner the directions and rules and reminds them to use the vocabulary associated with kickball in their conversations. ***(Strategically integrates literacy skills (reading, writing, listening, speaking) across content areas.)***

The lesson concludes with students labeling a picture of a kickball field; the teacher also has allotted time to answer students' questions.

Middle school social studies: Students are working on Colorado Academic Standard 2: Geography, Grade Level Expectation 1—Use geographic tools to analyze patterns in human and physical systems.

Eighth-grade students are learning about Westward Expansion as a means of exploring two essential questions: How is human activity limited by the environment? How has the environment influenced human activity? The teacher begins the lesson by posing the essential questions to students and facilitating a Socratic Seminar. ***(Implements instructional strategies that include literacy, mathematical practices, and language development across content areas.)*** She guides the discussion by asking students to think of examples, both within and outside of social studies, where human activity has been limited by the environment and where the environment has influenced human activity. ***(Makes interdisciplinary connections explicit to students.)*** She connects this idea to climate and weather and the human impact on the environment. She asks students to recall the literary texts *Call of the Wild* and *To Build a Fire* by Jack London and information from a video presented in language arts. ***(Connects lessons to key concepts and themes within other disciplines and/or content areas.)*** She encourages students to build on each other's ideas and ask clarifying and probing questions.

After the Socratic Seminar, students read a selection of primary documents on Westward Expansion that express the passionate belief that America is headed toward a prosperous future. To support reading comprehension, the teacher asks students to apply the school-wide literacy strategy "Claim, Evidence, So what?" to each document, identifying the claim in the document, providing evidence that supports the claim, and giving a short analysis about why the claim matters within the context of the text. ***(Supports literacy and mathematical practices in content area. Implements instructional strategies that include literacy, mathematical practices, and language development across content areas. Makes content-specific language and reading accessible to students.)*** As an exit ticket, students respond, individually, to the two essential questions from the beginning of class, drawing upon evidence from the discussion and the texts.

High school history: Students are working on Colorado Academic Standard 1: History, Grade Level Expectation 3 The significance of ideas as powerful forces throughout history.

Students are learning about immigration in the 1860s using primary sources from the period, along with current news articles about immigrants and refugees. Student tasks include researching the impact of immigration on their community and communicating their findings through graphs and tables. ***(Supports literacy and mathematical practices in content area.)*** Students also select someone they know who has immigrated to the United States to interview. Using information from the news articles, research, and interviews, students make comparisons between immigrants of the 1860s and those of today (e.g., reasons for immigrating, countries of origin, experiences). ***(Strategically integrates literacy skills (reading, writing, listening, speaking) across content areas.)***

Elementary science: Students are working on Colorado Academic Standard 2: Life Science, Grade Level Expectation 1—Organisms have unique and diverse life cycles.

Third-grade students are learning about plants and the factors that impact their growth. They ask questions about plants and animals growth and then learn about them by answering their own questions. They plant seeds and modify the environments by placing some plants in direct sunlight, others under a lamp, and still others under a dark cover. Students consistently water the plants on designated days. The teacher has explained to students that as scientists, they will collect data daily and draw what they observe. She reviews how to accurately measure objects so students can correctly track the growth of each plant. The teacher concludes the unit by showing students how to illustrate the data by creating bar graphs and analyze it for the purpose of drawing scientific conclusions. ***(Makes interdisciplinary connections explicit to students. Strategically integrates mathematical practices across content areas.)*** She shows students examples of scientific journals to emphasize the need to be detailed and specific in their language. The unit concludes with students working in groups of three to create graphs and a book of their drawings that demonstrate the impact of each environment on the plants. They collaborate to write what they learned about plant growth based on their findings. ***(Implements instructional strategies that include literacy, mathematical practices, and language development across content areas.)***

Middle school reading, writing, and communicating: Students are working on Colorado Academic Standard 3: Writing and Composition, Grade Level Expectation 2—Ideas and supporting details in informational and persuasive texts are organized for a variety of audiences and purposes and evaluated for quality.

Eighth-grade students are writing an argument that includes comparisons to support their points of view. The teacher presents examples of argumentative writing that use graphs to show comparisons between different products, locations, businesses, etc., to help students understand the importance of using visuals to support their points of view. He shows students his writing and how he incorporates bar and line graphs to support his argument about the importance of reducing sugar in one's diet. ***(Makes interdisciplinary connections explicit to students. Implements instructional strategies that include literacy, mathematical practices, and language development across content areas.)*** As he continues to demonstrate his writing and thinking, he uses mathematical vocabulary associated with the creation of graphs and explains how he decides which type of graph to use for each point of view. He then connects his writing to each graph to explain how the visuals support his argument. ***(Strategically integrates mathematical practices across content areas.)***

Integrated Example (Connecting Visual Arts and Mathematics): Students are working on an integrated lesson that includes Colorado Academic Standard 3 in Visual Arts: Invent and discover to create, Grade Level Expectation 2: Assess and produce art with various materials and methods.

This 10th-grade lesson focuses on proportional reasoning/scaling, which is an important element of architectural design. The teacher begins by pointing out proportions as an application of mathematics in art and, following Practices 5 and 6 of the Standards for Mathematical Practice, he also incorporates into the lesson the use of tools in determining and using scales. ***(Connects lessons to key concepts and themes within other disciplines and/or content areas. Supports literacy and mathematical practices in content area.)*** With the aim of helping students understand the importance of tools in improving the visual appearance of a final product, he leads a discussion about art tools and precision. Tools that students might use include diagrams, two-way tables, graphs, flowcharts, and formulas. The teacher explains that students will be creating architectural models that must be both pleasing to the eye and foundationally strong, and for this to be the case, they will first be using their mathematical knowledge, as is reflected in Practice 4 of the Standards for Mathematical Practice. Throughout the model-building process, students will use tools, analyze relationships mathematically, and draw conclusions. As they reflect on the situation and interpret the mathematical results in the context of the situation, they will return to the model to improve it. ***(Strategically integrates mathematical practices across content areas. Makes interdisciplinary connections explicit to students.)***

Middle school music: Students are working on Colorado Academic Standards 3: Theory of Music, Grade Level Expectation 3--Identification of musical elements in a level 2 composition or performance.
Standard 4: Aesthetic Valuation of Music, Grade Level Expectations 1 and 2--Evaluation of musical performances and compositions using advanced criteria; Articulation of music's role and cultural tradition in American history and society.

Eighth-grade students are identifying different genres of music popular during the 1960s. This study connects to their unit on the Civil Rights Movement in social studies. ***(Connects lessons to key concepts and themes within other disciplines and/or content areas. Supports literacy and mathematical practices in content area.)*** The music teacher has a strong sense of student strengths in the classroom and has identified two students as real history buffs whose knowledge of this time period surpasses that of their peers. The music teacher also knows that some students prefer to learn facts and details through movement activities. The grade-level team and specialist teachers have identified activities in each content area that can support a variety of learning strengths of all students and are committed to providing engaging choices for students. ***(Implements instructional strategies that include literacy, mathematical practices, and language development across content areas.)*** Using several ideas for students to demonstrate their understanding of the styles and genres of music popular in the 1960s, the music teacher offers choices for students, including these:

- Students interested in the historical era can present a more detailed historical presentation on the 1960s.
- Students interested in learning and presenting facts and details through movement can select a song they know that is representative of the 1960s and Civil Rights Movement and create dance movements that depict the overall message in the song.
- Students interested in analyzing the style and form of music in the 1960s can evaluate whether particular songs

meet certain theory criteria to be placed in a specific genre of music.

Planning/Coaching Questions

- What connections were made between the content being taught and other content areas?
- How did you make explicit and elaborate interdisciplinary connections?
- How did you emphasize literacy connections to other subject areas?
- How did you emphasize interdisciplinary connections to math?
- How will you provide opportunities for students to apply literacy skills? How will you integrate literacy skills into lessons?
- How did you require students to apply mathematical knowledge to the content I am teaching? Which mathematical practices will be incorporated into the lesson?
- Which literacy skill(s) will need to be integrated into the lesson for students to master the learning objective?
- What instructional strategies will I use to support students in applying mathematical knowledge to the content I am teaching?
- How did you support students with language development related to the content being taught?
- How did you provide instruction that is intensive and of sufficient duration to accelerate learning?
- How did you incorporate real-world examples connected to the learning objective?

Element C

Teachers demonstrate knowledge of the content, central concepts, inquiry, appropriate evidence-based instructional practices, and specialized characteristics of the disciplines being taught.

A teacher must believe in the value and interest of his subject as a doctor believes in health.
—Gilbert Higher

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for demonstrating knowledge of the content they teach, they must scaffold instruction and implement content-based instructional strategies. This is done by using instructional materials that are accurate and appropriate for the learning objective along with providing opportunities for students to make connections to prior learning and multiple models and delivery methods to explain concepts. The teacher must also integrate questioning techniques and challenging tasks as well as anticipate student misconceptions and address such misconceptions during instruction.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Scaffolds questions, concepts, and skills based on a sequence of learning***

Scaffolding questions:

> A sequence of questions is a continuous or connected series of directed inquiry. Questions can be sequenced in a variety of ways. For example, questions may be ordered from easy to difficult with attention to levels of thinking in Bloom's Taxonomy. Questions can also be sequenced in order to scaffold understanding about the content. For example, in an inquiry-based lesson the teacher might begin with a higher order/essential question. (*Eagle County Schools Professional Practices Rubric*, 2012, p. 35)
>
> Consistently, the literature on effective questioning has insisted that questioning sequences are far more effective in promoting student learning than any one type of question (Dantonio & Beisenherz, 2001, p. 37).

Examples of scaffolded questions:
Levels of Bloom's Taxonomy Scaffold Questions for Financial Literacy

- What is a debit? What is a credit? (Remembering)
- How do you use debits and credits in journal entries? (Applying)
- How can you assess the importance of balancing a general ledger? (Evaluating)

Content-Focused, Inquiry-Based Scaffolded Questions:

- What is the impact of my fossil fuel consumption? (Evaluating)
- What is a fossil fuel? (Remembering)
- How much fossil fuel does it take to heat or cool my house? (Applying)
- How can you calculate fossil fuel consumption? (Understanding)

(*Eagle County Schools Professional Practices Rubric*, 2012, p. 35)

See also Standard III, Element D.

Scaffolding concepts and skills:

> … the most effective teachers in these studies taught new material in "small steps." That is, they only presented small parts of new material at a single time. The importance of teaching in small steps fits well with the findings from cognitive psychology on the limitations of our working memory. Our working memory, the place where we process information, is small. It can only handle a few bits of information at once — too much information swamps our working memory. (Marzano, 2007)

> Because the brain has a threshold for how much information it can process at one time, learning is more efficient if information is received in small chunks. Planning strategic stopping points and providing specific learning strategies in a lesson allows students the time and tools to effectively learn the content. As students build their knowledge base, larger chunks of content can be presented. (Marzano, 2007)
>
> Importantly, in the most effective lessons is the conscientious effort, throughout the lesson, to ensure that all students are learning each segment of the lesson before moving on to the next (Schmoker, 2011).

Teaching content that is broken down into manageable parts allows students to build success with each part in order to develop mastery of the concept or skill. By teaching each part and assessing along the way, the teacher is better equipped to identify misconceptions and adjust instruction during the learning process.

Sequence of learning:

When concepts are presented in a sequence, they are ordered in a logical way so students can build on their prior knowledge and experiences. Sequencing within a lesson can relate to teaching objectives or to releasing responsibility to students. Concepts should be taught or reviewed in an appropriate sequence for the grade level and ability of the students. Teachers should make teaching decisions based on the needs of their students, the complexity of the objective, and the content.

As support in presenting concepts in a sequence, the teacher should reference the district's curriculum and ask the following questions:

- What do my students already know about this concept or skill?
- What are the prerequisite skills students need to master in order to meet the learning objective?
- How should the skills or steps for this concept be sequenced?
- How will I provide for a sequence that includes procedural learning and conceptual learning?
- How will I support students in building on their thinking and advancing their understanding?

Refer to this internal resource for additional information:

- What Does it Mean to Scaffold Questions and Tasks

  Document provides research related to the scaffolding of questions along with examples of scaffolded questions.

Refer to this external resource for additional information:

- Video: Spiral Questions to Provoke Thinking
  http://www.ascd.org/ascd-express/vol4/418-video.aspx

  Video is an example of a middle school teacher scaffolding questions in order to deepen students' understanding of natural disasters.

2 ***Uses instructional materials that are accurate and appropriate for the lesson being taught.***

Aligning instructional materials with individual student needs, interest surveys, and teacher observations can dramatically increase the levels of student engagement. The purposeful incorporation of materials such as visuals, games, technology, music, humor, and role play can lead to an increased level of student learning.

Deciding on materials can be overwhelming, due to the variety of visual, digital, and audio resources available. The most appropriate materials are those that support student success with the learning objective, align with students' age and cognitive ability, support students' learning needs, and promote student independence and transference of learning.

Materials should be adequate to meet the learning objective. (APS, June 2018)
Teacher knows what elements of the standard need to be taught before other elements can be taught or understood. (APS, June 2018)

3 ***Encourages and provides opportunities for students to make connections to prior learning.***

In the book, *Visible Learning for Teachers: Maximizing Impact on Learning,* John Hattie identifies three big ideas from Bransford's research in *How People Learn*. One of the big ideas he identifies is linking previous knowledge to new learning.

> Although we start with existing knowledge, new learning is not simply tacked on, 'brick by brick,' to the old knowledge—which is why the relationships between old and new understandings are so important. We come to know ideas, and then we can be asked to relate, and extend them. This then leads to conceptual understanding, which can then in turn become a new idea—and so the cycle continues. …Teachers therefore need to be aware of each student's surface and deep knowing, and the ways in which students have current conceptions, and constantly check to see if the new ideas are being assimilated and accommodated by each learner. (Hattie, 2012, p. 115)

<u>Examples for how to link lessons to students' prior learning:</u>

- Questioning: Questions can be a powerful review activity when they are used to assess student learning from previous lessons. Questions may be used to review vocabulary or previously taught content. Example follows:
  - Teacher: "Yesterday we made inferences about a character's traits. How did we do that? How did we connect text evidence to our schema? What is our schema? Today, we are going to use the same process and infer about what a character may be thinking or feeling."
- Summarizing: A brief summary of previous learning experiences can help students know what to expect and how the lesson activities are connected to previous learning and unit goals. A summary may consist of connecting a series of lessons to unit goals or academic standards for the purpose of viewing how concepts or skills have been scaffolded for student mastery. Examples follow:

  Teacher: "We have been learning about the events that led to the Revolutionary War. We examined the impact of taxes imposed on the colonists by the King and Parliament. We looked at the impact of the Boston Tea Party on the relationship between England and the colonists. Today, we are going to learn about the Boston Massacre and its impact on this relationship."

It is important for the teacher to make connections to students' prior learning so they can build on what they already know about a topic or skill. Once the teacher has made these connections, the next step is to encourage students to make these for themselves and for their peers.

<u>Examples for how students can make connections to prior student learning:</u>

- Students may summarize previous learning by:
  - Using their notes to summarize learning over a series of lessons.
  - Reviewing vocabulary and explaining how it has connected to concepts learned.
  - Reviewing key individuals and how they impacted the concepts being taught.
  - Talking with peers to review key concepts previously learned.
- KWL Chart: A KWL chart can be used by the teacher to assess students' thinking by asking what they Know, what they Want to Know and what they Learned. By reflecting on what they already know about a topic, students can use prior learning to make connections to new learning and formulate questions that guide their learning. Example:

  Teacher: "We began our unit on Claude Monet and Impressionism by completing the K and W portions of our chart. Let's review some of things you said you wanted to know about this type of art. Based on the lesson yesterday, what things have you learned? What do you still want to know? As we continue our study of Monet and Impressionism, record questions you have and we will add them to our KWL chart. Your questions can help guide our unit of study."

<u>Daily review of previously learned concepts or skills can support student learning in the following ways:</u>

- Increase student engagement by making learning relevant and meaningful to students' lives and past learning experiences.
- Support retention of knowledge by reviewing previously learned concepts or skills and connecting them to new

learning.
- Support students in making their own connections to previous learning and other disciplines. ***See also Standard I, Element B.***
- Provide assessment information on students' retention of previously taught content or skills. ***See also Standard III, Element B.***

Refer to this internal resource for additional information:

- Examples of Lesson Plans
  Document provides examples of kindergarten, 6th grade, and high school lesson plans that align with professional practices referenced under Basic (now referred to as Level 1 Practices).

Refer to this external resource for additional information:

- Article: "Are you Tapping into Prior Knowledge Often Enough in Your Classroom?" by Rebecca Alber http://www.edutopia.org/blog/prior-knowledge-tapping-into-often-classroom-rebecca-alber
  Article explains the importance of students using prior knowledge and experience to guide their learning and provides ideas for how teachers may do this.

LEVEL 2 PRACTICES

THE TEACHER:

Implements:

4 ***Content-based instructional strategies that best align to the learning objective***.

When you combine your knowledge of the content with your knowledge of how to teach it, you are transforming the content through pedagogy.

Teacher can explain the use of the instructional strategy for the lesson and how it best aligns to the learning objective. Teacher can reflect on that lesson and knows when reteaching is necessary based on formative assessments. (APS, June 2018)

The term pedagogical content knowledge was coined by Lee Shulman in the mid 80s. He stated that teacher-training programs were separating the what (content) from the how (pedagogy) when preparing teachers for the field. Good teachers, according to Shulman, move beyond simply knowing their subject matter, and knowing how to teach; they transform the subject matter through teaching. More concretely, he says good teachers find "ways of representing and formulating the subject that make it comprehensible to others".
https://blog.learningbird.com/pedagogical-content-knowledge/

5 ***Multiple models and delivery methods to explain concepts accurately***.

Explanations of content can be provided in a variety of ways. The teacher may model examples of the skills being taught through direct instruction or modeling, provide visuals or labels that illustrate new content, and/or provide analogies for new ideas and concepts. Whichever method is utilized, it is critical that the teacher's explanations (oral and written) are accurate to support all students in being successful with the rigor required by the Colorado Academic Standards. Explanations that are *accurate* are void of error or misinformation. They provide students with the knowledge and skills they need to correctly apply the content being taught.

Using a variety of explanations and multiple representations recognizes that students learn in different ways and need opportunities to make connections across concepts and ideas. While it is important for the teacher to present content through a variety of explanations and representations, students also need opportunities to engage with the content and demonstrate their learning in a variety of ways. If a student can represent a concept in a variety of ways, the teacher knows she truly understands it.

Multiple representations may include:

- Written explanations
- Symbols
- Visuals, such as maps, graphic organizers, and illustrations
- Real-world examples
- Manipulatives

Teachers can build on students' prior experiences and knowledge of representations to further advance their thinking from concrete to abstract. When selecting representations to use, teachers should consider how they support students in developing both procedural skills and conceptual understanding. These levels of understanding are critical for students to meet the demands of the Colorado Academic Standards.

Mathematics teachers can refer to the Common Core Standards for Mathematical Practice for more information related to the expectations related to multiple representations or to this external resource for Standards for Mathematical Practice and lesson plan examples: http://www.insidemathematics.org/index.php/mathematical-practice-standards

Refer to this internal resource for additional information:

- Engaging Students in the Use of Multiple Representations

  Document provides ideas for how students may represent their learning in different content areas using multiple representations.

6 ***Questioning techniques to support disciplinary inquiry***.

It would seem that **inquiry-based instruction** might have powerful effects where students have the cognitive capacity to think critically but have not previously been encouraged to think in this way. Overall, inquiry-based instruction was shown to produce transferable critical thinking skills as well as significant domain benefits, improved achievement, and improved attitude towards the subject. (Hattie, 2009, p. 209)

Our minds (teachers) must stimulate theirs (students) with questions and yet further question; questions that probe information and experience; questions that call for reasons and evidence; questions that lead students to examine interpretations and conclusions, pursuing their basis in fact and experience; questions that help students to discover their assumptions, questions that stimulate students to follow out the implications of their thought, to test their ideas, to take their ideas apart, to challenge their ideas, to take their ideas seriously. It is in the totality of this intellectually rigorous atmosphere that natural curiosity thrives. (Paul, Willsen, & Binker, 1995)

Students engage in inquiry learning experiences by developing questions and investigating in order to find solutions. Teachers facilitate learning as students engage in active problem solving, the construction of meaning, and the communication of new understandings.

The teacher can guide student learning by selecting, designing, and planning learning tasks that are open-ended; asking probing questions; observing students at work to identify misconceptions; and planning follow-up experiences. Well-constructed inquiry methods allow students' entry to the problem from different points and encourage divergent thinking. Students are able to engage in thinking like an expert (e.g., mathematician, scientist, and historian).

Strategies for improving classroom discourse:

- *Create a classroom culture open to dialogue:* Students feel free to respond to the teacher's questions, challenge peers' responses, and ask their own questions.
- *Use both preplanned and emerging questions:* The teacher preplans questions that will be asked based on the learning objective and students. However, questions are also asked that result from students' response and questions.
- *Address questions to the group or to individuals randomly:* A variety of response methods is utilized to engage all students in responding to questions and to hold students accountable for formulating responses and developing their own questions.
- *Use sufficient wait time:* Provide students sufficient time to formulate responses. Communicate the expectation

that everyone needs a few seconds of "think time" to process the question and their response.

Refer to these external resources for additional information:

- Article: "Inquiry-Based Instruction Explores, Then Explains" by Jeff Marshall
  http://www.ascd.org/ascd-express/vol9/909-marshall.aspx
  Article describes the inquiry method as the explore-then-explain method and provides an example for a science lesson.
- Website: Concept to Classroom Workshop: Inquiry-based Learning Educational Broadcasting Company
  http://www.thirteen.org/edonline/concept2class/inquiry/index.html
  Website defines inquiry-based learning, describes its benefit, and provides ideas for implementation.
- Video: Jeffrey Wilhelm on Inquiry-based Learning
  http://www.youtube.com/watch?v=3x-pTBZw8mg
  Video describes an inquiry-based lesson on Romeo and Juliet that includes differentiation based on language and culture.
- Video: Inquiry-based Learning
  http://www.youtube.com/watch?v=sLQPXd8BiIA
  Video outlines steps for creating inquiry-based learning activities.
- Article: "Four Strategies to Spark Curiosity via Student Questioning" by Kevin D. Washburn
  http://www.edutopia.org/blog/build-curiosity-questioning-strategies-kevin-washburn
  Article describes strategies for stimulating student curiosity through questioning.
- Article: "How to Get Students Talking! Generating Math Talk that Supports Math Learning" by Lisa Ann de Garcia
  http://www.mathsolutions.com/documents/How_to_Get_Students_Talking.pdf
  Article defines discourse in the mathematics classroom and describes practices for high-quality discourse.
- Article: "Never Say Anything a Kid Can Say" by Steven Reinhart
  https://www.georgiastandards.org/resources/Online%20High%20School%20Math%20Training%20Materials/Math-I-Session-5-Never-Say-Anything-a-Kid-Can-Say-Article.pdf
  Article describes questioning process used by a teacher and includes several strategies he has had success with in his classroom.

LEVEL 3 PRACTICES

THE TEACHER:

7 ***Anticipates student misconceptions related to learning and addresses those misconceptions during instruction***

- Uses scaffolding techniques to breakdown concepts and uncover the misconception
- Plans for questions to address potential misconceptions
- Notes misconceptions and identifies how and when they will be addressed : same day or in later lessons depending on content.
- When one technique does not deliver results, try scaffolding another way
- Anticipate the misunderstandings and respond without disrupting the lesson flow or without losing the engagement of students that have the understanding.
- Do regular checks for understanding
- Provide clear and consistent feedback for students

8 ***Implements challenging tasks and opportunities that encourage students to ask questions and construct new meaning.***

How do questions engage pupils and promote responses?

It doesn't matter how good and well-structured your questions are if your pupils do not respond. This can be a problem with shy pupils or older pupils who are not used to highly interactive teaching. It can also be a problem with pupils who are not very interested in school or engaged with learning.

Pupil response is enhanced where

- there is a classroom climate in which pupils feel safe and know they will not be criticized or ridiculed if they give a wrong answer;
- prompts are provided to give pupils confidence to try an answer;
- there is a 'no-hands' approach to answering, where you choose the respondent rather than have them volunteer;
- 'wait time' is provided before an answer is required. The research suggests that 3 seconds is about right for most questions, with the proviso that more complex questions may need a longer wait time. Research shows that the average wait time in classrooms is about 1 second (Rowe 1986; Borich 1996).

How do questions develop pupils' cognitive abilities?

Lower-level questions usually demand factual, descriptive answers that are relatively easy to give. Higher-level questions require more sophisticated thinking from pupils; they are more complex and more difficult to answer. Higher-level questions are central to pupils' cognitive development, and research evidence suggests that pupils' levels of achievement can be increased by regular access to higher-order thinking.

When you are planning higher-level questions, you will find it useful to use Bloom's taxonomy of educational objectives (Bloom and Krathwohl 1956) to help structure questions which will require higher-level thinking. Bloom's taxonomy is a classification of levels of intellectual behaviour important in learning. The taxonomy classifies cognitive learning into six levels of complexity and abstraction

1. Knowledge – pupils should: describe; identify; recall.
2. Comprehension – pupils should: translate; review; report; restate.
3. Application – pupils should: interpret; predict; show how; solve; try in a new context.
4. Analysis – pupils should: explain; infer; analyse; question; test; criticise.
5. Synthesis – pupils should: design; create; arrange; organise; construct.
6. Evaluation – pupils should: assess; compare and contrast; appraise; argue; select.
   Website: http://oer.educ.cam.ac.uk/wiki/Teaching_Approaches/Questioning

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element C will be students who apply skills and knowledge learned to engage in developing a explanations and multiple representations of complex concepts, who utilize questioning to self-direct their learning, and who synthesize concepts within and across disciplines.

STUDENTS:

9 ***Develop a variety of explanations and multiple representations of concepts.***

"Students' Learning Strategies With Multiple Representations: Explanations of the Human Breathing Mechanism" https://onlinelibrary.wiley.com/doi/abs/10.1002/sce.21128

"Abstract

As part of a long-term research study to enhance science learning, this paper reports on an exploratory study aimed at identifying initial beliefs and practices of a group of teachers and students (Years 4–6) in Australia when the students engaged with multiple representations of the same science concepts."
https://www.tandfonline.com/doi/abs/10.1080/09500690600718294?src=recsys&journalCode=tsed20

10 ***Apply skills and knowledge learned in the classroom to engage in more complex tasks.***

"4. To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned."
"7. To become self-directed learners, students must learn to monitor and adjust their approaches to learning."
https://www.cmu.edu/teaching/principles/learning.html

"A Handbook for the Art and Science of Teaching"
Robert J. Marzano and John L. Brown
https://www.youtube.com/watch?v=Twp5wIpNQeU

11 ***Generate questions that lead to further inquiry and self-directed learning***.

There's a video that demonstrates a student asking questions that lead to further inquiry under "Gallery"
https://www.ssla.ca/student-generated-questions.html

http://houstonisdpsd.org/site_content/17-effective-practice-pages/243-student-generated-questions

12 ***Synthesize concepts to create original thinking within and across disciplines***.

"Problem posing is a higher-order, active-learning task that is important for students to develop. This article describes a series of interdisciplinary learning activities designed to help students strengthen their problem-posing skills, which requires that students become more responsible for their learning and that faculty move to a facilitator role. Developing students' problem posing skills and allowing them to grapple with course content can lead to deeper levels of understanding and improved critical thinking. In turn, students are more likely to be able to move their newfound knowledge beyond the classroom."
https://blackboard.oberlin.edu/bbcswebdav/pid-99666-dt-content-rid-193429_1/orgs/OC-CTIE/Nardone-Lee_Critical%20Inquiry_CT-59-1.pdf

"Nursing students must learn higher-order thinking skills of analysis and synthesis to manage complex data for decision making in healthcare."
http://journals.sagepub.com/doi/abs/10.1177/0193945915621720

"What exactly is "thinking" and what are the 8 foundational thinking skills that cut across all disciplines."
https://www.nesacenter.org/uploaded/conferences/FTI/2016/handouts/Mark_Church/D_MakingThinkingVisible_Summary_TheMainIdea.pdf

Classroom Examples

Kindergarten science: Students are working on Colorado Academic Standard 2: Life Science, Grade Level Expectation 1—To live and grow, animals obtain food they need from plants or other animals, and plants need water and light.

Students are learning how scientists make observations using the five senses and scientific tools, such as a magnifying glass. In previous lessons, the teacher taught students about each of the five senses and provided activities for them to learn about various objects using their senses. They have learned about the special tools scientists use and had opportunities to observe objects using them. The teacher now connects this learning to a study of plants. ***(Scaffolds questions, concepts, and skills based on a sequence of learning.)*** Students are told they are going on a "field trip" around their school to collect leaves and look at different plants. ***(Implements: Content based instructional strategies that best align to the learning***

objective.) As scientists do, they will use their senses to make observations. As the students observe various plants, the teacher asks the following questions to guide their observations and discoveries: ***(Implements: Questioning techniques to support disciplinary inquiry.)***

- In what part of the yard did we find this plant?
- What do you notice about this plant that reminds you of another plant?
- How would you describe the plant (short/ tall, color, feel, smell)?
- What can we learn about the plants in our yard from our observations?
- What do you think the plant needs in order to grow?

When students return to the classroom, the teacher provides magnifying glasses and plants like the ones from the schoolyard for students to continue their observations using the senses of touch, sight, and smell. ***(Uses instructional materials that are accurate and appropriate for the lesson being taught.)*** She continues to question students to lead them to discover that plants can have different types of leaves, sizes, colors, textures, and smells. Students make observations and draw a picture of the plant that includes as many details as they can. ***(Implements: Questioning techniques to support disciplinary inquiry.)*** The teacher shows her drawing and explains to students how she is being careful to draw the many details she noticed.

During the day's writing block, the teacher reminds students that it is important for scientists to communicate their findings with others. Acting as scientists, they write words to use in a simple sentence about their drawing of the plant. As she writes her sentence, the teacher explains that it tells something she learned about the plant and that the words they choose for their sentences should tell what they know or learned about the plant when they were observing and drawing it. She also shows students that her sentence uses a capital letter, has spaces between the words, and ends with a period. ***(Implements: Content based instructional strategies that best align to the learning objective.)*** The lesson concludes with students sharing their drawing, words, and sentence with a peer.

Elementary reading, writing, and communicating: Students are working on Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 1 –Comprehension and fluency matter when reading literary texts in a fluent way.

Fourth-grade students are comparing and contrasting the adventures and experiences of characters in stories. Prior to this lesson, the teacher and students created charts of characters' adventures and experiences as they read different texts. The teacher begins the lesson by having students preview the definitions of adventure, compare, and contrast. She models the expectations for student work and shares her thought process for how she compared and contrasted two characters' adventures. ***(Scaffolds questions, concepts, and skills based on a sequence of learning.)*** She also refers to the previously created charts and demonstrates how to transfer the information to a Venn diagram. She charts the questions she asked herself as a support for students. ***(Uses instructional materials that are accurate and appropriate for the lesson being taught. Implements: Multiple models and delivery methods to explain concepts accurately. Encourages and provides opportunities for students to make connections to prior learning.)*** She tells students they will use their Venn diagrams in the next day's lesson to analyze how the characters' adventures had an impact on the ending of each story.

Middle school dance: Students are working on Colorado Academic Standards 2, 3, and 4.

Standard 2: Create, Compose, and Choreograph, Grade Level Expectations 1 and 2--Correlation between choreographic intent and choreographic product; Create abstract movement using imagery

Standard 3: Historical and Cultural Context, Grade Level Expectation 2-- Observe and participate in a variety of dance forms from around the world

Standard 4: Reflect, Connect, and Respond, Grade Level Expectation 1--Communicate choreography through written, oral, and practical applications

Eighth-grade students are learning about structure and form in dance compositions, and the teacher asks them to choreograph a well-structured short dance piece. He draws upon students' working knowledge of structure and form in short poems with specific structures, such as a traditional Japanese Haiku by facilitating a workshop in which students select a Haiku and deconstruct its elements (5 syllables/7syllables/5 syllables). ***(Encourages and provides opportunities for students to make connections to prior learning.)*** Then, students watch dance videos and performances that emulate poetic intent. Students also research and discuss the various dance forms and choreographic techniques, as the teacher guides them in making concrete connections between the forms they find within poetry and the organization of a dance work (e.g.,

experimenting with a 5-step sequence, 7-step sequence, 5-step sequence to mirror the Haiku syllabic form). ***(Implements: Multiple models and delivery methods to explain concepts accurately.)***

He next provides students with floor diagrams to use in researching common choreographic forms, such as ABA, Narrative, or Variation on a Theme. ***(Uses instructional materials that are accurate and appropriate for the lesson being taught.)*** Using improvisation, discussion, and reflection, students determine the most effective dance patterns to complement their Haiku's form. Throughout the lesson, the teacher explicitly models proper technique, vocabulary, and artistry within dance sequences for students to follow and commit to memory. ***(Implements: Content-based instructional strategies that best align to the learning objective.)*** Once he determines students' level of mastery of learned dance sequences, the teacher guides them in using their learning to create a final dance performance that symbolizes the meaning and intent of their selected Haiku.

Planning/Coaching Questions

- How did you scaffold questions, concepts, and skills to support student learning of the content?
- How will you select accurate and appropriate instructional strategies and materials for each lesson?
- How will you plan for and implement review of previously learned concepts or skills in my lessons?
- How will you ensure the instruction and student activities align to the learning objective(s) and criteria for student mastery?
- How will you provide multiple models and delivery methods to explain concepts accurately?
- What are the likely student misconceptions that will arise during this lesson? How can I address those misconceptions during instruction?
- How will I engage ensure tasks are challenging and provide opportunities for students to ask questions and construct new meaning?
- How will I utilize questioning techniques to engage students in disciplinary inquiry?

Teacher Quality Standard II

Teachers establish a safe, inclusive, and respectful learning environment for a diverse population of students.

The most important action an effective teacher takes at the beginning of the year is creating a climate for learning.
—Mary Beth Blegan, former U.S. Department of Education teacher-in-residence

A positive classroom environment enhances the academic achievement of all students, promotes appropriate classroom behavior, and is welcoming to families and adults. A respect for diversity and the uniqueness of each individual is valued. A sense of community is created in which members encourage and promote the learning of each other through collaboration, communication, and mutual respect as they work to achieve individual and common goals.

Element A

Teachers foster a predictable learning environment characterized by acceptable student behavior and efficient use of time in which each student has a positive, nurturing relationship with caring adults and peers.

Respect is your most powerful management tool for instilling good classroom discipline. But if the teacher does not have respect then it will not happen.
—Changing Minds.org

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for fostering a positive learning environment, they must maintain the safety and welfare of students and the environment and provide clear expectations and procedures. Teachers must use time efficiently and foster a caring relationship with each student.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Maintains Safety and welfare of students and the environment.***

According to Jensen (1998), "The human brain seeks pattern and desires daily events to be logical and predictable."

Teachers can provide a safe learning environment by establishing clear expectations and logical consequences for students that are implemented in a consistent and predictable manner.

Classroom environments need to be planned to suit the needs of the educational program they serve. The environment supports the learning process by physically providing equipment and setup to facilitate smooth implementation of student and teacher tasks. The environment should allow for easy access of resources, configuration of grouping arrangements, and movement by members of the classroom.

Clear traffic patterns for teacher and student movement within the classroom are essential to student safety. Ensuring clear pathways for movement, securing electrical equipment, and organizing storage of supplies and students' belongings can create an environment that is safe and maintains the welfare of students.

Cleanliness is an important characteristic of a safe environment. Periodically clearing the surfaces of workspaces can reduce the risk of student injuries and illnesses. Keeping the classroom free of clutter can reduce distractions and accidents.

Tips for a safe environment:

- Electrical cords should be properly secured so that students will not trip over them. (Refer to building safety codes

for specific regulations.)
- Evacuation maps should be displayed so they are visible to all members of the classroom.
- Trash cans and recycle bins should be available to reduce excess paper and avoid clutter.
- Make Disinfectant wipes or other cleaning supplies accessible by the teacher and students to clean common surface areas.

When supplies, equipment, and resources are organized and accessible, students are more likely to be independent learners. When students are able to work independently, behavior management issues decline and student engagement increases. Therefore, it is advantageous to everyone when students can help themselves to frequently used supplies so that learning is not interrupted and instructional time is maximized. Consistently displaying visual supports in the same place for each lesson not only makes them easily accessible, but also increases the likelihood students will use them.

> When wall space and the overall appearance of the classroom are aligned with the learning goals and instructional priorities, students receive reinforcement for the value of what they are learning and why they are learning it. (Marzano, 2009, p. 202)

Visuals displayed on walls should have strong instructional purposes and not just serve as decorations.

Refer to this internal resource for additional information:

- Purposeful Use of Visuals

  Document identifies benefits from the use of visuals and suggestions for how to create and utilize visuals in a purposeful manner.

2 ***Maintains Clear expectations for student behavior.***

> According to Marzano, Gaddy, Foseid, Foseid, & Marzano (2005), "Establishing rules and shared expectations for general conduct helps to lay a solid foundation for effective classroom management." (p. 9)
>
> It is important to use effective management strategies to facilitate learning and avoid disruptions. In a smoothly running classroom, standards of conduct must be inferred because an observer may not witness explicit attention to those standards. Rather, student behavior indicates that a teacher has established those standards at the beginning of the year and has maintained them consistently. In a well-managed classroom, students are able to explain the agreed-upon standards of conduct and monitor their own behavior. (Danielson, 2007, p. 57)

Just as the teacher takes time to plan instruction of academic content, the teacher should plan for the teaching and reinforcing of classroom rules. Unfortunately, many teachers make the mistake of limiting their "teaching" to reading or stating the rules for acceptable behavior and fail to actually teach them. Students do not learn writing skills from just hearing them stated, but rather from seeing them taught and modeled with opportunities for practice. Similarly, students need to see and hear the teacher model behavioral expectations and have opportunities to practice in order to internalize them and take responsibility for their own actions.

> The most effective classroom management comes in the form of strategies that prevent acting out before it occurs. And those strategies arise from assuming that our students want to be here, want to participate, and specifically, want to learn good behavior. (Smith & Lambert, 2008, p. 16)
>
> When establishing rules and consequences, it is useful to keep in mind that typically the goal is to have students be responsible for their own behaviors—this way they will learn the life skill of self-management. Therefore, students must understand the reasoning behind each rule and know the potential consequences if the rule is violated. The consequences should be logical and student-based—not labor intensive for the teacher. For example, if a parent is to be called about an infraction, make the child responsible for making that phone call and explaining his or her actions. (Erlauer, 2003)

Teachers may enlist students in setting and maintaining standards of **classroom behavior**. By soliciting student participation, teachers can contribute to students' feelings of ownership and increase the likelihood of students following behavioral expectations.

See also Standard II, Element B, Professional Practice 3: Establishes processes that result in a sense of community among students.

Refer to these external resources for additional information:

- Excerpt from *Educator's Guide to Preventing and Solving Discipline Problems* by Mark Boynton and Christine Boynton
  http://www.ascd.org/publications/books/105124/chapters/Establishing-Clearly-Defined-Parameters-of-Acceptable-Classroom-Behaviors.aspx
  Excerpt provides guidelines and questions to support teachers in the establishing of rules to guide classroom behavior.
- Article: "Keys to Classroom Management" by Robert and Jana Marzano
  http://www.ascd.org/publications/educational-leadership/sept03/vol61/num01/The-Key-to-Classroom-Management.aspx Article describes research-based strategies for establishing effective classroom management.
- Article: "Assuming the Best" by Rick Smith and Mary Lambert
  http://www.ascd.org/publications/educational-leadership/sept08/vol66/num01/Assuming-the-Best.aspx
  Article describes strategies for teaching behavior expectations.
- Website
  http://www.adprima.com/managing.htm
  Website provides a variety of tips for establishing classroom management.

3 ***Maintains Procedures and routines to guide instruction and transitions*.**

> It's just not possible for a teacher to conduct instruction or for students to work productively if they have no guidelines…inefficient procedures and the absence of routines for common aspects of classroom life…can waste large amounts of time and cause students' attention and interest to wane. (Emmer, Evertson, & Worsham, 2003, p. 17)

Teachers should spend time at the beginning of the year teaching and practicing classroom procedures. To make the best use of instructional time, there should be a consistent and smooth execution of procedures and routines throughout the lesson, which is evidenced by student behavior. Students should practice and/or be aware of procedures and routines for daily expectations as well as for special circumstances that disrupt the normal flow of class.

The following generalizations should guide the design and implementation of classroom procedures:

- Procedures should be established at the beginning of the school year with the understanding that students will need reminders and practice, especially when procedures are altered based on changing classroom needs.
- Procedural expectations should describe specific behaviors students are expected to display so they can be understandable to all students.
- Students should have opportunities to assess and modify their performance of the procedures.
  (*Eagle County Schools Professional Practices Rubric*, 2012, p. 83, Used with permission).

Within the course of a school day, there can be numerous procedures teachers need to implement in order to create a safe and orderly learning environment and maximize instructional time for all students.

Refer to this internal resource for additional information:

- Establishing and Teaching Procedures
  Document provides examples of procedures that should be established in the classroom and ideas for the effective use of visuals to teach procedures.

Refer to this external resource for additional information:

- Article: "Maximizing the Efficiency and Structure of Your Classroom" published by Teaching as Leadership http://teachingasleadership.org/sites/default/files/Related-Readings/CMC_Ch3_2011.pdf
  Article provides examples of procedures that can lead to efficiency and structure within the classroom.

LEVEL 2 PRACTICES

THE TEACHER:

4 Facilitates student accountability to school and class procedures and routines.

A teacher's behavioral expectations are only as strong as his or her plan for holding students accountable. When planning behavioral expectations, a teacher should ensure the expectations are appropriate for the age of the students and are ones that can be consistently upheld and reinforced.

> When a teacher responds to misbehavior quickly and respectfully, the chance of the student correcting his behavior increases. An effective teacher is consistent and fair in applying consequences with students based on the immediate behavior and not past experiences. Teachers should also focus on correcting the behavior rather than making it personal. This allows the student to maintain his dignity and makes it more likely that he will accept the consequence and make behavioral changes. (*Eagle County Schools Professional Practices Rubric*, 2012, p. 70)

Refer to this external resource for additional information:

- Article: "Building Safer, Saner Schools" by Laura Mirsky http://www.ascd.org/publications/educational-leadership/sept11/vol69/num01/Building-Safer,-Saner-Schools.aspx
  Article describes practices for helping students learn to confront their unacceptable behavior and the consequences of their behavior on others in order to build a community of learners.

5 Consistently reinforces student expectations.

Your discipline plan should encompass all rules for all students in all locations. The list should not be too long; that is, five or six rules should be the maximum. (Boynton & Boynton, 2005) Following these six steps will help you to implement an effective discipline plan in your classroom:

1. Select rules that are meaningful, specific, and enforceable. Rules such as "Students are to be good at all times" and "Students are to act responsibly at all times" are inappropriate because they are too vague and open to misinterpretation.
2. Establish consequences for students who fail to comply with the discipline plan.
3. Teach the discipline plan to the students.
4. Post the discipline plan in an easily seen classroom location.
5. Communicate the discipline plan to parents and the principal.
6. Enforce the discipline plan fairly, consistently, and equitably.

   Website: http://www.ascd.org/publications/books/105124/chapters/Establishing-Clearly-Defined-Parameters-of-Acceptable-Classroom-Behaviors.aspx

An accomplishment is the successful completion of something, such as obtaining a personal or group goal. Acknowledging students' accomplishments can increase their self-esteem and confidence and motivate them to continue engaging in the learning process. It is important that the teacher ensures she is not just recognizing the same top performers or focusing on intelligence only but finds opportunities to acknowledge each student's successes and growth. Along with the acknowledgement, it is important for the teacher to label the student's actions that led to the accomplishment. By labeling

the student's actions, there is a greater chance the actions will be repeated. ***(Labeling a student's action can also be an example of timely feedback. Standard III, Element B)***

> A classroom that teaches students to equate their intelligence and their worth with their performance will, in general, stifle the desire to learn and will make students afraid of challenges. After all, the next challenge may show you up and lead you to be branded as less intelligent or less worthy. When students believe in their own ability to change, grow, and improve over time, learning becomes fun and challenges become rewarding. (Dweck, 2006)

Examples of ways teachers can acknowledge student accomplishments:

- Display student work that is representative of a variety of students.
- Implement "A Student of the Week" recognition. Create a space in the classroom to celebrate the student's talents and accomplishments both in the classroom and outside the classroom.
- Share examples of students persevering with challenging tasks and the resulting successes.
- Use student work as exemplars. This practice not only serves to acknowledge a student's accomplishments, but provides a visual of performance expectations.

Highlight student behaviors that exemplify classroom expectations. Instead of correcting misbehaviors, recognize students who are doing the right thing as a model for others to follow.

6 Demonstrates a caring and respectful relationship with students.

> Building relations with students implies agency, efficacy, respect by the teacher for what the child brings to the class (from home, culture, peers), and allowing the experiences of the child to be recognized in the classroom. Further, developing relationships requires skill by the teacher — such as the skills of listening, empathy, caring and having positive regard for others. (Hattie, 2009, p. 118)

> In classes with person-centered teachers, there is more engagement, more respect of self and others, there are fewer resistant behaviors, there is greater non-directivity (student-initiated and student-regulated activities), and there are higher achievement outcomes. (Hattie, 2009, p 119)

> Positive teacher-student relationships — evidenced by teachers' reports of low conflict, a high degree of closeness and support, and little dependency — have been shown to support students' adjustment to school, contribute to their social skills, promote academic performance, and foster students' resiliency in academic performance (Battistich, Schaps, & Wilson, 2004; Birch & Ladd, 1997; Hamre & Pianta, 2001). Teachers who experience close relationships with students reported that their students were less likely to avoid school, appeared more self-directed, more cooperative, and more engaged in learning (Birch & Ladd, 1997; Klem & Connell, 2004). Students reported liking school more and experiencing less loneliness if they had a close relationship with their teachers. Students with better teacher-student relationships also showed better performance on measures of academic performance and school readiness. (Birch & Ladd, 1997, Rimm-Kaufman, n.d., para. 6)

This professional practice represents the impact of implementing the practices described under Element A thus far. For teachers to establish a caring relationship with each student, they must first demonstrate respect and empathy for students. When students trust that the teacher values their perspectives, they are more willing to have a relationship with a teacher that promotes learning and social development.

Empathy plays an essential role in how we communicate and develop relationships. It is a lifelong skill that impacts how we learn and interact with others. A classroom environment that features empathy for each student helps breed a sense of community while teaching students to be emotionally intelligent. However, empathy does not come naturally to all students. Teachers can help students develop this trait by displaying empathy for each student and teaching students to understand their own emotions as well as the emotions of others.

In his book, *Visible Learning*, John Hattie sites the following claims by Cornelius-White:

… to improve teacher-student relationships and reap their benefits, teachers should learn to facilitate students' development by demonstrating they care for the learning of each student as a person (which sends a powerful message about purpose and priority), and empathizing with students – "see their perspective, communicate it back to them so that they have valuable feedback to self-assess, feel safe, and learn to understand others and the content with the same interest and concern." (Hattie, 2009, p. 119)

Teachers who display high levels of empathy are able to 'see learning through the eyes of the students' and show students that they understand how they are thinking and how then their thinking can be enhanced. This requires that teachers pay special attention to the way in which students define, describe, and interpret phenomena and problem-solving situations, so that they can begin to understand these experiences from the unique perspectives of students (Gage & Berliner, 1998). Indeed, a powerful way in which to see such learning through the eyes of the students is to listen to student questions, and how students then answer their peers' questions. (Hattie, 2012, p. 112)

Common Challenges to Teaching Social Skills Referenced in Element A	
Challenges	**Response**
My job is to teach. I have enough to cover without teaching social skills, too. Social skills are the responsibility of the parents or caregivers.	Given the accountability and demands on teachers' time, it can appear overwhelming to add social skills instruction. However, a teacher's job is to develop the whole child and ensure students are equipped with the skills necessary for success beyond the classroom. Students who feel disrespected by their peers or unwelcomed in the classroom are more likely to disengage from the learning process. Not only do they miss out on development of important life skills, but they also miss out on learning critical content.
I can't control how students treat each other.	Teachers can improve student relationships by modeling respect and empathy for each student. Teachers must communicate clear expectations for how students are to collaborate and communicate with one another. Students can help develop group norms and take responsibility for holding their peers accountable to abide by these norms.

Refer to this internal resource for additional information:

- Teaching Empathy and Respect through Literature
  Document provides a list of books that can be used to teach empathy and respect at all grade levels.

Refer to these external resources for additional information:

- Websites: Sponsored by KidsHealth in the Classroom
  Early childhood: http://classroom.kidshealth.org/prekto2/personal/growing/empathy.pdf
  Elementary: http://classroom.kidshealth.org/3to5/personal/growing/empathy.pdf
  Middle school: http://kidshealth.org/classroom/6to8/personal/growing/empathy.pdf
  High school: http://classroom.kidshealth.org/9to12/personal/growing/empathy.pdf
- Website: Sponsored by Teaching Tolerance, a Project of the Southern Poverty Law Center
  http://www.tolerance.org/lesson/developing-empathy
  Website includes lesson ideas for early childhood through high school.

LEVEL 3 PRACTICES

THE TEACHER:

Makes the maximum use of instructional time by:

7 ***Implementing purposeful pacing and efficient transitions.***

For each learning experience, the time for each element of the lesson varies with the type of activity and the students' ages. Use of time and choice of instructional strategies are also based on the scheduled time for the

learning experience. Time wasted getting materials and supplies at the beginning of the lesson sets a negative tone and encourages off-task behavior. Lectures and seatwork assignments that are too long and group work and hands-on activities that are too short fail to accomplish the learning objective. A hurried ending to the lesson leaves students without closure—one of the key elements important for permanent learning. It is also a critical time for teachers to assess which students accomplished the objective and which students need more time. The old adage "Time lost is never found" rings especially true in the classroom. (McLeod, Fisher & Hoover, 2003) http://www.ascd.org/publications/books/103008/chapters/Managing-Instructional-Time.aspx

Teacher utilizes a timer for countdowns or for purposeful transitions. Practices transitions as part of the regular lesson. (APS, June 2018)

Teacher creates a sense of urgency to move from one activity to another. (APS, June 2018)

Teacher responds to current student needs by: stopping instruction to reteach or model, provide brain breaks, do a class reset or check for understanding. (APS, June 2018)

8 ***Using appropriate strategies to reduce disruptive or off-task behaviors.***

Suggested strategies: (APS, June 2018)

- Follow student behavior plans
- Plan lessons that are bell to bell
- Use de-escalating techniques
- Use proximity to redirect students

One way the teacher can maximize instructional time is with the development and communication of signals that support students in self-monitoring their behavior. The use of signals can reduce interruptions to instructional time by facilitating redirection of student behavior. Some signals may only be known to the student and the teacher, but the subtlety of the signals preserves student privacy, and its discretion can maintain the efficiency of instructional time.

Examples: Nonverbal and Verbal Reminders:

- Nonverbal Reminders
  - Teacher pauses.
  - Teacher makes eye contact with the student.
  - Teacher walks near the student.
  - Teacher places a hand on the student's desk.
  - Teacher points to the work the student is supposed to be doing.
- Verbal Reminders
  - Teacher says the name of the student, either privately or in front of the class.
  - Teacher states the class rule aloud to the class.
  - Teacher comments on other students who are behaving appropriately.

Refer to this external resource for additional information:

- Article: "Making Every Moment Count: Maximizing Quality Instructional Time" a report from The Time, Learning, and Afterschool Taskforce
  https://www.mydigitalchalkboard.org/portal/default/Resources/Viewer/ResourceViewer;jsessionid=AUuvhLqKVjBQoNGm5jnWcQ**?action=2&resid=59628&discussion.ascdesc=ascending&discussion.listtype=chronological
  Strategies teachers can implement in all content areas and at all levels to maximize instructional time.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element A will be students who demonstrate support for one another and their teachers as exhibited by their ability to abide by school and class rules and to help other students stay on task and focused.

STUDENTS:

9 ***Demonstrate mutual respect and support with the teacher and peers.***

"In school, respect can sound like this:
They actually listen to me here. The teachers care about what I think and feel. They want me to be part of making this school even better. Like when they realized there's much more bullying going on here than they knew. Now they're really trying to do something about it.
—A 15-year-old student
In contrast, this is what the absence of respect can sound like:
They don't care what I think. All they care about are the tests. There aren't even stalls in the bathroom. They dis' us.
—A 16-year-old student"
http://www.ascd.org/publications/educational-leadership/sept11/vol69/num01/Creating-a-Climate-of-Respect.aspx

"Chapter 1. Developing Positive Teacher-Student Relations"
http://www.ascd.org/publications/books/105124/chapters/Developing_Positive_Teacher-Student_Relations.aspx

10 ***Uphold school and class rules.***

"As a student, I will:

- Always try to do my best work.
- Be kind and helpful to my classmates.
- Show respect for myself, my school, and other people.
- Obey classroom, school, and bus rules.
- Show respect for property by not stealing or vandalizing.
- Come to school prepared with my homework and my supplies.
- Believe that I can and will learn.
- Spend at least 15 minutes each day studying or reading at home.
- Talk with my parents each day about my school activities."

http://www.educationworld.com/a_curr/curr155.shtml

11 ***Encourage positive behavior from peers.***

"…But a closer look reveals that some students are on a mission. Whistles around their necks, a handful of 6th graders are circulating in the room, verifying that the other students are acting in accordance with the school's policy to be "safe, respectful, and responsible." Violations are met with a whistle and a peer-to-peer discussion."
http://www.ascd.org/publications/educational-leadership/oct12/vol70/num02/For-Positive-Behavior,-Involve-Peers.aspx

Classroom Examples

Elementary reading, writing and communicating: Students are working on Colorado Academic Standard 1: Oral Expression and Listening, Grade Level Expectation 2—Listening strategies are techniques that contribute to understanding different situations and serving different purposes.

A 5th-grade teacher makes a conscious effort each day to greet students at the door with a courteous and positive interaction that helps reinforce a respectful culture in her classroom. She always makes eye contact with students and expects them to greet her in the same manner. ***(Fosters a caring relationship with each student.)*** When students answer questions or share their work, she communicates the expectation that other students will track the speaker and listen attentively. ***(Maintains: Clear expectations for student behavior.)*** Over time, students begin to expect this type of interaction from her and from each other. ***(Consistently reinforces student expectations).*** As these behaviors become routine, an environment that is nurturing and supportive of student interdependence becomes established. ***(Maintains: Procedures and routines to guide instruction and transitions.)***

All content areas: Students are working on Colorado Academic Standard 3: Emotional and Social Wellness in Health, Grade Level Expectation 1: Utilize knowledge and skills to treat self and others with care and respect.

On the third-grade classroom wall, expectations for student behavior are displayed in a manner that can be easily read by all students. (Pictures of students displaying each expectation may be included on the chart to support younger students and second-language speakers.) Although the teacher communicated and taught these expectations at the beginning of the school year, he continues to use the chart to both redirect student behavior and to recognize appropriate behavior***.*** ***(Maintains: Clear expectations for student behavior. Consistently reinforces student expectations. Makes maximum use of instructional time by: Reinforcing positive behavior and Redirecting disruptive or off-task behaviors.)***

Students know that the learning objective and criteria for student success are always displayed at the front of the room. Baskets for handouts and homework are labeled and placed near the door so they are easily accessible when students enter the classroom. ***(Maintains: Safety and welfare of students and the environment.)*** The teacher, or student helper, ensures they are emptied at the end of each class period, and new handouts are placed in the basket as needed. ***(Makes maximum use of instructional time by: implementing purposeful pacing and efficient transitions.)*** Materials and learning stations are clearly labeled in students' native languages. The teacher ensures the room stays organized by establishing procedures for accessing and organizing materials and assigning jobs that place the responsibility for maintaining order and organization on the students. ***(Maintains: Safety and welfare of students and the environment, Clear expectations for student behavior, and Procedures and routines to guide instruction and transitions.)***

Middle School Science: Students are working on Colorado Academic Standard 1: Grade Level Expectation 6: Energy changes to and from each type that can be tracked through physical and chemical interactions. The relationship between the temperature and the total energy of a system depends on the types, states and amounts of matter.

Middle school students are working in collaborative groups to conduct a science experiment. Prior to the activity, the teacher and students review the expectations for group work that are displayed in the classroom. There also is a review of safety procedures for handling science materials and conducting experiments. Within each group, students are assigned the following jobs: recorder, materials handler, and time keeper. Expectations for each job are reviewed and demonstrated. ***(Maintains: Safety and welfare of students and the environment, Clear expectations for student behavior, and Procedures and routines to guide instruction and transitions.)*** The teacher explains that when each group member accepts responsibility for fulfilling her role within the group, then instructional time is not wasted and all students are able to learn and be successful. As students complete the experiment, the teacher circulates to ensure students stay on task, follow expectations and safety guidelines for group work, and make progress towards mastery of the learning objective. ***(Facilitates student accountability to school and class procedures and routines. Consistently reinforces student expectations.)***

Refer to this external resource for an example of rules for group work:

- http://www.virtualteacher.com.au/groupr.pdf.)

Planning/Coaching Questions

- How did you establish a caring relationship with all students?
- How did you communicate and teach expectations for student behavior?
- How were you able to consistently hold students accountable for adherence to school and class rules?
- In what ways did you reinforce positive behaviors?

- How did you respond to misbehavior respectfully and appropriately?
- How did you encourage students to monitor their own behavior?
- What procedures need to be established to ensure instructional time is maximized?
- How do you find ways to collaborate with students on the development of behavior expectations and procedures?
- How do students demonstrate that they understand behavior expectations and procedures in my classroom?
- How do you maintain an environment that is safe?
- How do you ensure resources are organized and accessible to all students?
- How do you support students in being safe and organized?

Element B

Teachers demonstrate an awareness of, a commitment to, and a respect for multiple aspects of diversity, while working toward common goals as a community of learners.

To be effective, teachers must treat the culture, heritage, and language of all their students con respeto.
—Eva Midobuche

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for demonstrating a commitment to and respect for diversity, an environment in which diversity is respected and used to further student learning must be created. By using instructional strategies, activities, and materials that reflect students' backgrounds and value their individual contributions, teachers establish a sense of community in which student interactions are positive and common goals can be established.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Acknowledges the influence of race, ethnicity, gender, religion, socioeconomics, and other aspects of culture on student perspectives.***

Acknowledging racial diversity is one of the basic elements of **culturally responsive pedagogy**. As Lisa Delpit (2006) states, "If one does not see color, then one does not really see children" (p. 177). To this end, the teacher must be knowledgeable of the socio-historical and racial experiences that lead to students' perspectives and how these impact student thinking and learning. Once the teacher displays value for each student's perspectives, she can foster an environment that allows students to feel safe sharing their beliefs and opinions. This is the foundation for creating a positive learning environment, which allows students to be receptive to the diverse perspectives of others.

While students should also be recognized and respected for who they are individually, (i.e. who they are as defined by the characteristics they possess), students must also be recognized and respected for who they are as part of the groups to which they belong. Thus, at a minimum, when we think about diversity, we need to consider not only race but gender, religion, physical challenges, economic status, age, disability, sexual orientation, and learning differences.

Respect for **diversity** is essential for the existence of a safe and inclusive learning environment for all students. The teacher who respects and appreciates the diversity of students in the classroom validates and acknowledges the experiences, language, and traditions of linguistically or culturally diverse students. Students who are caring and respectful of others' cultural backgrounds and family structures are more likely to take pride in their own work and the work of their peers.

> In the real world, all students will encounter people from diverse backgrounds. Learning about diversity helps students learn more about themselves as they examine the similarities and differences in other cultures and points of view. In turn, this exposure adds to the breadth of knowledge that a good teacher attempts to create. It also allows students to understand why people are different but still able to live in harmony. When a teacher commits to respect and does so with a complete passion for his or her students, only one result is possible: learning for all children. (Midobuche, 1999, p. 81)

Developing **cultural sensitivity** is one of the first steps towards creating an environment in which diversity is respected. Knowing the nuances and customs of a particular culture, in addition to the artifacts of the culture, is critical to developing cultural sensitivity.

> …culture consistently shapes an individual's behavior and reactions to the behaviors of others. Gaining insight into cultural values and habits helps teachers monitor their reactions to student behaviors that they might deem "negative," but that are considered normal or even valued in the student's home culture. Without such reflection, a teacher's implicit assumptions can inadvertently communicate to students a lack of caring. (Bondy & Ross, 2008, p. 56)

> The only way to gain fluency, comfort and ease is through genuine relationships in which we learn how to talk to and about people whom we perceive as different, often learning that many of our initial assumptions or judgments were, in fact, erroneous. The goal is not to make differences invisible ("I don't see color"; It's such a good inclusive classroom, you can't tell who the kids with disabilities are") but to develop the language and skills to negotiate diversity. Classrooms cannot feel safe to anyone if discussions of difference are avoided, discouraged, or considered inappropriate. (Sapon-Shevin, 2008, p. 50)

Refer to these external resources for additional information:

- Article: "Colorblind Education is the 'Wrong Response' published by Education Week
  https://www.edweek.org/ew/articles/2015/08/26/colorblind-education-is-the-wrong-response.html
  Article discusses how the well-intentioned 'colorblind' approach to teaching diverse students can have the effect of making diverse students' experiences and perceptions invisible. A better approach is to use curriculum and instruction that is explicit about race and the impact of racism in schools and society in order to promote diverse students' sense of belonging and well-being.
- Article: "Cultural Learning Styles: Should Students' Culture Inform Instructional Choices?" published by Teaching as Leadership
  http://teachingasleadership.org/sites/default/files/Related-Readings/DCA_Ch7_2011.pdf
  Article discusses how culture impacts the way in which students learn, and how teachers can differentiate instruction based on these learning preferences.

- Article: "Addressing Diversity in Schools: Culturally Responsive Pedagogy" published by the Center for Nationally Responsive Cultural Educational Systems, SNCCREST
  http://www.niusileadscape.org/docs/FINAL_PRODUCTS/NCCRESt/practitioner_briefs/%95%20TEMPLATE/DRAFTS/AUTHOR%20revisions/annablis%20pracbrief%20templates/Diversity_Brief_highres.pdf
  Article explains how teachers can become culturally responsive in their relationships with students and in their instruction.

Colorado classrooms are composed of students from many different cultures, languages, races, and backgrounds. This type of variety can enrich the lives of students. When teachers provide opportunities for students to engage in discussions with their peers and participate in collaborative learning activities, they support a learning environment that values individuals' perspectives. The benefits to these learning experiences are:

- Students learn to work with different types of individuals.
- Students learn to respect and value peers' individual differences.
- Students interact more freely with their peers because they feel safe from ridicule, put-downs, and bullying.
- The class develops a sense of community and trust in which all students feel valued and respected.

Refer to this internal resource for additional information:

- Sentence Starters for Teaching Students Accountable Talk
  Document provides examples of sentence starters that can be used for respectful dialogue.

Refer to these external resources for additional information:

- Article: "Appreciating and Valuing Diversity" site sponsored by North Central Collaboration for Education in Nondestructive Testing
  http://www.ndt-ed.org/TeachingResources/ClassroomTips/Diversity.htm
  Article provides ideas for how to teach students a respect for diversity.

LEVEL 2 PRACTICES

THE TEACHER:

Creates a classroom environment in which diversity is used to ensure:

2 ***A sense of community among students.***

> Social relationships with peers provide children with a range of supports and tacit acknowledgment of their acceptance in the social milieu of the school. Studies of young elementary-age children reveal that positive social relations influence their intellectual, communicative, interpersonal, and emotional development (Asher, 1983; Bates, 1975; Hartup, 1978; Parker & Asher, 1987; Rubin, 1980). During the primary grades, children begin to understand and adopt the core values of their culture, and they develop the social skills needed to act effectively on those values (Solomon, Walson, Delucchi, Schaps, & Battistich, 1988). The public school classroom has particular importance as a context for the development of relationships between groups of children who have little contact outside the school setting. (Salifbury, Gallucci, Palombaro, & Peck, 1995, para. 2)

In his book *Visible Learning for Teachers Maximizing Impact on Learning,* John Hattie writes about the importance of a sense of community among students.

> For many students, school can be a lonely place, and low classroom acceptance by peers can be linked with subsequent disengagement and lowered achievement. There needs to be a sense of belonging and this can come from peers. Certainly, when a student has friends at school, it is a different and better place. In the studies looking at what happens to students when they move schools, the single greatest predictor of subsequent success is whether the student makes a friend in the first month (Galton et al., 2000; Pratt and George, 2005). It is incumbent therefore upon schools to attend to student friendships, to ensure that the class makes everyone welcomed, and at a minimum, to ensure that all students have a sense of belonging. (Hattie, 2012, p. 87)

Students need to understand that the classroom belongs to everyone, not just the teacher or a select group of students. This does not happen by accident but requires intentional planning by the teacher. The teacher who creates an environment in which diversity is respected and each student's contribution is valued is laying the foundation for establishing a community of learners within the classroom.

Promoting respect for diversity:

- Create purposeful opportunities for students to collaborate and communicate with peers who are economically, culturally, or linguistically diverse. Provide students with sentence stems or examples of dialogue that demonstrate they are listening and interacting in a respectful manner.
- Facilitate discussions on topics that help students understand the meaning of diversity, such as asking students to discuss their family or community's dress, food, or communication practices. For example, a discussion on communication can help students understand that in some cultures it is considered disrespectful to speak loudly and this might be why some of their classmates choose not to join in loud, lively discussions or celebrations.
- Use moments of conflict between students to discuss the need for tolerance and acceptance. Share stories of culturally diverse individuals who championed for tolerance and overcame challenges.

See also Standard II, Element A and Standard III, Elements E and F.

Refer to this internal resource for additional information:

- Strategies for Creating a Sense of Community

  Document provides practical ideas for how teachers can create a community within the classroom.

Refer to this external resource for additional information:

- Article: "Building Community in the Classroom" by Ellen Booth Church
  http://www.scholastic.com/teachers/article/building-community-classroom

  Article provides practical ideas for how to build a community in the classroom at the beginning of the school year.

3 ***Effective interactions among students.***

The result of an environment in which diversity is respected and a sense of community is established will be effective interactions among students. For students to interact effectively, mutual respect and skills to communicate effectively with one another must exist.

The teacher can establish processes for effective interactions among students by providing opportunities for students to collaborate and communicate. This may be accomplished through the use of technology, but periodically students need to do this through face-to-face interactions.

> Students' face-to-face interactions give them the chance to support each other academically and personally. When students actively invest in and support their groupmates' learning, they are practicing the skills required to be part of an effective learning team. The combination of personal and academic supports that emerge is termed "promotive interactions." (Frey, Fisher, & Everlove, 2009, p. 38)
>
> Although technology can be an effective and motivating tool for student communication, students need opportunities to communicate with peers in a manner that requires them to "construct meaning not just from the content of words but also from the gestures, movement and expressions their partners or groupmates use." (Frey, Fisher, & Everlove, 2009, p. 38)

Refer to this internal resource for additional information:

- Sentence Starters for Teaching Students Accountable Talk

  Document provides ideas for teaching students dialogue that demonstrates respect for others' perspectives.

4 ***Incorporates instruction that reflects diverse backgrounds, experiences, and different points of view.***

Teachers can use diversity to facilitate student learning by modeling for students what it looks like to reflect on one's cultural identity with a focus on cultural values and norms. As Henry Giroux (1992) points out, "Teachers need to find ways of creating a space for mutual engagement of lived difference that does not require the silencing of a multiplicity of voices by a single dominant discourse" (p. 201). The National Institute for Urban School Improvement (2005) suggests some activities for teachers to engage in this kind of reflection (all can be adapted into activities for students):

- Learn about your own history, heritage, community, family, culture, as well as other groups to which you belong
- Write about your celebrations, traditions, beliefs, and cultural practices
- Reflect on the things you value in your life including significant artifacts, customs, family events, and the ways in which you celebrate them
- List the things that you do in your classroom that come from a cultural perspective. Check your list with a teaching colleague. How are your lists different and similar?

See also Standard III, Element A.

Refer to these external resources for additional information:

- Article: "Cultural Identity and Teaching" published by the National Institute for Urban School Improvement http://www.niusileadscape.org/docs/FINAL_PRODUCTS/NIUSI/toolkit_cd/4%20%20Implementing%20Change/OnPoints/OP_cultural_identity.pdf

  Article provides practical guidance for reflecting on one's cultural identity as well as building and presenting culture in the classroom.

LEVEL 3 PRACTICES

THE TEACHER:

5 ***Delivers lessons to ensure students' backgrounds and contextual knowledge are considered***.

To meet state standards for this element, the teacher not only knows how to select instructional strategies and materials, but also knows how to implement them in a purposeful manner so they have a positive impact on student learning. Students should have an opportunity to connect what they are learning to their classroom, their home environment, their

community, and/or or the global community. When instructional strategies are relevant to students' experiences and culture, students are motivated to learn and engage with tasks, which can result in transference of learning.

> According to Allen & Butler (1996), " … matching the contextual conditions for learning to the cultural experiences of the learner increases task engagement and hence increases task performance, (p. 317).

Students learn and remember new information best when it is linked to relevant aspects of their backgrounds, experiences, and perspectives. This can also refer to the time period in which students are living. The teacher can become familiar with the backgrounds, experiences, and points of view of students by asking the following questions:

- Who are the popular recording artists?
- Where do the students like to gather outside of school?
- What are some of the rivalries among students?
- What are popular terms and phrases used by students?
- What are the communities like in which my students live or have lived?

> Madeline Hunter describes teaching as a dynamic activity, and finds it important to see each teaching situation as unique due to the interplay of many variables. The art of teaching involves not only knowing what to do and how to do it, but also knowing when to do it, and in what situations not to do it. It is this kind of thinking process that takes teaching from a scientific base to an art form. (Magestro, 1994)

The website TextProject, Inc. offers the following acronym for helping the teacher provide relevant content (Hiebert, 2012).

Creating Connections: KNOWS

K	Did I draw on students' existing *knowledge* and experience?
N	Did I identify what *new knowledge* can be gained from this text and guide students in gaining it?
O	Did I support students in *organizing* their new knowledge with their existing knowledge/experiences?
W	Did I show students ways to *widen* their knowledge?
S	Did I support students in *sharing* their knowledge?

See also professional practices under Level 1 and Level 2.

Culturally responsive teachers are adept at using diversity as an asset to promote instruction of standards-based content in authentic ways that engage all children.

One of the primary assets that children bring to the classroom is language. Indeed, linguistic diversity can take on many forms including knowledge of multiple world languages or the use of various dialects within a single language. Sonia Nieto (2013) points out that the growing population of emergent bilingual students in the U.S. schools demands that all teachers- not just ESL or bilingual teachers – become aware of and affirm the needs of such students. This includes capitalizing on students' native languages or dialects and using these as a bridge for learning standards-based content and English through strategies that promote **bilingualism** and **bidialectism** in the classroom.
Another example of an asset that students bring to the classroom is diverse family structures. The teacher who capitalizes on diverse family structures creates an environment in which a student's family is respected and celebrated. This can be accomplished in a variety of ways. The early childhood or elementary teacher, for example, might have students draw pictures of their family to share with classmates, then engage students in a discussion about how even though families may look different or have different members, they are still all families.

Students might also write personal narratives about their family experiences. By providing opportunities for students to share about their families, the teacher can promote an understanding and tolerance for the diversity in family structures.

Using materials such as photographs, illustrations, or texts that explore a variety of family structures can also be an effective way to communicate that all families are important and welcomed.

Books for early childhood or elementary students:

- *The Family Book* by Todd Parr—This book celebrates a variety of family structures in a fun way for young children.
- *Who's in a Family* by Robert Skutch—This book describes a variety of family structures.
- *Rosie's Family an Adoption Story* by Lori Rosove—This book describes adoptive families.
- *Families by Ann Morris*—This book can teach students about different family structures around the world.
- *ABC A Family Alphabet Book* by Bobbie Combs—An illustrated ABC book that looks at the lives of gay and lesbian couples and their families.
- *My Family's Changing* by Pat Thomas—This book explains how divorce or separation can change a family.

Refer to these external resources for additional information:

- Article: "Using Ebonics or Black English as a Bridge to Teaching Standard English" published by ASCD
  http://www.ascd.org/publications/classroom-leadership/apr1999/Using-Ebonics-or-Black-English-as-a-Bridge-to-Teaching-Standard-English.aspx
  Article discusses practical strategies for using bidialectism to teach Standard English while maintaining and appreciating the culturally distinct communication styles of many African American students.
- Website: Teaching Tolerance Classroom Resources and Lessons
  https://www.tolerance.org/classroom-resources/lessons
  Provides a bank of lesson plans, texts, student tasks and teaching strategies for using diversity to enhance teaching and learning. Includes lessons on diverse family structures

6 ***Uses materials and lessons that counteract stereotypes to acknowledge the contributions of all cultures***.

Culturally responsive pedagogy includes the use of instructional materials and lessons that are transformative in nature – meaning that they allow students to view several ethnic perspectives and points of view. According to Banks (1988), this approach "is not [just] the addition of a long list of ethnic groups, heroes, and contributions, but the infusion of various perspectives, frames for reference, and content from various groups that will extend students' understanding of the nature, development, and complexity of U.S. society" (p. 38).

When teachers engage students in transformative education, they intentionally aim to counteract stereotypes or ethnocentric views of history and society. For example, rather than framing a lesson on Christopher Columbus around the "discovery of America" a teacher may engage students in learning about the perspectives of native cultures and the ways in which European conquest has impacted our understanding of our nation's history. In addition, teachers may help students to explore the contributions of various ethnic groups and women to the fields of math, science, astronomy, medicine – contribution that might otherwise be overshadowed by traditional, Eurocentric approaches to these disciplines.

Refer to these external resources for additional information:

- Website: Teaching Tolerance Classroom Resources and Lessons
  https://www.tolerance.org/classroom-resources/lessons
  Provides a bank of lesson plans, texts, student tasks and teaching strategies for using diversity to enhance teaching and learning.
  https://www.facinghistory.org/
- Website: Facing History and Ourselves
  https://www.facinghistory.org/
  Provides a bank of lessons and professional development to teachers that focus on re-interpreting history through various perspectives.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element B will be students who demonstrate respect for the uniqueness of their fellow students, actively seek a variety of perspectives, and advocate for diversity, equity, and social awareness.

STUDENTS:

7 ***Respect the uniqueness of fellow students.***

"It helps to make your expectations clear from the outset. Some useful ground rules include:

- treat each other with dignity and respect
- listen to each others' points of view, recognising that there may be disagreement
- keep discussion and comments on the topic, and off the people
- do not use inflammatory or offensive language, sarcasm, or raised voices."

https://www.cardiff.ac.uk/learning-hub/view/dignity-and-respect-in-the-classroom

8 ***Seek a variety of perspectives to enhance their learning.***

"Helped students to interpret subject matter from diverse perspectives"
http://www.ideaedu.org/Resources-Events/Teaching-Learning-Resources/Helped-students-to-interpret-subject-matter-from-diverse-perspectives

9 ***Advocate for multiple aspects of diversity, equity, and social awareness.***

"Social justice in the real world: classroom discussions that help students critically engage with issues that affect them"
https://education.cu-portland.edu/blog/classroom-resources/teaching-social-justice/

Classroom Examples

Elementary reading, writing and communicating: Students are working on Colorado Academic Standard 1: Oral Expression and Listening, Grade Level Expectation—A clear communication plan is necessary to effectively deliver and receive information.

Each day, the teacher and students in a 4th-grade classroom begin with a Morning Meeting. As part of the daily routine, students greet each other through song or words of welcome and handshakes. The teacher shares a celebration related to the group's progress towards a class goal. ***(Establishes processes that result in: A sense of community among students.)*** Students then partner and share a celebration or word of encouragement for each other. ***(Establishes processes that result in: A sense of community among students and Effective interactions among students.)*** Each day the teacher selects one student to share writing from her journal, a picture of her family, or an artifact related to her culture or family. ***(Creates a classroom environment in which diversity is used to further student learning.)*** The student can call on three peers to share comments or ask questions about what they shared for the purpose of learning more about the student's family or culture or for connecting their experiences to that of their peers. ***(Capitalizes on diversity as an asset in the classroom.)***

Middle school reading, writing and communicating: Students are working on Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 2—Quality comprehension and interpretation of literary texts demand self-monitoring and self-assessment.

To introduce a unit on poetry, an 8th-grade teacher creates a bulletin board of pictures/photographs of poets from diverse cultures and backgrounds. He purposefully selects poets that are representative of the cultures and backgrounds of the students. During instruction, the teacher and students read poems written by the poets and analyze them for the use of figurative language. ***(Creates a classroom environment in which diversity is used to further student learning. Delivers lessons to ensure students' backgrounds and contextual knowledge are considered. Uses materials and lessons that counteract stereotypes to acknowledge the contributions of all cultures.)*** Students work in collaborative groups to compare the different poets' use of figurative language. They read short biographies on each poet and analyze how the poet's culture and background impacted the language used. Students are encouraged to share and discuss elements of

their own culture and backgrounds that are similar to the authors' in order to analyze how culture and background influenced the use of figurative language. ***(Capitalizes on diversity as an asset in the classroom.)*** During group discussions, the teacher reminds students to use stems for *accountable* talk so they can ensure each group member's ideas are heard and respected. ***(Establishes processes that result in: Effective interaction among students.)*** Each group sets goals for how it will work cooperatively to complete the task. At the end of each lesson, the teacher has each group reflect on its progress towards its goal and its work on the task as it connects to the rubric for the assignment. ***(Establishes processes that result in: A sense of community among students.)***

High school world languages (Spanish): Students are working on the Colorado Academic Standard 2: Knowledge and Understanding of Other Cultures, Grade Level Expectation 1—Analyze how the perspectives of people who speak the target language are reflected in their practices.

Students are working on language and culture projects. A common goal for all students is to understand more fully how elements of a given culture interrelate and form a distinct personality of people. ***(Creates a classroom environment in which diversity is used to further student learning.)*** Students will explore the culture of Spain by writing travel guides, making videos, filming documentaries, or presenting dramas. They will investigate history, religion, economics, celebrations, geography, education, climate, literature, language structure, and how those elements are interrelated. Although the students have a number of product requirements laid out for them, they will add some of their own criteria for success. ***(Acknowledges the influence of race, ethnicity, gender, religion, socioeconomics, and other aspects of culture on student perspectives.)*** Students may conduct research on their own but will work in collaborative groups to discuss how their research is connected and impacts the culture of the people. The teacher provides guidelines for group discussions to ensure each student shares his findings and contributes to the discussion. ***(Establishes processes that result in: Effective interaction among students.)***

Three students in the class are advanced in their grasp of Spanish because language is a high talent area for them; for two students, Spanish is their first language. These students will work with the same concepts as the other students in the class, and, to stretch their thinking, they will do cross-cultural comparisons. They will examine elements of language and culture across at least three language groups other than Spanish, none of which can be a modern Romance language. The students will examine languages, such as Swahili, Farsi, Chinese, Japanese, Hebrew, and Russian, as well as the cultures from which those languages arise. ***(Delivers lessons to ensure students' backgrounds and contextual knowledge are considered.)*** (Tomlinson, 2001, p. 88).

Planning/Coaching Questions

- How were you able to obtain information on my students' cultures, backgrounds, and family structures?
- What changes in procedures or structures will you need to employ to acknowledge the influence of various aspects of background on student perspectives?
- What instructional approaches and materials did you use use that reflect students' backgrounds and enhance student learning?
- How did you develop a sense of community within the classroom?
- How were you able to provide opportunities for students to engage in effective interactions with their peers?
- How do you model a respect for individual differences and ensure students do the same?
- How will you model and teach students to value diverse perspectives?
- How do you capitalize on the diversity within your classroom?

Element C

Teachers engage students as individuals, including those with diverse needs and interests, across a range of ability levels by adapting their teaching for the benefit of all students.

Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must make what they learn part of themselves.
—Chickering & Gamson

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for engaging students as individuals, they should be utilizing information from results of student interest inventories or surveys, etc. and implementing lessons that reflect these interests. Teachers should also adapt lessons to students' learning needs and implement lessons that support all students in participating in class activities.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Plans for students that have a variety of learning needs and interests.***

It should be clear from looking at instructional plans how the concepts are developed and how students are to engage with the content. Besides teacher-created plans, it is also important for teachers to think through program-specific lesson plans and adjust them as needed to best meet the needs of *all* students. Anticipating the needs of *all* students before they walk into the classroom helps the teacher make thoughtful decisions related to grouping and differentiation. (*Eagle County Schools Professional Practices Rubric*, 2012, p. 9)

Many factors—academic, social, emotional, economic, physical, cultural, and/or language— can have an impact on students' learning needs. To understand and address these needs, the teacher must be a "student of her students."

Before instruction can be designed to meet students' needs, the classroom environment should promote differentiation and support for all students.

Characteristics of a supportive classroom environment:

- The teacher is attuned and responsive to the affective, cognitive, and physical needs of learners.
- Students feel safe, both physically and affectively.
- The teacher respects and supports the possibilities inherent in each student.
- Individual differences are accepted as natural and positive.
- Students learn to respect one another as learners.
- The teacher and students share in the decision-making process about daily routines and classroom operation.
- Hard work is an expectation.
- Physical arrangements are flexible and support student access to a variety of learning options.
- A range of resources is available that supports student behavioral needs and self-regulation.
- Flexible student grouping capitalizes on student strengths and allows effective attention to student needs. (Adapted from Tomlinson & Imbeau, 2010)

A critical component of a supportive classroom environment is the development and management of routines and procedures that help students understand, contribute to, and participate in the learning process. These routines are an important component in the design of the teacher's instruction.

Examples of differentiated routines and procedures:

- Using signals to redirect students that may only be known to the student and teacher.
- Providing picture cues to communicate behavior expectations and/or directions for a task.

- Providing space in a classroom for students to spend time when they need to calm down or be alone for a few minutes.
- Allowing students to use headsets to either listen to music while they work or eliminate the sound of noise in the classroom.
- Adjusting the time students may take to complete tasks.
- Providing organizational strategies, such as color-coded handouts and calendars, for students to self-manage their materials and assignments.
- Providing signals for students to obtain assistance from either the teacher or a peer.

In addition to student learning needs, it is important for teachers to also consider student interests. Interest is a great motivator for learning. Interest can refer to a topic or skill that taps into a student's talents, experiences, or dreams. It can be an area of current passion for the student. It can also refer simply to ideas, skills, or work that is appealing to a student. The term might also be used to think about new possibilities a student could encounter in the classroom that would be a source of future interests. Whatever the source, students become more invested and engaged in learning that reflects their interests.

> By eliciting student interests and opinions, teachers create an environment in which all parties are appreciated and respected. Like everyone, students want to feel that they are "known" — that others understand them, appreciate them, and recognize their unique qualities, skills, interests, needs, and personalities. Teachers who understand this and consciously find ways to demonstrate their interest in students will build a stronger foundation for effective classroom management and learning. (Marzano, 2007)

Human beings want to be known by others. When the teacher takes the time to know students' interests and engages them in conversations on these topics, students feel that the teacher is interested in them and respects them. Teachers can use a variety of methods to obtain information on their students, such as:

- Interest inventories.
- Student autobiographies.
- Journaling.
- Multiple intelligence surveys.
- Learning style surveys.

Refer to these internal resources for identifying student needs and interests:

- Examples of Ways Teachers May Differentiate in the Classroom
  Document identifies ways the teacher may differentiate instruction.
- Determining Your Learning Preference
  Document can be used by students to determine their learning preference.
- Characteristics of Learning Styles Preferences
  Document provides characteristics of learning styles or preferences: auditory, visual, and kinesthetic, with suggestions for instructional strategies.
- Interest Inventory for Students
  Survey references twenty different areas of a student's life that can be used to support the student and teacher in identifying their interests.
- Interest Survey on a Content Topic
  Example survey to support the student and teacher in identifying the their interests within a specific unit or content area.
- Multiple Intelligence Survey for Secondary Students
  Survey supports secondary students in identifying their preferred type of intelligence, based on the work of Howard Gardner.
- Multiple Intelligence Survey for Elementary Students
  Survey supports elementary students in identifying their preferred type of intelligence, based on the work of Howard Gardner.

Refer to these external resources for additional information:

- Article: "'Teacher, I Need Your Help' What kids with attention deficit wish their teachers knew." By Lisa Gridley http://www.additudemag.com/adhdblogs/28/print/10146.html
  Article describes how students with attention deficit disorder can feel in a classroom setting and ways the teacher can support them.
- Article: "Teaching Children with Attention Deficit Hyperactivity Disorder ADHD ADD" published by ERIC Clearinghouse on Disabilities and Gifted Education http://www.childrensdisabilities.info/adhd/teaching-adhd.html
  Article describes behaviors of ADHD or ADD students with suggestions for how teachers can modify the classroom environment and instruction.
- Article: "Working with Shy or Withdrawn Students" by Jere Brophy http://www.ericdigests.org/1997-3/shy.html
  Article describes how a student's shyness can impact their engagement and learning and ways teachers can support these students.

See also Standard III, Element A.

2 ***Adapts the physical environment to support individual student needs.***

The teacher who adapts the learning environment to address individual student needs is knowledgeable about how students' behavioral, emotional, and physical needs impact their learning.

> According to Tomlinson (2003), "Environment will support or deter the student's quest for affirmation, contribution, power, purpose, and challenge in the classroom." (p. 37)

Tomlinson recommends a room environment that is flexible with varied kinds of furniture: tables of different shapes and sizes, spots for quiet individual work, and areas for collaboration. The structure should allow students to move from whole group, to small group, pairs, and individual learning experiences and support a variety of ways to engage in learning. The environment should also support the teacher in interacting with students individually, in small groups, and as a whole class.

Examples of ways to differentiate the environment:

- Seating arrangement of students — proximity of student to the front of the classroom, to the teacher, and/or to other students.
- Calm down space for students to use as necessary or appropriate.
- Visual stimulation—visuals should be displayed in an orderly manner and serve a purpose for student learning or behavior.

LEVEL 2 PRACTICES

THE TEACHER:

3 ***Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests.***

Implementing a variety of practices to address students' unique learning needs and interests requires the teacher to differentiate based on where each student begins and how he is progressing towards meeting the learning objective of a lesson. Depending on a student's progress towards the objective, his understanding of procedural skills and conceptual understandings, his social and emotional development, his learning preferences, interests, and culture, the teacher will need to provide different ways in which the student can access the content and skills being taught. In addition to analyzing student data, the teacher may also utilize surveys and inventories for identifying student needs.

Differentiated content adopts the concept of "readiness." Some students will need to go back to prerequisite **content** in order to move ahead, when advanced learners may need to move ahead before their classmates are ready to do so, and when student Individualized Education Programs (IEPs) direct the teacher to change the content itself.

What Differentiated Instruction Is Not	What Differentiated Instruction Is
Modifying grading systems: Modifications of grading systems may make it possible for struggling students to receive higher grades, but they are usually not designed to provide equitable access to learning objectives or grade-level standards.	**Variety of assessments**: Providing a variety of ways in which students may demonstrate their learning allows students to meet grade-level expectations based on their levels of academic readiness and interests. This differs from modifications to grading systems in that the criteria for student mastery of an objective does not change, but the vehicle by which students demonstrate mastery is differentiated.
More work for the "good" students or "extra activities" when students complete work: More work for students who have already mastered skills or concepts may provide additional practice, but it does not extend the learning unless the work is at a different skill level or challenge. Providing "busy work" for students who finish assignments early only serves to keep them busy, not to further their learning.	**Extension activities:** Extension activities can provide opportunities for students to apply learning to a variety of scenarios and real-life experiences. Extension activities that advance student learning require students to transfer their learning to new situations.

Refer to these internal resources for additional information:

- Research on Differentiation of Content
  Document defines content and discusses what is needed for it to be differentiated, how teachers can accomplish the differentiation, and why it is important to do so.
- Examples of Modifications of Content
  Document provides examples of this professional practice.

Refer to these external resources for additional information:

- Article: "Differentiated Instruction in the English Classroom Content, Process, Product and Assessment" by Barbara King-Shaver and Alyce Hunter http://www.heinemann.com/shared/onlineresources/E00577/chapter4.pdf.
  Article provides resources for getting to know one's students and suggestions for how to manage a differentiated classroom that can be helpful for teachers of all content areas. Specific suggestions are included for middle and high school English classes.

See also Professional Practices under Level 1 Practices for this element.

4 ***Implements learning plan(s) to address student needs.***

Teachers should be proactive in soliciting input from colleagues that can support the learning of all students. It begins with reviewing the learning plans of all students including gifted, ELL, Special Education or 504 plans. This may include scheduling time for colleagues to observe students, collaboratively analyzing student data, obtaining resources from colleagues, and observing or co-teaching with colleagues.

To design instruction that addresses the learning needs of all students, the teacher must be willing to seek and implement recommendations of specialists and colleagues with knowledge and experience in addressing a variety of student needs. This may include specialists from student support services or other teachers.

Student Support Services	Teachers
Physical and Occupational therapists	Special education teachers
Speech language pathologists	Gifted and talented teachers
School orientation and mobility specialists	Second-language teachers
School psychologists	Specialists, such as music, art, band, chorus, and

	physical education teachers
Audiologists	Interventionists
School nurses	Instructional coaches
School social workers	Content area specialists
School counselors	Previous year's teachers

When teachers have opportunities to collectively analyze student data and collaborate on strategies and interventions to meet identified needs, teacher and student growth can increase.

Benefits of teachers working together to address student needs:

- Teachers' understanding of essential content and of the needs of their students is deepened.
- Instructional strategies can more appropriately be aligned with students' needs and content goals.
- Teachers have opportunities to implement strategies and then reflect on their effectiveness in order to identify next steps.

5 ***Encourages contributions of students across a range of ability levels.***

When students experience the classroom as a safe, supportive place where everyone's contributions and thinking is valued and respected, they can become motivated to engage in the process of learning.

For this type of environment to exist, students must be provided opportunities to contribute to the lesson. The teacher may do this in a variety of ways, such as class discussions, collaborative learning, student writing, and presentations. It is then the manner in which the teacher responds to students during these activities that communicates dismissal or acceptance and respect for their work.

To encourage students to contribute, the teacher should highlight student progress and create an environment in which students are encouraged to learn from their peers. The following questions can assist the teacher in creating this type of environment:

- How can I ensure each student has opportunities to contribute to the lesson?
- How will I help each student see that he or she can make a positive difference in the learning of others?
- How will I communicate that I value each student's unique abilities?

See also Standard II, Element B and Standard III, Element F.

Refer to this internal resource for additional information:

- A Teacher's Words Matter

  Document provides examples of phrases that can communicate to students they are valued and respected for their contributions and thinking.

LEVEL 3 PRACTICES

THE TEACHER:

6 ***Initiates collaboration with colleagues to better understand and respond to student learning needs.***

The opportunity to learn from others' experiences and expertise deepens one's knowledge and strengthens the effectiveness of classroom instruction. Learning is a social endeavor. Just as students need opportunities to interact and learn from their peers, teachers need to engage in collaboration that is solution-oriented and improves the quality of lessons for all students.

Planning can be done in many ways, but the most powerful is when teachers work together to develop plans, develop common understandings of what is worth teaching, collaborate on understanding their beliefs of

> challenge and progress, and work together to evaluate the impact of their planning on student outcomes. One of the major messages from *Visible Learning* is the power of teachers learning from and talking to each other about planning. (Hattie, 2012, p. 41)

Collaboration does not happen automatically. Schools must create an environment in which teachers and leaders can feel safe to take risks, ask questions, and accept feedback from peers. Effective norms and protocols for collaboration can help maximize the time teachers are together and ensure teachers are equipped to find solutions that will result in achievement for all students.

> According to Langer & Colton (2005), "These skills help teachers and organizations move beyond a 'culture of polite conversation' to deep analysis of teacher and learning." (p. 26)

See also Standard III, Element A.

Refer to this external resource for additional information:

- Article: "The Benefits of Teacher Collaboration" by Carla Thomas McClure
  http://www.districtadministration.com/article/benefits-teacher-collaboration
  Article examines the impact of teacher collaboration on student achievement.

7 ***Provides opportunities and support for students to self-select tasks that accelerate progress toward their learning goals***.

> According to Vatterott (2009), "When we customize tasks to fit student learning styles and interests, the task becomes theirs, not ours. The goal of ownership is to create a personal relationship between the student and the content."
>
> Giving students choices is as much a fundamental principle of good teaching as it is a specific intrapersonal teaching strategy. Essentially, choice… consists of building in opportunities for students to make decisions about their learning experiences. Making choices is like lifting weights. The more frequently students choose from a group of options, the thicker their responsibility muscles become. (Armstrong, 2009, p. 92)

Examples of sentence starters to use when presenting students with choices:

- "You may choose to work on _____ or _____." (small and limited)
- "Select the kind of project you would like to do." (significant and open ended)
- "Decide which topic you would like to explore." (choices related to content)
- "Choose from this list a method for…" (choices related to process)
- "Okay, would you rather stop now or continue talking about this?" (informal and spur-of-the-moment). (Armstrong, 2009, p. 92)

Accelerated progress towards learning goals occurs when students are allowed to learn in their preferred style and in a manner that challenges their thinking and promotes the acquisition of knowledge.

Factors that help students accelerate progress towards their learning goals:

- *Positive Learning Environment:* Students learn best in a positive physical, emotional, and social environment, one that promotes safety and risk-taking and values individual differences.
- *Engagement:* Students need to be actively involved in the learning process and take responsibility for their own learning. Knowledge is not something students can passively absorb.
- *Collaboration:* Students need opportunities to share their thinking with others. Learning is a shared experience that involves peer collaboration and communication in which students learn from one another.
- *Choices:* Students are more motivated to learn when they have a variety of materials and tasks from which to choose based on their interests, learning preferences, and academic needs.

8 ***Integrates coping skills such as self-reflection, self-regulation and persistence into instruction***.

Self-advocacy refers to: an individual's ability to effectively communicate, convey, negotiate or assert his/her own interests and/or desires.
"Self determined people know what they want and use their self-advocacy skills to get it. From an awareness of personal needs, self-determined individuals choose goals and then doggedly pursue them. This involves asserting their presence, making their needs known, evaluating progress toward meeting their goals, adjusting their performance, and creating unique approaches to solve problems (Martin, Huber Marshall, & Maxson, 1993)."

- *Career exploration activities*
- *Job shadow*
- *Interview adults in a particular line of work*
- *Establish goals*
- *School and work based learning*
- *Creation of an ICAP*
- *Learning how to request resources in order to complete a goal*

Refer to this external resource for additional information:

- Article: "Self-Determination and Career Development: Skills for Successful Transitions to Postsecondary Education and Employment" by Margo Izzo http://www.rrtc.hawaii.edu/documents/products/phase2/pdf/062d(1)-H01.pdf

  Article examines the impact of teaching self-advocacy skills to students

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element C will be students who actively engage in classroom activities and monitor their learning. Students will be able to articulate their learning needs and interests and apply coping skills to classroom situations. They will challenge themselves and encourage their peers to do the same.

STUDENTS:

9 ***Actively engage in and monitor their learning.***

"Blogger Ben Johnson defines student engagement and describes what it looks like in the classroom."
https://www.edutopia.org/blog/student-engagement-definition-ben-johnson

10 ***Articulate their learning needs and interests that affect classroom performance to the teacher and/or parent.***

'Accordingly, a prominent pedagogy will be teacher-as-coach, to provoke students to learn how to learn and thus to teach themselves, rather than the more traditional teacher-centered learning with teacher-as-deliverer-of-instructional-services, which places the teacher at its center in an active role and students in a passive, receptive role."
http://essentialschools.org/benchmarks/student-centered-teaching-and-learning/

11 ***Apply coping skills such as self-reflection, self-regulation, and persistence to classroom situations.***

"Finally, we describe the interdependence of adolescents' academic self-efficacy beliefs and their use of self-regulatory processes, and we consider the implications of this research for designing training interventions to enhance students' academic agency."
http://www.infoagepub.com/self-efficacy-sample.html

"There is no simple and straightforward definition of the construct of self-regulated learning. Theorists in educational psychology have narrowed the scope of students' capability to self-regulate through a focus on the academic side of education, namely on learning and achievement goals."
https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1464-0597.2005.00205.x

"Regulating Motivation and Cognition in the Classroom:
The Role of Self-Schemas and Self-Regulatory Strategies"
https://www.researchgate.net/publication/233896354_Regulating_motivation_and_cognition_in_the__The_role_self-schemas_and_self-regulatory_strategies

12 ***Encourage fellow students to participate and challenge themselves.***

"You can improve student participation in your course by devoting time and thought to shaping the environment and planning each class session. Furthermore, the way in which you interact, both verbally and non-verbally, communicates to students your attitude about participation."
http://teachingcenter.wustl.edu/resources/teaching-methods/participation/increasing-student-participation/

"Students who are intrinsically motivated might say things like the following.

- 'Literature interests me.'
- 'Learning math enables me to think clearly.'
- 'I feel good when I succeed in class.'

Advantages: Intrinsic motivation can be long-lasting and self-sustaining. Efforts to build this kind of motivation are also typically efforts at promoting student learning. Such efforts often focus on the subject rather than rewards or punishments."
https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/

"Instructors who adopt a student-centered approach to instruction increase opportunities for student engagement, which then helps everyone more successfully achieve the course's learning objectives."
https://www.washington.edu/teaching/teaching-resources/engaging-students-in-learning/

Classroom Examples

Middle school science: Students are working on Colorado Academic Standard 2: Life Science, Grade Level Expectation 1: All living things are made up of cells, which is the smallest unit that can be said to be alive.

Middle school students are studying the circulatory system. During the unit of study, the teacher makes multiple connections to student interests and experiences. Several students in the class have recently been sick with the flu or colds. The teacher uses this information to explain the purpose of white blood cells and what it can mean when one's white blood cell count is high or low. ***(Plans for students that have a variety of learning needs and interests.)*** He also knows from student interest inventories that many students are concerned about health issues, especially childhood obesity. He uses this information to explain the importance of drinking water and eating foods high in iron, as it relates to the work of the red blood cells and circulatory system. He also has students read an article on the impact of weight on the heart. Using information from the article and their own research, students work in collaborative groups to create a persuasive campaign informing teens of the impact of obesity on the circulatory system. Each group creates a goal for its work and assigns each member a specific role within the group. ***(Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests. Encourages contributions of students regardless of backgrounds or abilities.)*** At the conclusion of the unit, one student group is selected to present its campaign at a school assembly.

High school science. Students are working on Colorado Academic Standard 1: Physical science, Grade Level Expectation 6: Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system.

Students are studying forms and transformations of energy. During the unit of study, the teacher makes connections to student interests and experiences through demonstrations and activities. *(Plans for students that have a variety of learning needs and interests.)* The teacher then provides opportunities to observe and measure energy transformations so students can explain that total energy remains constant even as energy changes forms. Students are free to choose opportunities that align best with their interests (e.g., pendulum, roller coaster, emergency light bulbs, emergency radios, fires, engines). *(Provides opportunities and supports for students to self-select tasks that accelerate progress toward their learning goals.)* She also knows from student interest inventories that many students have interests in design, so she allows students to design a device that accomplishes an everyday task around the home, utilizing different energy transformations. *(Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests.)* At the conclusion of the unit, one student per class is selected by their peers and teacher to present their designs at a school assembly.

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 3: Writing and Composition, Grade Level Expectation 3--Apply standard English conventions to effectively communicate with written language.

Fourth-grade students are editing personal narratives they have written. The teacher knows that a particular student can become easily frustrated when she has to redo her work; the student struggles with spelling but wants her writing to be "perfect." Prior to this lesson, the teacher meets with a colleague to learn how he supports students with this same need. *(Plans for students that have a variety of learning needs and interests. Initiates collaboration with colleagues to better understand and respond to student learning needs.)* During the lesson, when her students begin editing, the teacher reads the student's writing aloud with her as a support in identifying the words she needs to correct. She talks with the student about how authors of the books she reads had to redo their writing many times before it became published. She discusses the character trait of perseverance and points out that part of learning and doing one's best work includes making mistakes in the process. *(Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests.)* To promote the student's independence, the teacher provides her a list of sight words and a picture dictionary that is easier for her to use than the classroom set of dictionaries. *(Adapts the physical environment to support individual student needs. **Implements learning plans to address student needs.)*** Before she moves to conference with other students, she tells her to correct at least two words and then she will come back to check on her progress, and that she is looking forward to reading the final draft of her narrative.

High school history: Students are working on Colorado Academic Standard 1: History, Grade Level Expectation 1—Use the historical method of inquiry to ask questions, evaluate primary and secondary sources, critically analyze and interpret data, and develop interpretations defended by evidence.

Students are studying the Great Depression and will be interviewing an individual who was living during that time period to get a first-hand account of the impact it had on people's lives. The teacher is concerned about two students being able to complete the task. One student is shy and withdrawn, and the other is easily angered when dealing with individuals she does not trust. Prior to assigning the task to the whole class, the teacher plans a time to meet with both students individually to explain the purpose of the task and his expectations. He also provides strategies for how to ask questions that display respect for the life experiences of older adults. As the students develop the interview questions, he allows them to role play the interview with him. ***(Plans for students that have a variety of learning needs and interests. Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests. Encourages contributions of students regardless of background or abilities.)*** He also suggests individuals they may interview and offers to set up times for them to meet prior to the interview. On the day of the interviews, he joins the student who is easily angered as a silent support. His presence helps the student feel safe and able to engage in the interview***. (Adapts the physical environment to support individual student needs. Encourages contributions of students regardless of background or abilities. Implements a variety of inclusion, intervention, or enrichment practices to address unique learning needs and interests.)***

Planning/Coaching Questions

- What is the best way to obtain information on my students' needs?

- How have you adapted the physical environment to support individual student needs?
- How do you plan instruction that addresses the learning needs of all students?
- How do you apply the knowledge of specialists and colleagues to plan instruction that addresses student needs?
- How have you obtained information on my students' interests?
- How do you utilize students' interests when planning lessons and materials students will utilize?
- How do you ensure all students participate in class activities?
- How did you plan instruction and tasks that provided choices to motivate students to participate?
- How do you encourage students to self-advocate?

Element D

Teachers work collaboratively with the families and/or significant adults for the benefit of students.

Parents are the essential link to improving American education, and schools have to do a better job of reaching out to them. Sending home a report card is not enough. Parents want to help their children succeed in school, and often need guidance on how to be most effective.

—Richard Riley Secretary, U.S. Office of Education 1999

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for working collaboratively with families, they must first establish a classroom environment that is inviting to families. They must also use a variety of methods to initiate communication that result in respectful relationships with students, their families, and/or significant adults.

LEVEL 1 PRACTICES

THE TEACHER:

Establishes:

1 ***A classroom environment that encourages participation from families and/or significant adults.***

The teacher who establishes an inviting classroom for families and/or significant adults demonstrates the importance of creating a partnership between the school and the student's home. This partnership begins with families feeling welcomed into the classroom by the teacher and the students.

> While all parents want to know how to co-educate their children, not all parents know how to do this. A major barrier for these parents is that they are often not familiar with the language of learning and schools. For many of them, school was not always the most pleasant experience. (Hattie, 2012, p. 188)

A classroom that is inviting has a culture of respect for its members and visitors. The teacher communicates with families and/or significant adults in a respectful manner that conveys the importance of the school-home connection, regardless of the family structure or experiences of the adults.

Tips for establishing an inviting environment for families and/or significant adults:

- Invite family members directly into the classroom to share interests and cultural traditions. This can provide a meaningful learning opportunity for students and support collaboration between families and teachers.
- Schedule opportunities for families to participate during and after the school day. This can accommodate adults with different work hours or other commitments, but who want to be involved in their child's educational experiences. Examples of these opportunities are: Reading Night, Author's Night, Math and Science Activities, etc.
- Implement the creation of family projects, such as, All about Me collages and Family Trees. Displaying these projects in the classroom can create a welcoming and culturally respectful environment for students and families.
- Establish a Student of the Week recognition and invite family members to send in pictures or notes to the student. Family members may also be invited to have a special breakfast or lunch with their student.
- Use journals as a way for students to communicate with families about what they are learning and doing at school. Ask families to respond to the student's writing. Parents may also be asked to respond to a prompt related to a concept being taught or share an experience that connects to a social skill/character trait students are learning. For example, "Describe a time you had to persevere with a task," or "Describe a time when you felt hurt or sad, and explain how you dealt with this feeling."

Refer to this external resource for additional information:

- Article: "Welcoming Children and Families into Your Classroom" published by the National Association for the Education of Young Children
  https://www.naeyc.org/resources/pubs/tyc/apr2013/welcome-children-and-families
  Article provides ideas for how early childhood teachers can create a classroom environment that is inviting to families and students.

2 ***Respectful relationships with families and/or significant adults.***

> … the right kinds of school-family connections – those built on relationships, listening, welcoming, and shared decision making – can produce multiple benefits for students, including higher grade point averages and test scores, better attendance, enrollment in more challenging courses, better social skills, and improved behavior at school. (Ferlazzo, 2011, p. 10)

Respectful relationships are maintained when the teacher values the background, family structure, and culture of each student, family, and/or significant adult. The teacher refrains from placing blame or judging, but works as a partner with families and/or significant adults to support each student's educational success.

Resources for connecting with families and/or significant adults:

- Boys and Girls Clubs of America—http://www.bgca.org/
- Coalition for Community Schools—http://www.communityschools.org/
- Communities in Schools—http://www.communitiesinschools.org/
- National Network of Partnership Schools— www.partnershipschools.org/
- YMCA/YWCA Programs—http://www.ymca.net/, http: //www.ywca.org/

See also Standard II, Element B.

LEVEL 2 PRACTICES

THE TEACHER:

3 ***Uses a variety of methods to initiate communication with families and/or significant adults in the school and community.***

Effective and open communication with families and/or significant adults is the cornerstone for building positive, respectful relationships between the classroom and a student's home. It impacts the degree to which families become engaged in supporting a student's academic and social growth at school and their sense of partnership with the school.

> School life has changed. Many classrooms are profoundly different from those in which parents sat 30 years ago. The adult is no longer the single authority figure imparting wisdom to the uninitiated. Students often command authority with their knowledge. There is a focus on talk as students share and learn from each other…teachers are challenged to help students learn how to convey the world of school to those who are not participating in it and may not even be familiar with it. (Costa & Kallick, 1995)

Tips for communicating effectively with families and/or significant adults:

- Communicate with families early in the school year as a means of introduction. This may include expectations for the classroom and opportunities for family involvement. Also provide contact information so families feel free to communicate with the teacher when they have concerns or questions.
- Communication should be timely and consistent. Families should be notified of concerns as soon as they arise. Waiting to contact families can create frustration and distrust. Families should never be "surprised" to hear of the teacher's concerns because of lack of communication.
- Communicate positive news about student performance more often than negative news. When families only receive negative communication about a student, it can discourage them from becoming involved as they may begin to feel they are unable to effectively support the student.

- Share ideas and resources families may use at home to support a student. Helping families to use the same language at home for student expectations at school can create a strong partnership between the school and a student's home that promotes consistency and structure.
- Involve families in creating strategies for use in supporting students. Asking families what they have used at home can communicate the importance of family partnerships and the importance a teacher places on their involvement.
- Use language that is clear and understandable to families and significant adults. The teacher should avoid using educational terms or acronyms that may be unfamiliar to families. This can cause them to feel inadequate to support the student and reluctant to become engaged in the educational process.

Refer to this external resource for additional information:

- Student Observation Form for Parents
  http://printables.scholastic.com/content/collateral_resources/pdf/00/COL00_002.pdf
  Document is an example for how teachers may involve families in identifying a student's strengths and areas of needs.

4 ***Shares feedback on student progress with families and/or significant adults.***

The school-home connection is critical for student success, which makes providing feedback to parents so important. When parents have an understanding of what their child is learning and how they are progressing towards academic goals, they feel connected. They are motivated to be involved and contribute to their child's success.

A teacher who provides actionable feedback to families gives clear suggestions for how families and/or significant adults can support their student's success. At the elementary level, for example, a teacher can talk to parents and/or significant adults about reading with their student and asking comprehension questions or about math facts and counting money, Feedback to parents and/or significant adults can be provided in a variety of ways, during parent-teacher conferences, phone calls, emails, and/or written notes.

One of the most common avenues for providing feedback to parents and significant adults is the parent-teacher conference.

> Everyone likes to be an insider—someone "in the know." Play on this human trait during your annual parent-teacher conferences. Because every parent has an inherent interest in attending their child's conference, this is a unique opportunity to invite input from parents and help them feel comfortable working with you. This comfort can prove to be a base from which parent engagement can flourish. (Ridnouer, 2011)

Elements of effective feedback to families and/or significant adults:

- Provides specific data on a student's academic work and explains what a student is doing that is helping him make progress towards academic goals.
  - Sharing student needs and progress can be a collaborative decision between the teacher and student. While the teacher should select some student work to share, students should be allowed to select others. Student selections should be accompanied by a written explanation of why they chose a particular item to share. This explanation may reveal how the work reflects the student's view of himself/herself as a learner and why the piece of work is important and representative of their progress. Sharing the student's reflections with families and/or significant adults can bring them into the feedback spiral of reflection and learning. It can also support the development of a relationship that is built on respect for the student and their family and/or significant adults.
- Identifies next steps by explaining what the student is doing successfully as well as areas for growth.
  - When the teacher only provides feedback that is negative, parents can feel overwhelmed or defensive. Therefore, it is important for the teacher to recognize a student's progress and share this with families and/or significant adults. This can lead families and/or significant adults to be more open to receiving feedback about areas that need to improve. No matter how problematic a child's behavior might be, noting improvement in some area, even though small, establishes a tone that can contribute to further

progress.

- Provides clear actionable ways the parent can support at home. This may include resources such as websites, flash cards, practice worksheets, etc.
    - When providing feedback to parents and/or significant adults, the teacher needs to provide specific examples of how the student has grown as well as areas for improvement and ways families and/or significant adults can support a student's growth.

Refer to this internal resource for additional information:

- Examples and Non-examples of Quality Feedback to Families
  Document provides explanations for why feedback examples are of high quality for families.

Refer to these external resources for additional information:

- Article: "Parent–Teacher Conference Tip Sheets for Principals, Teachers, and Parents" from Harvard Family Research Project
  http://www.hfrp.org/var/hfrp/storage/fckeditor/File/Parent-Teacher-ConferenceTipSheet-100610.pdf
  Article provides tips for how to ensure parent-teacher conferences are effective for teachers and families.
- Excerpt from Everyday *Engagement* by Katy Ridnouer
  http://www.ascd.org/publications/books/109009/chapters/Making-Inroads-with-Resisters.aspx
  Excerpt provides ideas for how and why teachers should involve students in parent-teacher conferences.

LEVEL 3 PRACTICES

THE TEACHER:

5 ***Facilitates communication between families and/or colleagues who provide student services.***

For the majority of families and/or significant adults, the classroom teacher represents the student's school. Therefore, it is important that the teacher works with colleagues within the school and/or district who are involved in supporting a student's education to ensure families and/or significant adults receive timely communication concerning the student's progress. By coordinating this information, the teacher can help to ensure families do not receive conflicting information that can be confusing or lead to lack of trust in the school team.

The teacher may also act as an advocate for the student by informing families and/or significant adults of services available to students and their families. This may include providing contact information, supporting families and or significant adults in completing necessary forms, providing translations when needed, and scheduling and attending meetings with student service personnel. By coordinating the flow of information between families (and/or significant adults) and colleagues who provide student services, the teacher can help ensure a student's emotional, social, and intellectual needs are being addressed, as well as the needs of the families and/or significant adults that can impact a student's education.

Other Professionals Who Work With Students

Within the school community, there may be a variety of adults that work with students to support their emotional, social, and academic growth. Therefore, it is important that information related to the service each adult provides is communicated in a coordinated and timely manner, so support can be systematic and specific to each student's needs.

These professionals may include:

Student Support Services	Teachers
School physical and occupational therapists	Special education teachers
School speech language pathologists	Gifted and talented teachers
School orientation and mobility specialists	Second-language teachers
School psychologists	Specialists, such as music, art, band, chorus, and

	physical education teachers
School audiologists	Interventionists
School nurses	Instructional coaches
School social workers	Content area specialists
School guidance counselors	

6 ***Recognizes obstacles to family and community participation and seeks solutions to overcome them.***

Most teachers make an effort to communicate with families on a regular basis. Forms of communication may include: website, emails, text, messaging, phone calls or notes home. Given the fact that many families do not respond to these communications, teachers need to recognize these communication obstacles and respond by:

- Attempting to connect with parents in an alternate way. Ex: send a note home to families without Internet.
- Make personal contact with parents at functions, evening events or activities hosted by the school.
- Actively seek the attendance of
- Know you students and the obstacles that may be disrupting communication: single parents, fathers, English is a second language, working couples.
- Plans to meet with families at times most convenient for the family.

Refer to this external resource for additional information:

- Article: "Supporting Parent, Family, and Community Involvement in Your School." by Deborah Davis http://www.pacer.org/mpc/pdf/titleipip/SupportingInvolvement_article.pdf

  Article examines the impact of family communication on student achievement.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of implementation of the professional practices referenced above in Element D will be students who communicate freely and openly with teachers and families and/or significant adults who partner with the teacher in supporting student strengths and addressing next steps for learning.

FAMILIES AND/OR SIGNIFICANT ADULTS:

7 ***Collaborate with the teacher to remove obstacles to participate in classroom and/or school-based activities.***

8 ***Participate in classroom and/or school-based activities.***

Classroom Examples

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 1—Fluent reading depends on specific skills and approaches to understanding strategies when reading literary text.

As a way to promote student reading comprehension, fluency, and vocabulary, the 2nd-grade teacher invites students' family members and significant adults to read with students during the independent reading block each Friday. She sends home invitations to each family explaining the opportunity to help support students' reading skills. As family members enter the classroom, they are welcomed by the teacher and introduced to their "reading partner." A selection of books and questions they can ask the student after reading is provided. ***(Establishes: A classroom environment that is inviting to families and/or significant adults and Respectful relationships with students, their families, and/or significant adults.)*** For family members who are unable to visit the classroom during the day, the teacher provides resources for them to create recordings. Family members who are bilingual are encouraged to create recordings for second-language speakers. After each reading experience with an adult, the student writes a thank-you note and shares how the experience helped her as a reader. ***(Establishes: Respectful relationships with students, their families, and/or significant adults.)***

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 1: Oral Expression and Listening, Grade Level Expectation 1—Effective communication requires speakers to express an opinion, provide information, describe a process, and persuade an audience.

At the beginning of the school year, the 5th-grade grade-level team, or department, sends a newsletter to each family outlining the units of study for the school year. Family members are encouraged to identify topics for which they have interests, artifacts, or experiences that could enhance student learning. Throughout the school year, family members and significant adults are welcomed into the classroom to share their experiences or create videos that can be shared with students. The students maintain a visitor log for their classroom that includes each visitor's name and area of interest. There is also space for each visitor to write a note to the students about their visit. ***(Establishes: A classroom environment that is inviting to families and/or significant adults and Respectful relationships with students, their families, and/or significant adults.)***

Planning/Coaching Questions

- How do you best create a classroom environment that is inviting to students' families and/or significant adults?
- How do you ensure that the relationships you have with students, families, and/or significant adults are respectful?
- What methods have you used to communicate with families and/or significant adults?
- How do you coordinate the flow of information between students' families and/or significant adults and other colleagues who provide student services?
- How do you ensure families and/or significant adults are aware of services available to students and their families?
- How do you recognize and seek solutions to obstacles to family and community participation?

Teacher Quality Standard III

Teachers plan and deliver effective instruction and create an environment that facilitates learning for their students.

Study after study shows the single most important school-level factor determining the quality of the education a child receives is the quality of the teacher. Quality teachers have knowledge of content, curriculum, and standards. They are able to plan and implement instructional strategies in an effective and purposeful manner that enhances student learning and independence. Research shows that when implemented effectively and purposefully, the professional practices referenced in Standard III can result in an environment in which all students can learn and succeed.

Element A

Teachers demonstrate knowledge about the ways in which learning takes place, including the levels of intellectual, physical, social, and emotional development of their students.

Not all students are alike. We must not differentiate who will learn what but rather how we will teach so that all students have access to, and support and guidance in, mastering the content.

—Paula Rutherford

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for the application of current developmental science to address student needs, they must effectively differentiate instruction and modify content based on the relationship of the students' intellectual, physical, social, and emotional development. Teachers who meet the state standard for this element expand their knowledge through collaboration with colleagues and apply this knowledge to improve the quality of lessons.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Considers the intellectual, physical, social, and emotional development of students when planning lessons.***

> In his book, *Emotional Intelligence* (1995), Dan Goleman writes that emotional intelligence determines about 80% of a person's success in life. Emotional development is interrelated with both physical and intellectual development. Brain researchers tell us that emotions strongly influence our ability to pay attention and retain information (Wolfe, 2001). The implications of this for the way we approach teaching and learning are tremendous. Williams (1996) indicates that emotional and psychological concerns can impede academics unless teachers know how to work with these factors and develop an understanding of the context of a student's world. "The affective side of learning is the critical interplay between how we feel, act, and think. There is no separation of mind and emotions; emotions, thinking, and learning are all linked." (Jensen, 2008, p. 71)

Impact of social development on learning:

Teachers of young children should place a priority on the development of social skills. Unless children achieve minimal social competence by about the age of six years, they have a high probability of being at risk throughout life. Hartup suggests that peer relationships contribute a great deal to both social and cognitive development and to the effectiveness with which we function as adults (1992). He states that:

> Indeed, the single best childhood predictor of adult adaptation is NOT IQ, NOT school grades, and NOT classroom behavior but, rather the adequacy with which the child gets along with other children. Children who are generally disliked, who are aggressive and disruptive, who are unable to sustain close relationships with other children, and who cannot establish a place for themselves in the peer culture are seriously "at risk." (Hartup, 1992)

While it may be challenging for young adolescents to develop a positive self-esteem, it may prove to be especially difficult for minority students. Knowles and Brown (2000) posed the question "How does one develop a sense of self within a dominant culture whose values may be contradictory to those of one's personal culture?" Teachers must create learning environments that account for cultural, ethnic, and racial differences. (Knowles, Brown, & Bird, 2000, p. 30)

Refer to these external resources for additional information:

- Article: "Emotional Development" by Teresa Odle, Gale Group
  http://www.education.com/reference/article/emotional-development
  Article explains the impact of children's emotional development on their experiences in school.
- Article: "Working with Shy or Withdrawn Children" by Jere Brophy
  http://www.ericdigests.org/1997-3/shy.html
  Article provides suggestions on working with shy or withdrawn students.

LEVEL 2 PRACTICES

THE TEACHER:

2 ***Collaborates with colleagues who have expertise in child and adolescent development to improve the quality of instruction.***

When teachers collaborate, they are able to support a shared vision and goal for student learning. The opportunity to learn from others' experiences and expertise deepens their knowledge and strengthens the effectiveness of their classroom instruction. Learning is a social endeavor. Just as students need opportunities to interact and learn from their peers, teachers need to engage in collaboration that is solution-oriented and improves the quality of lessons for all students.

Teacher collaboration includes meetings with the following professionals: (APS, June 2018)

- Instructional coaches
- School mental health teams
- Nurses
- Interventionists
- Special Education Teachers
- CLDE Specialists
- School leadership
- Community experts
- District support teams

Evidence of this collaboration could include: (APS, June 2018)

- Intervention plans
- Agendas from formal meetings
- Lesson plans
- Emails
- PLC discussion notes

See also Standard II, Element C.

LEVEL 3 PRACTICES

THE TEACHER:

Engages students in:

3 ***Developmentally-appropriate learning.***

As support in presenting concepts in a developmentally-appropriate manner, the teacher should first refer to the Colorado Academic Standards and the district's curriculum. The teacher must also consider the cognitive level of the students, their attention span, communication skills, and previous learning from prior grades and units of study.

Teacher engages students with appropriate sit time, wait time, time on task within the planning.
Engages in inquiry based learning. (APS, June 2018)

Website: https://www.shapeamerica.org//upload/Appropriate-Instructional-Practice-Guidelines-K-12.pdf

4 ***Creative learning experiences***.

It is critical to capture the attention of the students in the first few minutes of your lesson. Approach the topic in a way that will make them curious about what they will be learning that day. The more interested they are, the more motivated they will be. See this article for some additional ways to maximize student interest.
https://www.lessonplansdigger.com/2015/10/21/7-ways-to-create-interest-in-the-lesson-topic/

Creative learning experiences are created by giving students some measure of autonomy in the task, creating a lesson that they can achieve, and a topic that is meaningful to students. Edutopia has this article on creating meaningful experiences for students:
https://www.edutopia.org/blog/golden-rules-for-engaging-students-nicolas-pino-james

This resource will give some ideas on how to connect your classroom beyond the walls and make it more collaborative and creative.
https://www.edutopia.org/blog/reengaging-students-andrew-marcinek

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced above in Element A will be students who are able to understand their learning needs. By developing an understanding of how they learn best, students are able to advocate for their learning needs, apply new ways of learning, and evaluate the impact of new and different ways of learning to refine their knowledge of what works best for them.

STUDENTS:

5 ***Advocate for their learning needs***

"Characteristics of Self-Advocacy
Students with disabilities require self-advocacy characteristics and skills for a successful transition from high school to post-secondary education. The process of developing self-advocacy skills should begin while the students still attend high school. It is important for students with exceptionalities to be aware of their rights and how to present themselves responsibly. Furthermore, students with disabilities are not exempt from such policies however they will need to learn how to assertively advocate for their needs without being aggressive."
https://teachingselfadvocacy.wordpress.com/teaching-self-advocacy-skills/

"Every day we added 10 more words — if I forgot, he reminded me. Every night, Riley practiced all of the cards until he had a vocabulary of 800 or 1,000 words and could put the words together. This isn't an approach that works for most kids, but it boosted Riley's confidence; by the end of the school year he was reading our fifth-grade texts and reading for his own enjoyment."
http://www.gettingsmart.com/2018/02/empowering-students-to-understand-and-advocate-for-their-own-learning-differences/

6 ***Communicate the value of new and different ways of learning.***

"Good Practice Encourages Active Learning

Learning is not a spectator sport. Students do not learn much just sitting in classes listening to instructors, memorizing assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves.
Implementation Ideas:

- Ask students to present their work to the class.
- Give students concrete, real life situations to analyze.
- Ask students to summarize similarities and differences among research findings, artistic works or laboratory results.
- Model asking questions, listening behaviors, and feedback.
- Encourage use of professional journals.
- Use technology to encourage active learning.
- Encourage use of internships, study abroad, service learning and clinical opportunities.
- Use class time to work on projects."

http://www.crlt.umich.edu/gsis/p4_6

7 ***Apply new and different ways of learning.***

By Larry Ferlazzo
"Transfer of learning" is the term used to describe applying what one has learned in a particular situation to another in a different context. This kind of extension could take place during a school year within an individual class when applying what is learned about one problem to another, to different and future classes, to home situations, and to a workplace situation (now and in the future) .

https://www.washingtonpost.com/news/answer-sheet/wp/2015/03/24/the-real-stuff-of-schooling-how-to-teach-students-to-apply-knowledge/?noredirect=on&utm_term=.dd27f4c41f38

Classroom Examples

Kindergarten: Students are working on Colorado Academic Standard 3: Emotional and Social Wellness in Health, Grade Level Expectation 3—Exhibit understanding that one's actions impact others.

A kindergarten teacher notices his students are having difficulty understanding how their actions affect their classmates' feelings. As part of Morning Meeting, he teaches a lesson on feelings using the video http://www.youtube.com/watch?v=Eu-Ztd0XMUo based on the book*, I Feel* by Tessa Court. He focuses on the emotion of "mad" to help his students understand when they and their classmates have this feeling. As part of the lesson, he provides students with role-play cards based on scenarios that have occurred in the classroom. He has each student explain why a classmate's action might make them feel mad and how their friend can make them feel better. Throughout the day, he asks students what their friends may be feeling and how they can help them feel better. ***(Plans lessons that reflect the relationship of intellectual, physical, social, and emotional development of students. Engages students in: Developmentally-appropriate learning.)***

Refer to this external resource for additional information:

- Website: "ESL-Kids"
  http: //esl-kids.com/flashcards/feelings.html
  Website provides downloadable feeling flash cards.

Middle school reading, writing and communicating: Students are working on Colorado Academic Standard 1: Oral Expression and Listening, Grade Level Expectation 2—Small and large group discussions rely on active listening and the effective contributions of all participants.

A 7th-grade teacher implements numerous strategies in her classroom to promote collaboration and communication among students. *(**Plans lessons that reflect the relationship of intellectual, physical, social, and emotional development of students.**)* She teaches students the meaning of perspective and engages students in class discussions in which students are free to share their opinions and beliefs. To support students in working respectfully and collaboratively, the teacher models expectations for student dialogue by teaching students to use phrases, such as, "I agree or disagree with you because … ", "I hear what you're saying, but I wonder if this idea might work.", "Can you explain that more for me?," etc. She explains to students that although they may not always agree with a peer's perspective, they can still demonstrate respect for another's ideas. The sentence starters are displayed in the classroom for students to reference and build on as they develop their own examples of respectful dialogue. *(**Engages students in: Developmentally-appropriate learning**.)*

Planning/Coaching Questions

- How did you plan lessons that reflect the relationship between the intellectual, physical, social, and emotional development of my students?
- How do you benefit from the expertise of colleagues to improve your instruction?
- How will you use knowledge of students to engage them in developmentally appropriate learning?
- How will you provide opportunities for students to make choices about the resources and materials they will use?
- How did you engage students in creative learning experiences?
- How will you support students in identifying how they learn best?

Element B

Teachers use formal and informal methods to assess student learning, provide feedback, and use results to inform planning and instruction.

Effective assessment can motivate the unmotivated, restore the desire to learn, encourage students to keep learning, and ultimately increase student achievement.
—Richard Stiggins

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for using assessment methods to inform planning and instruction, they must create specific student outcomes and monitor student performance in order to make necessary adjustments in their instructional planning as well as "in-the-moment" adjustments that support students in mastering learning objectives. Armed with knowledge of students' strengths and areas of need, teachers model how to incorporate feedback and provide opportunities for students to revise their work using feedback.

See also Standard I, Element A.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Determines the students' current skill levels and uses that information to plan instruction.***

The teacher needs to know where each student begins and how he is progressing towards meeting the learning objectives of a lesson in order to employ **instructional strategies** that address student needs. Depending on a student's progress towards the objective, her understanding of procedural skills and conceptual understandings, her level of motivation, and her learning preferences, the teacher will need to provide different ways for the student to access the content and skills being taught.

Instructional strategies employed in a lesson should have the following:

- Alignment to the learning objective.
- Support of the academic needs of students.
- Use of a variety of strategies, which address the students' learning preferences, including visual, kinesthetic, and auditory preferences.
- Opportunities for student-to-student interaction.
- Connections to student interests, experiences, and prior learning.

Refer to these internal resources for use in identifying student needs:

- Determining Your Learning Preference
  Document can be used by students to determine their learning preference.
- Characteristics of Learning Styles Preferences
  Document provides characteristics of the learning preferences: auditory, visual, and kinesthetic, with suggestions for instructional strategies.
- Interest Inventory for Students
  Survey references twenty different areas of a student's life that can be used to support the student and teacher in identifying their interests.
- Multiple Intelligence Survey for Secondary Students
  Survey supports secondary students in identifying their preferred type of intelligence, based on the work of Howard Gardner.
- Multiple Intelligence Survey for Elementary Students
  Survey supports elementary students in identifying their preferred type of intelligence, based on the work of Howard Gardner.

See also Standard II, Element C.

2 ***Selects assessment strategies aligned to the learning objective***.

Prior to teaching any unit, teachers must know the learning outcomes for their students and the criteria for success. Until teachers have articulated, to themselves and to their students, the expectations for learning and how mastery will be measured, the instruction can be misaligned to unit objectives, and assessments may provide limited information on actual student progress towards these objectives. Stated differently, before teachers can assess learning outcomes appropriately, they must have explicit student outcomes in mind for each lesson.

Once a teacher has developed the student outcomes for a lesson, the next step is to develop assessments that assess these outcomes or required skills. Teachers may apply the following questions to support assessment development:

- What will I need to hear students say as evidence of their mastery of skills or concepts?
- What will I need to see students do as evidence of their mastery of skills or concepts?
- What will student work need to look like for it to provide evidence of mastery of skills or concepts?

When developing assessments, teachers should also consider the following:

- Age and needs of students
- Alignment to Colorado Academic Standards
- Time required to complete assessment
- Assessment method that best provides information on student learning: oral, written, multiple choice, graphic representation, project, etc.
- Format of high-stakes tests: District benchmark assessments, state assessments, etc.
- Criteria for assessment (see below for more details)

Along with the development of assessments for a lesson, the teacher must also identify the criteria that will provide evidence of student mastery.

Developing appropriate criteria:

> Clear and appropriate criteria specify what we should look at to determine the degree of understanding and serve us in making a judgment-based process consistent and fair.
>
> Appropriate criteria highlight the most revealing and important aspects of the work (given the goals), not just those parts of the work that are merely easy to see or score. (Wiggins & McTighe, 2006, p. 172)

Guiding questions for developing criteria:

- Are the criteria measurable? Can student work or responses provide evidence for the criteria?
- Do the criteria measure procedural and conceptual understanding of the skill or content?
- Are the criteria free from culture bias?
- Are the criteria understandable to students?
- Do the criteria allow me to provide specific feedback to students on their progress?

Refer to this internal resource for additional information:

- Student Outcomes
  Document provides information for how to create student outcomes.

Refer to these external resources for additional information:

- Website: PARCC, for information on PARCC assessments
  http://www.parcconline.org/
- Document: Passage Selection Guidelines for Assessing CCSS (Common Core State Standards) ELA
  https://www.csai-online.org/resources/passage-selection-guidelines-parcc-summative-assessments-grades-3-11-elaliteracy

Document provides guidelines for the selection of texts to teach and assess Common Core Literacy standards.

3 ***Monitors student learning in relation to the learning objective***.

For the teacher to know how students are progressing towards the learning objective and to identify the most appropriate practices for instruction, she must be assessing throughout a lesson and unit of study.

> Assessment practice in a classroom is **formative** to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction. (Black & William, 2009, p. 9)(Hattie, 2012, p. 143)
>
> The greatest power of assessment information is its ability to help one be a more effective teacher. When teachers know what students are and are not grasping at any given moment in a lesson, they know when to reteach, when to move ahead, and when to adjust instruction to explain concepts or skills in a different way. Informative assessment is not an end in itself, but the beginning of better instruction. (Tomlinson, 2008, p. 11)

Formative assessments occur when the teacher continually monitors student progress towards mastery of a learning objective for the purpose of making instructional decisions. For example, a teacher might circulate to observe students' work and listen to conversations between peers, or she might ask questions during whole-group, small-group, and individualized instruction. All of these can provide important data on students' understanding of a concept or skill and their ability to apply it to different contexts. Student data may be the result of assessments or student work, but they may also be data on students' social and emotional development, their learning preferences, interests, and culture.

See also Level 2 Practice, Uses assessment results to guide real-time adjustments to instruction.

Refer to this internal resource for additional information:

- Research on the Use of Formative Assessments
  Document provides research from a variety of sources on the benefits of using formative assessments.

LEVEL 2 PRACTICES

THE TEACHER:

4 ***Uses assessment results to guide real-time adjustments to instruction.***

> The greatest power of assessment information is its ability to help a teacher be more effective. When teachers know what students are and are not grasping at any given moment in a lesson, they know when to reteach, when to move ahead, and when to adjust instruction to explain concepts or skills in a different way. Informative assessment is not an end in itself, but the beginning of better instruction. (Tomlinson, 2008, p. 11)

With today's accountability standards, teachers may notice misconceptions when using assessments to monitor student learning ***(See also Level 1 Practice, Monitors student learning in relation to the learning objective)*** but feel pressured to get through the lesson material. Stopping to make real-time adjustments and clear up confusion can be a wise use of instructional time to ensure students are able to make progress towards desired outcomes. Real-time adjustments based on student performance also can save time re-teaching concepts or skills in a future lesson.

There are a variety of ways for teachers to make real-time adjustments based on student performance (oral and written):

- Providing examples or illustrations that correct student misconceptions.
- Providing additional modeling of a skill.
- Sharing student work that does and does not meet criteria for student outcomes.
- Adjusting the lesson to include additional instruction on prerequisite skills.

- Adjusting the lesson to exclude instruction on information or skills students already grasp.

5 ***Evaluates and documents student performance based on multiple measures to set learning goals.***

If teachers are to use assessment data to inform instruction and support student growth, student performance must be measured using multiple tools. When summative assessments, or tests, are the only measurement utilized, neither teachers nor students have opportunities to make adjustments during the learning process that can increase student success.

Examples of multiple measures:

- Exit tickets
- Observations
- Interviews
- Homework
- Classwork
- Projects
- Essays or reports

The purpose of assessment is to guide a teacher's instruction and support students in improving their work, monitoring their learning, and making progress towards learning outcomes. Therefore, the components of an effective **assessment plan** include:

- Clearly articulated student learning outcomes aligned to Colorado Academic Standards.
- Criteria and timeline for assessment collection linked to each outcome or unit goal.
- Evidence of student progress towards learning outcomes or unit goals at each point on the assessment timeline.
- Instructional implications for individual students and groups of students based on assessment data.

6 ***Provides timely feedback to students that is academically focused, frequent, and high quality***.

Academic feedback is an incredibly powerful teaching tool. Students who are given specific information about the accuracy and quality of their work will spend more time working on their academic assignments. Academic feedback is not about praise, blame, or disapproval; feedback is value-neutral. Good feedback describes what a student did or did not do for the purpose of changing or maintaining performance. Effective academic feedback should provide students with an explanation of what they are doing correctly and what steps they must take to continue to make progress. When teachers provide constructive feedback, students begin to develop the skills of self-assessment and self-adjustment. (Rutherford, 2009, p.25)

It is essential that teachers provide feedback equitably and that all students receive feedback on their work. It is not equitable, for example, for a few star pupils to receive detailed and constructive suggestions on their papers, while others receive negative feedback only, or the teacher gives little attention to other students' work. (Brookhart, 2008)

Challenges to providing actionable feedback:

- Ability to identify the primary learning objective for the lesson.
- Ability to identify the manner in which students will demonstrate mastery.
- Ability to actively listen and respond to students' comments and questions.
- Ability to understand academic feedback and differentiate it from statements that are merely motivational.

Refer to this internal resource for additional information:

- Examples and Non-examples of Quality Feedback to Students
  Document explains why examples represent high-quality feedback or ineffective feedback.

Refer to these external resources for additional information:

- Article: "Seven Keys to Effective Feedback" by Grant Wiggins http://www.ascd.org/publications/educational-

leadership/sept12/vol70/num01/Seven-Keys-to-Effective-Feedback.aspx.
Article describes criteria for effective feedback with examples and non-examples of effective feedback.

- Article: "Process Design: Feedback Spirals As Components of Continued Learning" by Arthur L. Costa and Bena Kallick
  http://www.ascd.org/publications/books/195188/chapters/Process-Design@-Feedback-Spirals-As-Components-of-Continued-Learning.aspx
  Article explains feedback and assessment spirals and how to use this strategy for student learning.
- Article: "Feedback that Fits" by Susan Brookhart
  http://www.ascd.org/publications/educational-leadership/dec07/vol65/num04/Feedback-That-Fits.aspx
  Article describes effective feedback along with examples.

For a synthesis of extant research on academic feedback please refer to *How to Give Effective Feedback to your Students* by Susan M. Brookhart (2008).

> Marzano (2007) synthesized nine major studies examining the effect of feedback on the academic performance of students. All studies reported positive effects on the order of between 10 and 43 percent gains on student achievement. Furthermore, formative assessments provide a natural avenue through which teachers can provide students with timely and relevant feedback. Other reports synthesized by Marzano (2007) suggest that the use of two formative assessments per week may result in percentile gains of up to 30 points. (*Eagle County Schools Professional Practices Rubric*, 2012, p. 44)

LEVEL 3 PRACTICES

THE TEACHER:

7 ***Models how to incorporate feedback to improve learning.***

For students to use feedback, an environment that values growth and improvement must exist within the classroom.

> Students must view constructive criticism as a good thing and understand that learning cannot occur without practice. If part of the classroom environment culture is to always "get things right," then if something needs improvement, it's "wrong." If, instead, the classroom culture values finding and using suggestions for improvement, students will be able to use feedback, plan and execute steps for improvement, and, in the long run, reach further than they could if they were stuck with assignments on which they could already get an A without any new learning. It is not fair to students to present them with feedback and no opportunities to us it. (Brookhart, 2008, p. 2)

Teachers must also model how they apply feedback. As teachers share their work with students, they can solicit student feedback or share feedback provided by peers along with the decisions they made for how the feedback was applied.

Refer to this internal resource for additional information:

- Strategies to Help Students Learn to Use Feedback
  Document provides strategies that can help students learn how to use feedback.

8 ***Provides students opportunities to revise their work based on feedback.***

For students to revise their work, they must understand expectations for their learning and have access to the criteria and standards for the task they need to master; they must receive feedback in their attempts to master the task that identifies what they are doing correctly and what they need to do next; and, they must have opportunities to apply the feedback.

When students are given the opportunity to revise their work, they seek and accept feedback on their progress.

See also Standard III, Element A.

Refer to this external resource for additional information:

- Teaching Students to Self-Monitor Their Academic & Behavioral Performance from Old Dominion University
  http://ww1.odu.edu/content/dam/odu/col-dept/cdse/docs/5-self-monitoring.pdf

  Document provides additional research that explains self-monitoring and its impact on student learning, behavior, and engagement.

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced above in Element B will be students who are able to self-assess their progress towards their learning goals and monitor and revise said goals based on feedback. When students are able to initiate activities to support their own learning, they are more able to discuss their performance with the teacher, family, and/or significant adults.

STUDENTS:

9 ***Self-assess on a variety of skills and concepts to set learning goals***.
"Student-led and three-way conferences
Student-led conferences in which students present their learning to their teacher and parents are an opportunity for students to formally reflect on the learning that has taken place over a period of time. This reflection occurs as students prepare for the conference, as well as during the conference itself when they show and explain to their parents what they have learned."
http://www.assessmentforlearning.edu.au/professional_learning/student_self-assessment/student_strategies_enhance.html

"Self-Assessment and Goal Setting Go Hand in Hand"
https://www.responsiveclassroom.org/self-assessment-goal-setting-go-hand-hand/

10 ***Discuss performance with the teacher, family, and/or significant adults***.

Page 5
http://schools.nyc.gov/NR/rdonlyres/74094537-E265-44BE-A841-EBE5C6139714/0/WHEELSStudentLedConferenceHandbook20082009.pdf

"Student-led conferences have classrooms seeing positive results as students take control of their learning."
https://www.illuminateed.com/blog/2016/07/how-student-led-conferences-are-impacting-our-schools/

11 ***Monitor and revise their learning goals based on feedback***.

Best example:
https://www.washoeschools.net/cms/lib/NV01912265/Centricity/domain/170/21st%20century%20elevator%20guides/SR%20Planning%20Instruction%20for%2021st%20Century%20Learners%20v2%20-%206%20Self-Regulation.pdf

"Engage students in setting personal learning objectives
Providing opportunities for students to personalize the learning objectives identified by the teacher can increase their motivation for learning (Brophy, 2004; Morgan, 1985; Page-Voth & Graham, 1999). Students feel a greater sense of control over what they learn when they can identify how the learning is relevant to them. In addition, this practice helps students develop self-regulation (Bransford, Brown, & Cocking, 2000). Students who are skilled at

self-regulation are able to consciously set goals for their learning and monitor their understanding and progress as they engage in a task. They also can plan appropriately, identify and use necessary resources, respond appropriately to feedback, and evaluate the effectiveness of their actions. Acquiring these skills helps students become independent lifelong learners."
http://www.ascd.org/publications/books/111001/chapters/Setting-Objectives-and-Providing-Feedback.aspx

Classroom Examples

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 3—Increasing word understanding, word use, and word relationships increases vocabulary.

Third-grade students are assigned vocabulary homework. The teacher elects to assign more complex vocabulary words to a group of students with 6th-grade level vocabulary skills and simpler vocabulary words to a group of students with 1st-grade level vocabulary skills. She assigns vocabulary words based on the students' current skills rather than having all students work on the same list. ***(Determines the students' current skill levels and uses that information to plan instruction.)*** *(Tomlinson, 2001, p. 72).*

Elementary reading, writing, and communicating: Students are working on Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 1—Strategies are needed to make meaning of various types of literary genres.

Third-grade students have been learning to identify characters, setting, and major events in a story they are reading. Assessment data show students have mastered identification of characters in stories they hear read and ones they read independently. Based on this information, the teacher develops a read-aloud lesson with the objective: Students will be able to describe the setting of a story using details. ***(Determines the students' current skill levels and uses that information to plan instruction.)***

The teacher builds on student knowledge by explaining the setting is where the story takes place. It is where the characters are found. The assessment task is for students to draw the setting based on details provided in the story. ***(Selects assessment strategies aligned to the learning objective.)*** As students create their illustrations, the teacher circulates and confers with individuals on the details they included. During the conferences, she reminds students of the criteria (time of year, time of day, and three details found in the setting) for their work, which is displayed in kid-friendly language. ***(Monitors student learning in relation to the learning objective.)*** With her support, students refer to the criteria and apply them to their illustration to identify missing details in their illustration. ***(Uses assessment results to guide real-time adjustments to instruction.)*** Students displaying an understanding of setting and the criteria required in their illustrations are given sentence strips and encouraged to write a description of the setting using details in their illustration. As the teacher confers with these students, she asks questions that require students to explain why the setting was important to the story. Students who do not have a grasp of the different seasons and/or characteristics of day and night receive additional support from the teacher through the use of examples. The teacher also adjusts instruction by reviewing the book to support students in identifying evidence of the setting. ***(Uses assessment results to guide real-time adjustments to instruction.)***

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 3—Knowledge of complex orthography (spelling patterns), morphology (word meanings), and word relationships to decode (read) multisyllabic words contributes to better reading skills.

Fourth-grade students are identifying similes and metaphors in a poem. The lesson begins with students reviewing the definition of each. A student correctly defines simile and provides an example. Another student defines metaphor as "a mean thing to say" and a simile as a "nice thing to say." ***(Monitors student learning in relation to the learning objective.)*** The teacher immediately recognizes the second child has misconceptions related to figurative language and adjusts instruction in order to clarify the meaning of similes and metaphors. The teacher provides an example of a simile and metaphor that is "nice" and one that could be viewed as "mean" as well as a non-example of a simile. By quickly making

adjustments in the lesson, misconceptions related to the use of simile and metaphor are cleared prior to students identifying each in a poem. ***(Uses assessment results to guide real-time adjustments to instruction.)***

Middle school mathematics: Students are working on Colorado Academic Standard 1: Number Sense, Properties, and Operations, Grade Level Expectation 2: Formulate, represent, and use algorithms with positive rational numbers with flexibility, accuracy, and efficiency.

As he begins a 6th-grade math lesson, Mr. Martinez wants to get a quick snapshot of his students' understanding around number sense. As a warm-up activity, he writes a 9, 36, 54, and 81 on the board and poses the following questions to his students: "Which of these numbers is different from the others? Why?" Mr. Martinez uses open-ended questioning rather than asking students to tell him which number is a non-square so he can gain information on his students' thinking and understanding of square numbers. ***(Determines the students' current skill levels and uses that information to plan instruction. Evaluates and documents student performance based on multiple measures to set learning goals.)*** After allowing students time to think, he asks them if there is another number that is different. After more think time passes, Mr. Martinez tells the students to draw a line on their papers to create an area where they will write down answers from other students that make sense to them. Students then share which numbers they think are different and why. He emphasizes the classroom is a "safe zone" and that everyone's thinking is important and valued. He encourages them to question their peers if they disagree and need a clearer explanation. One student comments that the 9 is different because it is the only single digit. Another student remarks that the 54 is different because it is the only non-square number. He applies this information to the planning of future lessons to ensure students' needs are met and grouping arrangements are appropriate. ***(Determines the students' current skill levels and uses that information to plan instruction.)*** (*Eagle County Schools Professional Practices Rubric*, 2012, p. 13. Used with permission.).

High school biology: Students are working on Colorado Academic Standard 2: Life science, Grade Level Expectation 8: The characteristics of one generation are dependent upon the genetic information inherited from previous generations.

The teacher presents the learning objective: Students will apply the principle of co-dominance to determine the parents of infants who were switched at birth. He begins by asking a series of questions to assess student understanding of genetic dominance, alleles, and blood types. Only one student is able to identify his blood type, and few can name more than two blood types. ***(Monitors student learning in relation to the learning objective.)*** Based on student responses, the teacher stops his instruction and reviews blood types and how an individual's blood type is determined. This knowledge is critical for students to be successful with the lesson objective. ***(Uses assessment results to guide real-time adjustments to instruction)***

Elementary reading, writing, and communicating: Students are working on Colorado Academic Standard 3: Writing and Composition, Grade Level Expectation 1—The recursive writing process is used to create a variety of literary genres for an intended audience.

The learning objective for this 4th-grade lesson on writing is: Students will be able to write a strong paragraph with a topic sentence, at least three supporting sentences, and a summary statement. Each lesson begins with a model in which the teacher shares her writing and has students provide feedback based on the lesson objective and writing rubric. ***(Selects assessment strategies aligned to the learning objective.)*** The teacher shares her thinking regarding each suggestion and how she decides to apply feedback received. Students are asked to explain how the revisions made strengthened the teacher's writing. ***(Models how to incorporate feedback to improve learning.)*** As students add supporting sentences to their writing, they use the writing rubric as a reference to guide their work. The teacher circulates and provides the following feedback:

- Marie, very nice sentences because they include strong details.
- Henry, your first detail is a complete sentence. That's great. Look at your second detail. What can we add to make it a more complete sentence?
- Louise, if you would like more inspiration, let's look at the story for paragraph details. Good, it's right there. I think you will find some great material for writing details.
  Juan, you have three details that will make a great paragraph; what will make a strong summary statement?
  (Provides timely feedback to students that is academically focused, frequent, and high quality.)

The teacher gives students time to apply the feedback to strengthen their writing. ***(Provides students opportunities to revise their work based on feedback.)***

High school visual arts—Drawing focus: Students are working on Colorado Academic Standards 1, 2, 3, and 4.
Standard 1: Observe and Learn to Comprehend
High School Grade Level Expectations 1 and 3—Visual Art has inherent characteristics and expressive features; Art and design have purpose and function
Standard 2: Envision and Critique to Reflect
High School Grade Level Expectation 1—Reflective strategies are used to understand the creative process
Standard 3: Invent and Discover to Create
High School Grade Level Expectation 2—Assess and produce art with various materials and methods
Standard 4: Relate and Connect to Transfer
High School Grade Level Expectation 2—Communication through advanced visual methods is a necessary skill in everyday life

Students are learning to draw using formulas and conventions to accurately render space on a two-dimensional plane. The teacher begins by modeling various techniques for drawing objects on paper that portray depth and appear to be three-dimensional. She checks for student understanding of these techniques by assigning simple shapes (rectangle/square) to draw and asks students to apply the modeled techniques. ***(Selects assessment strategies aligned to the learning objective. Monitors student learning in relation to the learning objective.)*** She also provides students with a list of steps and criteria to follow. As students draw, the teacher moves from student to student to discuss their process and to ask about each student's reasoning for placing the object and the perspective they want to achieve (1-point, 2-point or 3-point). As she confers with each student, she determines if the student should follow along as she provides additional demonstration/modeling of the technique or if she should model a more refined technique for the student. ***(Uses assessment results to guide real-time adjustments to instruction.)*** Throughout the lesson, the teacher checks for understanding, and models/guides students on how to incorporate the use of technical drawing terminology within their classroom discourse. ***(Monitors student learning in relation to the learning objective. Uses assessment results to guide real-time adjustments to instruction.)***

Once students apply the techniques appropriately to the initial shapes, the teacher instructs them to add to their shapes by demonstrating how to include increasingly more difficult shapes (spheres/s-shaped curves). As students produce art examples they are willing to share, she invites others in the class to give feedback to the artist regarding his or her technical application, but first, the teacher offers suggestions on how to provide technical feedback and critique so that all students feel respected. Then, she models how to incorporate the feedback they received into their art. ***(Models how to incorporate feedback to improve learning. Provides students opportunities to revise their work based on feedback.)*** Because students are demonstrating their mastery of the basic to more refined rendering techniques, she plans the following lesson to include brainstorming possible art pieces to create to incorporate these techniques, such as creating futuristic cityscapes, representational drawings, comic book or gaming environments, or architectural models. ***(Determines the students' current skill levels and uses that information to plan instruction.)***

Planning/Coaching Questions

- How do you ensure assessments (formative and summative) are aligned to the learning objective? What criteria are used in developing or selecting assessments for the lesson?
- How do you determine criteria for mastery of the learning objective?
- How did you communicate the criteria for mastery to students?
- How do you utilize results from assessments to plan instruction?
- What types of assessments are used to monitor student learning? How do you vary the methods used to check for student understanding?
- At what points in the lesson do you check for student understanding?
- How do you utilize results from assessments to make real-time adjustments to instruction?
- What methods are used to provide feedback to families and/or significant adults?
- How do you ensure that students receive timely feedback that is frequent and high quality?

- How do you plan opportunities to confer with students on their progress towards mastery of learning objectives?
- How do you teach/model for students how to use feedback?
- When can you provide opportunities within the lesson for students to revise their work based on feedback?
- How do you involve students in monitoring their learning?

Element C

Teachers integrate and utilize appropriate available technology to engage students in authentic learning experiences.

Technology at its best involves students and teachers in meaningful activities.
—R. Routman

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for the application of the practices referenced under Element C, teachers must first identify technology that is available and appropriate for instructional use based on content and student skills. This may include software, hardware, and processes that enable students to improve their access to a high-quality education through the use of Internet access devices, easy-to-use digital authoring tools, and the Web to access information and multimedia. A teacher's next step is to model responsible and ethical use of technology and applications for students. Furthermore, for technology to be used as a purposeful instructional resource, it must enhance student learning by developing students' knowledge and skills, both creative and collaborative.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Plans lessons incorporating available technology.***

Students of today may be digitally savvy, but that doesn't necessarily mean they know how to effectively use technology for the purpose of learning. Technology can be a vehicle for increasing student engagement and learning but only if the technologies are used in combination with effective instructional practices.

Several factors should be considered when planning for student use of technology.

- Availability and accessibility of technology.
- Effectiveness of technology resources in supporting student learning.
- Students' technology skills.
- Level of student independence.
- Time required for task completion.
- Students' academic and language needs.
- Supports needed for students to use technology appropriately.

2 ***Assesses available technology to use with instruction.***

For students to interact with technology in a meaningful way, teachers and students should utilize technology for the purpose of enhancing student learning. There is no value in just having access to technology or using technology for the sake of "technology." What is important is the purposefulness with which it is used. Technology can be a valuable instructional tool to meet students' various learning styles and academic and language needs.

Refer to this internal resource for additional information:

- Examples for How to Use Technology to Enhance Instruction (connections to other professional practices)
  Document provides examples for how the use of technology connects to other elements referenced in Standard III.

LEVEL 2 PRACTICES

THE TEACHER:

Uses available technology to:

3 ***Facilitate classroom instruction.***

When technology resources are used to facilitate classroom instruction, they become tools that allow teachers to present information visually and/or orally in a way that engages students and provides clarity to learning and behavior expectations.

Refer to this external resource for additional information:

- Article: "Using the Technology of Today, in the Classroom Today The Instructional Power of Digital Games, Social Networking, Simulations, and How Teachers Can Leverage Them" from Education Arcade http://education.mit.edu/papers/GamesSimsSocNets_EdArcade.pdf
  Article provides information on the use of games, social networking, and simulations in the classroom.

4 ***Develop students' knowledge and skills based on lesson outcomes.***

The traditional definition of literacy is the ability to read and write. With the rapid development of new technologies, the nature of literacy is rapidly changing. Thus in addition to reading and writing, the current definition of literacy also includes the ability to learn, comprehend, and interact with technology in a meaningful way (Coiro, 2003).

Technology tools impact students' development of knowledge and skills in a variety of ways. Students have the opportunity to strengthen basic skills when technology is used as a tutorial, such as games that are used to increase students' basic skills and fluency and provide feedback on accuracy of students' responses. Students can obtain knowledge when accessing the Internet for information. Communication skills and knowledge can be developed when students use technology to communicate with others, such as "content experts" or individuals living in a different culture and environment. Technology has made students' access to an undefined number of resources much easier.

5 ***Models responsible and ethical use of technology and applications.***

Technology can be an effective instructional tool. However, there can also be significant dangers associated with giving students Internet access, including downloading viruses and viewing inappropriate content. Teachers must model appropriate use to ensure students understand how to appropriately and effectively use technology as an instructional tool.

After modeling responsible and ethical usage, the teacher may also put procedures in place to monitor student usage and make sure each student is using resources appropriately and safely.

Suggestions for monitoring use of computers:

- Arrange classroom to ensure all computer monitors are easily visible by teacher and students.
- Remind students they have a responsibility to school values/rules when using technology. If a technology use covenant is not in place at the school level, teachers should consider creating one that students must sign in order to use available technology and then display for teacher and students to reference.
- The teacher, or a designated monitor, should check each computer's Internet browsing history once students are finished using the computers. Open up an Internet browser and hold down the "Control" key while pressing "H" to bring up a list of all the websites that have been visited that day.
- Communicate copyright guidelines to students. (Reference the Library of Congress' Guide on "*Copyright Basics*" for students and teachers: http: //www.loc.gov/teachers/copyrightmystery/#)

Refer to this internal resource for additional information:

- Examples of **Netiquette**
  Document provides ways to properly communicate when using the Internet.
- Strategies for Managing the Use of Computers in the Classroom
  Document provides strategies (or procedures) for the effective use of technology at all grade levels.

Refer to this external resource for additional information:

- Student Technology Use Contract http://vms.valhallaschools.org/ourpages/auto/2008/8/26/1219780980521/Technology%20Use%20Contract.pdf

LEVEL 3 PRACTICES

THE TEACHER:

Integrates available technology to enhance:

6 ***Creativity***.

Developing creativity is an ongoing process in which new ideas are formed based on older ideas or ideas from a different perspective. Technology can provide students opportunities to experience other cultures, perspectives, and places in a way that is engaging and motivating.

For students to be successful in the 21st Century, teachers need to implement strategies that foster **creative skills** and **innovation skills.** The benefit of utilizing technology is not its potential to replicate the existing educational practice but its ability to combine ideas and product technologies in order to engage students in developing these skills.

7 ***Use of information.***

According to Mason et al. (2000), infusing technology into instruction should

Website: http://www.citejournal.org/volume-8/issue-4-08/social-studies/using-technology-as-a-tool-for-learning-and-developing-21st-century-citizenship-skills-an-examination-of-the-nets-and-technology-use-by-preservice-teachers-with-their-k-12-students

1. Extend learning beyond what could be done without technology.
2. Introduce technology in context.
3. Include opportunities for students to study relationships among science, technology, and society.
4. Foster the development of the skills, knowledge, and participation as good citizens in a democratic society.
5. Contribute to the research and evaluation of social studies and technology.

8 ***Collaboration.***

- Working in teams
- Online collaboration
- Project-based Learning

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element C will be students who are able to appropriately use and self-select technology to demonstrate responsible and ethical digital citizenship, apply team-building and networking skills, and create artifacts or tools to solve authentic problems.

STUDENTS:

9 ***Demonstrate responsible and ethical digital citizenship.***

"Self-Image and Identity

These lessons are designed to help students explore their own digital lives, focusing on their online versus their offline identity. Students learn the benefits and risks of presenting themselves through different personas and the effects on their sense of self, their reputation, and their relationships."
https://www.commonsensemedia.org/sites/default/files/uploads/classroom_curriculum/cs_digitalcitizenshipcurric_2016_release.pdf

"Promoting Responsible and Ethical Digital Citizens"
http://www.educationworld.com/a_tech/responsible-student-technology-use.shtml

10 ***Use available technology to apply team-building skills.***

How Technology Can Encourage Student Collaboration
https://www.commonsense.org/education/blog/how-technology-can-encourage-student-collaboration

11 ***Self-select appropriate technology tools based on lesson outcomes.***

"This page helps you choose among various technologies (not just LMSs) using two approaches:

- examples of learning outcomes, the kinds of learning activities that could achieve those outcomes, and how those activities could be supported by various learning technologies
- examples of the tools you may be interested in using and the types of activities and learning outcomes that are likely to be relevant."

https://teaching.unsw.edu.au/selecting-technologies

"This section focuses on selecting and applying appropriate technology, science tools, and measurement units for students' use in data collection and the pursuit of science."
http://www.fl-pda.org/independent/courses/elementary/science/section5/5f.htm

12 ***Create artifacts and design tools to solve authentic problems.***

"Science 2.0: Help Students Become Innovative Designers"
http://nstacommunities.org/blog/2017/01/23/science-2-0-help-students-become-innovative-designers/

"What are some examples of appropriate technology?"
https://www.quora.com/What-are-some-examples-of-appropriate-technology

Classroom Examples

Elementary science: Kindergarten students are working on the Colorado Academic Standard 2: Life Science, Grade Level Expectation 1—To live and grow, animals obtain food they need from plants or other animals, and plants need water and light.

Students are studying different types of animals. To help students understand the differences in animals that live on a farm, an ocean, and a zoo, the teacher takes them on virtual field trips of each location through the use of a projector and SMART board. ***(Uses available technology to: Facilitate classroom instruction and Develop students' knowledge and skills based on lesson outcomes.)*** As students go on the "field trip," the teacher has them identify animals that live in each location and records it on classroom charts. At the conclusion of the "field trip," the teacher guides students in an activity to identify similarities and differences in how the animals live and to provide a rationale for why specific animals live in each of the locations. Students work with partners to make predictions about the animals they will see when they visit a local zoo. Using classroom iPads with paint software, students create pictures of a zoo that includes their predictions. Prior to students creating their pictures, the teacher models how she would create a picture as an exemplar for students to

reference. ***(Models responsible and ethical use of technology and applications. Integrates available technology to enhance: Creativity.)***

High school geography: Students are studying the Colorado Academic Standard 2: Geography, Grade Level Expectation 2—Explain and interpret geographic variables that influence the interactions of people, places, and environments.

Students explore the issue of sustainability around the world in a lesson that is designed around the ACOT2 (Apple Classrooms of Tomorrow Today) challenge-based learning framework. The teacher presents information on this issue through the use of digital videos and interviews with farmers and government officials from countries around the world***. (Uses available technology to: Facilitate classroom instruction and Develop students' knowledge and skills based on lesson outcomes.)*** Students choose to investigate this essential question: What is the role of food in cultures and how is it related to sustainability? They begin their investigation by creating and maintaining a record of their eating habits using Excel spread sheets, marking the source of food on a map, and using the Internet to investigate the production of the food and the environmental and social impact it has on the country of production. They also conduct virtual interviews with farmers and government officials introduced by their teacher to gain knowledge of programs currently in place and their impact on food development. Prior to students engaging in research on the Internet and virtual interviews, the teacher models procedures for using the Internet safely and effectively, including Netiquette expectations. ***(Models responsible and ethical use of technology and applications.)*** For their final project, students work in groups to produce a short video presentation that recommends dietary changes for their peers and promotes sustainable food development. ***(Integrates available technology to enhance: Creativity, Use of Information, and Collaboration.)*** (*Eagle County Schools Professional Practices Rubric*, 2012, p. 47. Used with permission).

Refer to this external resource for additional information:

- Article: "Apple Classrooms of Tomorrow Today Learning in the 21st Century"
  http://education.apple.com/acot2/global/files/ACOT2_Background.pdf
  Article describes a collaborative effort to identify the essential design principles for the 21st century high school by focusing on the relationships between students, teachers, and curriculum.

Planning/Coaching Questions

- What technology is available for teacher and student use? How can I incorporate available technology into instruction?
- How can the use of technology enhance student learning and engagement?
- How will I model responsible and ethical use of technology?
- How will I support students who may need assistance in using the technology available?
- How can I develop projects that require students to utilize technology in creative and collaborative ways that will enhance their use of information?

Element D

Teachers establish and communicate high expectations and use processes to support the development of critical-thinking and problem-solving skills.

Whether you think you can or think you can't — you are right.
—Henry Ford

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for the application of the practices referenced under Element D, they must establish and communicate high expectations for all students that challenge students to learn to their greatest ability. Teachers must plan instruction that ensures students have opportunities to learn and apply critical-thinking and problem-solving skills, which will support them in meeting or exceeding performance expectations.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Establishes expectations at a level that challenges students.***

> Carol Dweck's research reveals that we develop early in life a "mind-set" about what it means to be smart and how we become successful. Students with a fixed mind-set feel a sense of inevitability when they encounter difficulty in school. Students with a growth mind-set believe that if a skill or task is difficult, they can nonetheless achieve mastery because their continuing effort will win the day. Their motivation to work hard is high because they believe the payoff will be worth their investment. (Dweck, 2006)

In 1968, Robert Rosenthal and Lenore Jacobson conducted research on the impact of teachers' expectations on student achievement, which became known as the Pygmalion effect. They concluded that teacher expectations can be self-fulfilling prophecies for their students. When teachers were told students had high achievement levels, the students made higher gains than students who teachers viewed as lower achievers.

Since Rosenthal and Jacobson's research was conducted, studies have continued to show that a teacher's **high expectations** have a considerable impact on student motivation and achievement.

> Teachers who produce the greatest learning gains accept responsibility for teaching their students. They believe that students are capable of learning and that they (the teachers) can teach them (Encyclopedia of Educational Research, 1992).

Teachers with high expectations for their students continually communicate that it is not acceptable to not try, that I am supporting you, I believe in you, and I am not going to let you quit or get by with mediocre work.

For expectations to be at a level that challenges students, skills taught should be slightly in advance of a student's current level of mastery. Psychologists tell us that a student learns only when a task is slightly too hard. When a student can do work with little effort, and virtually independently, that student is not learning, but rather rehearsing the known. When a student finds a task beyond his or her reach, frustration—not learning—is the result. Only when a task is slightly beyond the student's comfort level, and the student finds a support system to bridge the gap, does learning occur. This theory is grounded in the work of Lev Vygotsky (1978) and the zone of proximal development (ZPD), the range at which learning takes place. The classroom research by Fisher, et al. (1980) strongly supports the ZPD concept. Researchers found that, in classrooms where individuals were performing at a level of about 80% accuracy, students learned more and felt better about themselves and the subject area (Tomlinson, 2000).

When teachers implement this Professional Practice, they are increasing their levels of expectations to continually challenge students.

Challenging all students not only requires setting high expectations for all students, but also requires the creation of a learning environment in which students feel respected and safe to take risks. Students must trust that their efforts matter and that making mistakes is an important part of the learning process.

The teacher who works to establish expectations that challenge students must:

- Plan instruction that addresses the academic needs and learning preferences of all students.
  See also Standard II, Element C.
- Create a classroom environment in which students feel safe taking risks.
  See also Standard II, Element A.
- Encourage students to feel a sense of ownership over their learning. According to Conley in the article, "A Complete Definition of College and Career Readiness," key characteristics of college and career readiness include: student ownership of learning, which includes goal setting, persistence, self-awareness, motivation, progress monitoring, help seeking, and self-efficacy; and specific learning techniques, such as time management, study skills, strategic reading, memorization techniques, collaborative learning, technology skills, and self-monitoring. (Conley, 2012)
- Communicate that content is important and makes it meaningful for students – addresses the "why" for learning.
- Teach students that mistakes are part of the learning process and that effort is a key to success.
- Provide feedback on students' progress and next steps. "Effective teachers set appropriately challenging goals and then structure situations so that students can reach their goals"(Kagan & Kagan, 2009). If teachers can encourage students to share commitment to these challenging goals, and if they provide feedback on how to be successful in learning as one is working to achieve the goals, then goals are more likely to be attained.
  See also Standard III, Element B.

Refer to this internal resource for additional information:

- How Teachers Communicate Expectations to Students
  Document identifies teacher behaviors that communicate high expectations to students.

2 ***Plans lessons that incorporate critical-thinking and problem-solving skills.***

Critical thinking differs from mere acquisition of knowledge or skills in that it involves the application of skills in order to evaluate, analyze, and/or synthesize, information gathered from, or generated by, observation, experience, reflection, reasoning, or communication.

Reference this YouTube video, http: //www.youtube.com/watch?v=ZLyUHbexz04, for additional explanations of critical thinking.

Problem-solving skills involve the ability to critically analyze a problem, identify and organize relevant information, and then prepare a workable solution.

> "Some research suggests that problem solving is to the brain what aerobic exercise is to the body. It creates a virtual explosion of activity, causing synapses to form, neurotransmitters to activate, and blood flow to increase." (Jensen, 2008, p. 142)

Characteristics of a critical thinker and problem-solver:

- Asks questions that are clear, on topic, and enhance learning.
- Is open-minded and aware of different perspectives and alternatives.
- Evaluates credibility and relevancy of information.
- Interprets information and uses to develop well-reasoned conclusions and solutions.
- Is able to develop an evidence-based opinion and reasonably defend it.
- Communicates effectively with others in figuring out solutions to complex problems.

Ways to incorporate critical thinking and problem-solving skills in the classroom:

- Have students apply content they are learning to previous knowledge, real-world situations, and/or other

disciplines.
- Focus on fundamental and powerful concepts with high generalizability as tools for learning and application.
- Provide opportunities for students to select learning strategies that best fit the skill required as well as their own learning preferences. ***See also Standard II, Element C.***

Refer to these internal resources for additional information:

- Common Core State Standards and Critical Thinking
  Document explains the connections between the Common Core State Standards and critical thinking skills.
- Types of Problem-Solving Skills with Definitions and Examples
  Document provides definitions and examples of seven types of problem-solving skills examples of problem-solving tasks.

Refer to this external resource for additional information:

- Article: "The Challenge of Challenging Text by Timothy Shanahan" by Douglas Fisher and Nancy Frey http://www.ascd.org/publications/educational-leadership/mar12/vol69/num06/The-Challenge-of-Challenging-Text.aspx
  Article provides an explanation for what makes a text challenging with references to Common Core expectations.

LEVEL 2 PRACTICES

THE TEACHER:

3 ***Uses questioning strategies to develop students' critical-thinking and problem-solving skills***.

Questions that develop students' critical-thinking and problem-solving skills require them to think beyond just a recall of facts. Challenging questions ask students to process information on all levels of Bloom's Taxonomy. As the teacher plans for these questions, he must consider the critical elements of the content students need to master, the age of the student, and the needs of each student. Questions that challenge students may vary depending on a student's academic needs, language needs, or experiences. Therefore, planning questions prior to instruction is critical.

It is important for teachers to recognize when students may need questions and tasks scaffolded based on Bloom's levels of thinking. ***(See also Standard I, Element C.)*** Some students need to obtain the information and skills necessary to think across the levels of Bloom's Taxonomy. Many teachers make the mistake of beginning with evaluative or creative questions and tasks and then complain that their students can't meet expectations. This may be due to lack of scaffolding that supports students in building the knowledge and skills necessary to think at these levels.

Impact on students of developing their critical-thinking and problem-solving skills:

- Students can make connections to their world and to their learning.
- Students are led to think more deeply and independently.
- Students are led to take more ownership of their learning.
- Student motivation increases as they become more cognitively engaged in the learning process.
- Teachers are able to assess and provide feedback on students' learning and thinking.

Refer to these internal resources for additional information and classroom ideas:

- Bloom's Taxonomy Question Types
  Document lists the levels of Bloom's Taxonomy with corresponding verbs for use in creating questions. It should be noted that the use of the verbs alone will not generate challenging questions. Teachers need to plan for their use purposefully as it relates to the type of thinking students need to do.
- What Does it Mean to Scaffold Questions and Tasks
  Document includes research on the importance of scaffolding questions and tasks. Examples aligned to social studies and reading learning objectives are provided.

Refer to this external resource for additional information and classroom ideas:

- Website: Kathy Schrock's IPADS4Teaching H.O.T.S for Bloom's
  http://www.ipads4teaching.net/hots-for-blooms.html
  Website provides ideas for teaching higher-order thinking skills and incorporating technology in a manner that enhances student learning.

4 ***Uses wait time to encourage student responses***.

Mary Budd Rowe, Professor of Science Education at the University of Florida, discovered that the only difference between classes in which students posed questions and those classes in which they didn't was the amount of "**wait time**" provided by a teacher. She went on to identify two types of wait time used by effective questioners:

- Wait Time 1 – after asking a question, before designating a student to answer;
- Wait Time 2 – after a student responds, before the teacher reacts or comments.

> Subsequent research has confirmed that when teachers use adequate wait time (3-5 seconds) that students give longer responses, give evidence for their ideas and conclusions, speculate and hypothesize, ask more questions, and answer with more confidence. (Walsh & Sattes, 2005, p. 81)

The effective teacher models and labels wait time for students so they begin to provide this for their peers. Students learn that everyone does not process at the same rate or in the same manner. When students learn to provide each other with wait time, the depth of class discussions and student-to-student interactions can increase, resulting in increased learning for all.

Benefits of wait time for students:

- The number of their "I don't know" and no answer responses decreases.
- The number of volunteered appropriate answers by students greatly increases.
- The scores of students on academic achievement tests tend to increase.

Benefits of wait time for teachers:

- Teachers tend to use more varied and flexible questioning strategies.
- Teachers ask questions that require more complex processing and higher-level thinking.
- Teachers are able to accurately assess more students due to increase in student responses and processing time.

LEVEL 3 PRACTICES

THE TEACHER:

5 ***Models critical-thinking and problem-solving skills*.**

For teachers to explicitly teach critical-thinking and problem-solving skills, they must be implementing instruction and modeling their thinking in a manner that is sequenced across Bloom's Taxonomy of intellectual thinking and behavior important to learning in the 21st Century. Teachers must show students what thinking sounds like by sharing their thinking aloud. Teachers can tell students the importance of being curious or of reflecting, or even explicitly teach lessons focusing on thinking skills, but unless they share their thinking with students and make their thinking visible in authentic ways across the day and over time, it's unlikely students will become cognitively engaged and be able to "think about their thinking." Teachers who put their thinking on display are teachers who are present. When they are present, they are tuned into their thinking and responsive to what is going on in the classroom and their own expectations for student learning. They make their thinking visible to show students how to think and how to learn.

Teachers who teach critical-thinking and problem-solving skills also teach students how to generate questions that are clear, on topic, and enhance learning — a characteristic of a critical thinker. An indicator of a student's level of mastery is

evident in the types of questions asked. Teachers who model how to ask critical-thinking questions stimulate student reflection and the need to know more.

Although students ask questions throughout the school day, research shows that the majority of questions are to seek clarification on procedural matters and not questions that further their learning. What teachers need to teach students is how to generate questions that prompt their thinking, provide purpose for their learning, and support them in thinking about their own meta-cognitive processes.

Teachers of younger students may find it necessary to teach question words as a prerequisite to students generating their own questions. The "I Wonder" strategy is a self-monitoring strategy to support students in understanding what they are thinking as they read and learn. It can be an effective tool to support younger students in stopping and thinking about questions they have while reading or learning new content.

Refer to this internal resource for additional information:

- Teaching Students to Ask Questions
  Document explains how teachers can engage students in asking questions.
- Using Question Words with Younger Students
  Document provides definitions of question words for use with younger students that may also be used as visuals.
- I Wonder Worksheet
  Document can be used for students to record their questions.
- I Wonder Bookmark
  Document is a bookmark students may use to record their questions while reading.

Refer to this external resource for additional information:

- http://www.highscope.org/file/EducationalPrograms/EarlyChildhood/el200802_epstein.pdf
  Article: "An Early Start on Thinking," by Ann S. Epstein explains how to create an environment that encourages young children to think critically.

LEVEL 4 AND LEVEL 5 PRACTICES

The result of successful implementation of the professional practices referenced in Element D will be students who use questioning strategies to develop and test ideas and use evidence to justify conclusions and synthesize knowledge. Students who apply critical thinking skills and problem-solving skills construct logical arguments and use concepts to solve problems.

STUDENTS:

6 ***Use questioning strategies to develop and test innovative ideas.***

"8 Strategies to Help Students Ask Great Questions"
https://www.teachthought.com/critical-thinking/8-strategies-to-help-students-ask-great-questions/

"Generating Effective Questions
Four ways to come up with questions that guide students to engage deeply with class content. Plus: a pop for you."
https://www.edutopia.org/blog/new-classroom-questioning-techniques-todd-finley

7 ***Use evidence to justify conclusions and synthesize knowledge.***

"Second grade teacher Apryl Whitman began teaching her students to synthesize their thinking in fiction by reading fables with them. Fables are a useful genre for introducing synthesizing because of their short structure

and straightforward messages. Ms. Whitman chose a pyramid-shaped graphic organizer with three parts to illustrate how our thinking grows from the smaller top of the chart to the larger base. She used Debbie Miller's approach of modeling how her thinking changed from one part of the story to the next **See Introduction to Summarizing and Synthesizing and Suggested Readings.**"
https://readingrecovery.clemson.edu/summarize-and-synthesize/

"Highlights

- Science is combined with other rationales to support stances on complex dilemmas.
- Students use scientific knowledge for advocating freedom of personal choice.
- Students appear to assume a mutual understanding of scientific knowledge.
- Students' rationale including scientific knowledge reflects uncritical trust in experts."
https://www.sciencedirect.com/science/article/pii/S0742051X16301822

8 ***Construct logical arguments.***

"Think of a student sitting in a mathematics exam and making a crucial mistake in a proof. Then the student's answer is invalid and therefore, bad. Of course, a professor might have reasons to think that the student's answer still deserves marks (maybe even full marks) even though the student's answer is bad – in our understanding of 'bad'."
HTTPS://WWW.FUTURELEARN.COM/COURSES/LOGICAL-AND-CRITICAL-THINKING/0/STEPS/9153

"TAKING THE LESSON FURTHER: CRAFTING A LOGICAL ARGUMENT"
https://www.lead2feed.org/2014/03/06/taking-lesson-crafting-logical-argument/

9 ***Use concepts to solve problems.***

"'How students can apply their learning to solve real-world problems'"
https://www.tes.com/us/news/breaking-views/how-students-can-apply-their-learning-solve-real-world-problems

"Chemical educators have often assumed that success in solving mathematical problems should indicate mastery of a chemical concept. To this end, we have developed algorithms. However, Nurrenbern and Pickering (7) and Pickering (2) found little connection between solving an algorithmically-based problem and understanding the chemical concept behind that problem. Sawrey (3) further supported Nurrenbern and Pickering's findings."
https://pubs.acs.org/doi/pdf/10.1021/ed070p190

Classroom Examples

Early childhood: Preschool students are working on the Colorado Academic Standard 2: Geography, Grade Level Expectation 1--Develop spatial understanding, perspectives, and connections to the world.

At the beginning of a unit on transportation, the teacher introduces materials that students can use to build an airport, a train station, and/or highways. ***(Plans lessons that incorporate critical-thinking and problem-solving skills.)*** The teacher also introduces ways students can make a plan for what they will build. She models how she made a plan to build an airport that included pictures of different size blocks and toy airplanes. ***(Models critical-thinking and problem-solving skills.)*** During center time, the teacher uses questioning to ask students about their plans:

- "Tell about your plan."

- "What are you building?"
- "Why did you use these blocks?"
- "Why are you building the airport tower so high?"

The teacher then asks the students to compare their plans to the structure that was built to see if they are missing anything. If they added something to the structure, they can add it to their drawing. ***(Uses questioning strategies to develop students' critical-thinking and problem-solving skills.)***

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 1—Strategies are needed to make meaning of various types of literary genres.

The teacher is reading aloud a novel to her 3rd-grade students in order to increase reading and vocabulary comprehension. In one passage, the author writes that a wealthy woman "pulled in her skirts" when a poor orphan boy passed her. For students to understand the meaning of this statement, they must make an inference about the author's intent. ***(Establishes expectations at a level that challenges students.)*** The teacher asks her students, "How do you think this woman felt about the orphan?" She provides time for students to process their response, and asks them to write it in their reading journals. ***(Uses wait time to encourage student responses.)*** As students write, she circulates to check their thinking. When she sees students using evidence from different places in the text along with the passage she already has pointed out, and combining it with what they know from their own experiences, she stops and acknowledges their work. Then, she pauses before taking a response from a boy in her class who says, "She didn't like the little boy." The teacher decides to probe a little further, and asks him why he thinks that. ***(Uses questioning strategies to develop students' critical-thinking and problem-solving skills.)*** The student replies, "I could tell she didn't like the little boy because she pulled her skirt away when he walked by. That's because she didn't want to get dirty from his dirty clothes." The teacher nods and intentionally waits another few seconds to let this thought permeate the classroom, ***(Uses wait time to encourage student responses)*** and, to her surprise, the student continues without prompting, "I don't think she was very nice. It's not a very nice way to think because we are all equal." (Walsh & Sattes, 2005, p. 81)

Middle school mathematics: Students are working on Colorado Academic Standard 4: Shape, Dimension, and Geometric Relationships, Grade Level Expectation 1: Modeling geometric figures and relationships leads to informal spatial reasoning and proof.

During a unit on geometry, the 7th-grade teacher invites architects and construction engineers to visit the classroom and explain how geometric shapes are used in the design and construction of buildings. Students will complete a project in which they apply their knowledge of shapes to various types of architecture and draw conclusions as to why the architect selected the geometric shapes utilized. They then will design a building or bridge using geometric shapes and explain their design in writing, based on their knowledge of geometry. ***(Establishes expectations at a level that challenges students.)*** Prior to students beginning the project, the teacher provides an exemplar of a project she completed. She shares her thinking that led to her conclusions and building design. As she does this, she connects to what she knows about geometry and information obtained from the guest speakers. ***(Models critical-thinking and problem-solving skills.)***

Middle school science: Students are working on Colorado Academic Standard 2: Life Science, Grade Level Expectation 1. All living things are made up of cells, which is the smallest unit that can be said to be alive.

During a study of photosynthesis and respiration in plants, a 7th-grade science teacher asks questions that are scaffolded across various levels of Bloom's Taxonomy. The questions begin with basic recall of terms related to the parts of plants and their location and function. The questions progress to a higher level of the taxonomy where students compare and contrast the two processes and evaluate symbols that represent the processes. ***(Establishes expectations at a level that challenges students. Uses questioning strategies to develop students' critical-thinking and problem-solving skills.)*** As questions become more challenging, the teacher requires students to write their responses prior to sharing them with a partner. As students write, wait time is provided for each student to process the question and develop a response. ***(Uses wait time to encourage student responses.)*** The lesson concludes with students creating their own symbols or illustrations for how photosynthesis and respiration in plants are connected. As students share their models with one another, their peers create

questions to ask why they created the specific model and how it relates to the two processes. ***(Models critical-thinking and problem-solving skills.)***

High school mathematics: Students are working on Colorado Academic Standard 4: Shape, Dimension, and Geometric Relationships, Grade Level Expectation 1—Objects in the plane can be transformed, and those transformations can be described and analyzed mathematically.

Students are developing their verbal and written communication skills in order to compose proofs for geometric theorems. Students took a pre-assessment, and the teacher reviewed the results to provide questions that will help them refine their solutions throughout their upcoming lessons. Today's lesson requires students to engage in deep mathematical thinking by strategizing and collaborating with their peers. ***(Plans lessons that incorporate critical-thinking and problem-solving skills.)*** The teacher presents the learning targets: (1) understand the concept of length and area, and (2) construct examples and counterexamples to help justify or refute conjectures. She also refers to the Mathematical Practices highlighted in the day's lesson: MP2: Reason abstractly and quantitatively, and MP3: Construct viable arguments and critique the reasoning of others.

The teacher then poses a conjecture about whether equal areas are formed by the diagonals of a quadrilateral. Students develop their thoughts on whether the statement is always, sometimes, or never true. ***(Uses questioning strategies to develop students' critical-thinking and problem-solving skills. Uses wait time to encourage student responses.)*** Once students have had time to develop and share their thoughts with a partner, the teacher brings the class together to discuss which quadrilaterals the students have worked with, their results, and their chosen methods for proving the conjecture. The students explain their ideas to each other using prompts, such as, "Josh thinks this statement is sometimes true. Susan why do you think John thinks this?" ***(Establishes expectations at a level that challenges students.)***

Note: This lesson and others are available on the Mathematics Assessment Project Website at http://map.mathshell.org/materials/lessons.php?taskid=212&subpage=concept. Where indicated throughout the site, materials are free to use and have been released under the Creative Commons Attribution.

Planning/Coaching Questions

- How do you establish expectations at a level that challenges all students?
- How do you model critical-thinking and problem-solving skills to students?
- How do you provide opportunities for students to apply critical-thinking and problem-solving skills?
- How do you ensure the questions I ask are challenging for all students?
- How do you plan for the scaffolding of questions?
- How do you ensure all students are provided appropriate wait time?

Element E

Teachers provide students with opportunities to work in teams and develop leadership.

When learning groups are established successfully, positive independence results in students' recognizing that their individual success is inextricably linked to the success of every other member of the group.
—Frey, Fisher, & Everlove

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for providing students with opportunities to work in teams and develop leadership qualities, students must be included in individual and group activities that are flexible and adjusted based on lesson objectives and student needs. To ensure group activities result in high levels of student engagement and increase student learning, lesson plans must include opportunities for students to participate using various roles and modes of communication that create opportunities for students to learn from each other.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Has a clear purpose for student collaboration.***

Placing students in **learning groups** to complete group activities differs from placing students in groups for direct instruction. Direct instruction focuses on a set of skills or knowledge that a whole group, a small group, or individual student must acquire, which is when ability grouping is appropriate (i.e., guided reading groups). In learning groups where students are completing an activity together, they process not only content but learn beneficial social behaviors, such as cooperation and **collaboration**.

Students may be grouped in many different ways to enhance their level of engagement and learning.

- A single, large group, led by the teacher or another student
- Small groups, either independent or in an instructional setting with a teacher
- Homogeneous
- Heterogeneous
- Students can choose their own grouping — with partners, in triads, or in other configurations that they or a teacher establish.

Grouping has benefits for many aspects of teaching. One of those benefits is that it can enhance the processing of new information because interacting in groups provides students with multiple reference points. It allows each student to see how others process information, and it allows each student to see how others react to his or her processing of information. (Marzano, 2007)

Refer to this internal resource for additional information:

- Strategies for Forming Groups
  Document provides examples of different grouping structures.

Misconceptions about grouping students:

- *My students sit in groups so they can work together whenever they need support.* Although classroom arrangement can **s**upport group activities, placing desks in groups or seating students at tables does not guarantee students will work cooperatively or collaboratively. Without clear procedures and clarity of purpose, classroom arrangement can result in off-task behavior and students "piggy backing" off their stronger or more motivated peers.
- *When I notice student engagement decreasing, I use a Turn and Talk response method.* A Turn and Talk can be an effective way to engage all students in responding to questions and learning from each other. However, for it to

enhance student learning, teachers must provide clarity on what students are expected to talk about and how to listen and respond to each other. It is also helpful for teachers to designate which partner talks first.

- *I would like to use group activities, but my students do not work well in groups.* Working cooperatively and collaboratively with others are life skills that students need to be taught. Teachers can do this by communicating clear expectations for how students should display respect for group member's opinions and ideas. When teachers assign roles and responsibilities and teach accountable talk, students can develop the skills needed for working effectively with others. Teachers may also need to scaffold group activities from partners to large groups of four or more to allow students opportunities to build trust in their peers and feel confident in sharing their thinking with others.

LEVEL 2 PRACTICES

THE TEACHER:

2 ***Provides opportunities for students to participate using various roles and modes of communication.***

One attribute of using specific tasks is that they eliminate voluntary participation. In the traditional classroom, the teacher asks students a question, and only those who know the answer, or who are daring enough to respond, raise their hands. The rest of the class can opt out. When students have the option of nonparticipation, many don't participate. This is especially true for shy students, lower achievers, and early language learners. The result: They don't learn as much or as quickly. (Kagan & Kagan, 2009)

For group activities to be successful, both the teacher and the students must be aware of individual and group expectations. Assigning roles is one effective strategy for ensuring that expectations are clear. It is also a way for students to assume leadership and ownership for the group's success. In a collaborative group, every student has a specific task, and everyone must be involved in the learning or contribute to the project, so no one can "piggyback." The success of the group depends on the successful work of each member. When students have specific roles, it can also free up the teacher to support students and assess individual and group discussions and work.

As teachers identify and define roles that group members will assume, they should choose roles that will help students effectively communicate and collaborate for the purpose of mastering the lesson goal. Teachers may want to consider the following questions when assigning roles and responsibilities.

- Who will begin the discussion or task?
- Who will ensure members stay on topic and adhere to the timeline?
- How will students provide feedback on group members' work or responses?
- How will all students be held accountable to participate?
- How will I stay updated on the group's progress?

Refer to this internal resource for additional information:

- Assigning Roles for Group Members

  Document describes examples of roles students may have when working on group projects or in group discussions.

3 ***Adjusts team composition based on learning objectives and student needs.***

Teacher decisions about student grouping are based on a number of considerations. Chief among these is suitability to the instructional goals. The type of instructional group should reflect the learning outcomes of the lesson and meet the needs of all students (Danielson, 2007). Therefore, the ability of a teacher to effectively group students is directly connected to her knowledge of the students, their individual needs, interests, and abilities.

Flexible grouping is when the teacher groups students differently based on the specific lesson's learning goals and on student needs. When teachers flexibly group students, they ensure students are given opportunities to learn in a variety of settings and from a mix of other students. When appropriate, students may have choices of which groups to join.

LEVEL 3 PRACTICES

THE TEACHER:

4 ***Holds students accountable for work product and collaboration processes.***

Walk into any school, and you can hear teachers and students discussing their frustration with students who don't contribute to group activities. Teachers can support student participation by asking the following reflective questions:

- Has the content or skill been taught clearly so that students can be successful?
- Have possible misconceptions been addressed?
- Is sufficient time being provided for students to successfully complete the task?
- Are students clear on routines and procedures for getting help when needed?
- Are classroom resources available to support student independence with the task?
- How am I assessing students and providing feedback on progress and next steps?

When teachers have addressed the above questions and established a classroom culture in which all students feel respected and valued as learners ***(reference Standard II, Element A)***, strategies can be implemented that hold students accountable for participating in group activities.

Holding students accountable to engage in class activities communicates the expectation that all students are capable of success, that everyone has something important to contribute, and that effort is valued as much as ability.

Refer to this internal resource for additional information:

- Accountability Strategies
  Document describes strategies that can provide accountability for students to respond to questions and participate in class discussions.

5 ***Promotes teamwork and leadership skills.***

Each of these resources addresses both the importance of promoting teamwork and collaboration between and among students, as well as how to develop leadership skill among students.

Four Tools for Teaching Teamwork and Collaboration in the Classroom:
https://www.kqed.org/mindshift/50925/4-tools-for-teaching-teamwork-and-collaboration-in-the-classroom

The first blog in this series shares good ideas about techniques that will empower teachers to promote teamwork and collaboration:
https://www.edutopia.org/blog/deeper-learning-collaboration-key-rebecca-alber

Student Leaders: According to this resource, "assigning Student Leaders in the classroom fosters ownership, community, and cohesiveness among class members. Student Leaders apply for a specific responsibility within the room and are assigned their role on a rotating schedule. When students feel more involved in the daily operations of the classroom, they begin to positively manage themselves and each other. Not only are students honored to hold these titles, an added benefit is a carryover effect that builds upon positive leadership skills."

http://www.theteachertoolkit.com/index.php/tool/student-leaders

The author of this blog (a special education teacher) speaks to the importance of character education and the need to ensure that all student have an opportunity to develop and demonstrate leadership skills through peer mentoring and/or classroom jobs:

http://info.character.org/blog/student-leadership-for-all

This middle school science teacher addresses the leadership qualities that he attempts to instill in his students:

https://www.classcraft.com/blog/features/5-student-leadership-qualities/

LEVEL 4 AND LEVEL 5 PRACTICES

The impact of successful implementation of the professional practices referenced in Element E will be students who demonstrate a willingness to assume leadership roles and utilize group processes to build trust and promote effective interactions among team members. Students will also use group feedback to reflect on and revise their work.

STUDENTS:

6 ***Demonstrate a willingness to assume leadership roles in their teams.***

Student Leadership Roles
https://confluence.cornell.edu/display/AGUACLARA/Student+Leadership+Roles

7 ***Utilize group processes to build trust and promote effective team interactions.***

"Teamwork Skills: Being an Effective Group Member"
https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/tips-students/being-part-team/teamwork-skills-being-effective-group-member

8 ***Use group feedback to reflect on and improve the quality of their work.***

"Active engagement with assessment and feedback can improve group-work outcomes and boost student confidence"
https://www.tandfonline.com/doi/full/10.1080/23752696.2017.1307692

An essential component of cooperative learning is group processing. Group processing exists when group members discuss how well they are achieving their goals and maintaining effective working relationships. Groups need to describe what member actions are helpful and unhelpful and make decisions about what behaviors to continue or change. Continuous improvement through the process of learning results from the careful analysis of how members are working together.

Classroom Examples

Early childhood: Kindergarten students are working on Colorado Academic Standard 1: Oral Expression and Listening, Grade Level Expectation 2-- Communication relies on effective verbal and nonverbal skills.

The teacher implements group learning using centers in her classroom, but she observes that the classroom is noisy and many students are off-task. An observer notes that students move from one center to another when the bell rings, but expectations for what students should accomplish at the centers is unclear. This insight helps the teacher realize the

importance of having clear expectations and accountability for what students do in groups independently. By answering the questions below, she is able to construct reasonable outcomes for each center.

- What learning outcome do I expect students to accomplish at each center?
- How will students work individually and with peers at each center?
- How will students work with the materials at each center?
- How will I communicate expectations to students?

(Provide opportunities for students to participate using various roles and modes of communication.)

She then creates and displays a visual with text and graphics at each center for everyone to reference. This chart provides steps for using materials appropriately and contains vocabulary related to the center's outcome. ***(Has a clear purpose for student collaboration.)*** Clear expectations allow students to meet learning objectives and interact cooperatively with one another.

Elementary reading, writing, and communicating: Students are working on the Colorado Academic Standard 2: Reading for All Purposes, Grade Level Expectation 2—Comprehension strategies are necessary when reading informational or persuasive text.

Third-grade students are studying literature and are reading the book *Eleven* by Sandra Cisneros. The instructional objective is for students to analyze how particular elements of a story interact. The teacher begins the lesson by modeling the use of two-column notes. Next, she has students identify and label the main elements: Rachel, Mrs. Price, and "the red sweater" in the left-hand column. In the right-hand column students are directed to find textual evidence that describes those three main elements. The students work together in small groups that have been predetermined by the teacher to best support readers. ***(Has a clear purpose for student collaboration. Adjusts team composition based on learning objectives and student needs.)*** Students make connections among the three elements and analyze the relationship between the two characters, each other, and the red sweater. For struggling students, the teacher modifies the two-column note format to prepopulate with some of the details from the story. For the final task, the teacher allows students to create a visual representation and provides sentence starters for those students who need them. ***(Provides opportunities for students to participate using various roles and modes of communication.)***

High school civics: Students are working on the Colorado Academic Standard 4: Civics, Grade Level Expectation 2—Purposes of and limitations on the foundations, structures and functions of government.

Students are learning to what extent the events of September 11, 2001, had an impact on governmental decisions. The teacher facilities a discussion on the roles and responsibilities of the Department of Homeland Security, which was created immediately after the September 11 attacks and is charged with the protection of U.S. citizens within our borders. Students are told that Homeland Security recommends all citizens prepare an emergency response plan. Working in collaborative groups of four, students explore the elements needed to create an effective plan as outlined on the Homeland Security website. Students are provided a list of individuals they may contact for additional information, i.e., local and federal Homeland Security employees, policemen, etc. ***(Promotes teamwork and leadership skills.)*** They identify a potential problem within their community or school that would require an emergency response and establish an appropriate plan for the problem. ***(Has a clear purpose for student collaboration.)*** Upon completion, students present their plans to the appropriate community or school leadership in charge of adopting emergency response plans. Each group member is responsible for presenting a specific aspect of the plan to the class. ***(Provide opportunities for students to participate using various roles and modes of communication. Holds students accountable for work product and collaboration processes.)*** Students use a rubric to evaluate each group's plan and provide feedback to peers.

Planning/Coaching Questions

- How will all students be included in group activities?
- How will you decide on the instructional grouping of students during a lesson?
- How will you communicate to students their individual and group responsibilities?
- How will you hold individual students and groups accountable?
- How will you assess the learning of groups and individuals?
- How will you promote teamwork and development of leadership skills?

Element F

Teachers model and promote effective communication.

Talk can cure, and talk can foster constructive change. But it must be the right kind of talk.
—Thomas Gordon, Teacher Effectiveness Training

Professional practices referenced under each element of the Rubric for Evaluating Colorado Teachers are cumulative. Therefore, for teachers to meet the state standard for communicating clear learning objectives, they should provide a model of effective communication and provide opportunities for students to communicate with one another about their learning.

LEVEL 1 PRACTICES

THE TEACHER:

1 ***Establishes classroom practices to support effective communication.***

When teachers create a classroom environment that features mutual respect and values students' diverse perspectives, students will feel encouraged and safe to communicate their ideas and share their questions.

Teachers can encourage students to communicate with peers through effective grouping arrangements, having students respond to their peers' answers and questions, and by setting the expectation that students should support their ideas with evidence-based rationale.

Tips for supporting effective communication:

- Set the expectation that students orally respond to questions using complete sentences.
- Provide sentence starters for students to use when communicating and collaborating with peers. This is referred to as Accountable Talk, which is a way teachers can encourage and teach students to communicate their thinking and listen with purpose.

Common Misconceptions

Misconceptions	Explanations
I ask a lot of questions, which gives my students opportunities to communicate.	Questioning is a teacher action. For students to practice communication skills, they need opportunities to respond to peers' answers and ask questions of each other and the teacher.
My students already talk a lot.	Students enter our classrooms knowing how to "chit chat." However, what they lack are the skills and language necessary for academic discourse. In her book, *Comprehension Through Conversation*, Maria Nichols points out that the "heightened level of engagement" and "flexible thinking" necessary for academic discourse must be explicitly taught and practiced.
My students are motived to debate and engage in lively discussions with each other.	Debate can be a form of academic discourse. However, when students "dig in their heels" with the goal being to win, communication can become more argumentative than evidence-based. Students need opportunities to evaluate a variety of perspectives and work collaboratively to develop evidence-based arguments.
My students enjoy sharing about the books they are reading. We have "book talks" on a weekly basis.	When student communication is limited to sharing their opinions about a text, then the impact on deepening student learning is limited. The purpose for student communication about their reading should be to deepen and challenge students' thinking. Students should have opportunities to answer and ask questions

	about what they read based on evidence from a text.

Refer to this internal resource for additional information:

- Sentence Starters for Teaching Students Accountable Talk
  Document provides examples of sentence starters that can be used to support the development of students' communication skills.

2 ***Provides clear directions to guide student learning and behavior.***

Communicating effectively with students helps to ensure learning and behavior expectations are clearly understood by students. Communication is the interchange of information. Therefore, the term **"**communicates**"** implies that students know and understand a teacher's expectations.

Effective communication involves the skills of speaking and listening as well as nonverbal and interpersonal skills.

Giving Clear Directions: Management in the Active Classroom: (This video provides an example of a teacher giving clear directions to ensure student learning and behavior prior to a group assignment.)

https://eleducation.org/resources/giving-clear-directions

Giving Clear Concise Directions: This article provides specific steps to ensuring clear and concise directions that result in student learning and behavior.

http://nelearn.myelearning.org/mod/page/view.php?id=194

Give Clear Instructions

Principles of Effective Instruction Delivery	
Internalize your plan	Planning alone is not enough to guarantee delivery of clear instructions. Even the best plans fail when you can't remember the content or flow of what you are going to say.
Ensure that you have every student's full attention before (and while) you give instructions	It won't matter how clear and coherent your directions are if no one is listening. Resist the temptation to plow through your instructions without first confirming that you have the full attention of every student in the class. For more on communicating high expectations for behavior, visit the E-4 page For more on developing procedures to get students' attention, visit the P-6 page For more on executing procedures to get students' attention, visit the E-5 page

Communicate the activity's connection to the objective	Students must be keenly aware of how the practice session aligns to the objectives. Remind students of the lesson objective (by pointing to it on the board, by having a student restate it, etc.). Connect the activity to the objective by explaining exactly how it will develop the knowledge/skills required to master the objective. When working in groups students should understand why they are working together and the rationale for doing so.
Emphasize key parts of the instructions	Reiterate key points by: ▪ restating the most important information– and by having students restate it ▪ using visual aids ▪ posting written directions for easy reference Just like the other phases of the lesson plan cycle, it is crucial to specify exactly how you want students to behave. Provide explicit instructions (both behavioral and academic) that model expectations. Set clear guidelines upfront for the behaviors you wish to see in individual, partner or small group work. Go step-by-step through the process, explain and model expectations, and give detailed, specific instructions that explain *everything* they will need to do (where to write names; how to use a glue stick; when to raise hands; what constitutes completion, division of labor within groups, etc.) as well as what they are expected to produce, and how and where to turn in their work when applicable. If using learning centers, ensure that students know how to use the activities effectively so that their time at a center is well spent.
Address potential confusion	As you internalize and rehearse your plans, put yourself in a student's shoes and anticipate and preempt potential points of challenge by asking yourself what might confuse you about the directions or the activity? Include these questions and answers in your initial instructions.
Communicate and enforce specific time periods for each task	Write start and end times for each discrete phase of the activity on the board. Give students two minutes warnings before they are to move on to the next task. At the start of each new task, remind them how long they have to complete it.
Use age-appropriate language and directions	Think carefully about vocabulary; be aware of the complexity of instructions (e.g. the number of steps students must remember); select the format of your directions carefully (written? oral? pictures?). Younger students may need more repetition and more frequent checks for comprehension.
Find the right balance between "too much" information and "not enough"	Reflect on the amount of time it took to give instructions (if you took too much time, scale back on the detail) and the degree of comprehension (if students asked many clarifying questions you probably didn't include enough detail). Adjust accordingly the next time.

Check that students understand directions	Check for comprehension. Students must demonstrate that they understand why they are doing what you've just asked them to do, how they will do it, and what they will produce in the end. When applicable, have students record the necessary steps (or distribute them) so they will have a reference on hand. Check for understanding by 1) asking questions, 2) having students reiterate and model the instructions, and 3) providing feedback.

LEVEL 2 PRACTICES

THE TEACHER:

3 ***Articulates thoughts and ideas clearly and effectively.***

Teaching is more than imparting knowledge to students. For students to learn and understand the content being taught, teachers must be able to communicate effectively with each student by clearly articulating their thoughts and ideas.

The manner in which a teacher responds to student responses can support or inhibit communication. Teachers can display respect for students' ideas and promote further communication by summarizing or paraphrasing their comments.

- Summarizing

  Summarizing requires teachers to listen and respond for accuracy and emphasis. Summarizing information can ensure that all students are clear on what has been discussed.

Examples of starter phrases that can lead to summarizing statements:

- "There seem to be some key ideas expressed here…"
- "If I understand you, you feel this way about [describe]…"
- "I think we agree on this. What we are saying is that we intend to…"
- "In talking about this issue, we have come up with three main points…"

- Paraphrasing

  Paraphrasing is restating what someone said in an objective manner even when emotions may be interfering. This form of communication can be applied when there is a need to sort out fact from emotion or excitement.

Examples of starter phrases that can lead to paraphrasing statements:

- "You are saying…"
- "In other words…"
- "I gather that…"
- "If I understand what you are saying…"
- "You're suggesting…"
- "So, you…"
- "So there are a couple of things going on…"
- "You're thinking…"
- "You're wondering…"
- "You're feeling…"

When teachers effectively communicate with all students, they are able to provide a model for how students should communicate with one another and with others outside of the classroom. For students to view a teacher's communication as something they can replicate, teachers need to explicitly label the communication skills they are using with the rationale for how these skills improve their ability to communicate with others.

See also Standard II, Element A.

Refer to this internal resource for additional information:

- Communicating Effectively with Students
  Document provides strategies for effectively communicating with students.

4 ***Uses active listening strategies with students***.

This is not just about teaching students how to actively listen, but also about how the teacher models the use of these skills. The resources below address what active listening is, how teacher might model, and how to teacher students how to actively listen.

Teaching Listening Skills (This resource provides specific examples of activities that will help students gain the listening skills needed to be successful. While this resource addresses elementary students, the activities could be adjusted to older students as well.) https://proudtobeprimary.com/teaching-listening-skills/

Seven Ways to Improve Students' Listening Skills (This article provides concrete ways to improve listening skills): https://www.facultyfocus.com/articles/teaching-and-learning/active-listening-seven-ways-to-improve-students-listening-skills/

Active Listening for the Classroom: An Important Motivational Strategy (Addresses how the teacher's listening skills impact student learning, and the steps that a teacher might use to model active listening. Specifically, the article states: "There is an emphasis on students developing speaking and listening skills. The Common Core State Standards (CCSS) promote the academic reasons for providing ample opportunities for students to take part in a variety of rich, structured conversations in order to build a foundation for college and career readiness. The CCSS suggest that speaking and listening be planned as part of a whole class, in small groups, and with a partner. But research shows that it is listening--really listening--to students that is critical to the student/teacher relationship.")

https://www.thoughtco.com/active-listening-for-the-classroom-6385?utm_term=active+listening+is&utm_content=p1-main-1-title&utm_medium=sem&utm_source=msn_s&utm_campaign=adid-e8df0f73-3a1e-4631-baae-095436d22b04-0-ab_mse_ocode-31766&ad=semD&an=msn_s&am=exact&q=active+listening+is&o=31766&qsrc=999&l=sem&askid=e8df0f73-3a1e-4631-baae-095436d22b04-0-ab_mse

LEVEL 3 PRACTICES

THE TEACHER:

5 ***Teaches students, with audience in mind, to articulate thoughts and ideas clearly and effectively.***

As teachers plan for how they will teach students to communicate effectively, they should refer to the Speaking and Listening standards referenced in the Colorado Academic Standards for Reading, Writing, and Communicating.

Students in the 21st century are seldom out of touch with their peers. They spend hours on their cell phones, texting or emailing each other. Even though they communicate frequently with one another informally, many lack the skills needed for formal or academic communication. The development of written, oral, and interpersonal communication skills necessary to succeed in college and career is dependent on teachers implementing strategies and activities that explicitly teach these skills and provide opportunities for student application. Teachers must model how to identify and analyze the

audience with whom they will be communicating and have students think about the audience's expectations and interests when writing and/or developing presentations.

> Academic language is the language used in textbooks and assessments. It is the language or vocabulary associated with concepts, skills, and content taught in classrooms. It is also the language of formal communication. For students to be able to comprehend the teacher's instruction, discuss what is being learned, communicate their ideas, read for different purposes, and write about their learning, they need to understand and be able to use academic language. (Scarcella, 2003)
>
> Research shows that students' knowledge and use of academic language is directly related to their attainment of content knowledge and comprehension. Therefore, it is critical for students to possess a deep understanding of academic language in order to understand the concepts they are expected to master as outlined in the content standards. (Stahl & Fairbanks, 1986)

Examples of academic language:

- *Dance*: alignment, balance, choreography, dynamics, focus, energy, improvisation, motif, phrase, sequence,
- Drama and Theatre Arts: action, blackout, blocking, character, cast, center, cue, dialogue, plot, projection, rehearsal, scene, script, theme
- *Mathematics:* equation, fraction, exponent, and monomial. Often mathematical terms have multiple meanings leading to confusion (i.e., square, coordinate, degree)
- *Language arts:* text, main idea, inference, prediction, and comprehend
- *Assessments:* define, explain, describe, justify, and determine

Tips for teaching students to use academic language:

- Identify the structure and genre of the text that will be utilized and the vocabulary needed to comprehend the text. (e.g., a lab report for chemistry requires different academic structure and language than a newspaper article for social studies or a novel for language arts).
- Provide explicit instruction and analysis of the text to support students' comprehension of the text (e.g., teaching students how to deconstruct a word problem in algebra requires different academic language than deconstructing a poem in language arts or a proof in geometry).
- Provide scaffolded instruction on the use of academic language, both orally and visually (e.g., display vocabulary that students will need to understand and utilize; provide graphics to support vocabulary meaning; incorporate academic language during direct instruction; provide sentence stems that include the academic language of the concept or skill being taught).

Once teachers have developed the skills to communicate effectively with students and planned and implemented strategies for modeling and teaching these skills, teachers must purposefully plan opportunities for students to practice these skills.

Students can practice communication skills in a variety of ways. For example, students may engage in activities such as role-playing, storytelling, or interviewing.

See also Level 1 and Level 2 Practices.

Refer to these external resources for additional information:

- Article: "Teaching Basic Communication Skills" by Edward Wilczynski
  http://www.seenmagazine.us/articles/article-detail/articleid/209/teaching-basic-communication-skills.aspx.
  Article explains the rationale for teaching communication skills and describes ways to do so.
- Article, "Content-Area Conversations" by Douglas Fisher, Nancy Frey and Carol Rothenberg
  http://www.ascd.org/publications/books/108035/chapters/Procedures-for-Classroom-Talk.aspx.
  Article describes ways teachers can support ELL students' communication skills and strategies for implementing group activities in the classroom.
- Article: "Comprehension Through Conversation the Power of Purposeful Talk in the Reading Workshop" by Maria Nichols
  http://www.heinemann.com/shared/onlineresources/E00793/chapter5.pdf

Article describes how teachers can engage students in purposeful talk during a read aloud.

LEVEL 4 AND LEVEL 5 PRACTICES

The result of successful implementation of the professional practices referenced in Element F will be students who are able to apply appropriate communication skills in various situations, form questions, explain their thinking, extend discussions, and invite others to participate.

STUDENTS:

6 ***Apply clear and appropriate communication skills in a variety of situations.***

"These 8 tips can help you immensely with improving student communication skills. They can be adapted for most every kind of student from kindergarten to high school. Build better speakers and writers of tomorrow by challenging your students to think critically, listen actively, and work together."
https://globaldigitalcitizen.org/8-methods-improving-student-communication-skills

"Effective spoken communication requires being able to express your ideas and views clearly, confidently and concisely in speech, tailoring your content and style to the audience and promoting free-flowing communication."
https://www.kent.ac.uk/careers/sk/communicating.htm

7 ***Formulate questions and explain their thinking.***

"Ideas to Help Students Develop Higher-Order Questions"
https://www.amle.org/BrowsebyTopic/WhatsNew/WNDet/TabId/270/ArtMID/888/ArticleID/452/Ideas-to-Help-Students-Develop-Higher-Order-Questions.aspx

"Students' questions: a potential resource for teaching and learning science"
https://www.tandfonline.com/doi/pdf/10.1080/03057260701828101

8 ***Extend and enrich the discussion.***

"This guidebook offers suggestions for the use of a student-centered discussion process. In this approach, the teacher is an observer and an evaluator of the discussion rather than being the central figure in the discussion."
https://www.interactivityfoundation.org/wp-content/uploads/2009/12/Guidebook-for-Student-Centered-Classroom-Discussions.pdf

"13 Strategies to Improve Student Classroom Discussions (Plus Anchor Charts)"
https://www.weareteachers.com/13-strategies-to-improve-student-classroom-discussions/

9 ***Invite others to participate.***

How to Get Students to Talk in Class

- Get them talking to each other, not just to you.
- Literally tell them to address their comments to each other.
- Try not to respond to every student comment; instead ask the class what they think about what has just been said.
- As an icebreaker, ask a question for which there is no single correct answer and go around the table with it. (Example: What is the first adjective that comes to mind when you think of the protagonist of this story? Or: On a scale of 1 to 10, rate the effectiveness of Allied military leadership in 1916.) With this strategy, you can begin the discussion with 100 percent participation, and you can subvert the usual hierarchy by inviting two or three of the more passive students to explicate their answers.
- If the discussion group is large, divide it into smaller units, each one dealing with the same or separate problems in the reading. Float from group to group, giving guidance and answering questions when needed. When the period is nearly over, leave about twenty minutes to reassemble the class and have the small groups report to each other.

https://teachingcommons.stanford.edu/resources/teaching/small-groups-and-discussions/how-get-students-talk-class

Classroom Examples

Elementary science: Students are working on Colorado Academic Standard 3: Earth Systems Science, Grade Level Expectation 2—Four major earth systems interact.

Students in a 4th-grade classroom are working with partners to create landforms from clay or through illustrations. Prior to students working collaboratively, the teacher models how he illustrated a landform based on its attributes. In his model, he uses the sentence stem, "The landform I illustrated is a _____ because a _____ is _____." For example, "The landform I illustrated is a peninsula because a peninsula is surrounded by water on three sides. His explanation includes the academic language associated with a peninsula, as well as the language needed to explain his illustration. ***(Provides clear directions to guide student learning and behavior. Articulates thoughts and ideas clearly and effectively.)*** Students are provided sentence stems to communicate with one another about the landform they create. As he circulates during students' group work, he continually questions students about their creation or illustration and uses prompts to support them in using the academic language modeled. ***(Teaches students, with audience in mind, to articulate thoughts and ideas clearly and effectively.)***

Middle school physical education: Students are working on the Colorado Academic Standard 1: Movement Competence and Understanding in Physical Education, Grade Level Expectation 1—Combine the critical elements of movement and skills concepts.

A physical education teacher is teaching a unit on basketball to 7th-grade students. As he models skills needed to play the game, he labels each skill, using the academic language associated with basketball (e.g., dribble, pass, guard, foul shot, defense, offense, and block). In this way, students learn not only how to play the game, but the terminology needed to label what they are doing. ***(Articulates thoughts and ideas clearly and effectively. Provides clear directions to guide student learning and behavior.)*** As students observe their peers playing a game, they use the language modeled by the teacher to provide feedback to their classmates. ***(Teaches students, with audience in mind, to articulate thoughts and ideas clearly and effectively.)*** When students use everyday language instead of language associated with basketball such as bounce instead of dribble, the teacher prompts them to use the correct terms. ***(Teaches students, with audience in mind, to articulate thoughts and ideas clearly and effectively.)***

High school reading, writing, and communicating: Students are working on Colorado Academic Standard 3: Writing and Composition, Grade Level Expectation 1-- Style, detail, expressive language, and genre create a well-crafted statement directed at an intended audience and purpose.

A teacher tells his 12th-grade students they will be learning how to write persuasive pieces. He defines the term "persuasive" and asks students how this term applies to a type of writing. Student' tasks are to complete a job application

and write a cover letter to a potential employer. The teacher asks students to explain how the task connects to the learning objective. Prior to students beginning their task, the teacher models his resume and cover letter. ***(Articulates thoughts and ideas clearly and effectively.)*** During the model, he explicitly labels how he decided on the information to include based on his audience and purpose for writing. ***(Teaches students, with audience in mind, to articulate thoughts and ideas clearly and effectively. Provides clear directions to guide student learning and behavior.)***

Planning/Coaching Questions

- How will you ensure that you are clearly and effectively articulating thoughts and ideas to all students?
- How will you teach students to consider their audience when articulating their thoughts and ideas with others?
- How will you plan for strategies that model and teach effective communication skills?
- What opportunities will you provide for students to communicate orally and/or in writing with others?
- What will be the academic language included in your model and instruction?
- How will you ensure students are able to utilize the academic language associated with the content and skill being taught?

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APPENDIX B: Glossary

This glossary contains definitions of terms used in both this guide and the user's guide for the Colorado State Model Educator Evaluation System. Glossary entries in red font refer to definitions from the resource guide for items that may not appear in this user's guide. In some cases, examples are provided to help the reader gain a better understanding of the definition in the context of educator evaluation. Sources of information are provided along with individual glossary items to provide easily accessible links to help users locate additional information. Every effort has been made to ensure that all entries are the same for both guides.

504 Plan: Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, which specifies that no one with a disability can be excluded from participating in federally funded programs or activities, including elementary, secondary or postsecondary schooling. A 504 plan spells out the modifications and accommodations that will be needed for these students to have an opportunity to perform at the same level as their peers.

Academic Language: The language used in textbooks, in classrooms and on tests. It is different in structure and vocabulary from the everyday spoken English of social interactions. Many students who do not speak English well have trouble comprehending the academic language used in high school and college classrooms. Low academic language skills have been shown to be associated with low academic performance in a variety of educational settings. The main barrier to student comprehension of texts and lectures is low academic vocabulary knowledge. (Definition downloaded on Aug. 20, 2012 from http://www.academiclanguage.org/Academic_Language.html)

Academic Vocabulary: In other words, it is not the technical vocabulary of a particular academic discipline. Academic vocabulary is used across all academic disciplines to teach about the content of the discipline. For example, before taking chemistry, students do not know the technical words used in chemistry. But the underprepared students also don't know the vocabulary used to teach the chemistry concepts. Underprepared students are unfamiliar with words like evaluation, theory, hypothesis, assumption, capacity and validate. Professors assume students comprehend such academic vocabulary, but such vocabulary is not often used in the everyday spoken English of many students. In addition, academic lectures and texts tend to use longer, more complex sentences than are used in spoken English. (Definition downloaded on August 20, 2012 from http://www.academiclanguage.org/Academic_Language.html).

Accelerating Students through Concurrent Enrollment (ASCENT): A "5th Year Program" that allows high school seniors to concurrently enroll in high school and take a fifth year of instruction consisting entirely of college classes. To qualify for this program, students must have met all of their high school graduation requirements, have taken 12 credit hours of college classes prior to the end of their senior year and be considered college/career ready.

Administrator: Any person who administers, directs or supervises the education instructional program, or a portion thereof, in any school or school district in the state and who is not the chief executive officer or an assistant chief executive officer of such school or a person who is otherwise defined as an administrator by his or her employing school district or BOCES.*[3]

American School Counselor Association (ASCA): Supports school counselors' efforts to help students focus on academic, personal/social and career development so they achieve success in school and are prepared to lead fulfilling lives as responsible members of society.

Appropriate Available Technology: Technology choices made by educators during the execution of their roles. Educators are expected to use the most appropriate technology available to them for the job at hand.

Artifacts: Documents, materials, processes, strategies and other information that result from the normal and customary day-to-day work of any educator. To effectively address the requirements of the evaluation system, it is not necessary to collect the artifacts listed as examples for each standard prior to discussions between the evaluator and the educator being evaluated. In fact, educators and their evaluators may choose not to use any artifacts other than those specifically required by S.B. 10-191 so long as they agree on their rating levels. Artifacts other than those included as examples may also be used. Artifacts are used only if either the educator being evaluated or the evaluator believes that additional evidence is required to confirm the accuracy of the self-assessment as compared to the evaluator's assessment of the educator's performance.

[3] *Glossary items marked with an "*" were taken from the State Rules document dated November 9, 2011.

Augmentative and Alternative Communication (AAC): All forms of communication (other than oral speech) that are used to express thoughts, needs, wants and ideas. We all use AAC when we make facial expressions or gestures, use symbols or pictures, or write. (http://www.asha.org/public/speech/disorders/AAC/)

BOCES or Board of Cooperative Services: A regional educational service unit designed to provide supporting, instructional, administrative, facility, community, or any other services contracted by participating members.

Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
b. communicate information and ideas effectively to multiple audiences using a variety of media and formats
c. develop cultural understanding and global awareness by engaging with learners of other cultures
d. contribute to project teams to produce original works or solve problems (Retrieved on July 18, 2014 from http://www.cde.state.co.us/sites/default/files/documents/cdelib/librarydevelopment/schoollibraries/downloads/pdf/21stcenturyskillssymposiumflyer.pdf)

Colorado Academic Standards: The Colorado Academic Standards are the expectations of what students need to know and be able to do at the end of each grade. They also stand as the values and content organizers of what Colorado sees as the future skills and essential knowledge for our next generation to be more successful. All Colorado districts are required to adopt local standards that meet or exceed the Colorado Academic Standards. The Colorado Academic Standards are also the basis of the annual state assessment. Colorado has updated academic standards in 10 content areas for preschool through 12th grade: music; visual arts; drama and theatre arts; dance; comprehensive health and physical education; mathematics; reading, writing, and communicating; science; social studies; and world languages. The Colorado Academic Standards for reading, writing, and communicating and for mathematics incorporate the Common Core State Standards.

In addition, the state has developed Extended Evidence Outcomes aligned to the standards for students with significant cognitive disabilities. Colorado also adopted Colorado English Language Proficiency (CELP) standards to support English language learners. (See more at: http://www.cde.state.co.us/standardsandinstruction/factsheetsandfaqs#CASOverview)

Colorado English Language Proficiency (CELP) Standards: The CELP standards center on the English language needed and used by English Language Learners (ELLs) to succeed in school. They guide all educators who teach ELLs and help students' access grade level academic content while learning English. While the CELP standards are designed support ELLs specifically in accessing the Colorado Academic Standards, the methods employed by educators to address academic language in the CELP standards, within and across disciplines, are considered promising practice for the benefit of all students.(See more at: http://www.cde.state.co.us/coenglangprof/CELPintro.asp#sthash.yaiG5NQZ.dpuf.)

Colorado Model Evaluation System: The fair, equitable and valid educator evaluation system provided by the Colorado Department of Education for Colorado's school districts to enable them to meet the requirements of S.B. 10-191.

Comprehension: - The process of simultaneously extracting and constructing meaning through interaction and involvement with written language. (Retrieved on May 14, 2015 from http://www.rand.org/content/dam/rand/pubs/monograph_reports/MR1465/MR1465.ch2.pdf).

Creativity and Innovation Skills: demonstrating originality and inventiveness in work; developing, implementing and communicating new ideas to others; being open and responsive to new and diverse perspectives; being willing to be helpful and make necessary compromises to accomplish a common goal.

Critical Thinking and Reasoning: Students use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources. Students:

a. Identify and define authentic problems and significant questions for investigation
b. Plan and manage activities to develop a solution or complete a project
c. Collect and analyze data to identify solutions and make informed decisions
d. Use multiple processes and diverse perspectives to explore alternative solutions

(Retrieved on July 18, 2014 from http://www.cde.state.co.us/sites/default/files/documents/cdelib/librarydevelopment/schoollibraries/downloads/pdf/21stcenturyskillssymposiumflyer.pdf)

Communication Skills: The ability to read, write, speak, listen and understand others, to "read" and interpret body language and to know the best ways to get points across. (Retrieved from http://www.ucdmc.ucdavis.edu/hr/hrdepts/asap/Documents/Communication_Skills.pdf on June 7, 2014).

Coping Strategies: The behaviors, thoughts and emotions used to adjust to the changes and challenges that occur in life. In the classroom, the may include such things as persistence or self-reflection.

Cultural Sensitivity: Is the awareness that cultural differences and similarities exist and have an effect on values, learning, and behavior. (Stafford, Bowman, Eking, Hanna & Lopoes-DeFede, 1997). (Retrieved on May 14, 2015 from http://www.uvm.edu/~cdci/prlc/unit3_slide/sld005.htm.)

Developmental Science: A multidisciplinary field of social-science research that seeks to integrate basic science and developmental theory with applied science on practices, policies and programs. Developmental scientists answer such questions as:

- Do summer reading programs help adolescents to read more often during summer?
- Do welfare policies promote children's school readiness?

Developmental science helps educators and practitioners of other disciplines to develop an understanding of basic developmental research and theory in a substantive area (e.g., reading, motivation) as well as how development can be impacted by educational practices, policies and programs. (Retrieved on March 31, 2014 from http://ehe.osu.edu/educational-studies/gis-gim/applied-developmental-science/.)

Disciplinary Literacy: "If content area literacy focuses on study skills and learning from subject-matter-specific texts, then disciplinary literacy, by contrast, is an emphasis on the knowledge and abilities possessed by those who create, communicate, and use knowledge within the disciplines. The difference is that content literacy emphasizes techniques that a novice might use to make sense of a disciplinary text (like how to study a history book for an exam), while disciplinary literacy emphasizes the unique tools that the experts in a discipline use to participate in the work of that discipline."
http://ssnces.ncdpi.wikispaces.net/file/view/10What+Is+Disciplinary+Literacy+and+Why+Does+it+Matter.pdf)

Differentiated Content: When a teacher differentiates content they may adapt what they want the students to learn or how the students will gain access to the knowledge, understanding and skills (Anderson, 2007). Educators are not varying student objectives or lowering performance standards for students. (Retrieved on May 14, 2015 from http://differentiation.asb-wiki.wikispaces.net/Differentiating+Content).

Differentiated Instruction: A form of instruction that seeks to maximize each student's growth by recognizing that students have different ways of learning, different interests and different ways of responding to instruction. In practice, it involves offering several different learning experiences in response to students' varied needs. Educators may vary learning activities and materials by difficulty, so as to challenge students at different readiness levels; by topic, in response to students' interests; and by students' preferred ways of learning or expressing themselves (Definition retrieved on March 20, 2014 from *Ravich, EdSpeak: A Glossary of Education Terms, Phrases, Buzzwords and Jargon ,*p. 75).

Diversity: The concept means understanding that each individual is unique and recognizing our individual differences. These can be along the dimensions of race, ethnicity, gender, sexual orientation, socio-economic status, age, physical abilities, religious beliefs, political beliefs, or other ideologies. It is the exploration of these differences in a safe, positive and nurturing environment. (Definition retrieved on June 7, 2014 from http://gladstone.uoregon.edu/~asuomca/diversityinit/definition.html). See also: http://www.colorado.edu/odece/.

Educator: A person, such as a principal, assistant principal, administrator, teacher, specialized service professional or other school or school system employee who is involved in educating learners.

Effective Practice: A practice that, "improves outcomes relative to what would have been seen without the intervention." (Retrieved on June 20, 2018 from http://ies.ed.gov/ncee/wwc/document.aspx?sid=15&pid=3).

Elements of the Quality Standards: The detailed descriptions of knowledge and skills that contribute to effective teaching and leading and which correspond to a particular Teacher, Principal or Specialized Service Professional Quality Standards.*

Emotional Intelligence: Emotional intelligence is the ability to identify and manage your own emotions and the emotions of others. It is generally said to include 3 skills:

1. Emotional awareness, including the ability to identify your own emotions and those of others;
2. The ability to harness emotions and apply them to tasks like thinking and problems solving;
3. The ability to manage emotions, including the ability to regulate your own emotions, and the ability to cheer up or calm down another person.

(Retrieved on June 20, 2018 from https://www.psychologytoday.com/basics/emotional-intelligence). For additional information, see Jensen, E. (2008). *Brain-based learning: The new paradigm of teaching*. Thousand Oaks, CA: Corwin Press.

Empathy: The term "empathy" is used to describe a wide range of experiences. Emotion researchers generally define empathy as the ability to sense other people's emotions, coupled with the ability to imagine what someone else might be thinking or feeling. Contemporary researchers often differentiate between two types of empathy: "Affective empathy" refers to the sensations and feelings we get in response to others' emotions; this can include mirroring what that person is feeling, or just feeling stressed when we detect another's fear or anxiety. "Cognitive empathy," sometimes called "perspective taking," refers to our ability to identify and understand other peoples' emotions. Retrieved on June 20, 2018 from http://greatergood.berkeley.edu/topic/empathy/definition). For additional information, see Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. London, England: Routledge.

Equity Pedagogy: A commitment to a diverse population of students, demonstrated by the creation of an inclusive and positive school culture and strategies that meet the needs of diverse student talents, experiences and challenges.

Equity pedagogy values students' individual backgrounds as a resource and utilizes approaches to instruction and behavioral supports that build on student strengths.

Evidence-Based Practice: The use of practices, interventions and treatments which have been proven, through scientifically-based research, to be effective in improving outcomes for individuals when the practice is implemented with fidelity. (See also http://www.cde.state.co.us/sites/default/files/documents/cdesped/download/pdf/ff-ebp_mh_intro.pdf)

Evidence Provided by Artifacts: The unique information each artifact used in the evaluation provides which is above and beyond the evidence provided by performance ratings. The evidence is used to support adjustments to ratings during the end-of-year discussion between the educator being evaluated and evaluator to determine final ratings for the educator being evaluated.

Expected Growth: A student's expected/predicted performance on a current year's test given his or her previous year's test score. This information is obtained by regressing the current year test score on the prior year test score. In other words, estimating expected growth addresses the question, "Compared to students with the same prior test score, is the current year test score higher or lower than would be expected?"

Expert Input: The process of including the input of specialized service professionals who have the expertise needed to determine whether professional practices have been demonstrated. Such experts work with evaluators to ensure that specialized service professionals receive fair and accurate evaluations based on the input of individuals with a deep understanding of what the various performance levels look like.

Extended Evidence Outcomes: EEO provide the alternate standards in Mathematics, Science, Social Studies and Reading, Writing and Communicating for students with significant cognitive disabilities who qualify for the alternate assessment. These alternate expectations are directly aligned to the grade level expectations for all students. –(See more at: http://www.cde.state.co.us/coextendedeo/statestandards#sthash.N4Zmu2uV.dpuf.)

Formative Assessment: A process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning resulting in improved student achievement of intended instructional outcomes.

Foundational Evidence Base: The integration of the best evidence from scientifically sound studies and student, family and education data with practitioner expertise and student knowledge, skills, interests and values. When delivered in a context of caring and in a supportive and safe environment, the highest quality student outcomes can be achieved.

Gain Score Model: A gain score model measures year-to-year change by simply subtracting the prior year score from the current year score.

Growth Models: Models that measure student achievement growth from one year to the next by tracking the same students. This model addresses the question, "How much, on average, did students' performance change from one grade to the next?" To permit meaningful interpretation of student growth, the model implicitly assumes that the measurement scales across grades are vertically linked (i.e., that student scores on different tests across grades are directly comparable and represent a developmental continuum of knowledge and skill). (Growth, Standards and Accountability, The Center for Assessment, April 2009: http://www.nciea.org/publications/growthandStandard_DB09.pdf).

Hearing Assistance Technology: Used in educational settings to improve auditory access to the teacher or talker by mitigating the effects of noise, reverberation and distance from the talker. All learners need access to communication and instruction in their classrooms and other instructional settings; learners who are deaf and hard of hearing, or who have other auditory deficits, require special technology to receive comparable auditory access. HAT may be prescribed through an individual family service plan (IFSP), individual education program (IEP), or a 504 Plan. HAT devices are selected, fitted and verified by an audiologist. For infants and toddlers HAT decisions are generally made with the parents and early intervention provider; for school-age children with the student and the IEP team. (Reference EAA)

Hearing Loss and Other Auditory Disorders: A reduced hearing acuity or a documented difficulty accessing learning through the sense of hearing. These deficits are uniquely identified and managed by an audiologist. Educational (school-based) audiologists specialize in the effects of hearing, listening and auditory processing deficits on the ability of children and youth to access communication and learning.

*Reference ASHA; EAA

High Expectations: Most educators recognize the importance of high expectations. Creating a classroom where high expectations permeate the culture is more challenging. The key is recognizing that "high expectations" is both a belief about student capability and specific actions undertaken to make those beliefs a reality. Teachers who demonstrate the highest expectations show their students that they expect rigorous, challenging, high quality work. (Retrieved on May 18, 2015 from http://www.doe.in.gov/sites/default/files/turnaround-principles/education-partnershigh-expectations.pdf).

Higher Order Thinking: Critical, logical, reflective, metacognitive and creative thinking. These skills are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. Successful applications of the skills result in explanations, decisions, performances and products that are valid within the context of available knowledge and experience and that promote continued growth in these and other intellectual skills. Higher order thinking skills are grounded in lower order skills such as discriminations, simple application and analysis and cognitive strategies and are linked to prior knowledge of subject matter content. Appropriate teaching strategies and learning environments facilitate their growth as do student persistence, self-monitoring and open-minded, flexible attitudes. (Source: FJ King, F. J., Goodson,L., Rohani, F. *Higher order thinking skills: definition, teaching strategies and assessment.* Tallahassee, FL: Florida State University, Assessment and Evaluation Educational Services Program.)

Individual Career and Academic Plan (ICAP): Senate Bill 09-256 and Colorado State Board of Education Rules 1 CCR 301-81 created standards for Individual Career and Academic Plans (ICAP) with the goal of decreasing dropout rates and increasing graduation rates by assisting students and their parents in developing and maintaining a personalized postsecondary plan that ensures readiness for postsecondary and workforce success.

Individualized Education Program (IEP): Required by the Individuals with Disabilities Education Act, an IEP defines the individualized objectives of a child who has a disability. The IEP is intended to help children reach educational goals more easily than they otherwise would. The IEP is tailored to the individual student's needs as identified by the IEP evaluation process and helps teachers and specialized service professionals understand the student's disability and how the disability affects the learning process. Developing an IEP requires assessing students in all areas related to the known disabilities, simultaneously considering ability to access the general curriculum, considering how the disability affects the student's learning, forming goals and objectives that correspond to the needs of the student and choosing a placement in the least restrictive environment possible for the student. (Adapted from http://en.wikipedia.org/wiki/Individualized_Education_Program)

Individualized Family Service Plan (IFSP): A written plan for providing early intervention services to an infant or toddler with a disability and the child's family that (a) is based on the evaluation and assessment; (b) includes parental consent; (c) is implemented as soon as possible once parent consents for early intervention services in the IFSP is obtained; and (d) is developed in accordance with IDEA Part C.

Individuals with Disabilities Education Act (IDEA): A Federal law that guarantees certain educational rights for all people, including those with disabilities.

Information Literacy: Students apply digital tools to gather, evaluate, and use information. Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

a. plan strategies to guide inquiry
b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks
d. process data and report results
e. understand and use technology systems
f. select and use applications effectively and productively
g. troubleshoot systems and applications
h. transfer current knowledge to learning of new technologies

(Retrieved on July 18, 2014 from http://www.cde.state.co.us/sites/default/files/documents/cdelib/librarydevelopment/schoollibraries/downloads/pdf/21stcenturyskillssymposiumflyer.pdf.)

Innovation: See Creativity.

Inquiry Methods: Teaching practices that utilize a disposition of inquiry learning including:

- problem-based learning: learning that starts with an ill-structured problem or case-study
- project-based learning: students create a project or presentation as a demonstration of their understanding
- design-based learning: learning through the working design of a solution to a complex problem

Inquiry emphasizes the process of learning in order to develop deep understanding in students in addition to the intended acquisition of content knowledge and skills. Inquiry draws upon constructivist learning theories where understanding is built through the active development of conceptual mental frameworks by the learner. (Retrieved on May 23, 2014 from http://www.teachinquiry.com/index/Introduction.html)

Instructional Strategies: Techniques teachers use to help students become independent, strategic learners. These strategies become learning strategies when students independently select the appropriate ones and use them effectively to accomplish tasks or meet goals. Instructional strategies can:

- motivate students and help them focus attention
- organize information for understanding and remembering
- monitor and assess learning. (Retrieved on May 18, 2015 from https://education.alberta.ca/media/352984/is.pdf.)
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Intensive Instruction: The components of "high-quality, intensive instruction" provide

- small group instruction based on similar instructional needs,
- well-structured and explicit instruction with clearly-defined skills or concepts,
- appropriate delivery pace,
- time for student mastery through practice, and

- progress monitoring. (Retrieved on May 18, 2015 from http://education.wm.edu/centers/ttac/resources/articles/consultcollaborate/hightqualityintensiveinstruction/index.php.)

Interdisciplinary: a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, topic, issue, problem, or work." Heidi Hayes Jacobs, Interdisciplinary Curriculum: Design and Implementation (1989). (Retrieved on May 14, 2015 from http://www.thirteen.org/edonline/concept2class/interdisciplinary/).

Integration Districts: Districts selected as part of a voluntary effort by the Colorado Education Initiative (formerly the Colorado Legacy Foundation) to support CDE's work to implement Senate Bill 10-191 as well as the Colorado Academic Standards pursuant to Senate Bill 08-212 (Colorado Achievement Plan for Kids). Four school districts (Centennial, Denver Public Schools, Eagle County and Thompson School District) and one BOCES (San Juan) were selected to implement, in an integrated manner, all of the following:

- Colorado Academic Standards and aligned instructional materials to guide instruction
- Professional development in formative practices to inform instruction
- Regular performance evaluations that hold educators accountable for improvement on measures of student learning and provide them feedback to improve instruction

Interim Assessments: A term generally used to refer to medium scale, medium-cycle assessments. Interim assessments: 1) evaluate students' knowledge and skills relative to a specific set of academic goals, typically within a limited time frame and, 2) are designed to inform decisions at both the classroom and beyond the classroom level, such as the school or district level. Thus, they may be given at the classroom level to provide information for the teacher, but unlike true formative assessments, the results of interim assessments can be meaningfully aggregated and reported at a broader level.

Invention: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

a. apply existing knowledge to generate new ideas, products, or processes
b. create original works as a means of personal or group expression
c. use models and simulations to explore complex systems and issues
d. identify trends and forecast possibilities

(Retrieved on July 18, 2014 from http://www.cde.state.co.us/sites/default/files/documents/cdelib/librarydevelopment/schoollibraries/downloads/pdf/21stcenturyskillssymposiumflyer.pdf.)

Learning Environment: The diverse physical locations, contexts and cultures in which students learn. Since students may learn in a wide variety of settings, such as outside-of-school locations and outdoor environments, the term is often used as a more accurate or preferred alternative to classroom. The term also encompasses the culture of a school or class—its presiding ethos and characteristics, including how individuals interact with and treat one another—as well as the ways in which teachers may organize an educational setting to facilitate learning. How adults interact with students and how students interact with one another may also be considered aspects of a learning environment and phrases such as "positive learning environment" or "negative learning environment" are commonly used in reference to the social and emotional dimensions of a school or class. (Retrieved on July 18, 2014 from http://edglossary.org/learning-environment/)

Learning Objectives: The term used to describe the instructional objectives, learning targets, lesson objectives, student academic growth objectives and other objectives for student learning.

Learning Styles: Learning styles emphasize the different ways people think and feel as they solve problems, create products, and interact. Learning styles are concerned with differences in the *process* of learning. (Retrieved on May 19, 2015 from http://www.ascd.org/publications/educational-leadership/sept97/vol55/num01/Integrating-Learning-Styles-and-Multiple-Intelligences.aspx.) For additional information, see also Vatterott, C. (2009). *Rethinking homework: Best practices that support diverse needs*. Alexandria, VA: ASCD.

Least Restrictive Environment (LRE): To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (Retrieved on June 13, 2014 from http://idea.ed.gov/explore/view/p/,root,statute,I,B,612,a,5).

Lesson Plan: All teachers have some type of plan when they walk into their classrooms. It may be as simple as a mental checklist or as complex as a detailed typed lesson plan that follows a prescribed format. Lesson plans are usually written for the teacher's own eyes and tend to be informal. There may be times, however, when the plan has to be given to an observer or a supervisor, and therefore will be more formal and detailed. Lesson plans serve as a combination guide, resource, and historical document reflecting the teacher's teaching philosophy, student population, content to be taught, and most importantly goals for students. Lesson plans are mutable, not written in stone. The should not keep a teacher from changing an activity if the situation warrants. Good lesson plans guide but do not dictate what and how to teach. A lesson plan is essential for novice teachers and convenient for experienced teachers. (Retrieved on May 19, 2015 from http://www.princeton.edu/~pia/TEFL.pdf.)

Licensed Personnel: Any persons employed to implement, direct or supervise instructional and/or support services programs who holds a valid license or authorization pursuant to the provision of article 60.5 of title 22, Colorado Revised Statutes.

Literacy: Literacy has always been a collection of cultural and communicative practices shared among members of particular groups. Because technology has increased the intensity and complexity of literate environments, the 21st century demands that a literate person possess a wide range of abilities and competencies, many literacies. These literacies are multiple, dynamic, and malleable. Active, successful participants in this 21st century global society must be able to:

- Develop proficiency and fluency with the tools of technology;
- Build intentional cross-cultural connections and relationships with others so to pose and solve problems collaboratively and strengthen independent thought;
- Design and share information for global communities to meet a variety of purposes;
- Manage, analyze, and synthesize multiple streams of simultaneous information;
- Create, critique, analyze, and evaluate multimedia texts; and
- Attend to the ethical responsibilities required by these complex environments.

(Retrieved on May 18, 2015 from http://www.ncte.org/positions/statements/21stcentdefinition).

Literacy Skills: Skills that include, but are not limited to, phonological awareness, phonics, reading fluency, vocabulary, comprehension, writing, speaking and listening.

Measures of Student Learning (also referred to as Student Academic Growth and Student Growth): The various types of assessments of student learning, including for example, value-added or growth measures, curriculum-based tests, pre-/post- tests, capstone projects, oral presentations, performances, artistic portfolios or other projects.

Measures of Teacher Performance: The various types of assessments of teachers' performance, including, for example, classroom observations, student test score data, self-assessments, or feedback from other staff members, families and significant adults, students or community members.

Mentor Texts: Examples of high quality writing used by students as models of the writing characteristic or skill they are learning. Students benefit from paying close attention to models before they begin drafting a piece of writing, as they compose their first draft, and as they move that draft into revision. Mentor texts are most powerful when students frequently revisit them *throughout* the writing process—and when teachers help them take lessons from writing exemplars. (Retrieved on June 20, 2018 from http://www.ascd.org/publications/educational-leadership/apr14/vol71/num07/Making-the-Most-of-Mentor-Texts.aspx).

Mid-Year Review: Takes place before the second semester of the school year. The evaluator and person being evaluated discuss progress to date toward meeting the annual goals articulated in the professional growth plan for the person being evaluated. The focus of the meeting is addressing barriers toward meeting annual goals and immediate action steps needed to overcome such barriers. Artifacts needed to demonstrate progress may also be discussed as well a changes to the growth plan.

Multi-Tiered System of Supports (MTSS): Also known as Response to Intervention (RtI), is an approach for redesigning and establishing teaching and learning environments that are effective, efficient, relevant and durable for all students, families and educators. RtI/MTSS involves an education process that matches instructional and intervention strategies and supports to student needs in an informed, ongoing approach for planning, implementing and evaluating the effectiveness of instruction, curricular supports and interventions. RtI/MTSS is also a process designed to help schools focus on and provide high-quality instruction and interventions to students who may be struggling with learning. RtI/MTSS has three important parts: (1) A multi-tiered system of curriculum, instruction, assessment and interventions; (2) Using a problem solving method for decision making at each tier and (3) Using data to inform instruction at each tier. (Definition adapted from: http://www.illinoisrti.org/i-rti-network/for-educators/understanding-rti-mtss Downloaded February 8, 2014.)

Not Observable Professional Practices: Professional practices that an evaluator would not normally and customarily be able to observe during a typical class-period-long observation.

Non-tested Grades and Subjects: The grades and subjects that are not required to be tested under the Federal Elementary and Secondary Education Act.

Norm-referenced: A type of test or assessment that yields an estimate of the tested individual's performance evaluation relative to a predefined population, with respect to the trait being measured. This type of test determines whether the test taker performed better or worse than other test takers, but not whether the test taker knows either more or less material than is necessary for a given purpose.

Observable Professional Practices: Professional practices that an evaluator would normally and customarily be able to observe during an observation of a typical class-period long lesson.

Observations: Used to measure observable classroom processes including specific teacher practices, aspects of instruction and interactions between teachers and students. Classroom observations can measure broad, overarching aspects of teaching and subject-specific or context-specific aspects of practice.

Other Assessments: The development and/or adaptation of other measures of student growth for non-tested grades and subjects used across schools or districts. These measures may include early reading measures;

standardized end-of-course assessments; formative assessments; benchmark, interim, or unit assessments; and standardized measures of English language proficiency. Other assessments may be developed at either the state education agency or local education agency level. Teacher-developed assessments of student learning or growth also may fall into this category when those assessments meet expectations for rigor and comparability across classrooms in a district or across classrooms statewide.

Partner Districts: Districts who have already developed performance evaluation systems reflecting key elements of Senate Bill 10-191. These districts provide valuable information on the process for aligning existing educator evaluation systems to the rules developed by the State Board of Education, as well as providing an opportunity to enhance the Colorado State Model Evaluation System with elements from locally-developed systems.

Performance Evaluation Rating: The summative evaluation rating assigned by a school district or BOCES to licensed personnel and reported to the Colorado Department of Education on an annual basis. It is the equivalent of a "performance standard," as defined in section 22-9-103 (2.5), C.R.S.*

Performance Rating Levels: Describe performance on professional practices with respect to Colorado's Quality Standards.

Basic: Educator's performance on professional practices is significantly below the state performance standard.

Partially Proficient: Educator's performance on professional practices is below the state performance standard.

Proficient: Educator's performance on professional practices meets state performance standard.

Accomplished: Educator's performance on professional practices exceeds state standard.

Exemplary: Educator's performance on professional practices significantly exceeds state standard.

Performance Standards: Levels of effectiveness established by rule of the state board pursuant to section 22-9-105.5(10). The four levels of effectiveness are: Ineffective, Partially Effective, Effective, and Highly Effective.

Pilot Districts: Districts selected as part of CDE's work to implement Senate Bill 10-191. Pilot districts are representative of the various sizes, student demographics and geographic differences across Colorado. These pilot districts are using the Colorado State Model Evaluation Systems for both principals and teachers during the 2011-16 school years. They provide valuable feedback on the quality of the model system, identifying challenges and strengths of the system and suggesting refinements to the implementation process developed by CDE.

Pilot Period: The time during which the CDE will collaborate with school districts and BOCES to develop, define and improve the state model system. The pilot period will end on July 2016 or when the model system based on the Teacher, Specialized Service Professional and Principal Quality Standards has been completed and the commissioner has provided notice of such implementation to the reviser of statutes, whichever is later.

Policy: The formal guidance needed to coordinate and execute activity throughout an institution. When effectively deployed, policy statements help focus attention and resources on high priority issues – aligning and merging efforts to achieve the institutional vision. Policy provides the operational framework within which the institution functions. (Retrieved on July 18, 2014 from http://policy.calpoly.edu/cappolicy.htm.)

Postsecondary and Workforce Readiness:
See Appendix B.

Prepared Graduate Competencies: The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.

Principal: A person who is employed as the chief executive officer or an assistant chief executive officer of a school in the state and who administers, directs or supervises the education program in the school. *

Principal Professional Growth Plan: The development plan for principals/assistant principals which constitutes a written agreement developed by a principal/assistant principal and district administration that outlines the steps to be taken to improve the principal's effectiveness. The principal growth plan shall include professional development opportunities.

Problem Solving: The process of moving toward a goal when the path to that goal is uncertain. We solve problems every time we achieve something without having known beforehand how to do so. We encounter simple problems every day: finding lost keys, deciding what to do when our car won't start, even improvising a meal from leftovers. But there are also larger and more significant "ill-defined" problems, such as getting an education, becoming a successful person, and finding happiness. Problem solving may include mathematical or systematic operations and can be a gauge of an individual's critical thinking skills. (Adapted from http://www.gse.uci.edu/person/martinez_m/docs/mmartinez_Problem_Solving.html).

Professional Practices: The day-to-day activities in which educators engage as they go about their daily work. Professional practices included in the rubric are those one would expect an educator to demonstrate at each rating level. These are the behaviors, skills, knowledge and dispositions that educators should exhibit. Teacher and Specialized Service Professional Quality Standards I-V and Principal Quality Standards I-VI address the professional practice standards for educators in Colorado.

Psychoeducational: A model in which the practicing psychologist is concerned with the teaching of personal and interpersonal attitudes and skills which the individual applies to solve present and future psychological problems and to enhance satisfaction with life. This model views the role of the psychological practitioner in terms of client dissatisfaction (or ambition) goal-setting skill-teaching satisfaction (or goal achievement). Likewise, the client (in this case, student) is viewed as a pupil rather than a patient. (Adapted from http://cjc-rcc.ucalgary.ca/cjc/index.php/rcc/article/viewFile/1835/1685, retrieved on May 5, 2014.)

Quality Standards: To meet the requirements of S.B. 10-191, the State Council for Educator Effectiveness recommended Quality Standards for teachers, principals/assistant principals and specialized service professionals. These recommended standards were reviewed and revised during the official rulemaking process conducted by the Colorado Department of Education. The revised standards and elements were approved by the Colorado State Board of Education as well as the legislature and are now among the Colorado State Board of Education's official rules. These revised standards reflect the professional practices and focus on the measures of student learning needed to achieve effectiveness.

Reliability: The ability of an instrument to measure consistently across different raters and contexts.

Resource Bank: A collection of tools, materials and other resources provided by the Colorado Department of Education to enable Colorado's school districts to implement the Colorado State Model Evaluation System and meet the requirements of S.B. 10-191.

Response to Intervention (RtI):
See Multi-Tiered System of Support.

Rigor/Rigorous: The term rigor is widely used by educators to describe instruction, schoolwork, learning experiences, and educational expectations that are academically, intellectually, and personally challenging. Rigorous learning experiences help students understand knowledge and concepts that are complex, ambiguous, or contentious, and they help students acquire skills that can be applied in a variety of educational, career, and civic contexts throughout their lives.

The term is frequently applied to assignments that encourage students to think critically, creatively, and flexibly. Likewise, they may use the term rigorous to describe learning environments that are not intended to be harsh, rigid, or overly prescriptive, but that are stimulating, engaging, and supportive. Rigor is commonly applied to lessons that encourage students to question their assumptions and think deeply, rather than to lessons that merely demand memorization and information recall. (Adapted from http://edglossary.org/rigor/).

School Administrator: Principals and assistant principals working in Colorado's schools.

School District or District: A school district organized and authorized by section 15 of Article IX of the state constitution and organized pursuant to article 30 of title 22, Colorado Revised Statutes.

School Improvement Plan: See Unified Improvement Plan.

Scientifically-based research: Research that involves the application of rigorous, systematic and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs.

Self-direction: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

a. advocate and practice safe, legal, and responsible use of information and technology
b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
c. demonstrate personal responsibility for lifelong learning
d. exhibit leadership for digital citizenship

(Retrieved on July 18, 2014 from http://www.cde.state.co.us/sites/default/files/documents/cdelib/librarydevelopment/schoollibraries/downloads/pdf/21stcenturyskillssymposiumflyer.pdf.)

Senate Bill 10-191: Known as the ENSURING QUALITY INSTRUCTION THROUGH EDUCATOR EFFECTIVENESS (EQUITEE) bill, S.B. 10-191 is the guiding legislation for Colorado's work on educator effectiveness issues. (http://www.leg.state.co.us/clics/clics2010a/csl.nsf/fsbillcont3/EF2EBB67D47342CF872576A80027B078?open&file=191_enr.pdf)

Shared Attribution or Measures of Collective Performance: The use of measures required by the current provisions of the Elementary and Secondary Education Act and/or other standardized assessments used to measure the performance of groups of teachers. Measures of collective performance may assess the performance of the school, grade level, instructional department, teams or other groups of teachers. These measures can take a variety of forms including school wide student growth measures, team-based collaborative achievement projects and shared value-added scores for co-teaching situations.

Significant Adults: Teachers and other professionals, family members or non-family members who have a vested interest in and impact on the life of the student.

Specialized Service Professionals (SSPs): Licensed personnel who provide support to teachers and students in areas that involve student physical, emotional and social health and well-being. They include audiologists, occupational therapists, physical therapists, school counselors, school nurses, school orientation and mobility specialists, school psychologists, school social workers and speech-language pathologists.

Specially Designed Instruction: Adapting, as appropriate, to the needs of children the content, methodology, or delivery of instruction to address the unique needs of the child that result from the child's disability and to ensure access of the child to the general curriculum, so that the child can meet the educational standards within the

jurisdiction of the public agency that apply to all children; internal stakeholders, external stakeholders; natural environment.

Stakeholders: Refers to anyone who is invested in the welfare and success of a school and its students, including administrators, teachers, staff members, students, parents, families, community members, local business leaders and elected officials such as school board members, city councilors and state representatives. Stakeholders may also be collective entities, such as local businesses, organizations, advocacy groups, committees, media outlets and cultural institutions. In a word, stakeholders have a "stake" in the school and its students, meaning that they have personal, professional, civic, or financial interest or concern. The term "stakeholders" may also be used interchangeably with the concept of a school community, which necessarily comprises a wide variety of stakeholders. (Retrieved on June 11, 2014 from http://edglossary.org/stakeholder/.)

Standards: The Colorado Academic Standards (CAS) are the expectations of what students need to know and be able to do at the end of each grade. They also stand as the values and content organizers of what Colorado sees as the future skills and essential knowledge for our next generation to be more successful. State standards are the basis of the annual state assessment. - See more at: https://www.cde.state.co.us/standardsandinstruction/coloradostandards-academicstandards#sthash.Yc7i2EXN.dpuf.

State Board: The State Board of Education established pursuant to Section 1 of Article IX of the state constitution*

State Council: The State Council for Educator Effectiveness established pursuant to article 9 of title 22.

State Scoring Framework: This framework outlines how data collected around the professional practices of principals, specialized service professionals and teachers and the measures of student learning/outcomes for students in the school should be combined in order to make a singular judgment about the person being evaluated.

State Scoring Framework Matrix: A matrix adopted by all districts statewide to assign teachers and principals to appropriate performance standard ratings based on locally-calculated professional practice and student growth/outcomes scores.

State Model System: The personnel evaluation system and supporting resources developed by the Colorado Department of Education, which meets all of the requirements for local personnel evaluation systems that are outlined in statute and rule.

Statewide Summative Assessments: The assessments administered pursuant to the Colorado student assessment program created in section 22-7-409, C.R.S., or as part of the system of assessments adopted by the state board pursuant to section 22-7-1006, C.R.S.*

Structured Setting: A small environment such as a special education classroom, motor room, or therapy intervention session where significant and individualized support is provided to the student and/or environmental or activity-based modifications are in place. This is in contrast to larger educational settings such as the cafeteria, playground and general education classroom where environments may be more distracting, less controlled, or less highly modified.

Student Academic Growth (incorporated in the CO State Model Evaluation System as Measures of Student Learning): The change in student achievement against Colorado Academic Standards for an individual student between two or more points in time, which shall be determined using multiple measures, one of which shall be the results of statewide summative assessments and which may include other standards-based measures that are rigorous and comparable across classrooms of similar content areas and levels. Student academic growth also may include gains in progress towards postsecondary and workforce readiness, which, for teachers, may include performance outcomes for successive student cohorts. Student academic growth may include progress toward

academic and functional goals included in an individualized education program and/or progress made towards student academic growth objectives.

Student Academic Growth Objectives: A method of setting measurable goals or objectives for a specific assignment or class, in a manner aligned with the subject matter taught and in a manner that allows for the evaluation of the baseline performance of students and the measureable gain in student performance during the course of instruction.

Student Engagement: In education, student engagement refers to the degree of attention, curiosity, interest, optimism and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their learning. Generally speaking, the student-engagement concept is predicated on the belief that learning improves when students are inquisitive, interested, or inspired and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise "disengaged." (Retrieved from http://edglossary.org/student-engagement/ on April 12, 2014)

Student Learning Outcomes: What students should know, understand and be able to do as a result of their work on particular courses or year-long curricula.

Summary of Ratings for the Standard: Summarizes individual element ratings for the standard. Summary ratings are also included in the Summary Evaluation Sheet Worksheet and the one-page Summary Evaluation Sheet, where the evaluator and the educator being evaluated will review all standard and element ratings and determine the overall professional practices rating.

Teacher: A person who holds an alternative, initial or professional teacher license issued pursuant to the provisions of article 60.5 of title 22 and who is employed by a school district, BOCES or a charter school in the state to instruct, direct or supervise an education program.

Teacher Evaluation System Framework: The complete evaluation system that all school districts and BOCES shall use to evaluate teachers employed by them. The complete teacher evaluation system framework includes the following component parts: (i) definition of teacher effectiveness set forth in section 3.01 of these rules, (ii) the Teacher Quality Standards described in section 3.02 of these rules, (iii) required elements of a written evaluation system described in section 5.01 of these rules and (iv) the weighting and aggregation of evidence of performance that are used to assign a teacher to one of four performance evaluation ratings as described in section 3.03 of these rules.

Teacher Feedback: SB. 10-191 requires that all educator evaluation systems include opportunities for students, parents, teachers, and other professionals to provide feedback on the performance of teachers, principals and other educators. The Colorado State Model Educator Evaluation System provides this opportunity through the use of required artifacts. There are a number of possibilities for artifacts that may be used to satisfy this requirement. The CDE provides the TLCC survey at no charge to schools and districts. In addition, a number of districts are already using the ValEd Teacher feedback system and the Balanced Leadership Profile as feedback measures. Should districts choose, they may also develop their own measures or adopt other measures to satisfy this requirement.

Teacher Professional Growth Plan: The plan required by section 22-9-105.5 (3), C.R.S. and is a written agreement developed by a teacher and school district administration or local school board that outlines the steps to be taken to improve the teacher's effectiveness. The teacher professional growth plan shall include professional development opportunities.

Teacher Quality Standard: The professional practice or focus on student academic growth needed to achieve effectiveness as a teacher.

Teacher Turnover Rate: The rate at which teachers leave a school prior to retirement. This is calculated by dividing the number of teachers who resign from or transfer out of a school by the total number of teachers who work at the school.

TLCC Survey: The Teaching and Learning Conditions Colorado survey is a statewide survey of school based educators to assess teaching conditions at the school, district and state level. (http://www.tlccsurvey.org/)

Twenty-First Century Skills: The Colorado Department of Education defines 21st Century skills as collaboration, critical thinking, information literacy, invention and self-direction. Each of these skills is defined separately in this glossary.

Unified Improvement Plan: A school's improvement plan addressing all state and federal planning and reporting requirements. This is the school plan required pursuant to section 22-11-210, C.R.S.

Unique Identifier: Numbers that are assigned to each student and teacher.

Unlicensed Assistive Personnel (UAP): Unlicensed health care providers trained to function in a supportive role by providing patient/client care activities as delegated by the RN.

Validity: The ability of an instrument to measure the attribute it intends to measure.

Weighting: How much a particular measurement tool, student growth measure or quality standard determines overall performance when multiple measures are combined into a single rating.

Workforce Readiness: See Appendix B.

APPENDIX C: Internal Resource Documents

Internal Resource Document Title	Alignment to Standards and Elements
A Teacher's Words Matter	Standard II
Accountability Strategies	Standard III
Assigning Roles for Group Members	Standard III
Bloom's Taxonomy Question Types	Standard III
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Strategies for Managing the Use of Computers in the Classroom	Standard III
Strategies to Help Students Learn to Use Feedback	Standard III
Student Bill of Rights	See Standard II
Student Outcomes	Standard III
Teaching Empathy and Respect through Literature	Standard II
Teaching Students How to Ask Questions	Standard III

Resource Document Title	Alignment to Standards and Elements
Types of Problem-Solving Skills with Definitions and Examples	Standard III
Using Question Words with Younger Students	Standard III
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A Teacher's Words Matter

Phrases that Acknowledge the Value of Students' Contributions and Thinking

- **Example:** A student says something in response to a statement or question, but the teacher is not sure where he/she are headed or what he/she is talking about.

  Possible Teacher Response:
  - Say more about that.
  - That is what I think I heard you say. Do I have it right?

  Rationale: When the teacher does not really know what students are talking about or thinking, these responses can demonstrate a willingness to listen and understand. It is important for students to take ownership for explaining their thinking. Teachers must realize that when they dismiss a student's thinking, they may also be perceived as dismissing the student.

- **Example:** A student says something that seems so bizarre to the teacher that one wonders if he/she has been listening or following directions at all.

  Possible Teacher Response:
  - Wow, I never thought about it like that before? Tell me more.
  - So help me out here. What's the evidence in the (text, your experiences, etc.) that led you to that conclusion?

  Rationale: Although some students may say things just to get a reaction, they still need to know that they are expected to substantiate their thinking. When students realize that a teacher is serious about their taking ownership for their responses, they are more likely to contribute to class discussion in a meaningful way.

- **Example:** Students need to broaden and expand their thinking.

  Possible Teacher Response:
  - What might be another way of thinking about this?
  - Let's look at this a different way. What if…?

  Rationale: This type of response can support students in understanding the importance of being open-minded, listening to others' perspectives, and seeing the value in learning from others.

- **Example:** Students struggle to figure something out that is creating challenges for them.
  Possible Teacher Response:
  - What do you think you can try next?
  - Have you seen this kind of problem before? Do you remember what I did when I modeled this type of problem or what another student did?

  Rationale: Students need time and support in wrestling with their own thinking and problem-solving abilities. This is also an opportunity for students to learn from one another.

- **Example:** Students are able to make sense of a concept or problem that has been challenging for them.

  Possible Teacher Response:
  - How did you figure it out? Can you share your thinking with someone else?
  - What did you learn today about yourself as a (reader, mathematician, scientist, artist, musician, etc.) today?

  Rationale: When students are able to solve a problem or get the right answer, they may see it as a lucky guess. This type of response encourages students to think about their thinking. The teacher can also encourage students to explain their thinking to others.

Accountability Strategies

Strategy	Explanation/Impact
Everybody Writes	• All students stop, think, and write a response to the teacher's question. Responses may be written on whiteboards or paper. • ***Impact:*** • Provides students time to process and think (wait time). • Holds all students accountable to formulate a response. • Allows teacher to assess all students by circulating and reading responses.
Turn and Talk or Think, Pair, Share	• Students are given time to process and formulate their thinking (Think, Pair, Share). • Students share their response to a specific question with a partner. • Students share their partner's response, as opposed to their own, when sharing with others or in whole group. • ***Impact:*** • Holds students accountable as individuals and partner to share and listen. • Allows teacher to assess all students by circulating and listening to responses.
Cold Call	• Students are randomly called on to respond to questions. • Teachers may use sticks with students' names, spinners, etc., to select student name. • Teachers should let students know he/she will be cold calling prior to posing question until students become accustomed to this method. This communicates the expectation for all students to formulate a response. • ***Impact:*** • Holds all students accountable to formulate a response. • Teachers can differentiate questions based on student needs. • Allows teachers to assess a variety of students' thinking, not just students who volunteer to answer questions.
No Opt-out	• When a student does not know an answer to a question or answers incorrectly, the teacher returns to them after a correct response is given. • ***Impact:*** • Holds students accountable to listen to others' responses. • Students can't get "off the hook" with "I don't know." • Students have an opportunity to correct their thinking.

Signaling	• Students use a designated type of signal to respond to a question. (Ex. For thumbs up or down, hold your hand against your chest so others can't see your answer.) • ***Impact:*** • Holds all students accountable to respond. • Allows teacher to quickly assess all students. • Signaling can provide opportunity for student movement for kinesthetic learners.
Pass It On	• Students are placed in groups of three or five. • Teacher asks a question that has multiple answers. (Ex. List nouns; name the continents, spelling word review, etc.) • First student writes a response or letter and quickly passes the paper to the next group member. This continues until time is called or all responses are written. • ***Impact:*** • Holds all students accountable to respond. • Allows teacher to assess each student. • Allows for group competition and support.

Reference:

Lemov, D. (2010). *Teach like a champion: 49 techniques that puts students on the path to college.* San Francisco, CA: Jossey-Bass.

Assigning Roles for Group Members

Roles are assigned to students working in groups in order to:

- Increase student participation and accountability.
- Support students in developing communication, collaboration, and leadership skills.
- Increase time on task for all students.
- Increase time for the teacher to support students and assess individual and group learning.

When introducing roles to students, it is helpful to provide a visual of the roles with expectations for each. For younger students, this may include a picture that represents each role. Teachers should identify and explain each role by providing examples for how it should be implement and its impact on the success of the group.

Possible Roles for Group Projects

- **Leader/Editor:** The Leader/Editor is responsible for organizing the final project and ensuring it meets the timeline, quality, and content criteria established by the teacher.
- **Recorder/Secretary:** The Recorder/Secretary takes notes whenever the group meets and keeps track of group data/sources, etc. This student distributes notes and reminders to group members highlighting next steps for their parts of the project.
- **Monitor:** The Monitor is responsible for double-checking data, bibliographic sources, or graphics for accuracy and correctness.
- **Spokesperson:** The Spokesperson is responsible for the technical or visual details of the final product and provides updates on the group's progress to the teacher.
- **Resource Manager:** The Resource Manager is responsible for gathering and returning materials within the classroom. Assigning one student from each group to handle crayons, markers, paper, and other supplies can significantly reduce the chaos of project-oriented work within the classroom environment.

Possible Roles for Group Discussions

- **Facilitator/Encourager:** The Facilitator/Encourager ensures all members participate in discussions by asking group members questions or asking them to respond to others' comments.
- **Timekeeper:** The Timekeeper makes sure that the group stays on track and completes the task in the time provided.
- **Summarizer:** The Summarizer periodically provides a summary of the discussion for other students to approve or amend. This student also ensures that what others comprehend is what members wanted to communicate.
- **Scribe:** The Scribe takes notes on the discussion and highlights shared opinions or decisions made.

Bloom's Taxonomy Question Types

Question Type	Actions/Prompts/Verbs
Remembering	• Observation and recall of information • Knowledge of dates, events, places • Knowledge of major ideas **Possible Question Cues:** list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where
Understanding	• Understanding information • Grasp meaning • Translate knowledge into new context • Interpret facts, compare, contrast • Predict consequences **Possible Question Cues:** summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
Application	• Use information • Use methods, concepts, theories in new situations • Solve problems using required skills or knowledge **Possible Question Cues:** apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, restate, change, classify, experiment, discover
Analysis	• Seeing patterns • Organization of parts • Recognition of hidden meanings • Identification of components **Possible Question Cues:** analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer
Evaluation	• Compare and discriminate between ideas • Assess value of theories, presentations • Make choices based on reasoned argument • Verify value of evidence • Recognize subjectivity **Possible Question Cues:** assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize
Creation	• Use old ideas to create new ones • Generalize from given facts • Relate knowledge from several areas • Predict, draw conclusions **Possible Question Cues:** combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite

Characteristics of Learning Style Preferences

Learning Style	Characteristics	Possible Ways to Differentiate Instruction
Auditory	• Prefer to hear information • Generally works from pieces to whole • Tend to be orderly and sequential Can more easily memorize facts and figures • Distracts easily by noises or music • Talks aloud to self • Participates in class discussion • Competitive	• Possible rhymes or mnemonic devices • Allow students to tape lectures • Provide books on tape • Provide opportunities to discuss ideas with others • Provide directions verbally • Provide instructions in a logical, sequential format • Use videos • Make connections between concepts being taught • Use games or contents • Use paraphrasing and summarizing
Visual	• Prefer charts, graphs, or other visual aids • Generally work from global to specific • Tend to be more holistic and imaginative • Rely on their senses • Creative • Doodlers • May appear to lose focus during lectures	• Provide visuals of directions or steps • Provide graphic organizers • Make highlighters available when reading or taking notes • Allow to role play or label diagrams • Provide an overview of the lesson or concept before teaching each part • Use videos • Include write, pair, share activities • Provide a written agenda or organization of the lesson • Use technology, such as PowerPoint presentations • Allow to illustrate concepts rather than write • Provide whiteboards
Visual Reader	• Prefer to gain new information by reading • Are note takers • May reread silently after hearing a text read • Prefer to use dictionaries and manuals	• Provide copies of lectures or text that is being read • Allow to write responses to question • Provide handouts or organizers for note taking
Kinesthetic	• Learn best by being physical • Need to be actively involved in learning • Need first hand experiences • May appear distracted during lectures • May fidget in their seat • May tap pencils or foot • Use hands when talking • Doodles when listening to a lecture	• Provide practice time after teaching a concept • Use games or manipulatives • Allow to role play or engage in simulations • Provide breaks during lessons for movement • Use interactive software • Provide objects for students to touch and examine • Allow to build models or diagram

Reference: Sarasin, L.C. (1998). *Learning styles perspectives: Impact in the classroom.* Madison, WI: Atwood Publishing.

Common Core State Standards and Critical Thinking

Common Core State Standards require students to be able to evaluate, analyze, critique and reflect. These verbs represent the vocabulary of critical thinking. Tasks required by the Common Core must move beyond rote memorization, multiple choice, and simple identification of facts into critical thinking and problem-solving skills. To be successful with the demands of Common Core, students must become independent thinkers who are able to problem solve and communicate effectively.

To meet Common Core standards, teachers will need to begin "thinking about thinking" (Snyder & Snyder, 2008, 90) in order to ensure students develop the skills to be effective in college and the workplace. The goal of education is to ensure students can solve problems in order to make decisions effectively. To do this they must have opportunities to apply critical thinking skills to become better students and citizens. Jennifer Mulnix (2012) best describe it:

> For students to improve, they must engage in critical thinking itself. It is not enough to learn about critical thinking. These strategies are about as effective as working on your tennis game while watching Wimbledon. Unless the students are actually doing the thinking themselves, they will never improve (476).

The Common Core not only requires students to think critically, but to read critically. Teachers of all content areas must become strategic in selecting complex texts they use with students and plan instruction that requires students to engage cognitively with a variety of texts.

Requirements of Common Core Literacy Standards:

- Close reading fiction and non-fiction
- Interpreting primary source documents
- Comparing multiple texts
- Finding evidence and using it to support arguments
- Recognizing historical context and point of view
- Utilizing higher-level thinking to analyze and form judgments

The Common Core Math Standards require students to go beyond a procedural understanding of mathematical concepts to a conceptual understanding in which they are able to think critically and apply what they have learned to solve problems.

Requirements of Common Core Math Standards:

- Consider analogous problems
- Represent problems coherently and in a variety of formats
- Justify conclusions
- Apply mathematical concepts to real-world situations
- Use technology appropriately and effectively to work with mathematics
- Explain mathematics accurately to others
- Deviate from a known procedure in order to identify other strategies for solving problems

For students to be successful with the Colorado Academic Standards, as well as college- and career-ready, teachers must provide opportunities for them to develop critical thinking and problem solving skills.

References:

Snyder, L. & Snyder, M. (2008). Teaching critical thinking and problem solving skills. *Delta Pi Epsilon Journal,* 50(2), 90-99.

Mulnix, J.W. (2012). Thinking critically about critical thinking. *Educational Philosophy & Theory,* 44(5), 464-479.

Communicating Effectively with Students

Effective communication involves the skills of speaking and listening, as well as nonverbal and interpersonal skills. An effective communicator understands that one's body language and facial expressions can enhance or detract from the message being communicated. Teachers who communicate effectively with all students display the following skills.

Speaking

- Words

  A teacher's choice of words should be clear and understandable to students.
  - Directions should be provided in a sequential order students can follow.
  - Language should be appropriate for the content and age of students.
  - Vocabulary and new content/concepts should be introduced using student-friendly terms that allow students to make connections to previous knowledge and experiences.
  - Words should be pronounced clearly and correctly at a rate all students can understand.

- Grammar

  Proper grammar is an essential component of teacher communication. Just as students come from a variety of backgrounds and locations, teachers do also. However, the grammar and speech utilized with students should be that of academia. Slangs and colloquiums should be avoided in communication with students unless utilized to teach specific time periods or cultures.

- Volume

  A teacher's volume should be at an appropriate level for all students to hear and understand. The teacher's volume should also provide a model for the volume level students are expected to use when speaking with one another.

Listening

Effective listening skills allow a teacher to understand students' thinking and progress towards learning goals.

- Objective listening behaviors
  - Refrains from making value judgments.
  - Allows students to express their thinking fully before reacting.
  - Avoids second-guessing what students are trying to say.
  - Recognizes feelings and emotions in the speaker's message and reacts appropriately.

- Curious listening (listening with a purpose and an inquisitive mind). Being a curious listener allows teachers to:
  - Question more effectively.
  - Provide opportunities for students to build on a peer's response.
  - Provide academic feedback (*refer to Standard III, Element H).*
  - Summarize and paraphrase student responses.

Nonverbal Communication

Nonverbal communication includes facial expressions, such as smiles, gestures, eye contact, and posture. When used in a positive manner it shows students that the teacher is actively listening and interested in what they are saying. It can make students feel comfortable and confident that their opinions are valued.

Examples of positive nonverbal communication:

- Nodding your head in agreement, or as a display of interest in what a student is saying.
- Eye contact – looking directly at the student speaking, and maintaining eye contact.
- Body posture – maintaining a body posture that signifies openness to students' ideas – avoid folding arms across one's body or turning away from students speaking.
- Physical distance – when possible, position yourself next to students when they are speaking. When working individually with students, kneel by them so you are on their level. This can communicate your interest in what they are saying and make the student feel more open to sharing their thinking with you.

Communicating Learning Objectives

The first step in communicating learning objectives is the creation of objectives that are specific and measureable. They should include what students will know and be able to do by the end of the lesson *(refer to Standard 1, Element A).*

Strategies for Communicating Learning Objectives:

- Provide a visual of the learning objectives.
    - Visuals of learning objectives should be accessible by all students and in language that students can understand and explain.
    - Standards/lesson objective(s) may be displayed using graphic organizers such as webbing or mapping. This type of visual can support students in making connections between content standards and daily lesson objectives. Students are able to see the "big picture"' of a unit and understand how daily learning objectives support them in meeting unit goals and content standards.
- Provide exemplars of student work so students are clear on what mastery of learning objectives will look like and/or sound like.
- Create essential questions from the learning objectives and provide opportunities for students to reflect on the questions during the learning process. Examples of reflection questions:
    - "What have you learned so far that helps you answer our essential questions?"
    - "What else do you need to learn?"
- Explain to students how they will use what they are learning. Make explicit connections between what they are currently learning and what they have already learned. This can support students in understanding how their learning builds. It can also build students' confidence when they are able to see that they already possess pre-requisite knowledge or skills to meet the lesson objective.
- Periodically ask students to explain in their own words why they are completing a particular task. This allows teachers to make sure students can connect the lesson tasks to the learning objectives.

Reference:

Jackson, R.R. (2009). *Never work hard than your students & other principles of great teaching.* Alexandria, VA: Association for Supervision and Curriculum Development.

Determining Your Learning Preference

Circle the option, A, B, C, or D that best relates to you most of the time. You may circle more than one option. Your first reaction is usually the best.

1. I 'take in' new information best when:
    a. I can see information in picture or diagram form.
    b. I read written instructions.
    c. Someone talks or explains to me.
    d. I can get hands on experience.

2. When I am giving directions to a destination, I usually:
    a. Draw a map.
    b. Write down the directions.
    c. Tell the person how to get there.
    d. Take the person and show him/her the way.

3. I remember directions best when:
    a. Someone gives me landmarks to guide me.
    b. I write them down.
    c. I have oral directions and repeat them aloud.
    d. I have been taken through the route one.

4. When I am not sure how to spell a word, I often:
    a. See the word in my mind and 'see' how to spell it.
    b. Look it up in the dictionary.
    c. Sound the word out in my mind or aloud.
    d. Write down different ways of spelling the word.

5. To remember and recall and event, I would want to:
    a. See pictures.
    b. Read a description.
    c. Tell it aloud to someone.
    d. Replay it through movement – acting, pantomime, or drill.

6. I seem to remember objects better if:
    a. I can see a picture, a pattern.
    b. I have read about them.
    c. I create jingles or rhymes.
    d. I have touched or worked with them.

7. When using a new piece of equipment, i.e., computer, camera, I would:
    a. Follow the diagrams in the instructions book.
    b. Read the directions in the instructions book.
    c. Ask someone to 'talk' me through it.
    d. Jump right in and figure it out.

8. I enjoy:
    a. Making or viewing slides, photographs.
    b. Reading about things that interest me.
    c. Reciting or writing poetry.
    d. Working with my hands, repairing and building things.

9. I prefer to find out about something new by:
    a. Seeing pictures, diagrams about it.
    b. Reading about it, finding a website.
    c. Talking about it.
    d. Doing it.

10. I prefer a teacher/trainer who uses:
    a. Charts, diagrams, graphs.
    b. Handouts, books, readings.
    c. Discussion, guest speaker.
    d. Demonstrates, models, provides time to practice.

Total your responses:
A _____Prefer to take in information by seeing – Visual learner
B _____Prefer to take in information by reading, writing – Visual reader learner
C _____ Prefer to take in information by listening, talking – Auditory learner
D _____ Prefer to take in information by doing, practicing – Kinesthetic learner

The highest score represents your preferred learning style. If scores are tied or close, you may have multiple styles in which you learn best. Knowing our learning styles helps us to process information and develop study skills that best meet our individual needs. We may utilize all four styles at different times, but our preferences affect the order in which we best take in information and can enhance our learning and mastery of new information and skills.

"Knowing that there are differences goes a long way toward explaining things like why we have problems understanding and communicating with some people and not with others, and why we handle some situations more easily than others."

Reference:
Porter, B.D. & Hernacki, M. (1995) *Brain-Training: Wie Sie Ihre mentalen Fahigkeiten optimal nutzen.* München: Droemer Knaur.

Discipline of Mathematics as a 21st Century Skill

Mathematics in Colorado's description of 21st century skills is a synthesis of the essential abilities students must apply in our rapidly changing world. Today's mathematics students need a repertoire of knowledge and skills that are more diverse, complex, and integrated than any previous generation. Mathematics is inherently demonstrated in each of Colorado 21st century skills, as follows:

Critical Thinking and Reasoning
Mathematics is a discipline grounded in critical thinking and reasoning. Doing mathematics involves recognizing problematic aspects of situations, devising and carrying out strategies, evaluating the reasonableness of solutions, and justifying methods, strategies, and solutions. Mathematics provides the grammar and structure that make it possible to describe patterns that exist in nature and society.

Information Literacy
The discipline of mathematics equips students with tools and habits of mind to organize and interpret quantitative data. Informationally literate mathematics students effectively use learning tools, including technology, and clearly communicate using mathematical language.

Collaboration
Mathematics is a social discipline involving the exchange of ideas. In the course of doing mathematics, students offer ideas, strategies, solutions, justifications, and proofs for others to evaluate. In turn, the mathematics student interprets and evaluates the ideas, strategies, solutions, justifications and proofs of others.

Self-Direction
Doing mathematics requires a productive disposition and self-direction. It involves monitoring and assessing one's mathematical thinking and persistence in searching for patterns, relationships, and sensible solutions.

Invention
Mathematics is a dynamic discipline, ever expanding as new ideas are contributed. Invention is the key element as students make and test conjectures, create mathematical models of real-world phenomena, generalize results, and make connections among ideas, strategies and solutions.

Reference:
Colorado Standards. (2013, September 18). Retrieved from http://www.cde.state.co.us/standardsandinstruction/coloradostandards

Engaging Students in the Use of Multiple Representations

Utilizing multiple ways to represent and present information can support students in applying critical thinking skills and making connections across concepts and ideas. When students have opportunities to be creative and express their learning in various ways, they can be more motivated and engaged in the learning process.

Social Studies/History

- **Timelines:** Students create timelines of historical events with pictorial representations. Students may also include dates related to the arts or literature in order to provide a more complete representation of a specific time period.
- **Murals:** Students create a mural depicting a historical event, person's life, or time period. Murals may also be created to represent cultures of other countries or their local community.
- **Journal entries:** Students write a journal entry from the perspective of a historical figure, immigrant, student living in another country, etc.

Math

- **Manipulatives:** Students use objects to represent math problems or equations.
- **Graphics:** Students express mathematical concepts through graphs, webs, illustrations, photographs, etc. May include written explanations for how the representations depict the concept or idea.
- **Symbols:** Students use symbols to represent mathematical thinking.

Reading

- **Illustrations:** Students illustrate character's traits or setting of a text.
- **Writing:** Students write letters or diary entries from the perspective of a character.
- **Graphics:** Students summarize information from a text through the use of graphic organizers, timelines, advertisements, etc.

Vocabulary

- **Role play:** Students "act out" vocabulary words similar to charades. Other students identify the word and explain its importance to the concepts they are learning.
- **Illustrations:** Students represent the word through illustrations or photographs.
- **Word webs:** Students represent the meaning of a word in multiple ways including illustrations, analogies, synonyms, and antonyms.

Science

- **Writing:** Students write news articles, editorials, etc. about results from science experiments or as a means of communicating information learned from texts, etc.
- **Projects:** Students apply information learned to create solutions to environmental problems and communicate their ideas through editorials, brochures, posters, etc.
- **Experiments:** Students create experiments to solve for unknowns or find solutions to their questions.

Establishing and Teaching Procedures

Establishing Procedures

Identifying the procedures that need to be established for a classroom to be safe and orderly can be overwhelming for teachers, especially those new to the profession. Below are examples of procedures teachers may consider establishing.

Beginning of Class Procedures	During Class Procedures	End of Class Procedures	Special Situations
Entering the classroom	Accessing supplies, computers or sharpening pencils	Putting away supplies	Attending assemblies
Entering class late	Organizing materials/desks	Recording homework assignments	Going to the library, office, nurse, etc.
Turning in homework	Headings on papers	Packing book bags, etc.	Listening to guest speakers
Accessing instructions for a "Do Now" or "Bell Ringer"	Responding to questions	Leaving the classroom	Welcoming visitors into the classroom
Take attendance	Reading silently	Walking in hallways	Listening to school announcements
Using cubbies/lockers	Taking assessments		Practicing fire drills, etc.
	Turning in work		
	Asking for assistance		
	Finishing work early		
	Using the bathroom		

Adapted from Examples of Procedures to Rehearse with Students from (Wong &Wong, 2005, p. 193) and (Smith, 2004, pp.83-85).

Teaching Procedures

The use of visuals can support students in following procedures that promote a safe and orderly environment. Below are examples of visual supports teachers may utilize:

- Classroom rules
- Hall expectations
- Labels for classroom items (may be in multiple languages depending on student population)
- Labels containers for materials and supplies
- Labeled trays for student work (ex: homework, missed assignments, assessments)
- Student jobs
- Schedule for school day and/or lesson agenda

Examples and Non-examples of Quality Feedback to Parents

Feedback	Analysis of Feedback Quality
Your child is always so well-behaved. I can always count on him/her to follow our classroom rules.	This is an example of **ineffective feedback.** While these statements may make a parent feel good about their child, they are general and do not describe how the child's actions are supporting learning. Instead a teacher may say, "Your child consistently follows directions the first time they are given. He is able to stay focused and complete tasks according to my directions. This is have a positive impact on his daily grades" and provides examples.
_____(child's name) is struggling with math word problems. He/she needs to work on identifying what the problem is asking. One way you can help is to have _____draw a picture of what a word problem is about. This can help _____to visualize what is happening in the problem in order to identify the question he/she needs to solve. You may also want to create word problems based on experiences at home. (Teacher may provide an example.)	This is an example of **effective feedback**. The teacher has provided specific ways the parents can support their child with a math skill. The parents are clear on what is preventing their child from being successful with word problems and has clear ways to help.
_____has a lot of missing homework assignments. This is having a negative impact on his/her grade. Please make sure to check for homework completion each night.	This is an example of i**neffective feedback**. Although the teacher labels what is having a negative impact on the child's grade, specifics about missing homework assignments are not provided. To make this feedback effective, the teacher may provide a list of missing assignments and actionable steps the parent can take to support the student in completing homework.
In reading, we have been learning how to use clues the author and illustrator provide us to figure out the meaning of words we do not know. _____(child's name) has been successful in using these context clues to determine the meaning of unknown words. I continually see him/her use clues in illustrations and the words when he/she gets to an unfamiliar word. As you read at home, ask how he/she knows the meaning of new words. This will help reinforce this important reading skill. Next week, we will be learning about affixes, which are letters or words added to the beginning or ending of another word. Here is a list of the ones we will focus on in our reading. You can use this list to review with your child. You may want to ask him/her to show you words in the book that have these affixes and how it changes the meaning of the word.	This is an example of **effective feedback.** The teacher provides specific student actions that are supporting him/her in being a successful reader. The parent is clear on the child's progress and has specific ways they can support at home. The teacher also provided a resource for the parent to reference.

Examples and Non-examples of Quality Feedback to Students

Feedback	Analysis of Feedback Quality
"This report is better than your last one. You've made it clear that you think we should recycle newspapers. What would make it even better is more facts about what would happen if we did recycle – more about how many trees we would save or other facts related to recycling."	This is an example of **high-quality feedback** that uses self-referenced comparisons in conjunction with descriptive information about the task to show struggling students their work is improving. Then, when the teacher suggests what they need to do next, they will be more likely to believe they can do it as the feedback lets them know they are progressing toward the learning goal. The teacher makes one suggestion, not multiple ones. Giving feedback on small steps can help students who may be overwhelmed by having to improve in many areas at once.
"Your report was the shortest one in the class. You didn't put enough content in it.	This is an example of **ineffective feedback.** The teacher aims to communicate that same feedback message as in the previous example. Saying it this way, however, implies that the student is competing with others (as opposed to aiming for a learning target) and that the reason the work is poor is that the student "did something bad." The student ends up feeling judged and not motivated to improve or take risks.
"The chart that starts at the trees and ends up at the recycling plant (instead of back at the trees) is very effective in demonstrating your point. It follows the relevant section of your report and illustrates the complete cycle so clearly. How did you come up with that idea?"	This is an example of **high-quality feedback**. It focuses on an interesting, positive feature of a student's report. The teacher's comments require the student to reflect on how he or she came up with the idea. Having the student name the strategy used will strengthen the student's ability to self-monitor and self-direct his/her learning.
"Your report is the best one in the class! You can have a "free pass" for your homework tonight."	This is an example of **ineffective feedback.** It does not tell the student what is good about the report, and it rewards the student by changing an unrelated assignment. Feedback like this is a missed opportunity to reinforce a student's strength and ask him/her to reflect on the work.

Reference:

Brookhart, S.M. (2008). Feedback that fits. *Educational Leadership, 65(4),* 54-59. Retrieved from http://www.ascd.org/publications/educational-leadership/dec07/vol65/num04/Feedback-That-Fits.aspx

Examples for How to Use Technology to Enhance Instruction
(Connections to Other Professional Practices)

Professional Practice	Use of Technology to Enhance Professional Practices
Individualizes instructional approach to meet unique needs of each student. (Std. III, Element C)	Podcasts can serve as "building blocks" to support lesson skills and concepts. They can provide "just-in-time" learning that is differentiated for students. Podcasts can also be produced by students for their peers.
Teacher breaks down concepts into instructional parts. (Std. I, Element D)	Concept mapping software can provide students with the "big picture" or conceptual understandings and the necessary procedural skills to obtain concept mastery.
Teacher provides opportunities for students to work in teams using various roles and modes of communication. (Std. III, Element F)	A class Wiki can provide a common place for teams to discuss issues, build cooperative projects, archive documents, and critique team members' work.
Teacher involves students in monitoring their learning. (Std. III, Element H)	Teachers post work assignments, criteria and rubrics, timelines, guidelines for pacing and self-evaluation of work, along with supporting resources, on the web which can be accessed 24/7.
Teacher provides actionable, timely, specific, and individualized feedback about the quality of student work. Students effectively use formal and informal feedback to monitor their learning. (Std. III, Element H)	Use of online communication tools and virtual posting of work provide opportunities for the teacher and students to view and critique work in order to provide and apply feedback.
Provides opportunities for students to practice communication skills. (Std. III, Element G)	Partner with classroom in a different part of the state or country and have students exchange emails, a technology version of pen pals. Arrange for a group of experts to accept emails from students on a specific topic. When students can communicate with a video game designer, astronaut, or engineer who uses math and science skills every day, students can develop a deeper understanding of "real-world implications" for content and skills they are learning.
Teacher provides instruction that enhances students' critical thinking and reasoning, information literacy, and literacy skill development. (Std. 1, Element B)	Have students create a blog from the perspective of a character in a story or novel, an historical figure, scientist, or musician.

Examples of Assessment Methods Based on Students' Learning Preference

Learning Outcomes	Students' Learning Preference or Level of Academic Readiness	Product *For each product to be used as an assessment of the learning goal, specific criteria will need to be established*	
Students will identify traits of a main character.	Logical-Mathematical MI	Students complete a graphic organizer identifying character traits, or students categorize traits by appearance, actions, and feelings.	
	Visual-Spatial MI	Students draw the character and label his/her characteristics or students create symbols to represent the character's traits.	
	Interpersonal MI	Students write a letter to someone describing themselves as if they were the character in a story.	
Students will identify the main idea of a passage.	A group of student is able to identify the main idea when it is stated.	Students use details from the text and their own connections to identify an implied main idea.	To further differentiate, students my write the main idea, illustrate the main idea, or create a symbol to represent the main idea.
	A group of students is unable to identify the main idea either stated or implied.	Students use details from the text and a possible main idea sentence to identify a stated main idea.	
Students will be able to define compound words and identify each word part.	Visual Reader LS Verbal-Linguistic MI	Students write definitions for words, underline or highlight each word part, and create a sentence utilizing the word correctly.	
	Visual LS Kinesthetic LS Visual-Spatial MI Logical-Mathematical MI	Students create pictorial representations or symbols for compound words, defining the word parts and the meaning of the compound word.	
Students will be able to describe the cultures of various Native American groups prior to colonization.	All LS and MI Naturalists may use sticks, leaves, etc. to create dioramas.	Students work in cooperative groups to describe aspects of specific Native American group's culture (foods, celebrations, buildings, religion, etc.). Students may write paragraphs, create dioramas, role-play, or create crafts and music typical of the group they are studying.	
Students will be able to explain the contribution made by Rosa Parks to American history.	Visual Reader LS Intrapersonal MI	Students write their explanation in a paragraph, or write a letter to a child living today, and explain how America is different due to Rosa Parks' contributions.	
	Visual Spatial MI Interpersonal MI	Students create a story to tell their classmates about Rosa Parks' contributions.	
	Musical MI	Students create a song or poem explaining Rosa Parks' contributions.	
	Students who are advanced readers and can already articulate Rosa Parks' contributions based on prior reading and experiences.	Students compare Rosa Parks' contributions to American history with a figure of today or another lesser known one from the past.	

MI: Multiple Intelligence LS: Learning Style

Examples of Lesson Plans

Kindergarten Reading Lesson Plan

Colorado Academic Standard: Recognize common types of texts (e.g. storybooks, poems). (CCSS: RL.K.5)
Instructional Objective: Student will be able to (SWBAT) recognize that there are different types of fiction.

Daily review:
Questioning:

- What is the difference between a fiction and nonfiction book? (may show front covers of books previously read)
- What would I read a fiction book? What would I read a nonfiction book?
- What are some things I will see when I open a fiction book?

There are different types of fiction. They do not all look the same. Today, we are going to look at different types of fiction writing.

Connections to learning objectives and approved curriculum:
Let's make a chart together to help us remember different types of fiction. The chart will also help us to remember what the different types of fiction look like.
(Hold up fiction story book.) Is this fiction or nonfiction? How do you know?
This is a story. A story is a type of fiction. What are some features of a story? (It has characters, setting, might begin with once upon a time.) When I pick up this book, I know that it is fiction and that it is a story. How do I know this is a story?

(Hold up poem.) This is another type of fiction. It is called a poem. Say poem. A poem is in the fiction family, like a story, but it looks very different. Tell me about the way a poem looks. (It can have rhyming words, sometimes it is written in middle of a page, it has stanzas.) How do I know this is a poem? Is a poem fiction?

(Hold up drama.) This is another type of fiction. It is called a drama. Say drama. A drama is in the fiction family. What other kinds of text are in the fiction family? Look at this drama. It looks different than a poem and a story. How does it look different?

Active Engagement:
Let's look at our new chart and make sure it helps us to know the types of fiction and what they look like. I'm going to hold up an example of text. You will tell me if it is fiction or nonfiction. (Teacher will hold up examples of story books, nonfiction books and poems.)

Link:
(Teacher concludes the mini lesson by linking today's lesson to the students' ongoing reading.
When you pick up something to read, remember, it might be part of the fiction family. And, if it is in the fiction family, it can be a story, a poem, or a drama.

Written Response Activity:
Circle all the pictures that are fiction (story book, poem, nonfiction).

6th Grade Math Lesson

Colorado Academic Standard: Fluently add, subtract, multiply, and divide multi-digit decimals using standard algorithms for each operation. (CCSS:6:NS.3)

Instructional Objective: SWBAT multiply multi-digit decimal numbers using the standard algorithm.

Daily Review: Ask students questions regarding multi-digit decimal numbers:

- What is the difference between these two numbers? 254 and 2.54?
- How do you say the number 3.86?
- In the number 45.67, what digit is in the hundredths place?
- How does the placement of the decimal in this number change its value? 4.567 from 45.67?

Connections to learning objectives and approved curriculum:
Hook – Connections to real world: It's your birthday and you are going skating. Entrance to the Skate Zone is $6.25 per person. Since it's your birthday, you decide to pay for the 11 guests. The cashier at the skating booth tells you the price is $6,875, but you only have $70 to spend. Disappointed, your friends begin walking back to the car. But you know you have enough money, so you tell them to go back. What did you realize that your friends didn't realize?

Procedures/Instruction: Multiply as you would with a whole number. Count the number of decimal places in both factors. Then, place the decimal the same number of places in the quotient.

Example #1 Model
Find the product: 3.86 x5.5 – Teacher models for students how he multiplied the numbers. Teacher shows answer with correct placement of decimal and incorrect placement of decimal. Asks students why the placement of the decimal in the quotient matters.
Example #2 Model
The sixth grade has won a pizza party. We need to purchase 12 pizzas. Each pizza costs $10.05. How much money do we need for the sixth grade party?
Asks: What is happening in this problem? What computation method do I need to use to solve the problem? Why? Is my answer reasonable? How do you know?
Example #3 Guided Practice
Students work with teacher
39.75 x 0.981
Is your answer reasonable? How do you know?
Example #4 Model
Independent 1 digit at a time, then check
Ms. Piccirilli went to the store to buy trail mix. Each pound of the trail mix cost $5.11. When she put her bag of trail mix on the scale, it weighed 1.79 pounds. How much will Ms. Piccirilli have to pay for her entire box of trail mix? Is your answer reasonable? How do you know?

Differentiation based on student needs:
Lower-level students: (1) Support with reasonability explanations; (2) Provide multiplication chart if necessary to support; (3) Use lower multiplication families so the focus is on multiplying multi-digit decimals correctly.
Medium-level students: (1) Option to use multiplication chart, if necessary; (2) Students provide reasonability of explanations; (3) Mix of easier and more difficult numbers (include some with multiple zeros); (4) Include some word problems.
Higher-level students: (1) Greater number of word problems; (2) Students provide reasonability explanations; (3) More challenging numbers with multiple zeros.

High School English Lesson

Colorado Academic Standard: Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. (CCSS:RL9:10.3)

Instructional Objective: Analyze the virtues and vices of three (3) Greek goddesses and evaluate who would make the best ally.

Daily Review: Essential Question: Would you cross an immortal?

- What were some of the virtues and vices of the god featured in each myth?
- What happened to the humans when they "crossed" the immortals?
- Were the gods justified in their actions towards the humans or other gods?
- Why did the Greeks include these stories in their myths?

Connections to learning objectives and approved curriculum:
High School Greek Mythology introduction to reading *The Illiad* by Homer. Connected to district adopted 9th grade unit of study on Greek Mythology.
Prelude to *The Judgment of Paris* (where a complex character interacts with the other characters to advance the plot).

Review/read the origin myths for Athena, Hera, and Aphrodite in a book by Edith Hamilton on Greek Mythology.

- In a small group, analyze the virtues and vices of one of the Greek goddesses.
- Create a presentation with your group to make the case for why your goddess would make a good ally based on her virtues and vices.
- Present your group's case to the rest of the class.
- Listen carefully to the other presentations.
- Evaluate which of the goddesses would make the best ally and vote your conscience.
- Write a brief analysis on which goddess you would chose and why.

Reflection and Closure:
Focus on the skill:

- How were you able to make an informed decision about which goddess would make the best ally?
- Why is analysis an important skill in our English class and beyond?

Looking Forward:

- Make a prediction for which goddess you think Paris will choose in *The Judgment of Paris.*
- Will Paris cross an immortal?
- What do you predict will be the outcome?

Differentiation based on student needs:
Differentiated content – Students on and above grade level reading will use a book by Edith Hamilton on Greek Mythology. Students below grade level reading have the option to read the same origin myths at a middle school level in the book by Bernard Evslin, *The Greek Gods.*

Examples of Modifications of Content

Differentiation of content occurs when students are not yet ready for the content or already know the content. Care has to be taken that all students meet the expected content standards.

Concept	Pre-Assessment Results	Differentiation
Identifying fractions	A group of students is already capable of identifying fractions.	Students are excluded from the activity of identifying fractions and are taught to compare fractions.
Measurement	A group of students displays a lack of conceptual understanding for the size of an inch, foot, and yard. Another group of students displays a conceptual understanding and can measure items using inches, feet, and yards.	Students receive instruction on the size of differences in an inch, foot, and yard. They engage in activities in which they categorize items according to these three measurements. Students apply these measuring skills to the measuring of perimeter.
Stated Main Idea	A group of students lacks the ability to differentiate between a detail and the main idea. Another group of students can readily identify the stated main idea of a passage.	Students are taught the difference between general and specific as a prerequisite skill to identifying the difference between a detail and the main idea. Students are taught to identify the main idea when it is not stated in the passage.
Circulatory System Labeling each part and explaining its function	Students with limited English and are unable to read and comprehend text. Another group of students can already label each part and explain its function.	Students with limited English are taught basic body parts such as heart, lungs, brain, etc. Students research impact of a heart disease on parts of the circulatory system.

Examples of Netiquette

Netiquette: Rules about the proper and polite way to communicate when using the Internet.

- Be polite. Do not write or send abusive messages to others.
- Be clear. Make sure the subject line (email) or title (web page) reflects your content.
- Use appropriate language. Do not swear, use vulgarities, or any other inappropriate language.
- Do not reveal your personal address, password, or phone numbers of other students.
- Do not use the network in such a way that you would disrupt the use of the network by other users (Ex. Downloading huge files during prime time; sending mass email messages; annoying other users using the talk or write functions.)
- All communications and information accessible via the network should be assumed to be private property.
- Do not send SPAM. SPAM is posting or emailing unsolicited email, often advertising messages, to a wide audience (electronic junk mail).
- Don't forward chain letters. If you receive one, notify your teacher.
- Don't respond to "flames" or personal attacks. Notify your teacher for support.
- Obey copyright laws. Don't use others' images, content, etc., without permission. Don't forward email or use web site content without permission.

Reference:

Student Guides and Strategies. (n.d.). Retrieved October 4, 2013, from http://www.studygs.net/netiquette.htm

Example of Ways Teacher May Differentiate in the Classroom

- Highlight and lowlight key information for specific students in material that they need to read.
- Cut articles apart giving a student one paragraph or section at a time.
- Create a "window" overlay that shows a student only part of what they are to read at a time.
- Create a poster/diagram/handout that visually organizes key concepts.
- Provide leveled text that contains the same key/essential information.
- Provide books on tape including textbooks, etc.
- Provide a copy of the teacher's notes to students who are unable to transfer from a screen or board to paper. Or, students may just need to fill in parts of a graphic organizer as opposed to recording al information on their own.
- Allow students to provide symbolic representations of their knowledge.
- Give students only five (or any number) of math problems to work at a time or fold their paper so they only focus on a specific number of problems.
- Students or student groups may be given "task cards" with different tasks related to objective. Visual learners may receive "task cards" when whole group directions are given orally.
- When students engage in independent activities, teachers may provide "hint card" for students who need additional support. The cards can be made available at different stages of the activity and as options for students to use.
- Provide headsets for students who need to work in silence or allow students to listen to soft music through use of a headset when working independently.
- "Double Dipping" – Students who are below grade level or struggle with specific concepts may rotate through two groups or rotate through the same center twice in order to have "extra" practice in a skill.
- Choice Boards – Choice boards are organizers that contain a variety of activities. Students can choose one or several activities to complete as they learn a skill or develop a product. Choice boards can be organized so that students are required to choose options that focus on several different skills.
- Graduated Rubrics – Graduated rubrics offer clear expectations for quality and levels of excellence to encourage high-ability learners. Rubrics may be differentiated based on students' academic levels and/or language proficiencies.
- Learning Centers/Stations – Learning center/stations are areas in a classroom where students work on different tasks simultaneously in a classroom and then rotate through them to learn content/skills related to a topic. Students might skip stations if they know the material, or some stations might have tasks designed for advanced students only. Learning Centers are stations where students explore a topic but they stand alone. Centers may have choice of activities for student to choose from based on their academic needs, interest and/or learning profiles.
- Learning Contracts – A learning contract is a written agreement between teacher and student that will result in students working independently. The contract helps students to set daily and weekly work goals and develop management skills. It also helps the teacher to keep track of each student's progress. The actual assignments will vary according to specific student needs.

- Tiered Assignments, Lessons and Strategies – Assignments, activities, products, etc. that are designed to instruct and assess students on essential skills that are provided at different levels of complexity, abstractness, and open-endedness. The content and objective(s) are the same, but the process and/or product are varied according to the student's level of readiness.

Additional suggestions:

- When possible, students should be encouraged to move through content areas at their own pace. If they master a particular unit, they need to be provided with more advanced learning activities, not more of the same activity. Thematic, broad-based and integrated content, rather than single-subject areas in isolation, best serve their learning characteristics. In addition, such concept-based instruction expands opportunities to generalize and to integrate and apply ideas.
- Middle and secondary schools are generally organized to meet student needs within content areas. Providing interdisciplinary approach is another way of modifying curriculum. Jacobs and Borland (1988) found that high-quality learners benefit greatly from curriculum experiences that cross or go beyond traditional content areas, particularly when they are encouraged to acquire an integrated understanding of knowledge and the structure of the disciplines.

References:

Jacobs and Borland (1988).

How Teachers Communicate Expectations to Students

Rosenthal (1974) and Good (1987) identified ways by which teachers communicate their expectations to students. Behaviors listed below are based on their findings.

When teachers display the behaviors listed below, they are more likely to communicate high expectations to their students.

Socio-emotional Behaviors: Respect and Support

- Smiling and nodding
- Friendliness
- Proximity to students – avoids seating lower performing students away from teacher and peers
- Frequent and positive teacher interaction with students
- Avoids criticism or favoritism
- Avoids showing displeasure publicly with students' work or oral responses

Output Behaviors: Response to Student Work and Responses

- Calls on balance of students. Ensures all students have opportunities to participate in class discussions.
- Provides clues and repeats or rephrases questions as needed.
- Provides wait time for students to process their answers and respond to teacher question.
- Provides academic feedback to students that informs of their progress and next steps.
- Communicates work may be difficult, but avoids apologizing when challenges occur.
- Displays enthusiasms for content taught. Avoids sending the message that some material may be viewed as boring.

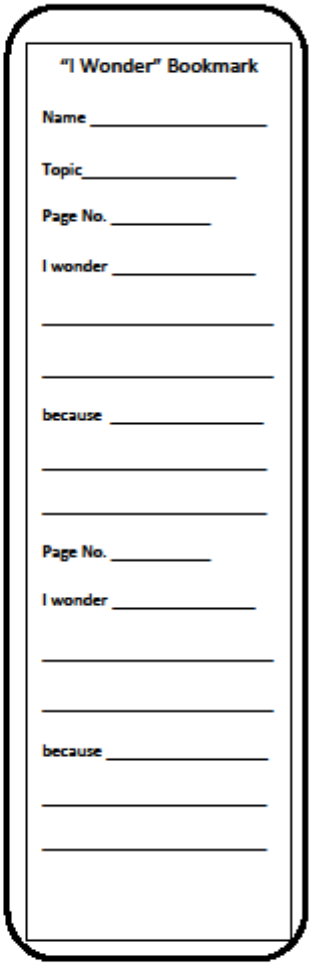
For additional information, reference the following:
http://www.education.com/reference/article/teachers-expectations-affect-learning/ by D. Stipek Pearson Allyn Bacon Prentice Hall (Updated on Jul 20, 2010. Retrieved 10.14.13

References:

Good, T.I. "Two Decades of Research on Teacher Expectations: Findings and Future Directions." Journal of Teacher Education 38 (1987): 32-47.

Rosenthal, R. (1974). *On the social psychology of the self-fulfilling prophecy: Further evidence for Pygmalion effects and their mediating mechanisms.* New York, NY: MSS Modular Publications.

I Wonder Bookmark



Using Question Words

Who?	**Asking about a person** *Who is your friend?*
What?	**Asking about an event or activity** *What did you eat for dinner?* **Asking about characteristics** *What color is your favorite hat?*
When?	**Asking about time** *When do you go to bed?*
Where?	**Asking about a place** *Where do you live?*
How?	**Asking about specifics such as one's reason or amounts** How do you bake a cake? How much money do you have?
Why?	**Asking about the reason for something?** Why is the sky blue?
Which?	**Asking about a specific thing?** *Which hat do you like best?*

Interest Inventory

Name: _____ Date: _____

Please help me to get to know you better by completing the following sentences:

1. I collect…
2. My two favorite books are…
3. Books are…
4. My favorite character from a book is…
5. When I read, I…
6. I like to read about…
7. Libraries are…
8. In my free time, I…
9. School is…
10. My favorite activity in school is…
11. My favorite T.V. program is…
12. My favorite movie is…
13. My favorite song is…
14. My favorite singer or group is…
15. I like to listen to…
16. I like to play…
17. My hobbies are…
18. I like to write about…
19. The most interesting person whom I have met is…
20. My friends are…

Interest Inventory on a Content Topic

Interest Questionnaire: What do you want to learn about? (name of country or region)
These are some of the topics we will be studying in our unit on (name of country or region). It is important for me to know what your interests are related to this topic.

Please number each item from 1 to 8 with 1 being what you are most interested in learning about and 8 being what you are least interested in learning about.

_____geography

_____government (laws)

_____agriculture (foods they grow and eat)

_____architecture (buildings)

_____music, art and literature

_____sports

_____religion

_____roles of men, women, and children

Learning Objectives versus Activity Statements

Level	Subject	Learning Objective	Activity Statement
Early childhood	Language Arts	Students will apply knowledge of phonemes to sound out words that are not in their sight vocabulary.	Students will observe the teacher sounding and blending a word.
Early childhood	Math	Students will identify objects using their ordinal position up to 5th place.	Students will play a game in which they line up based on the position they are assigned.
Elementary	Language Arts	Students will be able to define nouns and verbs and explain their purpose.	Students will highlight nouns and verbs in simple sentences, and write their own sentences using nouns and verbs correctly.
Elementary	Language Arts	Students will compare and contrast two versions of the same fairy tale.	Students will complete a Venn diagram after reading the African and Korean versions of Cinderella.
Elementary	Music	Students will identify the beat in a song.	Students will listen to songs and clap the beat.
Middle school	Math	Students will be able to solve equations with one variable.	Students will practice solving 10 equations in cooperative groups.
Middle school	Science	Students will explain the relationship between the earth and the moon.	Students will watch a video on the relationship between the earth and the moon and the place of these bodies in the solar system.
Middle school	Art	Students will be able to describe the characteristics of Aboriginal art.	Students wills look at different types of Aboriginal art.
High school	Social Studies	Students will define characteristics of the barter system.	Students will participate in a bartering activity.
High school	Math	Students will solve polynomials requiring addition and subtraction.	Students will participate in an online interactive math game.
High school	Language Arts	Students will be able to explain the elements of effective persuasive writing and apply these elements in order to evaluate documents.	Students will read primary sources representative of persuasive writing.

Reference:

Marzano, R.J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction (p.17).* Alexandria, VA: Association for Supervision and Curriculum Development.

Levels of Cognitive Demand

Lower-level demands (memorization):

- Involve either producing previously learned facts, formulas, or definitions or committing facts, rules, formulas, or definitions to memory.
- Cannot be solved using procedures because a procedure does not exist or because the time frame in which the task being completed is too short to use a procedure.
- Are not ambiguous. Such tasks involve the exact reproduction of previously seen material and what is to be reproduced is clearly and directly stated.
- Have no connection to the concepts or meanings that underlie the facts, rules, formulas, or definitions being learned or reproduced.

Lower-level demands (procedures without connections):

- Are algorithmic. Use the procedure either is specifically called for or is evident from prior instruction, experience, or placement of the task.
- Require limited cognitive demand for successful completion. Little ambiguity exists about what needs to be done and how to do it.
- Have no connection to the concepts or meanings that underlie the procedure being used.
- Are focused on producing correct answers instead of on developing mathematical understanding.
- Require no explanations or explanations that focus solely on describing the procedure that was used.

Higher-level demands (procedures with connections):

- Focus students' attention on the use of procedures for the purpose of developing deeper levels of understanding of mathematical concepts and ideas.
- Suggest, explicitly or implicitly, pathways to follow that are broad general procedures and that have close connections to underlying conceptual ideas, as opposed to narrow algorithms that are opaque with respect to underlying concepts.
- Usually are represented in multiple ways, such as visual diagrams, manipulatives, symbols, and problem situations. Making connections among multiple representations helps develop meaning.
- Require some degree of cognitive effort. Although general procedures may be followed, underlie the procedures to complete the task successfully and that develop understanding.

Higher-level demands (doing mathematics):

- Require complex and non-algorithmic thinking – a predictable, well-rehearsed approach, or pathway is not explicitly suggested by the task, task instructions, or a worked-out example.
- Require students to explore and to understand the nature of mathematical concepts, processes, or relationships. Demand self-monitoring, or self-regulation of one's own

cognitive processes.
- Require students to access relevant knowledge and experiences, and make appropriate use of them in working through the task.
- Require students to analyze the task, and actively examine task constraints that may limit possible solution strategies and solutions.
- Require considerable cognitive effort, and may involve some level of anxiety for the student because of the unpredictable nature of the solution process required.

Reference:

These characteristics are derived from the work of Doyle on academic tasks. (1988) and Resnick on high-level thinking (1987), the Professional Standards for Teaching Mathematics (NCTM 1991), and the examination and categorization of hundreds of tasks used in QUASAR classrooms (Stein, Grover, and Henningsen 1996; Stein, Lane, and Silver 1996).

Listening Skills

Active listening is a process that includes three steps:

- **Hearing:** Hearing just means listening in order to know what the speaker is saying. When students can repeat what the speaker has said, then they have demonstrated hearing.
- **Understanding:** The next part of listening happens when one takes what they have heard and processes it in order to make sense of what the speaker said. When students can accurately paraphrase or summarize what the speaker has said, they demonstrate understanding.
- **Evaluating:** After hearing and understanding what the speaker has said, then the listener thinks about whether it makes sense or if he/she believes or agrees with what the speaker said. When students can build on the speaker's words or state why they agree or disagree, they demonstrate evaluating. Students may also ask questions for further clarification or to gain additional information.

Teaching students to be active listeners:

- Face the speaker and give the person speaking you full attention.
- Allows the speaker to finish before you begin to comment or ask a question.
- Listen for main ideas. The main ideas are the most important points the speaker wants to get across. They may be mentioned at the start or end of a talk and repeated a number of times. Pay special attention to statements that begin with phrases such as "My point…" or "The thing to remember is…"
- Ask questions or provide feedback. When you do this, sit up straight and look directly at the speaker. Allow yourself time to process your comments, either mentally or through writing, so you can ensure they are related to the speaker's topic and are articulated in a clear and concise manner.

Reference:

Listening skills. (2005) Retrieved from http://www.infoplease.com/homework/listeningskills1.html#bczz2yOhmxVOt

How Many Ways Are You Smart?

Multiple Intelligence Survey for Elementary Students

Directions: Fold the paper vertically on the dark line so that the columns with the eight multiple intelligences are hidden. Read each statement below and place a checkmark next to each item that is true about you. Then, unfold the paper and circle the X in each row that you checked. Write the total number in each column at the bottom of the paper. How many ways are you smart?

	Nature Smart	Number/ Logic Smart	Word Smart	Music Smart	Picture Smart	Body Smart	People Smart	Self Smart
I enjoy singing and I sing fairly well.								
I enjoy crossword puzzles and word games.								
I'm good at solving jigsaw puzzles.								
I can read maps easily.								
I learn best when I can talk over a new idea.								
Picture, line, and bar graphs are easy to understand.								
I like to listen to music in my free time.								
I get along well with different types of people.								
I like writing about my thoughts and feelings.								
Protecting the environment is very important to me.								
I enjoy caring for pets and other animals.								
I like drama and acting things out.								
I'm good at writing stories.								
I can understand difficult math ideas easily.								
I play a musical instrument or would like to.								
People tell me I'm good at sports or dancing.								
I'm good at figuring out patterns.								
My best way to learn is by doing hands-on activities.								
I like spending time by myself.								
I find that I'm often helping other people.								
I'm naturally good at taking care of plants.								
I enjoy solving problems and brainteasers.								
Having quiet time to think over ideas is important to me.								
I enjoy reading for pleasure.								

Reference: Candler, L. (n.d.). Multiple Intelligence Resources. Retrieved from http://www.lauracandler.com/strategies/

Multiple Intelligence Survey
©Walter McKenzie

Complete each section by placing a check next to each statement you feel accurately describes you. If you do not identify with a statement, leave the line blank. Then, total the number of checks in each section.

Section 1

_____I enjoy categorizing things by common traits
_____Ecological issues are important to me
_____Classification helps me make sense of new data
_____I enjoy working in a garden
_____I believe preserving our National Parks is important
_____Putting things in hierarchies makes sense to me
_____Animals are important in my life
_____My home has a recycling system in place
_____I enjoy studying biology, botany, and/or zoology
_____I pick up on subtle differences in meaning

_____Total for Section 1

Section 2

_____I easily pick up on patterns
_____I focus in on noise and sounds
_____Moving to a beat is easy for me
_____I enjoy making music
_____I respond to the cadence of poetry
_____I remember things by putting them in a rhyme
_____Concentration is difficult for me if there is background noise
_____Listening to sounds in nature can be very relaxing
_____Musicals are more engaging to me than dramatic plays
_____Remembering song lyrics is easy for me

_____Total for Section 2

Section 3

_____I am known for being neat and orderly
_____Step-by-step directions are a big help
_____Problem-solving comes easily to me
_____I get easily frustrated with disorganized people
_____I can complete calculations quickly in my head
_____Logic puzzles are fun
_____I can't begin an assignment until I have all my "ducks in a row"
_____Structure is a good thing
_____I enjoy troubleshooting something that isn't working properly
_____Things have to make sense to me or I am dissatisfied

_____Total for Section 3

Section 4

_____I learn best interacting with others
_____I enjoy informal chat and serious discussion
_____The more the merrier
_____I often serve as a leader among peers and colleagues
_____I value relationships more than ideas or accomplishments
_____Study groups are very productive for me
_____I am a "team player"
_____Friends are important to me
_____I belong to three clubs or organizations
_____I dislike working alone

_____Total for Section 4

Section 5

_____I learn by doing
_____I enjoy making things with my hands
_____Sports are a part of my life
_____I use gestures and non-verbal cues when I communicate
_____Demonstrating is better than explaining
_____I love to dance
_____I like working with tools
_____Inactivity can make me more tired than being very busy
_____Hand-on activities are fun
_____I live an active lifestyle

_____Total for Section 5

Section 6

_____Foreign languages interest me
_____I enjoy reading books, magazines and websites
_____I keep a journal or diary
_____Word puzzles like crosswords or jumbles are enjoyable
_____Taking notes helps me remember and understand
_____I faithfully contact friends through letters, emails, or text messages
_____It is easy for me to explain my ideas to others
_____I write for pleasure
_____Puns and anagrams are fun
_____I enjoy public speaking and participating in debates

Section 7

_____My attitude effects how I learn
_____I like to be involved in causes that help others
_____I am keenly aware of my moral beliefs
_____I learn best when I have an emotional attachment to the subject
_____Fairness is important to me
_____Social justice issues interest me
_____Working alone can be just as productive as working in a group
_____I need to know why I should do something before I agree to do it
_____When I believe in something I give more effort towards it
_____I am willing to protest or sign a petition to right a wrong

_____Total for Section 7

Section 8

_____I can visualize ideas in my mind
_____Rearranging a room and redecorating are fun for me
_____I enjoy creating my own works of art
_____I remember better using graphic organizers
_____I enjoy all kinds of entertainment media
_____Charts, graphs, and tables help me interpret data
_____A music video can make me more interested in a song
_____I can recall things as a mental picture
_____I am good at reading maps and blueprints
_____Three dimensional puzzles are fun

_____Total for Section 8

Review your totals for each section. In which sections did you place the most checks? Based on your responses, your intelligence profile may be as follows:

If the majority of your checks are in:
Section 1 – Naturalist Intelligence
Section 2 – Musical Intelligence
Section 3 – Logical-Mathematical Intelligence
Section 4 – Interpersonal Intelligence
Section 5 – Bodily-Kinesthetic Intelligence
Section 6 – Verbal-Linguistic Intelligence
Section 7 – Intrapersonal Intelligence
Section 8 – Visual-Spatial Intelligence

Which intelligence do you display most? What does this mean for you as a learner?

Remember:
Everyone has some elements of each intelligence type.
You can strengthen an intelligence.
Multiple intelligences are meant to empower people, not label people!

Purposeful Use of Visuals

Visuals that are accessible to the teacher and students support students in becoming independent learners. They can allow students to "see" the steps or important concepts associated with the learning objectives and serve as a scaffold for student learning. Visuals can also provide a structure for students to organize their thoughts and work. Visuals and/or graphic organizers utilized by the teacher during instruction should mirror the visuals and/or graphic organizers students are expected to utilize. When this occurs, visuals can become an effective tool for communicating expectations for student learning, as well as student behavior.

Benefits from Use of Visuals:

- Recognizes that students live in a visual/multimedia world
- Provides multisensory approach to teaching and learning
- Increases students' attention as they have something on which to focus
- Allows for content to be presented in a more dramatic, personalized manner
- Increases efficiency of content presentation and communication of expectations
- Provides support for lower level readers and visual learners
- Increases student independence as students may refer to visuals for support and directions
- Permits students to see the whole picture of a concept, as well as individual steps or skills
- Increases learning retention of new concepts and skills

Creating and Utilizing Visuals:

- Utilize font and size that can be read by all students
- Place at appropriate height for all students to read
- Use colors that can be seen from any place in the classroom and are easily read
- Align vocabulary and examples on visuals to lesson objectives
- Change as necessary when teaching new concepts or skills
- Utilize graphics that support text by combining the use of graphics and text
- Refer to them during instruction in order to set the expectation that visuals are for learning and should be utilized by students

Research on Differentiation of Content

What is content?
Content can be described as the knowledge, skills, and attitudes students need to learn. Differentiation of content is guided by the premise that teachers should maximize student potential, not simply bring students to an externally established norm on a test.

What is needed to differentiate content?
Differentiation of content requires teachers to have clear learning objectives that are based on content standards, as well as knowledge of their students. Teachers must also continually monitor student proximity to learning objectives throughout the learning cycle. The teacher must know what each student knows and is able to do at a given moment and modifications that are needed to ensure student mastery.

How can teachers differentiate content?

- Acceleration – Providing the opportunity for students to move more rapidly through a particular curricular sequence without regard to age or setting.
- Compacting – This strategy encourages teachers to assess students before beginning a unit of study or development of a skill. Students who do well on the pre-assessment do not continue to work on what they already know. The teacher eliminates work and/or instruction for content that has already been mastered.
- Variety – Ideas and content areas should be extensions of the regular curriculum.
- Reorganization – Selecting new arrangements of content (e.g., functional similarities, categorical groups, descriptive similarities) in place of the typical chronological organization.
- Flexible pacing – Allowing for individual characteristics to determine the pace students progress through the content.
- Use of more advanced or complex concepts and materials – Posing more challenging questions or situations that force the learner to deal with the intricacies of the content.
- Use of abstraction – Going beyond the facts and the obvious to the conceptual framework, underlying ideas, symbolism, and hidden meaning of the content.

Additional suggestions:

- When possible, students should be encouraged to move through content areas at their own pace. If they master a particular unit, they need to be provided with more advanced learning activities, not more of the same activity. Thematic, broad-based, and integrated content, rather than single-subject areas in isolation, best serve their learning characteristics. In addition, such concept-based instruction expands opportunities to generalize and to integrate and apply ideas.
- Middle and secondary schools are generally organized to meet student needs within content areas. Providing an interdisciplinary approach is another way of modifying curriculum. Jacobs and Borland (1986) found that high ability learners benefit greatly from curriculum experiences that cross or go beyond traditional content areas, particularly when they are encouraged to acquire an integrated understanding of knowledge and the structure of the disciplines.

Why should teachers differentiate content?

According to the proponents of differentiation, the principles and guidelines are rooted in years of educational theory and research. For example, differentiated content adopts the concept of "readiness." That is, the difficulty of skills taught should be slightly in advance of the child's current level of mastery. Psychologists tell us that a student learns only when a task is a little too hard for that student. When a student can do work with little effort, and virtually independently, that student is not learning, but rather rehearsing the known. When a student finds a task beyond his or her reach, frustration, not learning, is the result. Only when a task is a bit beyond the student's comfort level and the students finds a support system to bridge the gap, does learning occur. This is grounded in the work of Lev Vygotsky (1978) and the zone of proximal development (ZPD), the rand at which learning takes place. The classroom research by Fisher et. al. (1980) strongly supports the ZPD concept. The researchers found that in classrooms where individuals were performing at a level of about 80% accuracy, students learned more and felt better about themselves and the subject area under study (Fisher, 1980 in Tomlinson, 2000).

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Tomlinson, C.A., et. al. (2003) Differentiating Instruction in Response to Student Readiness, Interest, and Learning Profile in Academically Diverse Classrooms: A Review of Literature. *Journal for the Education of the Gifted,* 27, 119-45.

Research on the Use of Formative Assessments

Informative assessment really isn't about the grade book. – Carol Ann Tomlinson

Formative assessments are ongoing assessments that occur during the learning process. Because they occur during the learning process, they provide information teachers can use to make instructional decisions, in-the-moment adjustments, and provide students with actionable feedback. The results from formative assessments are used to modify and validate instruction. They are administered for the purpose of increasing student learning.

Assessment for learning is based on five key factors: (Black and Wiliam, 1998)(Hattie, 2012)

- Students are actively involved in their own learning processes.
- Effective feedback is provided to students.
- Instruction is adapted in response to assessment results.
- Students are able to perform self-assessments.
- The influence of assessment on students' motivation and self-esteem is recognized.

Assessment for learning can take many different forms in the classroom. However, it should consistently support students in answering these three questions related to student outcomes for a lesson:

- Where am I going?
- Where am I know?
- How can I close the gap?

(Atkin, Black, & Coffey, 2001)

Formative assessments not only support the evidence a teacher needs in order to make necessary instructional adjustments, they supply the evidence students need in order to make necessary adjustments in how they are trying to learn something. Formative assessments, then, can help both teachers teach better and learners learn better. (Popham, 2008)

The use of formative assessments can result in a deeper engagement of students in the learning process. When students are provided information on their progress towards mastery of learning objectives, they can begin to learn how to learn. They can grow into self-aware learners who can explain what they did, what they need to do, and where they are in the learning process. Students who take charge of their own learning become self-regulated and more independent learners. They can also become more motivated to take risks when content or activities become more difficult and challenging.

References:

Atkin, J.M., Black, P.J., & Coffey, J. (2001). *Classroom assessment and the National Science Education Standards.* Washington, DC: National Academy Press.

Black, P., & Wiliam, D. (1998). Assessment in Classroom Learning. *Assessment in Education: Principles, Policy & Practice,* 5(1), 7-74. doi: 10.1080/0969595980050102

Hattie, J. (2012). *Visible Learning for teachers: Maximizing impact on learning.* London, England: Routledge.

Popham, W. J. (2008). *Transformative assessment.* Alexandria, VA: Association for Supervision and Curriculum Development.

Sentence Starters for Teaching Students Accountable Talk

- I agree/disagree with that because _____.
- I want to add to what (name) said about _____.
- Based on my evidence, I think _____.
- I am not clear on what you mean by _____.
- I disagree with the use of that evidence because _____.
- A question I have is _____.
- An example of _____ is _____.
- Your evidence is the same/different because _____.
- The relationship between _____ and ____ is _____.
- This reminds me of _____.
- I predict _____ because _____.
- I understand _____.
- When we _____, it helped me understand _____.
- The big idea is _____.
- I observed _____.
- I'm confused by _____.
- To expand on what (name) said, _____.

Standards for Mathematical Practice
from
The Common Core State Standards for Mathematics

The Standards for Mathematical Practice have been included in the Nature of Mathematics section in each Grade Level Expectation in the Colorado Academic Standards. The following definitions and explanation of the Standards for Mathematical Practice from the Common Core State Standards can be found on pages 6, 7 and 8 in the Common Core State Standards for Mathematics. Each Mathematical Practices statement has been notated with (MP) at the end of the statement.

Mathematics – Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies," with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently, and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy.

1. **Make sense of problems and persevere in solving them.**
   Mathematically proficient students start by explaining to themselves the meaning of a problem, and look for entry points to the solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution, and plan a solution pathway, rather than simply jump into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem, transform algebraic expressions or change the viewing window of their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs, or draw diagrams of important features and relationships, graph data, and search for regularity in trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a word problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems, and identify correspondences between different approaches.

2. **Reason abstractly and quantitatively.**
   Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: 1) the ability to decontextualize, to abstract a given situation and represent it symbolically, and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents, and 2) the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand, considering the units involved, attending to the meaning of quantities, not just

how to compute them, and knowing flexibly using different properties of operations and objects.

3. **Construct viable arguments and critique the reasoning of others.**
   Mathematically proficient students understand and use state assumptions, definitions, and previously established results in constructing arguments. They make conjectures, and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and it there is a flaw in an argument, explain what it is. Elementary students can construct arguments using concrete referents, such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. **Model with mathematics**
   Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event, or analyze a problem in the community. By high school, a student might use geometry to solve a design problem, or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know, are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation, and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation, and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. **Use appropriate tools strategically.**
   Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained, and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation, and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a

website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. **Attend to precision.**

   Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others, and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school, they have learned to examine claims and make explicit use of definitions.

7. **Look for and make use of structure.**

   Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that 3 and 7 more is the same amount as 7 and 3 more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 x 8 equals the well-remembered 7 x 5 + 7 x 3, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2 x 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure, and can use the strategy of drawing and auxiliary line for solving problems. They can also step back for an overview, and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5-3(x-y)^2$ as 5 minus a positive number times a square, and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8. **Look for and express regularity in repeated reasoning.**

   Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1,2) with slope 3, middle school students might abstract the equation $(y-2)(x-1)=3$. Noticing the regularity in the way terms cancel when expanding $(x-1)(x+1)$, $(x-1)(x^2+ x + 1)$, and $(x-1)(x^3 + x^2 +x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to details. They continually evaluate the reasonableness of their intermediate results.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction. The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack

understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical solutions, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices. In this respect, those content standards which set an expectation of understanding are potential "points of intersection" between the Standards of Content and the Standards of Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

Reference:

Colorado Standards. (2013, September 18). Retrieved from http://www.cde.state.co.us/standardsandinstruction/coloradostandards

Strategies for Creating a Sense of Community

- Photo Bulletin Board – Create a space in the classroom for displaying pictures of students involved in classroom activities, at play, on field trips, etc. This can be an effective way to celebrate students' accomplishments and their shared experiences.
- Student-created Class Rules – Students may share what they view as important rules for maintaining a safe learning environment for everyone. If needed, the teacher may group students' ideas into three or four rules that become the classroom contract for behavior. Students may also sign the contract acknowledging their ownership and responsibility for adhering to the rules.
- Class Meetings – The teacher and students discuss topics of concern such as bullying, timelines for upcoming assignments, the daily schedule, or organizational skills. Class meetings can be an opportunity to collectively share and problem solve concerns of the class. They can also be an opportunity to share accomplishments of the class. Progress towards class goals can be celebrated, as well as next steps identified.
- Student Word Displays – Student work is displayed in a manner that celebrates student learning. To promote a sense of community, a pad of sticky notes can be available near the display for students to leave notes of praise or encouragement to their peers. This practice can also be open to other teachers, administrators, and parents.
- Student Jobs – Students jobs can support student ownership and cooperation in the classroom. When explaining the expectations, the teacher should emphasize that each member of the classroom is dependent on everyone performing their job effectively. Students can learn that the whole is dependent on the parts, or members, doing their best.
- Notes of Appreciation – Students can be encouraged to write notes of appreciation to their peers for acts of kindness and support. These notes may be shared during a class meeting or deposited in a class mailbox and distributed by the teacher or student postmaster.
- Student Collaboration – Provide opportunities for students to work together and have them reflect on these two questions: "What did you do well today?" and "How did (student's name) help you today?"
- Zero-Indifference Policy – Address bullying and the use of unkind words when they occur. Be clear about what is acceptable and supportive of the classroom community.

Reference:

Sapon-Shevin, M. (2008). Learning in an inclusive community. *Educational Leadership, 66,* 49-53.

Strategies for Employing Numeracy across Content Areas

- Model how mathematics is used in your professional life, as well as in the content taught.
- Provide time in class for students to work on mathematics that relate to learning objectives for the content area.
- Incorporate logical reasoning and problem-solving opportunities, as they relate to the content.
- Provide resources for students such as calculators, rules, scale models, graphic organizers, charts, graphs, statistical data, etc. to enable students to experience mathematical connections to various topics within the content area.
- Provide examples of mathematical connections to the content by sharing newspaper articles, magazine articles, and professional journal articles that show how mathematics is utilized in the academic discipline.
- Allow students choice about their completion of assignments that can incorporate mathematics and problem solving.
- Require students to incorporate data and data analysis as part of their writing, when appropriate.
- Provide students with feedback related to mathematical reasoning, when appropriate.
- Focus on improving each student's knowledge and ability to apply mathematical thinking and reasoning skills across content areas, rather than just developing computational skills in isolation.
- Avoid sharing any personal "math phobias" or a personal dislike of mathematics. Educators never boast of being illiterate, yet we often freely share that we are innumerate!

Reference:

Source: Adapted from SREB, 2003

Strategies for Forming Groups

1. **Grouping Cards**

   Determine the number of students in the class and how many different groups you want throughout the lesson. For example, in a class of twenty, one activity may call for four groups of five; another, five groups of four; still another six groups of three with two observers. Code these groups using a colored dot (red, blue, green, and yellow for four groups), decorative stickers (different stickers in a common theme for five groups, such as lions, monkeys, tigers, giraffes, and elephants), and a number (1 through 6 for six groups). Randomly place a number, a colored dot, and a sticker on a card for each participant and include the card in the participant's materials. When you are ready to form your groups, identify which code you are using and direct the participants to join their groups in a designated place. Students will be able to move quickly to their groups, saving time and eliminating confusion. You may want to post signs indicating group meeting areas to make the process even more efficient.

2. **Playing Cards**

   Use a deck of playing cards to designate groups. For example, use jacks, queens, kings and aces to create four groups of four. Use additional number cards, if necessary, to accommodate a larger group. Shuffle the cards and deal one to each student, then direct the students to locate others with similar cards and form a group.

3. **Draw Numbers**

   Determine the number and size of the groups you want to create, put numbers on individual slips of paper, and place them in a box. Students draw a number from the box indicating which group number they belong to. For example, if you want four groups of four, you would have sixteen slips of paper with four each of the numbers 1 through 4.

4. **Candy Favors**

   Give each student a wrapped sugarless candy of a different flavor to indicate groups. For example, your groups may be categorized as lemon, butterscotch, cherry, and mint.

5. **Choose Like Items**

   Select toys of a common theme to indicate groups. For example, you might choose transportation and use cars, airplanes, boats, and trains. Each student would draw a toy from a box and locate others with the same toy to form a group.

6. **Participant Material**

   You can code student materials using colored paper clips, colored handouts, or stickers on folders or tent cards to predetermine groupings.

Resource:
Active Training, 26 Linden Lane, Princeton, NJ 08540 (800-924-8157)

Cooperative Learning Structures

Most of these structures are developed by Dr. Spencer Kagan and his associates at Kagan Publishing and Professional Development. For resources and professional development information on Kagan Structures, please visit: www.KaganOnline.com

1. Jigsaw - Groups with five students are set up. Each group member is assigned some unique material to learn and then to teach to his group members. To help in the learning, students across the class, working on the same sub-section, get together to decide what is important and how to teach it. After practice in these "expert" groups, the original groups reform, and students teach each other. (Wood, p. 17)

2. Think-Pair-Share - Involves a three-step cooperative structure. During the first step, individuals think silently about a question posed by the instructor. Individuals pair up during the second step, and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group.

3. Three-Step Interview (Kagan) - Each member of a team chooses another member to be a partner. During the first step, individuals interview their partners by asking clarifying questions. During the second step, partners reverse the roles. For the final step, members share their partner's response with the team.

4. Round-Robin Brainstorming (Kagan) - Class is divided into small groups (4 to 6) with one person appointed as the recorder. A question is posed with many answers, and students are given time to think about answers. After the "think time," members of the team share responses with one another round-robin style. The recorder writes down the answers of the group members. The person next to the recorder starts, and each person in the group (in order) gives an answer until time is called.

5. Three-minute review - Teachers stop any time during a lecture or discussion and give teams three minutes to review what has been said, ask clarifying questions, or answer questions.

6. Numbered Heads Together (Kagan) - A team of four is established. Each member is given numbers of 1, 2, 3, and 4. Questions are asked of the group. Groups work together to answer the question so that all can verbally answer the question. Teacher calls out a number (2) and each 2 is asked to give the answer.

7. Team Pair Solo (Kagan) - Students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help (mediation) than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help.

Strategies for Managing the Use of Computers in the Classroom

- Type directions for frequently used computer operations (opening programs, inserting clip art, printing documents, etc.) on index cards. Laminate the cards and connect them with a circle ring. Place a set next to each computer.

- Instruct students to keep monitors turned off when directions are being given to ensure students are focused and tracking the speaker. If needed, tape a sign that reads, PLEASE WAIT FOR INSTRUCTIONS, to the top of each monitor. After expectations have been communicated, students flip the sign to the back of the monitor and begin work.

- Assign students leadership roles.
  - Materials Manager: Distributes materials needed for tasks.
  - Technical Manager: Helps resolve printer and computer issues.
  - Close-out Manager: Ensures programs are closed, sound is turned down, work areas are neat, keyboards are pushed in and mice are straight.

- Keep a colored plastic cup, or other item, at each computer. When students need assistance, they place the cup upside down as a visible sign that help is needed.

- Early Childhood students: Place different colored sticker dots on the left and right bottom corners of each monitor. Use these to indicate which side of the screen you are referencing when giving directions. Colored stickers may also be used to designate whose turn it is when students share a computer.

Strategies to Help Students Learn to Use Feedback

- Model giving and using feedback yourself.
- Teach students self- and peer-assessment skills to:
  - Teach students the source of feedback.
  - Increase students' interest in feedback because it is "theirs".
  - Answer students' questions regarding their work or responses.
  - Develop self-monitoring skills, necessary for using any feedback.
- Be clear about the learning objective and criteria for mastery.
  - Create assessments with value and interest aligned to learning objectives.
  - Explain the purpose of assessments.
  - Provide clear directions for completing tasks and assessments.
  - Explain rubrics or scoring guides/checklists to students.
- Design lessons in which students use feedback on previous work to produce higher-quality work.
  - Provide opportunities to revise work or correct errors.
  - Assign new but similar tasks for the same learning objective.
  - Help students make connections between the feedback they received and applied to the improvement in their work.

Reference:

Brookhart, S. M. (2008). Feedback that fits. *Educational Leadership, 65*(4), 54-59. Retrieved from http://www.ascd.org/publications/educational-leadership/dec07/vol65/num04/Feedback-That-Fits.aspx

Student Bill of Rights

Robert Marzano recommends establishing documents such as the examples below to support students in developing and maintaining respectful relationships. Teachers may adapt these for their classrooms, or use as examples to support students in development of shared statements.

Student Bill of Assertive Rights

- I have the right to judge my own behavior and be responsible for it. I don't have the right to judge the behavior of others.
- I have the right to be treated with respect. I don't have the right to treat others disrespectfully.
- I have the right to express my feelings in an assertive way.(Marzano et al., 2005, p. 121)

Shared Statement of Student Responsibility: Whole Class

- We are responsible for ourselves. For example, we are responsible for our thoughts, feelings, behavior, physical health, possessions, and goals.
- We are responsible for how we treat others. In particular, we are responsible for what we say and what we do to and with others.

Students as Individuals:

- I am responsible for me-for my feelings, my actions, my words, and my experience of my life.
- Other people are responsible for themselves-for their feelings, actions, words, and experience of life.
- I am 100% responsible for the consequences of my feelings, thoughts, actions, and words. Dealing with the consequences and rewards teaches me how to live in the world.(Marzano et al., 2005, p. 124)

Reference:

Marzano, R. J., Gaddy, B. B., Foseid, M. C., Foseid, M. P., & Marzano, J. S. (2005). *A handbook for classroom management that works*. Alexandria, VA: Association for Supervision and Curriculum Development.

Student Outcomes

Prior to teaching any lesson, teachers must know the learning outcomes for their students and the criteria for success. Until teachers have articulated, to themselves and to their students, the expectations for learning and how mastery will be measured, instruction may be misaligned to lesson goals, and assessments may provide limited information on actual student progress towards these goals.

Creating Explicit Student Outcomes:

- Student outcomes must be worthwhile and represent learning essential to a discipline as well as high-level learning for all students.
- Student outcomes must be clear and stated in terms of student learning rather than student activity: "What will students *learn* as a result of the instructional engagement?" Not, "What will students do?"
- Student outcomes must be measurable. They must be stated in clear language that permits viable methods of evaluation and the establishment of performance criteria. (Danielson, 1996)

Benefits of Explicit Student Learning Outcomes:

- Teachers are able to plan instruction aligned to lesson outcomes.
- Teachers are able to utilize student work (oral and written) to make instructional decisions.
- Students' understanding and engagement in learning increases when they are clear on the expectations for their learning.

Reference:

Danielson, C. (1996). *Enhancing professional practice: A framework for teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.

Teaching Empathy and Respect through Literature

Early Childhood

- *Bully* by Laura Vaccaro Seeger
- *Good News Bad* News By Jeff Mack
- *Is There Really A Human Race?* by Jamie Lee Curtis
- *Sam's New Friend* by Theirry Robberecht
- *Arnie & The New Kid* by Nancy Carlson
- *Yoko* by Rosemary Wells
- *My Many Colored Days* by Dr. Seuss

Elementary

- *Charlotte's Web* by E.B. White
- *Ramona the Pest* by Beverly Cleary
- *One Day and One Amazing Morning on Orange Street* by Joanne Rocklin
- *Prairie Evers* by by Ellen Airgood
- *Junonia* by Kevin Henkes
- *Spaghetti In A Hot Dog Bun* by Maria Dismondy
- *The Potato Chip Champ* by Maria Dismondy
- *Looking After Louis* by Lesley Ely
- *Pricilla McDoodlenutDoodleMcMae Asks Why?* By Janet Mary Sinke
- *Wilfred Gordon McDonald Partridge* by Mem Fox
- *The Hundred Dresses* by Eleanor Estes
- *The Ragcoat* by Lauren Mills

Middle School

- *Freak the Mighty* by Rodman Philbrick
- *Mockingbird* by Kathryn Erskine

High School

- *To Kill a Mockingbird* by Harper Lee
- *Dear Bully: 70 Authors Tell Their Stories* by Carrie Jones, Megan Kelley Hall
- *The Grapes of Wrath* by John Steinbeck

Teaching Students How to Ask Questions

Among the many higher-level thinking skills our students need is the skill of generating thoughtful questions. The ability to routinely generate mental questions while reading, listening, or viewing something not only boosts attention and alertness, but also strengthens comprehension (Duke & Pearson, 2002). How else can individuals gain, analyze, and integrate new information unless they ask questions that force them to do these things? When students ask themselves questions about information they are hearing or reading, they pay more attention to the information, self-monitor, and are more likely to be actively engaged in the learning process.

Although students ask questions throughout the school day, research shows that the majority of questions are to seek clarification on procedural matters and not questions that further their learning. What teachers need to teach students to do is to generate questions that prompt their thinking, provide purpose for their learning, and support them in thinking about their own metacognitive processes.

Why is being an effective questioner essential for development of college- and career-readiness skills?

- Students attain significantly higher levels of thinking when they are encouraged to develop skills in generating critical and creative questions and when they are provided opportunities for dialogue with classmates about the questions posed and conclusions derived from information they encounter.
  (Cecil, 1995)
- The workplace and schools increasingly call for teams of people to work effectively to analyze and solve problems. Therefore, it is important for students to not only know how to ask the right questions but also to ask them in a logical sequence. Without a sequential questioning strategy, students often flounder, go off track, or overlook essential information.

References:

Cecil, N. (1995). *The art of inquiry: Questioning strategies for K–6 classrooms.* Winnipeg, Canada: Peguis.

Duke, N., & Pearson, P. D. (2002). *Effective practices for developing reading comprehension: What research has to say about reading* (3rd ed.). Newark, DE: International Reading Association.

Richetti, C., & Sheerin, J. (1999). Helping students ask the right questions. *Educational Leadership, 57*(3), 58-62. Retrieved from http://www.ascd.org/publications/educational-leadership/nov99/vol57/num03/Helping-Students-Ask-the-Right-Questions.aspx

Types of Problem-Solving Skills with Definitions and Examples

Problem-Solving Skills	Definition	Examples
Abstraction	Abstraction is the process of leaving out of consideration one or more properties of a complex object or idea so as to focus on the others. It may also be applied when students take the key components or ideas occurring across given examples and use that idea to solve a new problem. Abstraction can also be viewed as the opposite of concrete thinking.	**Language Arts** – After reading different versions of Cinderella, students create a list of the elements of Cinderella stories such as a kind godmother, evil step sisters, a handsome prince, etc. They select one of the elements and write their own fairy tale incorporating this quality. Students also explain how Cinderella stories would be different if this element was not included. **Art** – Students study a variety of paintings by Impressionist artists or by a single artist. They identify the characteristics of Impressionism or of a single artist's work. Students select one of the characteristics and create a painting with this characteristic as the single focus.
Drawing Conclusions	Students draw conclusions based on information and perspectives presented.	**Language Arts** – Students examine the viewpoints of various characters in a novel or story they are reading. Based on these viewpoints and students' own experiences, they draw conclusions about a character's actions. **Math** – Students have studied a variety of geometric shapes. They apply their knowledge of these shapes to various types of architecture and draw conclusions for why the architect selected the geometric shapes utilized.
Predicting Outcomes	Students make predictions, and then test the validity of those predictions.	**Language Arts** – Students are reading *Stone Fox*, by John Reynolds Gardiner. Based on the book's setting and events in the characters' lives, students make predictions for how they will save Grandfather's farm. **Math** – When students are presented with a new concept, such as finding the circumference of a circle, they apply previously learned formulas to predict how they will find the circumference.
Observing and Experimenting	Students observe, record, code, measure, and/or experiment for the purpose of gathering information, analyzing a problem, or creating solutions.	**Language Arts** – Students read a variety of poems in order to identify similes and metaphors. They analyze each poet's use of figurative language and the visual images they create. They apply their analysis to creation of their own poems. **Science/Math** – After a study of weather patterns, students keep daily weather records for one month, noting the date, type of weather, temperature, and amount of precipitation. At the end of the month, they determine the median and mean for temperature and precipitation. Using this data and their knowledge of yearly weather patterns, they hypothesize if the medians and means for the next month will be the same, higher, or lower. At the end of the second month, students will again analyze their data, compare to the previous month, and either confirm or refute their hypotheses.

Justifying and Improving Solutions	Students analyze possible solutions to a problem. They select the best solution, justify their selection, and explain why other solutions are less adequate. Or, students are provided a solution to a problem and asked to improve upon the solution.	**Language Arts** – Students are writing personal narratives. The writing lesson focuses on possible introductions students may incorporate. Students analyze each type of introduction and select one that best represents their "voice" and purpose for writing. They verbally, or in writing, explain why they utilized the introduction selected. **Math** – Students are provided a variety of word problems to solve. Working in teams of four, students review problem solving strategies they have learned and select the most appropriate strategy for solving each problem. Individual students are expected to provide rationale for their choice and why it may be better than a peer's. **Science** – During a unit on conservation, students develop ways to utilize recycled materials. **Social Studies** – During a study of the Civil War, students choose a specific battle and develop ways it could have been more effectively planned by the losing side in order to change the outcome. **Physical Education** – During a unit on basketball, students watch videos of various games in order to analyze the plays utilized. They develop ways to make the plays more successful.
Create and Design	Students build on prior ideas or concepts to create or design new ideas or products.	**Language Arts** – Students read *The Legend of Jimmy Spoon* by Kristina Gregory. Since this book lacks a map, students create one showing the locations Jimmy visits with his adopted Shoshone tribe. They may also create a travel log or diary that Jimmy may have kept. **Math** – Students create videos to teach the skills of addition and subtraction to first graders that incorporate various models of representation.

Using Question Words with Younger Students

Who?	Asking about a person ***Who** is your friend?*
What?	Asking about an event or activity ***What** did you eat for dinner?* Asking about characteristics ***What** color is your favorite hat?*
When?	Asking about time ***When** do you go to bed?*
Where?	Asking about a place ***Where** do you live?*
How?	Asking about specifics such as one's reason or amounts ***How** do you bake a cake?* ***How** much money do you have?*
Why?	Asking about the reason for something ***Why** is the sky blue?*
Which?	Asking about a specific thing ***Which** hat do you like best?*

What Does It Mean to Scaffold Questions and Tasks?

When teachers scaffold questions and tasks, they provide supports that allow students to obtain the pre-requisite skills and knowledge necessary to move to deeper levels of thinking. Scaffolding of questions or tasks should be planned based on student needs, as well as learning outcomes.

> It is a sobering observation that teachers' questions often go nowhere. They may request the definition of a sonnet, the date of Shakespeare's birth, the meaning of the word "varlet"- but, once the reply is given, that is the end of the sequence. Extended stretches of questioning in which the information builds from facts toward insight or complex ideas rarely take place (Goodlad 1984, Sadker and Sadker 1985)(Wolf, 1987).
>
> Such questions can stop inquiry dead in its tracks. In place of such dead-end situations, skilled teachers give an exchange of questions a life-course. Across a long arc of questions and answers, they pursue an investigation in which simple factual inquiries give way to increasingly interpretive questions until new insights emerge. For an observer, there is an impression of a kind of mutually constructed improvisation unfolding (Mehan 1978, 1979)(Wolf, 1987).
> http://www.exploratorium.edu/ifi/resources/workshops/artofquestioning.html
> Consistently, the literature on effective questioning has insisted that questioning sequences are far more effective in promoting student learning than any one type of question.
> (Dantonio & Beisenherz, 2001).

Scaffolding of questions and tasks can have the following impacts:

- Provides a support structure for students' learning
- Provides students with a clear direction for their learning because questions are scaffolded across levels of Bloom's Taxonomy and aligned to learning outcomes. Questions may also be scaffolded based upon students' responses which communicates to students they are on the "right track."
- Increases student engagement and focus during the lesson, because students have opportunities to be successful when they have to obtain the necessary pre-requisite skills.

Examples of scaffold questions:

Learning Objective: Students will be able to explain how the Boston Massacre was one of the causes of the Revolutionary War.

- **Remembering**: When did the Boston Massacre take place? What did the British government do in response to the Boston Massacre?
- **Understanding**: Summarize what happened during the Boston Massacre.
- **Applying**: How would you have reacted if you had been in the streets of Boston when the massacre occurred? Provide historical details to support response.
- **Analyzing**: What motivated the crowd of colonists to begin throwing snowballs at the British soldiers?
- **Evaluating**: How and why did the Boston Massacre become one of the events that led to the Revolutionary War?
- **Creating**: What could have been a peaceful solution to the taunting that occurred prior to the Boston Massacre?

Learning Objective: Students will be able to describe characters' traits and motives in the story, *Goldilocks and the Three Bears*.

- **Remembering**: Who are the characters in Goldilocks?
- **Understanding**: Describe Goldilocks' reaction to seeing the three bears.
- **Applying**: What classroom and safety rules did Goldilocks not follow?
- **Analyzing**: How were the bears like real people?
- **Evaluating**: Why did Goldilocks go into the little house? What lesson do you think she learned from her experience?
- **Creating**: How might the story be different if Goldilocks had eaten Papa Bear's porridge, broken his chair, and slept in his bed? With a partner, write a different ending to the story.

References:

Dantonio, M., & Beisenherz, P. C. (2001). *Learning to question, questioning to learn: Developing effective teacher questioning practices*. Boston, MA: Allyn and Bacon.

Wolf, D. P. (1987). The Art of Questioning. Retrieved from http://exploratorium.edu/ifi/resources/workshops/artofquestioning.html