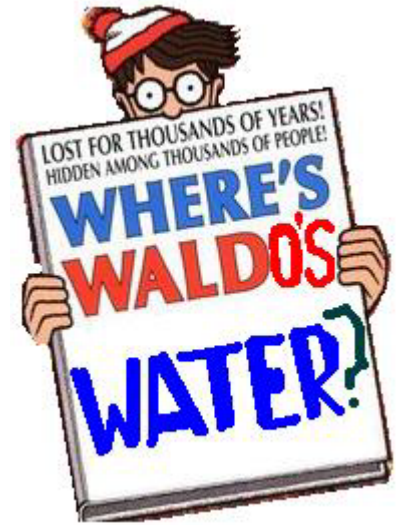


Using the poster "*Groundwater and Land Use in the Water Cycle*," answer the following questions.



- 1) What do clear arrows mean? _____
- 2) What do red/shaded arrows mean? _____
- 3) What do dotted arrows mean? _____
- 4) What direction does the groundwater flow first? _____
- 5) What direction does the groundwater flow second? _____
- 6) What force deep in the Earth pulls water down? _____
- 7) If an arrow points up to the sky, what does that show?

- 8) Find the patch of trees. Look at the transpiration arrow. What does transpiration mean?

- 9) Look at the lake. What does evaporation mean?

- 10) What force of nature gives water the heat energy needed to evaporate? _____
- 11) There are 5 runoff arrows. Find them. How does runoff water move? _____
- 12) Find infiltration arrows. Based on this picture, what does infiltration mean?

- 13) How many different aquifers are in this picture? _____
- 14) Is there water in the sand and gravel aquifer? If so, where is it?

- 15) Is there water in the limestone aquifer? If so, where is it?

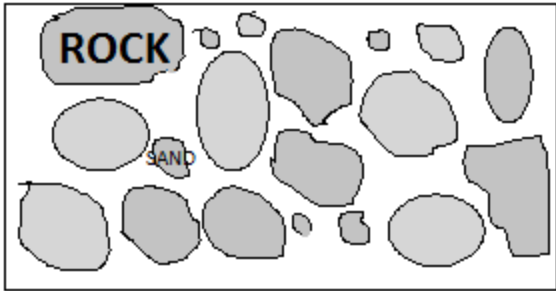
- 16) Is there water in the porous sandstone aquifer? If so, where is it?

17) Find the 1st of the 4 layers of Earth. What is it called?_____

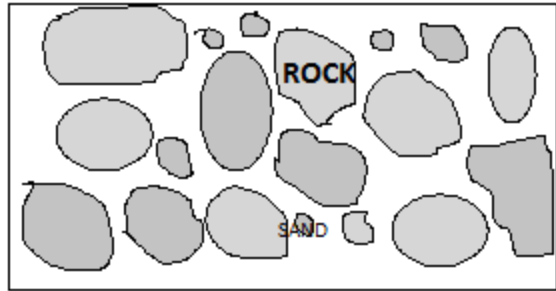
INFORMATION:
To aerate means to "expose to the action of air"
To saturate means to "fill with water"

18) Label the gaps between the solids in this picture (2pts)

**zoomed view of
the zone of aeration**



**zoomed view of
the zone of saturation**



19) If you could shovel down to the zone of saturation, what would the dirt/rocks/sand be like?

20) How does water get to the zone of saturation?

21) Find all 3 wells. What is the well farthest left used for? _____

22) What is the middle well used for? _____

23) What is the well farthest right used for? _____

24) Look at the red/shaded arrows that show human impacts. Starting on the far left side of the picture look at the septic system arrow. What substances might a malfunctioning septic system add to groundwater?

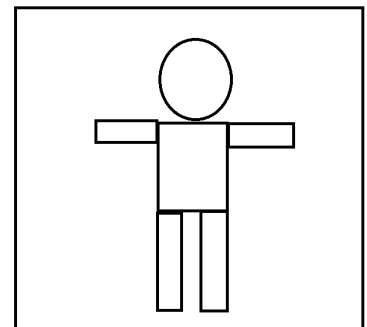
25) Find the second red/shaded arrow labeled livestock waste storage pit. What wastes from livestock might be seeping into the groundwater?

26) Find the third red/shaded arrow from the left labeled infiltration. What from the farmer's field might be infiltrating into the groundwater?

- 27) Find the fifth and sixth red/shaded arrow near the edge of the road. What might be washing off the surface of the road and seeping into the groundwater?
-
- 28) Find the seventh red/shaded arrow. Go to the large poster on the wall to find out what is stored in this underground storage tank. What would seep into the groundwater if this tank is leaking?
-
- 29) Find the eighth red/shaded arrow. What is a sanitary landfill and what types of substances might seep into the groundwater at this location?
-
- 30) If a truck carrying chemicals overturned and a chemical pollutant spilled near the abandoned mine shaft at the far right of the poster, where might it end up? (There are lots of possibilities!)
-

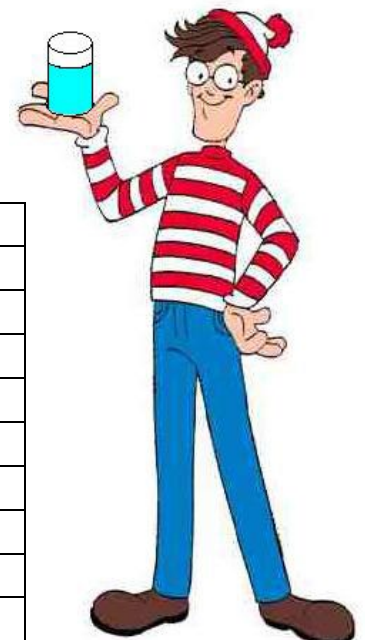
DO THIS:

31) Cup your hands over your mouth and breathe rapidly. Feel your hands afterward. (It is NOT spit) Water is leaving your body as you breathe out. When your body breaks down food it makes extra water and gives it to your lungs to get rid of it. This is a waste product of RESPIRATION. It is part of the water cycle, but it is not in Waldo's picture. Add dashes to this picture to show **respiration**.



32) Besides respiration, how else does your body get rid of water? (HINT: both answers end with "ation." (2pts) _____ and _____

33) Is there any place on this poster where water is NOT found? Explain.



MATCHING:

34)	Transpiration	A) watering crops
35)	Evaporation	B) Earth material that holds water
36)	Precipitation	C) water entering the air through plant leaves
37)	Infiltration	D) layer of earth that's soaked with water
38)	Zone of Saturation	E) water that falls from the sky
39)	Aquifer	F) water vapor breathed out from an animal
40)	Urination	G) water molecules to fly up into the air
41)	Respiration	H) seeping into the earth
42)	Irrigation	I) liquid water that leaves an animal-pee
43)	Perspiration	J) liquid water that leaves an animal-sweat