MR. NUSSBAUM
LEARNING + FUN

Water Cycle Reading Comprehension
Name _____

The water cycle is the global circulation of water between earth's atmosphere, oceans, plants, animals, and soil. This cycle has taken place for billions of years and is essential for all living organisms on earth. During the cycle, water changes state from liquid water in oceans and lakes to water vapor in the air and eventually converts back to liquid rain or solid snow.

The origins of the water cycle date back to a time when earth was made of magma. This magma contained some amounts of water that, when released, began cooling down earth's atmosphere. Eventually, temperatures reached a point that permitted liquid water to remain on earth's surface. Volcanic activity continued, releasing water into the atmosphere as vapor; the atmosphere cooled that water into liquid form, and the cycle continued on and on to form the water cycle.

Our modern water cycle moves in a circle, but we can identify a beginning of sorts in earth's oceans. The sun warms water in oceans and lakes, causing it to evaporate in the form of gaseous water vapor. As part of the evaporation process, ice and snow can sublimate—turn immediately from solid to gas—and plants can release water from pores under their leaves as part of a process called transpiration. This vapor travels into the atmosphere, where it cools down and condenses to form clouds. When vapor significantly accumulates and the clouds gain enough weight, they release the water back to the earth as rain, snow, sleet, or hail. The snow can accumulate over time to form ice caps and glaciers; the rain can fall onto land, flowing as surface runoff over the ground, or onto lakes and oceans. Much of the rain soaks into the ground in a process called infiltration, and is stored as groundwater. The cycle begins again as the sun warms bodies of water and evaporation is jumpstarted.

The water cycle is essential because it circulates water throughout all plant and animal life, in addition to cycling water, sediments, and pathogens in and out of water-based ecosystems.

1. **The water cycle would not be able to occur if which of the following events had not happened?**
    a. Water evaporating to a liquid form in oceans and lakes.
    b. Temperatures cooling to allow the existence of liquid water on Earth's surface.
    c. Volcanic activity ceasing completely on Earth's surface.
    d. Magma preventing the release of any amount of water into Earth's atmosphere.

2. **Which of the following is not a process that is part of the water cycle?**
    a. Sublimation
    b. Transpiration
    c. Expiration
    d. Infiltration

3. **Which of the following is a location that water goes when it is precipitated onto the earth?**
    a. Onto lakes or oceans
    b. Into the ground as groundwater
    c. Onto land as surface runoff
    d. All of the above

4. **Why might water-based ecosystems need the water cycle?**
    a. The water cycle circulates harmful materials and sediments out of oceans and lakes.
    b. The water cycle causes oceans and lakes to overflow with an excess of water.
    c. The water cycle completely fills oceans and lakes that would otherwise be totally dry.
    d. The water cycle causes increased condensation to occur in oceans and lakes.

5. **Why does water change state (solid, liquid, gas) as it moves throughout the cycle.**
    a. Water can only exist in clouds as a solid.
    b. Different temperatures stimulate changes.
    c. Water can only exist in one state for a certain period of time.
    d. Volcanic activity stimulates the change in state from liquid to gas.

6. **Which of the following would be a consequence of the water cycle slowing or stopping?**
    a. Volcanic activity on earth would increase.
    b. The water in the atmosphere would warm and evaporate.
    c. All solid water on earth would sublimate rather than melt.
    d. Plants and animals would not have the water they need to survive.

7. **Does the water cycle have a set beginning and end?**
    a. Yes, it always begins in earth's oceans.
    b. Yes, began billions of years ago, and will end in the next million years.
    c. No, because it moves in a circle, but we can establish a beginning of sorts for the purpose of understanding it.
    d. No, because a new beginning and end is created every time water changes its state in the cycle.