

Earthquakes and Volcanoes

Volcanoes

- **Magma** is **molten rock** beneath earth's surface and **lava** is **molten** rock once it reaches earth's surface through a volcano.
- Volcanoes can erupt many materials including **magma**, **rock fragments**, and **gases**
- Volcanoes can form at **divergent** boundaries, **subduction** zones, or at a **hot spot**.
 - The **Ring of Fire** is an example of a **subduction** zone
 - Hot spots are areas often far away from **plate boundaries** where volcanoes occur
- There are three main types of volcanoes
 - The volcano shaped like a broad, flat dome is called a **shield** volcano
 - The **cinder cone** volcano is a cone-shaped volcano built from pieces of fallen magma.
 - The **composite** volcano is also cone-shaped, but is made of lava and rock fragments.
- Volcano Danger
 - **Lava** can knock down, burn, or cover everything in its path
 - Volcanic **ash** can make roads slippery and clog machinery. Large amounts can **suffocate** living things, and the weight of the ash can cause buildings to collapse.
 - **Mudflows** form as ash mixes into a nearby river, and can bury entire towns
 - Part of the volcano may collapse, creating a **landslide**

Earthquakes

- An **earthquake** is the shaking of the ground caused by sudden movement of rocks along a fault. A **fault** is a break in the **lithosphere**.
- The energy of an earthquake travels as **seismic waves**, which are **vibrations**. There are three types of seismic waves:
 - **Primary waves** (p-waves) - first to arrive, **fastest** waves, push-pull motion, can travel through all states of matter.
 - **Secondary waves** (s-waves) - second waves, half the speed of P-waves, up and down motion, only travel through **solids**
 - **Surface waves** - move along earth's surface, not interior, cause the most **motion** and **damage**, **slowest** moving
- Parts of an earthquake
 - The location under earth's surface where an earthquake begins is called the **focus**.
 - The **epicenter** is the point on earth's surface directly above the **focus**.
- Earthquake Danger
 - Damage to buildings, fires, loss of life
 - **Tsunamis**, which are massive waves, can be triggered by earthquakes
 - An **aftershock** may occur, which is an earthquake after the earthquake
 - When the ground shakes, **liquefaction** can occur, which is when soil loosens up and acts like a liquid, causing structures to sink down into it.

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- _____ is _____ rock beneath earth's surface and _____ is _____ rock once it reaches earth's surface through a volcano.
- Volcanoes can erupt materials such as _____, _____ fragments, and _____.
- Volcanoes can form at _____ boundaries, _____ zones, or at a _____.
 - The _____ is an example of a _____ zone.
 - Hot spots are areas often far away from _____ where volcanoes occur.
- There are three main types of volcanoes:
 - The volcano shaped like a broad, flat dome is called a _____ volcano.
 - The _____ volcano is a cone-shaped volcano built from pieces of fallen magma.
 - The _____ volcano is also cone-shaped, but is made of lava and rock fragments.
- Volcano Danger
 - _____ can knock down, burn, or cover everything in its path
 - Volcanic _____ can make roads slippery and clog machinery. Large amounts can _____ living things, and the weight of the ash can cause buildings to collapse.
 - _____ form as ash mixes into a nearby river, and can bury entire towns.
 - Part of the volcano may collapse, creating a _____.

Earthquakes

- An _____ is the shaking of the ground caused by sudden movement of rocks along a fault. A _____ is a break in the _____.
- The energy of an earthquake travels as _____, which are _____. There are three types of seismic waves:
 - _____ waves (p-waves) - first to arrive, _____ waves, push-pull motion, can travel through all states of matter.
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