



Water Cycle in a Bag:

Learn how our planet recycles water by creating a tiny enclosed earth, complete with oceans and an atmosphere, from stuff you have in your kitchen!

The water cycle is one of the most critical components to life here on earth. Lucky for us, it's also one of the easiest processes to understand and illustrate through experimentation! Here's how it goes, for example, right here on Nantucket. The sun rose this morning and began shining down on the ocean. As the rays of the sun began to heat up the water, the water *evaporated* from a liquid into water vapor. This water vapor rose way up into the atmosphere and *condensed*. As it cooled and *condensed* the water vapor formed clouds. Once these clouds collected enough water vapor, the clouds became saturated (think *full*) and the vapor turned to liquid again as raindrops or snowflakes, falling back to earth, filling our ponds and oceans and recharging our groundwater! This is the last stage of the water cycle, *precipitation*.

Now, armed with the knowledge of the water cycle and the key steps- *evaporation*, *condensation*, and *precipitation*, let's recreate it at home!

Materials:

- Plastic bag with a water-tight seal
- Food coloring
- Tape
- Sharpie or marker
- Glass of water

Instructions:

1. First, take your marker and draw some nice waves for your "pond" or "ocean" and some clouds near the top of the bag to represent your "atmosphere"
2. Pour your glass of water carefully into the bag
3. Add 2-3 drops of food coloring

4. Seal the bag up nice and tight
5. Tape your tiny water cycle model to a bright, sunny window
6. Check back every hour or so to see what happens!

What to look for:

As the sunlight heats up the water in your bag, some of it will begin to *evaporate* into tiny water droplets. These water droplets rise near the top of your bag, into the “atmosphere” of the bag. Once the water droplets cool, they *condense* into visible water near the top of the bag. Once enough water has condensed, *precipitation* will begin, and raindrops will fall back into the pond or ocean at the bottom of the bag.

How long did your water take to start evaporating and condensing? Did the food coloring evaporate, or did it stay in the water at the bottom? Why?

