

MS-ESS1-1 SPACE SYSTEMS

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.

"The Earth revolves around the sun and the moon revolves around Earth. Models can explain eclipses of the sun and the moon, the apparent motion of the moon and how Earth's axial tilt results in the seasons."

MS-ESS1-2 SPACE SYSTEMS

DEVELOP AND USE A MODEL TO DESCRIBE THE ROLE OF GRAVITY IN THE MOTIONS WITHIN GALAXIES AND THE SOLAR SYSTEM.

"Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. Gravity is responsible for the formation of the solar system and holds objects of the solar system in orbit around the sun."

MS-ESS1-3 SPACE SYSTEMS

ANALYZE AND INTERPRET DATA TO DETERMINE SCALE PROPERTIES OF OBJECTS IN THE SOLAR SYSTEM.

"The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them."

MS-ESS1-4 HISTORY OF EARTH

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.

"The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale."

MS-ESS2-2 HISTORY OF EARTH

CONSTRUCT AN EXPLANATION BASED ON EVIDENCE FOR HOW GEOSCIENCE PROCESSES HAVE CHANGED EARTH'S SURFACE AT VARYING TIME AND SPATIAL SCALES.

"The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future."

MS-ESS2-3 HISTORY OF EARTH

ANALYZE AND INTERPRET DATA ON THE DISTRIBUTION OF FOSSILS AND ROCKS, CONTINENTAL SHAPES, AND SEAFLOOR STRUCTURES TO PROVIDE EVIDENCE OF THE PAST PLATE MOTIONS.

"Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart."

MS-ESS2-1 EARTH'S SYSTEMS

DEVELOP A MODEL TO DESCRIBE THE CYCLING OF EARTH'S MATERIALS AND THE FLOW OF ENERGY THAT DRIVES THIS PROCESS.

"All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's not interior."

MS-ESS2-4 EARTH'S SYSTEMS

DEVELOP A MODEL TO DESCRIBE THE CYCLING OF WATER THROUGH EARTH'S SYSTEMS DRIVEN BY ENERGY FROM THE SUN AND THE FORCE OF GRAVITY.

"Water cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and precipitation. This cycling is driven by sunlight and gravity."

MS-ESS3-1 EARTH'S SYSTEMS

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.

"Minerals, freshwater and biosphere resources are limited, and many are not renewable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes."

MS-ESS2-5 WEATHER AND CLIMATE

COLLECT DATA TO PROVIDE EVIDENCE FOR HOW THE MOTIONS AND COMPLEX INTERACTIONS OF AIR MASSES RESULTS IN CHANGES IN WEATHER CONDITIONS.

"Complex patterns of changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns."

MS-ESS2-6 WEATHER AND CLIMATE

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.

"Weather and climate are influenced by interactions that vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns."

MS-ESS3-5 WEATHER AND CLIMATE

ASK QUESTIONS TO CLARIFY EVIDENCE OF THE FACTORS THAT HAVE CAUSED THE RISE IN GLOBAL TEMPERATURES OVER THE PAST CENTURY.

"Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature."

MS-ESS3-2 HUMAN IMPACTS

ANALYZE AND INTERPRET DATA ON NATURAL HAZARDS TO FORECAST FUTURE CATASTROPHIC EVENTS AND INFORM THE DEVELOPMENT OF TECHNOLOGIES TO MITIGATE THEIR EFFECTS.

"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."

MS-ESS3-3 HUMAN IMPACTS

APPLY SCIENTIFIC PRINCIPLES TO DESIGN A METHOD FOR MONITORING AND MINIMIZING A HUMAN IMPACT ON THE ENVIRONMENT.

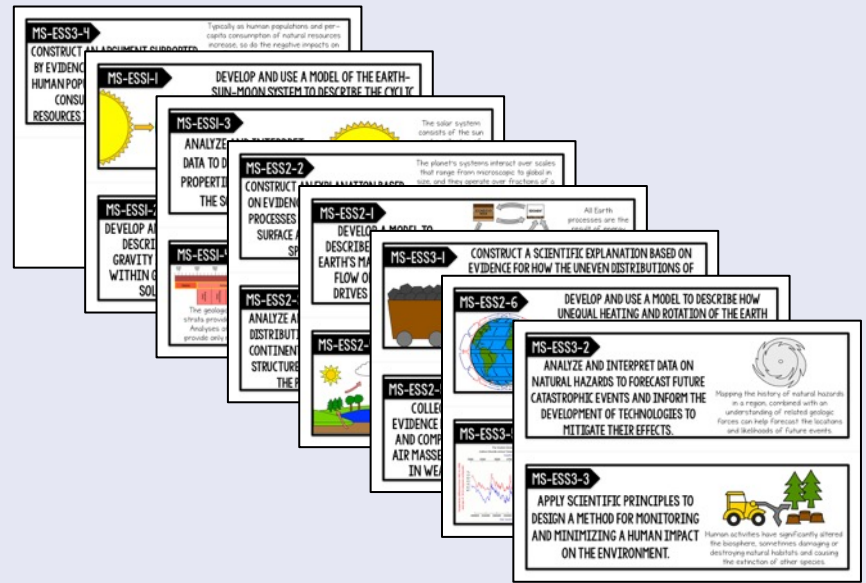
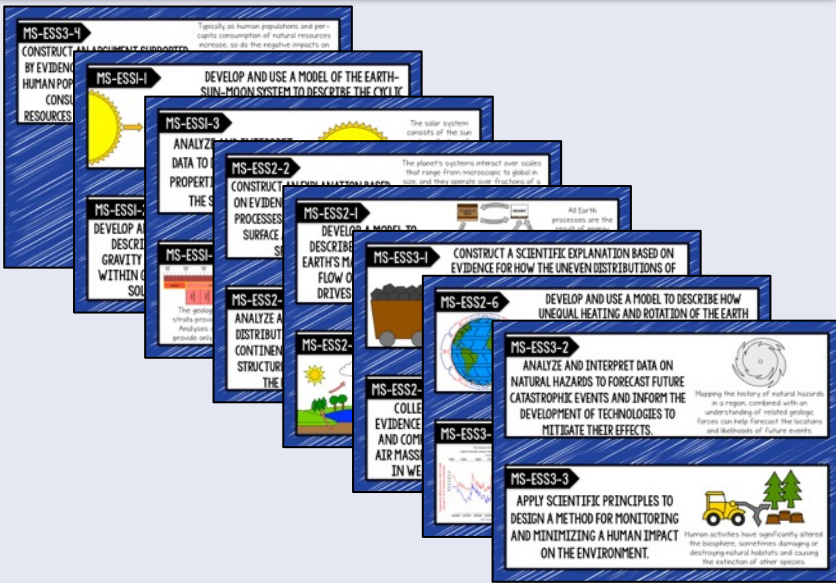
"Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species."

MS-ESS3-4 HUMAN IMPACTS

CONSTRUCT AN ARGUMENT SUPPORTED BY EVIDENCE FOR HOW INCREASES IN HUMAN POPULATION AND PER-CAPITA CONSUMPTION OF NATURAL RESOURCES IMPACT EARTH'S SYSTEMS.

"Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth, unless the activities and technologies involved are engineered otherwise."

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STUDENT MINIS IN COLOR & B/W BOTH VERSIONS W/ & W/O KEYHOLE PLACEHOLDER

