

Name _____

Volcano Notes

What is a volcano?

- A volcano is an _____ in the earth's surface that allows gases, ash, and _____ to escape
- When the lava and _____ build up surrounding the opening, a volcanic _____ is formed

Where do volcanoes come from?

- Volcanoes can form for different reasons
 - Divergent plate boundary: plates moving _____ from one another
 - Convergent plate boundary: plates colliding with one another
 - Hot Spot: _____ on a plate boundary

Divergent Boundary: _____

- Iceland is located on a divergent boundary, the _____
- When magma that escapes the ridge reaches the ocean water, it cools quickly
- When these volcanoes reach _____ sea-level, an _____ is formed

Surtsey

- Surtsey is an _____ off the coast of _____ that formed from a _____ eruption that began in 1963

Convergent Boundary: The _____

- The Andes Mountains are located on the _____ coast of South America, where the _____ Plate is being _____ beneath the South American Plate

Hot Spot

- A hot spot can occur _____ and is _____ related to plate boundaries
- _____ is an example of a group of islands created by a hot spot

- A hot spot is a place where the _____ has broken through the lithosphere (a spot that is especially hot)

Volcanic Island Arc: Hawaiian Islands

Volcanic Features

- Vent: _____ in volcano where gases, ash and _____ escape
- Crater: steep-sided _____ surrounding the vent

What determines the type of eruption?

- There are ____ factors which will determine whether a volcanic eruption is explosive or _____
 - The amount of trapped _____ vapor and gases
 - The type of _____
 - Silica rich
 - Silica poor

Water Vapor

- When an oceanic plate is _____ beneath a continental plate, some _____ is subducted along with it
- When the rock melts into magma, _____ is mixed in
- The more water vapor, the more _____ the volcano

Trapped Gases

- Water vapor and other gases, such as carbon dioxide, are present in magma
- The surrounding rock may allow these gases to be _____ or they may cause them to remain trapped within the _____
- Gases that remain trapped in the magma lead to _____ eruptions

Type of Magma

- The type of magma found within a volcano is dependent upon _____ the magma got to the surface, or where it is located
- The type of magma is also directly related to the type of _____ that is formed

- We will look at the different types of magma, how they come to be, how quiet or explosive they are, and the shape of volcano that is formed because of these things...

Shield Volcanoes

- Magma 'begins' as _____
- Silica-poor
- Flow is fluid and _____
- Basaltic lava travel the least distance from into to out of the earth, therefore, it has the _____ amount of time to dissolve silica, water vapor and gases
- Basaltic lava flows are often found in the _____
- Basaltic lava flows form _____ volcanoes

Cinder Cone Volcanoes

- Some low-silica magma have _____ gas dissolved and have basaltic to granitic magma
- This occurs when magma reaches the surface _____ (not dissolving much silica), but gases are _____ to escape easily, usually because they occur on continental crust, not _____
- What results is a _____ cone volcano
- This volcano forms when _____ are ejected violently, sending cinders high into the air, which then pile up surrounding the vent
- Cinder cone volcanoes often have very _____ sides composed of layers of _____
 - Tephra is bits of _____ or solid lava that fall from the air. Their size varies from ash, to cinders, to large rocks

Stratovolcano (Composite)

- Silica rich, Granitic to Andesitic magma
- Found where the _____ meet
- Magma rises through the lithosphere, dissolving _____

- Alternate layers of lava (quieter eruptions) and tephra and ash (violent eruptions)

Caldera

- Silica-_____, Rhyolitic magma
- Largest and most _____ of all volcanoes
- Explosive, so much that the volcano caves in, forming a large _____
- Rarely occur

A few notes on silica...

- The earth's crust is over 90% silica
- Most minerals are 'silicates' because their base is silica and oxygen
- Silica '_____' magma
- Basalt is silica poor = flows like syrup
- Granitic
- Andesitic
- Rhyolitic = extremely _____, flows like molasses in the winter