DAY FOUR

OVERVIEW OR SUMMARY OF LESSON

The class discusses and interprets the hydrologic cycle, and the way in which New Mexico is affected by climatic patterns.

PROCEDURES

1. Make a transparency of Handout #6 "The Hydrologic Cycle" (or use as a handout to be entered into their journals.) Review with the class how the cycle works. Briefly explain why some areas receive less rainfall than others and why New Mexico is a drier place in general than some other regions. You may wish to use Handout #7 "Weather" as a basis for discussion.

2. Have students draw an interpretation of the hydrologic cycle in their journals. Ask them to label the drawing using the appropriate terminology.

3. Have each student imagine that he or she is a drop of water and write a journal narrative describing how, as a water droplet, they are transported to a particular spot (through cloud formation, evaporation, rivers, etc.) In the story, they should use pertinent terms and apply principles of the hydrologic cycle wherever possible.

4. Remind the class to complete their Home Water Audit so that it can be brought to class the following day.

ALTERNATIVE OR SUPPLEMENTAL ACTIVITIES

1. If you would like to spend more time on weather, this would be an ideal time to insert other lessons from your curriculum.

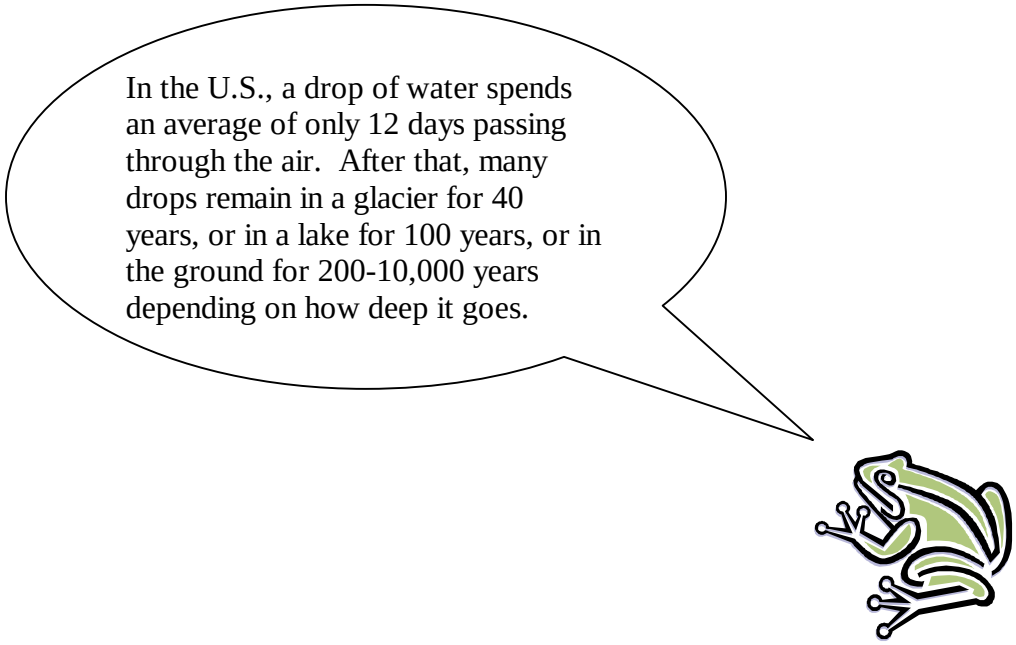
2. Students could chart the weather during the next two weeks of "The River" curriculum, and possibly relate what they observe to the state of some river or tributary flowing near their community.

CONTENT DISCUSSION

At a certain point in its course, the Rio Grande becomes an "exotic" river. This term describes a river which begins in a wetter climate and later enters a desert region which, through most of the year, does not contribute to the stream flow. The water is often

heavily used by people and animals of the desert region. When drawing a hydrologic cycle, students should account for the fact that the river flows through a desert. (Probably they will already have studied the geography of the Rio Grande in their social studies class: geographic information could be reflected in how they interpret the hydrologic cycle in New Mexico.)

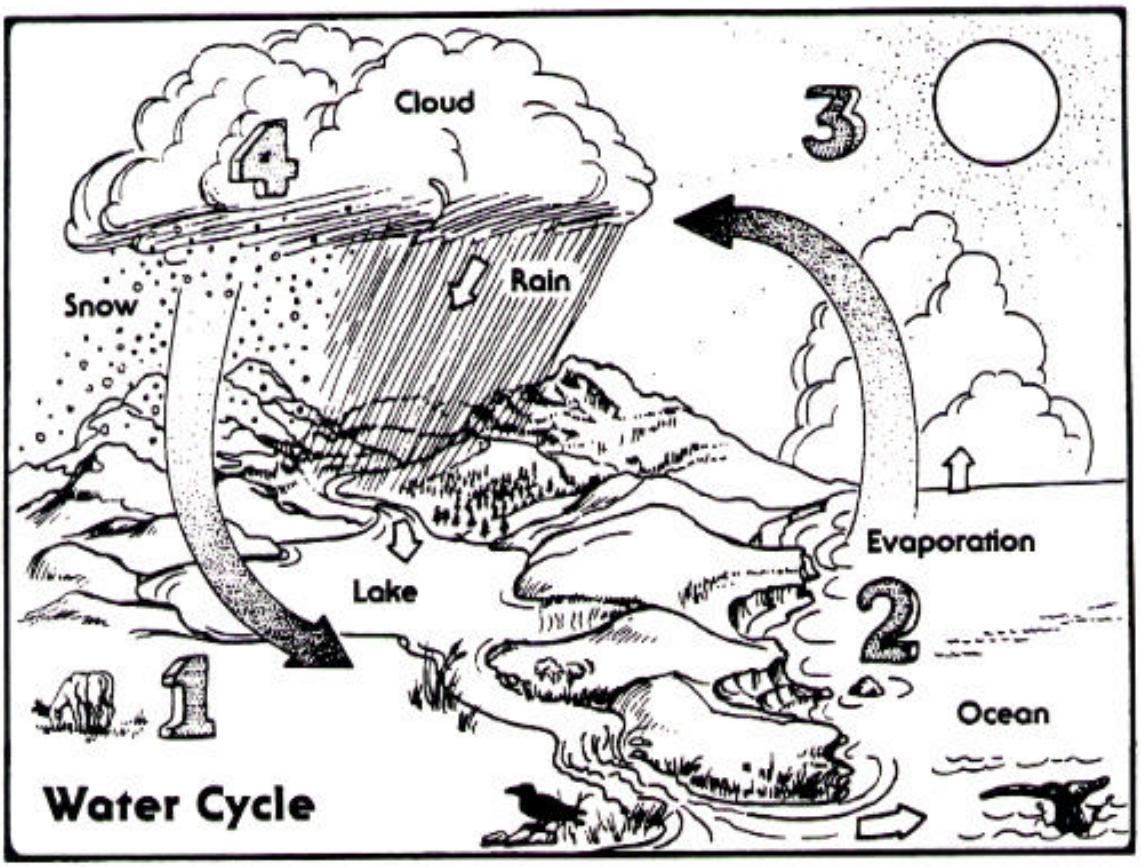
A variety of terms could be introduced and discussed -- and then reinforced through drawing in their journals or by writing the narrative of a drop of water. Terms might include: evaporation, condensation, evapotranspiration, transpiration, run-off, water vapor, condensation, precipitation, percolation, and irrigation diversion. Discussion of the relationship between surface and ground water (from Day Two) would relate to this discussion.



HANDOUT #6

WHERE IS IT FOUND?

The water that we use today has been around since the earth was formed. The dinosaurs drank what we drink today. There has never been any more or less on Earth, because Earth is a giant recycling plant for water. Water that is on the land or in the ocean evaporates into the sky and condenses into clouds. When the clouds become thick and heavy with moisture, they release the stored-up water as rain or snow. This water re-enters the rivers, lakes and oceans and soaks into the ground, replenishing underground supplies.



1. Water, as rain or snow, falls to the earth. Some of the water soaks into the ground. The rest flows into streams, lakes, rivers and oceans.
2. The sun warms the water and changes some of it into water vapor. This process is called evaporation.
3. The heated vapor rises back into the sky and forms clouds.
4. When conditions in the clouds and atmosphere are optimal, the vapor in the clouds condenses around a particle of dust or other condensation nuclei and it falls back to earth as rain or snow. The water cycle is always going around.

from: ARID LANDS, SACRED WATERS
New Mexico Museum of Natural History

Handout #7

Weather is the state of the atmosphere at a certain time and place. It is defined by temperature, moisture, wind velocity, and barometric pressure. Sun and rain, thunderstorms and snowstorms are all part of New Mexican weather. The atmosphere stores a lot of water, which is blown by winds across oceans and continents. When the clouds become heavy with water, droplets fall out. Cooler air causes water vapor to condense the droplets. When a cloud hits a cold air mass or moves over a mountain range, it will drop much of its moisture. Lower, warmer areas such as deserts and plains do not get as much rain, especially if weather systems must pass over a mountain range beforehand. Climate is determined by weather.

New Mexico has four distinct seasons. Summer and winter are the wettest, while spring and fall are fairly dry. Major factors in New Mexico's weather are mountains. In the summer, when cooler air over the mountains meets rising hot, moist air, rain clouds and thunderstorms often develop. During any rime of the year, high altitude and low atmospheric temperatures will often cause a storm system to release its moisture. That is why mountains get more water and are greener than an arid desert a short distance away.

- Wadi Haifa, Sudan, had no rain in 19 years.
- Bahia Felix, Chile, has an average of 325 days of rain each year.
- The longest dry spell in the United States was 767 days in 1912 at Bagdad, California.
- Silver Lake, Colorado, had 76 inches of snow in one hour on April 14-15, 1921.
- The longest lasting rainbow lasted 3 hours on August 14, 1979, in North Wales.
- The world's most intense rainfall was 1.5 inches in one minute on November 26, 1970, in Barst, Guadeloupe.
- The largest officially reported hailstone weighed 1.67 pounds (7 1/2 inches in diameter) on September 3, 1970, in Coffeyville, Kansas.

from: ARID LANDS, SACRED WATER, New Mexico Museum of Natural History