



# Red Rock Canyon NCA Environmental Education Program

## Oreo Earth

**Grades:** 6-12

**Estimated Time:** 20 minutes

**Standards Met:**

- 6-8 grade:
  - Science E.8.C Students understand that landforms result from a combination of constructive and destructive processes.
  - Science E.8.C.3 Students know Earth is composed of a crust (both continental and oceanic); hot convecting mantle; and dense, a metallic core.
  - Science E.8.C.4 Students know the very slow movement of large crustal plates result in geological events.
  - Science E.8.C.5 Students know how geologic processes account for state and regional topography.
- 9-12 grade:
  - Science E.12.C.2 Students understand the concept of plate tectonics including the evidence that supports it (structural, geophysical and paleontological evidence).

**Materials Needed:**

- One Oreo or other sandwich cookie per student (and for chaperones if desired)
- Plate tectonics visual aids (attached)

**Sources:**

Original source unknown

*Submitted by Anica Mercado*

**Objective:**

Demonstrate different tectonic plate boundaries

**Procedure:**

Hand out an Oreo (or equivalent) to every student, making sure they know they cannot eat them until after the activity is over.

Once each student has a cookie, take one and explain to them that the cookie is representative of the earth. The top cookie represents the crust, the filling the mantle, and the bottom cookie the core. Go in depth explaining these as appropriate for the age and prior knowledge of the class.

Carefully remove the top cookie, or crust, from the mantle, and have the students do the same. It is okay if they still have filling on the top cookie, but they should try to get it off without any as best as they can.

Break the crust into two pieces. Each piece represents a tectonic plate and the gap between them is a fault line. Put the two cookies on top of the mantle. Demonstrate the different plate boundaries with the cookie, moving the two plates across the top of the mantle filling, having the students follow along. Show them the visual aid after each boundary to help reinforce the names.

**Note:** *You may want to leave converging boundary for last. The students can make a "mountain" out of the filling when they collide the two plates. They can then "erode" their mountain by licking it and finally eating their cookies.*

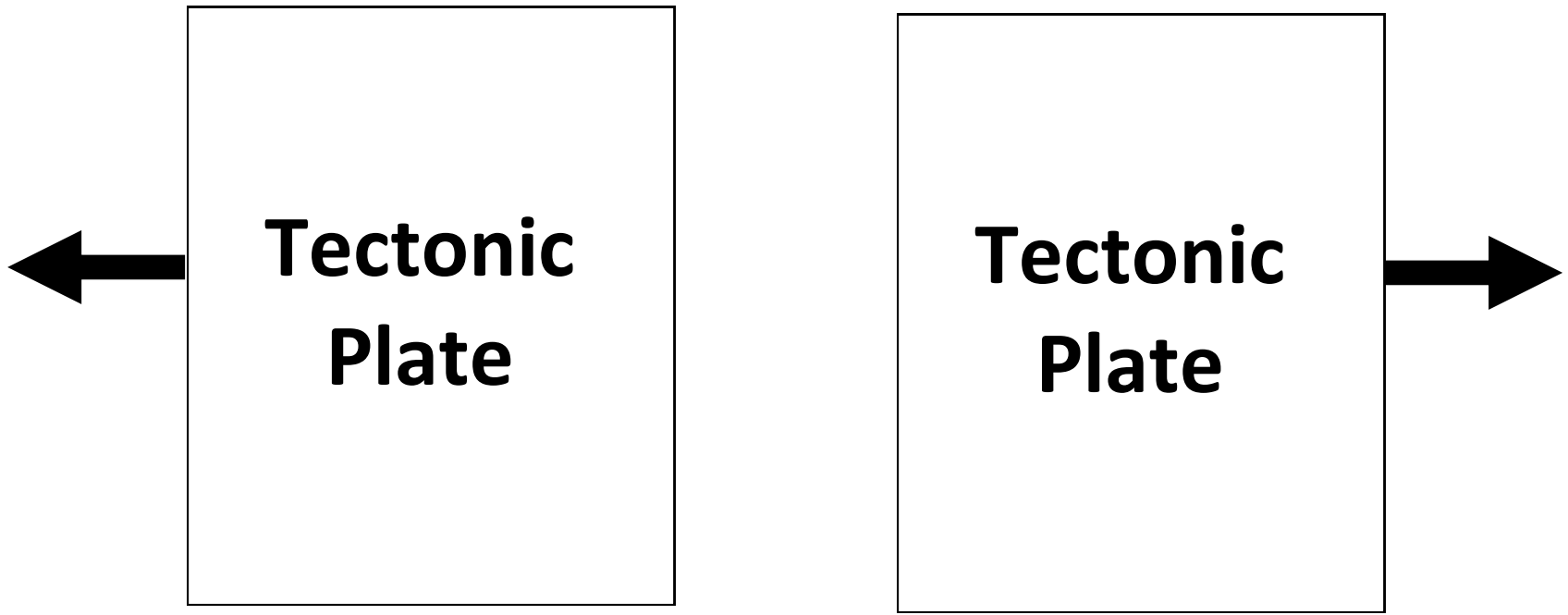
Wrap up by having students look at the area around them. Point to different geological features and ask what geological forces might have made them.

**Suggested Locations:**

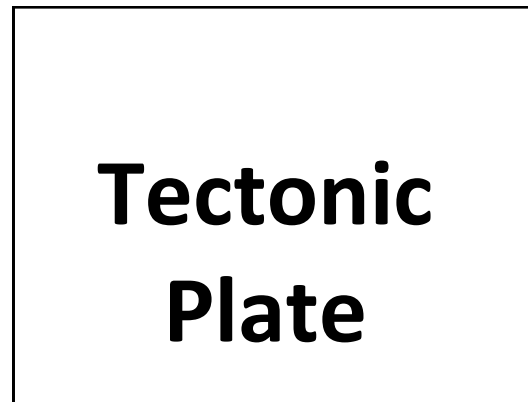
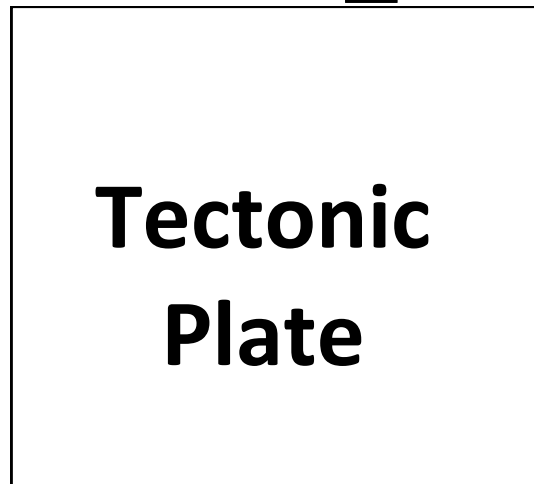
Open location where students can sit, preferably in a circle facing you.

<b>Pine Creek Trail:</b> 3,6, or 7	<b>Red Spring Boardwalk:</b> 1 or 4
<b>Fire Ecology Loop:</b> 3 or 4	<b>Moenkopi Loop:</b> 3,6,7,8, or 9

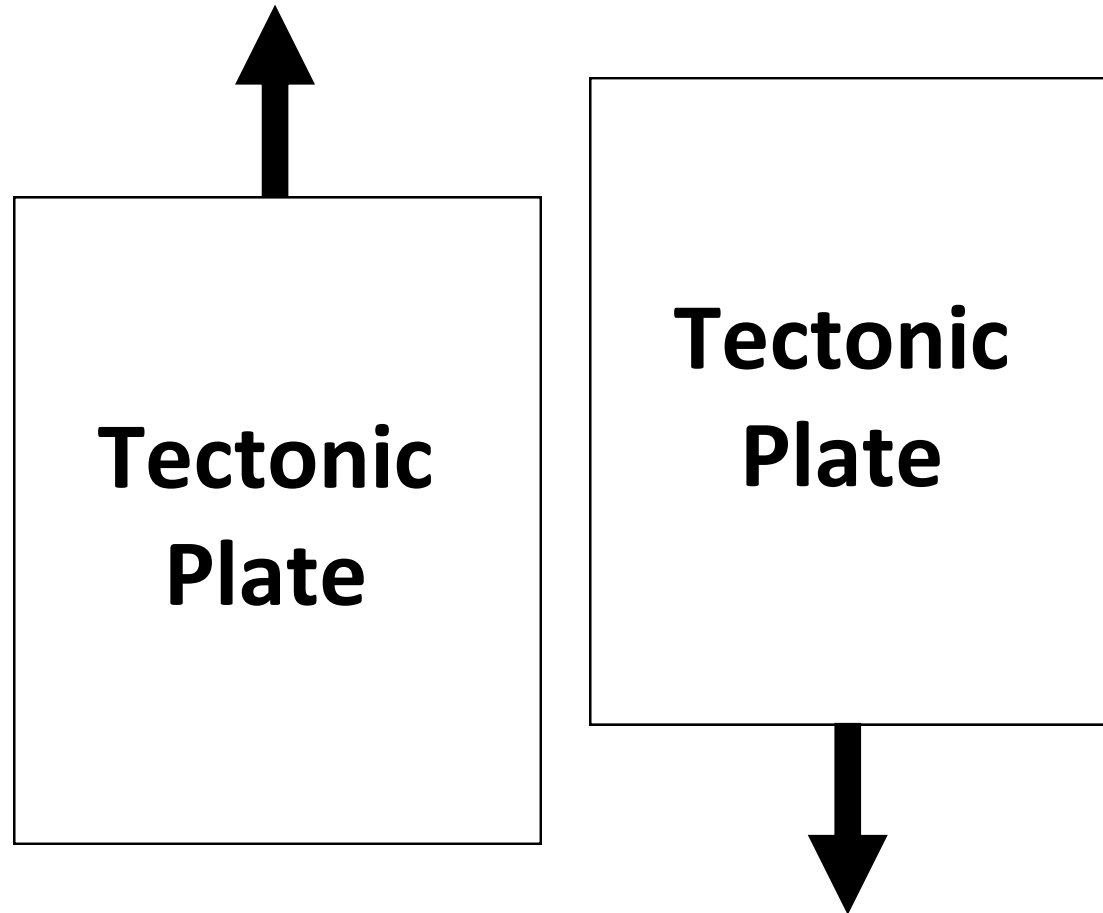
# Diverging



# Subduction



# Transform



# converging

