

Name _____ Date _____

The Water Cycle Worksheet

1. Where does your water come from? A water bottle or a faucet? No, it comes from the hydrosphere! The hydrosphere refers to all of the water on our planet, whether it is located on Earth's surface, underground, or in the air. It also refers to water in all of its states of matter: solid, liquid, or gas. Move each Note over the model with the correct state of matter. Take a photo.

2. Did you know that the water you drink today is the same water that the dinosaurs drank so many years ago? It is true! Scientists have found that the water here on Earth is actually 4.6 billion years old! This is because water goes through a continuous cycle but never goes away. This is known as the water cycle. What are the stages of the water cycle?

3. Let's take a closer look at how water moves through the hydrosphere in a continuous cycle. The water cycle is driven by the thermal energy of the Sun. The Sun's heat warms the liquid water found in oceans, rivers, lakes, streams, and even puddles. This causes the water to change into gaseous vapor and rise into the atmosphere. The atmosphere refers to the air that surrounds our planet and it is another one of Earth's major systems. What is the name of this water cycle stage where water changes from a liquid into a gas and rises into the atmosphere?

4. When liquid water becomes a gas and rises into the atmosphere, this stage of the water cycle is called evaporation. Have you noticed that plants sweat? This sweating is called transpiration and is very similar to the process of evaporation. During transpiration, plants absorb liquid water from the ground with their roots, transport the water up their stems, and release water vapor into the air through their leaves. Dissect the plant leaf cross-section and take a photo of the stomata (stoma), where transpiration takes place.

5. Water vapor from evaporation and transpiration will continue to rise until it reaches the cooler temperatures in the upper atmosphere. When the water vapor begins to cool, the gas changes back into a liquid. Water droplets begin to form and collect together to create clouds. What is the name of this water cycle stage where water vapor changes into water droplets and forms clouds?

6. When water vapor changes back into a liquid and forms clouds, this stage of the water cycle is called condensation. You may have even seen condensation close up, much nearer to you than clouds. When you take a bottle of cold water out of your refrigerator, water droplets begin to appear on the outside of the bottle. Does this mean the bottle has a hole in it? Explain what is causing water droplets to form on the outside of the bottle.

7. Clouds come in all different shapes and sizes and they can be used to predict the weather. Here are some different types of clouds. Take a photo of the cloud that you would see on a rainy day.

8. The cooling clouds of condensation can only hold so much water. Just like an overflowing bucket, the clouds will eventually release the water droplets. This stage of the water cycle is called precipitation. Most people think of precipitation as rain, but it comes in other forms, too. What are the other forms of precipitation besides rain?

9. Precipitation can be found in the liquid state as rain or in the solid state as snow, sleet, or hail. The temperature of Earth's atmosphere determines what form the water will take. No matter the state of matter, the precipitation falls to the surface of the Earth and can take several different paths. Let's follow the path of water to see how it interacts with Earth's major systems.

10. One path water follows is known as collection. Collection happens when precipitation falls directly into the oceans, rivers, lakes, and streams. Water is returned back to the hydrosphere, where it all started.

11. Water follows another path when precipitation falls onto land, for example onto soil or rocks. These land features are known as the geosphere, another one of Earth's major systems. Let's climb this mountain and observe the behavior of water at higher elevations. With the cooler temperatures at the mountain peak, water turns into ice and freezes within the rocks. Since water expands when cooled, this causes the rocks to break into smaller pieces, causing physical weathering. How does physical weathering contribute to the erosion of the mountain?

12. Due to the pulling force of gravity, water will also flow downhill. As it runs down the mountain, it changes the Earth's surface through erosion and deposition. For example, water movement down the mountains creates "V"-shaped valleys as sediments break off and move downstream.
13. When water reaches the ground, it can soak into the soil and become groundwater that plants and animals drink. The biosphere is made up of all living things on Earth and the water cycle is very important to this major Earth system. We know that animals drink water to survive, aquatic animals live in water, and plants need water as part of photosynthesis. Take a minute and think about how the biosphere could negatively impact the water cycle. Look at the image provided and describe what this interaction would look like.
14. Now that you have seen how water continuously moves through the hydrosphere, label each stage of the water cycle and take a photo. Explain how water interacts with each of Earth's major systems including the hydrosphere, atmosphere, geosphere, and biosphere.