



Bedford Public Schools

Kindergarten – Science

The kindergarten curriculum allows students to gather information about their world through hands-on investigations that engage in insightful inquisitive learning. They are introduced to the scientific method, including asking questions, gathering evidence, and sharing observations. Students begin to recognize patterns in the natural world by exploring the properties of various objects, and sorting and classifying them by size, color and textures. They learn to appreciate that different properties are suited for different purposes. They investigate motions of objects by changing the strength and direction of pushes and pulls. They learn the cyclical nature of life through a variety of hands-on experiences and activities. Students record their observations through sketches, diagrams, models, and lists.

The Elementary Science Standards – Core Ideas and the Scientific Process

Students in kindergarten through grade five begin to develop an understanding of the four disciplinary core ideas of physical sciences, life sciences, earth and space sciences, and the engineering design process, including its application to real life. Students are guided and taught to think like scientists using inquiry based thinking and questioning, formulating hypotheses, recording observations, making claims using evidence, and forming conclusions. Students are encouraged to communicate their discoveries with peers and learn to represent their thinking in charts, tables, diagrams, graphic organizers, and lists, as is appropriate for their grade level.



Learning Expectations

[Earth and Space Science](#)

[Life Science: Molecules](#)

[Life Science: Wood and Paper](#)

[Physical Science: Matter](#)

[Physical Science: Motion and Stability](#)

Earth and Space Sciences: Earth’s Systems

<p>Enduring Understandings In order to meet the standards, the students will need to understand that . . .</p>	<p>Essential Questions In order to understand, students will need to consider questions such as . . .</p>	<p>Knowledge and Skills Learning this material will require students to . . .</p>
<ul style="list-style-type: none"> • There are observable changes in the natural world as the seasons change. • Seasonal changes are cyclical. • Seasonal changes affect human behavior. 	<ul style="list-style-type: none"> • How do scientists learn new things? • What patterns can we observe in nature that help us to predict how things will react in the future? • How can we influence the way things behave in the natural world? • How do scientists use tools to help us understand our world? • How do the seasons impact our lives? 	<ul style="list-style-type: none"> • Describe the characteristics of each of the four seasons in New England and record observations each day and highlight changes. • Identify the changes that plants and animals go through as the seasons change through class discussions and journal illustrations of the changes observed at Cattail Corner. • Use and share quantitative observations of local weather conditions to describe patterns over time. • Construct an argument supported by evidence for how plants and animals can change the environment. • Communicate solutions to reduce the amount of natural resources an individual uses. • <i>(K-PS3)</i> Make observations to determine that sunlight warms materials on Earth’s surface. • <i>(K-PS3)</i> Use tools and materials to design and build a prototype of a structure that will reduce the warming effect of sunlight on an area.

Life Science: From Molecules to Organisms: Structures and Processes

Enduring Understandings In order to meet the standards, the students will need to understand that . . .	Essential Questions In order to understand, students will need to consider questions such as . . .	Knowledge and Skills Learning this material will require students to . . .
<ul style="list-style-type: none"> • Animals have unique and diverse life cycles. • Living things need certain things to live and grow. • Many plants and animals closely resemble their parents in observable appearance. • Organisms have particular needs of their habitat and adapt to meet those needs. 	<ul style="list-style-type: none"> • How are humans and animals similar? • What makes a good habitat? • How are animal life cycles represented in nature? 	<ul style="list-style-type: none"> • Understand the ways in which a habitat supports an organism. • Observe, describe, discuss and record changes over time. • Understand that habitats need to be respected by humans by brainstorming ways of preserving the environment of Cattail Corner. • Compare amphibians to other animals. • Understand and sequence the life cycle of a frog and describe the characteristics at each stage.

Life Science: Wood and Paper

Enduring Understandings In order to meet the standards, the students will need to understand that . . .	Essential Questions In order to understand, students will need to consider questions such as . . .	Knowledge and Skills Learning this material will require students to . . .
<ul style="list-style-type: none"> • Wood comes from trees. • Paper is made from wood. • Natural materials have observable properties such as texture, weight, color, and absorbability. 	<ul style="list-style-type: none"> • How do scientists learn new things? • What patterns can we observe in nature that help us to predict how things will react in the future? • How can we influence the way things behave in the natural world? • How do scientists use tools to help them understand our world? 	<ul style="list-style-type: none"> • Describe several properties of wood and paper. • Name objects that are made from wood and paper. • Distinguish between natural and man-made objects. • Describe where wood and paper come from. • Learn that recycling paper extends the use of trees. • Identify and explain some possible uses of wood and paper. • Create useful and decorative objects from paper and wood. • Communicate ideas, observations and experiences through writing, drawing and discussion.

Physical Science: Matter and Its Interactions

Enduring Understandings In order to meet the standards, the students will need to understand that . . .	Essential Questions In order to understand, students will need to consider questions such as . . .	Knowledge and Skills Learning this material will require students to . . .
<ul style="list-style-type: none"> • Every living and non living thing in our universe is made up of matter. • Matter occurs in three states: solid, liquid, and gas. • Matter can be altered or changed to another state. 	<ul style="list-style-type: none"> • How do scientists learn new things? • What patterns can we observe in nature that help us to predict how things will react in the future? • How can we influence the way things behave in the natural world? • How do scientists use tools to help them understand our world? 	<ul style="list-style-type: none"> • Understand the properties of solids and liquids. • Design and conduct an experiment to test the idea that different kinds of materials can be a solid or a liquid depending on temperature. • Understand that engineering design requires creative thinking and consideration of a variety of ideas to solve practical problems by planning and building a tower, bridge, or tunnel using a set of solids. • Communicate ideas, observations and experiences through writing, drawing and/or discussion.

Physical Science: Motion and Stability: Forces and Interactions

Enduring Understandings In order to meet the standards, the students will need to understand that . . .	Essential Questions In order to understand, students will need to consider questions such as . . .	Knowledge and Skills Learning this material will require students to . . .
<ul style="list-style-type: none"> • Objects can be made to move in different ways. • The motion of an object can be changed by pushing or pulling it. 	<ul style="list-style-type: none"> • How do scientists learn new things? • What patterns can we observe in nature that help us to predict how things will react in the future? • How can we influence the way things behave in the natural world? • How do scientists use tools to help them understand our world? • How does strength affect the push or pull on an object? 	<ul style="list-style-type: none"> • Describe the different patterns objects move in. • Compare the effects of different strengths or different directions that pushes and pulls have on the motion of an object.