



CONFIDENTIAL FILE

TOP SECRET:

THE WATER CYCLE MISSION PACKET

THE WATER CYCLE

Mission 1:

EVAPORATION

The sun is the engine driving the water cycle. That's because the sun provides energy (heat) for water to evaporate. Evaporation is the process of water changing from a liquid to a gas, called water vapor. Evaporation happens everywhere there is water.

Experiment:

Supplies- 2 clear jars, 1 with a lid

- liquid measuring cup
- water
- food coloring, red or blue
- permanent marker

Set up-measure one cup of water and pour into jar without lid -measure one cup of water and pour into jar with lid - put several drops of food coloring into each jar

-use the marker to mark the water level in each jar -leave one jar open and put the lid on the other jar -place the jars near a sunny window

-observe for one week

Measure evaporation-once the water level is visibly lower, use the marker to mark the side of the jar. You started with one cup of water. How much water is left in each jar? How much water evaporated from each jar? Was there a difference between the amount evaporated from each jar? Where did the water go? Explain your results.

Save the jars of water to use in Mission 2.

Mission 2

VAPOR TRANSPORTATION

When you think of water moving you may think of rivers and streams, but water moves in our atmosphere as water vapor from evaporation. Air currents move huge amounts

of water across the earth. Water can evaporate over an ocean and fall back to earth as rain.

Observation:

In Mission 1, you had two jars of water, one with a lid and one uncovered. The water in the uncovered jar started to evaporate when the sun heated the water. The liquid water went into the air as water vapor (a gas). Why didn't the water in the jar with a lid evaporate? What stopped the liquid water from going into the air as water vapor?

It is time to take the lid off of the second jar. Take the lid off very carefully and look at the inside of the lid. Is there anything there? The water did start to evaporate, but the lid kept the water molecules inside of the jar. When the water vapor hit the lid, the vapor cooled, and fell back into the jar as liquid water. You had a water cycle in a jar!

Mission 3

CONDENSATION

If you see clouds in the sky, you are seeing condensation in action. Condensation is the opposite of evaporation. It is the process of water vapor becoming liquid water. As vapor rises in the atmosphere it cools, causing liquid water droplets to form clouds.

Experiment:

Fill a glass with ice. Add cold water. Let it sit for 15-30 minutes. What is now on the outside of the glass? (Condensation)

Mission 4

PRECIPITATION

Precipitation happens when water falls to the Earth's surface in liquid or solid form.

Challenge:

Name four types of precipitation. (Snow, sleet, hail, rain.)

Mission 5

RUN OFF

Runoff is when the water flows downhill. Water is pulled by gravity and takes the shape of or is absorbed by whatever it flows into.

Experiment:

Fill a liquid measuring cup with water.

Observe that the water takes the shape of the cup.

Pour the water onto a plant.

Where does the water go? (It is absorbed by the dirt)

Fill the measuring cup with water again

Pour the water into the sink.

Where does it go? (Gravity pulls the water down the drain) Fill the measuring cup with water again.

Go outside and pour the water on the sidewalk or driveway. Where does the water go? (It flows downhill, going to the lowest point)

Mission 6

ICE STORAGE

Not all water in the water cycle is on the move. Some is trapped as ice in very cold places.

Challenge: Where on Earth can you find frozen water.