

**Joliet Public Schools District 86**  
**Grade 7 Science Curriculum**

Unit Title	NGSS Standards	Unit Overview
<p><b><u>Climate Diversity</u></b></p> <p>Trimester 1</p> <p>~ 5 weeks</p>	<ul style="list-style-type: none"> <li>● <b>MS-PS4-3.</b> Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.</li> <li>● <b>MS-ESS2-5.</b> Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.</li> <li>● <b>MS-ESS2-6.</b> 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.</li> <li>● <b>MS-ESS3-2.</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</li> </ul>	<p>The unit organizes performance expectations with a focus on helping students build understanding of causes of diverse climates.</p> <p>This unit covers different types of weather and the natural disasters that can be caused by severe weather, allowing students to demonstrate how to prepare for severe weather that affects our community.</p>
<p><b><u>Transfer of Energy and Matter in Ecosystems</u></b></p> <p>Trimester 2</p> <p>~ 6 weeks</p>	<ul style="list-style-type: none"> <li>● <b>MS-LS1-6.</b> Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.</li> <li>● <b>MS-LS1-7.</b> Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</li> <li>● <b>MS-LS2-1</b> Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</li> <li>● <b>MS-LS2-2</b> Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.</li> <li>● <b>MS-LS2-3.</b> Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</li> <li>● <b>MS-LS2-4</b> Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</li> <li>● <b>MS-LS2-5</b> Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</li> <li>● <b>MS-ESS2-1.</b> Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.</li> <li>● <b>MS-ESS2-2.</b> Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.</li> </ul>	<p>The bundle organizes performance expectations with a focus on helping students build understanding of the transfer of energy and matter between Earth Systems, including the biosphere.</p> <p>Energy that flows and matter that cycles produce chemical and physical changes in Earth's materials. The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. Many of these interactions involve the movement of water both on the land and underground which cause weathering and erosion, changing the land's surface features and creating underground formations. Energy that flows and matter that cycles within Earth systems produces chemical and physical changes in living organisms. Matter and energy are transferred between producers, consumers, and decomposers within an ecosystem, and the atoms that make up the matter are cycled repeatedly between the living and nonliving parts of an ecosystem.</p>
<p><b><u>Organization of Living Things</u></b></p> <p>Trimester 3</p> <p>~ weeks</p>	<ul style="list-style-type: none"> <li>● <b>MS-LS1-1.</b> Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</li> <li>● <b>MS-LS1-2.</b> Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</li> <li>● <b>MS-LS1-3.</b> Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</li> <li>● <b>MS-LS1-8</b> Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.</li> </ul>	<p>This unit organizes performance expectations with a focus on helping students build understanding of cells and how they work together in particular body functions. Students will understand that all living things are made up of cells, and within those cells are special structures responsible for particular functions. Students will demonstrate that the body is a system of multiple interacting subsystems in multicellular organisms.</p>