

**Instructional Unit Authors**

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*This unit was authored by a team of Colorado educators. The template provided one example of unit design that enabled teacher-authors to organize possible learning experiences, resources, differentiation, and assessments. The unit is intended to support teachers, schools, and districts as they make their own local decisions around the best instructional plans and practices for all students.*

**Colorado’s District Sample Curriculum Project**

date Posted: march 31, 2014

Science

1st Grade

Colorado Teacher-Authored Instructional Unit Sample

**Unit Title: Organisms and Offspring**

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| **Content Area** | Science | | | **Grade Level** | 1st Grade | | |
| **Course Name/Course Code** |  | | | | | | |
| **Standard** | **Grade Level Expectations (GLE)** | | | | | | **GLE Code** |
| 1. Physical Science | 1. Solids and liquids have unique properties that distinguish them | | | | | | SC09-GR.1-S.1-GLE.1 |
| 1. Life Science | 1. Offspring have characteristics that are similar to but not exactly like their parents’ characteristics | | | | | | SC09-GR.1-S.2-GLE.1 |
| 1. An organism is a living thing that has physical characteristics to help it survive | | | | | | SC09-GR.1-S.2-GLE.2 |
| 1. Earth Systems Science | 1. Earth’s materials can be compared and classified based on their properties | | | | | | SC09-GR.1-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** | |
| Organisms and Offspring | | | 3 – 5 weeks | | | 2 | |

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| **Unit Title** | Organisms & Offspring | | | **Length of Unit** | 3 – 5 weeks |
| **Focusing Lens(es)** | Patterns | **Standards and Grade Level Expectations Addressed in this Unit** | SC09-GR.1-S.2-GLE.1 | | |
| **Inquiry Questions (Engaging- Debatable):** | * How are offspring like their parents? (SC09-GR.1-S.2-GLE.1; IQ.1,2) | | | | |
| **Unit Strands** | Life Science | | | | |
| **Concepts** | organism, offspring, variation, characteristics, patterns, inheritance | | | | |

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| **Generalizations**  **My students will Understand that…** | **Guiding Questions**  **Factual Conceptual** | |
| Patterns of inheritance acknowledge that offspring originate from the adult organism (SC09-GR.1-S.2-GLE.1-EO.a,b,c) | What does the adult look like? (SC09-GR.1-S.2-GLE.1-EO.a,b,c: IQ.1,2)  What does the offspring look like? (SC09-GR.1-S.2-GLE.1-EO.a,b,c: IQ.1,2) | How can you tell if an organism and offspring are related? (SC09-GR.1-S.2-GLE.1-EO.a,b,c: IQ.1,2) |
| Offspring can demonstrate variations in the characteristics they inherit from their parental organism (SC09-GR.1-S.2-GLE.1-EO.a,b,c) | What characteristics are different? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d) | How do the characteristics of organisms and offspring vary? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d; RA.1; N.2) |
| Characteristics of adult organisms often transfer to offspring (SC09-GR.1-S.2-GLE.1\_EO.a,b,c) | What characteristics are similar between the adult and offspring? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d; RA.2,3) | How are adults and offspring similar? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d) |

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| **Critical Content:**  **My students will Know…** | **Key Skills:**  **My students will be able to (Do)…** |
| * The similarities and differences of parents and offspring in a variety of organisms including both plants and animals (SC09-GR.1-S.2-GLE.1-EO.a) * Diversity or variation within populations of living organisms (SC09-GR.1-S.2-GLE.1;RA.1) * How family photographs often reveal similar physical traits (SC09-GR.1-S.2-GLE.1;RA.2) * That eye color may or may not be passed from parents eye color can be different than their child’s (SC09-GR.1-S.2-GLE.1;RA.3) | * Use evidence to analyze similarities and differences (SC09-GR.1-S.2-GLE.1-EO.a) * Analyze and interpret data (SC09-GR.1-S.2-GLE.1-EO.b; N.1) * Question peers about evidence used in developing ideas (SC09-GR.1-S.2-GLE.1-EO.c; N.2) * Interpret information represented in pictures, illustrations, and simple charts (SC09-GR.1-S.2-GLE.1-EO.d) |

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| **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):** | | *Some living things and their offspring have traits that are similar, but not exactly alike.* |
| **Academic Vocabulary:** | evidence, analyze, interpret, data, question, collaboration, pictures, illustrations, simple charts, characteristics, traits, diversity, variation, similar | |
| **Technical Vocabulary:** | parent, offspring, adult, child, family, mother, father, son, daughter, seed, plant, animal, resemble | |

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| **Unit Description:** | This unit focuses on the offspring of organisms, variations and similarities within those offspring, and patterns of inheritance. Beginning with characteristics of living and nonliving things, across the unit students investigate seeds and plants, animals and offspring, characteristics of animals, and patterns of inheritance. The unit culminates in a performance assessment that asks students to reunite animals babies that have been separated from their parents based on patterns of inheritance. |
| **Considerations:** | The timing of the unit may change based on how often science is taught in the district.  Students have many misconceptions about how babies are born, however this unit does not address that.  The final learning experience depends on students’ ability to access family photos. Teachers will need to determine if everyone in their class can participate before endeavoring to use this learning experience. |
| **Unit Generalizations** | |
| **Key Generalization:** | Patterns of inheritance acknowledge that offspring originate from the adult organism |
| **Supporting Generalizations:** | Offspring can demonstrate variations in the characteristics they inherit from their parental organism |
| Characteristics of adult organisms often transfer to offspring |

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| **Performance Assessment:** *The capstone/summative assessment for this unit.* | |
| **Claims:**  (Key generalization(s) to be mastered and demonstrated through the capstone assessment.) | Patterns of inheritance acknowledge that offspring originate from the adult organism |
| **Stimulus Material:**  (Engaging scenario that includes role, audience, goal/outcome and explicitly connects the key generalization) | Your community is opening a brand new zoo dedicated to gorillas, baboons, chimpanzees, and orangutans. During the train ride to your community, all the babies from these animals got separated from their parents. Using photographs, your job, as budding animal scientists, is to reunite the babies with their parents based on similar patterns of inheritance. |
| **Product/Evidence:**  (Expected product from students) | The students’ community is opening a brand new zoo dedicated to gorillas, baboons, chimpanzees, and orangutans. During the train ride to their community, all the babies from these animals got separated from their parents. Students will be asked to match babies with their parents using photographs, based on similar patterns of inheritance.  <http://www.shutterstock.com/cat.mhtml?searchterm=chimpanzee+babies&search_group=&lang=en&search_source=search_form(chimpanzee> ( Chimpanzee baby images)  <http://www.shutterstock.com/cat.mhtml?searchterm=gorilla+baby&search_group=&lang=en&search_source=search_form> (Gorilla baby images)  <http://www.shutterstock.com/cat.mhtml?searchterm=orangutan+baby&search_group=&lang=en&search_source=search_form> (Orangutan baby images)  <http://www.shutterstock.com/cat.mhtml?searchterm=baboon+baby&search_group=&lang=en&search_source=search_formform> (Baboon baby images)  <https://www.google.com/search?q=baboon+babies&tbm=isch&tbo=u&source=univ&sa=X&ei=aNggU_2YII2gogTujoGIDA&ved=0CCQQsAQ&biw=1366&bih=648#q=baboon+adults&tbm=isch> (Images of Baboon adults)  <https://www.google.com/search?q=baboon+babies&tbm=isch&tbo=u&source=univ&sa=X&ei=aNggU_2YII2gogTujoGIDA&ved=0CCQQsAQ&biw=1366&bih=648#q=chimpanzee+adults&tbm=isch> (Images of adult chimpanzees)  <https://www.google.com/search?q=baboon+babies&tbm=isch&tbo=u&source=univ&sa=X&ei=aNggU_2YII2gogTujoGIDA&ved=0CCQQsAQ&biw=1366&bih=648#q=gorilla+adults&tbm=isch> (Images of gorilla adults)  <https://www.google.com/search?q=baboon+babies&tbm=isch&tbo=u&source=univ&sa=X&ei=aNggU_2YII2gogTujoGIDA&ved=0CCQQsAQ&biw=1366&bih=648#q=orangutan+adults&tbm=isch> (images of Orangutan adults) |
| **Differentiation:**  (Multiple modes for student expression) | The teacher may allow students to work with a partner or in a small group.  To extend this work, students may explain why the animals have certain characteristics (e.g. giraffes have long necks to reach food in high places, etc.) |

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| **Texts for independent reading or for class read aloud to support the content** | |
| **Informational/Non-Fiction** | **Fiction** |
| *Baby Animals Learn* - Pamela Chanko [lexile level BR]  *Animal Mothers and Babies* - Dona Herwick-Rice [lexile level 460]  *Characteristics of Animals* - Libby Romero [lexile level 280]  *Discover Animals* - Libby Romero [lexile level 130]  *From Egg to Chicken* - Gerald Legg and Carolyn Scrace [lexile level 500]  *From Tadpole to Frog* - Gerald Legg and Carolyn Scrace [lexile level 460]  *From Seed to Sunflower* - Gerald Legg and Carolyn Scrace [lexile level 450]  *Do Penguins have Puppies?* - Michael Dahl [lexile level 440]  *Do Whales have Wings?* - Michael Dahl [lexile level 440]  *Hair Traits: Color, Texture and More* - Buffy Silverman [lexile level 500]  *Facial Features: Freckles, Earlobes, Noses and More* - Jennifer Boothroyd [lexile level 530]  *Life Cycles* - Sian Smith [lexile level 650]  *The Life Cycle of Mammals* - Susan H. Gray [lexile level 840]  *The Life Cycle of Reptiles* - Darlene Stille [lexile level 770]  *The Life Cycle of Fish* - Darlene Stille [lexile level 860]  *The Life Cycle of Insects* - Susan H. Gray [lexile level 770]  *The Life Cycle of a Kangaroo* - Angela Royston [lexile level 650]  *Dogs and Their Puppies* - Linda Tagliaferro [lexile level 380]  *Bears and Their Cubs* - Linda Tagliaferro [lexile level 450]  *Robins and Their Chicks* - Linda Tagliaferro [lexile level 450]  *Life Cycle of a Carrot* - Linda Tagliaferro [lexile level 420]  *Ducks and Their Ducklings* - Margaret Hall [lexile level 370]  *Elephants and Their Calves* - Margaret Hall [lexile level 370]  *Cows and Their Calves* - Margaret Hall [lexile level 370]  *Tigers and Their Cubs* - Margaret Hall [lexile level 330]  *Gorillas and Their Infants* - Margaret Hall [lexile level 400]  *Penguins and Their Chicks* - Margaret Hall [lexile level 420]  *Seeds* by Gail Saunders-Smith [lexile level 240]  *Seeds* by Patricia Whitehouse [lexile level 460]  *Animals Born Alive and Well*by Ruth Heller  *Chickens Aren’t the Only Ones*by Ruth Heller | *Sunflower House* - Eve Bunting [lexile level 530]  *Saving the Griffin* - Kristin Wolden Nitz [lexile level 550] |

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| **Ongoing Discipline-Specific Learning Experiences** | | | | |
| 1. | Description: | Working like a scientist: Using a science notebook | Teacher Resources: | <http://ebecri.org/content/toolkit> (Teacher resource for creating science notebooks also includes lessons on using notebooks)  <http://www.bing.com/images/search?q=Printable+Science+Notebook+Pages+Template&Form=IQFRDR> (Teacher resource for creating science notebooks) |
| Student Resources: | <http://www.sciencenotebooks.org/> (Site for science note booking)  <https://www.google.com/search?q=science+notebooks&espv=210&es_sm=93&tbm=isch&tbo=u&source=univ&sa=X&ei=hSoGU_cU4fjIAbKCgdgM&ved=0CDEQsAQ&biw=1092&bih=533> (Images of science notebooks) |
| Skills: | Record and analyze data  Graphing data and results  Describing observations | Assessment: | Students will enter observations and data into their individual science notebooks.  <https://www.google.com/search?q=science+notebooks&espv=210&es_sm=93&tbm=isch&tbo=u&source=univ&sa=X&ei=hSoGU_cU4fjIAbKCgdgM&ved=0CDEQsAQ&biw=1092&bih=533> (Images of science notebooks) |
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| **Prior Knowledge and Experiences** |
| Students must have an understanding of plants, animals, parent, child, mother, daughter, father, son, and babies.  Vertical Articulation: The last time students have seen concepts related to the ones within this unit was in PK. |

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| **Learning Experiences # 1 – 5**  **Instructional Timeframe: Weeks 1-5** |

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| **Learning Experience # 1** | | |
| The teacher may brainstorm with students the characteristics of living and non-living things so that students can create class definitions for these two categories. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism | |
| **Teacher Resources:** | <http://www.bing.com/videos/search?q=Video+Living+and+Non-Living+Things&FORM=VIRE10#view=detail&mid=53C09E51CD7C355057B953C09E51CD7C355057B9> (Prezi that demonstrates differences between living and non-living things. It includes animated videos. 6minutes 22 seconds) <http://www.bing.com/images/search?q=Living+and+Non-Living+Picture+Sort&FORM=RESTAB#a> (Various resources available on this website)  <http://files.havefunteaching.com/worksheets/science/animals/animal-classification-worksheet.pdf> (Worksheet on animal classification) | |
| **Student Resources:** | <http://files.havefunteaching.com/worksheets/science/living-and-nonliving-things/living-and-non-living-things.pdf> (Worksheet on living versus nonliving)  <http://files.havefunteaching.com/worksheets/science/living-and-nonliving-things/is-it-living-worksheet.pdf> (Worksheet on living versus nonliving) | |
| **Assessment:** | Students will use the definitions created as a class to create a word wall and post words and images underneath the appropriate definition.  <http://www.schoolexpress.com/wordwalls/wordwalls.php> (Site to create word-wall flash cards) | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use small groups | The student may use visuals to add to the word wall |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| N/A | N/A |
| **Critical Content:** | * Organism, characteristics, living vs. non-living things | |
| **Key Skills:** | * Identify, sort, justify, categorize, define | |
| **Critical Language:** | Living, non-living, differences, characteristics, sort, categorize, justify, identify, define | |

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| **Learning Experience # 2** | | |
| The teacher may lead an investigation involving different (plant) seeds so that students can begin to connect unique seeds with (the development of) unique plants. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring | |
| **Teacher Resources:** | <https://www.google.com/search?q=plants+and+seeds+worksheets&espv=210&es_sm=93&tbm=isch&tbo=u&source=univ&sa=X&ei=_SMFU_2REemIyAGGooD4Dw&ved=0CCQQsAQ&biw=1092&bih=533> (Plant and seed worksheets)  <http://www.bing.com/images/search?q=different+kinds+of+seeds&qpvt=different+kinds+of+seeds&FORM=IGRE> (Images of seeds)  <http://www.richmondgrowsseeds.org/> (Site for seed lending program- free seeds) | |
| **Student Resources:** | <https://www.google.com/search?q=plants+and+seeds+worksheets&espv=210&es_sm=93&tbm=isch&tbo=u&source=univ&sa=X&ei=_SMFU_2REemIyAGGooD4Dw&ved=0CCQQsAQ&biw=1092&bih=533> (Plant and seed worksheets)  <http://www.sciencenotebooks.org/> (Site for science note booking) | |
| **Assessment:** | Students will accurately illustrate and describe the various seeds and their plants in a science notebook/journal to identify the differences between the seeds and plants. | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use small groups  The teacher may use peer partners  The teacher may modify the number of seeds | The student may verbally describe the seeds and plants |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use resource books and/or videos to show students multiple types of plants and seeds  <https://www.google.com/search?q=ecological+succession&espv=210&es_sm=93&tbm=isch&source=lnms&sa=X&ei=kxQFU7GjKcWTyQHM1IGgAQ&sqi=2&ved=0CAcQ_AUoAQ&biw=1092&bih=533&dpr=1.25#q=plants+and+seeds&tbm=isch> (Images of plants and seeds) | The student may predict what kind of plant is produced by a seed |
| **Critical Content:** | * Seeds, plants, characteristics, observe, produce | |
| **Key Skills:** | * Identify characteristics, describe, sort, illustrate, investigate | |
| **Critical Language:** | Plant, seed, characteristics, investigate, produce, different, describe, sort, illustrate, identify | |

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| **Learning Experience # 3** | | |
| The teacher may lead a discussion about plants and their seeds so that students can begin identifying the life cycle of a plant. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring | |
| **Teacher Resources:** | <http://www.education.com/files/238201_238300/238271/plant-life-cycle.pdf> (Life cycle of a plant)  [www.teachertube.com/viewVideo.php?video\_id=134153](http://www.teachertube.com/viewVideo.php?video_id=134153) (Video on plant life cycles)  <http://www.bing.com/videos/search?q=Time-Lapse+Seed+to+Plant&Form=VQFRVP#view=detail&mid=42ED2B02229602BA31B742ED2B02229602BA31B7> (Time lapse video of a seed to a plant)  <http://www.bing.com/images/search?q=Living+and+Non-Living+Picture+Sort&FORM=RESTAB#a> (Images of living things) | |
| **Student Resources:** | <http://www.education.com/files/238201_238300/238271/plant-life-cycle.pdf> (Life cycle of a plant)  <http://www.richmondgrowsseeds.org/> (Plant cycle detective game)  <http://www.bing.com/images/search?q=Living+and+Non-Living+Picture+Sort&FORM=RESTAB#a> (Images of living things)  <http://files.havefunteaching.com/worksheets/reading/sequencing/carrot-sequence-worksheet.pdf> (Worksheet on plant life cycle) | |
| **Assessment:** | Students will sequence the life cycle of a plant (e.g., Cut and paste, draw pictures, make a wheel) to demonstrate their understanding of the life cycle of a plant. | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use peer partner and/or small group | The student may use a verbal presentation |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may allow time lapse videos and/or photographs of seed growth  <http://www.timetoast.com/> (Timetoast) | The student may develop a timeline for the development of a seed into a plant |
| **Critical Content:** | * Seeds, plants, characteristics, observe, produce | |
| **Key Skills:** | * Sequencing, observing, understand a life cycle | |
| **Critical Language:** | Seeds, plants, growth, roots, leaves, life cycle, stem, sprout, water, soil, nutrients, sunlight, sequencing, observe, produce | |

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| **Learning Experience # 4** | | |
| The teacher may initiate a plant growth lab experience so that students can understand how to use observations to collect data. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism | |
| **Teacher Resources:** | <http://www.bing.com/videos/search?q=Time-Lapse+Seed+to+Plant&Form=VQFRVP#view=detail&mid=49BB07AECDF70F69EEE149BB07AECDF70F69EEE1> (Time lapse video of plant life cycle)  <http://www.innovativeclassroom.com/Teaching-Toolbox/Reproducibles/index.php?id=55> (Observation sheet)  <http://www.nclack.k12.or.us/cms/lib6/OR01000992/Centricity/Domain/98/observing%20and%20comparing%20plants.pdf> (Plant observation template)  <http://www.nclack.k12.or.us/cms/lib6/OR01000992/Centricity/Domain/98/observation%20posters%20K-5.pdf> (Observation posters) | |
| **Student Resources:** | <http://www.youtube.com/watch?v=EKx4ZwoJqXY> (Growing beans time lapse)  <http://www.youtube.com/watch?v=sErX8NlVy8I> (Time lapse of plant growth) | |
| **Assessment:** | Students will observe their growing plant and record data (in their science notebook) on that growth in order to confirm their understanding of the life cycle of a plant. | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may allow a peer partner  The teacher may allow small group  The teacher may provide a partial sequence (some pictures provided) | The student may verbally present the sequence  The student may point to the sequence |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| N/A | N/A |
| **Critical Content:** | * Seeds, plants, characteristics, observe | |
| **Key Skills:** | * Sequencing, observing, understand a life cycle, record, | |
| **Critical Language:** | Seeds, plants, growth, roots, leaves, life cycle, stem, sprout, water, soil, nutrients, sunlight, observe, sequencing, record | |

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| **Learning Experience # 5** | | |
| The teacher may have students brainstorm animals and their offspring so that students can begin categorizing egg-laying versus live birth animals. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring | |
| **Teacher Resources:** | *Chickens Aren’t the Only Ones*- Ruth Heller  *Animals Born Alive and Well*  - Ruth Heller | |
| **Student Resources:** | N/A | |
| **Assessment:** | Students will identify and sort animals that lay eggs and animals that have live birth (e.g., Chart, list, pictures, whiteboards) and record those observations in their science notebooks.  <https://www.google.com/search?q=sorting+tree+template&tbm=isch&tbo=u&source=univ&sa=X&ei=WccgU-S7DMfWyQHR-YGoBA&ved=0CCQQsAQ&biw=1366&bih=648> (Sorting tree template) | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use peer partners  The teacher may use small groups  The teacher may reduce the number of options | The student may verbally present  The student may point to the correct answer |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use resource books and/or videos  <http://www.youtube.com/watch?v=2lCKc8tURtc> (Video of kangaroos birth) | The student may study the unusual births of animals such as marsupials (e.g. Kangaroo, Opossum); Platypus, or the Panda |
| **Critical Content:** | * Inheritance, offspring, eggs, live birth, patterns | |
| **Key Skills:** | * Identify, sort | |
| **Critical Language:** | Brainstorm, eggs, live birth, animals, sort, identify | |

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| **Learning Experiences # 6 – 7**  **Instructional Timeframe: Weeks 6-7** |

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| **Learning Experience # 6** | | |
| Teacher may provide photographs or examples of various species of animals (e.g., fish, amphibians, mammals, birds, reptiles) and lead a discussion so that students can describe, identify, and categorize animals by unique characteristics. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring | |
| **Teacher Resources:** | <http://files.havefunteaching.com/worksheets/science/animals/animal-classification-worksheet.pdf> (Worksheet on animal classification)  <http://www.pcschools.us/woad-local/media/sciencemap/kindergarten/Kobj2babyanimals.pdf> (Baby animals lesson plan and worksheet)  <http://www.shutterstock.com/cat.mhtml?searchterm=domestic+animals&search_group=&lang=en&search_source=search_form> (Images of domestic animals)  <http://www.shutterstock.com/cat.mhtml?searchterm=farm+animals&search_group=&lang=en&search_source=search_form> (Images of farm animals)  <http://www.shutterstock.com/cat.mhtml?searchterm=animals&search_group=&lang=en&search_source=search_form> (Animal images)  <http://www.shutterstock.com/cat.mhtml?searchterm=wild+animals&search_group=&lang=en&search_source=search_form> (Wild animal images)  <http://www.shutterstock.com/cat.mhtml?searchterm=zoo+animals&search_group=&lang=en&search_source=search_form> (Zoo animals) | |
| **Student Resources:** | <http://files.havefunteaching.com/worksheets/science/animals/animal-classification-worksheet.pdf> (Worksheet on animal classification) | |
| **Assessment:** | Students will research an animal and present the characteristics (e.g., Appendages, body covering, head/body shape etc.) of that animal to the class (e.g., pictures, list, etc.). | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use peer partners or small group  The teacher may have the student identify only one characteristic | The student may describe their animal verbally  The student may point to a picture when prompted |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| In addition to researching the physical characteristics of the animal, the teacher may have the student research things like: habitat, where in the world they live, types of food, types of shelter | The student may create a model of an animal within their habitat |
| **Critical Content:** | * Physical characteristics, mobility, fish, amphibians, mammals, birds, reptiles, species, research | |
| **Key Skills:** | * Observe, identify, describe, present | |
| **Critical Language:** | Animals, inherit, characteristics, resemble, patterns, observe, identify, describe, present | |

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| **Learning Experience # 7** | | |
| The teacher may provide examples of animals and offspring (e.g., picture books, videos) so that students can begin identifying distinct patterns of inheritance. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring | |
| **Teacher Resources:** | <http://www.youtube.com/watch?v=j7hkwjCfgc8> (Pictures of parents and babies)  <http://www.shutterstock.com/cat.mhtml?searchterm=domestic+animals&search_group=&lang=en&search_source=search_form> (Images of domestic animals)  <http://www.shutterstock.com/cat.mhtml?searchterm=farm+animals&search_group=&lang=en&search_source=search_form> (Images of farm animals)  <http://www.shutterstock.com/cat.mhtml?searchterm=animals&search_group=&lang=en&search_source=search_form> (Animal images)  <http://www.shutterstock.com/cat.mhtml?searchterm=wild+animals&search_group=&lang=en&search_source=search_form> (Wild animal images)  <http://www.shutterstock.com/cat.mhtml?searchterm=zoo+animals&search_group=&lang=en&search_source=search_form> (Zoo animals)  <http://www.shutterstock.com/cat.mhtml?searchterm=baby+animals&search_group=&lang=en&search_source=search_form> (Baby animals) | |
| **Student Resources:** | <http://www.youtube.com/watch?v=j7hkwjCfgc8> (Pictures of parents and babies) | |
| **Assessment:** | Students will match offspring to adult animals, cite evidence, and develop a logical argument supporting their selection. | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use peer partner or small groups  The teacher may use extended time  The teacher may reduce the number of options | The student may verbally match an offspring to a parent.  Student may point to the answer |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may introduce graphing and allow students to graph physical attributes of animals | The student may create a graph of physical attributes (e.g. wings, fins, scales, fur/hair, etc.) |
| **Critical Content:** | * Animals, offspring, inherit, characteristics, resemble, patterns | |
| **Key Skills:** | * Matching, cite reasons, defend | |
| **Critical Language:** | Similarities, patterns, characteristics, resemble, inheritance, animals, offspring, match, cite, defend | |

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| **Learning Experiences # 8 –9**  **Instructional Timeframe: Weeks 7-11** |

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| **Learning Experience # 8** | | |
| The teacher may use personal family photos so that students can begin to examine inherited family traits and variations in characteristics (e.g., hair and eye color, face shape, noses, ears). | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring  Offspring can demonstrate variations in the characteristics they inherit from their parental organism | |
| **Teacher Resources:** | <http://www.bing.com/videos/search?q=you+tube+video+family+resemblance&FORM=VIRE16#view=detail&mid=12D4446967A898FDF33A12D4446967A898FDF33A> (Video on inheritance patterns in families) | |
| **Student Resources:** | N/A | |
| **Assessment:** | Students will document, in their science notebooks, the types of characteristics that could be passed down from parents to offspring.  <http://www.shutterstock.com/cat.mhtml?searchterm=family+portrait&search_group=&lang=en&search_source=search_form> (Images of families) | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may use extended time  The teacher may allow reduced number of options  The teacher may use a picture with more obvious characteristics  The teacher may work with student 1 on 1 | The student may point to similar characteristics only  The student may verbally identify similar characteristics only |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may provide a family scenario based on hair color  The teacher may show grandparents with their dark hair colors, parents (one dark hair, one light hair), and children | The student may predict, based on family history, the hair color of the children and explain their rationale |
| **Critical Content:** | * Offspring, inherit, characteristics, resemble, patterns, family, related | |
| **Key Skills:** | * Identify similarities, identify differences | |
| **Critical Language:** | Similarities, patterns, characteristics, resemble, inheritance, offspring, identify | |

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| **Learning Experience # 9** | | |
| **Teacher Note: This learning experience depends on students’ ability to access family photos. Teachers will need to determine if everyone in their class can participate before endeavoring to use this learning experience.**  The teacher may solicit family photos along with data collected from students’ families regarding inherited traits (e.g., eye color, hair color) so that students may analyze and synthesize similarities and differences within their family traits. | | |
| **Generalization Connection(s):** | Patterns of inheritance acknowledge that offspring originate from the adult organism  Characteristics of adult organisms often transfer to offspring  Offspring can demonstrate variations in the characteristics they inherit from their parental organism | |
| **Teacher Resources:** | N/A | |
| **Student Resources:** | N/A | |
| **Assessment:** | Students will verbally present the inherited similarities and differences of their family members. | |
| **Differentiation:**  (Multiple means for students to access content and multiple modes for student to express understanding.) | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| For students who are not with their biological family, the teacher may provide a family photo they could use or plan an alternate option with the student’s guardian  The teacher may allow the student to give only similarities, not differences  The teacher may allow the student to compare themselves to only one family member | The student may draw their similarities or differences between themselves and their family members |
| **Extensions for depth and complexity:** | **Access** (Resources and/or Process) | **Expression** (Products and/or Performance) |
| The teacher may allow the student to expand the research to extended family members (e.g. Grandparents, Aunts, Uncles, etc.) | The student may create a Power Point presentation of their family history documenting the similarities and differences between inherited traits |
| **Critical Content:** | * Offspring, inherit, characteristics, resemble, patterns, differences, similarities, traits | |
| **Key Skills:** | * Synthesize, data, identify similarities, identify differences | |
| **Critical Language:** | Similarities, patterns, characteristics, resemble, inheritance, traits, offspring, synthesize, identify | |