



Chapter 17 Opener
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Hydrology is the study of movements and characteristics of groundwater.

Where is the water ?

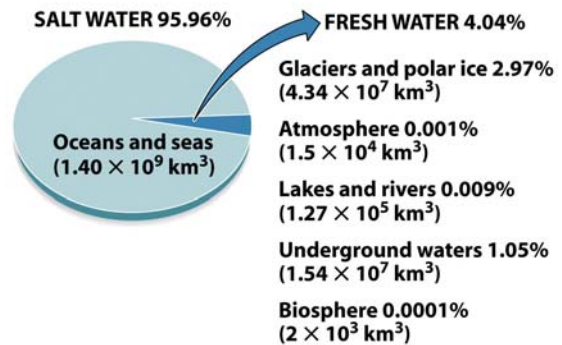
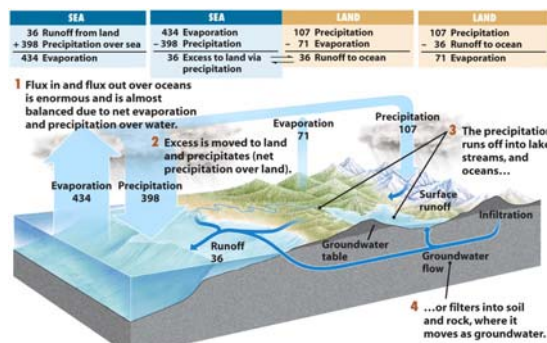


Figure 17-1



Terms: Precipitation, infiltration, runoff, evaporation, transpiration, and sublimation, groundwater flow

Hydrology and climate can be closely related.

Example: The rain shadow effect profoundly influences the climate of the western United States

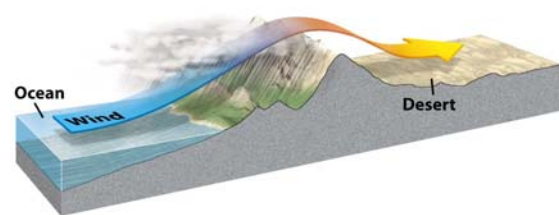


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Bodies of water from which U.S. precipitation is drawn: Pacific Ocean for western U.S. and Gulf of Mexico for eastern half of country.

Average annual precipitation

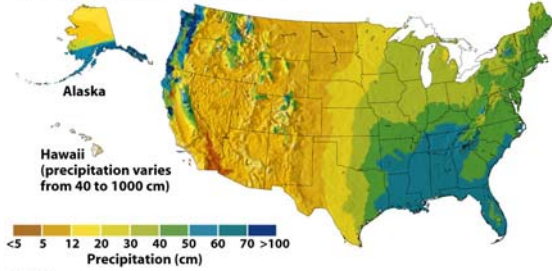
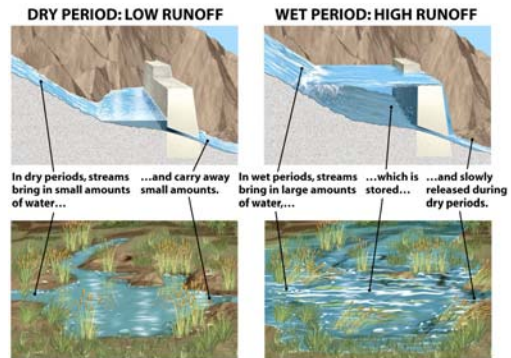


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Storage of surface waters – wetlands and dams



Groundwater

Groundwater flowing out of cliffs, Grand Canyon National Park.



Figure 17-6
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Porosity:

The amount of open space in various Materials

Permeability:

The ease with which fluids move through rocks.

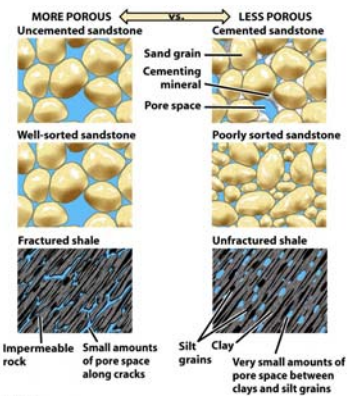


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Table 17.2 Porosity and Permeability of Aquifer Rock Types

Rock Type	Porosity (Pore Space That May Hold Fluid)	Permeability (Ability to Allow Fluids to Pass Through)
Gravel	Very high	Very high
Coarse- to medium-grained sand	High	High
Fine-grained sand and silt	Moderate	Moderate to low
Sandstone, moderately cemented	Moderate to low	Low
Fractured shale or metamorphic rocks	Low	Very low
Unfractured shale	Very low	Very low

Table 17.2
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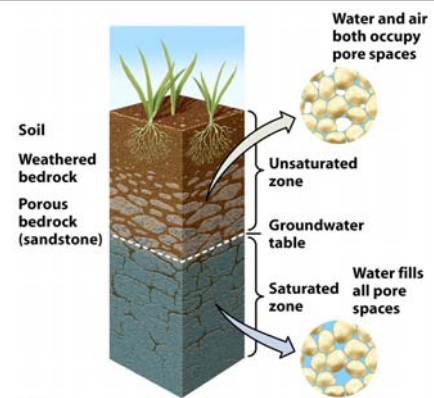


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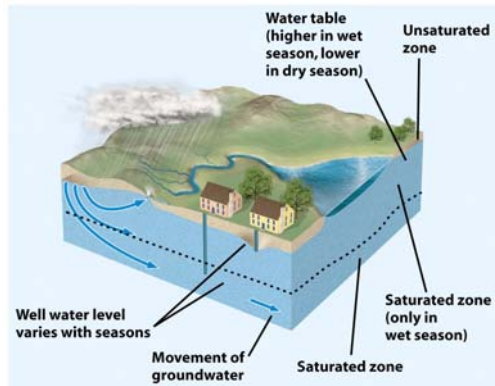


Figure 17-9 part 1
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Note that surface and ground water systems are **CONNECTED**

During wet periods, surface waters may contribute to groundwater. During dry periods, the converse may apply.

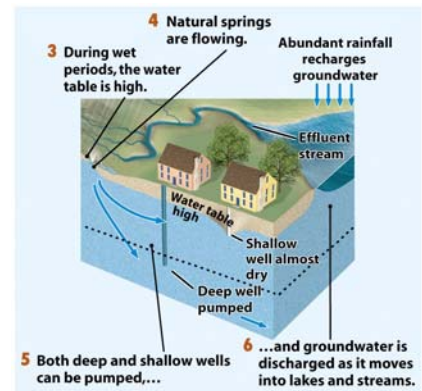
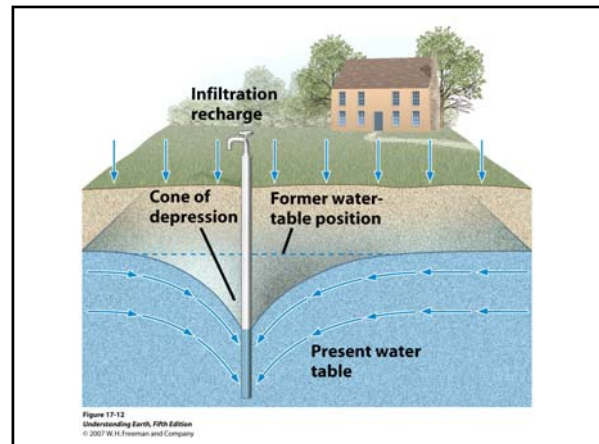
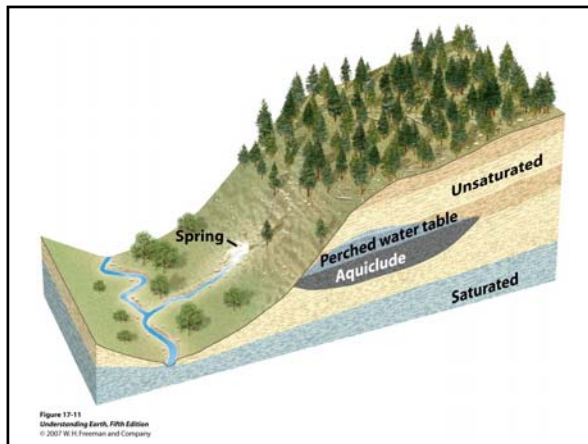
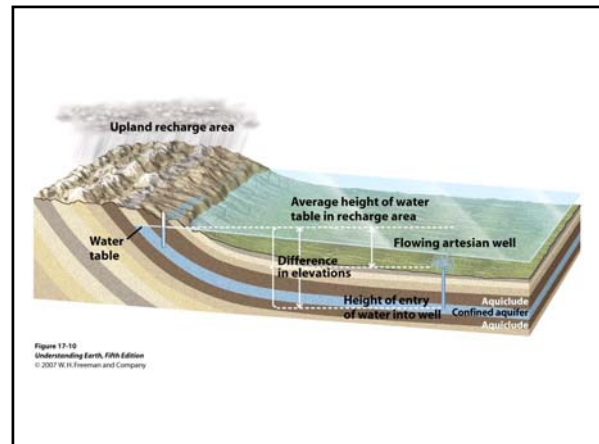
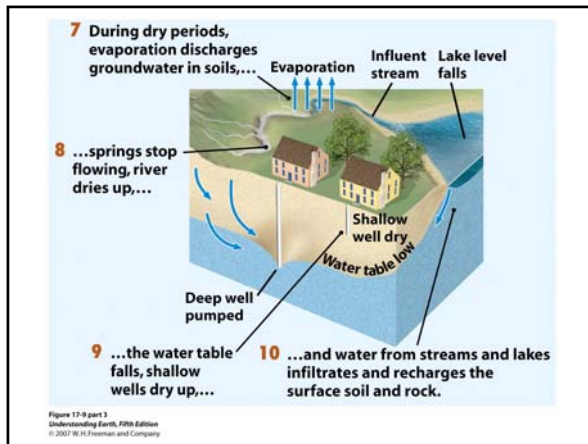
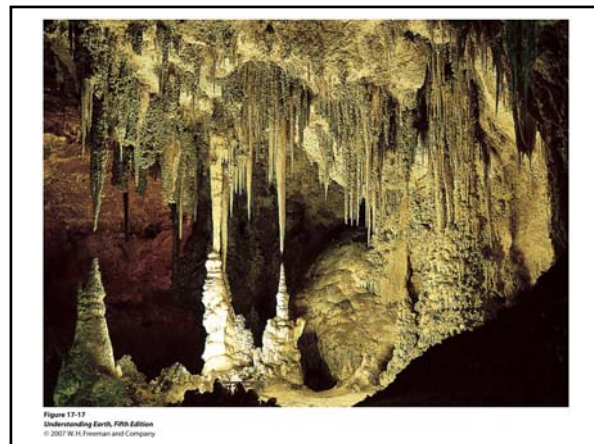
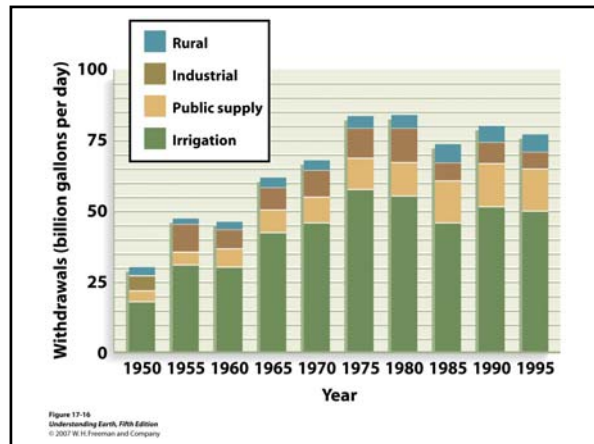
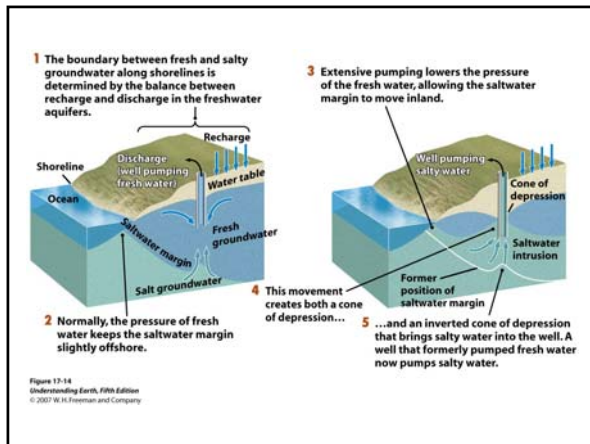


Figure 17-9 part 2
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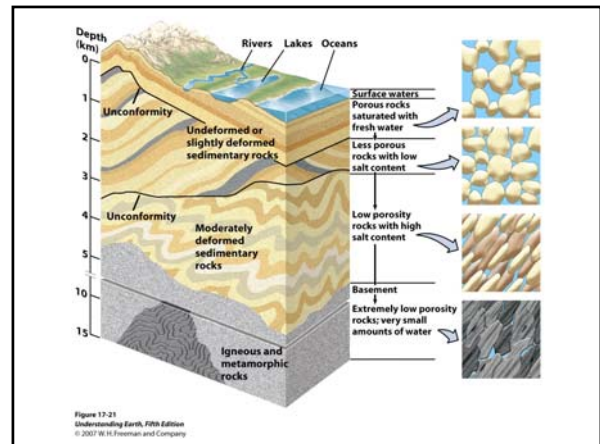
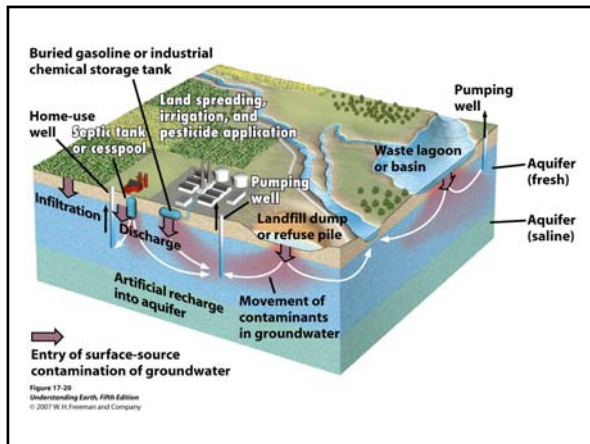
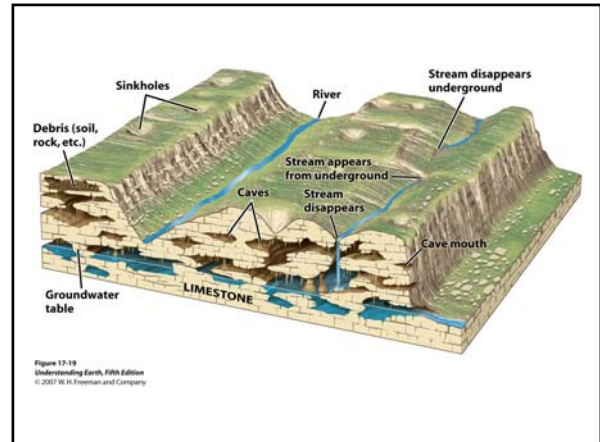




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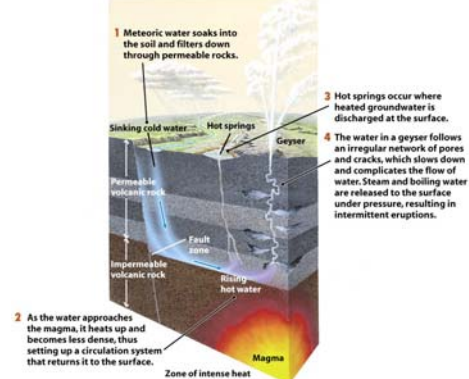


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