

WATER BRACELET

I. Objectives

- a. Students will learn the importance of water as a natural resource.
- b. Students will discover the water cycle and how water is reused over long periods of time.
- c. Students will identify the three (K-2) or five (3-6) main divisions of the water cycle and understand what happens during each division.

II. Materials

- a. Water Cycle felt board & felts
 - b. One pipe cleaner per student
 - c. One bag of beads per student
- K-2: one each of yellow, clear, gray, and blue
-3-6: one each of yellow, clear, gray, blue, brown, & green

III. Introduction

- a. Before getting started, a quick question...
 - What do you think of when I say the word “cycle?” (Allow students to answer)
 - Can you think of any words or phrases that have the word “cycle” in them? (Bicycle, motorcycle, recycle)
 - Let’s talk about the word “recycle” for just a moment... give example of recycling an aluminum can and the process it goes through from purchase to re-purchase.
 - So what shape best represents a cycle? (A circle)
 - And where is the beginning of a circle? (It doesn’t have one! Or an end, either! It just goes on and on! Use a ring or something else as a visual aid if necessary.)
- b. Today we will be talking about the Water Cycle. Like a circle, I can’t start at the beginning of the water cycle, but I can start in the middle!
- c. Now, about this picture... go to felt board
 - What’s this (pointing at water)? (Water! It can be a lake, stream, ocean, or even a swimming pool!)
 - What’s this (pointing at sky)? (Sky!)
 - What’s this (pointing at ground)? (Ground! It could be Lubbock, California, or even Australia!)
 - 3-6 only: What’s this (pointing at plants)? (Plants! Could be cactus, bushes, trees, grass, or any other kind of plant!)

IV. The Water Cycle

- a. Now let’s get into what the water cycle is and how it works!
- b. You have a beautiful car (corvette, mustang, etc.) sitting in front of the school, but nothing happens when you turn the key to start it. When you walk to the front and open the hood, you notice there’s no engine! Is that car going anywhere? Why not? (Car has to have an engine to work.)
 - Water Cycle is the same way. It needs an engine to make it work, too.
 - If you touch an engine that’s been running for a while, you get burned... why? (Engines create heat.)
 - If an engine creates enough power to run a car, what engine will give the entire earth enough power to run the water cycle? (The sun! Place the sun on the felt board.)

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c. Now that the sun has power, we're going to do some pretending. Instead of <current month>, we're going to pretend it's the middle of July, and that the sun is doing his job very, very well. How is it going to feel outside? (HOT!) And the best way to cool down on a hot day in the summer is to go.....

(Swimming!)

d. We all pile into that beautiful car (now it has an engine!) and head to the swimming pool. You swim for a while, and after you get out of the swimming pool, what do you notice about yourself? (You're soaking wet!)

-But we said it was a hot day... What happens if you stand out in the sun for just ten minutes? (You dry off!) Where did that water go? (Down and up!)

1. If you look down, you'll see a puddle of water around your feet, but even that puddle will disappear after 10 more minutes!

2. This water is going up! Put two arrows on felt board coming up off the water. It has turned into water vapor (which is kind of like steam coming off of boiling water).

e. Is there any water vapor in this room? (Can't see, hear, smell, feel, or taste any, but... we're going to do an experiment...)

f. Three-stage experiment: 1) Have students take a large breath, 2) hold breath for 10 seconds, and 3) release breath directly into the palm of their hand.

-How does your hand feel? (Sticky!)

-That's water vapor, not spit! Choose two students for demonstration, each one representing (along with you) one molecule of water.

-Inside your body, it's very hot. We're three molecules of water floating around in the air. When someone breathes us into their lungs, we get full of energy (You and students start shaking).

-When we breathed out, it's suddenly cooler, and we begin to slow down, BUT... as we slow down, we get closer and closer (have students move closer and closer until all three of you are touching) until we STICK TOGETHER!

-You couldn't feel us when we were separated, but you can when we're stuck together! That's why your hand felt sticky!

-That's happening at the swimming pool, but is it also happening in lakes? Rivers? Streams? Oceans? (Yes!)

-Do you know how much water goes up like this every day? (100 trillion tons – 100,000,000,000,000 – every day!)

-The big word for this that we're going to learn is Evaporation! (Place first maroon arrow on felt board and have students repeat that word back to you once or twice). That's when water turns into water vapor!

g. Ok – we have 100 trillion tons going up into the sky every day. Now as you go higher in the sky, is it getting hotter or cooler? (Cooler!) And what did we just learn happens when water vapor cools off? (It sticks together!)

-Did you know you can look up into the sky and see this happening? What are you looking at when you see this? (Clouds! Put the white cloud onto the felt board.)

-Here's a tough question: what are two ways you can tell how much water is in a cloud, just by looking at it? (Size and color.)

1. Size is easy – if the cloud is bigger, it has more water!

2. Color – do you know why a cloud turns dark? (There's so much water inside of it, the light from the sun can't shine through! That's the same reason there's a shadow under your desks! The ceiling lights can't shine through the desk! Place dark cloud on felt board.)

-All of this water vapor sticking together to create clouds is called Condensation! (Place second maroon arrow on felt board and have students repeat that word back to you once or twice).

h. Have you ever heard the saying, "What goes up, must come... "? (allow students to finish saying –

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“down”) We’ve got a lot of water in the skies, and they’ve formed some clouds that have been getting - bigger and bigger, and darker, and darker, until finally the cloud is holding so much water – it can’t hold anymore! And what happens? (Rain, snow, hail, sleet! Place rain on felt board under dark cloud.)

i. Have you ever heard the weatherman say “we have a 40% chance of rainsnowsleethail?” Of course not! They use a bigger word – Precipitation! Precipitation is any water that falls from the sky! (Place third maroon arrow on felt board)

Kindergarten, 1st, and 2nd grade classes skip to the activity. 3rd – 6th grade continue through next section.

j. All of that water hits the ground and goes to one of two places... where does it go?

-It soaks into the ground and becomes part of the Groundwater (Place groundwater felt on felt board).

There are two types of water: groundwater (water under ground) and surface water (water on the surface). We use groundwater for drinking and irrigating crops!

-The precipitation can also run off into the lakes, rivers, streams, oceans, etc. What’s going to happen when the sun hits that water? (The whole cycle is going to start over again!)

k. But there’s one thing I haven’t talked about yet... the plants! They also play an important role in the water cycle!

-What happens if you give a plant too much water? (It dies.) Does it die if you give it just a little bit too much? (No!)

-When a plant gets too much water, it will turn it into water vapor and release the vapor from its leaves! Does that sound like a lot of water, though? (Not really)

-Imagine a plot of land the size of a McDonald’s, including the parking lot. Only instead of the building and the parking lot, there’s corn! Someone’s planted corn! In one day, this plot of corn (roughly one acre) will give off 4000 gallons of water vapor! That’s just one small plot of land! That’s not including all the trees, grass, farmland, weeds, etc.!

-When plants give off water vapor, it’s called Transpiration. (Place one arrow coming from plants to ward sky and have students repeat word once or twice.)

V. Activity

a. Now that we have our entire water cycle on the board, we’re going to do something to help you remember all of the different parts – we’re going to create a “water bracelet!”

-Give each student one pipe cleaner and one bag of beads.

-Instruct students to assemble water bracelet one bead at a time, informing them of the meaning of each bead:

1. The sun – yellow bead
2. Evaporation – clear bead
3. Condensation – gray bead
4. Precipitation – blue bead
5. Groundwater – brown bead
6. Transpiration – green bead

VI. Conclusion

a. This water cycle has been going on ever since we’ve had water – and since we have to have water to live, that means water’s been around ever since people have been around!

-Knowing this, are we drinking water that was once used by George Washington, or even the dinosaurs? (Yes!!! That water goes through the same cycle that all the water in the world goes through, and it could eventually make its way into our drinking water!)

b. What happens if we have a day with no clouds, or with no rain? Is the water cycle broken and all the people on earth DOOMED? (No! Because even if we don’t have clouds or rain here in West Texas, we do have it somewhere in the world!)