Name: _____ Date: _____

Student Exploration: Water Cycle

Vocabulary: aquifer, condensation, evaporation, freezing, glacier, melting, phase change, precipitation, reservoir, runoff, transpiration, water cycle

Prior Knowledge Question (Do this BEFORE using the Gizmo.)

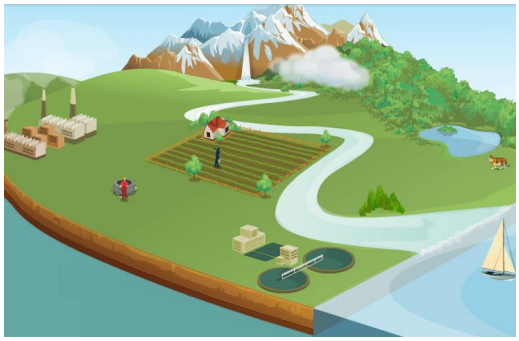
The water that comes out of your faucet at home used to be in the ocean. How did water get from the ocean to your water faucet? _____

_____

_____

Gizmo Warm-up

Water on Earth is always in motion. These motions form a repeating circuit called the **water cycle**. The *Water Cycle* Gizmo™ allows you to explore the different paths water takes as it moves from Earth's surface to the atmosphere and back.



1. Click **Oceans**. What percentage of Earth's water is found in the oceans? _____
2. Click **Atmosphere**. How does the Sun cause water to move from the oceans to the atmosphere? _____
3. Click **Clouds**. How do clouds form? _____
4. Click **Precip (rain)**. ("Precip" is short for **precipitation**, or water falling to Earth's surface.) What causes it to rain? _____
5. Click **Oceans** again, and then choose the PATH tab. Because it has the same beginning and end, the path is a complete cycle. How many steps does this cycle have? _____

Activity: **The water cycle**	Get the Gizmo ready: • Select the SIMULATION tab, and click **Reset**.	

Question: What are the parts of the water cycle?

1. Collect data: Create two water cycles using the Gizmo. Each cycle should have at least four steps and should begin and end at the same location. Choose any starting point from the list on the right. When the cycle is complete, choose the PATH tab and write the steps below.

   Cycle 1: _____

   _____

   Cycle 2: _____

   _____

2. Analyze: Use the information presented in the Gizmo to answer the following questions.

   A. What percentage of Earth's water can be found in soil? _____

   B. What percentage of Earth's water is stored in ice and snow? _____

   C. What percentage of Earth's fresh water is stored in ice and snow? _____

   D. What percentage of Earth's water is found in lakes? _____

   E. What is **transpiration**? (Hint: Click the **Vegetation** button.) _____

   _____

   F. What human activity uses the most water worldwide? _____

   G. What human activity uses the most water in the United States? _____

   H. What organisms break down chemical wastes in a treatment plant? _____

   I. What is an **aquifer**? _____

   J. What is a **reservoir**? _____

   K. In what ways can **runoff** be a problem? _____

   _____

(Activity continued on next page)

Activity (continued from previous page)

3. Define: A **phase change** is a change from one state to another, such as from a liquid to a gas. Based on what you have read in the Gizmo, fill in the blanks with the words "liquid," "gas," or "solid" to define each change.

   Evaporation: Change from a _____ to a _____.

   Condensation: Change from a _____ to a _____.

   Melting: Change from a _____ to a _____.

   Freezing: Change from a _____ to a _____.

4. Practice: Fill in the process that causes each transition. Your choices are evaporation, condensation, precipitation, melting, and freezing.

   A. Ocean → Atmosphere _____

   B. Atmosphere → Clouds _____

   C. Cloud → Snow _____

   D. **Glacier** (river of ice) → River _____

   E. Cloud → Soil _____

5. Practice: Fill in the *two* processes that cause each of the following transitions.

   A. Ocean → Cloud _____, _____

   B. Cloud → Glacier _____, _____

6. Think and discuss: Water covers over two-thirds of Earth's surface. Yet water shortages are a major problem for many people around the world. Why do you think this is the case?

_____

_____

_____

_____

_____

_____