

# Red Rock Canyon National Conservation Area Environmental Education

## Classroom Program Teacher Version Water, Water Everywhere Revised 1/10/01

- Grade:** Four
- Subject:** Water Cycle at Red Rock Canyon
- Theme:** Red Rock Canyon's topography creates a specialized water cycle that is important for providing clean water for the Las Vegas Valley.
- Goal:** Through demonstration of the water cycle and discussion of the importance of water quality, students will discover the complex, interdependent community of Red Rock Canyon.
- Objectives:** Students be able to name and illustrate the water cycle.  
Students will name two plants and two animals that are affected by the water cycle at Red Rock Canyon.  
Students will describe how Red Rock Canyon contributes to providing clean water to the Las Vegas water cycle.  
Students will describe where the Las Vegas area gets its water.
- Vocabulary:** **Aquatic-** living or growing in water  
**Effluent-** any matter that enters the environment from a specific source: the term generally refers to waste water from a sewage treatment or industrial plant.  
**pH -** A measure that indicates the relative acidity or alkalinity of a substance  
**Precipitation-** depositing moisture in the form of rain, snow, hail or dew.  
**Condensation-** water moving from a gas or vapor to a solid state.  
**Evaporation-** Change from a liquid or solid into vapor.  
**Accumulation-** a gradual collection of (water) or other liquids  
**Peculation-** drain or filter through small holes or spaces  
**Transpiration-** moisture moving from liquid to vapor through a barrier such as through leaves of a plant.

### Background:

The water of Red Rock Canyon supports a complex, interdependent community that includes plants, animals, and early humans. Water plants like algae and pondweed support animals such as plankton, insects, crayfish and snails. These in turn support larger animals like toads, dragonflies, and Raccoons. What can live here and how well it can thrive is influenced by various factors that contribute to the ability of water to move through the water cycle. The quality of the water is also important since specialized forms of life found in the riparian areas cannot tolerate even small changes in their habitats.

Since humans are also a part of the community of life depending upon water, its quality and availability are important to us too. Moreover the changing uses of Red Rock Canyon to suit human needs and impacts on it have influenced the populations of native and non-native species that live in and around it.

### Pre-site Activities

#### Activity One - Mini- water cycle

#### Materials for each student:

Quart size zip-lock baggie  
bathroom size, clear plastic solo cups-3.5 oz  
masking tape

Have the students review the Natural water cycle stressing the processes of evaporation, condensation, precipitation, and accumulation.

Pass out a baggie and cup to each student, or group of students. Place approximately 2 ounces of water in the cup and mark the water line. Tape the cup to the inside of the baggie to prevent spilling.

Tell the students they will create a very simple water cycle in a closed baggie and observe how water invisibly evaporates from the cup, similar to evaporation from oceans; condenses on the sides of the baggie, like it does in the clouds; and accumulates in the bottom of the baggie like it does in lakes, rivers, and ground water.

Close the baggie tightly and tape it in a warm place, tilted on an angle like a diamond. See activity sheet.

Pass out student observation sheet and record what happens over a four day period (write/draw in their journals)

### **Discussion Questions**

Correlate the various steps of the natural water cycle to the cycle in the baggie.

Ask students what they think will happen to the water in the cup.

How does the place where the mini water cycle is put effect the amount of water that collects in the bottom of the baggie?

How many changes does the liquid go through when moving through the water cycle? Describe.

What causes each of these changes? What would happen if the earth's temperature was the same everywhere? Would this effect life on earth?

**Post Site Activity:** You may wish to create a ground water model of your own including plants and animals from a department store, pet shop or nursery. Remember not to collect anything from outside. Think how this small aquatic system is interdependent. What would happen if the water added where not clean? How is this system like Red Rock Canyon? How is it unlike?

OR

Have the students create a brochure to tell people about the importance of keeping Red Rock Canyon's riparian areas clean and hints on how to do that.

### **REFERENCES**

AIMS Education Foundation  
*Water precious water, Book A (1988)*