



Project 4.3.1 The Story of Water

Purpose

The water cycle plays an important role in your life every day. You may take a shower, have breakfast on clean dishes, walk to school in the rain, drink a bottle of water, and plan a snowboarding trip for the weekend all in one morning without even considering the water you use. Throughout the day, you see and use many sources of water.

Water moves through a cycle in different forms. Water evaporates into a gas in the atmosphere, condenses as a liquid into rain, and can freeze into a solid when exposed to low temperatures. Plants and animals are dependent upon water for life. Plants absorb water through their roots and release water through a process called transpiration. Animals consume water and release water through breathing and waste.

Just as water passes through organisms, it moves across and through soil. Soil filters water as it moves towards underground storage areas called aquifers. Water flowing across the surface through rivers and streams will eventually reach lakes and oceans. Water underground is pumped to the surface using well and irrigation technology. Surface water evaporates into the atmosphere.

Have you ever wondered if rain is new water? Or where the water from a pond goes in the summer? Did you ever consider that several plants and other animals might have consumed the groundwater you were drinking before it gets to you? Just what happens to a drop of water over time?

Materials

Per pair of students:

- Water Cycle cards
- Number cube

Per student:

- *Project 4.3.1 Evaluation Rubric*
- Pencil
- *Agriscience Notebook*

Procedure

You will simulate the flow of a drop of water through the water cycle. After playing a brief game to determine how your droplet of water moves through the water cycle, you will write a story about the life of your water drop. The cards for the game will use a fictitious name for a town called Fruitvale. You will share the set of cards and number cube with a classmate.

Part One – Journey Through the Water Cycle

When instructed to do so by your teacher, randomly select a Water Cycle card. Record the station name on *Project 4.3.1 Storyboard*. Read the description of the station and choose a form and location for your droplet of water. If choosing a form and location is difficult, turn the card over, roll the number cube, and use the suggestion provided. When you have collected information for your first station, roll the number cube to determine where you will go next.

Continue from station to station until you have visited six stations. You will go to some stations more than once. You may even remain at the same station for a turn. You may not get to all five stations. When you go to a station where you have already been, choose a different location for your drop.

When you have been to six stations and have recorded the information, begin brainstorming ideas to connect the stations and bring your story together. Use the space provided on *Project 4.3.1 Storyboard* to record your brainstorm ideas for each station.

Story Criteria:

- Your drop of water changes location six times.
- You demonstrate understanding of the changes occurring to the water drop as it moves through the water cycle.
- Your story includes terminology appropriate for the processes within the water cycle, such as melting, freezing, evaporation, condensation, transpiration, percolation, atmosphere, precipitation, infiltration, runoff, and groundwater.

Part Two – Developing Your Story as a Droplet of Water

Write a rough draft of your story. Write your story in complete sentences consisting of at least five paragraphs including an introduction, body, and conclusion. Your story should meet all of the criteria outlined above. Use Google drawing or other concept mapping software to develop an illustration of the journey your droplet of water takes through the water cycle.

Part Three – Peer Review

Your teacher will assign you a partner. Exchange stories with your partner and read his or her story. Review the content and composition of the story. Use *Project 4.3.1 Evaluation Rubric* to assess the story and provide suggestions for improvement.

Part Four – Writing the Final Draft

Using the feedback from your partner, review your story and make the appropriate changes. Use *Project 4.3.1 Evaluation Rubric* to self-assess your story and make further revisions. When you have completed your revisions, submit your story and your illustration to your teacher.

Conclusion

1. Based on what you have experienced, how does the ability of water to change form from solid to liquid to gas contribute to the water cycle? The state of water dictates how available water is to organisms. This availability determines what organisms are present on the planet and this contributes to the climate and biomes. The water cycle is continuous and is the basis for all life on the planet.

2. Using your knowledge of the water cycle, what happens to water that disappears from ponds or other areas? Water can evaporate from a liquid to a gas. It condenses in the atmosphere and eventually consolidates and cools down and becomes a liquid and falls down to the earth in the form of precipitation. Water is absorbed through the roots of plant and then enters back into the atmosphere through the process of transpiration.

Source: Lab-Aids. (2004). *Groundwater contamination: Trouble in Fruitvale*. Ronkonkoma, NY:
Author.

Name _____

Project 4.3.1 Storyboard

Station 1	Station 2	Station 3
Form: Gas	Form: Liquid	Form: Liquid
Location: Atmosphere	Location: Organism	Location: Groundwater
<p>Story Ideas: One day there was a lone water molecule hanging out in a cloud longing for a different life down on the Earth.</p>	<p>Story Ideas: All of the sudden, his dreams come true as many molecules join him and they become too heavy to sustain as gas and he falls to the Earth as component of a rainstorm. He finds himself in a deep dark tunnel inside of a wombat.</p>	<p>Story Ideas: He stays inside the wombat assisting in bodily functions such as digestion and nutrient dispersal. After a period of time, he finds himself blinded by a bright light as he is expelled from the wombat. His time in the light is short as he percolates into the ground to become part of the vast aquifer. He is mixed in amount particulates of sand, clay and silt.</p>
Station 4	Station 5	Station 6
Form: Liquid	Form: Gas	Form: Liquid
Location: Organism	Location: Atmosphere	Location: Organism
<p>Story Ideas: There is a sucking sound surrounding him and he finds himself travelling up into the heart of a prickly pear cactus. He travels through the cactus and ends up being stored for many months until an excruciating heat began to surround him. All of the sudden he was transformed into a gas and he floats into the atmosphere.</p>	<p>Story Ideas: There is a bright flash followed by a loud clap that scares the molecule to the core. This seems to last for a long period of time and then he is falling again. He is surrounded by hundreds of other water molecules. He collides into a large trough of water.</p>	<p>Story Ideas: He sees a large shadow cover his portion of the water trough and then he finds himself inside another animal. This time he is amongst a ton of bacteria inside the first chamber of a cow's stomach. Being a water molecule is a constant barrage of adventures. Stay tuned for the next chapter of: Herman: The Water Molecule.</p>

