Layered Earth Geology Correlations For Georgia State Science Standards

Middle School: Grades 5-8		**Lesson Plans**
S5E1	**Students will identify surface features of the Earth caused by constructive and destructive processes**	B3, C3, D1-4, E1, F1
a.	Identify surface features caused by constructive processes such as deposition, earthquakes, volcanoes and faults	B3, D3, E1, F1
b.	Identify and find examples of surface features caused by destructive processes such as erosion, weathering, earthquake and volcano	C3, D1-4, E1, F1
S6E3	**Students will recognize the significant role of water in earth processes**	**A3**
a.	Explain that a large portion of the Earth's surface is water, consisting of oceans, rivers, lakes, underground water, and ice	A3
c.	Describe the composition, location, and subsurface topography of the world's oceans	A3
S6E5	**Students will investigate the scientific view of how the earth's surface is formed**	A2, B1-3, C1-4, D1-4, F3, G1
a.	Compare and contrast the Earth's crust, mantle, and core including temperature, density, and composition	A2
b.	Investigate the contribution of minerals to rock composition	C1
c.	Classify rocks by their process of formation	C2-3
d.	Describe processes that change rocks and the surface of the earth	C4, D1-4
e.	Recognize that lithospheric plates constantly move and cause major geological events on the earth's surface	B1-3
f.	Explain the effects of physical processes (plate tectonics, erosion, deposition, volcanic eruption, gravity) on geological features including oceans (composition, currents, and tides)	B1-3, C4, D1-4, F3
g.	Describe how fossils show evidence of the changing surface and climate of the Earth.	G1
h.	Describe soil as consisting of weathered rocks and decomposed organic material	C4

High School: Grades 9-12		**Lesson Plans**
SES2	**Students will understand how plate tectonics creates certain geologic features, materials, and hazards**	**B1-3**
a.	Distinguish among types of plate tectonic settings produced by plates diverging, converging, and sliding past each other	B3
SES3	**Students will explore the actions of water, wind, ice, and gravity that create landforms and systems of landforms.**	**C3-4, D3-4**
a.	Describe how surface water and groundwater act as the major agents of physical and chemical weathering	C4
b.	Explain how soil results from weathering and biological processes acting on parent rock	C4
d.	Relate the past and present actions of ice, wind, and water to landform distribution and landscape evolution	D3-4
e.	Explain the processes that transport and deposit material in terrestrial and marine sedimentary basins, which result, over time, in sedimentary rock	C3
SES4	**Students will understand how rock relationships and fossils are used to reconstruct the Earth's past.**	**G1, G3**
a.	Describe and apply principles of relative age (superposition, original horizontality, cross-cutting relations, and original lateral continuity) and describe how unconformities form.	G1
b.	Interpret the geologic history of a succession of rocks and unconformities.	G1
e.	Use geologic maps and stratigraphic relationships to interpret major events in Earth history (e.g., mass extinction, major climatic change, tectonic events)	G1, G3
SG1	**Students will interpret the geologic history of the Earth**	**G1, G3**
b.	Use fossils, radiometric dating and stratigraphic relationships and geologic maps (e.g., cross cutting, superposition, uniformitarianism) to interpret Earth's history	G1
c.	Explain how catastrophic and long-term events have impacted the evolution of life on Earth	G1, G3

SG2	**Students will interpret the geologic conditions and processes that form different rocks and minerals.**	**C1-3**
a.	Describe how minerals form under diverse geological conditions	C1
b.	Distinguish between the processes that form plutonic (intrusive) and volcanic (extrusive) igneous rocks of differing compositions, including magmatic differentiation	C2-3
c.	Differentiate between processes that form various types of sedimentary rocks	C2-3
d.	Interpret the changes in sedimentary and igneous rocks under a variety of metamorphic conditions.	C3
SG3	**Students will investigate the evidence for plate tectonics; evaluate the importance of Earth's internal processes and assess the relationship between plate tectonic boundary type and certain disasters such as earthquakes and volcanic eruptions.**	**B3, E1, E5, F1-3**
a.	Analyze the mechanisms that drive plate motion, the different types of plate boundaries, and how boundary type relates to mountain building, earthquakes, volcanism, and features such as island arcs, hot spots, and mid ocean ridges	B3, E1, F1
b.	Compare and contrast folded, fault-block, and volcanic mountains and analyze their relationship to plate tectonic setting	B3, F1-2
c.	Analyze cross-sectional diagrams to differentiate between types of folds and faults and the landforms they produce	B 3
d.	Classify volcanoes, using their interior/exterior features, magma composition and their plate tectonic settings and assess current volcanic hazards in the United States	F1-3
e.	Research current technology that improves our ability to predict natural disasters and mitigate their effects	E5, F3
f.	Evaluate the differences in seismic activity at plate margins versus mid-plate areas and assess the degree of seismic risk in different parts of the United States including Georgia	E1