

Name _____

Date _____

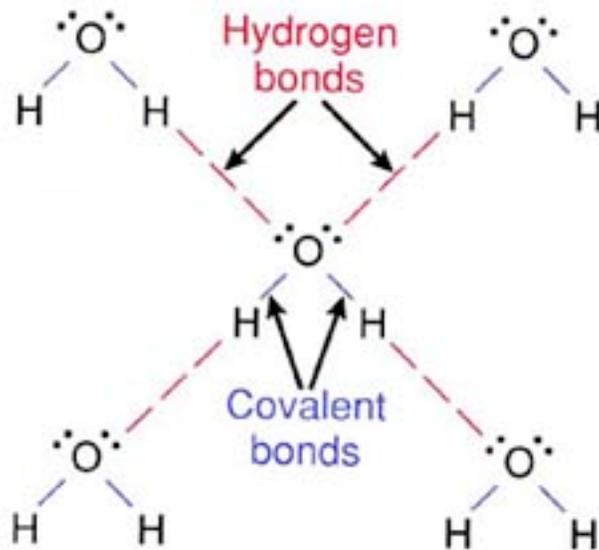
Water and the Fitness of the Environment.

Answer the following questions concerning the water molecule.

1. Why does the water molecule exhibit polarization?

2. If two water molecules come in close contact a (n) _____ bond forms between them.

3. If one were to separate the H and O in a water molecule what type of bond would have to be split?



Hydrogen bonding in water.

4. At what point does water exhibit the maximum number of hydrogen bonds?
_____.

5. At what point does water exhibit the minimum distance between molecules?
_____.

Examine the following table and answer the questions that follow.

Specific Heats of Some Substances

Substance	Specific Heat [cal/(g · °C)]
Water (liquid)	1.00
Water (solid)	0.50
Water (gas)	0.47
Ethyl alcohol	0.54
Wood	0.42
Aluminum	0.21
Glass	0.12
Iron	0.11

6. What is the specific heat of liquid water? _____

7. Why do you think a person feels cold when he/she just gets out of a swimming pool?

8. Would a high or low specific heat of a substance help cool off a warm body? _____

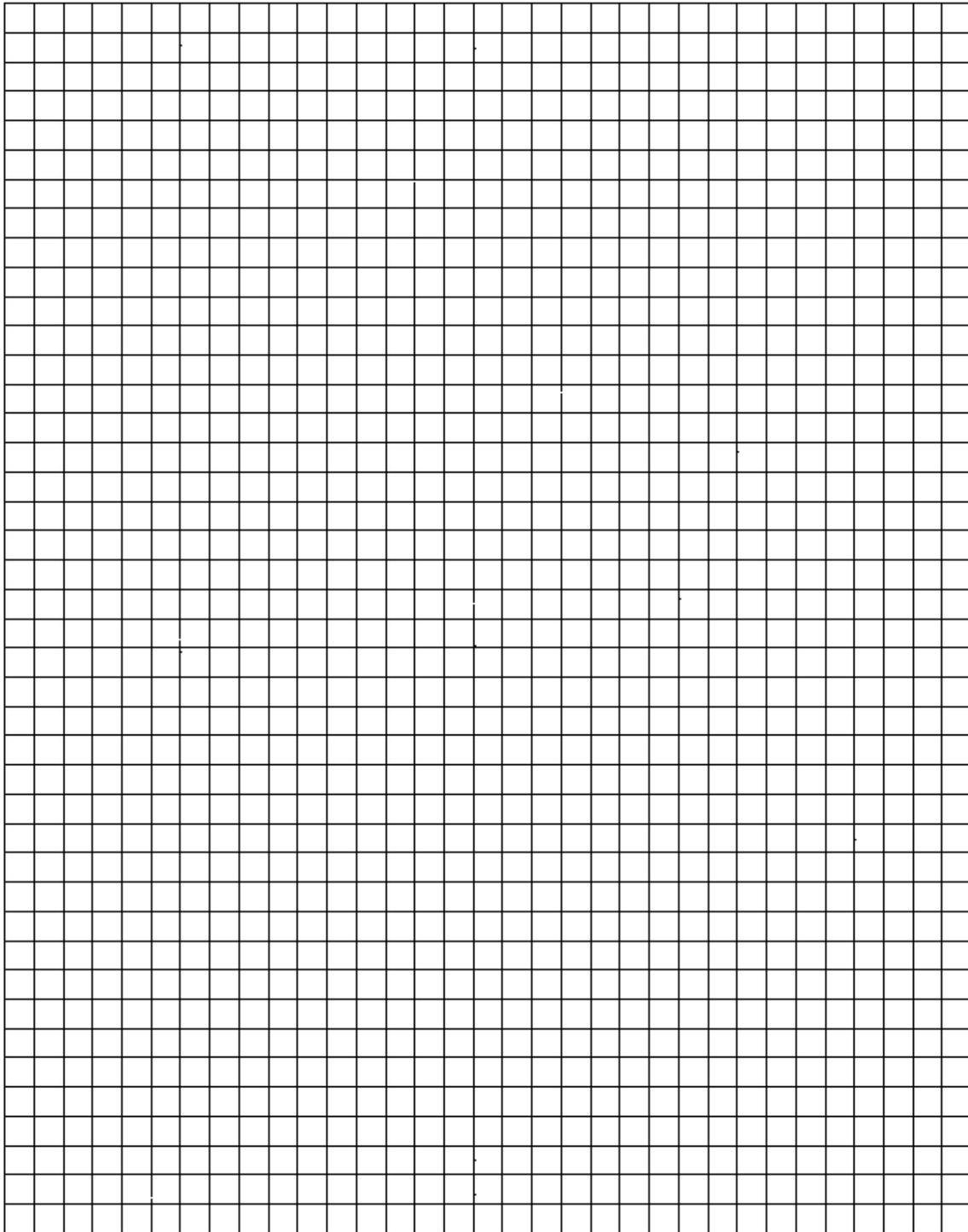
9. Why do you think the earth is mostly covered with water?

10. Water molecules dissociate into two ions: the _____ and the _____.
11. This separation is the basis for the _____ scale.
12. On this scale the substance that contributes H^+ are considered _____,
13. The substances that take up and hold on to the H^+ are considered _____.
14. If a solution has a pH of 5, how much more acidic is it than a solution with a pH of 8? _____.
15. A (n) _____ is a special chemical that has the ability to regulate a solutions pH. If the solution is too acidic it will _____ H^+ .
16. All solution contains the _____ and the _____.

Boiling Points of Various Compounds at 1 Atm

Compound	Boiling Point ($^{\circ}C$)
Diethyl ether (anesthetic)	34.6
Acetone (solvent)	56.2
Methyl alcohol (wood alcohol)	64.5
Ethyl alcohol (grain alcohol)	78.3
Water	100.0
Mercury	356.6

Bar Graph the above data.



1. Which of the above substances required the least amount of heat to evaporate it?

2. What is mercury? _____

3. Of the above substances which one (s) are chemical compounds?

4. What is the average boiling point of the above substances? _____