

3-D Performance Assessment

Performance Expectation: **5-ESS2-1**

Grade Level: **Fifth Grade**

Title	Sphere Interactions - Effects of Kilauea		
Designed by	Liz McCheyne, Amy Stapperbeck, Brenda Travis, Shayne Watterson, Renee Yadow	Course(s)	Grade 5
Performance Expectation	5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system. Assessment Boundary: Assessment is limited to the interactions of two systems at a time.		
Science and Engineering Practice	Developing and Using Models • Develop a model using an example to describe a scientific principle.		
Disciplinary Core Ideas	ESS2.A: Earth Materials and Systems • Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.		
Crosscutting Concept	Systems and System Models • A system can be described in terms of its components and their interactions.		
Student Performance	1. Components of the model 2. Relationships 3. Connections		

Performance Assessment

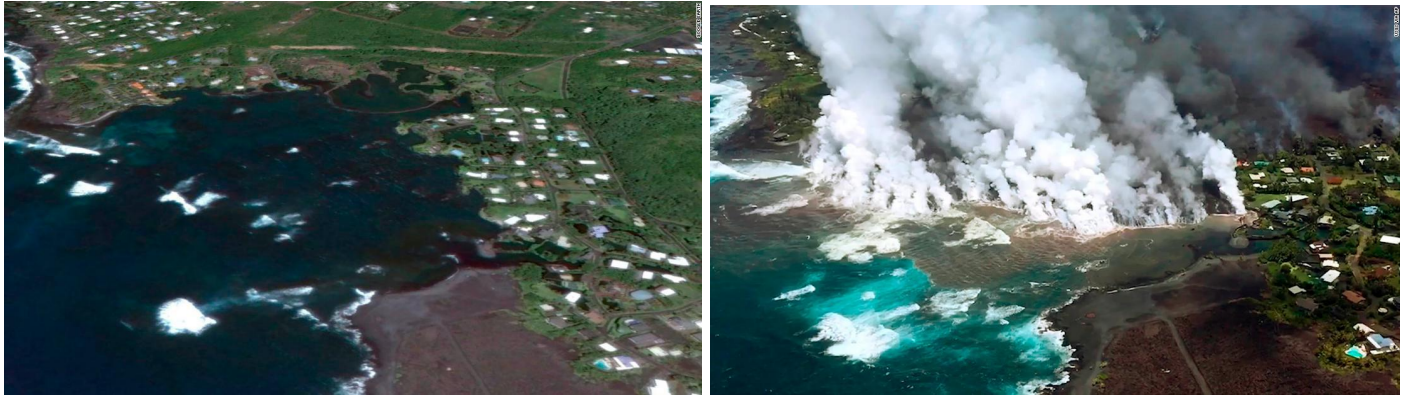
Phenomenon

On May 3rd the Kilauea volcano began sending flows of molten rock through entire communities on the southeastern corner of the Big Island of Hawaii. Lava has continued to erupt for a full three months, and now the area

<https://www.youtube.com/watch?v=Kc6CIwBV05s>

<https://www.youtube.com/watch?v=PNIVsix3Gxc>

Stimulus



A satellite image from 2016 shows Kapoho Bay on the island of Hawaii before the Kilauea volcano erupted, and an image taken on June 4, 2018 with lava spilling into the bay



Will Include Data/ Graphs that show (for example):

- Volcanic ash in the atmosphere
- Ocean temperature
- Acidity of the Ocean water
- Precipitation
- population of plants, animals, fish in the region

Prompt

General Education:

Use the documents provided to **create a model** that describes how the geosphere (solid and molten rock, soil, and sediments) interacts with the: atmosphere (air), **or** biosphere (living things, including humans), **or** hydrosphere (water and ice) during a volcanic event.

Your model should:

- identify the components of the geosphere and the one sphere you selected
- show relationships between the chosen spheres
- Explain how the activities of the geosphere have impacted the other sphere that you selected.

Higher Level:

Use the documents provided to **create a model** that describes how the spheres of the Earth interact. Choose any two spheres to include in your model: geosphere (solid and molten rock, soil, and sediments), atmosphere (air), biosphere (living things, including humans), hydrosphere (water and ice) during a volcanic event.

Your model should:

- identify the components of the two spheres you selected
- show relationships between the chosen spheres
- Explain how the activities of the geosphere have impacted the other sphere that you selected.

--