





<p> <b>K</b> <i>for their scientific merit should be</i>  <b>K</b> <i>analyzed. Understand how scientists</i>  <b>K</b> <i>decide what constitutes scientific</i>  <b>K</b> <i>knowledge. Develop an understanding of</i>  <b>K</b> <i>the importance of reflection on scientific</i>  <b>K</b> <i>knowledge and its application to new</i>  <b>K</b> <i>situations to better understand the role of</i>  <b>K</b> <i>science in society and technology.</i>  <b>K</b>  <b>K</b> <b>S.RS.E.1 Reflecting on</b>  <b>K</b> <b>knowledge is the application of</b>  <b>K</b> <b>scientific knowledge to new</b>  <b>K</b> <b>and different situations.</b>  <b>K</b> <b>Reflecting on knowledge</b>  <b>K</b> <b>requires careful analysis of</b>  <b>K</b> <b>evidence that guides decision</b>  <b>K</b> <b>making</b>  <b>K</b> <b>and the application of science</b>  <b>K</b> <b>throughout history and within</b>  <b>K</b> <b>society.</b>  <b>K</b>  <b>K</b> <b>S.RS.00.11 Demonstrate scientific</b>  <b>K</b> <b>concepts through various</b>  <b>K</b> <b>illustrations, performances,</b>  <b>K</b> <b>models, exhibits, and activities.</b>  <b>K</b> </p>		<p> <b>P.FM.00.31</b> Demonstrate pushes and pulls.  <b>P.FM.00.32</b> Observe that objects initially at rest will move in the direction of the push or pull.  <b>P.FM.00.33</b> Observe how pushes and pulls can change the speed or direction of moving objects.  <b>P.FM.00.34</b> Observe how shape (for example: cone, cylinder, sphere), size, and weight of an object can affect motion. </p>	
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<p>1 measurement tool.</p> <p>1 <b>S.IP.01.16</b> Construct simple charts</p> <p>1 from data and observations.</p> <p>1</p> <p>1 <u>Inquiry Analysis and</u></p> <p>1 <u>Communication</u></p> <p>1</p> <p>1 <i><b>K-7 Standard S.IA:</b> Develop an</i></p> <p>1 <i>understanding that scientific inquiry and</i></p> <p>1 <i>investigations require analysis and</i></p> <p>1 <i>communication of findings, using</i></p> <p>1 <i>appropriate technology</i></p> <p>1 .</p> <p>1 <b>S.IA.E.1</b> Inquiry includes an</p> <p>1 analysis and presentation of</p> <p>1 findings that lead to future</p> <p>1 questions, research, and</p> <p>1 investigations.</p> <p>1</p> <p>1 <b>S.IA.01.12</b> Share ideas about</p> <p>1 science through purposeful</p> <p>1 conversation.</p> <p>1 <b>S.IA.01.13</b> Communicate and</p> <p>1 present findings of observations.</p> <p>1 <b>S.IA.01.14</b> Develop strategies for</p> <p>1 information gathering (ask an</p> <p>1 expert, use a book, make</p> <p>1 observations, conduct simple</p> <p>1 investigations, and watch a video).</p> <p>1</p> <p>1 <u>Reflection and Social Implications</u></p> <p>1</p> <p>1 <i><b>K-7 Standard S.RS:</b> Develop an</i></p> <p>1 <i>understanding that claims and evidence</i></p> <p>1 <i>for their scientific merit should be</i></p>	<p><b>food as a source of energy</b></p> <p><b>and as a source of building</b></p> <p><b>material for growth and</b></p> <p><b>repair.</b></p> <p><b>L.OL.01.13</b> Identify the needs</p> <p>of animals.</p> <p><b>L.OL.E.2</b> Life Cycles- Plants</p> <p><b>and animals have life cycles.</b></p> <p><b>Both plants and animals</b></p> <p><b>begin life and develop into</b></p> <p><b>adults, reproduce, and</b></p> <p><b>eventually die. The details of</b></p> <p><b>this life cycle are different for</b></p> <p><b>different organisms.</b></p> <p><b>L.OL.01.21</b> Describe the life</p> <p>cycle of animals including the</p> <p>following stages: egg, young,</p> <p>adult; egg, larva, pupa, adult.</p> <p><u>Heredity</u></p> <p><i><b>K-7 Standard L.HE:</b> Develop</i></p> <p><i>an understanding that all life forms</i></p> <p><i>must reproduce to survive.</i></p> <p><i>Understand that characteristics of</i></p> <p><i>mature plants and animals may be</i></p> <p><i>inherited or acquired and that only</i></p> <p><i>inherited traits are passed on to their</i></p> <p><i>young. Understand that inherited</i></p> <p><i>traits can be influenced by changes in</i></p> <p><i>the environment and by genetics.</i></p>	<p><b>P.PM.E.2</b> States of Matter-</p> <p><b>Matter exists in several</b></p> <p><b>different states: solids,</b></p> <p><b>liquids and gases. Each state</b></p> <p><b>of matter has unique</b></p> <p><b>physical properties. Gases</b></p> <p><b>are easily compressed but</b></p> <p><b>liquids and solids do not</b></p> <p><b>compress easily. Solids have</b></p> <p><b>their own particular shapes,</b></p> <p><b>but liquids and gases take</b></p> <p><b>the shape of the container.</b></p> <p><b>P.PM.01.21</b> Demonstrate that</p> <p>water as a solid keeps its own</p> <p>shape (ice).</p> <p><b>P.PM.01.22</b> Demonstrate that</p> <p>water as a liquid takes on the</p> <p>shape of various containers.</p> <p><b>P.PM.E.3</b> Magnets- Magnets</p> <p><b>can repel or attract other</b></p> <p><b>magnets. Magnets can also</b></p> <p><b>attract certain non-magnetic</b></p> <p><b>objects at a distance.</b></p> <p><b>P.PM.01.31</b> Identify materials</p> <p>that are attracted by magnets.</p> <p><b>P.PM.01.32</b> Observe that like</p> <p>poles of a magnet repel and</p> <p>unlike poles of a magnet</p> <p>attract.</p>	<p>warm, cool); cloud cover</p> <p>(cloudy, partly cloudy, foggy)</p> <p>precipitation (rain, snow, hail,</p> <p>freezing rain); wind (breezy,</p> <p>windy, calm).</p> <p><b>E.ES.01.22</b> Describe and</p> <p>compare weather related to the</p> <p>four seasons in terms of</p> <p>temperature, cloud cover,</p> <p>precipitation, and wind.</p> <p><b>E.ES.01.23</b> Describe severe</p> <p>weather events.</p> <p><b>E.ES.01.24</b> Describe</p> <p>precautions that should be</p> <p>taken for human safety during</p> <p>severe weather conditions</p> <p>(thunderstorms, lightning,</p> <p>tornadoes, high winds,</p> <p>blizzards, hurricanes).</p> <p><b>E.ES.E.3</b> Weather</p> <p><b>Measurement- Scientists use</b></p> <p><b>tools for observing,</b></p> <p><b>recording, and predicting</b></p> <p><b>weather changes.</b></p> <p><b>E.ES.01.31</b> Identify the tools</p> <p>that might be used to measure</p> <p>temperature, precipitation,</p> <p>cloud cover and wind.</p> <p><b>E.ES.01.32</b> Observe and</p> <p>collect data of weather</p> <p>conditions over a period of</p> <p>time.</p>
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<p>1 analyzed. Understand how scientists 1 decide what constitutes scientific 1 knowledge. Develop an understanding of 1 the importance of reflection on scientific 1 knowledge and its application to new 1 situations to better understand the role of 1 science in society and technology.</p> <p>1 <b>S.RS.E.1 Reflecting on 1 knowledge is the application of 1 scientific knowledge to new 1 and different situations. 1 Reflecting on knowledge 1 requires careful analysis of 1 evidence that guides decision- 1 making and the application of 1 science throughout history.</b></p> <p>1 <b>S.RS.01.11</b> Demonstrate scientific 1 concepts through various 1 illustrations, performances, 1 models, exhibits, and activities.</p> <p>1 <b>S.RS.01.12</b> Recognize that science 1 investigations are done more than 1 one time.</p> <p>1 1 1 1</p>	<p><b>L.HE.E.1 Observable Characteristics- Plants and animals share many, but not all, characteristics of their parents.</b></p> <p><b>L.HE.01.11</b> Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young.</p> <p><b>L.HE.01.12</b> Classify young animals based on characteristics that are passed on from parents (for example: dogs/puppies, cats/kittens, cows/calves, chicken/chicks).</p>		<p style="text-align: center;"><u>Solid Earth</u></p> <p><i><b>K-7 Standard E.SE:</b> Develop an understanding of the properties of earth materials and how those properties make materials useful. Understand gradual and rapid changes in earth materials and features of the surface of Earth. Understand magnetic properties of Earth.</i></p> <p><b>E.SE.E.1 Earth Materials- Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Some Earth materials have properties which sustain plant and animal life.</b></p> <p><b>E.SE.01.12</b> Describe how Earth materials contribute to the growth of plant and animal life.</p>
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	Science Processes	Life Science	Physical Science	Earth Science
2	<u>Inquiry Process</u>	<u>Organization of Living Things</u>	<u>Properties of Matter</u>	<u>Solid Earth</u>
2	<i>K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.</i>	<i>K-7 Standard L.OL: Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.</i>	<i>K-7 Standard P.PM: Develop an understanding that all matter has observable attributes with physical and chemical properties that are described, measured, and compared. Understand that states of matter exist as solid, liquid, or gas; and have physical and chemical properties. Understand all matter is composed of combinations of elements, which are organized by common attributes and characteristics on the Periodic Table. Understand that substances can be classified as mixtures or compounds and according to their physical and chemical properties.</i>	<i>K-7 Standard E.SE: Develop an understanding of the properties of earth materials and how those properties make materials useful. Understand gradual and rapid changes in earth materials and features of the surface of Earth. Understand magnetic properties of Earth.</i>
2	<b>S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.</b>			<b>E.SE.E.2 Surface Changes- The surface of Earth changes. Some changes are due to slow processes, such as erosion and weathering, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.</b>
2	<b>S.IP.02.11</b> Make purposeful observation of the natural world using the appropriate senses.			<b>E.SE.02.21</b> Describe the major landforms of the surface of the Earth (mountains, plains, plateaus, valleys, hills).
2	<b>S.IP.02.12</b> Generate questions based on observations.			
2	<b>S.IP.02.13</b> Plan and conduct simple investigations.		<b>P.PM.E.1 Physical Properties- All objects and substances have physical properties that can be measured.</b>	
2	<b>S.IP.02.14</b> Manipulate simple tools (ruler, meter stick, measuring cups, hand lens, thermometer, balance) that aid observation and data collection.		<b>P.PM.02.12</b> Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).	<u>Fluid Earth</u>
2	<b>S.IP.02.15</b> Make accurate measurements with appropriate units (meter, centimeter) for the measurement tool.	<b>L.OL.E.1 Life Requirements- Organisms have basic needs. Animals and plants need air, water,</b>	<b>P.PM.02.13</b> Measure the	<i>K-7 Standard E.FE: Develop an understanding that Earth is a planet</i>
2	<b>S.IP.02.16</b> Construct simple charts			

<p>2 and graphs from data and 2 observations.</p> <p style="text-align: center;"><b><u>Inquiry Analysis and Communication</u></b></p> <p>2 <b><i>K-7 Standard S.IA: Develop an 2 understanding that scientific inquiry and 2 investigations require analysis and 2 communication of findings, using 2 appropriate technology.</i></b></p> <p>2 <b>S.IA.E.1 Inquiry includes an 2 analysis and presentation of 2 findings that lead to future 2 questions, research, and 2 investigations.</b></p> <p>2 <b>S.IA.02.12 Share ideas about 2 science through purposeful 2 conversation.</b></p> <p>2 <b>S.IA.02.13 Communicate and 2 present findings of observations.</b></p> <p>2 <b>S.IA.02.14 Develop strategies and 2 skills for information gathering 2 and 2 problem solving (books, internet, 2 ask an expert, observation, 2 investigation, technology tools).</b></p> <p style="text-align: center;"><b><u>Reflection and Social Implications</u></b></p>	<p><b>and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair.</b></p> <p><b>L.OL.02.14</b> Identify the needs of plants.</p> <p><b>L.OL.E.2 Life Cycles- Plants and animals have life cycles. Both plants and animals begin life and develop into adults, reproduce, and eventually die. The details of this life cycle are different for different organisms.</b></p> <p><b>L.OL.02.22</b> Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.</p> <p style="text-align: center;"><b><u>Heredity</u></b></p> <p><b><i>K-7 Standard L.HE: Develop an understanding that all life forms must reproduce to survive. Understand that characteristics of mature plants and animals may be inherited or acquired and that only inherited traits are passed on to their young. Understand that inherited traits can be influenced by changes in the</i></b></p>	<p>length of objects using rulers (centimeters) and meter sticks (meters).</p> <p><b>P.PM.02.14</b> Measure the volume of liquids using common measuring tools (measuring cups, measuring spoons).</p> <p><b>P.PM.02.15</b> Compare the weight of objects using balances.</p> <p><b>P.PM.E.4 Material Composition- Some objects are composed of a single substance, while other objects are composed of more than one substance.</b></p> <p><b>P.PM.02.41</b> Classify objects as single substances (ice, silver, sugar, salt) or mixtures (salt and pepper, mixed dry beans).</p>	<p><i>nearly covered with water and that water on Earth can be found in three states, solid, liquid, and gas. Understand how water on Earth moves in predictable patterns. Understand Earth's atmosphere as a mixture of gases and water vapor.</i></p> <p><b>E.FE.E.1 Water- Water is a natural resource and is found under the ground, on the surface of the earth, and in the sky. It exists in three states (liquid, solid, gas) and can go back and forth from one form to another.</b></p> <p><b>E.FE.02.11</b> Identify water sources (wells, springs, lakes, rivers, oceans).</p> <p><b>E.FE.02.12</b> Identify household uses of water (drinking, cleaning, food preparation).</p> <p><b>E.FE.02.13</b> Describe the properties (visible, flowing, melting, dew) of water as a liquid (lakes, rivers, streams, oceans).</p> <p><b>E.FE.02.14</b> Describe the properties (hard, visible, freezing, ice) of water as a solid (ice, snow, iceberg, sleet, hail).</p> <p><b>E.FE.E.2 Water Movement- Water moves in predictable patterns.</b></p> <p><b>E.FE.02.21</b> Describe how rain</p>
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3 **S.IP.03.16** Construct simple charts  
3 and graphs from data and  
3 observations.

3 Inquiry Analysis and  
3 Communication

3 ***K-7 Standard S.IA:** Develop an*  
3 *understanding that scientific inquiry and*  
3 *investigations require analysis and*  
3 *communication of findings, using*  
3 *appropriate technology.*

3 **S.IA.E.1** Inquiry includes an  
3 analysis and presentation of  
3 findings that lead to future  
3 questions, research, and  
3 investigations.

3 **S.IA.03.11** Summarize information  
3 from charts and graphs to answer  
3 scientific questions.

3 **S.IA.03.12** Share ideas about  
3 science through purposeful  
3 conversation in collaborative  
3 groups.

3 **S.IA.03.13** Communicate and  
3 present findings of observations  
3 and investigations.

3 **S.IA.03.14** Develop research  
3 strategies and skills for  
3 information gathering and  
3 problem solving.

3 **S.IA.03.15** Compare and contrast  
3 sets of data from multiple trials of  
3 a science investigation to explain  
3 reasons for differences.

**L.OL.03.31** Describe the  
function of the following plant  
parts: flower, stem, root and  
leaf.

**L.OL.03.32** Identify and  
compare structures in animals  
used for controlling body  
temperature, support,  
movement, food-getting, and  
protection (for example: fur,  
wings, teeth, claws).

**L.OL.E.4** Classification-  
**Organisms can be classified**  
**on the basis of observable**  
**characteristics.**

**L.OL.03.41** Classify plants on  
the basis of observable physical  
characteristics (roots, leaves,  
stems, and flowers).

**L.OL.03.42** Classify animals  
on the basis of observable  
physical characteristics  
(backbone, skin, shell, limbs,  
scales).

Evolution

***K-7 Standard L.EV:** Develop an*  
*understanding that plants and*  
*animals have observable parts and*  
*characteristics that help them survive*  
*and flourish in their environments.*  
*Understand that fossils provide*  
*evidence that life forms have changed*  
*over time and were influenced by*  
*changes in environmental conditions.*

**changed by forces. The size**  
**of the change is related to**  
**the size of the force. The**  
**change is also related to the**  
**weight (mass) of the object**  
**on which the force is being**  
**exerted. When an object**  
**does not move in response to**  
**a force, it is because another**  
**force is being applied by the**  
**environment.**

**P.FM.03.35** Describe how a  
push or a pull is a force.

**P.FM.03.36** Relate a change in  
motion of an object to the  
force that caused the change of  
motion.

**P.FM.03.37** Demonstrate how  
the change in motion of an  
object is related to the strength  
of the force acting upon the  
object and to the mass of the  
object.

**P.FM.03.38** Demonstrate  
when an object does not move  
in  
response to a force, it is  
because another force is acting  
on it.

**P.FM.E.4** Speed- **An object**  
**is in motion when its**  
**position is changing. The**  
**speed of an object is defined**  
**by how far it travels divided**  
**by the amount of time it took**  
**to travel that far.**

**E.ES.03.44** Recognize that  
paper, metal, glass, and some  
plastics can be recycled.

**E.ES.E.5** Human Impact-  
**Humans depend on their**  
**natural and constructed**  
**environment. Humans**  
**change environments in**  
**ways that are helpful or**  
**harmful for themselves and**  
**other organisms.**

**E.ES.03.51** Describe ways  
humans are dependent on the  
natural environment (forests,  
water, clean air, earth materials)  
and constructed environments  
(homes, neighborhoods,  
shopping malls, factories, and  
industry).

**E.ES.03.52** Describe helpful or  
harmful effects of humans on  
the environment (garbage,  
habitat destruction, land  
management, renewable and  
non-renewable resources).

Solid Earth

***K-7 Standard E.SE:** Develop an*  
*understanding of the properties of*  
*earth materials and how those*  
*properties make materials useful.*  
*Understand gradual and rapid*  
*changes in earth materials and*  
*features of the surface of Earth.*  
*Understand magnetic properties of*

<p>3 <u>Reflection and Social Implications</u></p> <p>3</p> <p>3 <b>K-7 Standard S.RS:</b> <i>Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.</i></p>	<p><i>Understand that life forms either change (evolve) over time or risk extinction due to environmental changes and describe how scientists identify the relatedness of various organisms based on similarities in anatomical features.</i></p>	<p><b>P.FM.03.41</b> Compare and contrast the motion of objects in terms of direction.</p> <p><b>P.FM.03.42</b> Identify changes in motion (change direction, speeding up, slowing down).</p> <p><b>P.FM.03.43</b> Calculate the speed of an object based on the distance it travels divided by the amount of time it took to travel that distance.</p>	<p><i>Earth.</i></p>
<p>3 <b>S.RS.E.1</b> Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.</p>	<p><b>L.EV.E.1 Environmental Adaptation-</b> Different kinds of organisms have characteristics that help them to live in different environments.</p>	<p style="text-align: center;"><u>Energy</u></p> <p><b>K-7 Standard P.EN:</b> <i>Develop an understanding that there are many forms of energy (such as heat, light, sound, and electrical) and that energy is transferable by convection, conduction, or radiation. Understand energy can be in motion, called kinetic; or it can be stored, called potential. Develop an understanding that as temperature increases, more energy is added to a system. Understand nuclear reactions in the sun produce light and heat for the Earth.</i></p>	<p><b>E.SE.E.1 Earth Materials-</b> Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Some Earth materials have properties which sustain plant and animal life.</p> <p><b>E.SE.03.13</b> Recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand, soil).</p> <p><b>E.SE.03.14</b> Recognize that rocks are made up of minerals.</p>
<p>3 <b>S.RS.03.11</b> Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.</p> <p>3 <b>S.RS.03.14</b> Use data/samples as evidence to separate fact from opinion.</p> <p>3 <b>S.RS.03.15</b> Use evidence when communicating scientific ideas.</p> <p>3 <b>S.RS.03.16</b> Identify technology used in everyday life.</p> <p>3 <b>S.RS.03.17</b> Identify current</p>	<p><b>L.EV.03.11</b> Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (for example: leaf shape, thorns, odor, color).</p> <p><b>L.EV.03.12</b> Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body covers).</p>	<p><b>P.EN.E.1</b> Forms of Energy- Heat, electricity, light, and sound are forms of energy.</p> <p><b>P.EN.03.11</b> Identify light and sound as forms of energy.</p> <p><b>P.EN.E.2</b> Light Properties-</p>	<p><b>E.SE.E.2 Surface Changes-</b> The surface of Earth changes. Some changes are due to slow processes, such as erosion and weathering, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.</p> <p><b>E.SE.03.22</b> Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).</p> <p><b>E.SE.E.3</b> Using Earth Materials- Some Earth</p>

<p>3 problems that may be solved  3 through the use of technology.  3 <b>S.RS.03.18</b> Describe the effect  3 humans and other organisms have  3 on the balance of the natural  3 world.  3 <b>S.RS.03.19</b> Describe how people  3 have contributed to science  3 throughout history and across  3 cultures.</p>		<p><b>Light travels in straight lines. Shadows result from light not being able to pass through an object. When light travels at an angle from one substance to another (air and water), it changes direction.</b></p> <p><b>P.EN.03.21</b> Demonstrate that light travels in a straight line and that shadows are made by placing an object in a path of light.</p> <p><b>P.EN.03.22</b> Demonstrate what happens to light when it travels from water to air. (straw half in water looks bent).</p> <p><b>P.EN.E.3 Sound- Vibrating objects produce sound. The pitch of sound varies by changing the rate of vibration.</b></p> <p><b>P.EN.03.31</b> Relate sounds to their sources of vibrations (for example: a musical note produced by a vibrating guitar string, the sounds of a drum made by the vibrating drum head).</p> <p><b>P.EN.03.32</b> Distinguish the effect of fast or slow vibrations as pitch.</p>	<p><b>materials have properties that make them useful either in their present form or designed and modified to solve human problems. They can enhance the quality of life as in the case of materials used for building or fuels used for heating and transportation.</b></p> <p><b>E.SE.03.31</b> Identify Earth materials used to construct some common objects (for example: bricks, buildings, roads, glass).</p> <p><b>E.SE.03.32</b> Describe how materials taken from the Earth can be used as fuels for heating and transportation.</p>
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	Science Processes	Life Science	Physical Science	Earth Science
4	<u>Inquiry Process</u>	<u>Organization of Living Things</u>	<u>Energy</u>	<u>Earth in Space and Time</u>
4	<i>K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.</i>	<i>K-7 Standard L.OL: Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animal can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.</i>	<i>K-7 Standard P.EN: Develop an understanding that there are many forms of energy (such as heat, light, sound, and electrical) and that energy is transferable by convection, conduction, or radiation. Understand energy can be in motion, called kinetic; or it can be stored, called potential. Develop an understanding that as temperature increases, more energy is added to a system. Understand nuclear reactions in the sun produce light and heat for the Earth.</i>	<i>K-7 Standard E.ST: Develop an understanding that the sun is the central and largest body in the solar system and that Earth and other objects in the sky move in a regular and predictable motion around the sun. Understand that those motions explain the day, year, moon phases, eclipses and the appearance of motion of objects across the sky. Understand that gravity is the force that keeps the planets in orbit around the sun and governs motion in the solar system. Develop an understanding that fossils and layers of Earth provide evidence of the history of Earth's life forms, changes over long periods of time, and theories regarding Earth's history and continental drift.</i>
4	<b>S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.</b>		<b>P.EN.E.1 Forms of Energy- Heat, electricity, light, and sound are forms of energy.</b>	<b>E.ST.E.1 Characteristics of Objects in the Sky- Common objects in the sky have observable characteristics.</b>
4	<b>S.IP.04.11</b> Make purposeful observation of the natural world using the appropriate senses.		<b>P.EN.04.12</b> Identify heat and electricity as forms of energy.	
4	<b>S.IP.04.12</b> Generate questions based on observations.		<b>P.EN.E.4 Energy and Temperature- Increasing the temperature of any substance requires the addition of energy.</b>	
4	<b>S.IP.04.13</b> Plan and conduct simple and fair investigations.		<b>P.EN.04.41</b> Demonstrate how	<b>E.ST.04.11</b> Identify common objects in the sky, such as the sun and the moon.
4	<b>S.IP.04.14</b> Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).			<b>E.ST.04.12</b> Compare and
4	<b>S.IP.04.15</b> Make accurate measurements with appropriate units (millimeters centimeters,	<b>L.OL.E.1 Life Requirements- Organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use</b>		

<p>4 meters, milliliters, liters, Celsius, 4 grams, seconds, minutes) for the 4 measurement tool. 4 <b>S.IP.04.16</b> Construct simple charts 4 and graphs from data and 4 observations.</p> <p style="text-align: center;"><u>Inquiry Analysis and Communication</u></p> <p>4 <b>K-7 Standard S.IA:</b> <i>Develop an 4 understanding that scientific inquiry and 4 investigations require analysis and 4 communication of findings, using 4 appropriate technology.</i></p> <p>4 <b>S.IA.E.1 Inquiry includes an 4 analysis and presentation of 4 findings that lead to future 4 questions, research, and 4 investigations.</b></p> <p>4 <b>S.IA.04.11</b> Summarize information 4 from charts and graphs to answer 4 scientific questions. 4 <b>S.IA.04.12</b> Share ideas about 4 science through purposeful 4 conversation in collaborative 4 groups. 4 <b>S.IA.04.13</b> Communicate and 4 present findings of observations 4 and investigations. 4 <b>S.IA.04.14</b> Develop research 4 strategies and skills for 4 information gathering and 4 problem solving. 4 <b>S.IA.04.15</b> Compare and contrast 4 sets of data from multiple trials of</p>	<p><b>food as a source of energy and as a source of building material for growth and repair.</b></p> <p><b>L.OL.04.15</b> Determine that plants require air, water, light, and a source of energy and building material for growth and repair. <b>L.OL.04.16</b> Determine that animals require air, water, and a source of energy and building material for growth and repair.</p> <p style="text-align: center;"><u>Evolution</u></p> <p><b>K-7 Standard L.EV:</b> <i>Develop an understanding that plants and animals have observable parts and characteristics that help them survive and flourish in their environments. Understand that fossils provide evidence that life forms have changed over time and were influenced by changes in environmental conditions. Understand that life forms either change (evolve) over time or risk extinction due to environmental changes and describe how scientists identify the relatedness of various organisms based on similarities in anatomical features.</i></p> <p><b>L.EV.E.2 Survival- Individuals of the same kind</b></p>	<p>temperature can be increased in a substance by adding energy. <b>P.EN.04.42</b> Describe heat as the energy produced when substances burn, certain kinds of materials rub against each other, and when electricity flows through wire. <b>P.EN.04.43</b> Describe how heat is produced through electricity, rubbing, and burning.</p> <p><b>P.EN.E.5 Electrical Circuits- Electrical circuits transfer electrical energy and produce magnetic fields.</b></p> <p><b>P.EN.04.51</b> Explain how electrical energy is transferred and changed through the use of a simple circuit. <b>P.EN.04.52</b> Create a simple working electromagnet and explain the conditions necessary to make the electromagnet.</p> <p style="text-align: center;"><u>Properties of Matter</u></p> <p><b>K-7 Standard P.PM:</b> <i>Develop an understanding that all matter has observable attributes with physical and chemical properties that are described, measured, and compared. Understand that states of matter exist as solid, liquid, or gas; and</i></p>	<p>contrast the characteristics of the sun, moon and Earth, including relative distances and abilities to support life.</p> <p><b>E.ST.E.2 Patterns of Objects in the Sky- Common objects in the sky have observable characteristics and predictable patterns of movement.</b></p> <p><b>E.ST.04.21</b> Describe the orbit of the Earth around the sun as it defines a year. <b>E.ST.04.22</b> Explain that the spin of the Earth creates day and night. <b>E.ST.04.23</b> Describe the motion of the moon around the Earth. <b>E.ST.04.24</b> Explain how the visible shape of the moon follows a predictable cycle which takes approximately one month. <b>E.ST.04.25</b> Describe the apparent movement of the sun and moon across the sky through day/night and the seasons.</p> <p><b>E.ST.E.3 Fossils- Fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.</b></p>
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4 a  
4 science investigation to explain  
4 reasons for differences.  
4  
4 Reflection and Social Implications  
4  
4 **K-7 Standard S.RS:** *Develop an*  
4 *understanding that claims and evidence*  
4 *for their scientific merit should be*  
4 *analyzed. Understand how scientists*  
4 *decide what constitutes scientific*  
4 *knowledge. Develop an understanding of*  
4 *the importance of reflection on scientific*  
4 *knowledge and its application to new*  
4 *situations to better understand the role of*  
4 *science in society and technology.*  
4  
4 **S.RS.E.1 Reflecting on**  
4 **knowledge is the application of**  
4 **scientific knowledge to new**  
4 **and different situations.**  
4 **Reflecting on knowledge**  
4 **requires careful analysis of**  
4 **evidence that guides decision-**  
4 **making and the application of**  
4 **science throughout history and**  
4 **within society.**  
4  
4 **S.RS.04.11** Demonstrate scientific  
4 concepts through various  
4 illustrations, performances,  
4 models, exhibits, and  
4 activities.  
4 **S.RS.04.14** Use data/samples as  
4 evidence to separate fact from  
4 opinion.  
4 **S.RS.04.15** Use evidence when  
4 communicating scientific ideas.

**differ in their characteristics,**  
**and sometimes the**  
**differences give**  
**individuals an advantage in**  
**surviving and reproducing.**  
  
**L.EV.04.21** Identify individual  
differences (for example: color,  
leg length, size, wing size) in  
organisms of the same kind.  
**L.EV.04.22** Identify how  
variations in physical  
characteristics of individual  
organisms give them an  
advantage for  
survival and reproduction.  
  
Ecosystems  
  
**K-7 Standard L.EC:** *Develop an*  
*understanding of the interdependence*  
*of the variety of populations,*  
*communities and ecosystems,*  
*including those in the Great Lakes*  
*region. Develop an understanding of*  
*different types of interdependence and*  
*that biotic (living) and abiotic (non-*  
*living) factors affect the balance of an*  
*ecosystem. Understand that all*  
*organisms cause changes, some*  
*detrimental and others beneficial, in*  
*the environment where they live.*  
  
**L.EC.E.1 Interactions-**  
**Organisms interact in**  
**various ways including**  
**providing food and shelter to**  
**one another. Some**

*have physical and chemical*  
*properties. Understand all matter is*  
*composed of combinations of elements,*  
*which are organized by common*  
*attributes and characteristics on the*  
*Periodic Table. Understand that*  
*substances can be classified as*  
*mixtures or compounds and*  
*according to their physical and*  
*chemical properties.*  
  
**P.PM.E.1 Physical**  
**Properties- All objects and**  
**substances have physical**  
**properties that can be**  
**measured.**  
  
**P.PM.04.16** Measure the  
weight (spring scale) and mass  
(balances in grams or  
kilograms) of objects.  
**P.PM.04.17** Measure volumes  
of liquids and capacities of  
containers in milliliters and  
liters.  
**P.PM.04.18** Demonstrate the  
use of centimeter cubes poured  
into a container to estimate the  
container's capacity.  
  
**P.PM.E.2 States of Matter-**  
**Matter exists in several**  
**different states: solids,**  
**liquids, and gases. Each**  
**state of matter has unique**  
**physical properties. Gases**  
**are easily compressed, but**  
**liquids and solids do not**

**E.ST.04.31** Explain how fossils  
provide evidence of the history  
of the Earth.  
**E.ST.04.32** Compare and  
contrast life forms found in  
fossils and organisms that exist  
today.





	Science Processes	Life Science	Physical Science	Earth Science
5	<u>Inquiry Process</u>	<u>Organization of Living Things</u>	<u>Forces and Motion</u>	<u>Earth Systems</u>
5	<i>K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.</i>	<i>K-7 Standard L.OL: Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.</i>	<i>K-7 Standard P.FM: Develop an understanding that the position and/or motion of an object is relative to a point of reference. Understand forces affect the motion and speed of an object and that the net force on an object is the total of all of the forces acting on it. Understand the Earth pulls down on objects with a force called gravity. Develop an understanding that some forces are in direct contact with objects, while other forces are not in direct contact with objects.</i>	<i>K-7 Standard E.ES: Develop an understanding of the warming of the Earth by the sun as the major source of energy for phenomenon on Earth and how the sun's warming relates to weather, climate, seasons, and the water cycle. Understand how human interaction and use of natural resources affects the environment.</i>
5	<b>S.IP.M.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.</b>			<b>E.ES.M.6 Seasons- Seasons result from annual variations in the intensity of sunlight and length of day due to the tilt of the axis of the Earth relative to the plane of its yearly orbit around the sun.</b>
5	<b>S.IP.05.11</b> Generate scientific questions based on observations, investigations, and research.		<b>P.FM.M.2 Force Interactions- Some forces between objects act when the objects are in direct contact (touching), such as friction and air resistance, or when they are not in direct contact (not touching), such as magnetic force, electrical force, and gravitational force.</b>	<b>E.ES.05.61</b> Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun.
5	<b>S.IP.05.12</b> Design and conduct scientific investigations.			<b>E.ES.05.62</b> Explain how the revolution of the Earth around the sun defines a year.
5	<b>S.IP.05.13</b> Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.			
5	<b>S.IP.05.14</b> Use metric measurement devices in an investigation.	<b>L.OL.M.4 Animal Systems- Multicellular organisms may have specialized systems that perform functions which serve the needs of the organism.</b>	<b>P.FM.05.21</b> Distinguish between contact forces and non-contact forces.	
5	<b>S.IP.05.15</b> Construct charts and graphs from data and observations.		<b>P.FM.05.22</b> Demonstrate	
5	<b>S.IP.05.16</b> Identify patterns in	<b>L.OL.05.41</b> Identify the		

<p>5 data.</p> <p>5</p> <p>5 <u>Inquiry Analysis and</u></p> <p>5 <u>Communication</u></p> <p>5 <b><i>K-7 Standard S.IA: Develop an</i></b></p> <p>5 <b><i>understanding that scientific inquiry and</i></b></p> <p>5 <b><i>investigations require analysis and</i></b></p> <p>5 <b><i>communication of findings, using</i></b></p> <p>5 <b><i>appropriate technology.</i></b></p> <p>5</p> <p>5 <b>S.IA.M.1 Inquiry includes an</b></p> <p>5 <b>analysis and presentation of</b></p> <p>5 <b>findings that lead to future</b></p> <p>5 <b>questions, research, and</b></p> <p>5 <b>investigations.</b></p> <p>5</p> <p>5 <b>S.IA.05.11</b> Analyze information</p> <p>5 from data tables and graphs to</p> <p>5 answer scientific questions.</p> <p>5 <b>S.IA.05.12</b> Evaluate data, claims,</p> <p>5 and personal knowledge through</p> <p>5 collaborative science discourse.</p> <p>5 <b>S.IA.05.13</b> Communicate and</p> <p>5 defend findings of observations</p> <p>5 and investigations using evidence.</p> <p>5 <b>S.IA.05.14</b> Draw conclusions</p> <p>5 from sets of data from multiple</p> <p>5 trials of a scientific investigation.</p> <p>5 <b>S.IA.05.15</b> Use multiple sources of</p> <p>5 information to evaluate strengths</p> <p>5 and weaknesses of claims,</p> <p>5 arguments, or data.</p> <p>5</p> <p>5 <u>Reflection and Social</u></p> <p>5 <u>Implications</u></p> <p>5</p> <p>5 <b><i>K-7 Standard S.RS: Develop an</i></b></p>	<p>general purpose of selected</p> <p>animal</p> <p>systems (digestive, circulatory,</p> <p>respiratory, skeletal, muscular,</p> <p>nervous, excretory, and</p> <p>reproductive).</p> <p><b>L.OL.05.42</b> Explain how</p> <p>animal systems (digestive,</p> <p>circulatory, respiratory, skeletal,</p> <p>muscular, nervous, excretory,</p> <p>and reproductive) work</p> <p>together to perform selected</p> <p>activities.</p> <p></p> <p><u>Heredity</u></p> <p><b><i>K-7 Standard L.HE: Develop</i></b></p> <p><b><i>an understanding that all life forms</i></b></p> <p><b><i>must reproduce to survive.</i></b></p> <p><b><i>Understand that characteristics of</i></b></p> <p><b><i>mature plants and animals may be</i></b></p> <p><b><i>inherited or acquired and that only</i></b></p> <p><b><i>inherited traits are passed on to their</i></b></p> <p><b><i>young. Understand that inherited</i></b></p> <p><b><i>traits can be influenced by changes in</i></b></p> <p><b><i>the environment and by genetics.</i></b></p> <p></p> <p><b>L.HE.M.1 Inherited and</b></p> <p><b>Acquired Traits - The</b></p> <p><b>characteristics of organisms</b></p> <p><b>are influenced by heredity</b></p> <p><b>and environment. For some</b></p> <p><b>characteristics, inheritance is</b></p> <p><b>more important; for other</b></p> <p><b>characteristics, interactions</b></p> <p><b>with the environment are</b></p> <p><b>more important.</b></p>	<p>contact and non-contact forces</p> <p>to change the motion of an</p> <p>object.</p> <p><b>P.FM.M.3 Force- Forces</b></p> <p><b>have a magnitude and</b></p> <p><b>direction. Forces can be</b></p> <p><b>added. The net force on an</b></p> <p><b>object is the sum of all of the</b></p> <p><b>forces acting on the object.</b></p> <p><b>The speed and/or direction</b></p> <p><b>of motion of an object</b></p> <p><b>changes when a non-zero net</b></p> <p><b>force is applied to it. A</b></p> <p><b>balanced force on an object</b></p> <p><b>does not change the motion</b></p> <p><b>of the object (the object</b></p> <p><b>either remains at rest or</b></p> <p><b>continues to move at a</b></p> <p><b>constant speed in a straight</b></p> <p><b>line).</b></p> <p><b>P.FM.05.31</b> Describe what</p> <p>happens when two forces act</p> <p>on an object in the same or</p> <p>opposing directions.</p> <p><b>P.FM.05.32</b> Describe how</p> <p>constant motion is the result of</p> <p>balanced (zero net) forces.</p> <p><b>P.FM.05.33</b> Describe how</p> <p>changes in the motion of</p> <p>objects are caused by a non-</p> <p>zero net (unbalanced) force.</p> <p><b>P.FM.05.34</b> Relate the size of</p> <p>change in motion to the</p> <p>strength of unbalanced forces</p> <p>and the mass of the object.</p>	<p><u>Earth in Space and Time</u></p> <p><b><i>K-7 Standard E.ST: Develop an</i></b></p> <p><b><i>understanding that the sun is the</i></b></p> <p><b><i>central and largest body in the solar</i></b></p> <p><b><i>system and that Earth and other</i></b></p> <p><b><i>objects in the sky move in a regular</i></b></p> <p><b><i>and predictable motion around the</i></b></p> <p><b><i>sun. Understand that those motions</i></b></p> <p><b><i>explain the day, year, moon phases,</i></b></p> <p><b><i>eclipses and the appearance of motion</i></b></p> <p><b><i>of objects across the sky. Understand</i></b></p> <p><b><i>that gravity is the force that keeps the</i></b></p> <p><b><i>planets in orbit around the sun and</i></b></p> <p><b><i>governs motion in the solar system.</i></b></p> <p><b><i>Develop an understanding that fossils</i></b></p> <p><b><i>and layers of Earth provide evidence</i></b></p> <p><b><i>of the history of Earth's life forms,</i></b></p> <p><b><i>changes over long periods of time, and</i></b></p> <p><b><i>theories regarding Earth's history</i></b></p> <p><b><i>and continental drift.</i></b></p> <p></p> <p><b>E.ST.M.1 Solar System- The</b></p> <p><b>sun is the central and</b></p> <p><b>largest body in our solar</b></p> <p><b>system. Earth is the third</b></p> <p><b>planet from the sun in a</b></p> <p><b>system that includes other</b></p> <p><b>planets and their moons, as</b></p> <p><b>well as smaller objects, such</b></p> <p><b>as asteroids and comets.</b></p> <p></p> <p><b>E.ST.05.11</b> Design a model</p> <p>that describes the position and</p> <p>relationship of the planets and</p> <p>other objects (comets and</p>
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5 *understanding that claims and evidence*  
5 *for their scientific merit should be*  
5 *analyzed. Understand how scientists*  
5 *decide what constitutes scientific*  
5 *knowledge. Develop an understanding of*  
5 *the importance of reflection on scientific*  
5 *knowledge and its application to new*  
5 *situations to better understand the role of*  
5 *science in society and technology.*

5 **S.RS.M.1 Reflecting on**  
5 **knowledge is the application of**  
5 **scientific knowledge to new**  
5 **and different situations.**  
5 **Reflecting on knowledge**  
5 **requires careful analysis of**  
5 **evidence that guides decision-**  
5 **making and the application of**  
5 **science throughout history and**  
5 **within society.**

5 **S.RS.05.11** Evaluate the strengths  
5 and weaknesses of claims,  
5 arguments, and data.

5 **S.RS.05.12** Describe limitations in  
5 personal and scientific knowledge.

5 **S.RS.05.13** Identify the need for  
5 evidence in making scientific  
5 decisions.

5 **S.RS.05.15** Demonstrate scientific  
5 concepts through various  
5 illustrations, performances,  
5 models, exhibits, and activities.

5 **S.RS.05.16** Design solutions to  
5 problems using technology.

5 **S.RS.05.17** Describe the effect  
5 humans and other organisms have  
5 on the balance in the natural

**L.HE.05.11** Explain that the  
traits of an individual are  
influenced by both the  
environment and the genetics  
of the individual.

**L.HE.05.12** Distinguish  
between inherited and acquired  
traits.

Evolution

***K-7 Standard L.EV:** Develop an  
understanding that plants and  
animals have observable parts and  
characteristics that help them survive  
and flourish in their environments.  
Understand that fossils provide  
evidence that life forms have changed  
over time and were influenced by  
changes in environmental conditions.  
Understand that life forms either  
change (evolve) over time or risk  
extinction due to environmental  
changes and describe how scientists  
identify the relatedness of various  
organisms based on similarities in  
anatomical features.*

**L.EV.M.1 Species**  
**Adaptation and Survival-**  
**Species with certain traits**  
**are more likely than others to**  
**survive and have offspring in**  
**particular environments.**  
**When an environment**  
**changes, the advantage or**  
**disadvantage of the species'**  
**characteristics can change.**

**P.FM.M.4 Speed- Motion**  
**can be described by a**  
**change in position relative to**  
**a point of reference. The**  
**motion of an object can be**  
**described by its speed and**  
**the direction it is moving.**  
**The position and speed of an**  
**object can be measured and**  
**graphed as a function of**  
**time.**

**P.FM.05.41** Explain the  
motion of an object relative to  
its point of reference.

**P.FM.05.42** Describe the  
motion of an object in terms of  
distance, time and direction, as  
the object moves, and in  
relationship to other objects.

**P.FM.05.43** Illustrate how  
motion can be measured and  
represented on a graph.

asteroids) to the sun.

**E.ST.M.2 Solar System**  
**Motion- Gravity is the force**  
**that keeps most objects in**  
**the solar system in regular**  
**and predictable motion.**

**E.ST.05.21** Describe the  
motion of planets and moons  
in terms of rotation on axis and  
orbits due to gravity.

**E.ST.05.22** Explain moon  
phases as they relate to the  
position of the moon in its  
orbit around the Earth,  
resulting in the amount of  
observable reflected light.

**E.ST.05.23** Recognize that  
nighttime objects (stars and  
constellations) and the sun  
appear to move because the  
Earth rotates on its axis and  
orbits the sun.

**E.ST.05.24** Explain lunar and  
solar eclipses based on the  
relative positions of the Earth,  
moon, and sun, and the orbit of  
the moon.

**E.ST.05.25** Explain the tides of  
the oceans as they relate to the  
gravitational pull and orbit of  
the moon.



5		<b>and external structures to be more important than behavior or general appearance.</b>		
5		<b>L.EV.05.21</b> Relate degree of similarity in anatomical features to the classification of contemporary organisms.		
5				
5				
5				
5				
5				

	<b>Science Processes</b>	<b>Life Science</b>	<b>Physical Science</b>	<b>Earth Science</b>
<b>6</b>				

	<b>Science Processes</b>	<b>Life Science</b>	<b>Physical Science</b>	<b>Earth Science</b>
7				

	<b>Science Processes</b>	<b>Life Science</b>	<b>Physical Science</b>	<b>Earth Science</b>
<b>8</b>				

	<b>Science Processes</b>	<b>Life Science</b>	<b>Physical Science</b>	<b>Earth Science</b>
<b>HS</b>				