

## Earth Processes Notes

### Sea Floor Spreading

- Divergent plate boundaries are often found on the ocean floor.
- Convection currents push the oceanic plates away from each other.
- Hot magma rises between the plates.
- As the magma cools, it hardens and forms new crust.
- This process is called sea floor spreading.

### Subduction

- Moving plates also form deep valleys and high mountains.
- Continental crust is thicker and lighter than oceanic crust.
- When continental crust collides with oceanic crust, the light continental crust slides up over the heavier oceanic crust and the oceanic crust is pushed down into the mantle.
- This process is called subduction.

### Trenches and Mountain Building

- A deep ocean trench forms where two plates meet.
- Mountain ranges are formed along the edge of the plate that carries continental crust.
- Mountain building can also occur where two plates meet. These plates are made of the same material, so one doesn't sink under the other.
- Instead, the two plates join together and fold upward. A mountain range is formed.

### Earthquakes

- Earthquakes are caused by a sudden movement of the Earth's crust.
- When the crust shifts, energy is released and these waves of energy go in all

directions.

- When these waves reach the surface of the Earth, they shake the ground.
- Earthquakes often happen along transform plate boundaries.

### **Earthquake Terms**

- The focus is the place beneath the Earth's surface where energy is first released.
- The epicenter is the point on the Earth's surface that is directly above the focus.

### **Earthquake Damage**

- Some earthquakes cause little damage and others cause extreme damage.
- Strong earthquakes can damage roads and buildings, destroy wildlife habitats, and harm or kill living things.
- A large earthquake is even capable of setting off a landslide that can carry millions of tons of rock away in seconds.

### **Measuring Earthquakes**

- Scientists who study earthquakes are called seismologists.
- The energy given off by an earthquake set off vibrations called seismic waves.
- The waves travel through the Earth's layers and are recorded on instruments called seismographs.
- Seismographs tell scientists when, where, and how strong the earthquake was.

### **Volcanoes**

- A volcano is a mountain with an opening, or vent, that goes down into the Earth's crust.
- Magma flows up through the vent and forms a pocket called a magma chamber.
- A volcano erupts when pressure builds up in the magma chamber and forces magma out through the vent.
- When magma reaches the surface of the Earth, it is called lava.

- Cinders, rock, ash, and hot gases may also come out of the vent.

### **Forming a Volcano**

- Some volcanoes form when a plate that carries oceanic crust sinks under a plate that carries continental crust.
- The sinking oceanic crust starts to melt and becomes magma that erupts from volcanoes on the continental crust.
- Other volcanoes form when a plate slides across a very hot area of the mantle called a hot spot.

### **The Ring of Fire**

- The Earth has more than 600 active volcanoes, most of which are in a circle around the Pacific Ocean.
- There are so many volcanoes in this area because this is where many of the Earth's plates meet.

### **Tsunamis**

- A tsunami is a series of waves created by an underwater disturbance.
- Underground earthquakes and volcanic eruptions can produce tsunamis.
- The underwater disturbance sends out energy which travels in waves through the water.
- Large amounts of energy can create giant waves which can cause extreme damage.