

Groundwater Activity

Skill: Science

Objectives

- Students will see how wells effect groundwater

Time Frame

15 minutes

Background Information

Water will infiltrate and percolate through the soil and becomes groundwater. Groundwater is an important part of the water cycle. As water percolates through the soil, it is filtered. Groundwater can be used by plants and will transpire back into the atmosphere or it will seep into surface water and evaporate back into the atmosphere.

Groundwater is depleted from wells, springs, and geysers. Groundwater can also seep into rivers and lakes. New technology enables us to deplete our groundwater at faster rates. Using lots of groundwater in areas where there is not a lot of precipitation, will deplete this valuable resource.

Once groundwater is used up, it can take months or years to replenish it. It takes water a long time to move through the soil and reach the aquifer. An aquifer is an area underground where a lot of groundwater is stored.

The water table is the height of the groundwater. If the water table is high, then the groundwater is close to the surface. As people use the groundwater the water table will lower. When the groundwater is recharged from rain or snow, the water table raises.

Read and discuss background and vocabulary.

Procedure

Steps in the activity

During the activity, each student will simulate a well pumping water from groundwater. The ice represents rocks and soil, the soda represents groundwater and the straw represents the pump.

1. Fill the cup with ice.
2. Slowly pour in the cola.

The cola drips down through the ice until most of the drink ends up in the bottom of the cup. The flooded ice is the saturated zone because it is soaked with cola. All the spaces between the ice chunks are filled.

At the top of the cup, cola wets the surface of the ice, but the spaces are filled with air instead of cola. This top layer is called the unsaturated zone. The water table is the top surface of the saturated zone.

3. Put in the straw

Ask the students what happens? The cola fills the straw below the water table. The straw is like an open space in the cola's saturated zone. When well-drillers put a pump below the water table, they create a space for surrounding water to flow into.

Vocabulary

- infiltrate
- percolate
- groundwater
- filtered
- transpire
- evaporate
- depleted
- precipitation
- aquifer

Materials

- a small, clear plastic cup
- crushed ice
- straw

P.A.S.S.

4th Grade

- Read 1.1, 3.1b

Science

- Process 3.1,3, 4.4, 5.3
- Life 3.1

5th Grade

- Read 1.1a, 3.1b

Science

- Process 3.1,3, 4.4, 5.3
- Life 2.2

6th Grade

- Read 1.1a, 3.1b

Science

- Process 3.1,5, 4.3, 5.3
- Life 4.1
- Earth 5.2



Groundwater Activity cont.

4. Suck some of the cola out of the straw.

What happens? The cola outside the straw flows through the ice chunks into the straw to replace the cola you drank.

5. Wait between sips

What happens? The soda fills the straw below the water table again. A well works the same way. It pumps water out of this saturated zone and up to the surface. When water is pumped out, other water in the saturated zone moves in to fill any spaces between the rocks.

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