

Properties of Water Quiz Review

1. Draw a picture of the water molecule. Label the elements involved.

2. In a water molecule, the oxygen atom has a partially negative charge and the hydrogen side is partially positive. Circle one. **True False**

3. What is the capillary effect of water? Describe in your own words.

4. Which of the following are examples of water's capillary effect? Choose all that apply.

- ☐ Filling a balloon with air
- ☐ Cleaning up a soda spill with a sponge
- ☐ Plants transport water from the roots to the leaves.
- ☐ Water seeps into the foundation of a building.

5. Substances that mix with water are considered hydrophilic (alcohols, sugar, glycerol). The chemical structures of hydrophilic substances often contain hydroxyl groups (-OH groups). Give 2 examples of hydrophobic substances (substances that do not mix with water):

(1) _____ (2) _____

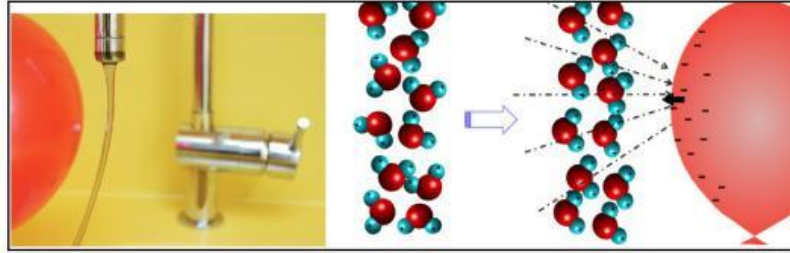
6. A basilisk lizard can run over water because of the amazing _____ of water.
Choose all terms that make sense for completing the sentence above.

- ☐ Color
- ☐ Surface tension
- ☐ Capillary effect
- ☐ Adhesion
- ☐ Cohesion

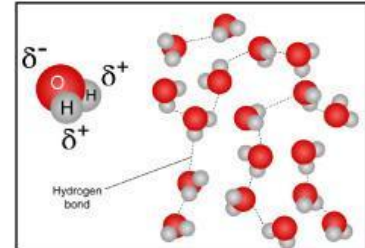
7. Why can a water stream be bent using a balloon?

- Because the water is negative and is attracted to itself.
- Because the balloon has a negative charge and the water molecules turn their positive sides towards the balloon. Positive and negative attract.
- Because the water molecules are polar and the balloon has no charge.
- Because the balloon has a negative charge and the water molecules have no charge..

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8. What is a hydrogen bond? Explain in your own words.



9. Match the following descriptions with the terms below by drawing connecting lines. Draw all lines that apply.

Water's attraction to other surfaces
Attraction between water molecules
Allows a lizard to run over water
Causes capillary action
Keeps water a liquid rather than a gas

Surface Tension

Cohesion

Adhesion

10. A droplet of water on the surface of glass looks kind of flat compared with a droplet on the surface of wax paper because...(pick the best answer)

- Water's adhesion to a glass surface is relatively strong compared to its adhesion to wax..
- Water's cohesion is much stronger than water's adhesion to glass.
- Water's cohesion and adhesion are equally strong.

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11. Match the following terms with their meaning. Pick the best answer.

Cohesion

- A molecule has two sides: One is partially positive, the other is partially negative.
- Interaction between two water molecules (a partially positive hydrogen atom and a partially negative oxygen atom)
- Water's attraction to itself (water 'sticking' to water)
- Water's attraction to other surfaces, such as glass.
- All molecules are attracted to glass.

Adhesion

- One side of a molecule is partially positive, the other is partially negative.
- Interaction between water molecules
- Water's attraction to other surfaces, such as glass
- Water's attraction to itself (water 'sticking' to water)

Hydrogen Bonds

- Both sides of a molecule are positively charged.
- One side of a molecule is partially positive, the other is partially negative.
- Network of interaction between water molecules
- Water's attraction to other surfaces, such as glass.
- Water's attraction to itself (water 'sticking' to water)

Polar Molecule

- Both sides of a molecule are positively charged.
- One side of a molecule is partially positive, the other is partially negative.
- Interaction between two water molecules
- Water's attraction to other surfaces, such as glass.

12. When a disaster strikes, which procedure would you use to prepare drinking water from creek water?

- ☐ Filter the water, then boil it for 10 minutes
- ☐ Filter the water two times
- ☐ Let the water stand in a bucket overnight
- ☐ Put charcoal in the water

13. After a disaster, why may city officials ask the people to **boil** tap water before drinking it?

- ☐ To remove lead contamination
- ☐ To kill harmful bacteria
- ☐ To filter out sand
- ☐ To remove its brown color

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14. What would be the best way to **remove salt from sea water** to create drinking water?

- ☐ Filter the water several times, then boil it for 10 minutes
- ☐ Boil the water for 10 minutes
- ☐ Let it sit overnight for the salt to settle down
- ☐ Find a way to distill the water

15. You are stranded on a deserted island without fresh water. You find a pile of trash. Which of the following items would you take to make drinking water? Check all that apply.

- ☐ A plastic bag
- ☐ A broken flip flop
- ☐ An empty plastic water bottle
- ☐ An old pen

16. Label each of the below pictures with the appropriate **state of matter**.



17. Water changes its state from gas (water vapor) to liquid. What is this phase change called?

- ☐ Evaporation
- ☐ Condensation
- ☐ Melting
- ☐ Freezing

18. Decide: **element**, **compound**, **homogeneous mixture**, or **heterogeneous mixture**.

Substance	Type of Matter
Milk mixed with Cheerios	
Carbon dioxide CO ₂ (one substance)	
Copper wire	
Clear salt water	
Sugar	