ES106 Video Exercise **Name_____**

Endless Voyage Video Series
7 - Water Properties

Watch the video and answer the following review questions.

1. What is the chemical composition of the water molecule?

2. What are the three physical states of matter, in which water occurs on planet Earth?

3. What is the bond angle between hydrogen and oxygen atoms in a water molecule.

4. Draw a sketch of the water molecule, and explain why it is called “dipolar”.

5. Why do water molecules cluster or clump together?

6. True or False: the boiling point of water is unusually low, because of it’s chemical composition and dipolar nature.

7. True or False: water is not effective at dissolving chemical compounds.

8. True or False: many chemical compounds on planet Earth are not soluble (dissolvable) in water.

9. Why is it important that water in a solid state, ice, is less dense and floats on liquid water.

10. List three types of reservoirs on the Earth surface in which water is located.

11. How does ocean water differ chemically from river water?

12. List four sources of dissolved elements in seawater that make it “salty”.

13. True or False: the oceans are saltier than any other body of water on the planet.

14. List two mechanisms by which dissolved salts are removed from the ocean, at “salt sinks”

15. Define the term “salinity” and explain how it is measured.

16. True or False: increasing the amount of dissolved salts in water, increases the electrical conductivity of the water.

17. Define the term “density”.

18. True or False: increasing salinity of seawater results in decreasing density.

19. True or False: cold water is more dense than warm water.

20. True or False: warm equatorial ocean water rises and cold polar ocean water sinks.

21. Explain how heat is transferred from the polar regions to the equatorial regions. Draw a sketch showing generalized circulation of ocean water across the Earth.

22. Define the term “thermohaline” circulation and the factors that cause water to move in the oceans.

23. True or False: gasses in the atmosphere, such as carbon dioxide, freely exchange with the oceans over time.

24. True or False: removal of carbon dioxide from the atmosphere by ocean exchange causes climate temperature to decrease.

25. Discuss how the evolution of plants on Earth have impacted its atmospheric gas composition.

26. True or False: increase in ocean plant biomass, encourages carbon dioxide consumption from the atmosphere, and forces global atmospheric cooling.

27. What chemical element is hypothesized as essential for abundant ocean plant growth.

28. Provide a summary statement of what you have learned about the importance of oceans to planet Earth in this video.