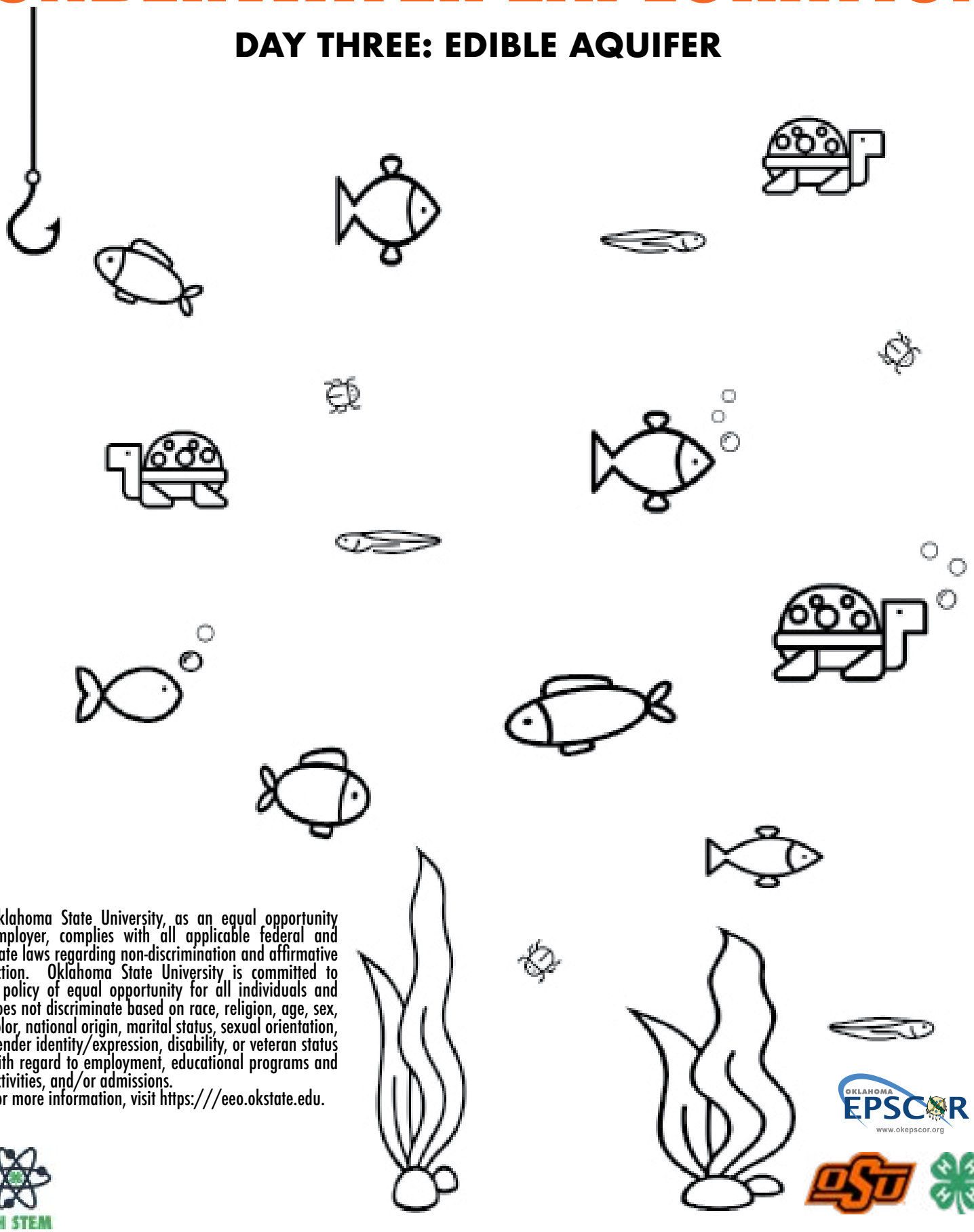
UNDERWATER EXPLORATION

DAY THREE: EDIBLE AQUIFER



4-H STEM

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EDIBLE AQUIFER

Welcome to day three of Underwater Exploration!

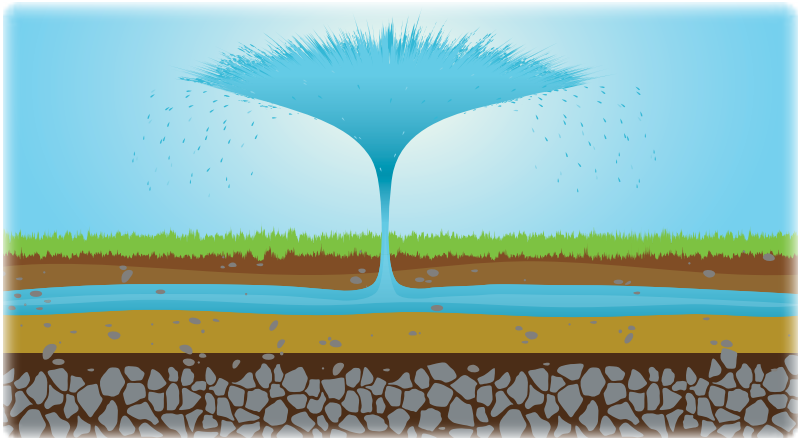
There are so many things we do that can impact water quality. Water runoff from parking lots, roads and lawns often drain into waterways and carry nutrients, oil, gas, bacteria, garbage and other pollutants into streams and other bodies of water. Yesterday we learned about how water drains through different sections of land called watersheds, and into various bodies of water. Today we are going to learn about how water travels through the ground.

Below the ground is a series of rocks that can act as a sponge for groundwater, soaking up water and holding it in many crevices and grooves. Water travels through spaces in rocks called pores. The rocks and pores are both a part something larger called an aquifer. An aquifer is an underground water system that is made of rock and sand material. The rocks help filter the groundwater by absorbing some pollutants that may be found in the water. Some examples of pollutants are oil, gas and bacteria.

Aquifers are deep under the ground and covered by a thick layer of rock that makes it hard for water to travel into the aquifer. Some aquifers are not as deep and are consist of thin layers of rock that water can easily seep through and enter into the aquifer. Shallow aquifers allow harmful pollutants to enter and contaminate the water.

In today's activity, you will see how harmful pollutants can inter aquifers and harm the water that we need to use.

If you enjoy this activity, keep in mind that there are various future career paths available for you. This could in include but is not limited to: Fisheries Biologist, Aquatic Plant Manager, and Aquaculturist.



Resources:
Kentucky 4-H Southern Region 4-H2O Ambassador Program
Project Oceanography
Groundwater.Org

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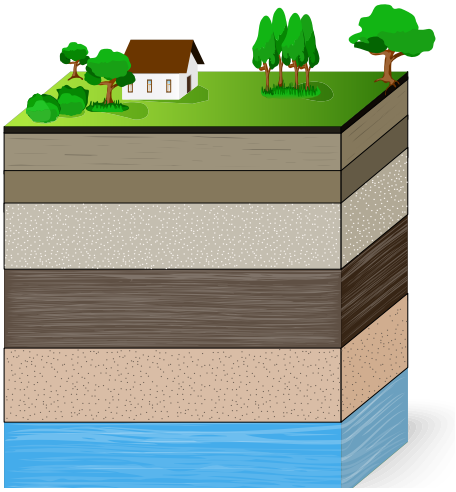
EDIBLE AQUIFER

Materials:

- Food Coloring
- Vanilla Ice Cream
- Clear Soda
- Crushed Ice
- Sprinkles
- 1 Drinking Straw
- 1 Clear Plastic Cup or Bowl



Instructions:

- Fill the clear plastic cup/bowl 1/3 full with crushed ice to represent gravel and soil.
- Add some of your soda into the cup/bowl, enough to cover the ice.
- Add a layer of ice cream to serve as the next layer over the water-filled aquafer.
- Add more crushed ice on top of the ice cream layer.
- Add sprinkles over the top, this will represent soils. This creates a porous top layer.
- Add a couple drops of food coloring to your remaining soda, this will represent the contamination in the water of your aquifer.
- Pour the more soda into the cup on top of the aquifer.
- Using your straw, poke in the center of your aquifer. The straw will represent a well used to pump water out of the ground to use as drinking water.
- Slowly begin to pump the well by drinking the soda from your straw. Watch the decline of the water level.
- Recharge your aquifer by pouring the remaining soda into the cup. This

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