Name:

Period: Date:

2.3.2a Water Cycle, Surface Water, and Ground Water

**The Water Cycle**

Water is EVERYWHERE

◆ About \_\_\_\_\_\_\_\_\_\_\_ is in the oceans

◆ About \_\_\_\_\_\_\_\_\_\_\_ is in glaciers and ice sheets

◆ About \_\_\_\_\_\_\_\_\_\_\_ is freshwater in lakes, streams, groundwater, and the atmosphere

◆ Water constantly moves among the \_\_\_\_\_\_\_\_\_\_\_ , the \_\_\_\_\_\_\_\_\_\_\_ , the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ , and the \_\_\_\_\_\_\_\_\_\_\_ . This unending circulation of Earth’s water supply is the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ 

**How much of our planet is freshwater?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Water Beneath the Surface**

**Distribution and Movement of Water Underground**

◆ Much of the water in soil seeps \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ until it reaches the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

◆ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the area where water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ spaces in sediment and rock.

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the water within this zone.

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the upper level of the saturation zone of groundwater.

◆ Movement

• Groundwater moves by twisting and turning through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• The groundwater moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when the pore spaces are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

◆ Movement- depends on 2 factors

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of pore spaces

- Determines \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ groundwater can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

• \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water through connected pore spaces

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are permeable rock layers or sediments that transmit groundwater \_\_\_\_\_\_\_\_\_\_

*Based on the figure:* **What is the difference between the zone of saturation and the zone of aeration?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

****

**Why is the well labeled A a successful well whereas the well labeled B is unsuccessful?**

A

B

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Aquifers**

* An aquifer is soil and/or rock through which water can easily .
* is stored in aquifers
* Types of Aquifers
	+ aquifer
		- Has **no** barrier between its top layer and the of the ground
		- Water level rises and drops in response to infiltrating directly above
	+ aquifer
		- Sandwiched between two largely layers (clay, shale, etc)
		- Recharges more slowly due to limited number of places through which rainfall can enter

Aquifers of NC

* Coastal Plains:
* Piedmont and Mountains:

**END OF PART I**

Remember: A drop of water can either infiltrate into the ground (groundwater) or runoff the surface into a river or stream

Groundwater and surface water have a relationship, regularly feeding each other. Most streams and rivers get about their volume from groundwater.

**Floods**

* During a flood, surplus water helps recharge groundwater.
* A **flood** occurs when the discharge of a stream becomes so that it exceeds the capacity of its channel and its banks.
* What are some things that cause flooding?
	+
	+
* There are several methods used to help prevent flooding:
	+
	+
	+

**Drainage Basins**

* A drainage basin is the that contributes water to a stream.
* A is an imaginary line that separates the drainage basins of one stream from another.
* Drainage System
	+ formed by streams, rivers, and lakes
	+ Depends on
		- Topography of the land ( \_\_\_\_\_\_\_\_\_\_\_\_ )
		- Hard or soft rocks
		- Gradient of the land (how \_\_\_\_\_\_\_\_\_\_\_ it is)
	+ Divided from each other by topographic barriers ( / points) called a watershed

**Rivers**

* Flow of a river or stream is due to .
* Velocity of a river is due to the geology of the
	+ How steep, how narrow, much water, etc
* Discharge (volume rate of water flow; or how much water is passing by) is measured by:
	+ x x