



<u>Course Title:</u> Fourth Grade Science		
<p><u>Description:</u> Students in fourth grade will use qualitative and quantitative data to formulate arguments about evidence, develop models, and interpret data from maps. They will also construct explanations related to the transfer of matter and energy on Earth, in physical interactions, and in organisms.</p>		
<i>Physical Sciences</i>		
<u>Reporting Topic</u>	<u>Grade Level Standards</u>	<u>Standard Summary</u>
<u>Energy Definitions</u>	<ul style="list-style-type: none"> Use evidence to construct an explanation relating the speed of an object to the energy of that object (for example, use qualitative measures of changes in speed to explain how speed relates to energy). (4-PS3-1) 	<p>Students will:</p> <ul style="list-style-type: none"> Explain the relationship between speed and energy of an object
<u>Energy Conservation and Energy Transfer</u>	<ul style="list-style-type: none"> Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents (for example, use qualitative observations as evidence that energy can be transferred from place to place by sound, light, heat, and electric currents). (4-PS3-2) Apply scientific ideas to design, test, and refine a device that converts energy from one form to another (for example, design, test, and refine a device—such as an electric circuit that converts electrical energy into motion, light, or sound or a passive solar heater that converts light into heat—that works within given constraints of material, cost, or time to convert motion energy to electrical energy or to use stored energy to cause motion or produce light or sound). (4-PS3-4) 	<p>Students will:</p> <ul style="list-style-type: none"> Apply the engineering design process to create a device that converts energy
<u>Forces and Interactions</u>	<ul style="list-style-type: none"> Ask questions and predict outcomes about the changes in energy that occur when objects collide (for example, make qualitative predictions about the change in energy due to changes in speed as objects collide). (4-PS3-3) 	<p>Students will:</p> <ul style="list-style-type: none"> Ask questions and predict the changes in energy when two objects collide
	<ul style="list-style-type: none"> Develop a model of waves to describe patterns in terms of amplitude and 	<p>Students will:</p>



<p><u>Waves</u></p>	<p>wavelength and that waves can cause objects to move (for example, create a diagram, analogy, or physical model using wire that describes qualitative patterns of amplitude and wavelength and that shows that waves can cause objects to move). (4-PS4-1)</p>	<ul style="list-style-type: none"> • Develop and explain a model on how waves cause objects to move
<p><u>Information Technology</u></p>	<ul style="list-style-type: none"> • Generate and compare multiple solutions that use patterns to transfer information (for example, figure out different ways to transfer information using patterns—such as sending coded information through the sound waves produced by a drum, using a grid of 1’s and 0’s representing black and white to send information about a picture, or using Morse code to send text—and compare these different methods). (4-PS4-3) 	<p>Students will:</p> <ul style="list-style-type: none"> • Create a pattern to transfer information and compare to another pattern
<p><u>Electromagnetic Radiation</u></p>	<ul style="list-style-type: none"> • Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen (for example, create a model that shows how light reflecting off of an object enters the eye and allows an object to be seen). (4-PS4-2) 	<p>Students will:</p> <ul style="list-style-type: none"> • Explain how light reflects off of objects • Create a model showing light entering the eye
<p><i>Life Sciences</i></p>		
<p><u>Reporting Topic</u></p>	<p><u>Grade Level Standards</u></p>	<p><u>Standard Summary</u></p>
<p><u>Structure and Function</u></p>	<ul style="list-style-type: none"> • Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction (for example, make and defend the claim that plants and animals have external and internal structures—such as thorns, stems, roots, colored petals, hearts, stomachs, lungs, brains, skin, and other macroscopic structures—that help them survive, grow, and reproduce). (4-LS1-1) 	<p>Students will:</p> <ul style="list-style-type: none"> • Create an argument that plants and animals have internal and external structures for survival, growth, behavior, and reproduction.
<p><u>Information Processing</u></p>	<ul style="list-style-type: none"> • Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways (for example, create a model that explains the basic systems of information transfer that allow animals to use their perceptions and memories to guide their actions). (4-LS1-2) 	<p>Students will:</p> <ul style="list-style-type: none"> • Use a model to describe how animals receive different types of information

