

Science 7 (4740) Course Overview Curriculum Document

Course Description

This class is an inquiry-based science course that focuses on three major themes in science: How the Earth Changes, Changes in Matter, Organisms and Ecosystem Interactions. 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
June 2003, May 2019	July 12, 2004; June 2019, June 2022

Required Assessments

District-wide, standards-based common summative assessments

Textbooks/Resources

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

Course Essential Understandings	Course Relevance Questions
As a result of successfully completing this course, students will understand that: <ul style="list-style-type: none"> the Earth is continually changing due to geoscience processes. energy affects the composition of matter. energy flows through an ecosystem in a predictable manner. 	How does energy flow through all living and nonliving things?

Unit Overviews

Unit Name	Unit Description	Unit Relevance Question	Instructional Standards	Assessed Standards
Unit #1 - How Earth Changes	In this unit, students will learn how the cycling of Earth's materials and the flow of energy results in a changing Earth. Global movements of water and its changes in form are propelled by sunlight and gravity will also affect the Earth's landscape. Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events.	1. How does water cycle on Earth and where does the energy come from to drive this process? 2. How do rocks cycle on Earth and where does the energy come from to drive this process? 3. How has the Earth changed over time? 4. How can humans use data to predict natural disasters and mitigate the damage caused by these disasters?	MS-ESS2-1 MS-ESS2-2 MS-ESS2-3 MS-ESS2-4 MS-ESS3-2	MS-ESS2-1 MS-ESS2-3 MS-ESS2-4
Unit #2 - Changes in Matter	In this unit, students will develop models to describe atomic composition and particle motion in natural and synthetic materials. Use models to describe how the total number of atoms does not change in a chemical reaction. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.	1. What is matter and the difference between natural and synthetic products? 2. What is a chemical reaction and what are the indicators for a chemical reaction? 3. How does temperature affect matter? 4. What is the Law of Conservation of Matter? 5. How do we apply our understanding of matter and its properties to engineer better products?	MS-PS1-1 MS-PS1-2 MS-PS1-3 MS-PS1-4 MS-PS1-5 MS-PS1-6	MS-PS1-1 MS-PS1-2 MS-PS1-4 MS-PS1-5
Unit #3 - Organisms & Ecosystems Interactions	In this unit, students will develop models to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. By looking at resource availability along with physical and biological components of an ecosystem, students will be able to construct an argument explaining how populations are affected.	1. How does energy flow through plants (producers) during photosynthesis? 2. How is food converted into energy (cellular respiration)? 3. What effect does an ecosystem have on organisms and populations? 4. How do abiotic and biotic relationships affect an ecosystem? 5. What can humans do to improve ecosystems?	MS-LS1-6 MS-LS1-7 MS-LS2-1 MS-LS2-2 MS-LS2-3 MS-LS2-4 MS-LS2-5	MS-LS1-6 MS-LS1-7 MS-LS2-1 MS-LS2-3 MS-LS2-4