

# Youngstown City Schools

## Grade 4 Science Curriculum Map

September/October	
<b>See Content Elaborations in the Model Curriculum</b> - <a href="http://www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=104146">www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=104146</a>	
<b>Content Standards</b> (Strand/Domain)	<b>Instructional Practices</b>
<p><b>The following comes from the 2002 Science standards. Due to the OAA for 5<sup>th</sup> grade Science, 4<sup>th</sup> grade will need to teach "Weather" in the 2012-13 school year.</b></p> <p>This content will be taught in the spring. <b>Students will begin to gather weather data in September to be used during instruction in the spring.</b></p> <p><del>Benchmark D: Analyze weather and changes that occur over a period of time.</del></p> <p><del>4. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.</del></p> <p><del>5. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).</del></p> <p><del>6. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).</del></p> <p><del>7. Describe the weather which accompanies cumulus, cumulonimbus, cirrus and stratus clouds.</del></p>	<p>Use observation, inquiry, research and graphic organizers to gather and report weather data that will be used during instruction in the spring.</p> <p>Data can be kept in a data folder or journal. Document observations over time.</p> <p>Data from a western city and Youngstown can be gathered to analyze the movement of weather patterns.</p>
(Topic/Cluster and Standards) <b>Earth's Surface</b> Earth's surface has specific characteristics and landforms that can be identified. <ul style="list-style-type: none"> <li>• About 70% of the Earth's surface is covered with water and most of that is the ocean. Only a small portion of the Earth's water is</li> </ul>	See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum. <ul style="list-style-type: none"> <li>• Use observation, inquiry, research and graphic organizers to gather information.</li> <li>• Plan, build, and use models of the formation of landforms</li> <li>• Data Folders</li> </ul>

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<p>freshwater, which is found in rivers, lakes and ground water.</p>	<ul style="list-style-type: none"> <li>• Journals</li> <li>• Identify common landforms from maps or graphics</li> </ul>
<p><b>Earth's Surface</b> The surface of Earth changes due to weathering.</p> <ul style="list-style-type: none"> <li>• Rocks change shape, size and/or form due to water or ice movement, freeze and thaw, wind, plant growth, gases in the air, pollution and catastrophic events such as earthquakes, mass wasting, flooding and volcanic activity.</li> </ul>	<p>See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.</p> <ul style="list-style-type: none"> <li>• Use various maps (topographic, aerial)</li> <li>• Research local weathering features</li> <li>• Model and compare different types of weathering</li> <li>• Evaluate local impact of weathering features</li> </ul>
<p><b>Earth's Surface</b> The surface of the Earth changes due to erosion and deposition.</p> <ul style="list-style-type: none"> <li>• Water, wind and ice physically remove and carry (erosion) rock, soil and sediment and deposit the material in a new location.</li> <li>• Gravitational force affects movement of water, rock and soil.</li> </ul>	<p>See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.</p> <ul style="list-style-type: none"> <li>• Research landforms that form as a result of erosion and deposition.</li> <li>• Use models to investigate landforms that are a result of erosion and deposition</li> <li>• Research and investigate methods to reduce erosion and deposition</li> </ul>

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November/December/January	
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Content Standards	Instructional Practices
(Strand/Domain)	
(Topic/Cluster and Standards)	See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.
<b>Life Science</b> Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful. <ul style="list-style-type: none"> <li>Ecosystems can change gradually or dramatically. When the environment changes, some plants and animals survive and reproduce and others die or move to new locations. An animal's patterns of behavior are related to the environment. This includes the kinds and numbers of other organisms present, the availability of food and resources, and the physical attributes of the environment.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate ways an environment can change and its impact on the organisms in that environment.</li> <li>Research a major geologic event and its impact on the organisms in that environment, using timelines or graphic organizers to depict before, immediately after and time intervals until a stable community is established.</li> <li>Critique plans that call for changes in an environment by human intervention.</li> </ul>
<p style="color: red;">The following comes from the 2002 Science standards. Due to the OAA for 5<sup>th</sup> grade Science, 4<sup>th</sup> grade will need to teach "plants" in the 2012-13 school year.</p> <p style="color: red;"><b>Benchmark A:</b> Differentiate between the life cycles of different plants and animals.</p> <p style="color: red;">1. Compare the life cycles of different plants including germination, maturity, reproduction and death.</p> <p style="color: red;">5. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).</p>	<ul style="list-style-type: none"> <li>Research different plants' life cycles and identify the different stages from egg to adult.</li> <li>Inquiry into what conditions are needed for various seeds to germinate and grow into an adult plant.</li> </ul>
<p style="color: red;"><b>Benchmark B:</b> Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.</p> <p style="color: red;">2. Relate plant structures to their specific functions (e.g., growth, survival and reproduction).</p> <p style="color: red;">3. Classify common plants according to their characteristics (e.g., tree leaves,</p>	<ul style="list-style-type: none"> <li>Compare the parts (leaves, flowers, seeds, roots, and stems) of a variety of trees/ plants and identify the functions of each of those parts.</li> <li>Use characteristics to place plants into different classification groups.</li> </ul>

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<p>flowers, seeds, roots and stems).</p>	
<p><b>Life Science</b> Fossils can be compared to one another and to present-day organisms according to their similarities and differences.</p> <ul style="list-style-type: none"> <li>• The concept of biodiversity is expanded to include different classification schemes based upon shared internal and external characteristics of organisms.</li> <li>• Most types of organisms that have lived on Earth no longer exist.</li> <li>• Fossils provide a point of comparison between the types of organisms that lived long ago and those existing today.</li> </ul>	<p>See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.</p> <ul style="list-style-type: none"> <li>• Make inferences about environmental conditions based on fossil evidence.</li> <li>• Make comparisons between fossils and plants/animals that are alive today.</li> <li>• Experiment with making fossils to investigate conditions necessary for fossils to form and compare to present day conditions.</li> </ul>

February/March	
See <b>Content Elaborations in the Model Curriculum</b> - <a href="http://www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=104146">www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=104146</a>	
<b>Content Standards</b>	<b>Instructional Practices</b>
(Strand/Domain)	
<p>The following comes from the 2002 Science standards. Due to the OAA for 5<sup>th</sup> grade Science, 4<sup>th</sup> grade will need to teach "properties of matter" and "chemical and physical changes" and "states of matter" in the 2012-13 school year.</p> <p><b>Benchmark B:</b> Identify and describe the physical properties of matter in its</p>	<ul style="list-style-type: none"> <li>• Predict and test different properties of various materials and classify those items according to their properties.</li> <li>• Investigate how different materials are able to change states (going from solid to liquid to gas)</li> <li>• Name observable differences between the three states of matter.</li> </ul> <p>*see p. 111 and p. 115 of Model Curriculum for additional instructional practices.</p>

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<p>various states.</p> <p>3. Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects (e.g., paper, glass, plastic and metal).</p> <p>4. Explain that matter has different states (e.g., solid, liquid and gas) and that each state has distinct physical properties.</p>	
<p>(<i>Topic/Cluster</i> and Standards)</p> <p><b>Physical Science</b></p> <p>The total amount of matter is conserved when it undergoes a change.</p> <ul style="list-style-type: none"> <li>When an object is broken into smaller pieces, when a solid is dissolved in a liquid, or when matter changes state (solid, liquid, gas), the total amount of matter remains constant.</li> </ul> <p><b>Benchmark A:</b> Compare the characteristics of simple physical and chemical changes.</p> <p>1. Identify characteristics of a simple physical change (e.g., heating or cooling can change water from one state to another and the change is reversible).</p> <p>2. Identify characteristics of a simple chemical change. When a new material is made by combining two or more materials, it has chemical properties that are different from the original materials (e.g., burning paper, vinegar and baking soda).</p>	<p>See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.</p> <ul style="list-style-type: none"> <li>Investigations involving measuring mass before and after changes.</li> <li>Inquiries regarding “where did the mass go?” when the mass is not conserved.</li> <li>Connections to conservation of mass to environmental issues.</li> </ul>
<p><b>Physical Science</b></p> <p>Energy can be transformed from one form to another or can be transferred from one location to another.</p> <ul style="list-style-type: none"> <li>Energy transfers from hot objects to cold objects as heat, resulting in a temperature change.</li> <li>Electric circuits require a complete loop of conducting through which electrical energy can be transferred.</li> <li>Electrical energy in circuits can be transformed to other forms of energy, including light, heat, sound and motion.</li> <li>Electricity and magnetism are closely related.</li> </ul>	<p>See <b><i>Expectations for Learning and Visions into Practice</i></b> in the Model Curriculum.</p> <ul style="list-style-type: none"> <li>Design and construct a device that can show the transfer of energy between at least four objects.</li> <li>Conduct inquiries around electrical circuits. (the model curriculum on p. 145 includes many ideas).</li> <li>Conduct inquires around the transfer of heat energy. (the model curriculum on p. 146 includes many ideas).</li> </ul>

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April/May/June	
See Model Curriculum - <a href="#">top</a>	
Content Standards	Instructional Practices
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<p>(<i>Topic/Cluster</i> and Standards)</p> <p>Benchmark <b>D</b>: Analyze weather and changes that occur over a period of time.</p> <p>4. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.</p> <p>5. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).</p> <p>6. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).</p> <p>7. Describe the weather which accompanies cumulus, cumulonimbus, cirrus and stratus clouds.</p>	<p>See Model Curriculum</p>