



Groundwater Introduction

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Groundwater

+ Groundwater is fresh water
found underground

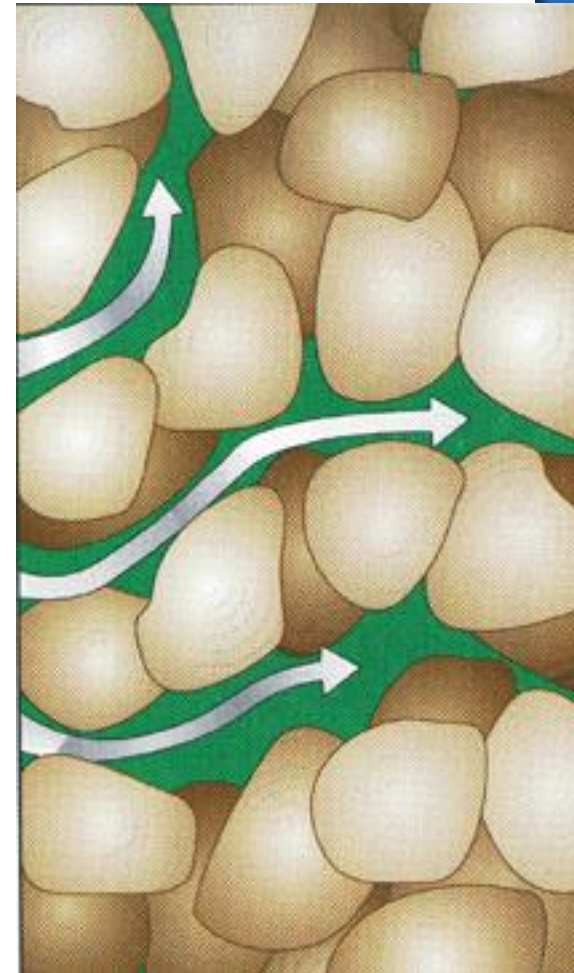
NOT an underground lake

Water is stored in air spaces between rocks underground, like a sponge



How does it get there?

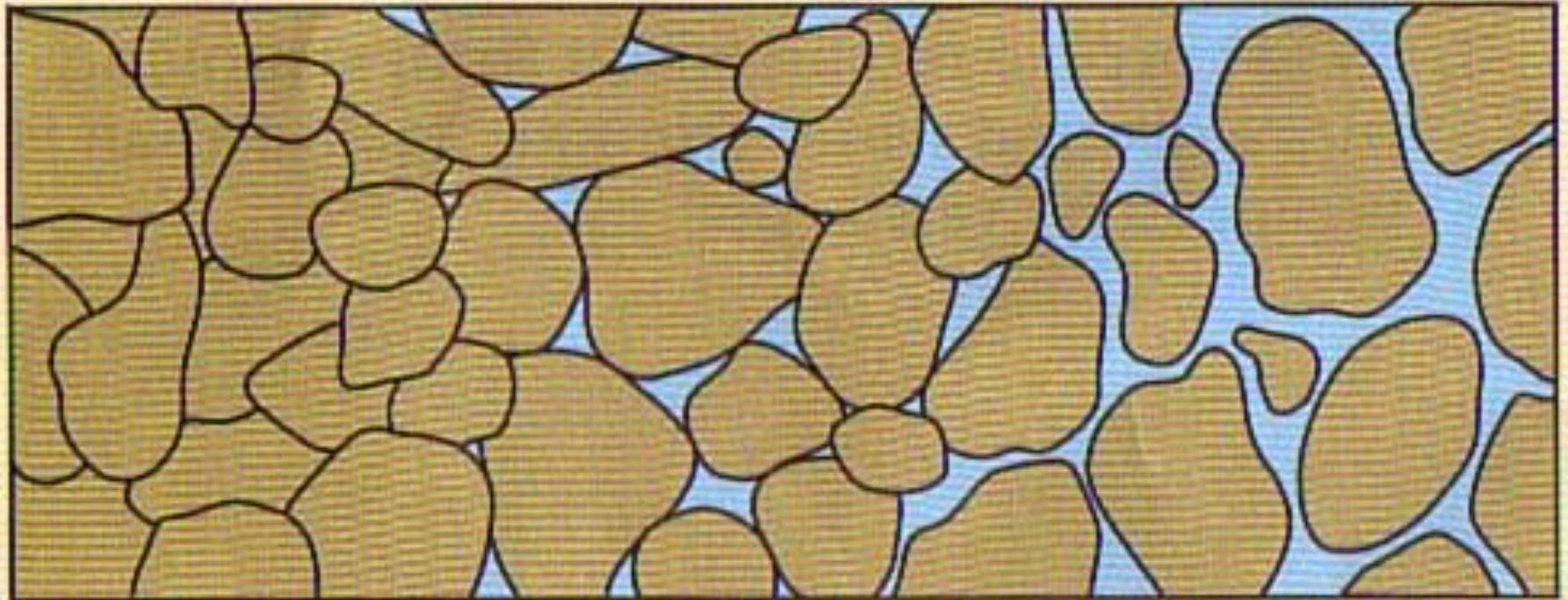
- + If water can move through a rock, it is called **permeable**.
- + **Permeable** rock will have air spaces, or **pores**.
- + If water can't pass through, the rock is **impermeable**



no
pore spaces

unconnected
pore spaces

connected
pore spaces



non-porous
non-permeable

porous
non-permeable

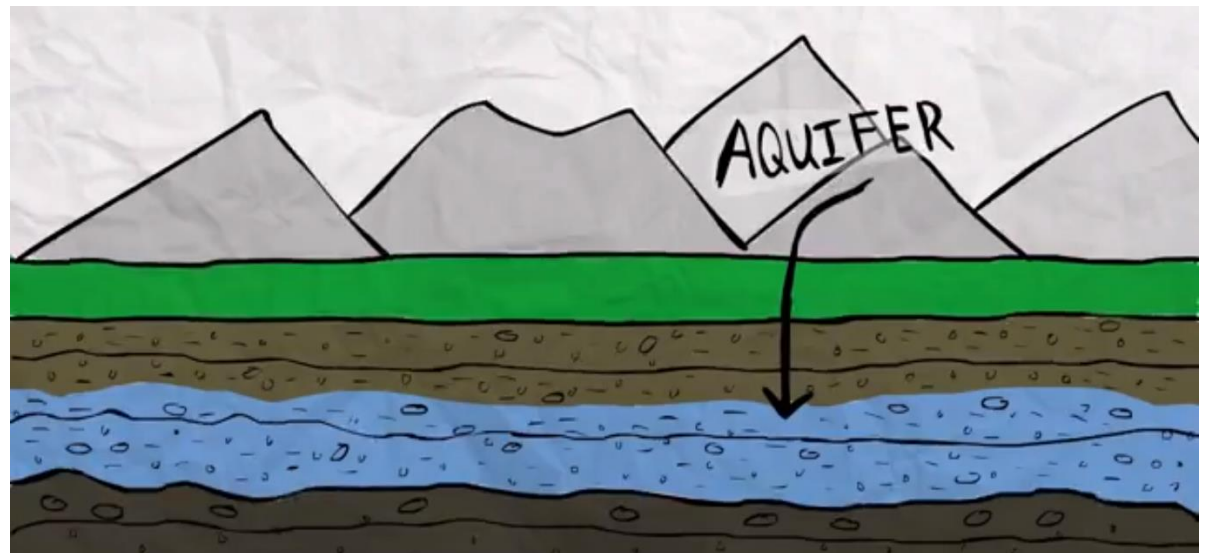
porous
permeable

Determine if the following are permeable or impermeable surfaces.

1. Screen Door
2. Soil
3. A cup
4. A piece of paper
5. Concrete
6. A waterproof jacket

Aquifer

+ Permeable rock underground that holds water is called an **Aquifer**.



Aquitard

- + **Impermeable** rock layer that water cannot pass through are called **Aquitards**.
- + **Aquitards** hold up Aquifers above

Transpiration
by vegetation



Water table

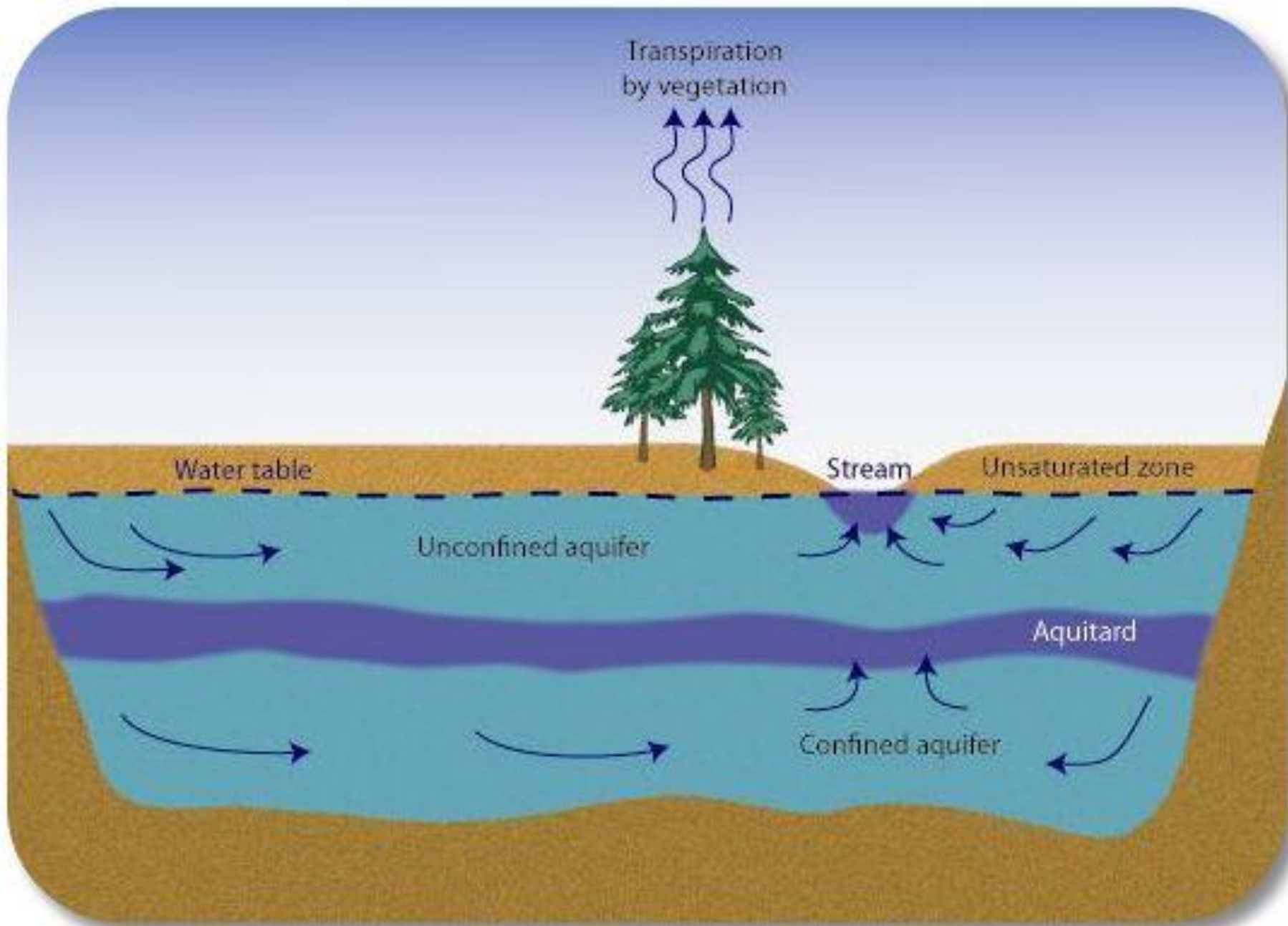
Stream

Unsaturated zone

Unconfined aquifer

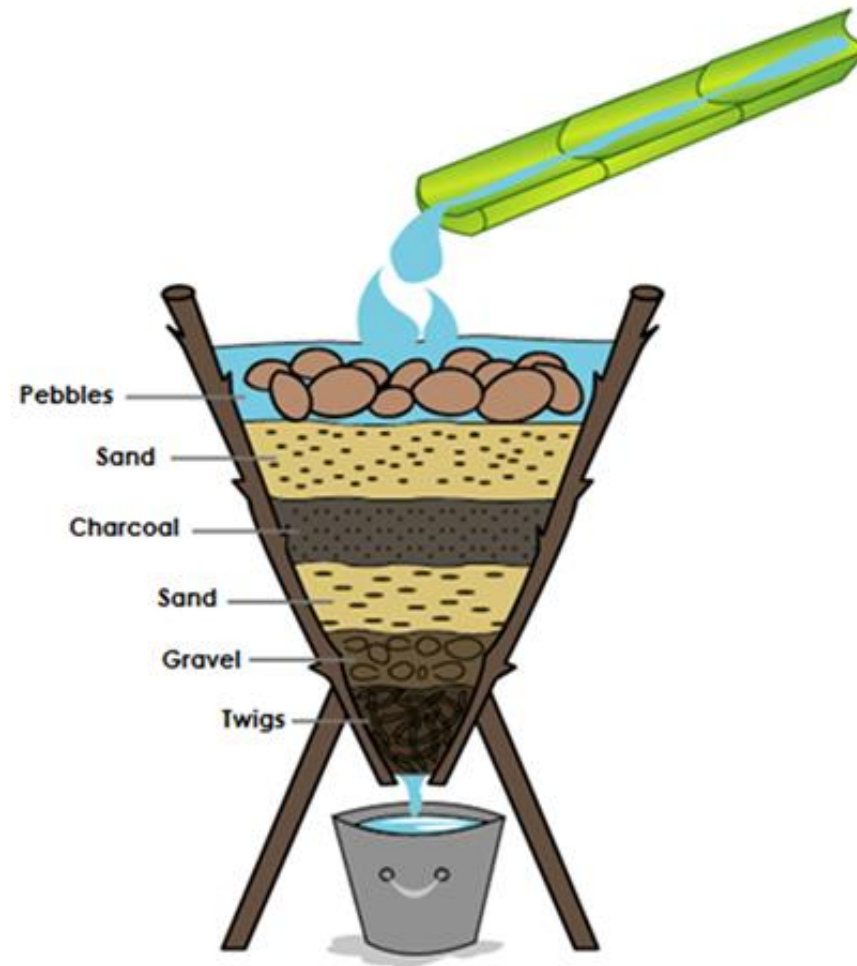
Aquitard

Confined aquifer



Aquifers are Natural Filters

- + Groundwater in an aquifer is really **clean**
- + As water moves through the ground, dirt and contaminants get **filtered** out.



Saturated vs. Unsaturated

- + **Saturated:** Ground filled with water
- + **Unsaturated:** Ground not filled with water



Saturated

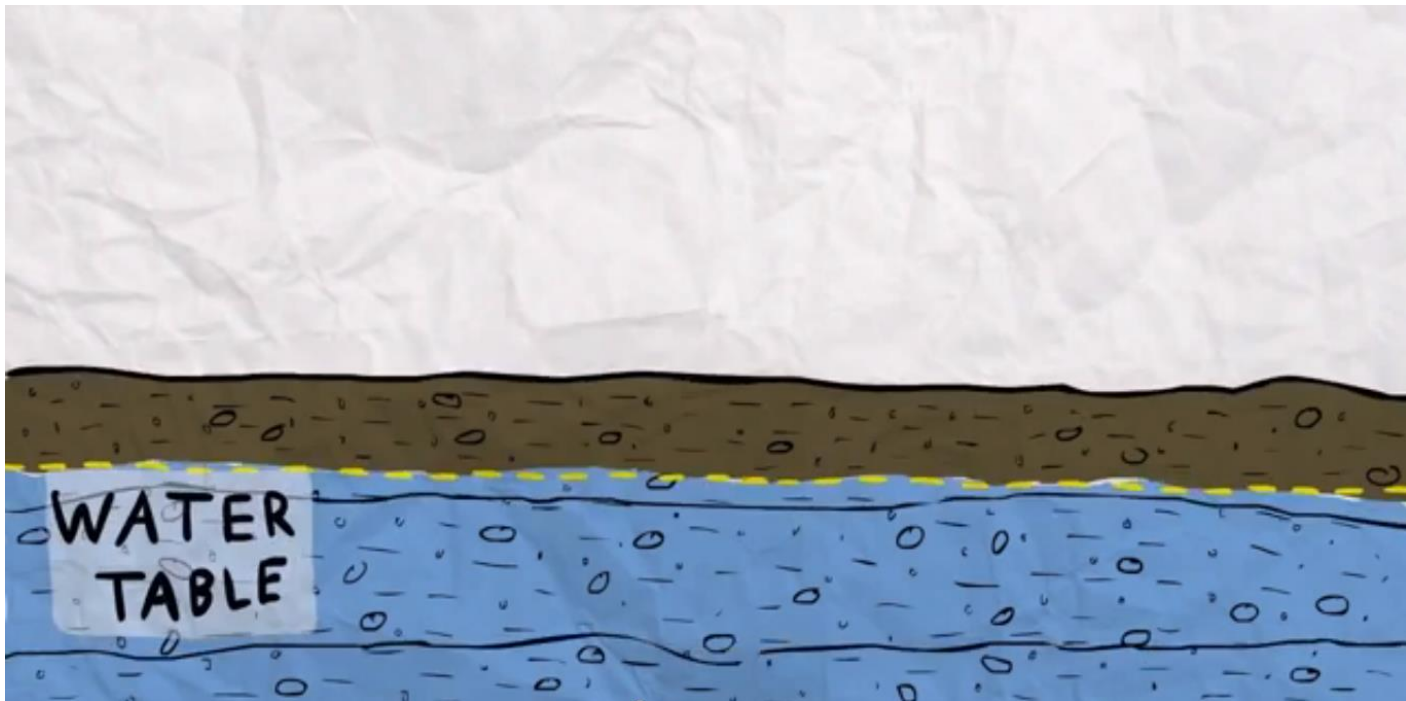


Unsaturated



How much water can the ground hold?

+ The water level underground is called the **water table**



The water table can change

Water Table rises or **recharges** with...

- + Heavy Rain

- + No water is removed for a long time

Water Table lowers with...

- + Drought

- + Humans removing water using a well

Heavily pumped well



Ground surface



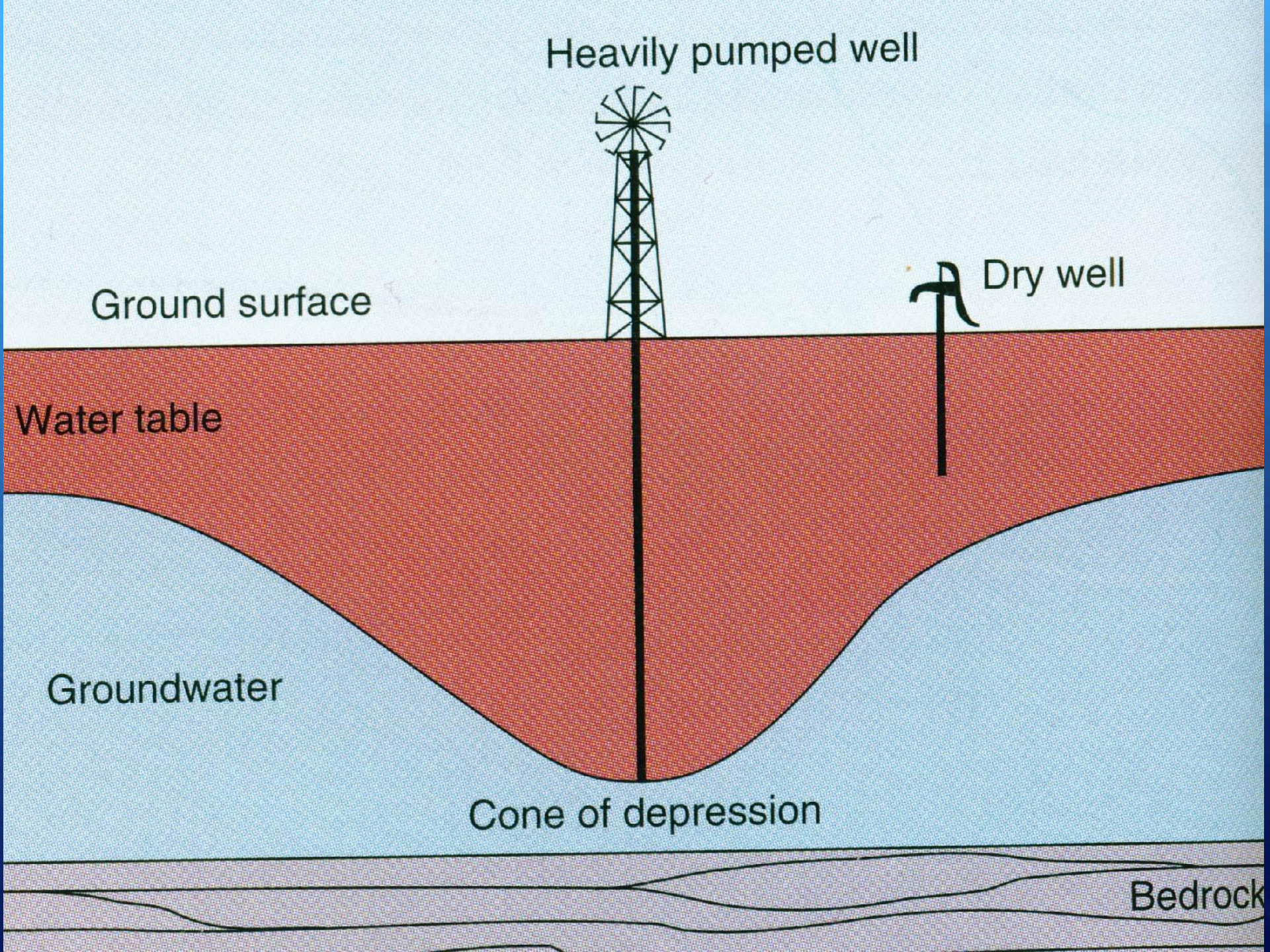
Dry well

Water table

Groundwater

Cone of depression

Bedrock



How do humans remove groundwater?

+Wells can be drilled into an aquifer to remove water using a pump

