

Tectonics And You, Grades 4-6

Program Description:

In this fully hands-on class your students utilize 3-d globes to learn the layers of the Earth from the inner core to the crust. Then students use puzzles and 3-d globes to understand the fit and movement of lithospheric plates through geologic time. Students will investigate the driving force of plate tectonics with a hands-on science experiment that demonstrates convection currents in the mantle. Students “will be the earthquake” in a kinesthetic activity where they learn about the different types of seismic waves. Finally, these concepts will be tied together as students create structures for a shake table challenge.

Vocabulary:

aesthenosphere	fault	Pangaea
continental plates	lava	plate
convection	lithosphere	plate tectonics
core	lithospheric plates	primary wave (p-wave)
crust	magma	secondary wave (s-wave)
density	mantle	seismic wave
earthquake	oceanic plates	seismograph

Possible Class Activities

Teams of students will...

- Examine and label the layers of the Earth’s using 3-d globes.
- Understand the movement and fit of the Earth’s lithospheric plates using puzzles and 3-d Earth models
- Explore the movement of the Earth’s lithospheric plates through geologic time.
- Examine evidence of plate tectonics derived from the fit of the continents; the location of earthquakes, volcanoes, and mid-ocean ridges; and the distribution of fossils, and rock types.
- Investigate the driving force of the plate movement with an immersive convection current experiment.
- Students “will be the earthquake” in a kinesthetic activity to learn about the different types of seismic waves
- Create structures to be shaken on a hand-cranked shake table

Pre-Visit Activities (in your classroom):

- Review vocabulary (above).
- Look/plot on a map the locations of several volcanoes and earthquakes. You can find lists of the most current worldwide earthquakes from this US Geological Survey website:
<http://earthquake.usgs.gov/regional/nejc/>

Post-Visit Activities:

- Ask a family member or neighbor who has felt a big earthquake to describe to you what it was

- like.
- Write a short story about being in an earthquake.
 - Make your own present Earth lithospheric plate puzzle and label all the plate names.

STATE OF CALIFORNIA STANDARDS MET IN THIS CLASS:

Grade 4

Earth Science: 5 a

Investigation and Experimentation: 6 a, d, f

Grade 5

Investigation and Experimentation: 6 h

Grade 6

Focus On Earth Science

Plate Tectonics and Earth's Structure: 1 a-e, g

Heat (Thermal Energy) (Physical Sciences): 3 a, c

Energy in the Earth System: 4 c