Georgia Science

Geology

Adopted 2019

Obtain, evaluate, and communicate information to understand the formation of Earth and the evolution of its component systems. SG1	**a.** Construct an explanation based on evidence for the formation of the Earth. SG1.A
	b. Develop a model of the Earth's internal structures including both physical (i.e., lithosphere, asthenosphere, mesosphere, outer core and inner core) and chemical (crust, mantle, core) layers. SG1.B
	c. Construct an explanation based on evidence for the origin and evolution of Earth's hydrosphere and atmosphere. SG1.C
Obtain, evaluate, and communicate information about the geologic conditions and processes that form different rocks and minerals through the rock cycle. SG2	**a.** Plan and carry out investigations to explore how chemical variation and geological processes result in the formation of different rock forming minerals. SG2.A
	b. Develop and use models to demonstrate the processes that form plutonic (intrusive) and volcanic (extrusive) igneous rocks of differing compositions, and textures. SG2.B
	c. Ask questions to differentiate between processes that form various types of sedimentary rocks (i.e., weathering, erosion, deposition, burial, compaction and cementation). SG2.C
	d. Construct an explanation for how igneous and sedimentary rocks transform to different types of metamorphic rocks. SG2.D
Obtain, evaluate, and communicate information to explore geologic time. SG3	**a.** Analyze data to interpret sequences of events in Earth's history. SG3.A
	b. Construct an argument based on evidence about how catastrophic and long-term events have impacted the evolution of life on Earth, including mass extinctions (e.g., asteroid/comet impact, plate tectonics and climate change). SG3.B
	c. Obtain, evaluate, and communicate information that documents important tectonic events and sea level/climatic changes in Georgia over geologic time. SG3.C
Obtain, evaluate, and communicate information about the evidence for plate tectonics; investigate	**a.** Construct an explanation based on evidence that describes the mechanisms causing tectonic plate movement, the different types of plate boundaries, and how boundary type relates to mountain building, earthquakes, volcanism, and features such as volcanic arcs, hot spots, and mid ocean ridges. SG4.A

the roles of Earth's internal processes as a mechanism of plate motion; and assess the relationship between plate tectonic boundary type and geologic hazards. SG4	**b.** Construct an explanation based on evidence that describes the mechanisms that create melt in the lithosphere in relationship to plate tectonics. SG4.B
	c. Use models to predict and differentiate between the various types of folds and faults. SG4.C
	d. Use models to communicate the differences between folded, fault-block, dome, plateau, and volcanic mountains to investigate their relationship to tectonic setting. SG4.D
	e. Analyze and interpret data to classify volcanoes using their interior/exterior features, magma composition, lithology, and plate tectonic setting SG4.E
	f. Analyze and interpret seismic data and assess risk of volcanic eruptions and earthquakes in Georgia and other areas in the United States. SG4.F
Obtain, evaluate, and communicate information to explain the effects of Earth's surface processes. SG5	**a.** Ask questions to understand the effects of regional climate on weathering processes and soil formation. SG5.A
	b. Construct an argument from evidence to explain how sedimentary rock formation and chemical weathering changes greenhouse gas concentrations in Earth's atmosphere. SG5.B
	c. Obtain, evaluate, and communicate information to characterize the formation of landforms in desert and glacial environments. SG5.C
	d. Develop and use models to examine the erosional and depositional features of various coastal systems. SG5.D
	e. Plan and carry out an investigation to analyze how surface water and groundwater act as major agents of change in fluvial systems. SG5.E
Obtain, evaluate, and communicate information to investigate the distribution, extraction, and use of resources on the Earth and other bodies in the Solar System. SG6	**a.** Ask questions to investigate the origin, distribution, and economic importance of geologic resources, including those mined in Georgia. SG6.A
	b. Construct an argument from evidence to support a claim about the impact of extraction and use of geological resources in the environment and human life. SG6.B
	c. Analyze and interpret data to predict and develop evidence for the occurrence and distribution of geologic resources on the Moon, other planets, and extraterrestrial bodies (asteroids, meteors, and comets). SG6.C