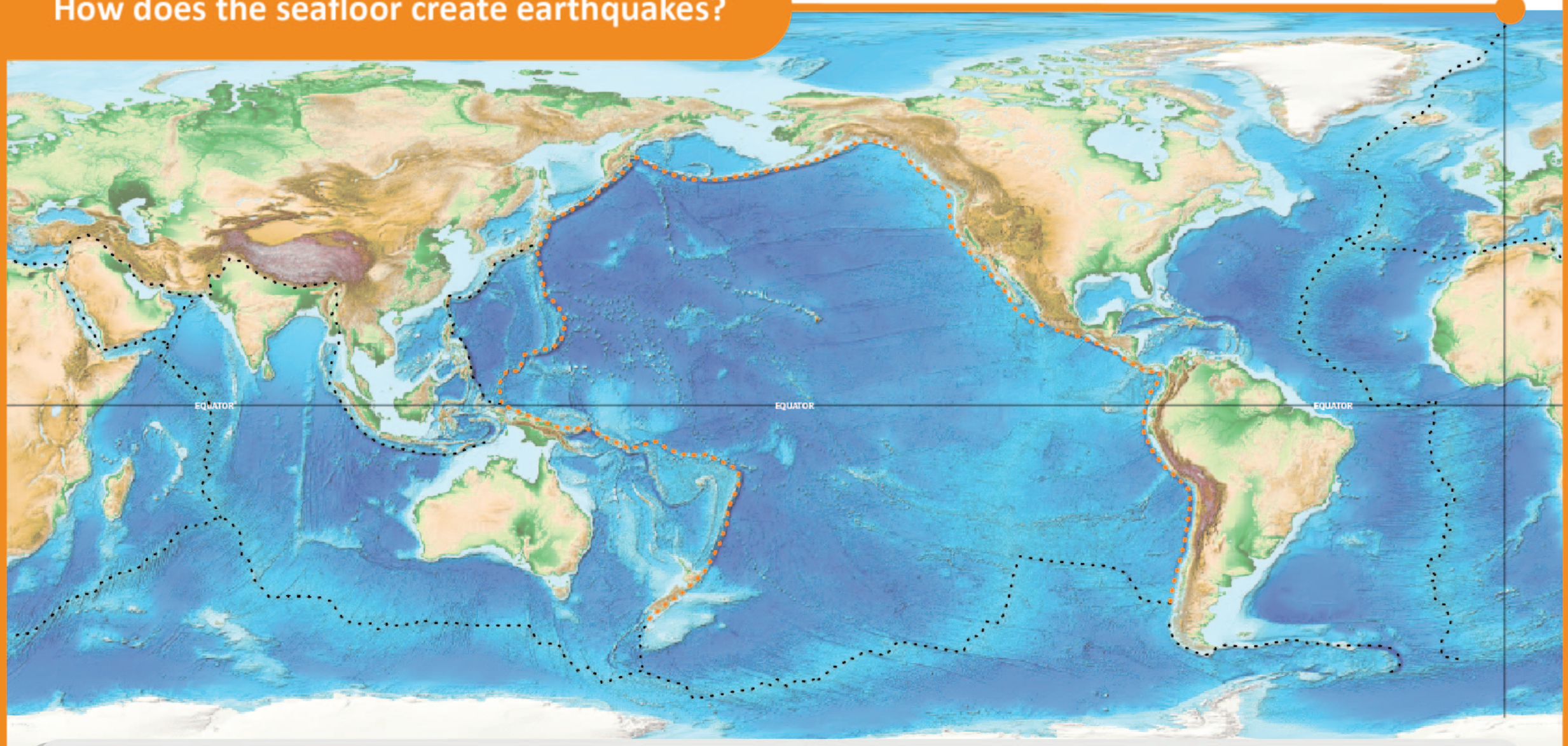
IN SEARCH OF EARTH'S SECRETS
A Pop-Up Science Encounter

DRILL DOWN DEEPER INTO QUAKES AND WAVES

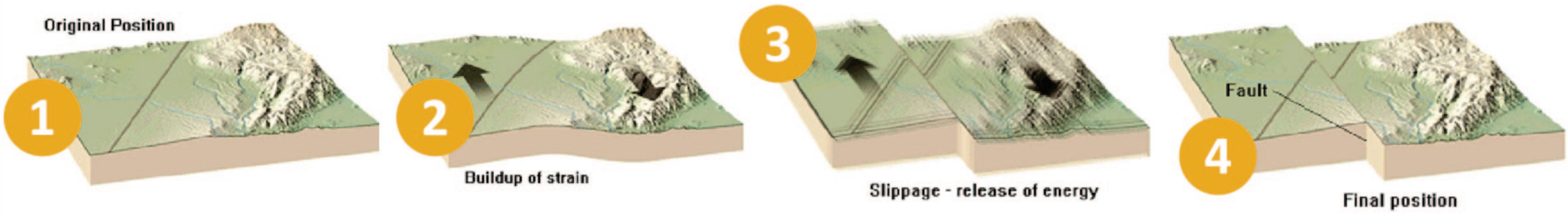
How does the seafloor create earthquakes?



The Earth's crust is broken up into many large pieces, called plates. The plates under both the ocean and in the continents are moving. Earthquakes and tsunamis happen where these huge plates of rock collide.

Many of the places where plates meet are in the ocean where ocean collide with continental plates or other ocean plates. The plates that collide often get caught on each other. Even though they are stuck, the plates keep pushing against each other.

Potential energy builds and builds until there is enough energy for both plates to break free. As the plates suddenly lurch past each other, they release huge amounts of energy and cause earthquakes that can devastate coastal regions.



Try This!

Check out the "Quakes and Waves" backpack from the front desk to look at a 3D model of the ocean and continental plates. See if you can find a place where an ocean plate is colliding with a continental plate that may be a potential source of earthquakes and tsunamis.

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Learn more about how plates move and how the JOIDES Resolution helps us learn about earthquakes and tsunamis at www.insearchofearthssecrets.com.

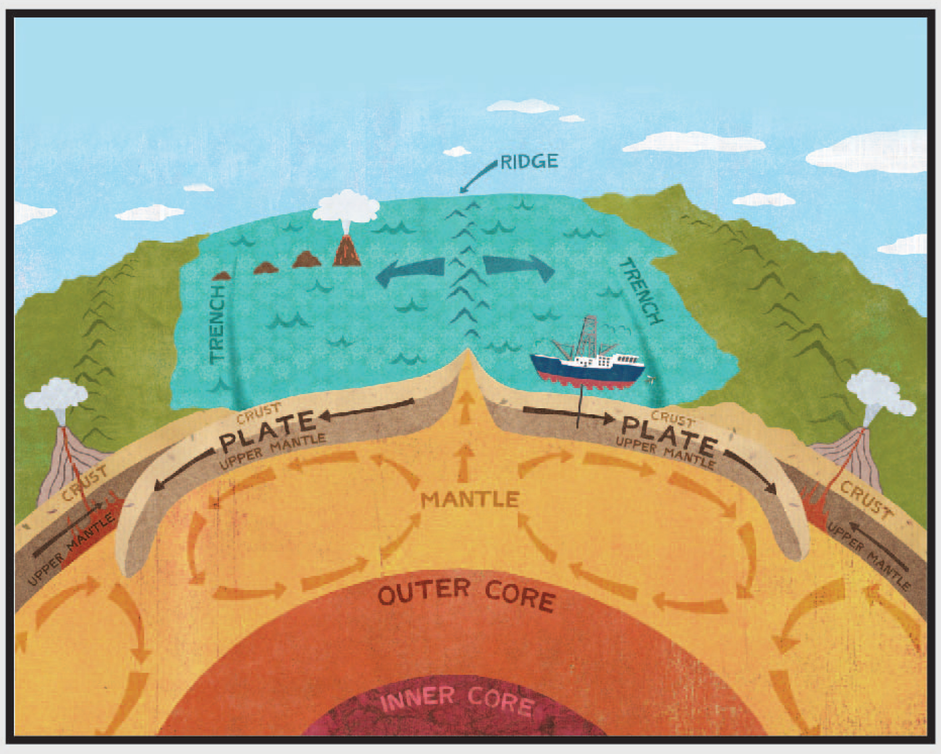
DRILL DOWN DEEPER INTO DRILLING THE DEEP

Collect your *Quakes and Waves* passport sticker

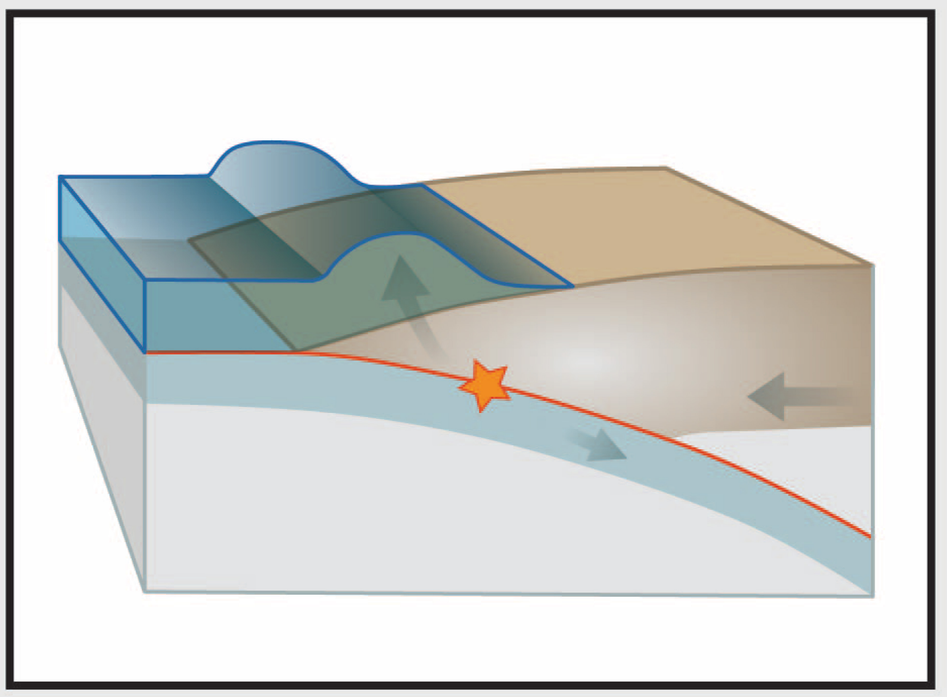
How does the seafloor create tsunamis?

The rock that covers the Earth is not one continuous shell. It is broken up into many large pieces, called plates. These plates sit above hotter but softer rock deep in the Earth. Motion of the softer rock slowly carries the plates, sometimes right into each other.

When a seafloor plate collides with a continental plate or another seafloor plate, it will sink underneath the other plate. This creates deep ocean trenches, like the Marianas Trench. These trenches, which are also called "subduction zones," are where many earthquakes and tsunamis happen in the ocean.



Tsunamis happen at subduction zones when the plates break free and the plate above that had been bent down springs upwards. The released plate causes an earthquake, but also pushes tons of water up to the ocean surface. The water bulges up and then spreads out in all directions as tsunamis that flood coastal areas.



Try This!

Check out the "Quakes and Waves" backpack from the front desk to look at a 3D model of the ocean and continental plates. See if you can find a subduction zone on the model.

Learn more about subduction zones and why ocean plates sink into the Earth at www.insearchofearthssecrets.com.

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