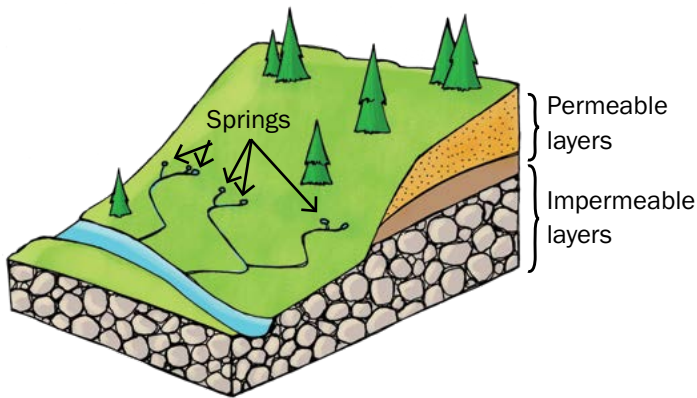




Water flows underground through permeable layers until it reaches an impermeable layer, like rock. It may then emerge from the ground as a spring.

Water moves through the air spaces between **sediment** such as sand and gravel particles. Because water can move through these sediments, they are called **permeable**. When all the air spaces are full, the sediment has become **saturated**, which is why it drips through the hole at the bottom of the container. The clay particles are much closer together and do not have the same air spaces for the water to fill, so the clay resists the water and is **impermeable**.

When it rains or snows, most water flows downhill and forms streams and rivers. This water is called **runoff**. Some of the water also soaks into the ground. This water is called **groundwater**. If we look at different sediments through a microscope or even a magnifying glass, we will see small parts or particles. There are air spaces between

these particles. Water moves under the ground through these spaces between sediment or rock particles. Scientists call these “**pore spaces**.”

Underground, water keeps moving down through sediments that let it pass, like sand or gravel. It flows until it hits something it can't go through, like clay or rock. When this happens, the water will change direction and flow on top of these substrates. There are no hills underground, so instead of flowing “downhill,” groundwater flows “**down-gradient**.”

Groundwater accumulates in an aquifer. An **aquifer** is like a big underground storage space made of sediments that is really wet and full of water. This water can be brought up to the surface for people, animals, or plants to use. Aquifers can be big or small. The top level of groundwater in an aquifer is called the **water table**.

So what is a spring? A **spring** is formed when groundwater moves down-gradient through sediments until it reaches a layer that stops it. Since the water cannot move downward any farther, it flows sideways until it flows out from the ground. You can think of a spring like a natural water fountain that flows right out of the earth!



Career Connections

HYDROGEOLOGIST • WATER RESOURCES PLANNER • AGRICULTURE WATER SPECIALIST • WATER WELL DRILLING • WATER TREATMENT SPECIALIST • ENVIRONMENTAL ENGINEER • GEOTECHNICAL ENGINEER • WELL LOGGING SPECIALIST • GEOLOGIST