

Read through ALL of the excerpts on both pages. Then create an outline using the 4 sub-headings listed. Each sub-heading should have at least 3 points detailing it and each point should have at least 1 sub-point below it. Here is how it should look.

## The Properties of Water

### 1. The water molecule

- a. Chemically stable but with an unusual shape
  - i. The sharing of electrons causes this shape
- b. Positive and negative areas on the molecule
  - i. This causes neighboring water molecules to draw to each other
- c. Hydrogen bond
  - i. The bonds created between the negative and positive areas on the molecule

### 2. Surface Tension

- a.
  - i.
- b.
  - i.
- c.
  - i.

### 3. Heat Capacity

- a.
  - i.
- b.
  - i.
- c.
  - i.

### 4. \_\_\_\_\_

- a.
  - i.
- b.
  - i.
- c.
  - i.

The Properties of Water pgs. 32-33

1. A molecule of water consists of \_\_\_\_\_ hydrogen atoms bound to \_\_\_\_\_ atom of oxygen.
2. A \_\_\_\_\_ bond is an attractive electrostatic force between regions of slight \_\_\_\_\_ and \_\_\_\_\_ charge on neighboring water molecules.
3. In any aggregation of water molecules, the surface molecules tend to be drawn together and inward toward the center of aggregation, forming a surface “\_\_\_\_\_” that is resistant to disruption.
4. Provide 2 vital process within living organisms that water’s surface tension is responsible for:
  - 1.
  - 2.
5. Name 2 insects that can float on the water’s surface due to its high surface tension:
  - 1.
  - 2.
6. In a drop of water, molecules are pulled in all directions by \_\_\_\_\_ with their neighbors.
7. Water’s high \_\_\_\_\_ means that the Sun warms the sea more slowly than the land.
8. \_\_\_\_\_ (SHC) is the energy (in Joules) needed to raise the temperature of 1 gram of substance by 1°C.
9. When heat is added to water, most of the heat is used to break \_\_\_\_\_ bonds linking the molecules.
10. For ice to melt and water to vaporize, high levels of \_\_\_\_\_ are needed to break all the hydrogen bonds.
11. The fact that ice floats on liquid water is important because it allows the existence of large areas of \_\_\_\_\_ sea ice.
12. In \_\_\_\_\_, hydrogen bonds hold the water molecules together in a rigid structure.
13. \_\_\_\_\_ is the only natural substance found in all 3 states at Earth’s surface.