

Middle School Bullseye Science  
Earth/Space  
Grade 6

Standard	Space Systems	I	II	III	IV	Vocabulary	Big Idea	Real World Instructional Example
MS-ESS1-1	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.					Lunar phases, solar eclipse, solar system, lunar eclipse, galaxy, gravity, season, cyclic pattern, rotation, axis, revolution, tide, waves, new moon, first quarter, full moon, third quarter	The Universe and its Stars	Students will develop a model of the moon phases with Oreo cookies or clay. Students will create an iMovie to create a solar and lunar eclipse.
MS-ESS1-2.	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.					galaxy, gravity, orbit, solar system,	Galaxies and gravity	Students conduct a lab to understand the role of gravity in the formation of the solar system.
MS-ESS1-3	Analyze and interpret data to determine scale properties of objects in the solar system.					galaxy, gravity, orbit, solar system, scale,	Earth and the Solar system	Students model planet sizes and distances proportionally learning how to represent the system.
Standard	History of Earth	I	II	III	IV	Vocabulary	Big Idea	Real World Instructional Example
MS-ESS1-4	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.					rock strata, geological time, relative age, fossil records, absolute scale	The History of Planet Earth	Students model the formation of rock layers of the earth's crust by dropping colored game chips into a cylinder.
MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.					special scales, Pangaea, continental drift, Alfred Wegner, plate tectonics, Ring of Fire, sea floor spreading, weathering, erosion, deposition, trenches, weathering, erosion	Geoscience Process (WED)	Students will reconstruct Pangaea using "puzzle" pieces. Students will demonstrate the weathering of a rock by using a sugar cube shaken in a jar.
MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.					sea floor spreading, continental shelves, fossils, tectonic plates, trenches, fracture zones, ridges	The History of Planet Earth	Students will analyze a photo of fossil distribution of the world and identify evidence of how there are fossils on both sides to the continent with a RACE response.
Standard	Earth's Systems	I	II	III	IV	Vocabulary	Big Idea	Real World Instructional Example
MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.					igneous, metamorphic, sedimentary extrusive, intrusive, sediment, lithification, erosion, weathering, deposition, crystallization, melting, weathering, deformation, sedimentation, minerals	Rock Cycle	Students will simulate the rock cycle by manipulating wax crayons to represent different forms of rocks
MS-ESS2-4	Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.					evaporation, condensation, crystallization, precipitation, transpiration, surface run off, vapor, states of matter, solid, liquid, gas, sun, energy, cycle	Water Cycle	Students will experiment with a virtual terrarium. <a href="https://www.fossweb.com/delegate/ssi-wdf-ucm-webContent/Contribution%20Folders/FOSS/multimedia/Environments/terrarium/terrarium_HTML5.html">https://www.fossweb.com/delegate/ssi-wdf-ucm-webContent/Contribution%20Folders/FOSS/multimedia/Environments/terrarium/terrarium_HTML5.html</a> . Students will create a "story of a water droplet" to demonstrate the cycling of water
MS-ESS3-1	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.					natural resources, metal ores, coal, petroleum, ground water, renewable and non-renewable resources, minerals, fossil fuels, solar energy, wind energy, fresh water	Natural Resources	Students research the advantages and disadvantages of coal <a href="https://www.eia.gov/energy explained/coal/prices-and-outlook">https://www.eia.gov/energy explained/coal/prices-and-outlook</a>

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Standard	Weather and Climate	I	II	III	IV	Vocabulary	Big Idea	Real World Instructional Example
MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.					air masses, weather, humidity, precipitation, temperature, air pressure, cold front, warm front,	Air Masses	Students will complete a lab to collect weather data from local sources in order to predict weather and provide evidence to determine the relationship between air masses and weather.
MS-ESS2-6	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.					atmospheric circulation, oceanic circulation, convection, Coriolis effect, dense, current, climate,	Regional Climates	Students will model the ocean currents in a lab using different temperature water and food coloring. <a href="https://www.youtube.com/watch=xPI3foajmcw">https://www.youtube.com/watch=xPI3foajmcw</a>
MS-ESS3-5	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.					temperature, greenhouse gases, climate, global warming,	Global Warming	Students conduct research about the factors that have caused the rise in global temperature and solutions to stabilize the Earth's climate.
Standard	Human Impacts	I	II	III	IV	Vocabulary	Big Idea	Real World Instructional Example
MS-ESS3-2	Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.					natural hazards, mitigate, volcano, earthquakes, tsunami, tornado, floods, hurricanes, prediction	Natural Hazards	Students research by finding and analyzing resources to mitigate or respond to natural disasters in our country. Discuss government resources, technological advances, which ones can and can't be predicted, etc.
MS-ESS3-3	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.					impact, carbon foot print, pollution	Human Impacts on Earth Systems	Finding Your Carbon Footprint - Using a carbon footprint calculator on the internet answer questions to determine your carbon footprint
MS-ESS3-4	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.					population, per capita, natural resources, impact, argument	Human Impacts on Earth Systems	Students learn that human activities can induce hazards through land use decisions that may negatively impact natural processes. Students write a persuasive argument taking a stand on the issue.

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Standard	Engineering Design	I	II	III	IV	Big Idea	Real World Instructional Example
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.					Defining and Delimiting Engineering Problems	PLTW: Robotics
MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.					Developing Possible Solutions	PLTW: Robotics
MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.					Optimizing the Design Solution	PLTW: Robotics
MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.					Createe and test a model	PLTW: Robotics

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Standard	Literacy	I	II	III	IV	Real World Instructional Example
RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.					Using textbooks and various science related informative text to determine text-based answers. Use textbook or research documents to support your point/opinion.
RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.					Determine the main idea or purpose of a lab. Develop a concluding statement for a science experiment.
RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.					Use Close Reading Strategies to understand procedures and steps in experiments and labs.
RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.					Use Close Reading Strategies to determine terms within a technical text. (leveled readers, textbooks, Wonderopolis)
RST.6-8.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.					Use Close Reading Strategies to analyze how an author organizes a piece of text. (leveled readers, textbooks, Wonderopolis)
RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.					Use Close Reading Strategies to analyze the author's purpose in a technical text.
RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).					Use Close Reading Strategies to analyze text and a visual representation such as a chart or diagram (leveled readers, textbooks, Wonderopolis)
RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.					Use Close Reading Strategies to pull out facts within a given text. (leveled readers, textbooks, Wonderopolis)
RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.					Use Close Reading Strategies to compare and contrast a piece of text with information gained from experiments, simulations, or a media source.
RST.6-8.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.					

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Standard	Writing	I	II	III	IV	Real World Instructional Example
WHST.6-8.1	Write arguments focused on discipline-specific content.					Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.					Write about a given topic: The Earth's History, the change of Earth's Surface, distribution of Earth's Resources, Human Impact on the Environment
WHST.6-8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.					Write about a given topic: The Earth's History, the change of Earth's Surface, distribution of Earth's Resources, Human Impact on the Environment
WHST.6-8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.					Write about a given topic: The Earth's History, the change of Earth's Surface, distribution of Earth's Resources, Human Impact on the Environment
WHST.6-8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.					Write about a given topic: The Earth's History, the change of Earth's Surface, distribution of Earth's Resources, Human Impact on the Environment
WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.					Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century then write a short research project to answer the question.
WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.					Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.					Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
WHST.6-8.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.					Science Journal