

Grade Level: 2 - 3

Curriculum: Explorations, Science, ADST

Title of Lesson: The Water Cycle

Learning Goals/Objectives:

- Water is essential to all living things, and it cycles through the environment
- Materials can be changed through physical and chemical processes
- Technologies are tools that extend human capabilities
- Designs grow out of natural curiosity

Materials Needed:

- 2-litre plastic bottle, empty and clean
- Utility knife
- Dirty water (make your own with stuff like coffee grounds, dirt, crunched-up old leaves, cooking oil, or tiny pieces of foam)
- Measuring cup
- Spoon
- Stopwatch or clock with a second hand
- Pencil and paper
- As many of the following filter materials as you can get: activated charcoal (available in the fish section at a pet store), gravel, sand (coarse and / or fine), cotton balls
- Coffee filter (A bandanna, old sock, napkin, or paper towel works too!)

Activity Instructions: (Step by Step)

- We know that water is very important because of all of the things we use it for
 - Drinking cooking, bathing, cleaning, washing, watering plants
 - Where does water come from? And, what is it made of?
- Everything is made up of Matter. Matter is everything we touch, hold and interact with.
 - A dog is made of matter, a car is made of matter, trees are made of matter, you are made of matter and water is made of matter!
 - If we examine matter even more closely, we will find that ALL matter is made up of Molecules!
 - Molecules are tiny! We can't see individual molecules with our naked eyes, but we can see what they join together to create!
- Where does it come from?
 - The water we see today is the very same water that has been on the Earth for thousands and thousands of years
 - It moves around the planet in rivers, streams, oceans, in rain and in clouds
 - Watch this video clip for more information about the water cycle:

- <https://www.youtube.com/watch?v=-5no6qDopUU>
- Before we use water, we need to make sure it is clean!
 - Cities have special buildings, called Water Treatment Plants, that clean the water we use for drinking, cooking, cleaning and washing
 - Water Treatment Plants use many different techniques for cleaning water, but the simplest is by using something called a Filter
 - A filter allows water to pass through, but dirt, leaves, and other things we wouldn't want in our water are not able to pass through it
 - We can make a filter of our own using some items that you likely have laying around your home!
- Visit and follow along with the activity here:
 - <https://kids.nationalgeographic.com/explore/books/how-things-work/water-wonders/>
 - Before we test our filter, we need to make some predictions!
 - A prediction is something that we think will happen
 - When we make a prediction, we need to think about WHY we think it will happen.
 - Predict what you think will happen when you pour your dirty water through your filter
 - Test out your filter!
 - What happened? Did your prediction come true?
- If you have enough supplies, try making a second filter
 - This time, change the order that you add materials to the container, or use some materials that you didn't use before
 - What do you think will happen with your new filter?
 - Do you think it will work faster than your last one? Why?
 - Do you think it will make the work cleaner? Why?
 - Which materials do you think work best as filters?
 - Test your new filter!
 - Were your predictions correct?
 - Did you notice anything else about your filter?

Adaptations/Adjustments: (consider different environments)

Extensions (Optional):