6.4 Plate Tectonics and Rock Cycling

Content Area: **Science**
Course(s): **Science 6**
Time Period: **Marking Period 3**
Length: **30 days**
Status: **Published**

Established Goals/Standards

SCI.MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
SCI.MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
SCI.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.
SCI.MS.ESS2.B	Plate Tectonics and Large-Scale System Interactions

Technology Standards

TECH.8.1.8.B.1	Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web).
TECH.8.1.8.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.8.C.CS2	Communicate information and ideas to multiple audiences using a variety of media and formats.

NJ 21st Century Life and Careers/NJ Career Ready Practices

CAEP.9.2.8.B.6	Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce.

Interdisciplinary Connections

ELA/Literacy -

RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts. (MS-ESS2-2),*(MS-ESS2-3)*,(MS-ESS2-5)
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). (MS-ESS2-3)
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. (MS-ESS2-3),(MS-ESS2-5)
WHST.6-8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-ESS2-2)
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. *(MS-ESS2-5)*
SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. *(MS-ESS2-1),(MS-ESS2-2),(MS-ESS2-6)*

Mathematics -

MP.2	Reason abstractly and quantitatively. (MS-ESS2-2),(MS-ESS2-3),(MS-ESS2-5)
6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-ESS2-5)
6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. *(MS-ESS2-2),(MS-ESS2-3)*
7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. *(MS-ESS2-2),(MS-ESS2-3)*

Essential Questions

- How can we predict and prepare for natural disasters?
- Why are mountains on the surface of the Earth growing higher or sinking?

Enduring Understanding

- Minerals, fresh water, and biosphere resources are distributed unevenly around the planet as a result of past geologic processes.
- The Earth's structure is the cause of many of the main changes seen on the surface of the Earth.
- The rock cycle is ongoing changing the Earth's surface.

Content

Earth’s current structure has been influenced by both sporadic and gradual events.

Changes caused by earthquakes and volcanic eruptions can be observed on a human time scale, but many geological processes, such as mountain building and the shifting of continents, are observed on a geologic time scale.

Moving water, wind, and ice continually shape Earth’s surface by eroding rock and soil in some areas and depositing them in other areas.

Erosion plays an important role in the formation of soil, but too much erosion can wash away fertile soil from ecosystems, including farms.

The rock cycle is a model of creation and transformation of rocks from one form (sedimentary, igneous, or

metamorphic) to another.

Lithospheric plates consisting of continents and ocean floors move in response to movements in the mantle.

Earth's landforms are created through constructive (deposition) and destructive (erosion) processes.

Accommodations and Modifications

Accommodations and Modifications according to student IEP, 504, I&RS goals, and/or gifted status.

Assessment

Summative assessment:

- Construct a scientific explanation based on valid and reliable evidence of how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geosciences processes.
- Obtain evidence from sources, which must include the student's own experiments.
- Construct a scientific explanation based on the assumption that theories and laws that describe the current geosciences process operates today as they did in the past and will continue to do so in the future.

Formative Assessments

- Participation/Observations
- Questioning
- Discussion Circles
- Science Notebook
- Exit Slips
- Peer/Self Assessment
- Rubrics
- Teacher-created project-based assessment
- Turn & Talk

Alternate Assessments

- Teacher-created project-based assessment
- Alternate running records
- Discussion Circles
- Turn and Talks

Benchmark Assessments

- Teacher-created assessment

Resources

- Amplify
- BrainPOP
- Discovery Education
- TuvaLabs