

# Westbrook School Department Course Blueprint



<p><b>Content Area / Grade Level</b> 6th Grade Science</p>	
<p><b>Course Title</b> Earth Science</p>	
<p><b>Course Description</b> This course is aligned with the Next Generation Science Standards for middle school science. This class focuses mainly on Earth and Space science, with additional discussion into the skills of a scientist. Students will start the year learning about the metric system, the tools scientists use to collect data, and metric conversions. They will use their new knowledge of the metric system to learn about the scientific method and take an inquiry through the process. We will delve into space systems next and students will use their knowledge of the metric system to create a scaled model of the solar system. Following this students will learn about the Earth's place in the universe, mastering the earth-sun-moon relationship to explain different lunar phases, and gravity's role in creating many of Earth's natural phenomena. We will take a closer look at plate tectonics, fossil distribution, and geological structures, collecting evidence to support earth's ever changing landscape. Students will look at how erosion and the water cycle have shaped our planet on a modern timeline as we learn about weather and climate. We will finish up the year discussing how the pursuit of natural resources has changed our planet and the role that humans play in the earth's overall ecological health.</p>	
<p><b>Westbrook Learning Standards</b></p> <p><b>Practices</b></p> <ol style="list-style-type: none"> <li>1. Asking Questions and Defining Problems</li> <li>2. Developing and Using Models</li> <li>3. Planning and Carrying Out Investigations</li> <li>4. Analyzing and Interpreting Data</li> <li>5. Using Mathematics and Computational Thinking</li> <li>6. Constructing Explanations and Designing Solutions</li> <li>7. Engaging in Argument from Evidence</li> <li>8. Obtaining, Evaluating and Communicating Information.</li> </ol>	<p><b>Guiding Principles / Vision of the Graduate</b></p> <ul style="list-style-type: none"> <li>• A clear and effective communicator</li> <li>• A self-directed and lifelong learner</li> <li>• A creative and practical problem solver</li> <li>• A responsible and involved citizen</li> <li>• An integrative and informed thinker</li> </ul>

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**Expected Outcomes** - Expectations for students upon completion of the course.

Students should be able to:

- Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system
- Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- Analyze and interpret data to determine scale properties of objects in the solar system.
- Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions
- Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
- Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century
- Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment
- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.