

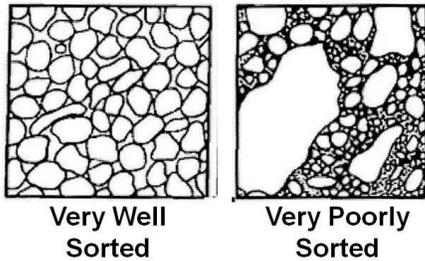
Chapter 14 Notes: Groundwater & Erosion

- Precipitation either becomes _____ that feeds streams and rivers OR it seeps down into the soil and becomes _____.
- **aquifer** – a body of rock through which large amounts of water can _____ and in which much water can be _____
- Properties that Affect Groundwater:

1. How much water can a type of rock hold?

- **porosity** – _____ of open spaces in rock or sediment
- Porosity is influenced by:

a. **sorting** – the amount of uniformity in the _____ of the particles



- When a sediment is well sorted, its particles are all about the same size → _____ POROSITY
- When a sediment is poorly sorted, it contains particles of many sizes → _____ POROSITY
- Why would sediment with different particle sizes lead to low porosity? _____

b. Whether the rock is loosely or tightly packed

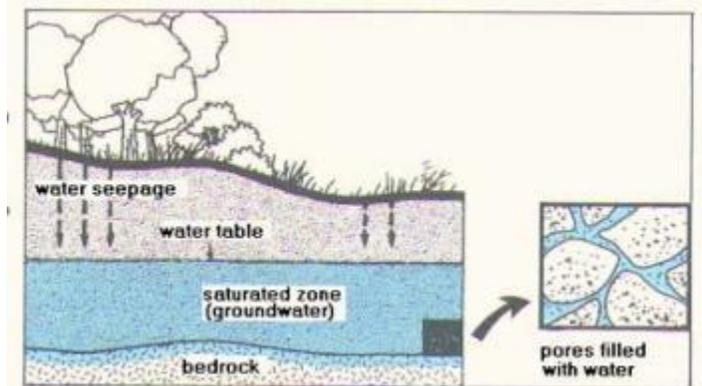
- Of the two (loose or tight), which do you think will lead to higher porosity? Why? _____

2. How freely can water pass through the rock?

- **permeability** – indicator for how freely water _____ through the open spaces within a rock or sediment
- Permeable rock = connected _____ spaces
- The larger and more consistently _____ the particles are, the more permeable the rock or sediment tends to be.
- Example: _____ is very permeable
- _____ is **impermeable**, which means water cannot flow through it

- Groundwater Zones:

Gravity pulls water down through soil and rock until it reaches an impermeable layer. Water then begins to fill, or saturate, the spaces in the rock to create the **zone of saturation**. The upper surface of the zone of saturation is known as the _____ **table**.



- If groundwater is affected by gravity, where do you think the best location would be to find an aquifer?
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- The water table is found at different depths depending on the _____ of the land, the permeability of the rock, and the _____ of rainfall the area receives.
 - Two common ways groundwater is brought to earth's surface are by a:
 1. **well** – a hole dug _____ the water table that fills with groundwater
 2. **spring** – a _____ flow of groundwater that is found where the ground dips below the water table
 - Other well/spring features:
 - **artesian** wells and springs have water that comes from far away. The water at these wells and springs flows freely without _____.
 - These artesian springs are usually responsible for “_____ oasis”
 - **hot springs** – groundwater that has been _____ as it passes near areas of recent volcanic activity or near pockets of molten rock
 - These springs contain large concentrations of _____ minerals that accumulate around the hot spring as the water cools
 - Example: travertine
 - Hot springs that erupt periodically are called **geysers**.
 - When the rock surrounding a hot spring is chemically weathered by volcanic gases dissolved within the water, the weathered rock will mix with the hot water to form sticky, liquid _____ that bubbles at the surface known as a **mud pot**.
 - As groundwater passes through permeable rock, it dissolves minerals in the rock. If it contains a large amount of dissolved minerals (especially calcium, magnesium, and iron) it is said to be _____ **water**. If it has few dissolved minerals it is said to be **soft water**.
 - Why would it be beneficial to have soft water over hard water?
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- Results of weathering by groundwater:
 - Caverns
 - When water containing dissolved _____ drips from the ceiling it forms suspended, cone-shaped deposits called **stalactites**. The drops that fall on the _____ of the cavern build upwards in a similar fashion to form **stalagmites**.
 - **Sinkholes** – a circular depression caused when the _____ of a cavern collapses
 - **Karst topography** – regions where the effects of chemical weathering due to groundwater are clearly visible at the surface (usually found in humid climates)