

TAKE CARE OF TEXAS: EDUCATOR MATERIALS

HANDOUT

The Water Cycle



TEKS 4.1B; 4.3B; 4.5A, B; 4.7A, B, C; 4.8B | 5.1B; 5.3B; 5.5A, B, C; 5.7 mil millones; 5.8A, B; 5.9A, B, C | 6.1B; 6.3B; 6.5C; 6.7A



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Water ReCycles: The Complete Story

Water (H₂O) covers 71% of Earth's surface. Almost all of that is saltwater in our oceans. Freshwater accounts for only 3% of total water, and more than two-thirds of it is frozen in glaciers. Liquid freshwater (groundwater, lakes, streams, rivers), which is what people use to drink, farm, clean, and use for most tasks, makes up less than 1% of all the water on Earth! Most of the freshwater we need to live comes from groundwater (about 99%) so understanding the water cycle and that water is a limited resource is important for all Texans.



Evaporation & Transpiration

The first step that water takes on its journey through the water cycle is **evaporating** from bodies of water or **transpiring** from the leaves of plants. The water molecules are turned from liquids into vapor and then rise into the atmosphere. There is always water in the air we breathe. Meteorologists track this water vapor as **humidity**.

Condensation & Precipitation

The next step in the water cycle is for the water molecules to condense into clouds. Over time, clouds gather more and more water vapor, growing in size. They move across the sky in a wide variety of shapes and sizes. At a certain point, the clouds cannot hold the water molecules any longer and they are released back down to earth as rain or snow.



Infiltration

When water is stored in large areas, like rivers and lakes, gravity pulls the water down through the soil into large, underground bodies of water called **aquifers**. Humans can access this water, aptly called **ground water**, through wells for drinking water and irrigation.

Humans & The Water Cycle

Water is the foundation of life on Earth and humans would not exist without it. As the human population grows, water becomes increasingly more important to conserve and protect. Below are a few of the many ways that humans use this valuable resource:



Drinking Water

For humans, the most important use of this valuable resource is drinking water. Humans pump water from rivers, lakes, and aquifers into large **drinking water treatment plants** where it is tested and cleaned to ensure it is safe for human consumption. This water flows into our houses, where we use it in sinks, showers, and toilets.

Wastewater

After use, the water flows out of our homes and into wastewater treatment facilities. Here, it is separated into liquids and biosolids. The solids are typically turned into fertilizer and return to our farms and home gardens. The water is cleaned and used for irrigation and for other industrial purposes.



Hydroelectric

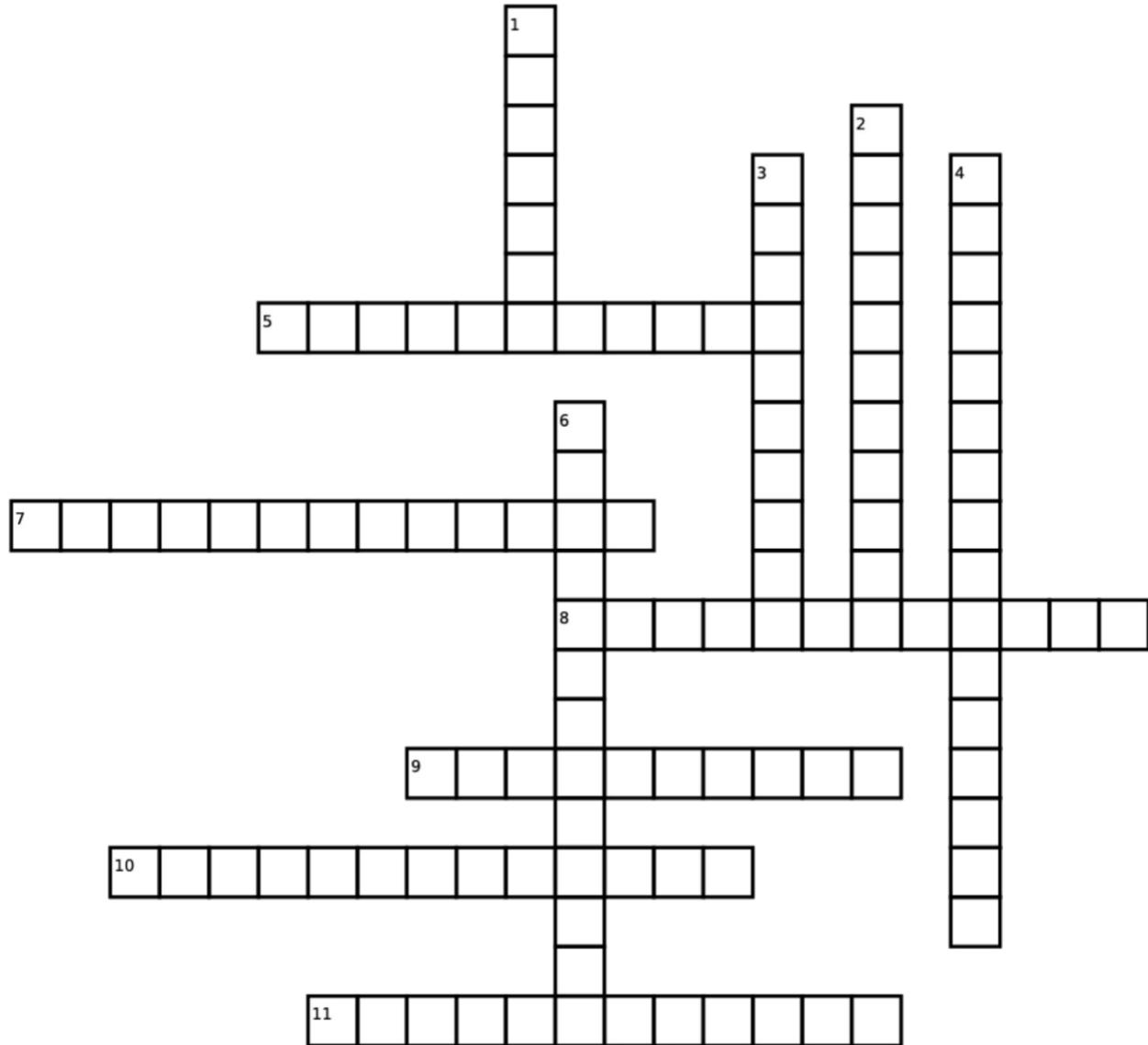
Water has many other uses outside of our homes. For decades, humans have harnessed the power of water to generate electricity through hydroelectric dams. These dams also provide fresh water for human consumption.

Rainwater Harvesting

To become more sustainable, many families have added **rain barrels** to their gutters to harvest rainwater as it runs off their roofs. By doing this, they always have a fresh store of water from which to water their lawns and plants.



Crossword Puzzle



Down:

1. An underground store of groundwater
2. Water that remains below the surface of the Earth
3. A way that humans capture rainwater runoff
4. Energy created by harnessing the movement of water
6. The movement of water from clouds to the Earth

Across:

5. Conversion of a liquid into a gas/vapor
7. Water that has been treated for human consumption
8. The movement of water from the surface into the ground
9. Water that has been used in a home or business
10. The release of water vapor from plants
11. Conversion of gas/vapor into a liquid

Glossary

- **Aquifer** – an underground store of ground water
- **Condensation** – conversion of a gas/vapor into a liquid
- **Drinking Water** – water that has been treated for human consumption
- **Evaporation** – conversion of a liquid into a gas/vapor
- **Ground Water** – water that remains below the surface of the earth
- **Humidity** – the amount of water vapor in the air
- **Hydroelectricity** – energy created by harnessing the movement of water
- **Infiltration** – the movement of water from the surface into the ground
- **Precipitation** – the movement of water from clouds to the earth
- **Rain Barrel** – a way that humans capture rainwater runoff
- **Transpiration** – the release of water vapor from plants
- **Wastewater** – water that has been used in a home or business