

<p>Grade, Subject/Course: 3rd Grade Science</p>	
<p>Unit: Life Cycles</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p>Big Idea:</p> <ul style="list-style-type: none"> ● Organisms have characteristic structures, functions, and behaviors that allow them to grow, reproduce, and die. ● Humans depend on biodiversity, the variety of species and ecosystems, for resources and human actions can impact the diversity of species. 	
<p>PA Core Content Standards/Anchors (or National Standards):</p> <p>3.1.3.A. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p>3.1.3.H. Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</p>	<p>Interdisciplinary Standards (if applicable):</p>
<p>Essential Questions:</p> <ul style="list-style-type: none"> ● How do the structures of organisms enable life’s functions? ● What is biodiversity, how do humans affect it, and how does it affect humans? 	<p>Understandings: Students will know that...</p> <ul style="list-style-type: none"> ● life cycles of animals and plants have similarities and differences.. ● all organisms share certain stages in their life cycles: birth, growth, reproduction, and death. ● human intervention of life cycles can aid in solving problems that occur when there are too many or too few organisms in a particular environment.
<p>Knowledge:</p> <ul style="list-style-type: none"> ● Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. ● When the environment changes in ways that affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations. ● Populations live in a variety of habitats and change in those habitats affects the organisms living there. 	<p>Do/Skills: Students will be able to...</p> <ul style="list-style-type: none"> ● create models of several different animal life cycles and compare them to one another. ● analyze and interpret data about specific animal and plant life cycles to develop strategies for managing its population in a given area. ● model the structure and function of flower parts that are responsible for creating seeds.

<p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> ● biodiversity ● changes ● diverse ● life cycles ● organisms ● reproduction ● system 	<p><u>Core Resources:</u></p> <ul style="list-style-type: none"> ● Mystery Science
<p><u>Common Assessment(s):</u></p> <ul style="list-style-type: none"> ● Life Cycles Unit Assessment ● Lesson Assessments ● Performance Tasks 	<p><u>Supplemental Resources:</u></p> <ul style="list-style-type: none"> ● Brainpop Jr. ● Discovery Education ● Generation Genius

<p><u>Grade, Subject/Course:</u> 3rd Grade Science</p>	
<p><u>Unit:</u> Heredity, Survival, & Selection</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p><u>Big Idea:</u></p> <ul style="list-style-type: none"> ● Many species live in groups which can increase the chances of survival for individuals and their relatives. ● Offspring resemble, but are not identical to, their parents due to traits being passed from one generation to the next via genes. ● Variation among individuals of the same species can be explained by both genetic and environmental factors. ● In any particular environment individuals with particular traits may be more likely than others to survive and produce offspring. ● When the environment changes, some individuals in a population may have traits that provide a reproductive advantage which over many generations can change the make-up of a population. 	
<p><u>PA Core Content Standards/Anchors (or National Standards):</u></p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>

3.1.3.B. Construct an argument that some animals have physical and behavioral adaptations that help members survive.

3.1.3.C. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

3.1.3.D. Use evidence to support the explanation that traits can be influenced by the environment.

3.1.3.F. Use evidence to construct an explanation for how the variation in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

3.1.3.G. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3.4 3-5.A Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.

Essential Questions:

- How do organisms interact in groups so as to benefit individuals?
- How are the characteristics of one generation related to the previous generation?
- Why do individuals of the same species vary in how they look, function, and behave?
- How does genetic variation among organisms affect survival and reproduction?
- How does the environment influence populations of organisms over multiple generations?

Knowledge:

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.
- Many characteristics of organisms are inherited from their parents.
- Different organisms vary in how they look and function because they have different inherited information.
- Other characteristics result from individuals' interactions with the environment, which can range from diet to learning.

Understandings: Students will know that...

- the structures and functions of traits that enable organisms to survive in a specific environment and can have similarities and differences.
- traits of animals provide evidence for how those features vary, how they are inherited, and how they have changed over time through selection.
- the environment can affect inherited traits and determine which animals will survive in a particular environment.

Do/Skills: Students will be able to...

- investigate how human beings have modified plants based on our knowledge of how plants change from generation to generation.
- analyze the traits of parent animals and their offspring, constructing an explanation about which traits a baby gets from each parent.
- compare the structures of a specific animal. Analyze and interpret the data to understand how these structures aid in their survival over generations.
- observe animals that live in groups in order to obtain, evaluate, and communicate information about animal social behavior. Use evidence to show how animals form groups to help them survive.
- understand how to measure and compare physical traits, such as strength and

<p>Many characteristics involve both inheritance and environment.</p> <ul style="list-style-type: none"> • The environment also affects the traits that an organism develops. • Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. • For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. 	<p>balance, and use this information to explain how environmental factors can influence traits.</p>
<p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> • habitat • inheritance • inherited • mates • microscopic • organism • reproduce • species • survival • survive • traits • variations 	<p><u>Core Resources:</u></p> <ul style="list-style-type: none"> • Mystery Science
<p><u>Common Assessment(s):</u></p> <ul style="list-style-type: none"> • Heredity, Survival, & Selection Unit Assessment • Lesson Assessments • Performance Tasks 	<p><u>Supplemental Resources:</u></p> <ul style="list-style-type: none"> • Brainpop Jr. • Discovery Education • Generation Genius

<p><u>Grade, Subject/Course:</u> 3rd Grade Science</p>	
<p><u>Unit:</u> Weather & Climate</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p><u>Big Idea:</u></p>	

<ul style="list-style-type: none"> ● Weather and climate are shaped by complex interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. ● Natural processes can cause sudden or gradual changes to Earth's systems, some of which may adversely affect humans. 	
<p><u>PA Core Content Standards/Anchors (or National Standards):</u></p> <p>3.3.3.A. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p> <p>3.3.3.B. Obtain and combine information to describe climates in different regions of the world.</p> <p>3.3.3.C. Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.</p> <p>3.4.3-5.D Develop a model to demonstrate how local environmental issues are connected to larger local environment and human systems.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● What regulates weather and climate? ● How do natural hazards affect individuals and societies? 	<p><u>Understandings:</u> Students will know that...</p> <ul style="list-style-type: none"> ● observations of the clouds and wind can be used to predict the weather. ● there is a difference between weather and climate and will use models to show climates in different parts of the world.
<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> ● Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. ● Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. ● A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> ● obtain and combine information that water can change from liquid to gas, but that it is always made of tiny drops. ● make observations of clouds and develop a tool to make predictions about what kind of weather might happen next. ● gather winter temperature data from three different towns. They represent the data in a table to compare the weather and decide which town is the best candidate to host a snow fort festival in future years. ● obtain and combine information to describe the different climate regions of the world. ● design and build solutions that reduce the hazards associated with strong winds that could damage buildings.

<p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> ● atmosphere ● climates ● data ● hazard ● regions ● season ● weather 	<p><u>Core Resources:</u></p> <ul style="list-style-type: none"> ● Mystery Science
<p><u>Common Assessment(s):</u></p> <ul style="list-style-type: none"> ● Weather & Climate Unit Assessment ● Lesson Assessments ● Performance Tasks 	<p><u>Supplemental Resources:</u></p> <ul style="list-style-type: none"> ● Brainpop Jr. ● Discovery Education ● Generation Genius

<p><u>Grade, Subject/Course:</u> 3rd Grade Science</p>	
<p><u>Unit:</u> Force, Motion, & Magnets</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p><u>Big Idea:</u></p> <ul style="list-style-type: none"> ● A change in motion of interacting objects can be explained and predicted by forces. ● All forces between objects, regardless of size or direction, arise from only a few types of interactions. 	
<p><u>PA Core Content Standards/Anchors (or National Standards):</u></p> <p>3.2.3.A. Make and communicate observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.</p> <p>3.2.3.B. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p>3.2.3.C. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</p> <p>3.2.3.D. Define a simple design problem that can be solved by applying scientific ideas about magnets.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>

<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can one predict an object’s continued motion, changes in motion, or stability? • What underlying forces explain the variety of interactions observed? 	<p><u>Understandings:</u> Students will know that...</p> <ul style="list-style-type: none"> • there are forces all around them. • balanced and unbalanced forces affect the motion of objects. • the pushes and pulls of bridge structures affect the motion of objects. • gravity and friction affect the motion of objects. • magnetic forces can be used to solve everyday problems.
<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> • The patterns of an object’s motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. • Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object’s speed or direction of motion. • Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> • explain a model of forces and motions. • develop and design a bridge to be as strong as possible while working with limited materials. • make observations and measurements of a repeated motion. Then, using that pattern they predict a future motion. • investigate the properties of magnets and the fact that they exert forces that act at a distance. • investigate magnetic attraction and repulsion.
<p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> • balanced forces • design • electric interactions • forces • interaction • magnet • magnetic forces • magnetic interactions • motion • pattern • prediction • solution • unbalanced 	<p><u>Core Resources:</u></p> <ul style="list-style-type: none"> • Mystery Science

<p><u>Common Assessment(s):</u></p> <ul style="list-style-type: none"> • Forces, Motion, & Magnets Unit Assessment • Lesson Assessments • Performance Tasks 	<p><u>Supplemental Resources:</u></p> <ul style="list-style-type: none"> • Brainpop Jr. • Discovery Education • Generation Genius
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<p><u>Grade, Subject/Course:</u> 3rd Grade Science</p>	
<p><u>Unit:</u> Fossils & Changing Environments</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p><u>Big Idea:</u></p> <ul style="list-style-type: none"> • Comparisons between species provides evidence that species evolved from common ancestors which explains the similarities and differences between species. 	
<p><u>PA Core Content Standards/Anchors (or National Standards):</u></p> <p>3.1.3.E. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What evidence shows that different species are related? 	<p><u>Understandings:</u> Students will know that...</p> <ul style="list-style-type: none"> • animals and their environments have changed through time. • fossils provide a window into the animals and habitats of the past. • by examining the traits of living animals and comparing them to fossils, they can gather evidence about the appearance and characteristics of ancient organisms and past environments.
<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> • Some kinds of plants and animals that once lived on Earth are no longer found anywhere. • Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> • explore the idea that the rock under our feet sometimes contains fossils, and investigate how these fossils reveal changes in habitats through time. • infer what the outside of an animal looked like by using clues about their skeleton. • explain how fossilized animal tracks can tell us a great deal about the animals that left them.

<p><u>Vocabulary:</u></p> <ul style="list-style-type: none">● environments● fossils● organisms	<p><u>Core Resources:</u></p> <ul style="list-style-type: none">● Mystery Science
<p><u>Common Assessment(s):</u></p> <ul style="list-style-type: none">● Fossils & Changing Environments Unit Assessment● Lesson Assessments● Performance Tasks	<p><u>Supplemental Resources:</u></p> <ul style="list-style-type: none">● Brainpop Jr.● Discovery Education● Generation Genius