

Chapter Title	Chapter Description	Lesson Title	Lesson Description	Activity Code	Activity Title
Human Interactions with the Environment	Students will explore how humans obtain natural resources from Earth, how we use those resources, how human behavior affects our environment, and ways humans can minimize their impact.				
		Energy Resources	Students will be able to compare and contrast the advantages and disadvantages of different sources of energy.		
				MSSC110	Energy Resources
				MSSC682	Authentic Task: Solar Energy
				MSSC683	Authentic Task: Energy Sources
					Lesson Quiz: Energy Resources
		Other Natural Resources	Students will be able to describe the natural origin of the materials used to make common objects.		
				MSSC111	Other Natural Resources
				MSSC684	Authentic Task: Petroleum Products
				MSSC547	Odyssey Writer: Where Did It Come From?

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					Lesson Quiz: Other Natural Resources
		Renewable and Nonrenewable Resources	Students will be able to categorize resources as renewable or nonrenewable.		
				MSSC112	Renewable and Nonrenewable Resources
				MSSC444	Odyssey Community: Should We Use Nonrenewable Resources?
					Lesson Quiz: Renewable and Nonrenewable Resources
		Human Impact on Ecosystems	Students will be able to describe ways humans can affect the environment.		
				MSSC445	Odyssey Community: How Do Humans Impact Earth?
				MSSC113	Human Impact on Ecosystems
				MSSC548	Odyssey Writer: Case Study: Human Impacts
					Lesson Quiz: Human Impact on Ecosystems

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		Pollution	Students will be able to identify point and non-point sources of pollution.		
				MSSC114	Pollution
				MSSC549	Odyssey Writer: Research: Pollution
					Lesson Quiz: Pollution
		Minimizing Waste	Students will be able to explain how to minimize waste production by reducing, reusing, and recycling.		
				MSSC446	Odyssey Community: How Can You Reduce Waste?
Earth's Structure	Students will investigate Earth's layered structure and the heat trapped inside Earth.				
		Earth's Layers	Students will be able to compare and contrast the properties of Earth's layers.		
				MSSC116	Layers of the Earth
				MSSC411	Odyssey Community: How Many Layers Does Earth Have, Anyway?

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				MSSC550	Odyssey Writer: Journey to the Center of the Earth
					Lesson Quiz: Earth's Layers
		Earth's Internal Heat	Students will be able to describe how heat inside Earth is transported through convection.		
				MSSC117	Heat Inside the Earth
				MSSC685	Authentic Task: Hot Springs and Geysers
					Lesson Quiz: Earth's Internal Heat
Earth's History	Students will investigate how fossils and absolute and relative dating techniques show that Earth has a long and varied history.				
		Fossils	Students will be able to describe how fossils provide evidence of how life and environmental conditions have changed throughout geologic time.		
				MSSC118	Fossils
				MSSC686	Authentic Task: STEM Careers: Paleontologist

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				MSSC687	Authentic Task: Dinosaurs
				MSSC688	Authentic Task: Frozen Mammoths
					Lesson Quiz: Fossils
		Absolute and Relative Dating	Students will be able to apply methods of absolute and relative dating to determine the age of rocks and fossils.		
				MSSC119	Absolute and Relative Dating
				MSSC447	Odyssey Community: Analyzing Rock Strata
				MSSC551	Odyssey Writer: Absolute or Relative?
					Lesson Quiz: Age Dating
Rocks and Minerals	Students will explore the properties of minerals, rocks, and how rocks can change form as part of the rock cycle.				
		Minerals	Students will be able to classify minerals using physical properties such as hardness, color, luster, and streak.		
				MSSC121	Minerals
				MSSC626	Authentic Task: Master Mines

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				MSSC511	Odyssey Writer: Mineral Report
					Lesson Quiz: Minerals
		Rocks	Students will be able to distinguish between igneous, sedimentary, and metamorphic rocks.		
				MSSC122	Rock Types
				MSSC690	Authentic Task: Rocks
					Lesson Quiz: Rocks
		The Rock Cycle	Students will be able to describe how material can change form in the rock cycle.		
				MSSC123	The Rock Cycle
				MSSC512	Odyssey Writer: A Rock's Tale
					Lesson Quiz: The Rock Cycle
Geologic Processes	Students will examine geologic maps and investigate the geologic processes and events that occur on Earth, including plate tectonics, earthquakes, volcanoes, weathering, erosion, and deposition.				

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		Topographic and Geologic Maps	Students will be able to interpret information on topographic and geologic maps.		
				MSSC124	Topographic and Geologic Maps
				MSSC691	Authentic Task: Maps
					Lesson Quiz: Maps
		Geologic Processes and Events	Students will be able to describe how Earth's processes today are similar to those that occurred in the past, and how slow geologic processes have large cumulative effects over long periods of time.		
				MSSC125	Geologic Processes and Events
				MSSC627	Authentic Task: Geology of the Grand Canyon
					Lesson Quiz: Geologic Processes and Events
		Continental Drift	Students will be able to describe how lithospheric plates the size of continents and oceans move at rates of centimeters per year in response to movements in the mantle.		

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				MSSC126	Continental Drift
				MSSC553	Odyssey Writer: Motion of the Continents
					Lesson Quiz: Continental Drift
		Introduction to Plate Tectonics	Students will be able to explain the evidence for the theory of plate tectonics.		
				MSSC127	Plate Tectonics
				MSSC692	Authentic Task: Historical Development of the Theory of Plate Tectonics
					Lesson Quiz: Introduction to Plate Tectonics
		Effects of Plate Tectonics	Students will be able to explain how plate tectonics shapes Earth's surface.		
				MSSC128	Effects of Plate Tectonics
				MSSC693	Authentic Task: Geology of the United States
					Lesson Quiz: Effects of Plate Tectonics



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		Earthquakes	Students will be able to describe how earthquakes are created by the processes of plate tectonics.		
				MSSC129	Earthquakes
				MSSC449	Odyssey Community: Earthquake Safety
				MSSC694	Authentic Task: STEM Careers: Earthquake Scientist
					Lesson Quiz: Earthquakes
		Volcanoes	Students will be able to describe how volcanoes are created by the processes of plate tectonics.		
				MSSC130	Volcanoes
				MSSC695	Authentic Task: Mt. St. Helens
				MSSC513	Odyssey Writer: Volcano Safety Manual
					Lesson Quiz: Volcanoes
		Weathering, Erosion, and Deposition	Students will be able to differentiate between chemical weathering, mechanical weathering, erosion, and deposition.		

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				MSSC450	Odyssey Community: What Happened Here?
				MSSC131	Weathering, Erosion, and Deposition
				MSSC696	Authentic Task: Grand Canyon
				MSSC628	Authentic Task: Beaches
					Lesson Quiz: Weathering, Erosion, and Deposition
		Soil	Students will be able to explain the process of soil formation and relate different components of soil to soil properties.		
				MSSC132	Soil
				MSSC554	Odyssey Writer: What's In Your Soil?
					Lesson Quiz: Soil
Energy on Planet Earth	Students will explore how energy from the Sun affects Earth.				
		The Sun's Energy	Students will be able to describe how sunlight reaches Earth and its effects on the planet.		
				MSSC133	Energy from the Sun
				MSSC698	Authentic Task: Importance of Solar Energy

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				MSSC451	Odyssey Community: Solar Energy Discussion
					Lesson Quiz: The Sun's Energy
Water	Students will explore the water on Earth's surface, including the water cycle, watersheds, oceans, and ocean currents.				
		The Water Cycle	Students will be able to explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, groundwater, and absorption occur within the cycle.		
				MSSC412	Odyssey Community: Where Does Your Water Come From?
				MSSC134	The Water Cycle
				MSSC514	Odyssey Writer: A Raindrop's Story
					Lesson Quiz: The Water Cycle

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		Watersheds	Students will be able to diagram the flow of water through a watershed.		
				MSSC135	Watersheds
				MSSC699	Authentic Task: Watershed Protection
					Lesson Quiz: Watersheds
		Oceans	Students will be able to describe the composition and underwater features of Earth's oceans.		
				MSSC136	Oceans
				MSSC629	Authentic Task: Ocean Zones
				MSSC700	Authentic Task: Coral Reefs
				MSSC555	Odyssey Writer: Threats to the Oceans
					Lesson Quiz: Oceans
		Ocean Currents	Students will be able to distinguish between surface currents and deep ocean currents and describe the factors that create each kind of current.		
				MSSC137	Ocean Currents
				MSSC630	Authentic Task: El Niño
					Lesson Quiz: Ocean Currents

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Earth's Atmosphere	Students will investigate the properties, structure, and composition of Earth's atmosphere. Topics include atmospheric convection, air temperature, air pressure, winds, humidity, and precipitation.				
		Atmospheric Composition	Students will be able to describe the physical properties and chemical composition of Earth's atmosphere.		
				MSSC138	Composition of Earth's Atmosphere
				MSSC701	Authentic Task: Carbon Dioxide Emissions
				MSSC556	Odyssey Writer: Air Pollution
					Lesson Quiz: Atmospheric Composition
		Atmospheric Convection	Students will be able to describe how convection drives movement of air in Earth's atmosphere, creating global winds and the jet streams.		

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				MSSC139	Atmospheric Convection
				MSSC702	Authentic Task: The Coriolis Effect
					Lesson Quiz: Atmospheric Convection
		Atmospheric Temperature and Pressure	Students will be able to explain how uneven heating of Earth's surface can affect air pressure, producing local winds.		
				MSSC140	Air Temperature, Air Pressure, and Winds
				MSSC413	Odyssey Community: What Makes Wind?
					Lesson Quiz: Atmospheric Temperature and Pressure
		Moisture in the Atmosphere	Students will be able to compare and contrast water vapor, clouds, and humidity, and describe how clouds form and eventually create precipitation.		
				MSSC141	Humidity and Precipitation
				MSSC703	Authentic Task: Cloud Identification

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				MSSC704	Authentic Task: Heat Index
				MSSC557	Odyssey Writer: Why Does It Rain?
					Lesson Quiz: Moisture in the Atmosphere
Weather and Climate	Students will explore weather and climate. Topics include air masses and fronts, predicting weather, tornadoes and hurricanes, and distinguishing weather and climate.				
		Air Masses and Fronts	Students will be able to distinguish between warm and cold air masses, and warm, cold, occluded, and stationary fronts, and identify these features on a weather map.		
				MSSC142	Air Masses and Fronts
					Lesson Quiz: Air Masses and Fronts
		Weather	Students will be able to predict future weather conditions by interpreting data from weather instruments and weather maps.		

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				MSSC414	Odyssey Community: Examples of Weather
				MSSC143	Weather
				MSSC705	Authentic Task: Interpreting Weather Maps
				MSSC558	Odyssey Writer: Weather Forecasting
					Lesson Quiz: Weather
		Extreme Weather	Students will be able to distinguish between hurricanes and tornadoes, and describe the formation of each.		
				MSSC144	Extreme Weather
				MSSC706	Authentic Task: Lightning
				MSSC515	Odyssey Writer: Hurricane Safety
					Lesson Quiz: Extreme Weather
		Climate	Students will be able to distinguish between weather and climate and compare and contrast the climates of different regions on Earth based on their geographic features.		
				MSSC145	Climate
				MSSC707	Authentic Task: Climate Change



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					Lesson Quiz: Climate
Introduction to Astronomy	Students will explore the field of astronomy, including how astronomers make observations, and measure the large distances between astronomical objects.				
		Astronomical Distances	Students will be able to apply the concepts of the astronomical unit and the light year to describe astronomical distances.		
				MSSC146	Astronomical Distances
				MSSC708	Authentic Task: Cosmic Distance Scales
					Lesson Quiz: Astronomical Distances
		Observing Astronomical Objects	Students will be able to describe how scientists can observe astronomical objects and distinguish between objects that emit light and objects that reflect it.		
				MSSC147	Observing Astronomical Objects
				MSSC709	Authentic Task: Observatories and Telescopes

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					Lesson Quiz: Observing Astronomical Objects
The Solar System	Students will investigate the structure of our solar system and how it formed, use models to better understand its structure, and explore the importance of gravity in our solar system.				
		Structure of the Solar System	Students will be able to describe the basic structure of the solar system and relate the solar system to the larger universe.		
				MSSC148	Structure of the Solar System
				MSSC710	Authentic Task: Solar System Tour
					Lesson Quiz: Structure of the Solar System
		The Sun	Students will be able to describe the physical and chemical features and properties of the Sun.		
				MSSC149	Our Sun
				MSSC711	Authentic Task: The Sun
					Lesson Quiz: The Sun

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		Planets and Moons	Students will be able to compare and contrast the properties of the planets in the solar system and their moons.		
				MSSC150	Planets and Moons
				MSSC712	Authentic Task: Jupiter and Its Moons
				MSSC452	Odyssey Community: Should Pluto Be a Planet?
					Lesson Quiz: Planets and Moons
		Asteroids, Comets, and Meteoroids	Students will be able to compare and contrast the properties of asteroids, comets, and meteoroids.		
				MSSC151	Asteroids, Comets, and Meteoroids
				MSSC713	Authentic Task: Massive Impacts
					Lesson Quiz: Asteroids, Comets, and Meteoroids
		Models of the Solar System	Students will be able to differentiate between heliocentric and geocentric models of the solar system, and interpret a scale model of the solar system.		

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				MSSC152	Models of the Solar System
					Lesson Quiz: Models of the Solar System
		Gravity in our Solar System	Students will be able to apply Newton's theory of universal gravitation to explain the structure of the solar system and the motion of objects within it.		
				MSSC153	Gravity in our Solar System
				MSSC631	Authentic Task: PhET Simulation: Gravity and Orbits
					Lesson Quiz: Gravity in our Solar System
		Formation of the Solar System	Students will be able to apply Newton's theory of universal gravitation to explain the formation of the solar system.		
				MSSC154	Formation of the Solar System
					Lesson Quiz: Formation of the Solar System

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Stars and Galaxies	Students will explore the properties of stars, how they evolve over their existence, and how they are organized into galaxies.				
		Stars	Students will be able to classify stars by their physical properties including apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness), and sequence the stages of a star's existence.		
				MSSC155	Stars
				MSSC632	Authentic Task: Constellations
					Lesson Quiz: Stars
		Hertzsprung-Russell Diagrams	Students will be able to use a Hertzsprung-Russell diagram and other data to compare the approximate mass, size, luminosity, temperature, structure, and composition of the Sun to other stars.		

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				MSSC156	Hertzsprung-Russell Diagrams
					Lesson Quiz: Hertzsprung-Russell Diagrams
		Galaxies	Students will be able to describe the Sun's position within the Milky Way and the universe, and recognize that there are billions of galaxies, each made up of many millions or billions of stars.		
				MSSC157	Galaxies
				MSSC714	Authentic Task: NASA Astrophysics: Galaxies
					Lesson Quiz: Galaxies
The Sun, the Moon, and Earth	Students will explore Earth's magnetic field and interactions between the Sun, the Moon, and Earth, including what creates days, seasons, and years, eclipses, phases of the Moon, and tides.				

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		Earth's Magnetic Field	Students will be able to describe the origin of Earth's magnetic field and the effects caused by this field.		
				MSSC158	Earth's Magnetic Field
				MSSC633	Authentic Task: PhET Simulation: Magnet and Compass
				MSSC715	Authentic Task: Auroras
					Lesson Quiz: Earth's Magnetic Field
		Days, Seasons, and Years	Students will be able to analyze the position of Earth and the Sun, Earth's orbital and rotational motions, and Earth's axial tilt to describe the causes of days, years, and seasons.		
				MSSC415	Odyssey Community: What Do You Think Causes Days, Seasons, and Years?
				MSSC159	Days, Seasons, and Years
				MSSC716	Authentic Task: Visualizing the Seasons
				MSSC559	Odyssey Writer: What Causes the Seasons?

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					Lesson Quiz: Days, Seasons, and Years
		Eclipses	Students will be able to analyze the relative positions of Earth, the Sun, and the Moon to predict solar and lunar eclipses.		
				MSSC160	Eclipses
				MSSC717	Authentic Task: Eclipses in Action
					Lesson Quiz: Eclipses
		Phases of the Moon	Students will be able to predict the current phase of the Moon based on the relative positions of Earth, the Sun, and the Moon.		
				MSSC161	Phases of the Moon
					Lesson Quiz: Phases of the Moon
		Tides	Students will be able to relate the tides on Earth to the relative positions of the Sun and Moon.		
				MSSC162	Tides
					Lesson Quiz: Tides



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Understanding the Universe	Students will investigate how humans explore space, and how scientists believe the universe began.				
		Space Exploration	Students will be able to describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.		
				MSSC163	Space Exploration
				MSSC718	Authentic Task: STEM Careers: Astronomer
				MSSC719	Authentic Task: Technologies from Space Exploration
				MSSC453	Odyssey Community: Is Space Exploration Important?
					Lesson Quiz: Space Exploration
		The Origin of the Universe	Students will be able to describe scientific evidence for the age and origin of the universe.		
				MSSC164	The Origin of the Universe

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				MSSC720	Authentic Task: STEM Careers: Astrophysicist
					Lesson Quiz: The Origin of the Universe