

Name:

OBSERVE THE UNIQUE PROPERTIES OF WATER IN EVERYDAY LIFE

Practice Problems

Water has the following unique combination of qualities:

- A) H₂O molecules form hydrogen bonds with each other. They are **cohesive**.
- B) H₂O molecules like to bond with ions or other charged molecules. They are **adhesive**.
- C) Because water bonds easily with other ions, it is the “universal solvent.”
- D) Water has a high specific heat.
- E) Water has a high heat of vaporization.
- F) Water’s greatest density is at 4°C. Above or below that temperature it becomes less dense.
- G) Water has a low viscosity.

For the following everyday life situations, determine which qualities of water (listed above) are illustrated. For some situations, more than one quality may be exhibited. If so, explain your answer. Which part of the scenario is being illustrated by which particular quality of water?

1. It is a hot day at an outdoor concert. You walk through a misting booth, and for a few minutes afterward you feel much cooler.

2. You’re on a road trip through the desert. You stay in a hotel with a swimming pool. Even though it’s been scorching hot all day, you dive in without fear.

3. You go for a hike, and decide to add powdered flavoring to your water bottle. You sprinkle in the powder and it quickly dissolves.

4. In chemistry class, you pour water into a graduated cylinder. You carefully take note of the meniscus that formed at the top.

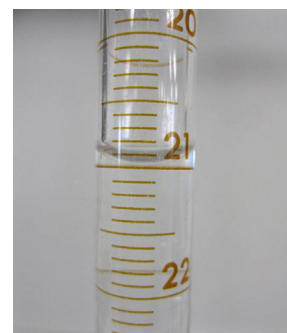


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5. An Arctic blast comes through town. The next day, the plumbers are busy as pipes burst all over town.

6. You have a fishing pond full of catfish. The winter is unusually cold and the pond ices over and stays that way all winter. The next spring the ice melts and the pond is still full of live fish.

7. While sitting by the edge of a stream, you observe that some insects can actually walk on the surface of the water without falling through.

8. You touch the edge of a paper towel to a puddle of water. Very quickly the paper towel absorbs the water.

9. You can't get the last little bit of ketchup out of the bottle. You decide to add a little water to help.

10. As raindrops fall on a solid surface, they quickly tend to form beads or drops.