

NAME: \_\_\_\_\_  
PERIOD: \_\_\_\_\_

I. Continental Drift

- A. During the \_\_\_\_\_ accurate maps of Earth were first developed.
  
- B. People noticed the continents could have fit together.
  - a. 400 years ago—Dutch map maker \_\_\_\_\_ noted the similarities in the coastlines between \_\_\_\_\_ and \_\_\_\_\_.
  
- C. 1912—Alfred Wegener (VEG nur)—proposed the \_\_\_\_\_.

II. Pangea

- A. All continents were once joined & broke up \_\_\_\_\_.
- B. This land mass was called – Pangaea.
- C. What does the word Pangea mean?

III. Clues to Continental Drift

- A. Puzzle like fit
- B. Fossil Clues
  - a. *Mesosaurus*—\_\_\_\_\_
    - i. Fossils were found in South America & Africa.
    - ii. Unlikely that Mesosaurus swum between the continents.
    - iii. How do they believe the fossils ended up on both continents?
  
  - b. *Glossopteris*—\_\_\_\_\_
  - c. Found in:
    - i.
    - ii.
    - iii.
    - iv.
    - v.
  - d. It was believed that when connected they had similar climate.

C. Paleoclimatic Clues

- a. Fossils of warm-weathered plants have been found in arctic regions
  - i. For example the Island of \_\_\_\_\_
- b. Glacial deposits & surfaces scoured & polished by glaciers found around equator
  - i.
  - ii.
  - iii.
  - iv.
- c. Parts of these continents were covered with glaciers.
- d. Ancient coral reefs found in \_\_\_\_\_

D. Rock Clues

- a. Similar rocks are found on different coasts.
- b. Ex. Appalachian Mountains similar to rocks of \_\_\_\_\_ & \_\_\_\_\_.
- c. Ex. Rocks of western Africa similar to rocks of \_\_\_\_\_.

E. Why was the theory of continental drift rejected at the time it was proposed?

F. Why would this theory later be accepted?

G. Computer Models of Continental Drift

- a. Permian Period: 225 mya.
- b. Triassic Period: 200 mya
- c. Jurassic Period: 135 mya
- d. Cretaceous Period: 65 mya
- e. Present Day: Today

## II. Sea Floor Spreading

- a. Clues on the Ocean Floor
- b. Technology lead to further clues.
  - i. \_\_\_\_\_
  - ii. 1940's-1950's on ships
- c. What did these devises discover?
  - i.
  - ii.
- d. **Scientists wondered what formed the Mid Ocean Ridge.**
- e. When was this theory proposed?
- f. Who proposed this theory?
- g. What exactly did he proposed caused sea floor spreading?
  - i. Hot (\_\_\_\_\_) material in mantle.
  - ii. Forced \_\_\_\_\_ at mid-ocean ridge.
  - iii. Flows \_\_\_\_\_, carries seafloor \_\_\_\_\_.
  - iv. It cools, becomes more \_\_\_\_\_

v. As it sinks, forms \_\_\_\_\_.

### III. Glomar Challenger

- a. Research ship, '68
  - 1. Drilling Rig to obtain rock samples
  - 2. What was found?
  
- b. Note: some continental rocks are 4 billion years old.
  
- c. **Why are the seafloor rocks so young?**
  
- d. Rocks close to the ridges are younger.

### IV. Magnetic Clues

- a. Basalt
  - 1. Rock samples collected from seafloor.
  - 2. Contains what ore?
  
- b. Aligns itself according to \_\_\_\_\_.
  
- c. Rock samples show several \_\_\_\_\_.
  
- d. \_\_\_\_\_--Instrument, which records magnetic data.
  
- e. What did this instrument find?

## V. Theory of Plate Tectonics

- a. What is the theory of plate tectonics?
  
- b. What are plates?
  - a. Lithosphere—100 km thick layer.
  - b. Less Dense than the layer below.
  - c. \_\_\_\_\_—the plates move around above this layer.
- c. Plate boundaries
  - a. PLATE BOUNDARIES--Divergent Boundaries (moving apart)
    - b. What are two examples of a divergent boundaries?
  
  - c. PLATE BOUNDARIES--Convergent Boundaries
    1. 3 Types
      - a. Subduction Zone
        - i. What is a subduction zone?
  
        - ii. Compare their densities
  
        - iii. What happens to the more dense plate?
  
        - iv. What is an example?
  
      - b. Ocean-Ocean Collisions
        - i. Same as subduction zone, but with *ocean plates*
        - ii. What is an example?

- c. Two *continental plates* collide
  - i. Both are less dense than asthenosphere
  - ii. Usually NO subduction
  - iii. What happens when they collide?
  
  - iv. What is an example?

- d. PLATE BOUNDARIES—Transform plate boundaries
  - 1. 2 plates *slide* past one another.
  - 2. Can move in the same direction. OR
  - 3. Opposite directions.
  - 4. What are two examples?

VI. Plate tectonics

- a. Hypothesize: similar to the process of heating your home.
- b. How do convection currents form?

VII. What are the effects of plate tectonics?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

e. \_\_\_\_\_