

SNWA Goal 2 Objective 2.1

Goal 3 Objectives 3.2, 3.3, 3.4

CCSD Curriculum Essentials Framework

**Science**

*It is expected that students will:*

(2)4.3 investigate and describe how some resources can be used and reused. WUSD 16.2.1 (First Grade Standard)

(2)5.1 explain that everyone can invent things and ideas. WUSD 18.2.1 (First Grade Standard)



**Purpose:**

This activity will introduce students to the idea that water is a natural resource that can be used and reused through a cleaning process.

**Time:** 40 minutes

**For each pair of students you will need:**

- Top of a plastic bottle to act as a funnel
- Clear container or bottom of plastic bottle, on which the funnel sits
- Filter materials:
  - Washed pebbles
  - Paper towels
  - Cotton balls
  - Washed sand
  - Cloth pieces
  - Coffee filters
- Dirty water (1/2 liter)



## Keeping Water Clean (cont.)

### You will need:

- Transparency pictures of water treatment process (see Grade 2 & 3 - Water Treatment Process).

### Introduction

1. Tell students that the water we have on Earth now is all the water we will ever have, but it can be used again and again and again.
2. Ask students how water might get dirty. Make a list of their ideas on the board or on chart paper.

### Making Discoveries

3. Ask students if they have ideas about how dirty water might get clean again. Make a list of their ideas.
4. Tell students that people have designed systems to clean water using different materials as filters.
5. Show the materials that are sometimes used to help clean water and ask students which ones they think would work best.
6. Allow pairs of students to choose one material they would like to use to clean the dirty water.
7. Using the plastic bottle tops as funnels, students should place their filter material into it, then pour  $\frac{1}{2}$  liter of dirty water into the funnel and observe the water that collects in the container below.

### Teacher note:

*You may wish to tape sharp edges of the funnels (the cut edge of the plastic bottle) before children use them. Additionally, if students elect to use sand or pebbles as their filtering agents, they also will need to use a paper towel or coffee filter to prevent the sand or pebbles from emptying out of the funnel.*



8. Have students compare their “filtered” water with another pair who used a different filter material.
9. Students should draw a picture of their filter system in their science notebooks, labeling the filter material used.
10. As a whole class, discuss which materials made the best filters. Ask, “What evidence indicates that one filter is better than another? Is any of this water really clean yet? What could we do to make it more clean?”
11. Try pouring one of the containers of “filtered” water through a second filter. What happens? What would happen if you poured that water through a third filter? Try it.
12. Tell students that scientists always add a chemical to dirty water as a final step to get rid of the germs that are too small to see. Warn students that the water they filtered is not safe to drink.

### ***Closing***

13. Have students first talk with a partner about what made the cleanest water, then write a sentence or two in their notebooks about what they did.
14. Show the transparency pictures of the water treatment process (see Grade 2 & 3 - Water Treatment Process), telling students this is how water is cleaned in Southern Nevada.

### ***Extension***

Visit a water treatment facility. Information about a field trip to the Alfred Merritt Smith Water Treatment Facility at Lake Mead can be found in the *Flushing it Out* section of this kit.



## Word Bank

*The teacher should introduce or review the following vocabulary with the students within the context of this lesson.*

**filter:** something that helps separate out unwanted material from water

**chemical:** a substance used to kill bacteria in water

**particles:** small bits of matter

**system:** an orderly, interconnected arrangement of parts

