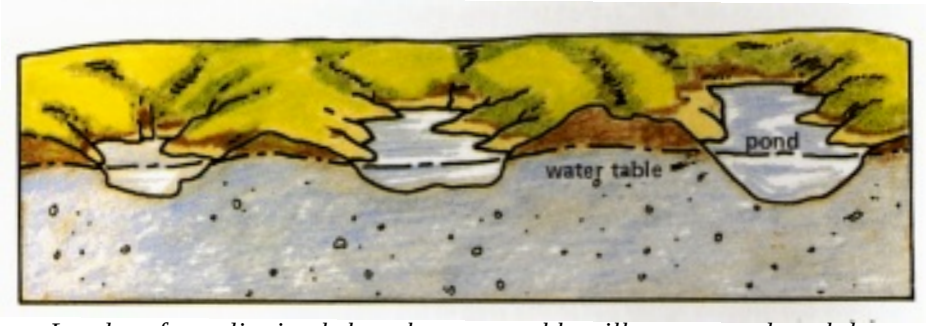
Hydrologic Cycle

A well is one way groundwater comes out of the earth. There are others. When you see a spring bubbling out of a hillside, that's groundwater coming out. Ponds and lakes may be fed by groundwater. Most streams gain water from the ground. And groundwater in Pennsylvania is cool - very cool. In Pennsylvania it averages around 50°F all year around.

Groundwater oozes out whenever the ground surface dips below (intersects) the water table -- sometimes through springs or into ponds, sometimes into creeks and rivers. By then it's surface water, and it's ready to start the HYDROLOGIC CYCLE all over, evaporating into the atmosphere to become rain or snow once again.

What comes out must have gone in . . . somewhere.



Land surfaces dipping below the water table will create ponds or lakes.

Wells

What image do you see when you think of a family well?

Maybe you picture an old fashioned well, the red brick kind with a little roof and a bucket you haul up on a rope.

That kind of well was usually dug by hand, using shovels and buckets until a hole in the ground hit water. The hole reached just into the saturated zone. To keep the sides from caving in, well owners lined them with stones, bricks, or wood. Pumps or buckets on ropes brought water up from the bottom of the well.

Today's wells don't look very much like those old ones. Today's wells are drilled or "bored" by drilling rigs that hollow out much deeper holes through soil layers and rocks. Many new family wells are between 50 and 150 feet deep, although they may be a lot deeper. Most private wells are only six or eight inches in diameter.

The new wells are usually lined or "cased" with steel pipe that goes down into rock. The casing keeps the loose rock and soil from collapsing into the well.

The space between the drilled or bored hole and the casing should be filled with a cement grout from near the ground surface down to at least 30 feet. Grout is a watertight sealant that is used to fill the space. This grout helps to keep surface water that may be contaminated, from flowing into the well.

In areas where the water quality is not outstanding, water from wells may be treated with devices to make the water usable.