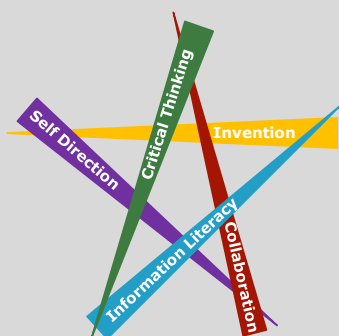


**Curriculum Development Course at a Glance
Planning for 2nd Grade Science**

Content Area	Science	Grade Level	2 nd Grade
Course Name/Course Code			
Standard	Grade Level Expectations (GLE)	GLE Code	
1. Physical Science	1. Changes in speed or direction of motion are caused by forces such as pushes and pulls.	SC09-GR.2-S.1-GLE.1	
2. Life Science	1. Organisms depend on their habitat's nonliving parts to satisfy their needs	SC09-GR.2-S.2-GLE.1	
	2. Each plant or animal has different structures or behaviors that serve different functions	SC09-GR.2-S.2-GLE.2	
3. Earth Systems Science	1. Weather and the changing seasons impact the environment and organisms such as humans, plants, and other animals	SC09-GR.2-S.3-GLE.1	

Colorado 21st Century Skills



Critical Thinking and Reasoning: *Thinking Deeply, Thinking Differently*

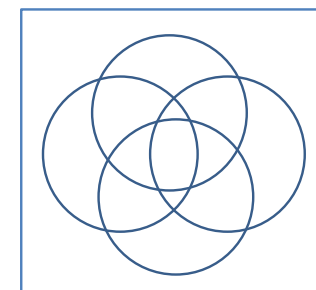
Information Literacy: *Untangling the Web*

Collaboration: *Working Together, Learning Together*

Self-Direction: *Own Your Learning*

Invention: *Creating Solutions*

Intragrated Curriculum Design: This intradisciplinary approach matches basic elements in each of the science strands – physical, life, earth systems sciences - forming overlaps in instruction of certain topics and concepts in an authentic integrated model.



Unit Titles	Length of Unit/Contact Hours	Unit Number/Sequence
Force and Motion	4-6 weeks	1
Plants and Animals in Habitats	7-9 weeks	2
Weather and Seasons	4-6 weeks	3

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Unit Title	Force and Motion		Length of Unit	4-6 weeks
Focusing Lens(es)	Relationship Change	Standards and Grade Level Expectations Addressed in this Unit	SC09-GR.2-S.1-GLE.1	
Inquiry Questions (Engaging-Debatable):	<ul style="list-style-type: none"> • What would happen to an object when force is applied from opposite directions simultaneously? • How would life be different without gravitational force? 			
Unit Strands	Physical Science			
Concepts	force, motion, properties, relationship, variable, change, speed			

Generalizations My students will Understand that...	Guiding Questions	
	Factual	Conceptual
Changes in speed or direction of motion are caused by forces such as pushes and pulls (SC09-GR.2-S.1-GLE.1-EO.a,b)	What are the different types of forces? (SC09-GR.2-S.1-GLE.1-EO.b; IQ.1,2)	How do the different types of forces affect speed and/or direction? (SC09-GR.2-S.1-GLE.1-EO.a; IQ.1,2)
Movement of objects requires one force to be greater than another (SC09-GR.2-S.1-GLE.1-EO.b)	What is force? (SC09-GR.2-S.1-GLE.1-EO.b; IQ.1,2) What must be known about force to predict how it will change an object's motion? (SC09-GR.2-S.1-GLE.; -IQ.1)	How does force affect the speed of an object? (SC09-GR.2-S.1-GLE.1-EO.a; IQ.1,2) How does applying a force affect the way an object moves? (SC09-GR.2-S.1-GLE.1; IQ.2) How do an object's properties affect how it will move when a force is applied? (SC09-GR.2-S.1-GLE.; IQ.2)

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • How and why the direction or speed of an object may change due to an outside force (SC09-GR.2-S.1-GLE.1-EO.a) • The impact of forces on the motion of objects (SC09-GR.2-S.1-GLE.1-EO.b) • Examples of how technology makes our lives easier (SC09-GR.2-S.1-GLE.1; RA.2) • That in many recreational activities, such as tug a war, there is a relationship between forces and changes in motion (SC09-GR.2-S.1-GLE.1; RA.2) 	<ul style="list-style-type: none"> • Identify and predict how the direction or speed of an object may change due to an outside force (SC09-GR.2-S.1-GLE.1-EO.a) • Analyze and interpret observable data about the impact of forces on the motion of objects (SC09-GR.2-S.1-GLE.1-EO.b) • Select appropriate tools for data collection (SC09-GR.2-S.1-GLE.1; N.1) • Measure the change in speed or direction of an object using appropriate units (SC09-GR.2-S.1-GLE.1; N.2) • Collaboratively design an experiment, identifying the constants and variables (SC09-GR.2-S.1-GLE.1; N.3)

<p>Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline. EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: <i>“Mark Twain exposes the hypocrisy of slavery through the use of satire.”</i></p>	
<p>A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):</p>	<p><i>I collaborate with my partner to interpret the relationship between force and motion. I would work with my partner to understand how force and motion are related. When I measure speed I know to use time on a clock.</i></p>
<p>Academic Vocabulary:</p>	<p>collaborate, analyze, interpret</p>
<p>Technical Vocabulary:</p>	<p>force, impact, properties, motion, relationships, constants, variables, distance traveled</p>

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Unit Title	Plants and Animals in Habitats		Length of Unit	7-9 Weeks
Focusing Lens(es)	Interaction	Interaction	SC09-GR.2-S.2-GLE.1 SC09-GR.2-S.2-GLE.2	
Inquiry Questions (Engaging-Debatable):	<ul style="list-style-type: none"> Why is the interaction between organisms and their environment important? (SC09-GR.2-S.2-GLE.1; N.1) What would happen to organisms or the environment if either one suddenly and/or drastically changed? 			
Unit Strands	Life Science			
Concepts	habitat, organism, biotic, abiotic, environment, population, structure/function, behaviors, interaction, survival			

Generalizations My students will Understand that...	Guiding Questions	
	Factual	Conceptual
Organisms depend on their environment, changes to which can negatively impact survival rates (SC09-GR.2-S.2-GLE.1; RA.1)(SC09-GR.2-S.2-GLE.1-EO.c)	What are the characteristics of a healthy environment? (SC09-GR.2-S.2-GLE.1; RA.1)	How do organisms interact in a habitat to create a healthy environment? (SC09-GR.2-S.2-GLE.1; N.1)
Organisms require both abiotic and biotic components of a habitat (SC09-GR.2-S.2-GLE.1-EO.a, b)	What are the living components of a habitat? (SC09-GR.2-S.2-GLE.1-EO.a) What are the non-living components of a habitat? (SC09-GR.2-S.2-GLE.1-EO.b)	How do the organisms depend on living components in its habitat? (SC09-GR.2-S.2-GLE.1-EO.a) How do living things depend on their environment? (SC09-GR.2-S.2-GLE.1; IQ.3)
Specific attributes of a habitat determine its suitability for particular organisms (SC09-GR.2-S.2-GLE.2-EO.a)	What makes a habitat suitable for a specific organism?	How are the habitats of two organisms similar and different? How are the basic needs of all living things similar and different? (SC09-GR.2-S.2-GLE.1; IQ.2) How does an organism respond when basic needs are not met? (SC09-GR.2-S.2-GLE.1; IQ.4)
The behavior and structure of plants and animals directly relate to their survival. (SC09-GR.2-S.2-GLE.2-EO.b)	What are the advantages of an animal or plant having a specific structure? What the advantages of an animal or plant having a specific behavior? What are the basic needs of plants and animals? (SC09-GR.2-S.2-GLE.1; IQ.1)	How are the behaviors of a plant and an animal similar and different? What different structures do plants and animals have that perform the same functions? (For example what different structures do plants and animals have to get water?) (SC09-GR.2-S.2-GLE.2; IQ.1) Why is the behavior and structure of plants and animals important?

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • How organisms depend on their habitat. (SC09-GR.2-S.2-GLE.1-EO.a) • The non-living components of a habitat (SC09-GR.2-S.2-GLE.1-EO.b) • Why an organism can survive in its habitat (SC09-GR.2-S.2-GLE.1-EO.c) • Living things depend on the health of their habitats (SC09-GR.2-S.2-GLE.1; RA.1) • Different organisms have different needs (SC09-GR.2-S.2-GLE.1; RA.2) • Why a habitat is suitable for a specific organism (SC09-GR.2-S.2-GLE.2-EO.a) • Why a habitat is not suitable for a specific organism (SC09-GR.2-S.2-GLE.2-EO.a) • The structures of a population that help that population survive (SC09-GR.2-S.2-GLE.2-EO.b) • The behaviors of a population that help that population survive (SC09-GR.2-S.2-GLE.2-EO.b) 	<ul style="list-style-type: none"> • Use evidence to develop a scientific explanation about how organisms depend on their habitat (SC09-GR.2-S.2-GLE.1-EO.a) • Analyze and interpret data about non-living components of a habitat (SC09-GR.2-S.2-GLE.1-EO.b) • Assess and provide feedback on other scientific explanations regarding why an organism can survive in its habitat (SC09-GR.2-S.2-GLE.1-EO.c) • Use instruments to make observations about habitat components - for example, data can be collected from a fish tank to assess the environmental health (pH). (SC09-GR.2-S.2-GLE.1-EO.d) • Identify the different organisms and their needs • Describe different ways that scientists seek to understand about organisms and their interactions with their environment (SC09-GR.2-S.2-GLE.1; N.1) • Collaborate with other students in developing a scientific explanation about how organisms depend on their habitat (SC09-GR.2-S.2-GLE.1; N.2) • Use evidence to develop an explanation as to why a habitat is suitable for a specific organism (SC09-GR.2-S.2-GLE.2-EO.a) • Use evidence to develop an explanation as to why a habitat is not suitable for a specific organism (SC09-GR.2-S.2-GLE.2-EO.a) • Analyze and interpret data about structures of a population that help that population survive (SC09-GR.2-S.2-GLE.2-EO.b) • Analyze and interpret data about behaviors of a population that help that population survive (SC09-GR.2-S.2-GLE.2-EO.b)

Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.
 EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: *“Mark Twain exposes the hypocrisy of slavery through the use of satire.”*

A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	<i>I use evidence from my observations to tell how organisms depend on where they live. Organisms need a healthy environment to survive. I use data to explain the environmental health of a habitat. A habitat is suitable for a specific organism if its resources help the population survive. A habitat is not suitable for a specific organism if its resources do not help the population survive. A population’s body structure helps them survive.</i>
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Academic Vocabulary:	scientific explanation, data, evidence, interpret, analyze, assess, collaborate, observation, observations, feedback,
Technical Vocabulary:	organisms, habitat, living components, non-living components, environmental health, basic need, structures, behaviors, survive, organism, advantages, unique, population, functions, environment, resources, suitable

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Unit Title	Weather and seasons		Length of Unit	4-6 weeks
Focusing Lens(es)	Influence Interaction	Standards and Grade Level Expectations Addressed in this Unit	SC09-GR.2-S.3-GLE.1	
Inquiry Questions (Engaging-Debatable):	<ul style="list-style-type: none"> • Why would the seasons be different in different hemispheres? • How do weather and changing seasons impact the behavior and/or physical characteristics of plants and animals? 			
Unit Strands	Earth Systems Science			
Concepts	weather, seasons, environment, organisms, change, environment, survival, atmosphere			

Generalizations My students will Understand that...	Guiding Questions	
	Factual	Conceptual
Organisms go through physical changes <i>and</i> change their behavior in order to survive the Earth's ever-changing weather and seasons (SC09-GR.2-S.3-GLE.1-EO.a; IQ.2; RA.1,2)	What changes happen to organisms and the environment from season to season?	How are organisms and the environment impacted by weather or changing seasons How do weather patterns change throughout the year? (SC.09-GR.2-S.3-GLE.1; IQ.3)
The changing seasons bring about different weather due to changes in the atmosphere (SC09-GR.2-S.3-GLE.1; IQ.1,3; N.1)	What are the changes in weather from season to season? What are the four seasons What changes do we make in our daily lives based on changes in the weather? (SC.09-GR.2-S3-GLE.1-IQ.2)	Why are there different seasons? How does the temperature change at different times during the day (morning, noon, evening) and from day to day? (SC.09-GR.2-S.3-GLE.1; IQ.1)
Catastrophic events are often caused by severe weather (SC09-GR.2-S.3-GLE.1-EO.c; N.2,3)	What are the different types of severe weather?	How are organisms and the environment impacted by catastrophic events?

**Curriculum Development Overview
Unit Planning for 2nd Grade Science**

Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • The impact(s) of weather and changing seasons on t organisms such as humans, plants, animals and the environment (SC09-GR.2-S.3-GLE.1-EO.a) • The ways in which location and time help determine the impact of weather and seasons on organisms (SC09-GR.2-S.3-GLE.1-EO.b) • Examples of how severe weather contributes to catastrophic events such as floods and forest fires (SC09-GR.2-S.3-GLE.1-EO.c) • The four seasons (SC09-GR.2-S.3-GLE.1; IQ.3; N.1) 	<ul style="list-style-type: none"> • Use evidence to develop a scientific explanation for how the weather and changing seasons impact the organisms such as humans, plants, animals and the environment (SC09-GR.2-S.3-GLE.1-EO.a) • Analyze and interpret data such as temperatures in different locations (sun, shade) at different times and seasons as evidence as how organisms and the environment are influenced by the weather and changing seasons (SC09-GR.2-S.3-GLE.1-EO.c) • Ask testable questions about weather and the seasons (SC09-GR.2-S.3-GLE.1; N.1) • Make predictions, share thinking and ask others how they know that organisms in the environment are influenced by the weather and changing seasons (SC09-GR.2-S.3-GLE.1; N.2) • Select and use appropriate tools to measure, record and communicate data about the weather using appropriate units (SC09-GR.2-S.3-GLE.1; N.3)

<p>Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline. EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: <i>“Mark Twain exposes the hypocrisy of slavery through the use of satire.”</i></p>	
<p>A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):</p>	<p><i>Severe weather contributes to catastrophic events. Certain weather patterns go with specific seasons. The environment is impacted by temperature and weather.</i></p>
<p>Academic Vocabulary:</p>	<p>analyze, interpret, evidence, scientific explanation, prediction</p>
<p>Technical Vocabulary:</p>	<p>temperature, weather, seasons, severe, catastrophic, weather patterns, environment, organisms, impact, hemisphere</p>