

FOURTH QUARTER

UNIT 7: NATURAL DISASTERS

II. UNIT 7: Natural Disasters

Time: Entire quarter

a. Unit Introduction:

b. Objectives:

1. Describe how seismic waves carry energy from an earthquake away from the focus, through Earth's interior and across the surface and the damage they cause.
2. Describe how volcanoes form when magma erupts through the crust and reaches the surface.

c. Essential Questions:

1. How does the energy of an earthquake travel through Earth?
2. How can earthquake safety be increased and earthquake damage reduced?
3. How does the change in pressure and expansion of gases inside affect the magma inside a volcano?
4. How does the silica content of magma affect the type of landform that is formed?
5. How do volcanic belts form along plate boundaries?

d. Essential Concepts

1. Energy from an earthquake travels in waves. The waves can produce severe movement in the Earth's crust and surface.
2. Scientists use level of damage, size of waves and amount of energy released to rate the magnitude of an earthquake.
3. Scientists use seismic waves to locate an earthquake's epicenter.
4. Data collected from seismographs and fault-monitoring devices is used to monitor active faults and predict earthquakes.
5. When a volcano erupts, the force created by the expanding gases drives the magma to either flow out or explode out of the volcano.
6. Scientists classify eruptions according to the amount of silica found in the magma. Different types of landforms are created by different types of eruptions.
7. Earth's crust often fractures along plate boundaries allowing magma to reach the surface.

e. Essential Skills

f. Vocabulary

1. focus
2. epicenter
3. p wave
4. s wave
5. surface wave
6. magnitude
7. seismograph
8. seismogram
9. liquefaction
10. aftershock
11. magma
12. lava
13. viscosity
14. silica
15. quiet eruption
16. explosive eruption
17. pyroclastic flow
18. shield volcano
19. cinder cone volcano
20. composite volcano
21. hot spot
22. Ring of Fire

Science Of Natural Disasters

ACTIVITIES: Based on “Earthquake!” Event Based Science Russell G. Wright)

[Investigate Earthquake Lab Activity](#), [Excel Chart for Graphing](#)

[Plate Tectonics](#)

[ring of fire](#)

[MID-OCEAN RIDGES](#)

[San Andreas Fault](#)

[Mapping Earthquakes and Volcanoes](#)

[volcanic eruptions pics](#)

[ConvectionLab](#)

[What is Liquefaction Lab](#)

[Solid to Liquid in the Blink](#)

[LOMA PRIETA EARTHQUAKE](#)

[IN THE NEWS ACTIVITY Earthquake](#)

EXAMPLE:

Landslides:

http://ublib.buffalo.edu/libraries/projects/cases/landslide_notes.html

LANDSLIDE MOVIE:

The [Portuguese Bend Landslide Info](#)
[Slippery Slope Landslide Activity](#)

RESOURCES

[Event Based Science Modules: Volcano, Earthquake, Asteroid, Hurricane](#)

Online resources:

National Center for Case Study Teaching in Science
<http://ublib.buffalo.edu/libraries/projects/cases/case.html>

Case Study Teaching in Science Bibliography:
<http://ublib.buffalo.edu/libraries/projects/cases/teaching/casebiblio.html>

FORCES OF NATURE

<http://library.thinkquest.org/C003603/english/index.shtml>

YaleNH Teacher Institute Unit on Natural Disasters

<http://www.yale.edu/ynhti/curriculum/units/2007/4/>