Ground Water

Aquifers

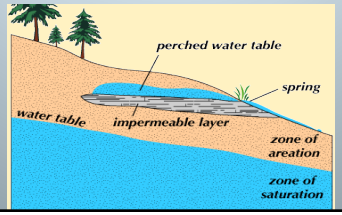
Karst Topography

Background Information: Ground Water

- Is stored underground in porous rock
- Includes water in aquifers, caves, underground rivers, etc.
- Used by humans primarily for well water supply
- Important to the environment to maintain water supplies to lakes, rivers, etc. when droughts occur

Ground Water Zones

- **Zone of Aeration** — soil above the water table filled mostly with air
- **Zone of Saturation** — area below water table where space is filled with water

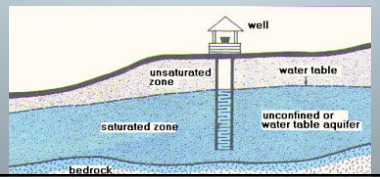


Aquifers

- Porous layers of underground rock that
  - Are saturated with (full of) water
  - Have a nonporous rock layer below
- Recharge (refill) through infiltration
  - **Infiltration** — surface water sinks into the soil
  - Soil with high porosity (large spaces between large particles) = high/fast infiltration
    - Low infiltration = increased surface water = increased flooding

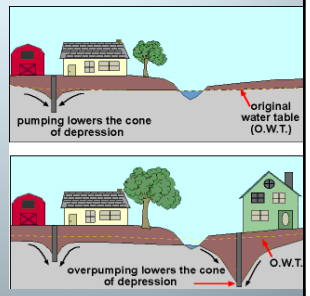
Aquifers: Wells

- **Wells-** pumps that bring water from an aquifer up to the surface
  - Artesian wells are naturally occurring wells
- Wells must be drilled/inserted into the aquifer (but not through it) in order to work



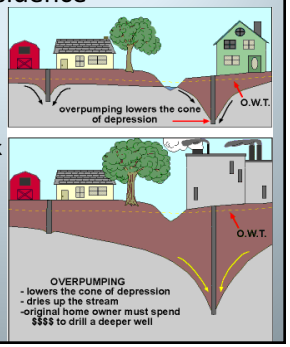
Ground Water Issues: Cone of Depression

- Water is removed from an aquifer faster than surface water can recharge it causing local ground water level to drop
- Main cause:
  - over-pumping of well water



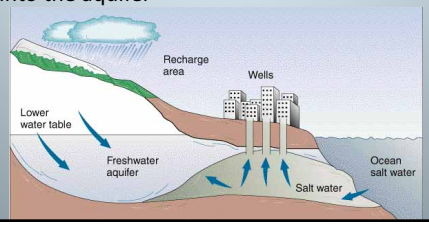
Ground Water Issues: Subsidence

- Too much water is removed from the aquifer and causes the ground above to collapse, forming a sink hole



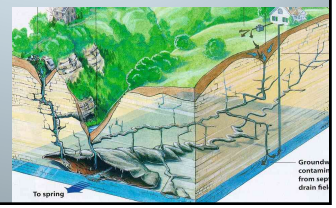
Ground Water Issues: Saltwater Intrusion

- Coastal aquifer is depleted and cannot recharge fast enough through the infiltration of surface water, then ocean water will seep into the aquifer



Karst Topography

- A landscape characterized by numerous caves, sinkholes, fissures, and underground streams
- Usually occurs in areas with plenty of rainfall with bedrock that easily dissolves, such as limestone



Karst Topography Video Clip

Copy each of the following, leaving space to answer them during the video clip:

1. Describe how water acts on Earth's surface to create caves.
2. Describe two processes that form sinkholes.
3. Describe three features of "karst topography."
4. Are karst water systems vulnerable to pollution? Why/why not?

Karst Topography Video Clip

http://www.pbslearningmedia.org/resource/ket09.sci.ess.structure.karst/karst-topography-and-mammoth-cave/