



Is There Water Under our Feet?

Have you ever wished you could look beneath the ground and find out what's under there? **Geology** (ge·ol·o·gy) is the science that deals with the earth's physical structure, its history, the rocks of which it is composed, and the physical, chemical and biological changes that affect the planet. But you don't have to be a geologist to be interested in our planet and our natural resources. In fact, the more you know about where our water comes from, for example, the more likely you'll be to take good care of this limited resource.

We all know that water is essential for life; every person, animal, living creature, community, business, and industry needs it to survive. There is only as much water on Earth as there was millions of years ago -- it circulates through the water cycle and is recycled over and over. In most areas of the world -- and certainly in Texas -- if you dig deep enough, you'll find water. Rain seeps into the ground until it reaches a layer of rock that it can't get through or around...this is called impermeable rock or a "confining layer." Precipitation (rain, sleet or snow) that settles in an underground "reservoir" of loose gravel and sand is called an **aquifer**. Traditionally, in Montgomery County, we have gotten our drinking water from aquifers.

WHAT IS AN AQUIFER?

Quite simply, an aquifer is a body of saturated rock through which water can easily move. An

aquifer must be both permeable and porous...and include a variety of rock materials such as sandstone, fractured limestone, sand and gravel. An aquifer is not an underground river, but water does move slowly through the spaces in the rocks and sand. Each aquifer is unique; aquifers can be part of larger aquifer systems. The amount of storage in an aquifer can vary from season to season and year to year, and they flow at different rates. For example, one aquifer might flow at a rate of 60 feet a year...and another at a rate of 60 inches per century. However slow or fast it flows, water will eventually leave (or discharge) an aquifer and must be replaced by new water to replenish or recharge it.

Aquifers are natural filters that trap sediment and other tiny particles in the water flowing through them. Like a filter in a coffee maker, the brewed coffee (water) can get through, but not the coffee grounds (particulates). Scientists also use another coffee-maker word: **percolate**. They say that water "percolates" through the ground layers into the aquifer to help recharge it.

Here's a fun experiment...make a model of an aquifer that you can eat! Just substitute some tasty morsels for the topsoil, rock and gravel; add some ice cream for the confining layer; and add a clear soft drink, some blue food coloring and some crushed ice for the water in the aquifer. All you'll need is a straw for the well, and your mouth to act as the well pump! **Enjoy!** 💧

