

**Endless Voyage 101: Water Planet**

Name\_\_\_\_\_

1. Discuss at least three important attributes of water and how it helps life on earth.
2. Discuss these ocean advantages:
  - a) The support of life
  - b) Transparency of light
3. Describe the events of the “Big Bang”. When did it occur?
4. What is the “Microwave Background” and what does it have to do with the “Big Bang”?
5. What is a protosun? How come it is not considered a true sun?
6. Describe the atmosphere of the early earth.
7. There was no oxygen in the early earth’s atmosphere. Describe how we got our oxygen.
8. How did the moon form?
9. Describe two possible sources for the water on earth.
10. Why is water important to life?
11. What is necessary to sustain life? There are 2 primary things.
12. What are archaeobacteria and where do they live?
13. What would temperatures be like without water?

1. Describe Captain Cook's first exploration. Where did it take place?
2. Describe Captain Cook's second and third explorations. What happen to him?
3. Describe the events that lead up to Wilkes scientific voyage for the United States.
4. Once the voyage was organized, what were they to do? Where did they go? What did they find?
5. Describe the contributions of Matthew Maury to oceanography.
6. Describe the contributions of Charles Darwin to oceanography.
7. Describe the contributions of the HMS Challenger study ship.
8. Which country developed the first oceangraphic laboratory?
9. Who was James Ritter? What did he do? What does he have to do with Scripps?
10. Describe the development of Woods Hole Oceangraphic Institute?

### **Endless Voyage 103: Making the Pieces Fit**

**Name**\_\_\_\_\_

1. Describe the Theory of Continental Drift first amalgamated from a variety of data collected by Alfred Wagner.
2. Why was Wagner's theory of Continental Drift ditched?
3. Describe how World War II helped develop the theory of Plate Tectonics.
4. Describe Hess/Dietz Theory of Sea Floor Spreading.
5. Describe the contributions of Vine, Matthews and Morley (ie: Paleomagnetic studies).
6. What did the Glomar Challenger of DSDP (the Deep Sea Drilling Project) do for the development of the sea floor spreading theory?
7. Describe the contributions of J. Tuzo Wilson.
8. What technology helped us prove the idea that the Earth is composed of tectonic plates that move?
9. What is subduction and what does it create?

1. Where do Earthquakes occur with respect to Plate Tectonics?
2. Discuss the two locations and levels of earthquakes.
3. Describe what occurs at a divergent boundary. Also, give examples of where they occur.
4. How fast do plates move today? Did they move faster or slower in pre-history?
5. Describe what occurs at a convergent boundary. Give examples of when those types of boundaries occur.
6. Describe the third type of boundary, the Transform Boundary. Where can you find one of those?
7. Describe the following geometric features:
  - a) Mid-ocean Ridge
  - b) Transform faults
  - c) Trenches
  - d) Seamounts
  - e) Guyot
8. Give examples of seven island areas. How do they form?
9. With respect to composition, the earth has three layers. Name them and describe each briefly with respect to their composition.
10. Describe how convection occurs. What does it have to do with Plate Tectonics?

## **Endless Voyage 105: Over the Edge**

**Name**\_\_\_\_\_

- 1.** Describe the characteristics of a continental shelf.
- 2.** What are methane hydrates? How are they useful to us?
- 3.** Compare the continental slope of the east coast (a passive continental margin) with the west coast (an active coastal margin).
- 4.** Describe the characteristics of submarine canyons.
- 5.** Describe the basic characteristics of the abyssal plain (or floor).
- 6.** Describe the characteristics of a mid-ocean ridge.
- 7.** Describe the two major “styles” of mid-ocean ridges. Where are they found?
- 8.** What are seamounts? How do they form? Basic characteristics?
- 9.** Describe the characteristics and the formation of guyots.
- 10.** Describe the formation of an island.
- 11.** What was discovered in 1977? Where are they found? What is the chimneys composition?
- 12.** How do the critters make their own food at the vents since the sun does not shine there?
- 13.** What are two instruments that can be used to find hydrothermal vents?
- 14.** What is the difference between Alvin and Jason?

## Endless Voyage 106: The Ocean's Memory

Name\_\_\_\_\_

1. **What** is the oceans memory?
2. What are the terrigenous sediments? Where do they come from?
3. What are biogeneous sediments? Where do they come from?
4. What are hydrogenous sediments? Where do they come from?
5. What are Cosmogenous sediments? Where do they come form?
6. Name several valuable minerals that can be mined from the ocean.
7. Discuss several methods of obtaining temperature records from marine sediments. What kinds of information can this tell us?
8. What does the mineral magnetite tell us? Is our magnetic field presently changing?
9. Describe how we obtain sediments from the ocean floor. (Include at least gravity cores, piston cores, DSDP).
10. How was the field of paleo-oceanography created?