



LESSON PLAN

TECTONIC PLATES GRADES 6-8

SUMMARY

Students will provide evidence for continental drift using cutouts of continents and observing patterns of fossils found on different continents.



MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

| Science & Engineering Practices | | Connections to Classroom Activity | |
|---|--|---|--|
| <p>Analyzing and Interpreting Data</p> <p>Analyze and interpret data to provide evidence for phenomena.</p> | | <ul style="list-style-type: none"> Students will analyze fossil evidence found within each of four continents. | |
| Disciplinary Core Ideas | | Connections to Classroom Activity | |
| <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions</p> <p>Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided and spread apart.</p> | | <ul style="list-style-type: none"> Students will discover that some continents had similar fossil evidence. This evidence supports continental drift. | |
| Cross Cutting Concepts | | Connections to Classroom Activity | |
| <p>Patterns</p> <p>Patterns in rates of change and other numerical relationships can provide information about natural systems.</p> | | <ul style="list-style-type: none"> Students will notice patterns of fossils found on different continents in relation to how the continents may have fit together in the past. | |

DURATION

45 minutes

PRE-ASSESSMENT QUESTIONS

See the questions under the video.

PREPARATION BEFORE LESSON

For each group, label 4 containers after the continents: South America, Africa, Antarctica and Australia. Fill the containers with sand and stir in some “fossils” (colored beads).

South America: Yellow, Red
Africa: Yellow, Green, Red
Antarctica: Green, Blue, Red
Australia: Blue, Red

MATERIALS

Per Group

- 4 Small containers of sand
- 4 Bags of beads (4 different colors)
- 2 Plastic forks
- Map of continents (attached)
- Pair of scissors

DIY Activity

- Cup of pearlized soap or shampoo (must contain mica)
- 3 Cups of water
- Bowl
- Pan
- Hot Plate
- Red food coloring
- Spoon



ENGAGE

Share the attached photo of an archaeological dig site (last page of PDF). Ask students what they notice in the picture. Follow up with, “What scientific knowledge can we gain by studying fossils?” They will hopefully mention the word evidence, which will tie into today’s activity. The key point to make in this initial discussion is that evidence is used by scientists to form scientific theories. The more evidence to support an idea, the stronger the idea is.



EXPLORE

Tell students that they will be digging up fossils to provide evidence for the idea that continents can move. They will only be looking at 4 continents today: South America, Africa, Australia and Antarctica. They will use their forks (archeological tools) to dig for fossils (beads) on each continent. They need to keep track of the colors of beads they find in each continent’s dig site.

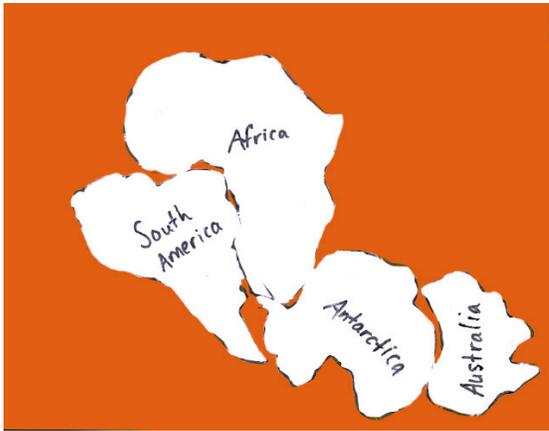
Once the digging is finished, they will cut out the continents and use the fossil information along with the continent shapes to glue the 4 continents down in a way they think they may have been connected, based on the evidence. Provide the simple hint that if the same fossil is found on two different continents, it is evidence, they may have been connected in the past.



EXPLAIN

Allow student groups to share their model of how the continents may have looked in the past along with the evidence to support their claims. Introduce the concept of continental drift and explain how it relates to the movement of tectonic

plates. Their models will vary, but here is an example of what the continents may have looked like:



The theory of continental drift was built upon the idea that all 7 continents were connected into one large super continent millions of years ago. As the tectonic plates slowly moved, the continents broke apart and moved into the positions we are currently familiar with. There is abundant scientific evidence to support this widely accepted theory which was first introduced by Alfred Wegener in 1913.



AS A GROUP, WATCH THE GENERATION GENIUS VIDEO: TECTONIC PLATES

Facilitate a conversation using the Discussion Questions.



ELABORATE

Ask students how rock formations like Vasquez Rocks can be explained by the movement of tectonic plates. Students can draw diagrams of convergent, divergent and transform plate boundaries with arrows to indicate the direction of the plate movements.



EVALUATE

There are multiple ways to assess your students' understanding of this topic.

- Genius Challenge
- Quiz Game
- Exit Ticket

Students can do these activities in digital or print form.



EXTENSION

Scientists believe the rate of movement of the plates is anywhere from 2-15 cm per year. Have students do some calculations to figure out how many years it would take for the continents to move apart different distances.

TECTONIC PLATES LESSON



