

# Science 6 (4640) Course Overview Curriculum Document

## Course Description

This class is an inquiry-based science course that focuses on three major themes in science: cells and organisms, energy, and weather and climate. These themes are explored through the lens of naturally occurring phenomena. This course is built on an instructional philosophy that centers on building scientific skills and habits that are practiced by scientists and engineers. Each standard is broken down into key scientific skills (Science and Engineering Practices), overarching concepts (Cross Cutting Concepts) and important content knowledge (Disciplinary Core Ideas) that help students gain a thorough understanding of the scientific process.

Credits	Prerequisites
NA	NA
Board Approved	Revised
3/4/24	

## Required Assessments

District-wide, standards-based common summative assessments

## Textbooks/Resources

STEMScopes. (2018). NGSS 3D STEMscopedia – Sixth. Rice University: Houston, TX.  
ISBN: 978-1-64305-873-3

## Course Essential Understandings

As a result of successfully completing this course, students will understand that:

- the Earth is continually changing due to changes in energy and matter.
- energy affects the composition of matter which affects weather and climate.
- all living things are made up of matter.

## Course Relevance Questions

How is the role of energy in weather and climate and all living and nonliving things?

## Unit Overviews

Unit Name	Unit Description	Unit Relevance Question	Instructional Standards	Assessed Standards
<b>Unit #1 - Cells and Organisms</b>	In this unit, students will learn about the structure and function of living things and how the structure of a system allows the system to perform its activity and communicate information within its subsystem. The concepts for investigation include cells, unicellular and multicellular organisms, differences between plant and animal cells, sensory and stimuli, growth and development of organisms: environmental factors and genetic factors, inheritance of traits, and variation of traits.	<ol style="list-style-type: none"> <li>How do the structures of organisms enable life's functions?</li> <li>How are the parts of a system related to the entire system?</li> <li>How do organisms detect, process and use information about the environment?</li> <li>How do organisms grow and develop?</li> </ol>	<a href="#">MS-LS1-1</a> Cells <a href="#">MS-LS1-2</a> Anatomy of a Cell <a href="#">MS-LS1-3</a> Bodies and Systems  <a href="#">MS-LS1-4</a> Reproduction in Plants and Animals <a href="#">MS-LS1-5</a> Growth of Organisms <a href="#">MS-LS1-8</a> Sensory Receptors <a href="#">MS-LS3-2</a> Inheritance and Genetic Variation	<a href="#">MS-LS1-1</a> <a href="#">MS-LS1-2</a> <a href="#">MS-LS1-3</a>  <a href="#">MS-LS1-4</a> <a href="#">MS-LS1-5</a> <a href="#">MS-LS1-8</a> <a href="#">MS-LS3-2</a> (not assessed until 8th grade)
<b>Unit #2 - Energy</b>	In this unit, students will learn about energy and matter as a system (relationship between temperature and types, states and amounts of matter). The concepts for investigation include the conservation of energy and energy transfer, kinetic energy, and thermal energy.	<ol style="list-style-type: none"> <li>What is energy?</li> <li>How is energy transferred and conserved between objects or systems?</li> </ol>	<a href="#">MS-PS3-3</a> Thermal Energy <a href="#">MS-PS3-4</a> Kinetic Energy <a href="#">MS-PS3-5</a> Energy Transfer	<a href="#">MS-PS3-3</a> <a href="#">MS-PS3-4</a> <a href="#">MS-PS3-5</a>
<b>Unit #3 - Weather and Climate</b>	In this unit, students will learn about the role of water in Earth's surface and the cause and effect of natural processes and/or human activities on weather and climate. The concepts for investigation include the hydrologic cycle, atmosphere, weather condition patterns, air masses and landforms, ocean temperatures, currents, Coriolis effect, Global Ocean Convection Cycle, and global climate change.	<ol style="list-style-type: none"> <li>How do the properties and movements of water shape Earth's surface and affect its systems?</li> <li>What regulates weather and climate?</li> <li>How do people model and predict the effects of human activities on Earth's climate?</li> </ol>	<a href="#">MS-ESS2-4</a> Water Cycle <a href="#">MS-ESS2-5</a> Influence of Weather and Climate <a href="#">MS-ESS2-6</a> Ocean Currents  <a href="#">MS-ESS3-3</a> Human Impact on the Environment <a href="#">MS-ESS3-5</a> Climate Change	<a href="#">MS-ESS2-4</a> <a href="#">MS-ESS2-5</a> <a href="#">MS-ESS2-6</a>  <a href="#">MS-ESS3-3</a> <a href="#">MS-ESS3-5</a>