

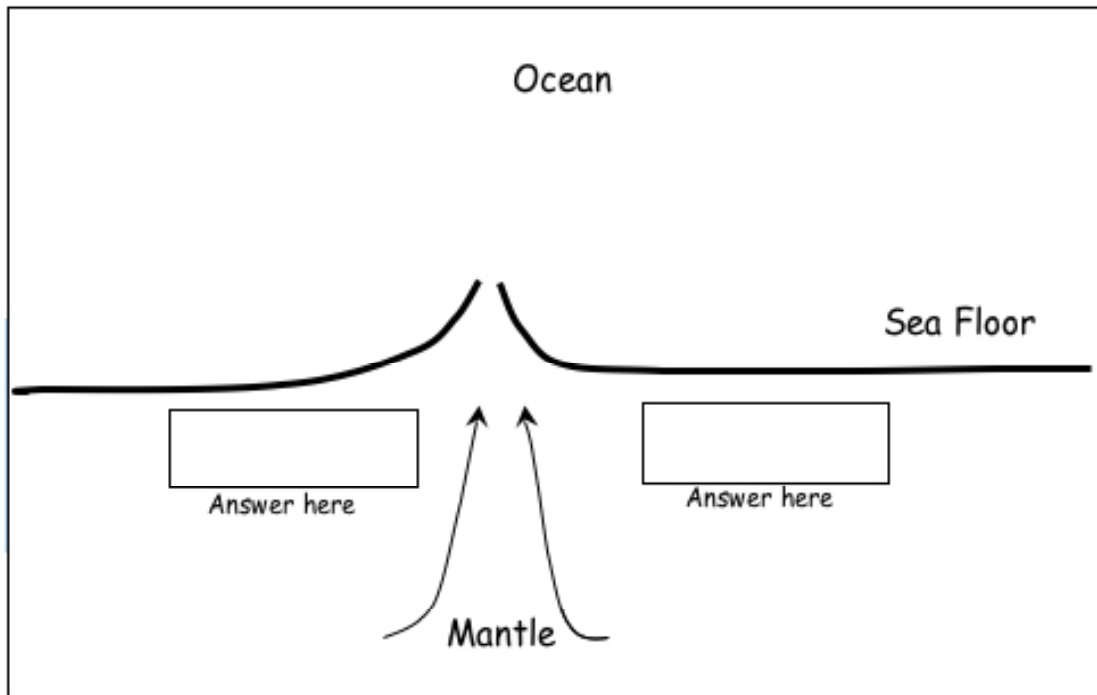
Plate Tectonic Drawings

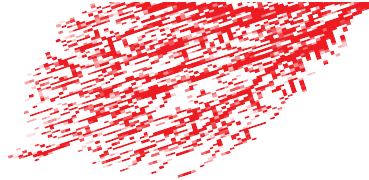
Name: _____ Date: _____

Trial #1: Divergence



1. Gather your supplies; shaving cream can, tub, cards, spoon, mesh screen, and towels. The shaving cream is magma and the cards and mesh screen are Earth's plates.
2. Create your model by squirting a layer of magma into the bottom of the pan or tub.
3. Use your spoon to flatten the magma so it's evenly distributed.
4. Gently place two of your plates on top of the magma so that they form a rectangle.
5. What do you think will happen when you pull the plates apart?
6. Very slowly, push down and gently slide the two plates apart.
7. What happened?
8. On the diagram below, draw arrows in the boxes to indicate the direction of plate movement. Then, draw the motion of the "magma."



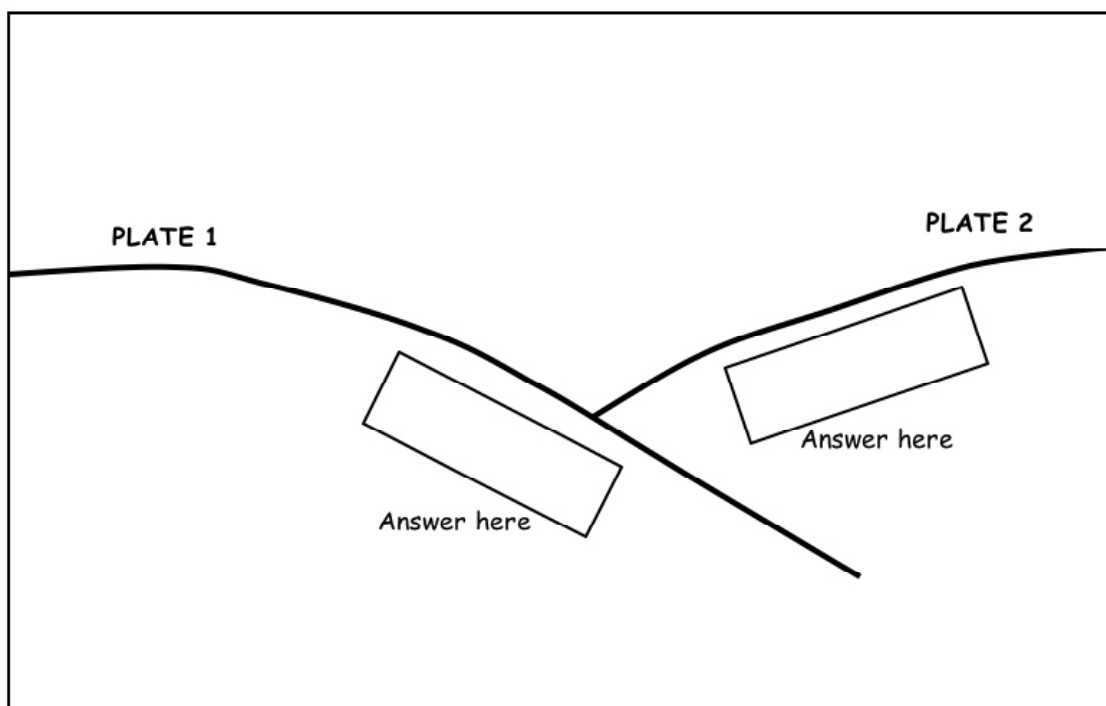


Trial #2: Convergence

1. Wipe your cards clean with a towel to remove excess magma and prepare for the next trial.
2. Use your spoon to flatten the magma again so it's evenly distributed.
3. Put the cards back in place on top of the magma
4. What do you think will happen when you push one plate under the other?

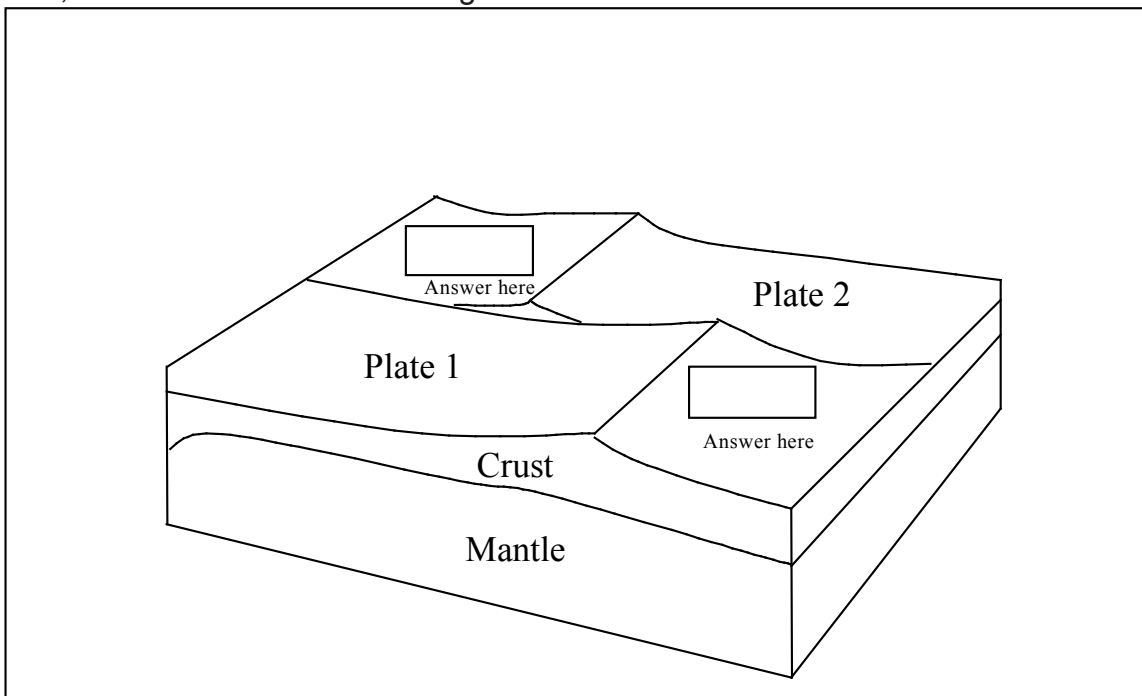
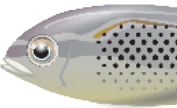
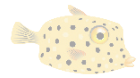
5. This time, push one plate down and under the other plate.
6. What happened?

7. On the diagram below, draw arrows in the boxes to indicate the direction of plate movement. Then, draw the motion of the "magma."



Trial #3: Transform Fault Movement

1. Wipe your cards clean with a towel to remove excess magma and prepare for the next trial.
2. Use your spoon to make your magma into a long pile.
3. Place your plates back on top and push down gently so a bit of magma comes up between the plates.
4. Put a few small pebbles on the magma in between the plates.
5. What do you think will happen when you slide the plates in opposite directions along side each other?
6. Gently slide the plates in opposite directions along side each other.
7. What happened?
8. Imagine the model scaled up to the size of our Earth's crust. What might occur at these boundaries?
9. On the diagram below, draw arrows in the boxes to indicate the direction of plate movement. Then, draw the motion of the "magma."



Trial #4: Island Chain Formation

1. Set aside the model of convergent and divergent plates to prepare a new model for island chain formation.
2. Using the mesh material (remember, this also represents one of Earth's plates), hold it flat and free from any surface.
3. With help from another partner, hold the can under the plate and point it upwards.
4. What do you think will happen when magma squirts upwards through the plate?
5. Gently squirt a small amount of magma three times (stay still as you squirt the can!) and slowly move the plate after each squirt.

6. What happened?



Moloka'i

Lana'i

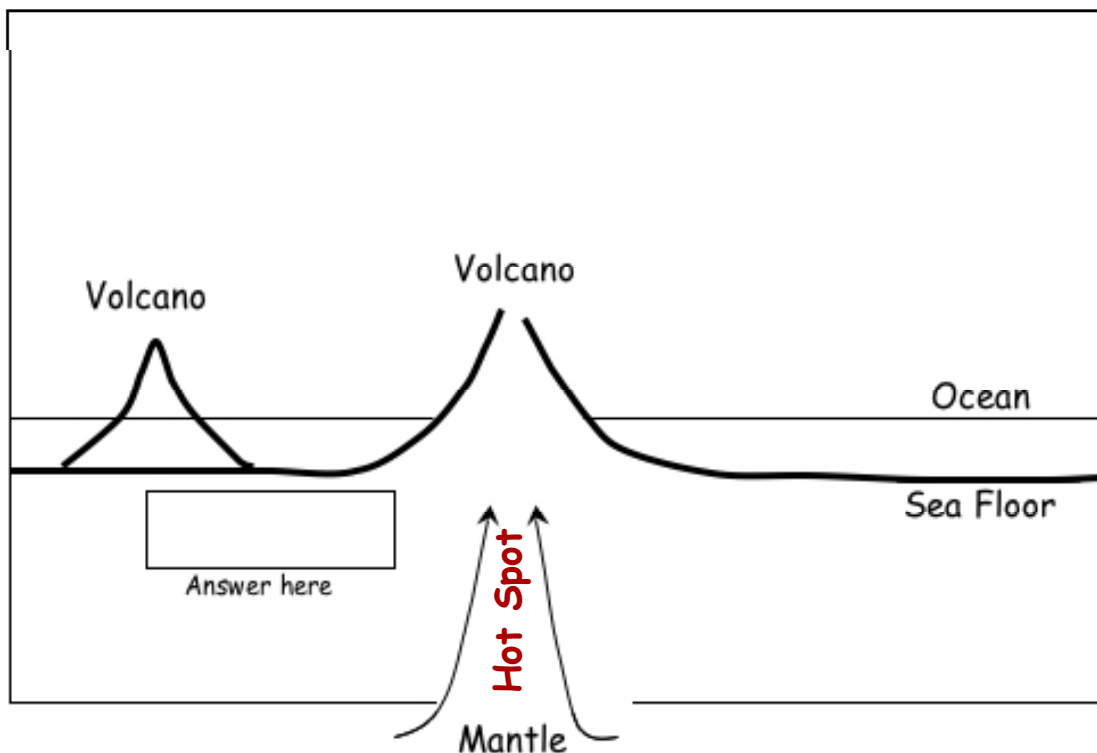
Kaho'olawe

Maui

Hawai'i

8. **Challenge:** Scrape the excess magma into the tub and see if you can recreate the Hawaiian Island Chain!

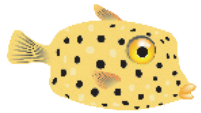
9. On the diagram below, draw arrows in the boxes to indicate the direction of plate movement. Then, draw the motion of the "magma."



Map of Earth's Features



1. Take out the world map, clear acetate sheet, and map of Earth's plates overlay (printed on acetate).
2. Look at the world map and see if you can identify any plate boundaries where convergence, divergence, or transform movement may occur. (hint: start by looking in the middle of the Atlantic Ocean)
3. Place the clear acetate sheet over top of the map.
4. As best you can, trace the plate boundary in the middle of the Atlantic ocean with a dry erase marker.
5. Do you see any more plate boundaries? Continue tracing areas that you think are potential plate boundaries.
6. Trace the Hawaiian Island chain.
7. Place the map of Earth's plates overlay in between yours and the map to compare what you've traced with the official plate boundaries.
8. Continue tracing plates, using the map and plate overlay as a guide.



Activity Questions

1. Name one thing you have learned about Earth's features from this activity.
2. Where do earthquakes generally occur?
3. Are the Hawaiian Islands on a plate boundary?
4. Why does Hawai'i have more volcanic activity than some other locations on Earth?
5. What is a hot spot?
6. How did the Hawaiian Islands form?

