

5 B

Name: _____ Period: _____ Date: _____

Water Cycle Game

Objectives

- Learn the complex movement of water through the water cycle
- Identify the states of water and changes in states as it moves through the cycle.

The continuous process where water changes from one state to another as it travels through the hydrosphere is known as the water cycle. The changes from one state to another can take many different paths. In this game you will follow your own unique path as you travel through the hydrosphere.

Procedures:

1. You will be assigned a starting position at one of the water cycle stations.
 2. At each station complete the following steps and record answers in your Data Table.
 - a. Record the part of the water cycle (station) that you are currently at.
 - b. Identify the state of matter that water is in at your last station (solid, liquid or gas).
 - c. Determine the process that water had to go through in order to move to this station. (melting, condensation, evaporation, etc)
 - d. Examine the die and observe ALL of the possible options that you could roll, which represents paths that water could follow through the water cycle.
 - e. Roll the die and move to the station that you rolled. This roll may advance you to the next step or require you to stay at your current station.
 - f. Identify the state of matter that water is in at this station (solid, liquid or gas).
 - g. Repeat steps a – f as you complete each turn.
 3. Continue through the game until you have visited all stations at least once or you have filled up all of the rows in the Data Table
 4. If 2 or more water molecules (people) arrive at the same station, players must take turns rolling the die.
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Glossary of the Water Cycle

Clouds - These form in the sky when water vapor condenses into water droplets.

Condensation - Changing from water vapor (gas) to water droplets (liquid).

Consumption - Ingesting water by drinking or eating.

Evaporation - Heat from the sun causes surface water (liquid) to change into water vapor (gas).

Excretion - Eliminating waste from the body.

Glacier - A huge mass of slowly moving ice that is formed on land by the compacting of crystallized snow

Groundwater - Water that soaks into the earth and fills the spaces or pores between the rocks and sediments.

Groundwater Flow - Water that moves under the earth's surface through small spaces in rocks and soil.

Infiltration - Water on the ground's surface entering the soil through pores in rock and sediments.

Lakes - A large body of fresh water.

Melting - Changing of water from solid to liquid.

Oceans - A large body of salt water.

Precipitation - Water droplets or ice crystals falling from the sky.

Respiration - Breathing in air and exhaling carbon dioxide and water vapor.

Rivers - Carry the water that comes from rain and melted snow into the ocean.

Soil - A thin layer of weathered rock, decayed plant and animal matter on the Earth's surface.

Surface Runoff - Water that flows across the land into streams and river, which lead to oceans and lakes.

Transpiration - Plants take up water from the soil and then release it into the air through the leaves.

Vocabulary Sorting

1. Divide the vocabulary list into two groups based on whether the term and definition is a process of the water cycle or a station where water is temporarily stored.
2. Once you and your partner have agreed, write your terms under the correct heading below.

Processes

- Condensation
- Consumption
- Evaporation
- Excretion
- Ground water flow
- Infiltration
- Melting
- Precipitation
- Respiration
- Surface Runoff
- Transpiration

Stations

- Clouds
- Glacier
- Groundwater
- Lakes
- Oceans
- Rivers
- Soil

Vocabulary Application –

Use the glossary of terms to fill in the matching term that best describes how water goes into and out of the various stations of the water cycle.

Process going into →	Station	Process coming out of →
Condensation	→ Clouds	→ Precipitation
Consumption	→ Animals	→ Excretion
Consumption	→ Plants	→ Transpiration
Precipitation	→ Glacier	→ Melting
Infiltration	→ Soil Ground water	→ Groundwater Flow
Surface Run off.	→ Lakes, Oceans, Rivers	→ Evaporation

Water Cycle Game Data Table

Keep track of your rolls, where you are and where you are going.

I cycled to _____ (current location)	As a _____ (solid, liquid, gas)	Through _____ (process)	Now I am a _____ (solid, liquid, gas)
clouds	gas	Evaporation	liquid
Soil	liquid	Infiltration	liquid
Plants	liquid	Consumption	liquid
Clouds	gas	Transpiration	liquid
Glacier	liquid	Precipitation	solid
River	solid	Melting	liquid
Ocean	liquid	Surface Runoff	liquid
Clouds	gas	evaporation	liquid
Lake	liquid	Precipitation	liquid
Animal	liquid	Consumption	liquid
Soil	liquid	Excreted	liquid
Ground Water	liquid	Ground Water Flow	liquid
River	liquid	Surface Runoff	liquid
Clouds	gas	Evaporation	liquid
Ocean	liquid	Precipitation	liquid
Clouds	gas	Evaporation	liquid

Connections

1. Where did you spend most of your time with in the water cycle? Clouds
2. Why is the water cycle called a cycle? Because water travels through a continuous process changing from one state to another as it travels through the hydrosphere
3. Did all of your classmates follow the same path? No
4. Why does each molecule of water follow a different path in nature? the changes and reason water travels different paths is random
5. How might the actions of humans affect the quality of water with in the water cycle?
We can how nature works. For example a parking lot limits water from entering the soil.
6. How does the movement of water through the water cycle have a direct effect on humans? Think of the ways that water may influence or change our lives *other than survival*?
If no water evaporates, we wouldn't experience precipitation
7. Assume that each roll represents a time span of 10 days. How long did it take for you to travel from the following stations? *If you did not make it from one to another choose another set of stations.*

Ocean to Clouds 10 days

Glacier to Ocean 20 days Can be different.

Plants to Rivers 30 days