

Floridan Aquifer

NATURAL ENVIRONMENT LESSON 2

Where does our drinking water come from? For the answer, we must dig deep! Did you know that Florida has its own system of underground water storage? This system is called an *aquifer*.

Aquifers are underground caverns full of water in porous rocks such as limestone. Over time, water seeps below the Earth's surface and creates caves and passages as acid in the water dissolves these porous rocks. These types of rocks act as a filter, too, and as the water passes through them, it loses the dirt or debris that we don't want to drink. This water held underground is called *groundwater*.

Here in Central Florida we live on top of the Floridan Aquifer, which we rely on for drinking water. This aquifer is so large that it covers much of Florida! This is why we need to make sure we are careful to conserve our water.



Detail of limestone



Aquifer model

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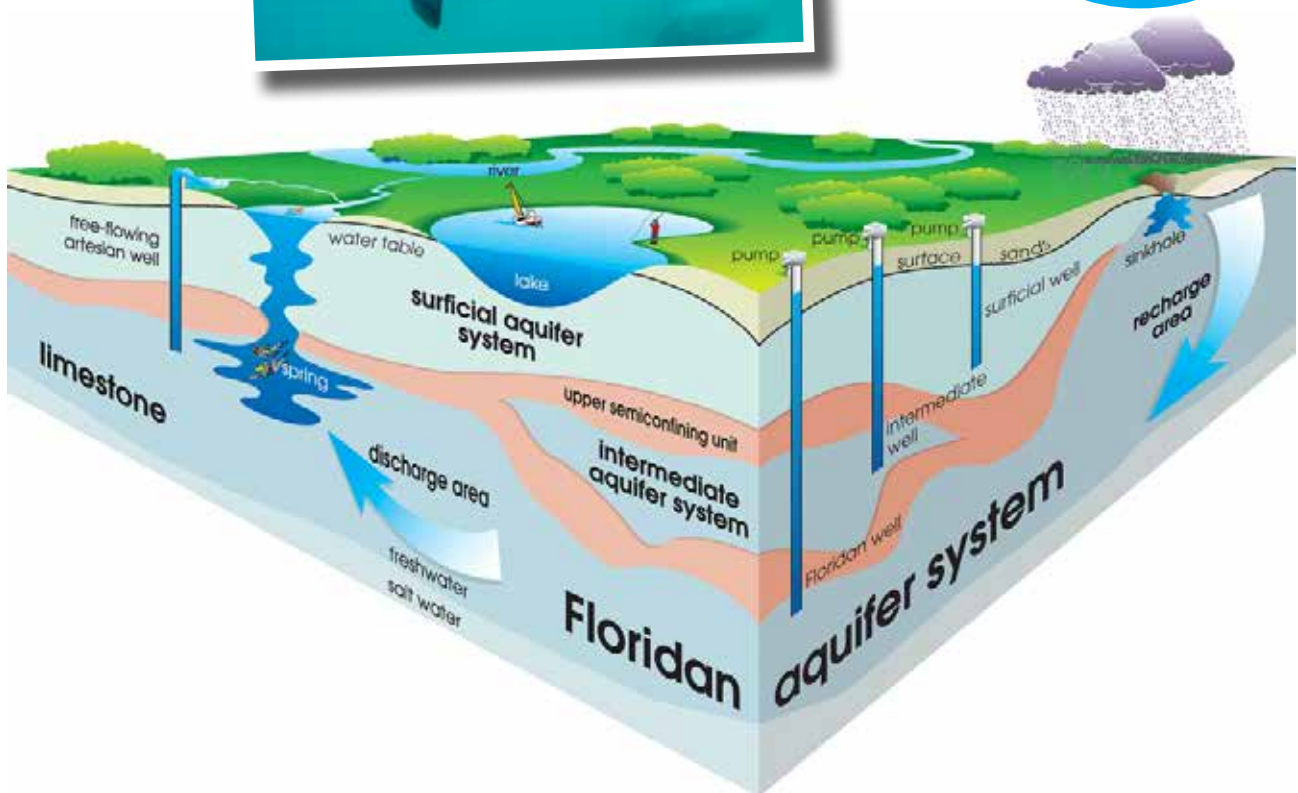
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When water flows up naturally from an aquifer, it's called a spring. In Florida, the clear, crisp spring water stays the same temperature year-round, making springs popular swimming spots during the hot summer months. During winter, manatees head to springs, because rivers and coastal waterways are too cold for them. Manatees do not have blubber, a thick layer of fat, to keep them warm. They need to stay in water with a temperature of at least 68 degrees, so springs are perfect for them.



Rain occurs when surface water evaporates and accumulates in the clouds. When the clouds are not able to hold any more water, it is released back to the Earth as rain.



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What happens when the water level drops in an aquifer? The land above, no longer supported by water, can collapse and create a sinkhole. This happens a lot in Florida. Many lakes in Florida were created by sinkholes that fill up with groundwater. One of Central Florida's most famous sinkholes is now called Lake Rose in Winter Park. In 1981, over a period of several days, the sinkhole grew wider and wider. It eventually swallowed a house and part of a car dealership.



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ACTIVITY

WHAT TO DO:

1. If your bottle has a cap, remove the cap. Cut your plastic bottle in half with your scissors or utility knife (this should be done by a grown-up). If you want to use your bottle cap, poke 2-4 holes into the cap and screw it back onto the bottle top (this is optional and does not need to be done for the project to work).
2. Place your fiber into the neck of the bottle.
3. Layer the coffee filter and sand over the fiber.
4. Place small rocks on top of your sand. If you have grass or pieces of plant matter, you can place that on top of your small rocks or pebbles.
5. Place larger rocks on top of the small rocks. Your filter is now complete and ready for the next step.
6. Place your filter into the bottom part of the plastic bottle.
7. Slowly pour your dirty water into your filter. You should see clearer water drip into the plastic bottle.

How long does it take for the water to go through your filtration system? How clean is your filtered water compared with your dirty water?



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This lesson helps reinforce these Florida State Standards for K-5th grade:

- SC.1.E.6.1 Recognize that water, rocks, soil, and living organisms are found on Earth's surface
- SC.1.E.6.2 Describe the need for water and how to be safe around water
- SC.1.E.6.3 Recognize that some things in the world around us happen fast and some happen slowly
- SC.4.E.6.3 Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable
- SC.4.E.6.6 Identify resources available in Florida (water, phosphate, oil, silicon, wind, and solar energy)
- SC.5.E.7.1 Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another
- SC.5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes

