

Standard Code	Standards
MS-SCI-ESS.ES.01.00.0	Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.
MS-SCI-ESS.ES.01.A.0	Recognize that rocks are composed of minerals.
MS-SCI-ESS.ES.01.B.0	Observe and describe the minerals found in rocks (e.g. shape, color, luster, texture, hardness).
MS-SCI-ESS.ES.01.C.0	Categorize rock samples as sedimentary, metamorphic, or igneous.
MS-SCI-ESS.ES.01.D.0	Explain the rock cycle.
MS-SCI-ESS.ES.01.E.0	ELA Idea- Diagram the rock cycle. [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).]
MS-SCI-ESS.ES.02.00.0	Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
MS-SCI-ESS.ES.02.A.0	Use a model to demonstrate how erosion changes the surface of Earth.
MS-SCI-ESS.ES.02.B.0	Relate gravity to changes in Earth’s surface.
MS-SCI-ESS.ES.02.C.0	Identify the role of weathering of rocks in soil formation.
MS-SCI-ESS.ES.02.D.0	Describe the layering of sedimentary rocks over time.
MS-SCI-ESS.ES.02.E.0	Identify the assumptions scientists make to determine relative age of rock layers.
MS-SCI-ESS.ES.02.F.0	Explain why some sedimentary rock layers may not always appear with youngest rock on top and older rocks below (e.g., folding, faulting, non-conformity).
MS-SCI-ESS.ES.02.G.0	Model sedimentation and fossil formation.
MS-SCI-ESS.ES.02.H.0	Research how fossils show evidence of the changing surface of the Earth.
MS-SCI-ESS.ES.02.I.0	Propose why more recently deposited rock layers are more likely to contain fossils resembling existing species than older rock layers.
MS-SCI-ESS.ES.02.J.0	Describe how energy from the Earth’s interior causes changes to Earth’s surface (i.e., earthquakes and volcanoes).
MS-SCI-ESS.ES.02.K.0	Describe how earthquakes volcanoes transfer energy from Earth’s interior to the surface (e.g., seismic waves- transfer mechanical energy, flowing magma- transfer heat and mechanical energy).
MS-SCI-ESS.ES.02.L.0	Model the process of energy build up and release in earthquakes.
MS-SCI-ESS.ES.02.M.0	Compare abrupt changes (e.g., landslides, volcanoes, earthquakes) to gradual changes (e.g., mountain building, erosion) of the Earth’s surface and their effects.
MS-SCI-ESS.ES.02.N.0	Model how small changes over time add up to major changes to Earth’s surface.
MS-SCI-ESS.ES.03.00.0	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
MS-SCI-ESS.ES.03.A.0	Explain how convection currents result in the uneven heating inside the mantle resulting in the melting of rock materials, convection of magma, eruption/flow of magma, and movement of crustal plates.
MS-SCI-ESS.ES.03.B.0	Describe how the movement of crustal plates can cause earthquakes and volcanic eruptions that can result in mountain building and trench formation.

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MS-SCI-ESS.ES.03.C.0	Model plate tectonics.
MS-SCI-ESS.ES.04.00.0	Develop a model to describe the cycling of water, nitrogen, and carbon through Earth's systems.
MS-SCI-ESS.ES.05.00.00	Provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
MS-SCI-ESS.ES.05.A.0	Explain how the differences in surface temperature, due to the different heating and cooling rates of water and soil, affect the temperature and movement of the air above.
MS-SCI-ESS.ES.05.B.0	Recognize the characteristics of air masses (i.e. high/low barometric pressure, temperature) and predict effect on the weather in a given location.
MS-SCI-ESS.ES.05.C.0	Identify weather conditions associated with cold fronts and warm fronts.
MS-SCI-ESS.ES.05.D.0	Identify factors that affect weather patters in a particular region (e.g., proximity to large bodies of water, latitude, altitude, prevailing wind currents, amount of solar radiation, location, with respect to mountain ranges).
MS-SCI-ESS.ES.05.E.0	Collect and interpret weather data (e.g., cloud cover, precipitation, wind speed and directions) from weather instruments and maps to explain present day weather and to predict the next day's weather.
MS-SCI-ESS.ES.05.F.0	Recognize significant changes in temperature and barometric pressure may cause dramatic weather phenomena (i.e. severe thunderstorms, tornadoes, hurricanes).
MS-SCI-ESS.ES.06.00.0	Describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
MS-SCI-ESS.ES.06.A.0	Describe the composition of the Earth's atmosphere (i.e. mixture of gases, water and minute particles) and how it circulates as air masses.
MS-SCI-ESS.ES.06.B.0	Describe the role atmosphere (e.g., clouds, ozone) plays in precipitation, reflecting and filtering light from the sun, and trapping heat energy emitting from the earth's surface.
MS-SCI-ESS.ES.06.C.0	Differentiate between weather and climate.
MS-SCI-ESS.ES.06.D.0	ELA-IDEA Write and perform a weather forecast and regional climate.
MS-SCI-ESS.ES.06.E.0	Identify factors that affect climate (e.g., latitude, altitude, prevailing wind currents, amount of solar radiation, and Coriolis effect).
MS-SCI-ESS.ES.06.F.0	Compare how the Earth's natural processes are necessary for renewal just as prayer and the sacraments help cleanse and heal our soul.
MS-SCI-ESS.ES.06.G.0	Identify how the Lord has control over all the elements (e.g., scriptural evidence.)
MS-SCI-ESS.ES.06.H.0	Cite examples of how suffering in natural disasters bring us closer to Christ.
MS-SCI-ESS.ES.06.I.0	ELA- IDEA Research biblical natural disasters (Noah's flood, earthquake when Jesus died)
MS-SCI-ESS.ES.07.00.0	Explain how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
MS-SCI-ESS.ES.07.A.0	Distinguish between renewable (e.g., geothermal, hydroelectric) and nonrenewable (e.g., fossil fuel) energy sources.

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MS-SCI-ESS.ES.07.B.0	Locate on a map major energy resources. (e.g., world, country, state etc.)
MS-SCI-ESS.ES.07.C.0	Analyze why certain resources are found in specific areas of the world. (For example glacier deposits near Detroit, coal in Wyoming, oil in Middle East etc.)
MS-SCI-ESS.ES.08.00.0	Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
MS-SCI-ESS.ES.08.A.0	Describe the severity scales of the following national hazards (Earthquakes, tornadoes, hurricanes).
MS-SCI-ESS.ES.08.B.0	Explain the processes and technologies used for predicting severe weather and other natural disasters such as volcanoes, earthquakes etc.
MS-SCI-ESS.ES.09.00.0	Identify a method for monitoring and minimizing human impact on the environment.
MS-SCI-ESS.ES.09.A.0	Survey the environmental changes made by people and describe how these changes have affected various ecosystems.
MS-SCI-ESS.ES.09.B.0	Analyze the ways humans affect the erosion and deposition of soil and rock materials (e.g., clearing of land, planting vegetation, paving land, construction of new buildings, building or removal of dams) and propose possible solutions.
MS-SCI-ESS.ES.09.C.0	ELA-IDEA. Distinguish between inference and evidence in a newspaper or magazine article relating to the effect of humans on the environment. [Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in
MS-SCI-ESS.ES.09.D.0	Describe evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
MS-SCI-ESS.ES.09.E.0	Compare natural resource usage in different countries or areas. ELA- IDEA. [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
MS-SCI-ESS.ES.09.F.0	Calculate and discuss the consumption rate of a particular resource used by your school (for example number of trees used per student, gallons of water per day, acres used to make food).
MS-SCI-ESS.ES.09.G.0	Acknowledge that God provides us with all we need to survive.
MS-SCI-ESS.ES.09.H.0	Identify ways to conserve and preserve our natural resources.
MS-SCI-ESS.ES.10.00.0	Use appropriate laboratory apparatuses, technology, and techniques safely and accurately when conducting a scientific investigation.
MS-SCI-ESS.ES.10.A.0	Use scientific instruments to record measurement data in appropriate metric units that reflect the precision and accuracy of each particular instrument.
MS-SCI-ESS.ES.10.B.0	Conduct a scientific investigation with appropriate methods of control to test a hypothesis (including independent and dependent variables), and evaluate the designs of sample investigations.
MS-SCI-ESS.ES.10.C.0	Organize and interpret the data from a controlled scientific investigation by using (including calculations in scientific notation, formulas, and dimensional analysis), tables, models, diagrams, and/or technology.
MS-SCI-ESS.ES.10.D.0	Evaluate the results of a controlled scientific investigation in terms of whether they refute or verify the hypothesis.

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MS-SCI-ESS.ES.10.E.0	Differentiate between qualitative and quantitative data in experimental design.
MS-SCI-ESS.ES.10.F.0	Use appropriate safety procedures when conducting investigations.
MS-SCI-ESS.U.01.00.0	Describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons using the earth-sun-moon model.
MS-SCI-ESS.U.01.A.0	Identify and describe changes in the appearance of the moon during a month.
MS-SCI-ESS.U.01.B.0	Use observable evidence to explain the movement of the moon around Earth in relationship to Earth turning on its axis and the position of the moon changing in the sky.
MS-SCI-ESS.U.01.C.0	ELA- IDEA Design an investigation, construct a chart, and collect data depicting the phases of the moon. [Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowch
MS-SCI-ESS.U.01.D.0	Identify the difference between the motion of an object rotating on its axis and an object revolving in orbit. (rotation vs revolution).
MS-SCI-ESS.U.01.E.0	Compare how objects in the sky (moon, planets, stars) change in relative position over the course of the day or night.
MS-SCI-ESS.U.01.F.0	Model the movement and relative positions of Earth, the moon, and the sun.
MS-SCI-ESS.U.01.G.0	Describe the yearly revolution (orbit) of Earth around the sun.
MS-SCI-ESS.U.01.H.0	Explain that Earth's axis is tilted relative to its yearly orbit around the sun.
MS-SCI-ESS.U.01.I.0	Investigate the relationship between the amount of heat absorbed and the angle to the light source.
MS-SCI-ESS.U.01.J.0	Compare Earth's position in relationship to the sun during each season.
MS-SCI-ESS.U.01.K.0	Compare the hours of daylight and illustrate the angle that the sun's rays strikes the surface of Earth during summer, fall, winter, and spring in the Northern Hemisphere.
MS-SCI-ESS.U.01.L.0	Use collected data to compare patterns relating to seasonal daylight changes.
MS-SCI-ESS.U.01.M.0	ELA-IDEA Use a drawing and/or model to explain that changes in the angle at which light from the sun strikes Earth, and the length of daylight, determine seasonal differences in the amount of energy received. [Integrate quantitative or technical informati
MS-SCI-ESS.U.01.N.0	Use a model to explain why the seasons are reversed in the northern and southern hemispheres.
MS-SCI-ESS.U.02.00.0	Identify the forces that keep objects in orbit in the solar system.
MS-SCI-ESS.U.02.A.0	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
MS-SCI-ESS.U.02.B.0	Describe the appearance and apparent motion of groups of stars in the night sky relative to Earth and how various cultures have understood and used them.
MS-SCI-ESS.U.03.00.0	Analyze and interpret data to determine scale properties of objects in the solar system and the universe.
MS-SCI-ESS.U.03.A.0	Identify the planets in the solar system by name and relative location from the sun.
MS-SCI-ESS.U.03.B.0	Using references compare the physical properties of the planets (e.g., size, solid or gaseous).

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MS-SCI-ESS.U.03.C.0	Use models and graphs that accurately depict scale to compare the size and distance between objects in the solar system.
MS-SCI-ESS.U.03.D.0	Use the speed of light as a measuring standard to describe the relative distances to objects in the universe (e.g., 4.3 light years to nearest star Alpha Centauri; 0.00001 light years to the sun).
MS-SCI-ESS.U.03.E.0	Compare the size of Earth to the size of the solar system.
MS-SCI-ESS.U.03.F.0	Compare the size of the solar system to the size of the Milky Way galaxy.
MS-SCI-ESS.U.03.G.0	Compare the size of the Milky Way galaxy to the size of the known universe.
MS-SCI-ESS.U.03.H.0	Understand measure of astronomical unit (AU).
MS-SCI-ESS.U.03.I.0	Describe the characteristics of comets, asteroids, meteors, and stars.
MS-SCI-ESS.U.03.J.0	Explain the life cycle of a star.
MS-SCI-ESS.U.03.K.0	Locate and identify stars that are grouped in patterns in the night sky.
MS-SCI-ESS.U.03.L.0	Recognize that stars in a constellation are not all the same distance from Earth.
MS-SCI-ESS.U.03.M.0	Relate the seasonal change in the appearance of the night sky to Earth's position.
MS-SCI-ESS.U.03.N.0	Acknowledge that God is the creator of all matter.
MS-SCI-ESS.U.03.O.0	Examine that there is a sense of order, balance, and symmetry in God's universe.
MS-SCI-ESS.U.03.P.0	Discuss how physical laws exist within our universe, we cannot exist without laws in our spiritual or moral sense.
MS-SCI-ESS.U.03.Q.0	Recognize that God has a personal relationship with each individual that transcends time and space.