

## Lighting Lesson: Ohio Content Standards

“Light Bulb or Heat Bulb?”

3<sup>rd</sup> Grade Energy FUNdamentals

### Science Model Curriculum-Ohio Department of Education

Grade Band Three: Observation of the Environment

**Strand Connections:** *Matter is what makes up all substances on Earth. Matter has specific properties and exists in different states. Earth’s resources are made of matter. Matter can be used by living things and can be used for the energy they contain. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy.*

<b>Strand</b>	Earth and Space Science page 95
<b>Topic</b>	Earth’s Resources
<b>Content Statement</b>	<b>Earth’s resources can be used for energy.</b>
<b>Interpreting and Communicating Science Concepts</b>	Research the efficiency and cost of different types of energy resources (renewable and/or nonrenewable). Compare and contrast the findings. Present or discuss findings with the class.

<b>Strand</b>	Earth and Space Science page 99
<b>Topic</b>	Earth’s Resources
<b>Content Statement</b>	<b>Some of Earth’s resources are limited.</b>
<b>Content Elaboration</b>	Within third grade, the focus is on the different types of Earth’s resources, how they are used and how they can be conserved. Scientific data should be used to evaluate and compare different methods of conservation.

<b>Strand</b>	Physical Science page 118
<b>Topic</b>	Matter and Forms of Energy
<b>Content Statement</b>	<b>Heat, electrical energy, light, sound and magnetic energy are forms of energy.</b>
<b>Content Elaboration</b>	Examples of energy causing motion or creating change include a falling rock causing a crater to form on the ground, heating water causing water to change into a gas, light energy from the sun contributing to plant growth, electricity causing the blades of a fan to move, electrically charged objects causing



Energy FUNdamentals materials developed by the Ohio Energy Project

movement in uncharged objects or other electrically charged objects, sound from a drum causing rice sitting on the drum to vibrate, and magnets causing other magnets and some metal objects to move.
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## Mathematics Model Curriculum-Ohio Department of Education

<b>Domain</b>	Measurement and Data page 16
<b>Cluster</b>	<b><i>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</i></b>
<b>Standards</b>	1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., <i>by representing the problem on a number line diagram.</i>

<b>Domain</b>	Measurement and Data page 18
<b>Cluster</b>	<b><i>Represent and interpret data.</i></b>
<b>Standards</b>	3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.

## Social Studies Model Curriculum-Ohio Department of Education

<b>Theme</b>	Communities: Past and Present, Near and Far page 12
<b>Strand</b>	Government
<b>Topic</b>	<b><i>Civic Participation and Skills</i></b> Civic participation embraces the ideal that an individual actively engages in his or her community, state or nation for the common good. Students need to practice effective communication skills including negotiation, compromise and collaboration. Skills in accessing and analyzing information are essential for citizens in a democracy.
<b>Content Statement</b>	<b><i>10. Individuals make the community a better place by solving problems in a way that promotes the common good</i></b>



<b>Content Elaborations</b>	There are a variety of ways individuals help solve problems to make the community a better place for everyone including: Working to preserve the environment.
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<b>Theme</b>	Communities: Past and Present, Near and Far page 17
<b>Strand</b>	Economics
<b>Topic</b>	<b><i>Economic Decision Making and Skills</i></b> Effective economic decision making requires students to be able to reason logically about key economic issues that affect their lives as consumers, producers, savers, investors and citizens. Economic decision making and skills engage students in the practice of analyzing costs and benefits, collecting and organizing economic evidence, and proposing alternatives to economic problems.
<b>Content Statement</b>	<b><i>14. Line graphs are used to show changes in data over time.</i></b>
<b>Content Elaborations</b>	Use line graphs to display data that shows changes over time. Line graphs compare two variables. Each variable is plotted along an axis: an x-axis (horizontal) and a y-axis (vertical). Usually, the x-axis has numbers representing the time period and the y-axis has numbers for what is being measured. Change over time will be reflected by the peaks (ups) and valleys (downs) in the line.

<b>Theme</b>	Communities: Past and Present, Near and Far page 19
<b>Strand</b>	Economics
<b>Topic</b>	<b><i>Scarcity</i></b> There are not enough resources to produce all the goods and services that people desire.
<b>Content Statement</b>	<b><i>16. Individuals must make decisions because of the scarcity of resources. Making a decision involves an opportunity cost, the value of the next best alternative given up when an economic choice is made.</i></b>
<b>Content Elaborations</b>	<b>Content Elaborations</b> Scarcity refers to the lack of sufficient resources to produce all the goods and services that people desire. You cannot have more of anything you want without having less of something else you want. Every choice involves a cost, which means giving up the chance to get something else. This is called opportunity cost.

## States of Matter and Forms of Energy Lessons: Ohio Content Standards

### 3<sup>rd</sup> Grade Energy FUNdamentals

## Science Model Curriculum-Ohio Department of Education

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<b>Strand</b>	Earth and Space Science page 112
<b>Topic</b>	Physical Science
<b>Content Statement</b>	<b>All objects and substances in the natural world are composed of matter.</b>



<b>Content Elaboration</b>	Objects are composed of matter and matter has observable properties. Matter is anything that has mass* and takes up space. All solids, liquids and gases are made of matter.
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<b>Strand</b>	Physical Science page 117
<b>Topic</b>	Matter and Forms of Energy
<b>Content Statement</b>	<b>Matter exists in different states, each of which has different properties.</b>
<b>Content Elaboration</b>	Gases, liquids and solids are different states of matter that have different properties. Liquids and solids do not compress into a smaller volume as easily as do gases. Liquids and gases flow easily, but solids do not flow easily. Solids retain their shape and volume (unless a force is applied). Liquids assume the shape of the part of the container that it occupies (retaining its volume). Gases assume the shape and volume of its container.

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