

# ENVIRONMENTAL ENCOUNTERS

## Lesson Plans for the Science of Water



### Water Resources and Water Quality

**Suggested grade level:**

High School Earth Science Systems

**Objective:**

Students will be able to discuss the water cycle, water quality, and local water resources.

**Curriculum ties:**

- √ High school Science Earth Science Systems Standard 4 Objective 1 a-e

**Time needed:**

- √ Prep: 1 hour
- √ Pre trip: 2 hours over the course of a week
- √ Garden: 1-2 hours
- √ Post trip: 6 hours, some outside of class

**Materials needed:**

- √ A clean aquarium or other see-through glass or plastic container with a tight cover
- √ "Pollutants" like salt, cooking oil, liquid plant fertilizer (MiracleGro), and/or powdered drink mix
- √ Water
- √ A filter made out of soil, rocks, sand, and cotton balls in a paper or plastic cup with holes punched in the bottom
- √ Resources for students to research water quality

**Teacher notes:**

In this activity students will learn about water quality and water resources. The students should understand the basic concepts of the water cycle.

**Procedures:**

Preparation

Create a water cycle in a clean aquarium or other see-through glass or plastic container by adding some water and a tight cover. Put it in a warm location.

Call 801-565-4314 to schedule your visit to the Conservation Garden Park at Jordan Valley.

In the classroom

Show the students the water cycle you have created. Now, open the system and add some "pollutants" to the water cycle in the form of cooking oil, liquid plant fertilizer, salt, and/or powdered drink mix. Explain that any pollutants on the ground will mix with water and be taken to local water sources like rivers, lakes, and aquifers. Those are our sources of water for drinking, cleaning, and playing. Put the cover on the water system. Over the course of a week or so, have the students observe and record what happens as the water evaporates and forms condensation on the roof, then drips back down again as "rain."



As the water evaporates, encourage the students to notice how the pollutants stay behind. Ask students what might have to be done to get the pollutants out of the water system. Create a filter out of soil, rocks, and sand (and you can add cotton balls) in a cup with small holes in the bottom and pour the water through it. Notice how most of the pollutants stay behind. Explain that cities have to clean their water before it is safe to drink because of all the natural and man-made pollutants that get into the water.

#### Field trip

As you tour the Garden, a guide will provide a Water Quality Report and explain how Jordan Valley Water Conservancy District deals with water quality issues. Relevant exhibits in the Garden include the “Rain Gardening” exhibit and the “Outsmarting Invaders” exhibit.

#### Follow up

Have the students research and write about a water quality issue in Utah.

#### **Assessment:**

The students’ written reports will demonstrate their understanding of the water cycle, water quality, and local water issues.