Name _____

Volcanoes & Earth's Moving Plates (p. 330 – 335)

I. What Are Volcanoes?

1. **Define the term volcano.**

p. 330

Volcano – opening in the Earth that erupts gases, ash, + lava
(Cut in skin → blood)

2. **How many volcanoes on Earth are active?**

600 - 1,500 (surface) → Most are dormant (inactive)

3. **What is the name of the most active volcano on Earth?**

Mt. Kilauea, Hawai'i

II. Effects Of Eruptions

Lahars
- avalanche of mud, melted snow, + rock

1. **List four types of materials released during a volcanic eruption.**

p. 331

Volcanic Ash
Pyroclastic Flow (wave of hot gases, ashes, cinders, bombs → travel 100+ mph)
Cinders (pebble-sized particles)
Bombs (size of baseball → car)

Mt. Vesuvius
- destroyed the cities of Pompeii + Herculaneum

Nevado del Ruiz

III. How Do Volcanoes Form?

Columbia
- 120 meters high
- travel 30 miles
- destroyed the city of Armero (20,000 people)

1. **How does magma form deep inside the Earth?**

Heat + pressures changes cause rock to melt

2. **What causes magma to be forced slowly to the surface of the Earth?**

Magma is less dense than the rock around it

p. 332

3. **How long does it take for magma to reach Earth's surface?**

thousands to millions of years

4. **Define the term vent.**

Vent – opening in the Earth's surface where magma flows out
(Side vent or Crater Vent)

5. **Define the term crater.**

Crater – steep-walled depression around a volcano's vent

Name _____

IV. Where Do Volcanoes Occur?

1. **List three locations where volcanoes form?**

p. 333

Divergent Boundaries
Convergent Boundaries
Hot Spots

2. **Describe how volcanoes form along the mid-ocean ridges.** (Ex. - Mid-Atlantic Ridge)

Along the rift valley, lava pours out of cracks in the ocean floor, gradually building new mountains.

3. **Volcanoes can form along diverging plate boundaries on land.** (Not in the book.)

Circle One : (True) False — Great Rift Valley, Africa

4. **Volcanoes form near convergent boundaries where oceanic crust returns to the mantle.**

p. 334

Circle One : (True) False — Ex. - Subduction Zones

5. **Circle the letter of the types of plates that collided to form the Andes Mountains.**

a. two oceanic plates → Mariana Trench
(b.) a continental plate and an oceanic plate → Peru-Chile Trench
c. a continental plate and an island plate → Himalayan Mts. / Appalachian Mts.
d. two continental plates

6. **What is the Pacific Ring Of Fire?** (Not in the book.)

Bumper Cars

A major volcanic belt formed by many volcanoes that rim the Pacific Ocean.

7. **Volcanoes at boundaries where two oceanic plates collide create islands called an:**

island arc (Not in the book.)

8. **List six types of island arcs on Earth.** (Not in the book.)

1. Japan 2. Aleutian Islands 3. Indonesia
4. New Zealand 5. Philippines 6. Carribean Islands

9. **Define the term hot spot.**

p. 335

Hot Spot – area where material from within the mantle rises and melts, forming magma

10. **Give an example of a hot spot volcano.**

Hawaiian Islands

Other Examples:
- Iceland
- Galapagos Islands
- Canary Islands
- Yellowstone National Park

Volcanoes

I. Volcano Facts

- mountains that build taller and taller as they erupt
- built up by lava flowing out of vents, cooling, and layering
- most are dormant (inactive)
- materials released from volcanoes :
  - smoke
  - volcanic ash (volcanic fragments smaller than 2mm)
  - lava (aboveground molten material)
  - pumice (light, porous volcanic rock)
  - tephra (fragments of volcanic rock)
- gases emitted from volcanoes :
  - water vapor
  - carbon dioxide
  - sulfur dioxide
  - hydrogen chloride
  - hydrogen fluoride
- most are 10,000 - 100,000 years old
- about 1,500 active surface volcanoes (about 10,000 undersea volcanoes)
- Indonesia = country with most volcanoes
- United States = lower 48 states (~ 40 volcanoes)
  = Alaska (~ 60 volcanoes)
- Largest Volcano = Mauna Loa, Hawaii (29,000 feet above seafloor)
- Oldest Volcano = Mount Etna (350,000 years old)

II. Volcanic Explosivity Index (V.E.I.)

- estimates the relative size of an explosive eruption
- 0 - 8 index scale of increasing explosivity (each 1.0 increase = 10X magnitude)
- no known explosive events with a V.E.I. larger than 8
- index value determined according to :
  - volume of erupted pyroclastic material
  - height of eruption column
  - duration in hours
  - descriptive terms
- past 10,000 years of V.E.I. data :
  - 2 = 3,477 eruptions
  - 3 = 868 eruptions
  - 4 = 278 eruptions
  - 5 = 84 eruptions
  - 6 = 39 eruptions
  - 7 = 4 eruptions