

## Earthquakes

1. Forces in Earth's Crust: The movement of Earth's plates creates forces that squeeze or pull the rock in Earth's crust. These forces are examples of stress: forces that act on rock to change its shape or volume.

A. Types of Stress: Three types of stress work over millions of years to change the shape & volume of rock.

1. Tension: Stress that stretches rock so far that it becomes thinner in the middle; occurs where 2 plates move apart.
2. Compression: Stress that squeezes rock until it folds or breaks; occurs where one plate pushes against another.
3. Shearing: Stress that pushes masses of rock in opposite directions, in a sideways movement causing rock to break & slip apart, or change shape.

B. Kinds of Faults: Most faults occur at plate boundaries, where the forces of plate motion push or pull the crust so much that the crust breaks.

1. Normal fault: Type of fault where the hanging wall slides downward, caused by tension in the crust; occurs at divergent boundaries.

a. hanging wall: The block of rock that forms the upper half of a fault.

b. foot wall: The block of rock that forms the lower half of a fault.

2. Reverse fault: Type of fault where the hanging wall slides upward; caused by compression in the crust; occurs at convergent boundaries.

3. Strike-slip fault: type of fault where rocks on either side move past each other sideways with little up or down motion; occurs at transform boundaries.

Changing Earth's Surface: The forces of plate movement can change the shape of flat plains.

1. Folding Earth's Crust: Sometimes plate movement causes the crust to fold. Folds are bends in rock that form when compression shortens or thickens part of Earth's crust, caused by the collision of 2 plates.

a. anticline: An upward fold in rock formed by compression of Earth's crust.

b. syncline: A downward fold in rock formed by compression in Earth's crust.

2. Stretching Earth's Crust: When 2 normal faults cut through a block of rock, a fault-block mountain forms.

a. Tension forces from 2 plates moving away from each other creates normal faults.

b. When 2 of these normal faults form parallel to each other, a block of rock is left lying between them.

c. As the hanging wall of each normal fault slips downward, the block in between them moves upward, forming a fault-block mountain.

3. Uplifting Earth's Crust: The forces that raise mountains can also uplift, or raise, plateaus.

a. plateau: A landform that has a high elevation & a more or less level surface.  
1) Some plateaus form when forces in Earth's crust push up a large, flat block of rock.

2) A plateau consists of many different flat layers, and is wider than it is tall.