

Focus Question 1: How do volcanoes and earthquakes affect humans?

Lesson 1: Looking Down On Earth

Maps and globes represent major features of Earth.

Students use models of Earth to identify patterns in the locations of volcanoes.

Lesson 2: Patterns on the Surface

There are patterns in the locations of some features of Earth.

Students use models of Earth to identify and analyze patterns in the locations of several Earth's features.

Lesson 3: It's A Disaster

Earthquakes and volcanic eruptions can cause hazards for humans.

Students combine information from video and text and explain hazards caused by earthquakes and volcanic eruptions.

Lesson 4: Tsunami Alert!

The periodic motion of water waves affects objects differently in deep water and when coming ashore.

Students develop models of ocean tsunami waves and identify patterns in wave motion and effects of these waves.

Focus Question 2: How can humans protect themselves from earthquakes?

Lesson 5: Shake It Up

Earthquake shaking hazards vary with distance.

Students develop and use a model of a landform to simulate earthquakes and analyze patterns in the effects.

Lesson 6: Designed For Survival

Earthquake impacts on humans can be reduced through engineering.

Students obtain information on earthquake-resistant designs for structures and buildings.

Lesson 7: Resist This

Buildings can be designed to keep humans safe during earthquakes.

Students design solution that use specific structures in model buildings to survive earthquake shaking.

Focus Question 3: How do Earth processes change the landscape?

Lesson 8: Agents of Change

Erosion by wind, water, glacier movement and earthquake shaking can change landscapes.

Students use model mountains to investigate the effects of different erosion agents on sand and gravel landscapes.

Lesson 9: Break It Up

Weathering and erosion processes and break up rocks and move the pieces around.

Students obtain information and construct an explanation that weathering causes rocks to break apart and erosion moves the remaining sediment.

Lesson 10: Plants-Friends or Foe?

Plants can both contribute to weathering and erosion and limit the effects of these processes.

Students carry out investigations to explain the effect of vegetation on sloped landscapes.

Focus Question 4: How do rock layers show that landscapes change?

Lesson 11: Picturing the Past

Rock layers hold evidence of past landscapes.

Students use patterns connecting fossils in rock formations to past landscapes to explain the history of part of the Grand Canyon.

Lesson 12: Landscape Match Game

Rock layers hold evidence of past landscapes and landscape changes.

Students apply their understanding of patterns connecting fossils and rock features to past landscapes to a matching game and explain how evidence and a landscape description go together.

Lesson 13: Red Rock Story

Rock layers hold evidence of past landscapes and landscape changes.

Students explain that there are patterns in what rock layers can tell us about past landscapes and that landscapes change overtime.

Science Challenge

Focus Question 5: How can we use evidence to tell the story of a changing Earth?

Lesson 14: Our Changing Earth Exhibit Part 1

Evidence of a changing Earth comes in many forms and can be found all around us.

Students apply their understanding of evidence of change to new locations. They communicate information about patterns of fossils and rock features and patterns in map locations to explain that landscapes change.

Lesson 15: Our Changing Earth Exhibit Part 2

Evidence of a changing Earth comes in many forms and can be found all around us.

Students apply their understanding of evidence of change to new locations. They obtain information from peers' exhibits about patterns of fossils and rock features and patterns in map locations to explain that landscapes change.