

Unit: From Molecules to Organisms: Structures and Processes	Grade Level: 4	Time Frame: Quarter 1																								
<p>Science Standards: 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2 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.</p> <p>Common Core State Standards Connections: <i>ELA/Literacy -</i> W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (4-LS1-1) SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. (4-LS1-2) <i>Mathematics -</i> 4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded across the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. (4-LS1-1)</p>																										
<p>Essential Questions:</p> <ul style="list-style-type: none"> • What are some plant parts and how do they function? • How do plants grow and reproduce? • What are some external structures of animals? • What are some internal structures of animals? • How do structures (both internal and external) support the survival, growth, behavior, and reproduction of plants and animals? • How do senses work? 	<p>Unit Goals: Fourth graders are expected to develop an understanding that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>																									
<p>Skills: The students will be able to...</p> <ul style="list-style-type: none"> • Make structure and function connections • Engage in arguments with evidence • Develop and utilize models • Understand systems and system models • Plan and conduct an investigation collaboratively to serve as data to serve as the basis for evidence to answer a question • Make observations (firsthand or from media) to construct evidence-based accounts for natural phenomena. 	<p>Vocabulary:</p> <table border="0"> <tr> <td>Anther</td> <td>Petals</td> <td>Seed</td> </tr> <tr> <td>External</td> <td>Pistil</td> <td>Sepals</td> </tr> <tr> <td>Fertilization</td> <td>Pollination</td> <td>Spines</td> </tr> <tr> <td>Flower</td> <td>Protection</td> <td>Spores</td> </tr> <tr> <td>Growth</td> <td>Receptors</td> <td>Stamen</td> </tr> <tr> <td>Internal</td> <td>Reproduction</td> <td>Stem</td> </tr> <tr> <td>Organs</td> <td>Roots</td> <td>Structures</td> </tr> <tr> <td>Ovule</td> <td></td> <td></td> </tr> </table>		Anther	Petals	Seed	External	Pistil	Sepals	Fertilization	Pollination	Spines	Flower	Protection	Spores	Growth	Receptors	Stamen	Internal	Reproduction	Stem	Organs	Roots	Structures	Ovule		
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<p>Demonstration of Learning/Assessments:</p> <ol style="list-style-type: none"> 1. Students will write opinion pieces on topics or texts, supporting a point of view with reasons and information. 2. Students will add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. 3. Students will recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded across the line into matching parts. 4. Students will identify line-symmetric figures and draw lines of symmetry. 	<p>21st Century Themes</p> <p>Global Awareness</p> <ul style="list-style-type: none"> • Students will understand how living things around the world have structures and functions that aid in life processes. <p>Creativity and Innovation</p> <ul style="list-style-type: none"> • Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts. <p>Social and Cross-Cultural Skills</p> <ul style="list-style-type: none"> • Know when it is appropriate to listen and when to speak. 																									

<p>Resources:</p> <p>Optional/Additional/Supplementary</p> <p>Books:</p> <ul style="list-style-type: none"> • Markle, S. (2013). <i>What if you had animal teeth?</i> • Jenkins, S. (2008). <i>What do you do with a tail like this?</i> • Aston, D. (2014) <i>A seed is sleepy.</i> • Stewart, M. (2014). <i>Feathers: Not just for flying.</i> • Hickman, P. (1998). <i>Animal senses: How animals see, hear, taste, smell and feel.</i> • Hall, K. (2005). <i>Animal sight.</i> • Davies, N. (2004). <i>Bat loves the night.</i> • Stojic, M. (2009). <i>Rain.</i> <p>Online tools: Opened.com YouTube- Parts of a Plant NGSS@NSTA.org Brainpopjr.com Brainpopspanol.com Jonesvilleschools.org</p>	<p>Performance Tasks (Labs) <i>Listed below are the suggested ideas that can be used to perform the labs. Teachers will be given the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.</i></p> <p>4-LS1-1 Students will construct an argument with evidence, data, and/or a model that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p> <ul style="list-style-type: none"> • Students must explain with evidence the structure/function connection of a living organism and how it is essential for life processes. Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin. <p>4-LS1-2 Students will build and 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.</p> <ul style="list-style-type: none"> • Students build and utilize the model to describe that: <p>Different types of sensory information are relayed to the brain via different sensory receptors, allowing experiences to be perceived, stored as memories, and influence behavior (e.g., an animal sees a brown, rotten fruit and smells a bad odor — this sensory information allows the animal to use information about other fruits that appear to be rotting to make decisions about what to eat; an animal sees a red fruit and a green fruit — after eating them both, the animal learns that the red fruit is sweet and the green fruit is bitter and then uses this sensory information, perceived and stored as memories, to guide fruit selection next time).</p>
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Unit: Waves and their Applications in Technologies for Information Transfer		Grade Level: 4	Time Frame: Quarter 2
<p>Science Standards: 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information</p> <p>Common Core State Standards Connections: <i>ELA/Literacy -</i></p> <p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-PS4-3) RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4-PS4-3) SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. (4-PS4-1),(4-PS4-2) <i>Mathematics -</i> MP.4 Model with mathematics. (4-PS4-1),(4-PS4-2) 4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. (4-PS4-1),(4-PS4-2)</p>			
<p>Essential Questions:</p> <ul style="list-style-type: none"> • What are waves? • What can waves do? • What are the properties of waves? • How can waves be measured? • How can we see sound? • How does light reflect? • How is information transferred from place to place? 		<p>Unit Goals: Students are able to use a model of waves to describe patterns of waves in terms of amplitude and wavelength, and that waves can cause objects to move. By developing a model, students describe that an object can be seen when light reflected from its surface enters the eye.</p>	
<p>Skills: The students will be able to...</p> <ul style="list-style-type: none"> • Develop and use models • Construct explanations and design solutions • Recognize patterns • Understand cause and effect relationships • Optimize design solutions 		<p>Vocabulary: Amplitude Crest Opaque Peak Reflection Transfer Translucent Transparent Trough Volume Wavelength Waves</p>	
<p>Demonstration of Learning/Assessments:</p> <ol style="list-style-type: none"> 1. Students will refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. 2. Students will integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. 3. Students will model with mathematics 4. Students will add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. 5. Students will draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures. 			

<p>Resources:</p> <p>Optional/Additional/Supplementary</p> <p>Books:</p> <ul style="list-style-type: none"> • Pfeffer, W. (1999). <i>Sounds all around.</i> • Polacco, P. (1997). <i>Thunder cake.</i> • Johnson, R. (2014). <i>How does sound change? Light and sound waves close up.</i> • Waring, G. (2009). <i>Oscar and the bat: A book about sounds.</i> • Berne, J. (2016). <i>On a beam of light: A story of Albert Einstein.</i> • Boyd, L. (2014). <i>Flashlight.</i> • Seuss, Dr. (2001). <i>The eye book.</i> • Anders, T. (1999). <i>Chip the little computer; Chip, el pequeno computador.</i> • Rozier, L. (2015) <i>Jackrabbit McCabe and the electric telegraph.</i> • Asare, M. (2001) <i>Sosu's call.</i> • Liukas, L. (2015). <i>Hello Ruby.</i> • Ziefert, H. (2014). <i>Does an owl wear eyeglasses?</i> <p>Online tools: You Tube - NSTA Web Seminars Live interactive Learning Brainpopjr.com Brainpopespanol.com Jonesvilleschools.org</p>	<p>21st Century Themes</p> <p>Global Awareness</p> <ul style="list-style-type: none"> • Using 21st century skills to understand and address global issues <p>Communication and Collaboration</p> <ul style="list-style-type: none"> • Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts • Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions • Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade) <p>Collaborate with Others</p> <ul style="list-style-type: none"> • Demonstrate ability to work effectively and respectfully with diverse teams <p>Social and Cross Cultural Skills</p> <ul style="list-style-type: none"> • Know when it is appropriate to listen and when to speak 	<p>Performance Tasks (Labs) <i>Listed below are the suggested ideas that can be used to perform the labs. Teachers will be given the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.</i></p> <p>4-PS4-1. Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.</p> <ul style="list-style-type: none"> • Let's make waves – model the energy transfer that takes place in waves using a coiled spring toy. (Slinky, yarn, meter stick, stopwatch) <p>4-PS4-2. An object can be seen when light reflected from its surface enters the eyes.</p> <ul style="list-style-type: none"> • Disappearing coins – investigate light's effect on objects. Have you ever tossed coins into a fountain and made a wish? If so, then you have probably noticed that sometimes you can see the coins in the water and sometimes you can't. Is this magic? Not really. It has to do with how you see light and how it can bend. – reproduce this experience in class: shallow baking pan, pennies, water <p>4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.</p> <ul style="list-style-type: none"> • Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.
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Unit: Earth's Systems , Earth's Place in the Universe & Earth and Human Activity	Grade Level: 4	Time Frame: Quarter 3
<p>Science Standards:</p> <p>4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p> <p>4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</p> <p>4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.</p> <p>4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</p> <p>Common Core State Standards Connections:</p> <p>ELA/Literacy -</p> <p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-ESS3-2)0</p> <p>RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. (4-ESS2-2)</p> <p>RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4-ESS3-2)</p> <p>W.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. (4-ESS1-1),(4-ESS2-2)</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. (4-ESS1-1),(4-ESS2-1)</p> <p>W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-ESS1-1)</p> <p>Mathematics -</p> <p>MP.2 Reason abstractly and quantitatively. (4-ESS1-1),(4-ESS2-1),(4-ESS3-2)</p> <p>MP.4 Model with mathematics. (4-ESS1-1),(4-ESS2-1),(4-ESS3-2)</p> <p>MP.5 Use appropriate tools strategically. (4-ESS2-1)</p> <p>4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (4-ESS1-1),(4-ESS2-1)</p> <p>Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems</p> <p>4.MD.A.2 that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. (4-ESS2-1),(4-ESS2-2)</p> <p>4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. (4-ESS3-2)</p>		

<p>Essential Questions:</p> <ul style="list-style-type: none"> • How has Earth changed over time? • What processes shape Earth’s surface? • How can maps help us learn about Earth’s surface? • What patterns do maps show us? • How have human activities and decisions impacted the Earth? 	<p>Unit Goals: Students are expected to develop understanding of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. They apply their knowledge of natural Earth processes to generate and compare multiple solutions to reduce the impacts of such processes on humans. In order to describe patterns of Earth’s features, students analyze and interpret data from maps.</p>																											
<p>Skills: The students will be able to...</p> <ul style="list-style-type: none"> • Plan and carry out investigations • Analyze and interpret data • Make observations, take measurements and design models • Identify cause and effect patterns to support an explanation • Generate and compare multiple solutions 	<p>Vocabulary:</p> <table border="0"> <tr> <td>Continent</td> <td>Glaciers</td> <td>River</td> </tr> <tr> <td>Delta</td> <td>Impact</td> <td>Rock Formations</td> </tr> <tr> <td>Deposition</td> <td>Lake</td> <td>Sand Dunes</td> </tr> <tr> <td>Desert</td> <td>Manufacture</td> <td>Scale</td> </tr> <tr> <td>Elevation</td> <td>Mountains</td> <td>Sediment</td> </tr> <tr> <td>Environment</td> <td>Mudslides</td> <td>Silt</td> </tr> <tr> <td>Erosion</td> <td>Ocean Trench</td> <td>Topographic Map</td> </tr> <tr> <td>Flood</td> <td>Pollution</td> <td>Valleys</td> </tr> <tr> <td>Fossils</td> <td>Rain Forest</td> <td>Weathering</td> </tr> </table>	Continent	Glaciers	River	Delta	Impact	Rock Formations	Deposition	Lake	Sand Dunes	Desert	Manufacture	Scale	Elevation	Mountains	Sediment	Environment	Mudslides	Silt	Erosion	Ocean Trench	Topographic Map	Flood	Pollution	Valleys	Fossils	Rain Forest	Weathering
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<p>Demonstration of Learning/Assessments:</p> <ol style="list-style-type: none"> 1. Students will draw inferences from text. 2. Students will interpret information presented visually, orally or quantitatively in charts, diagrams, etc... 3. Students will recall information from experiences or gather information from provided sources to answer a question formulated by their peers, self or teacher with guidance and support from teacher 4. Students will create topographical maps. 5. Students will reason abstractly. 6. Students use appropriate tools strategically. 7. Students will know relative size, scale, conversions... 	<p>21st Century Themes:</p> <p>Global Awareness:</p> <ul style="list-style-type: none"> • Human’s impact on Earth <p>Creativity and Innovation:</p> <ul style="list-style-type: none"> • Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. <p>Flexibility and Adaptability:</p> <ul style="list-style-type: none"> • Incorporate feedback effectively <p>Social and Cross-Cultural Skills:</p> <ul style="list-style-type: none"> • Know when it is appropriate to listen and when to speak 																											
<p>Resources: Optional/Additional/ Supplementary Resources:</p> <p>Books:</p> <ul style="list-style-type: none"> • Hooper, M. (2015). <i>The pebble in my pocket: A history of our earth.</i> • Aston, D. (2015). <i>A rock is lively.</i> • Baylor, B. (1984). <i>If you are a hunter of fossils.</i> • Brotzge, J. (2009). <i>My pet rock, Greg Granite.</i> • Kalman, B. (2009). <i>What shapes the land?</i> • Koontz, R. (2006). <i>Erosion: Changing Earth’s surface.</i> 	<ul style="list-style-type: none"> • Barrett, J. (1982). <i>Cloudy with a chance of meatballs.</i> • Nivola, C. (2008). <i>Planting the trees of Kenya: The story of Wangari Mathaai.</i> • Stallone, L. (1992). <i>The flood that came to Grandma’s house.</i> • Lyon, G. (1990). <i>Come a tide.</i> • Boulter, O. (2011). <i>Olivia’s birds: Saving the gulf.</i> • Bang, M. & Chisholm, P. (2014). <i>Buried sunlight: How fossil fuels have changed the earth.</i> • Rand, G. (1994). <i>Prince William.</i> 	<p>Performance Tasks (Labs) Listed below are the suggested ideas that can be used to perform the labs. Teachers will be given the autonomy to change the materials to make the proper adjustments needed in order to perform lab task.</p> <p>4-ESS1-1 Examples of evidence include creating diagrams showing rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock. (Grand Canyon...)</p> <p>4-ESS2-1 Measure and collect data that include variables of the angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling,</p>																										

<ul style="list-style-type: none"> • McKinney, B. (1998). <i>A drop around the world.</i> • Vieira, J. (1997). <i>Grand Canyon: A trail through time.</i> • Hartman, G. (1993). <i>As the crow flies: A first book of maps.</i> • Rabe, T. (2002). <i>There's a map on my lap! All about maps.</i> • Ritchie, S. (2009). <i>Follow that map! A first book of mapping skills</i> 	<ul style="list-style-type: none"> • Rockwell, A. (2009). <i>What's so bad about gasoline? Fossil fuels and what they do.</i> <p>Online tools: YouTube: Erosion and Weathering for Kids – Causes and Differences WatchKnowLearn.org - StudyJams – Weathering and Erosion Engineering.JHU.edu –EiE Engineering is Elementary</p>	<p>and the volume of water flow.</p> <p>4-ESS2-2 Create topographic maps of Earth's land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.</p> <p>4-ESS3-2 Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity</p>
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Unit: Energy	Grade Level: 4	Time Frame: Quarter 4																						
<p>4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.</p> <p>4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</p> <p>4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.</p> <p>4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.</p> <p>Common Core State Standards Connections: ELA/Literacy - RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-PS3-1) RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. (4-PS3-1) RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4-PS3-1) W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (4-PS3-1) W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-PS3-2),(4-PS3-3),(4-PS3-4) W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. (4-PS3-1),(4-PS3-2),(4-PS3-3),(4-PS3-4) W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-PS3-1) Mathematics - 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (4-PS3-4)</p>																								
<p>Essential Questions:</p> <ul style="list-style-type: none"> • What is energy? • What is energy and how is it related to motion? • How is energy transferred? • How can energy be used to solve a problem? • What happens when objects collide? • How do collisions show energy? • How can we convert energy from one form to another? 	<p>Unit Goals: Students are able to use evidence to construct an explanation of the relationship between the speed of an object and the energy of that object. Students are expected to develop an understanding that energy can be transferred from place to place by sound, light, heat, and electric currents or from object to object through collisions. They apply their understanding of energy to design, test, and refine a device that converts energy from one form to another</p>																							
<p>Skills: The students will be able to ...</p> <ul style="list-style-type: none"> • Ask questions and define problems • Plan and carry out investigations • Construct explanations and design solutions • Understand cause and effect relationships • Develop and use models • Analyze and interpret data • Engage in arguments from evidence • Obtain, evaluate, and communicate information 	<p>Vocabulary:</p> <table border="0"> <tr> <td>Chemical</td> <td>Light</td> </tr> <tr> <td>Closed circuit</td> <td>Mechanical</td> </tr> <tr> <td>Collision</td> <td>Momentum</td> </tr> <tr> <td>Complete circuit</td> <td>Open circuit</td> </tr> <tr> <td>Convert</td> <td>Potential energy</td> </tr> <tr> <td>Electric current</td> <td>Sound</td> </tr> <tr> <td>Electrical</td> <td>Speed</td> </tr> <tr> <td>Energy</td> <td>Thermal</td> </tr> <tr> <td>Energy transfer</td> <td>Velocity</td> </tr> <tr> <td>Incomplete circuit</td> <td>Vibrate</td> </tr> <tr> <td>Kinetic energy</td> <td></td> </tr> </table>		Chemical	Light	Closed circuit	Mechanical	Collision	Momentum	Complete circuit	Open circuit	Convert	Potential energy	Electric current	Sound	Electrical	Speed	Energy	Thermal	Energy transfer	Velocity	Incomplete circuit	Vibrate	Kinetic energy	
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Kinetic energy																								

<p>Demonstration of Learning/Assessments:</p> <ol style="list-style-type: none"> 1. The students are able to use evidence to construct an explanation of the relationship between speed of an object and the energy of that object. 2. Students are expected to develop an understanding that energy can be transferred from place to place by sound, light, heat, and electric currents or from object to object through collisions. 3. The students will refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. 4. The students can explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. 5. The students will conduct a short research project that builds knowledge through investigation of different aspects of a topic. 6. The students can write informative/explanatory text to examine a topic and convey ideas and information clearly. 7. The students can recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. 8. They apply their understanding of energy to design, test, and refine a device that converts energy from one form to another. 		
<p>Resources:</p> <p>Optional/Additional/Supplementary Books:</p> <ul style="list-style-type: none"> • Young, C. (2011). <i>Ten birds.</i> • Kamkwamba, W & Mealer, B. (2012). <i>The Boy Who Harnessed the Wind.</i> • Mason, P. <i>Roller coaster! Motion and acceleration.</i> (2007). • Frazee, M. <i>Roller Coaster.</i> (2003). • Llewellyn, C. (2004). <i>And everyone shouted: "Pull!": A first look at forces and motion.</i> • Hayes, A. (1995). <i>Meet the Orchestra.</i> • Berger, M. (1989). <i>Switch on, Switch off.</i> • Stille, D. (2004). <i>Temperature: Heating Up and Cooling Down.</i> • Anders, T. (1999). <i>Chip the little computer; Chip, el pequeno computador.</i> • Rozier, L. (2015). <i>Jackrabbit McCabe and the electric telegraph.</i> • Asare, M. (2001). <i>Sosu's call.</i> • Liukas, L. (2015). <i>Hello Ruby.</i> • Beaty, A. (2013). <i>Rosie Revere, engineer.</i> • Spires, A. (2014). <i>The most magnificent thing.</i> • Drummond, A. (2015). <i>Energy Island: How one community harnessed the wind and changed their world.</i> <p>Online tools:</p> <p>YouTube –What is energy? –Space Time YouTube- Bill Nye the Science Guy on Momentum Brainpopjr.com Brainpopspanol.com Jonesvilleschools.org s-cool.co.uk types of energy transfer</p>	<p>21st Century Themes</p> <p>Global Awareness</p> <ul style="list-style-type: none"> • Using 21st century skills to understand and address global issues as they relate to energy and renewable resources <p>Financial, Economic, Business and Entrepreneurial Literacy</p> <ul style="list-style-type: none"> • Knowing how to make appropriate personal economic choices – saving energy <p>Environmental Literacy</p> <ul style="list-style-type: none"> • Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems. <p>Communicate Clearly</p> <ul style="list-style-type: none"> • Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts <p>Be Self-directed Learners</p> <ul style="list-style-type: none"> • Reflect critically on past experiences in order to inform future progress. 	<p>Performance Tasks (Labs): <i>Listed below are the suggested ideas that can be used to perform the labs. Teachers will be given the autonomy to change the materials to make the proper adjustment needed in order to perform lab task.</i></p> <p>4-PS3-1 Use evidence to construct an explanation relating the speed of an object to the energy of that object. (The more speed an object has the more energy it has to move)</p> <ul style="list-style-type: none"> • Energy can be moved from place to place by moving objects or through sound, light, or electricity. • Use a car and a ramp activity, ball and ramp... <p>4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric current.</p> <ul style="list-style-type: none"> • Explain how a hair dryer produces sound and other forms of energy. • Create a closed circuit using a light bulb • Create a closed circuit to make a fan move. Utilizing, buzzer, fans, ... <p>4-PS3-3 Ask questions and predict outcomes about the changes in energy that occur when objects collide. (the energy is transferred from one object to the other and causes motion in the other object)</p> <ul style="list-style-type: none"> • How weight can affect collisions. Drop different balls from the same height into a pan of sand. What was the impact? <p>4-PS3-4 Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.</p> <ul style="list-style-type: none"> • Explaining how devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, sound. Construct a device that converts motion energy to electric energy. • Stored energy in a rubber band activity – release different objects from a stretched rubber band -measure distance