Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*
Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)	Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1)	Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1)	*1. SWBAT identify, test, and measure the cause-and-effect relationship of water and ice erosion and used to explain change in landforms due to water erosion.* *2. SWBAT identify, test, and measure the cause-and-effect relationship of wind erosion and used to explain change in landforms due to wind erosion.* *3. SWBAT identify, test, and measure the cause-and-effect relationship of rock erosion caused by living organisms.* *4. SWBAT identify, test, and measure the cause-and-effect relationship of rock erosion caused by gravity*	*Water and Wind Lesson Plans* *Salt and Chalk Lab* *Glacial Erosion Lesson Plan* *Ice Breaks Lab* *The case of the disappearing soccer field* *Why does the surface change?*	*BrainPop.Com: Erosion* *PBS Water Erosion* *Glacial Erosion Video* *Erosion Virtual Lab* *Erosion math*	*Pre-Assessment* *Erosion Constructed Response* *Formative Assessment* *Constructed Response-Landforms*	*Earth Systems Test* *Performance Objective Rubric* *Performance Objective Task* *The Changing Earth Test*
Living things affect the physical characteristics of their regions. (4-ESS2-1)	Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1)	Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1)	*1. SWBAT observe, test, and measure the effects of plants on weathering and erosion.*	*Can plants stop soil erosion? Lab* *Root Pry*		*Soil Erosion Formative Assessment*	
Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)	Identify the evidence that supports particular points in an explanation. (4-ESS1-1)	Patterns can be used as evidence to support an explanation. (4-ESS1-1)	*1. SWBAT use evidence to explain the patterns of erosion on local landforms.* *2. SWBAT use evidence to explain the patterns of certrain fossil types and the rock layers formed.* *3. SWBAT explain causes of earthquakes and the effects on the natural earth.* *4. SWBAT explain causes of volcanos and the effects on the natural earth.*	*Earth System Walk* *Plates and boundaries* *Who's right about quakes?* *Written in Stone Lab* Cake Batter Lava		*Earthquakes Constructed Response*	

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*

Big Idea: What do the shapes of landforms and rock formations tell us about the past?
Guiding Questions:
1) How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?
2)What can rock formations tell us about the past?

Folder with Additional Resources

DCI (Disciplinary Core Ideas)	*Science and Engineering Practices*	*Cross Cutting Concepts*	*Student Learning Objectives*	*Differentiated Activities (Consider the 5 Es)*	*Resources/Technology*	*Formative Assessments*	*Benchmark Assessment*