STATION 1

DO NOT WRITE ON THIS SHEET, CHOOSE THE CORRECT ANSWER ON ANOTHR SHEET OF PAPER AND EXPLAIN WHY TWO OTHER ANSWERS ARE INCORRECT.

If you have any questions, raise your hand and I will be glad to help! Good luck ☺.

Water Properties Review

1. Which of the following illustrates the **adhesive** property of water?
a. Ice floats when it is put into a beverage
b. Water measured in a burette forms a meniscus at its surface
c. Pond water evaporates once it has absorbed a large amount of heat energy
d. Rainwater dissolves airborne pollutants

2. Which of the following is possible because of the **cohesive** property of water?
a. An insect walks on the surface of a pond
b. An iceberg forms at the South Pole
c. Calcium ions are transported in the blood
d. Light reaches the bottom of a shallow lake

3. A glass can be filled with water above the rim. Rather than spilling over the edges of the glass, the water forms a domed surface. A paper clip can then be added, and it will float on the top, even though the paper clip is made of metal that is denser than water. These demonstrations are due to water's **surface tension.** Why does water have several unique properties, such as surface tension?
a. water is the universal solvent and can hold anything, even paper clips
b. water is polar, and water molecules electrically attract neighboring water molecules
c. water bonds like metals so water molecules form a crystal lattice structure
d. water is polar and tends to attract metallic substances

4. Water can absorb more heat than land, but water does not increase **temperature** as fast. As the sun bombards the planet with radiant energy, the planet remains relatively cool as water absorbs the energy from the sun. Water's ability to resist a dramatic change in temperature allows life to persist on earth. Which property of water is responsible for this phenomenon?
a. adhesion b. surface tension c. high specific heat d. surface area

5. A student is performing a laboratory investigation in which he is trying to determine the number of drops that can fit on a penny. The student uses a pipette to place drops one at a time, and then counts the number of drops until the water spills over the sides of the penny. The student is surprised by how many drops end up fitting on the penny. Which two properties of water allow so many drops to fit on a penny?
a. expansion upon freezing and cohesion c. high specific heat and expansion upon freezing
b. adhesion and cohesion d. cohesion and high specific heat

6. Water striders are a type of insect, and they possess the ability to walk on water. They utilize this to their advantage by preying on small insects that enter their area. The water striders are attracted to this food source by the ripples produced by their prey. They use their small claws to puncture their prey, and then suck out sustenance in a method called suction feeding. Which property of water allows water striders to walk on water?
a. adhesion b. high specific heat c. expansion upon freezing d. surface tension

7. Which property of water is exemplified by **water sticking to a window**?
a. cohesion b. adhesion c. expansion upon freezing d. high specific heat

8. Water causing a pipe to burst in the winter is an example of which of the following properties?
a. high specific heat b. expansion upon freezing c. adhesion d. cohesion

STATION 2

DO NOT WRITE ON THIS SHEET, CHOOSE THE CORRECT ANSWER ON ANOTHR SHEET OF PAPER AND EXPLAIN WHY TWO OTHER ANSWERS ARE INCORRECT.

If you have any questions, raise your hand and I will be glad to help! Good luck ☺.

Properties of Water & Bonding Review

1. Typically, as a substance transitions from its liquid to its solid phase, it becomes denser and more compact. However, as water gets below 4°C the molecules begin to rearrange, and begin to become less dense. Which of the following describes the property of water being described?

a. adhesion b. high specific heat c. cohesion d. expansion upon freezing

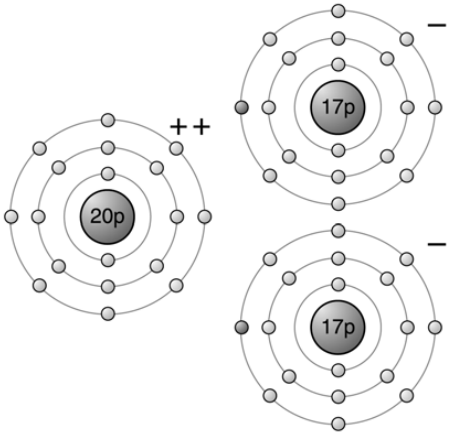
2. Cohesion at the surface of a liquid is known as surface tension. Surface tension is the ability of a liquid to resist an external force, such as when an object denser than water floats on the surface. Which of the following is responsible for this unique property of water?

a. water is a light-weight molecule
b. water has the ability to form hydrogen bonds
c. water is comprised of three atoms
d . water contains hydrogen atoms

3. As water droplets collect on a window, they run down and collide, forming larger droplets of water. Which of the following properties describes water's ability to join together?

a. expansion upon freezing b. adhesion c. high specific heat d. cohesion

4.

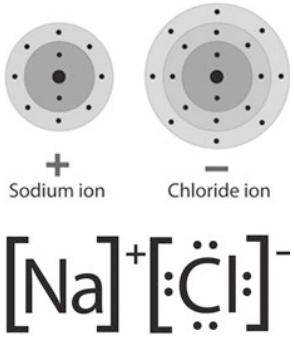


Which of the following describes the type of bonding shown in the diagram?

a. covalent
b. ionic
c. hydrogen
d. metallic

5. The diagram below depicts the formation of sodium chloride. A positively charged sodium atom forms a bond with a negatively charged chlorine atom, resulting in the formation of a molecule of table salt. Which of the following explains why the chlorine atom becomes negatively charged?

a. chlorine steals an electron from sodium
b. chlorine donates an electron to sodium
c. chlorine steals a proton from sodium
d. chlorine loses a proton from its nucleus



6. In a water molecule, the oxygen atom has a slightly negative charge, and the hydrogen atoms have a slightly positive charge. This is due to the fact that electrons spend more of their time orbiting around the oxygen atom. Which of the following bonds gives rise to this unequal sharing of electrons?

a. hydrogen bond c. ionic bond
b. polar covalent bond d. metallic bond