

Bowwow Barker Training 006: The Wondrous Water Cycle

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Biblical Integration

Ecclesiastes 3:15 “Whatever is has already been, and what will be has been before; and God will call the past to account.”

Objective

Using the super sleuth skills of observation and attention to detail, create a water cycle in a bag to demonstrate the value of and beauty of God-established renewable resources—such as the water cycle!

Vocabulary

- **Renewable resource:** a natural resource that cannot be used up
- **Water cycle:** the journey of water as it moves around the Earth and the atmosphere in three different states (solid, liquid, and gas)
- **Collection** (as relating to the water cycle): the process in which water from precipitation collects into rivers, lakes, streams, and oceans
- **Evaporation:** (as relating to the water cycle): when water is heated by the sun and changes into a gas called water vapor. The water vapor travels up into the Earth’s atmosphere.
- **Condensation** (as relating to the water cycle): when water vapor gathers into the Earth’s atmosphere, it is cooled and turns into a cloud as water droplets join together
- **Precipitation:** the process where a cloud becomes too heavy to hold onto water droplets, and releases the water droplets in the form of rain, sleet, snow, or hail
- **Conserve:** to avoid wasteful or destructive use of a resource

Materials

- 1 gallon size Ziploc or generic brand plastic resealable bag
- 1 black or dark blue permanent marker
- 1 cup of water
- Painters tape or masking tape
- Blue food coloring
- A window with lots of natural sunlight
- Pencil
- Data sheet

Lesson: The Wondrous Water Cycle

If you look outside your window while it is raining, you observe science in action! Did you know that when it rains, the **precipitation** that falls is actually part of an even bigger scientific process? This process is called the **water cycle**.

There are four main parts of the water cycle:

- Collection
- Evaporation
- Condensation
- Precipitation

Collection occurs when water collects in bodies of water. These bodies could be as big as the ocean or as small as a puddle.

When the sun shines down onto a body of water, the heat causes the top of the water to change into a gas. This is called **evaporation**.

This gas travels into the Earth's atmosphere. Once there, the water vapor cools and turns back into tiny water droplets. **Condensation** occurs when a lot of tiny water droplets stick together to form a cloud. As more and more water droplets condense, the cloud gets bigger and heavier.

When clouds cannot hold the water droplets any longer, the droplets fall as **precipitation**. Depending on the temperature of the surrounding air, precipitation can fall as rain, snow, sleet, or hail.

Water is a God-created, **renewable resource**. A renewable resource is a resource that cannot be used up.

Some scientists believe renewable resources happen by chance, or by an earthly event. But God tells us in His Word that in Him, all things were made and hold together. (Colossians 1: 16-17). This includes water and the water cycle!

At the beginning of time, God knew His people would need water—and they would need it often! He created the water cycle to provide His creation with the purified water it needed to live, grow, and reproduce.

If the water cycle is a renewable resource, and if a renewable resource keeps cycling on its own, then why do we need to **conserve** water?

In Genesis 1: 28, God commanded mankind to have dominion over the earth. This mandate continues to this day. God asks us to care of and nurture creation.

One way we can do this is by being mindful of the natural resources He has given us. Like water! We can make choices each day that help protect God's creation. By

practicing good stewardship, we can leave a positive, lasting impact on Earth for generations.

Today, you will use the materials listed to create your own water cycle in a bag!

Procedure

#1. Using the Ziploc bag and sharpie, draw each part of the water cycle on the bag. (Consult the picture as a guide.)

#2. Add 1-2 drops of food coloring into one cup of water. Swirl or stir the water to disperse the coloring evenly.

#3. With the help of an adult, pour the colored water into the bag. Seal tightly.

#4. Tape the bag securely to the inside of a window where the bag will receive lots of direct sunlight throughout the day.

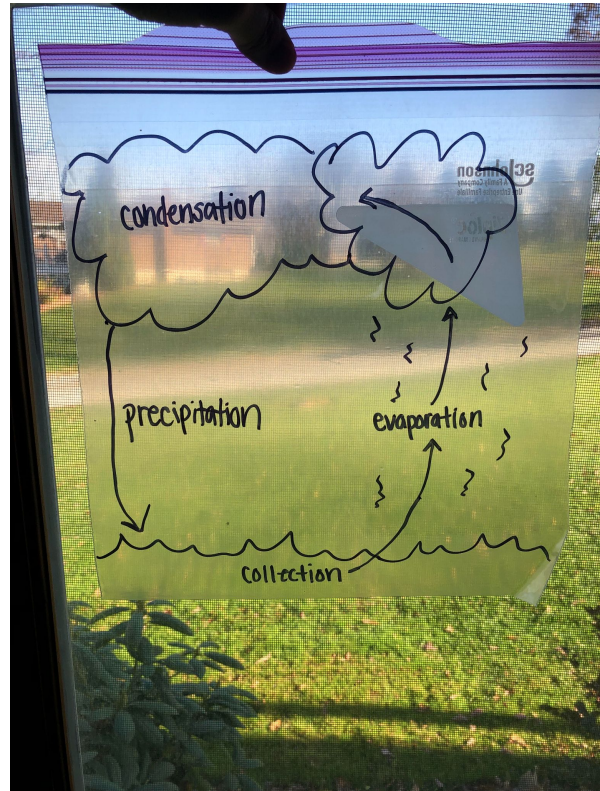
#5. Answer questions 1-3 on the data sheet.

#6. Wait a minimum of two hours before checking the bag. Answer question 4 on the data sheet.

#7. Leave the bag in place, undisturbed, until tomorrow.

#8. The following day, observe the bag and answer questions 5-7 on the data sheet.

#9. As you learned in the lesson, God gifted mankind with the mandate of caring for His creation. Can you brainstorm ways you can nurture other parts of God's creation? Answer question 8 on the data sheet.



Data Sheet

- 1) **Observe** the water cycle bag. Describe what it looks like.
- 2) **Hypothesis:** What do you think the inside of the bag will look like after it has received sunlight for a few hours?
- 3) What are some ways you can take care of the water God has given us?
- 4) After a few hours, observe the bag. Has anything changed? If so, what? (Refer back to the lesson to include vocabulary words in your description.)
- 5) After waiting about 24 hours, what do you see inside the bag now?
- 6) **Analysis:** Was your hypothesis correct? Why or why not?
- 7) Read Ecclesiastes 3:15. This verse tells us there is a connection between events of the past, present, and future, all within God's will and plan. Can you think of some examples of events in the Bible that are connected to each other?
- 8) What are some ways you can care for God's creation? How can you conserve resources, such as running water and electricity?

Conclusion

God created the Earth with many intricate processes, such as the water cycle. He loves us and His creation so much, He gave us exactly what we need to survive and thrive.

Mankind may think *we're* the brains behind ecological conservation, but that's not true. God Himself established the practice of conservation. We can see it perfectly demonstrated in renewable resources, such as the water cycle. Can you think of other any renewable resources?

Using the answers from your data sheet, pick a few ways **you** can show care for God's creation by conserving the resources He gives you.

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