

LESSON ACTIVITIES

✓ **Further Understanding:** Investigation/Reasoning Skills

Look up a picture of the hydrological cycle. Then read Job 36:27-31 verse by verse and explain what part of the cycle is being described in each verse and how the water cycle is used by God. Keep in mind that as water goes through this cycle none of it is lost; it is just moved to another place, sometimes in a different form (liquid, solid or gas).

Job 36:27-31

27"He draws up the drops of water, which distill as rain to the streams; (evaporation, condensation, precipitation, transportation)

28the clouds pour down their moisture and abundant showers fall on mankind. (precipitation)

29Who can understand how he spreads out the clouds, how he thunders from his pavilion? (movement of clouds to different areas of the earth)

30See how he scatters his lightning about him, bathing the depths of the sea. (precipitation)

31This is the way he governs the nations and provides food in abundance. (God uses precipitation or the lack of it to control and influence the direction people and civilizations take. God is in control of the water cycle. He is able to cause or withhold rain.)

- Evaporation of water occurs when the water molecules on the surface of the water absorb heat from the sunlight and become more energetic or active. When the molecules take on enough energy, they break away from the other molecules in the water and escape as a gas into the air (water vapor).
- Condensation of water occurs when the air gets colder. As warm air rises, it cools down. Cold air can hold less water vapor than warm air so when the temperature of the air cools down the water vapor condenses into droplets of water forming clouds.
- Precipitation occurs when the air in the clouds is saturated and can't hold any more water droplets. Water droplets fall from the clouds in the form of precipitation. The type of precipitation (rain, snow, sleet, or hail) depends on the air temperature and circulation.
- Percolation of water occurs when water dropped by precipitation is soaked up by the ground. The water percolates through the porous soil, and collects in areas under the ground. The water under the ground generally flows towards rivers, lakes or oceans.
- Transportation or run-off of water occurs because the ground can only absorb a limited amount of water and the excess runs off. This excess water finds its way to streams, rivers and lakes and eventually is transported by rivers to the ocean.
- Accumulation of water occurs in the seas where 97 percent of the earth's water is stored.

Discussion: What causes water evaporation? What would happen to the earth if water didn't evaporate? Why does condensation take place? What would happen to the earth if

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water didn't condense? What happens in precipitation? What would happen to the earth if water didn't fall to the ground? What happens in percolation? What would happen to the earth if water didn't percolate through the ground? How does the transportation of water take place? What would happen to the earth if water wasn't transported to the seas? What would happen if there were no accumulation of water in the seas? What does the water cycle tell us about God?

✓ **Investigation Activity** – Why are the oceans salty?

Explanation: Most of the salt in the ocean comes from the wearing down of the rocks and dirt of the ground. This material from the ground is transported by the rain to the rivers and from the rivers to the oceans. Evaporation of the water in the ocean's surface takes fresh water out of the ocean and leaves the salt behind. This salt accumulates in the oceans. Most of the evaporated water falls back to the sea in the form of rain but a lot of the fresh water is carried in clouds to the land areas where it falls as rain, snow or sleet. The run off from the rain flows back to the ocean again carrying with it more salt and other minerals. This cycle continually repeats itself. The investigation activity will help you to understand how run-off water contains salt and how the salt is left behind when the water evaporates. .

Instructions: (From Earth Science for Every Kid, #95)

1. Punch holes in the bottom of a paper cup with a sharp pencil.
2. Put a coffee filter inside the cup.
3. Mix together 1 T. dirt and 1 T. salt in the coffee filter.
4. Place a sheet of black construction paper on top of a plate.
5. Make little legs out of clay to set the cup on.
6. Set the cup on the legs on top of the plate and paper.
7. Pour 3 T. of water over the dirt/salt mixture in the cup and let it run out onto the paper.
8. Let the water on the paper evaporate. (This will need to happen during the week and be observed during the next lesson.)
9. Salt crystals should be left on the paper once all the water is evaporated.

✓ **Discovery Activity:**

Demonstration: Water can contain dirt

To demonstrate to the child how water and land can separate put about an inch of sand or dirt in the bottom of a clear bottle or jar. Fill the jar about $\frac{3}{4}$ full of water. Have the child shake the bottle and describe what happened. Then let the bottle set until the dirt settles. Have the child describe what happened.

Demonstration: Separation of the water and land

1. Fill an oblong clear plastic disposable container with about 1inch of fine sand.
2. Cut a sturdy piece of cardboard the width and height of the container. Insert the cardboard at one end down into the sand.

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3. Pour water over the sand so it is covered with about ½ inch of water.
4. Use the cardboard to push the sand from one end of the container up against the other end. This leaves a basin or valley at the one end of the container that all the water will settle in and an area of sand (dry ground) at the other.
- 5.

✓ **Game:** Water Relay

As a reminder that at one time the earth was only water until God put the water in its place and caused the dry ground to appear, run a water relay.

Instructions: Divide the participants into two teams. At one end of the play area put a bucket of water. At the other end put a clear 2-4 cup measuring cup for each team. In the relay each member of the team uses a tablespoon to dip water out of the bucket and transport it to the cup, trying not to let any spill. Once he reaches the cup he dumps the water in and runs back with the spoon to pass off to the next player. At the end of two to three rounds the team with the most water in the cup wins.

✓ **Song:** Water Cycle Song (To the tune of She'll Be Coming Around the Mountain)

Water travels in a cycle, as God planned

(use index finger to make a big circle)

Water travels in a cycle, as God planned

(repeat finger circle)

Going up into the sky

(move hands up to the sky)

Making clouds so way up high

(make a cloud overhead with hands)

Coming down in rain drops, as God planned

(wiggle fingers while bringing arms down in front)

Water soaks down in the ground, as God planned

(move wiggling fingers horizontally out to sides)

Water soaks down in the ground, as God planned

(move wiggling fingers horizontally out to sides)

Water to the rivers

(move hand like a river winding forward)

From the rivers to the ocean

(move hand like a river winding forward)

Filling up the oceans, as God planned

(make a bowl in front with hands)