Unit Title: Organisms and Offspring

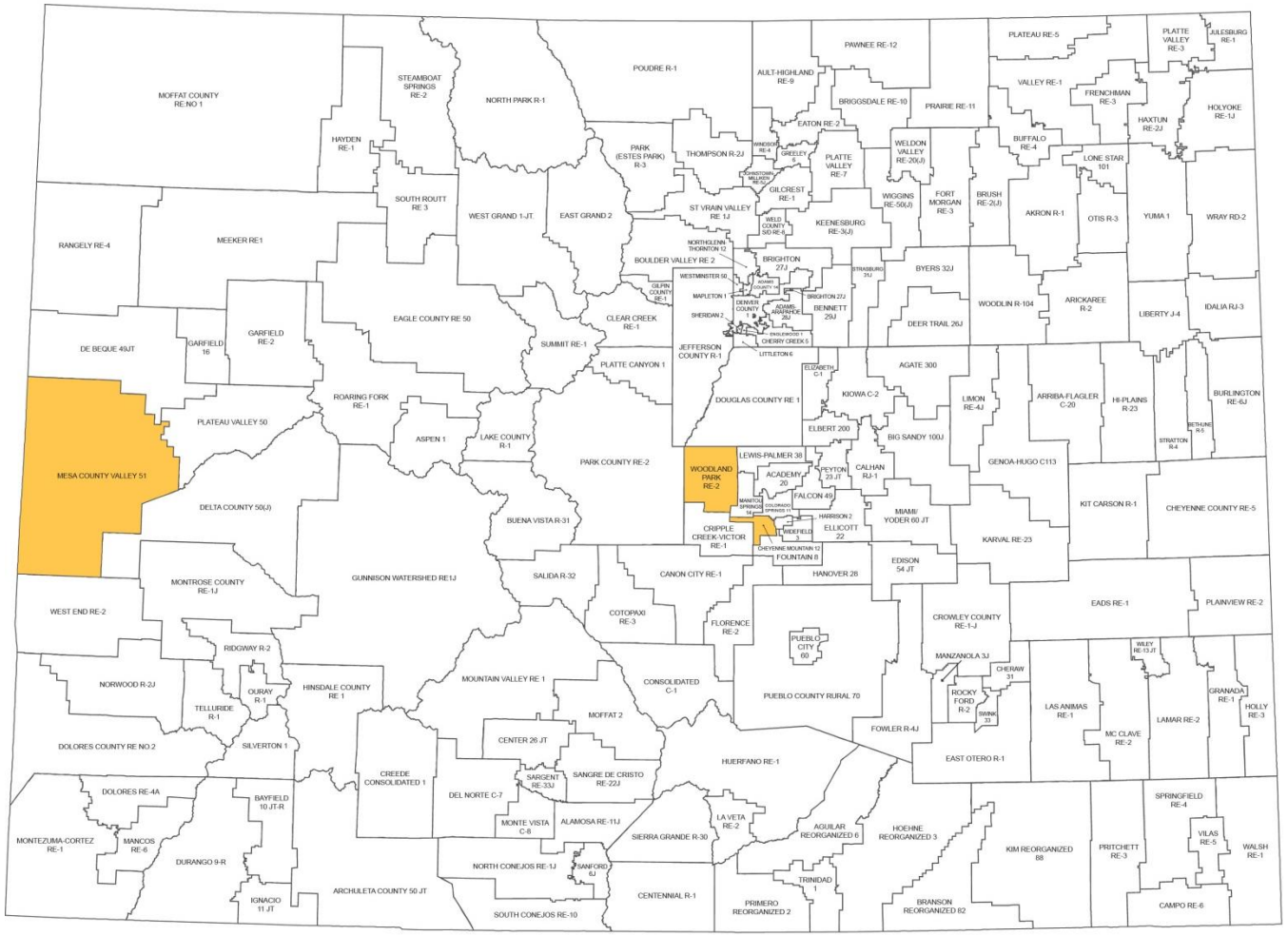
INSTRUCTIONAL UNIT AUTHORS

Woodland Park School District
Kerry Butzlaff
Catherine Davidson
Laura Martin

BASED ON A CURRICULUM OVERVIEW SAMPLE AUTHORED BY

Cheyenne Mountain School District
Judy Swanson

Mesa County School District
Kim Smith



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.

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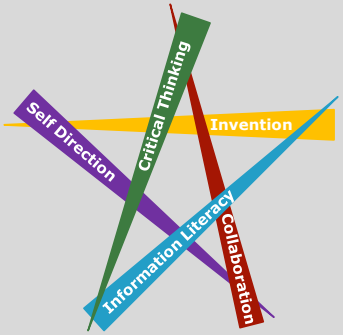
Colorado Teacher-Authored Sample Instructional Unit

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
2. Life Science	1. Offspring have characteristics that are similar to but not exactly like their parents' characteristics	SC09-GR.1-S.2-GLE.1
	2. An organism is a living thing that has physical characteristics to help it survive	SC09-GR.1-S.2-GLE.2
3. 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*

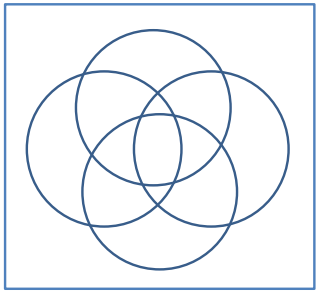
Information Literacy: *Untangling the Web*

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

Colorado Teacher-Authored Sample Instructional Unit

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			

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)

Colorado Teacher-Authored Sample Instructional Unit

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)

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

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

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.)

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]	*Sunflower House* - Eve Bunting [lexile level 530] *Saving the Griffin* - Kristin Wolden Nitz [lexile level 550]

Seeds by Patricia Whitehouse [lexile level 460] *Animals Born Alive and Well* by Ruth Heller *Chickens Aren't the Only Ones* by Ruth Heller	

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)

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.

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

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	

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	

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 (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	

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	

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	

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

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

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	

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

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	

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	