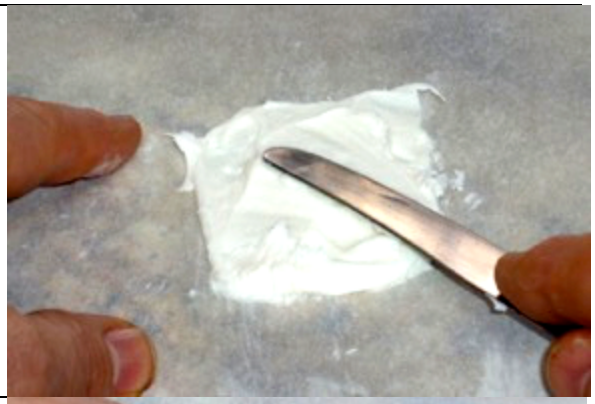
MODELING TECTONIC PLATE BOUNDARIES

STATION ❶: Modeling a TRANSFORM ↑↓ (sliding) plate boundary

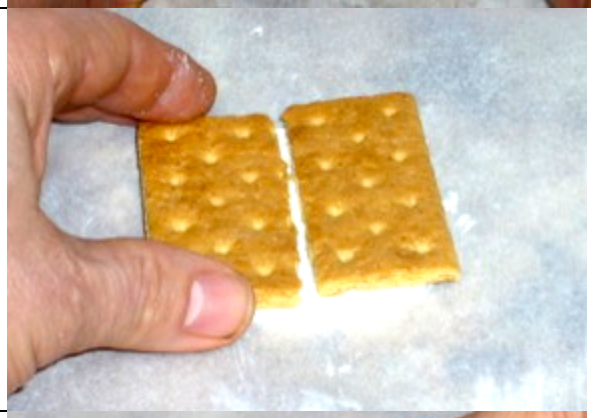
STEP ❶: Spread out a thick layer of frosting in a 2-inch x 2-inch square on the wax paper.

The frosting represents the Earth's upper mantle, which has plasticity.



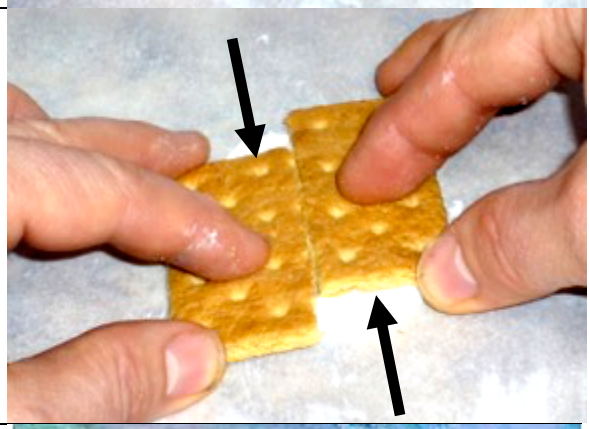
STEP ❷: Carefully place 2 graham cracker halves on the frosting square.

The graham crackers represent Earth's thicker, less dense continental crust.



STEP ❸: Gently push the crackers together with your fingers and gently slide them back and forth.

You've just made a model of a transform plate boundary.



AN EXAMPLE: The San Andreas Fault

Geologists call the line where two transform plates meet a ***strike-slip* fault line.** This is because as the tectonic plates slide past one other, they *strike*, get stuck, then *slip* loose. Sometimes, they break loose with so much force, a violent earthquake happens.

At right is a photo of California's San Andreas Fault. Many small earthquakes happen along this transform plate boundary every day.

Pacific Plate ↑ ↓ American Plate

MODELING TECTONIC PLATE BOUNDARIES

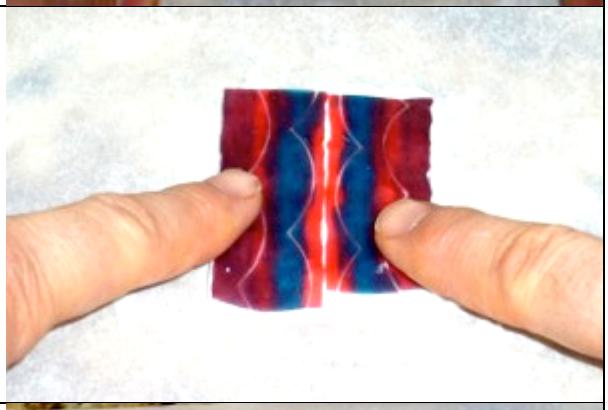
STATION ❷: Modeling a DIVERGENT (dividing) plate boundary

STEP ❶: Spread out a thick layer of frosting in a 2-inch x 2-inch square on the wax paper.

The frosting represents the Earth's upper mantle, which has plasticity.

STEP ❷: Carefully place 2 pieces of fruit roll-up side-by-side on top of the frosting.

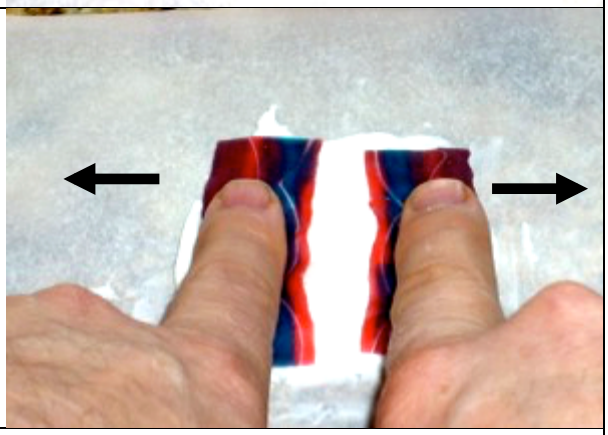
The fruit roll-ups represent Earth's thinner, but denser oceanic crust.



STEP ❸: Gently place your fingers across the fruit roll-ups. Push down with both fingers and gently pull the roll-ups apart.

You've just made a model of a divergent plate boundary like those found in the middle of the oceans.

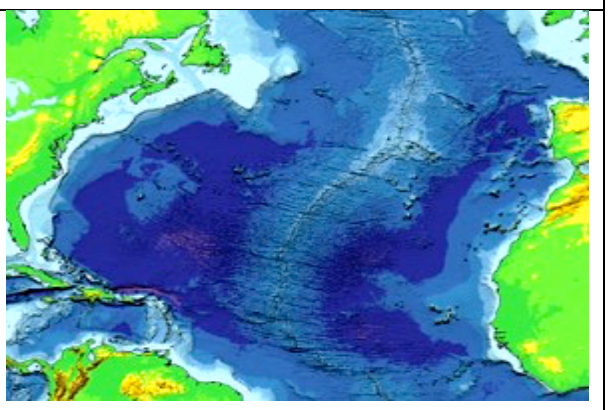
**Did you notice that the frosting pushed up to form a mid-ocean ridge?*



EXAMPLE 1: Below is a satellite image of a **rift valley** forming between two diverging continental plates.↓

African Plate ← → Arabian Plate

EXAMPLE 2: Below is a satellite image of a **mid-ocean ridge** forming between two diverging oceanic plates.↓

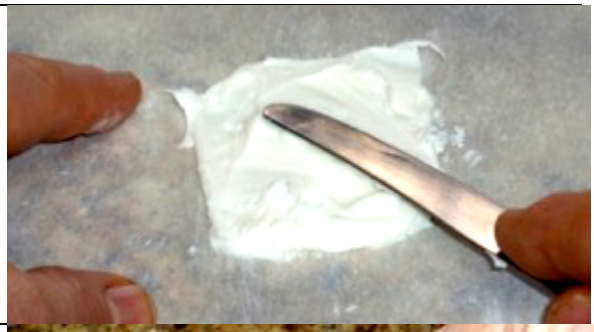


MODELING TECTONIC PLATE BOUNDARIES

STATION ❸: Modeling a CONVERGENT → ← (colliding) plate boundary

STEP ❶: Spread out a thick layer of frosting in a 2-inch x 2-inch square on the wax paper.

The frosting represents the Earth's upper mantle, which has plasticity.

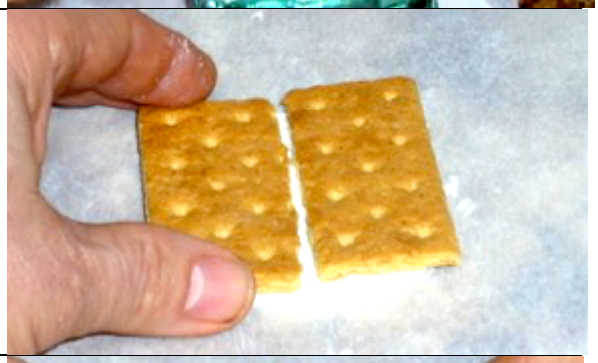


STEP ❷: Carefully dip the long edge of two graham cracker halves in water for just 2 seconds.

The graham crackers represent Earth's thicker, but less dense continental crust.

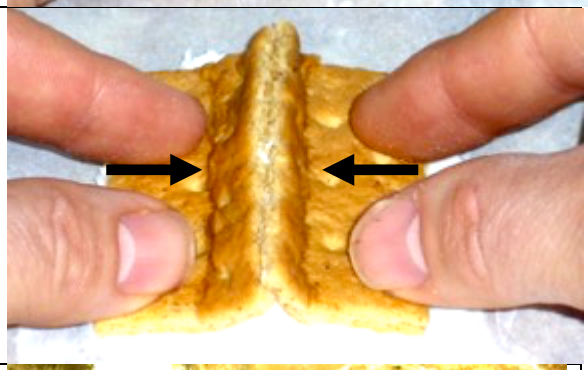
STEP ❸: Carefully place the 2 graham cracker halves on the frosting with the wet edges facing each other.

The graham crackers represent two thick continental plates continental crust.

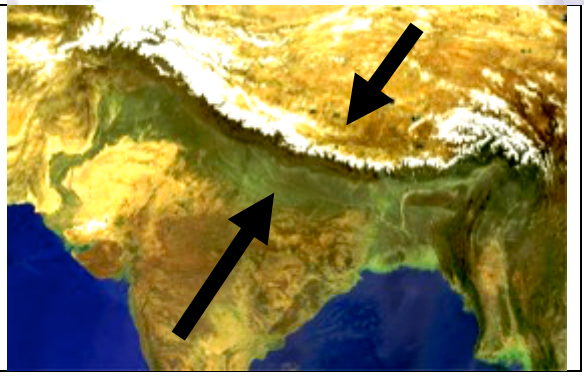


STEP ❹: Gently push the crackers together with your fingers.

You've just made a model of a convergent plate boundary between two continental plates. Did you notice how these formed a folded mountain chain?

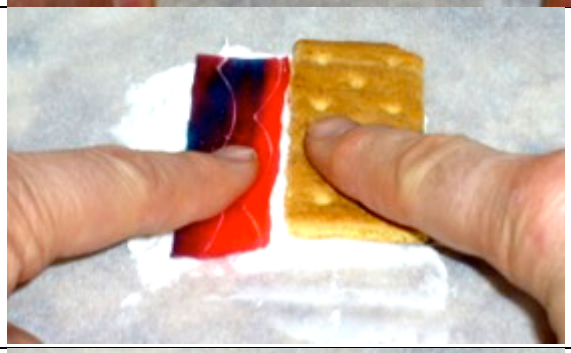
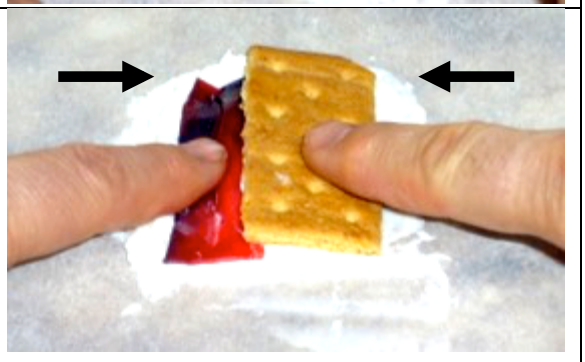


FOR EXAMPLE: At right is a satellite image of the Himalayan Mountains. The Himalayas are an excellent example of **folded mountains**. They first began to form when the Indian continental plate collided with the Eurasian continental plate.



MODELING TECTONIC PLATE BOUNDARIES

STATION ❹: Modeling a CONVERGENT → ← (colliding) plate boundary

STEP ❶: Spread out a thick layer of frosting in a 2-inch x 2-inch square on the wax paper. --- *The frosting represents the Earth's upper mantle, which has plasticity.*	
STEP ❷: Carefully place a fruit roll-up and a graham cracker next to each other on top of the icing. --- *The fruit roll-up represents the Earth's thinner, but denser oceanic crust. The graham cracker represents the Earth's thicker, but less dense continental crust.*	
STEP ❸: Carefully push the fruit roll-up and the graham cracker together. (The graham cracker should slide over the top of the roll-up). --- *You've just made a model of a convergent plate boundary that forms when an oceanic plate and a continental plate collide.*	
AN EXAMPLE: At right is a satellite image of the Andes Mountains in Peru. These **volcanic mountains** formed when the Pacific ocean plate collided with, then *subducted* (slid under) uthe South American continental plate.