

Sample of a Student's Notebook for

EDC Earth Science
Chapter 2 (through Activity 2)



9/7

13

Hydrosphere

Brainstorming

how involved in

weather

rains

recycles water

reclamer

water cycle

temperature

humidity

Photosynthesis

hydrated

water cycle

plants creating

"Self energy"

water cycle

rock cycle

compress dead

into limestone

which filter

to reclaim

erosion

Unique: what makes water unique

Only thing can be 3 stages matter • high heat capacity

Only thing 1 oxygen, 2 Hydrogen • critical to Earth living

expands when frozen (why?) • freeze bottom up

clear/transparent • no taste

naturally found in 3 stages • dissolve + transport substances

liquid... large amounts on Earth 70%

Living things made of water

70% of Earth is covered by water

How can it get scarce?

most of water = salt • 1% = fresh • polluted

* sun blows up

p. 15-17

#1, 2

What's the Story?

- 1) Texas/South • Some areas Abnormally dry
- 2) Sections are still dry • not so dry, and it moved west

14

Evidence is
essential

#2

+ trends = patterns in data
When, Then ... statement and evidence
Evidence = facts, data, observation, things
currently happening/collected

When looking at drought maps from
2008 to 2011, the drought moves South
to southeast and is increasing in intensity.
For Ex. 2008 drought was in west at
D1-3. In 2011 drought moved South to Texas,
Oklahoma, and New Mexico with D4 conditions.

88, 1962 } Class average Waterfoot Print = 2092
95, 1964 } US average = 2200

9/8/16

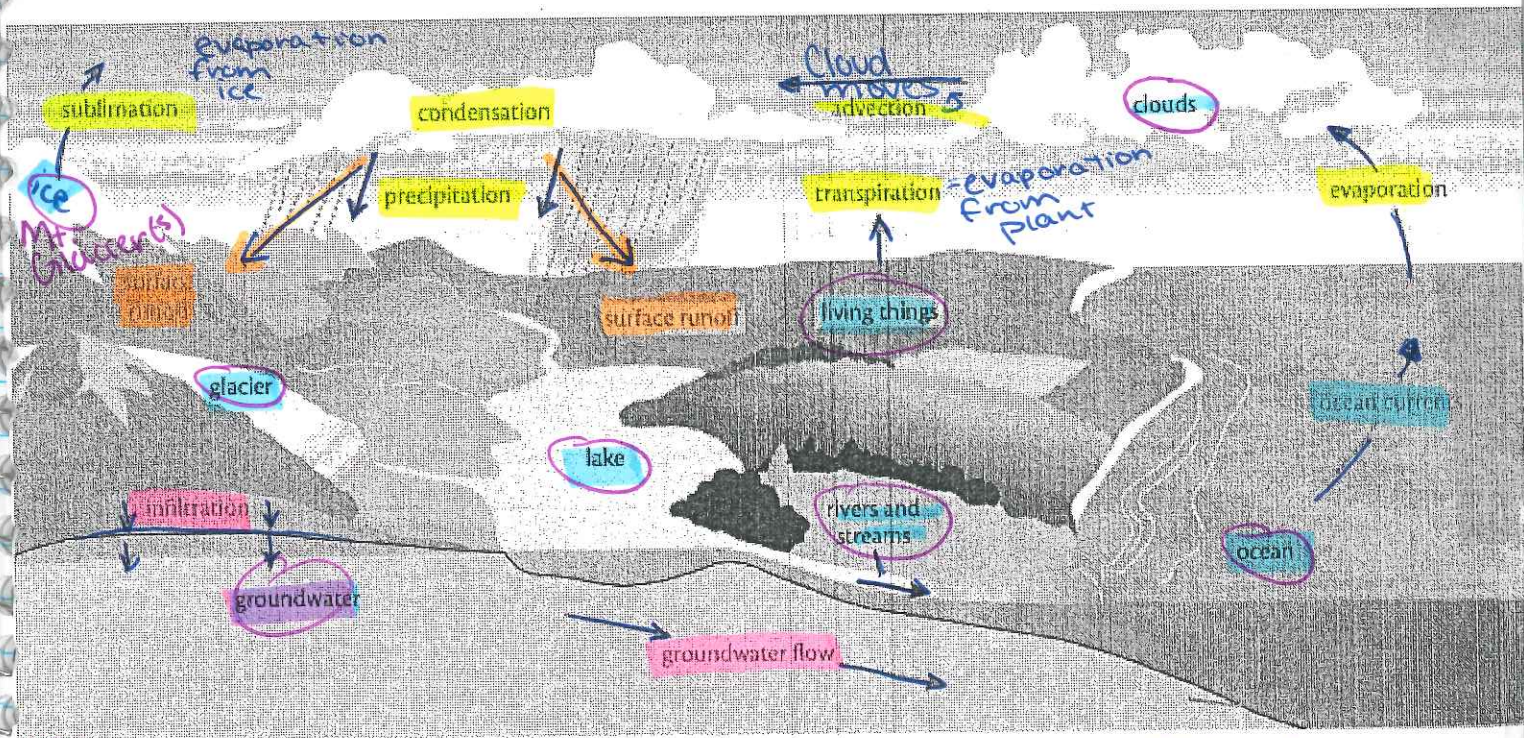
Analysis
~~Area~~ Questions 2, 4, 5, 8 (p. 22-23)

- 2) ~~eat~~ eat/drink more, the rice can also
make own food with photosynthesis, the cows
are also kept clean. They eat food that needs
water ↑ cleaning when slaughtered
- 4) The west uses a lot of water because
they are doing a lot of farming (1/2 countries
produce)
- 5) They have more land/have larger populations
they are also highly traveled areas.
All three are also warmer states so water at the
locations evaporates leaving them with nothing
to hydrate (naturally)

8) When looking at water usage maps from various regions, most water is used for agricultural in countries near the equator/where it's warmer. For example, all (but Europe and North America) countries, ~~have~~ ^{have} used more than 50% of their water for agriculture.

- wealthy countries use more for industrial, and not so wealthy countries use more for agriculture

For Ex. 'Merica uses 40-45% water for industrial, and Africa uses 85% for agriculture



① sitting/loosely of

human
... animals

9/9

16

A Molecule's Journey

Through the Water Cycle

① travel: how water moves location
② reservoir: "storage spot"

To go with Activity 1—"Reservoir Roulette"

YOUR SCENARIO STARTING POINT

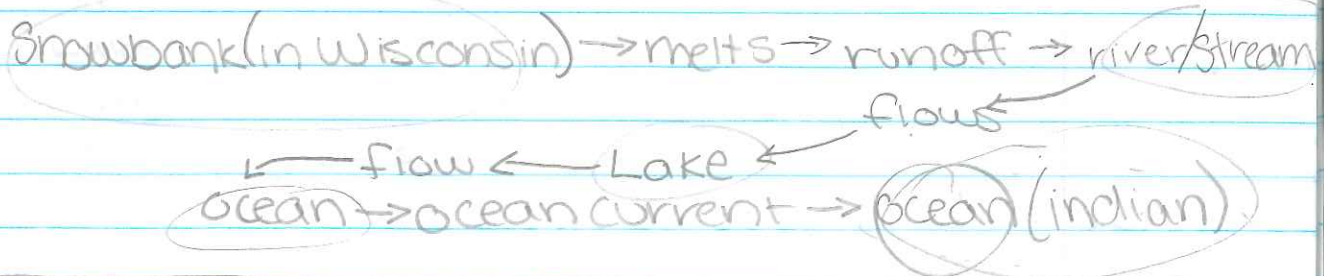
Snow bank in Wisconsin

YOUR SCENARIO ENDING POINT

Indian ocean

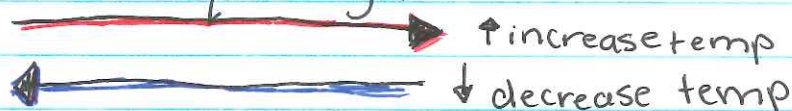
You may use each Reservoir and Travel Card as many times as you need.

DESTINATION RESERVOIR	Use information from the Reservoir and Travel Cards to describe in your own words what happens to your H ₂ O as it travels to its destination reservoir.
SPIN #1 River or Stream	melts, run-off → river/stream
SPIN #2 Lake	Streams → lakes
SPIN #3 Ocean	lake → flow to ocean
SPIN #4 Ocean	Current to India Ocean



9/12 Hydrosphere / Water Cycle

Solid → liquid → gas



travel

where water's coming from

liquid → gas

① evaporation: (body of water)

② transpiration: plant

③ respiration: ex. human breathing

gas → liquid

④ condensation: water vapor to liquid

* cloud is created when condensation happens in air

Solid → Gas

⑤ Sublimation: ice

Air

⑥ Advection: wind moves a cloud

⑦ Precipitation: liquid falling from cloud

⑧ Surface Runoff: water moving on surface

⑨ Infiltration: water fills in spaces in ground

⑩ Groundwater flow: water moving underground

⑪ Ocean currents: water moving in body of water

⑫ Consumption: living thing taking in water

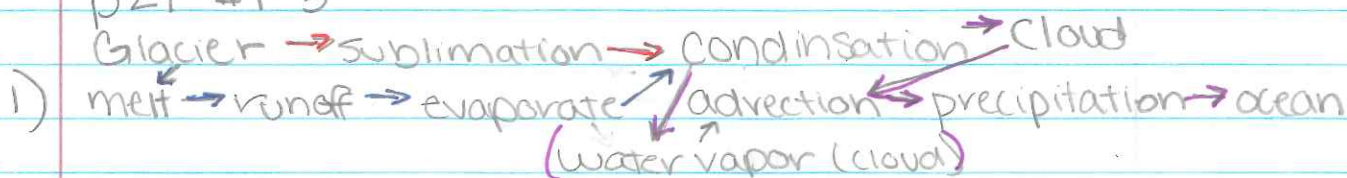
⑬ excretion: urination

living things
Surface
Underground

Reservoirs: storage spots (places)

- ① Lake
- ② Rivers
- ③ mountain glaciers
- ④ Polar ice
- ⑤ clouds
- ⑥ Living things
- ⑦ ~~Ground~~ Ground water
- ⑧ ocean

p27 #1-3



Mt. Glacier, clouds, ocean

2) Lake, Rivers, Mt. Glacier, Polar ice, clouds, living things, ground water

3) pollution, people, dirt, contamination

100ml water

50g sand

LAB!

A What could you change?

B How could you measure the results?

A slope of tray method precipit Consistency
 amount of water intensity
 length of tray dampness of sand
 amount + location of sand

B Weight of sand - sift 1st
 slope + sand = total

26

9/19

Hydrosphere: watersheds

A reading
T. p.28

2.5% freshwater
0.07% of — is accessible for use

To

YO

YO

You

p.29

Watershed: water flowing over land surface from divide: boundary between watershed

Surface water
lakes
streams
rivers
etc.

Communities use surface water...
Create dams → reservoir of water

DE
RE
SP

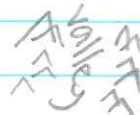
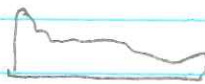
Depends on:
precipitation • size of watershed • season • climate

SPI

PROCEDURE

Drawing #1

where think
it's going to
go



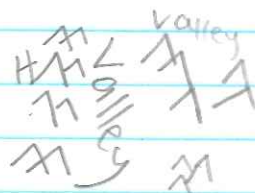
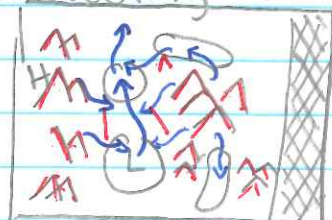
SPI

decline/slope
down with
a watershed

H=Highest L=lowest
M=Mt O=valley

SPII

Drawing #2

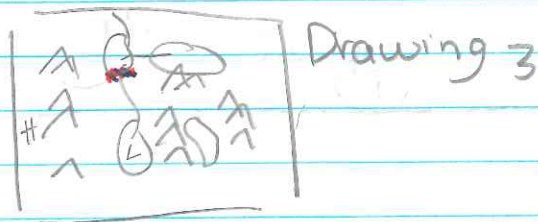


9/26

27

Hydrosphere Watersheds

It agrees with part. It flows down the back half of the 'drawing' / slope

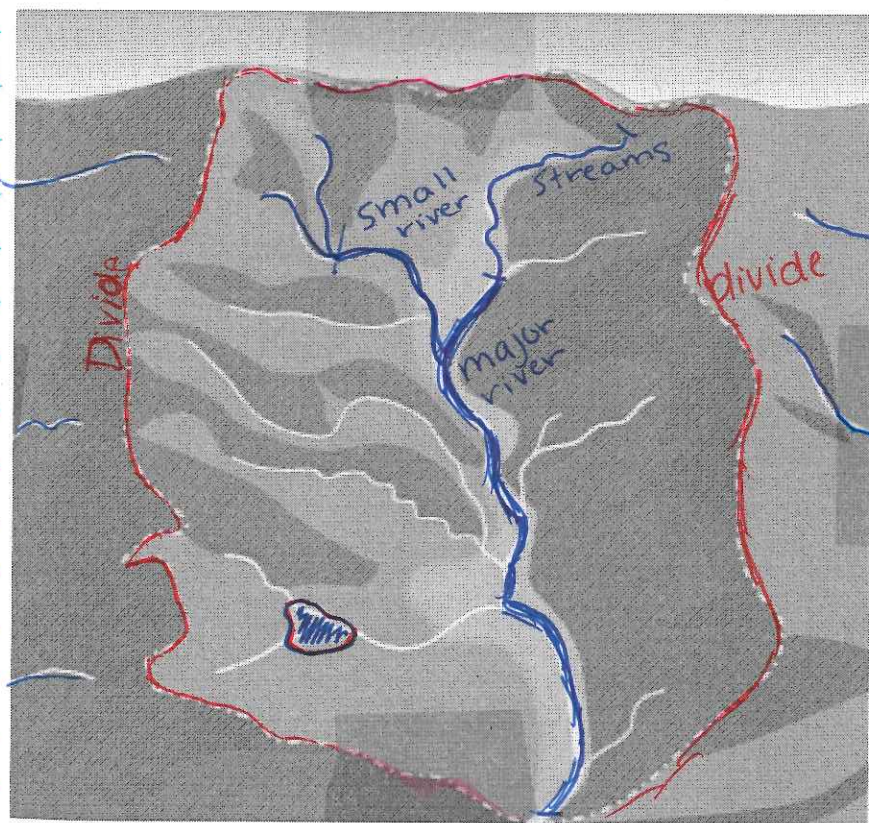


- a. 1 + moat around edge
- b. 2 + off of mt. - many
- c. higher elevation
- d.

Watershed

- 1) surface water
- 2) streams, rivers, lakes, ocean

Another watershed

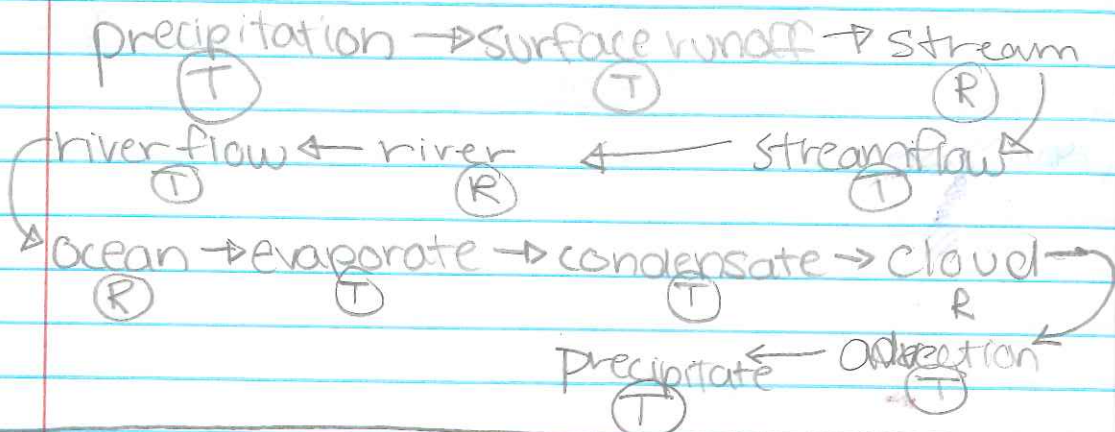


Another watershed

ocean

ocean

28



9/21

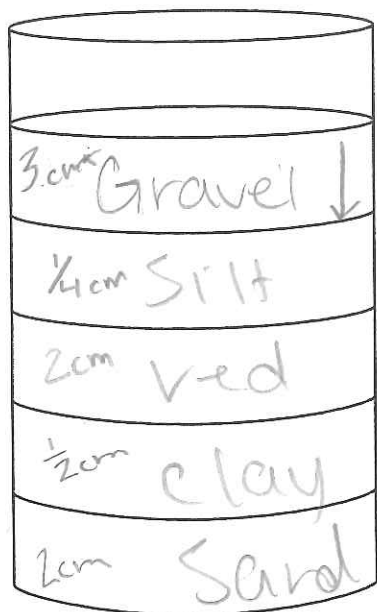
Groundwater

- no silt/clay on top
- no silt/clay above gravel

29

Predictions (Steps 5 & 6)

Drawing #1: Light Rain 20mL



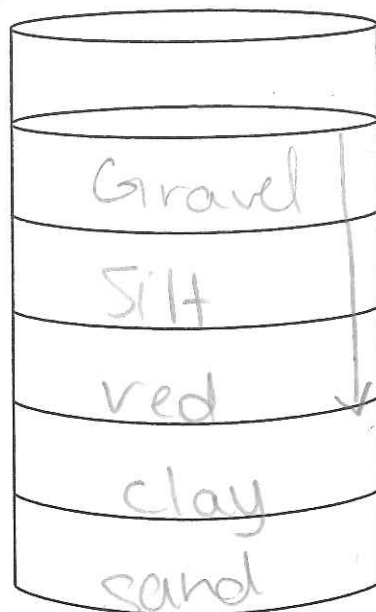
Silt
clay
gravel
Sand
red Sand

order

Gravel
Silt
red
clay
Sand

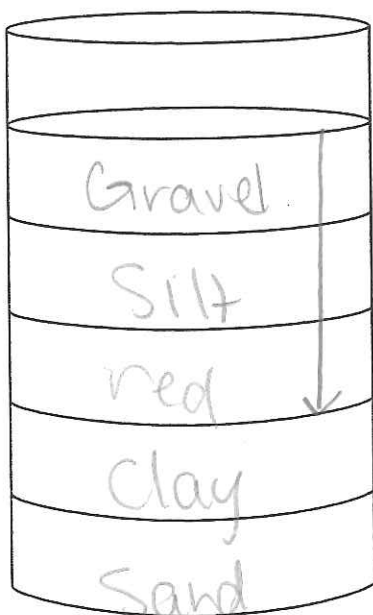
keep adding till
lake at top

Drawing #2: Heavy Rain



Observations (Steps 7 & 8)

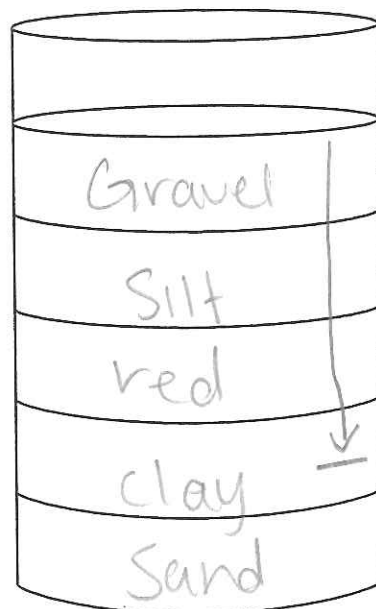
Drawing #3: Light Rain

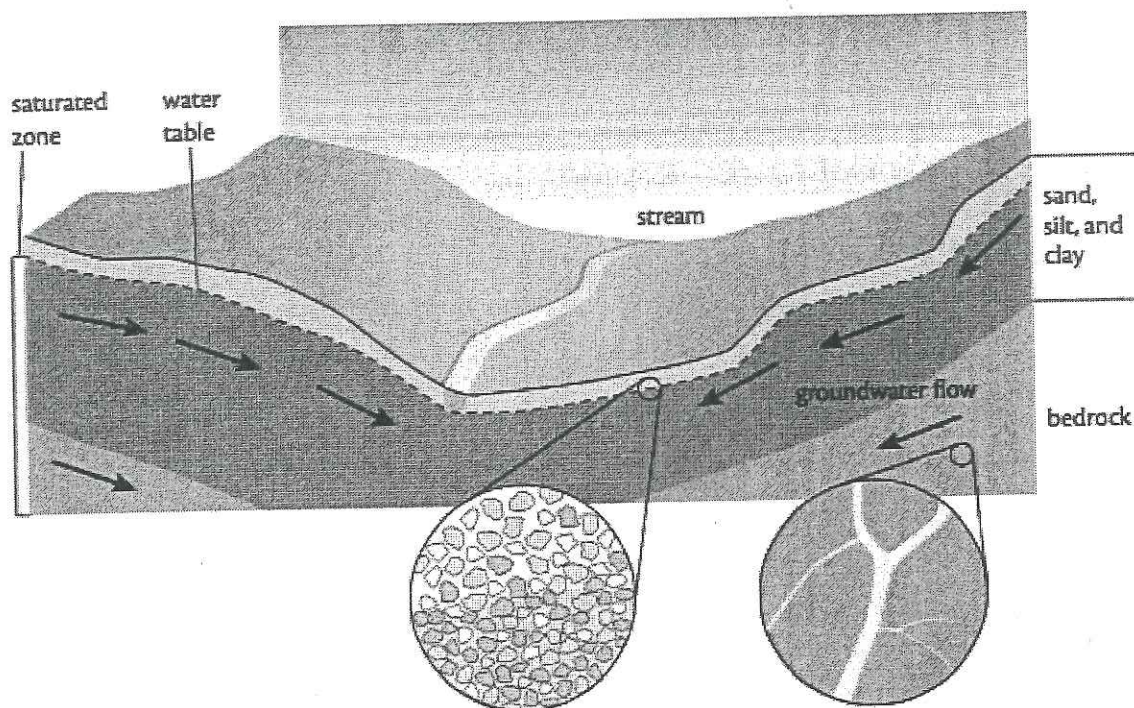


Record

Drawing #4: Heavy Rain

3mL





Aquifer: loose earth material/cracks which water can easily move through

Porosity: Amount of space available to hold water

Permeability: measure of the ability of a material to let water pass through

Saturated Zone: water filled material and rock

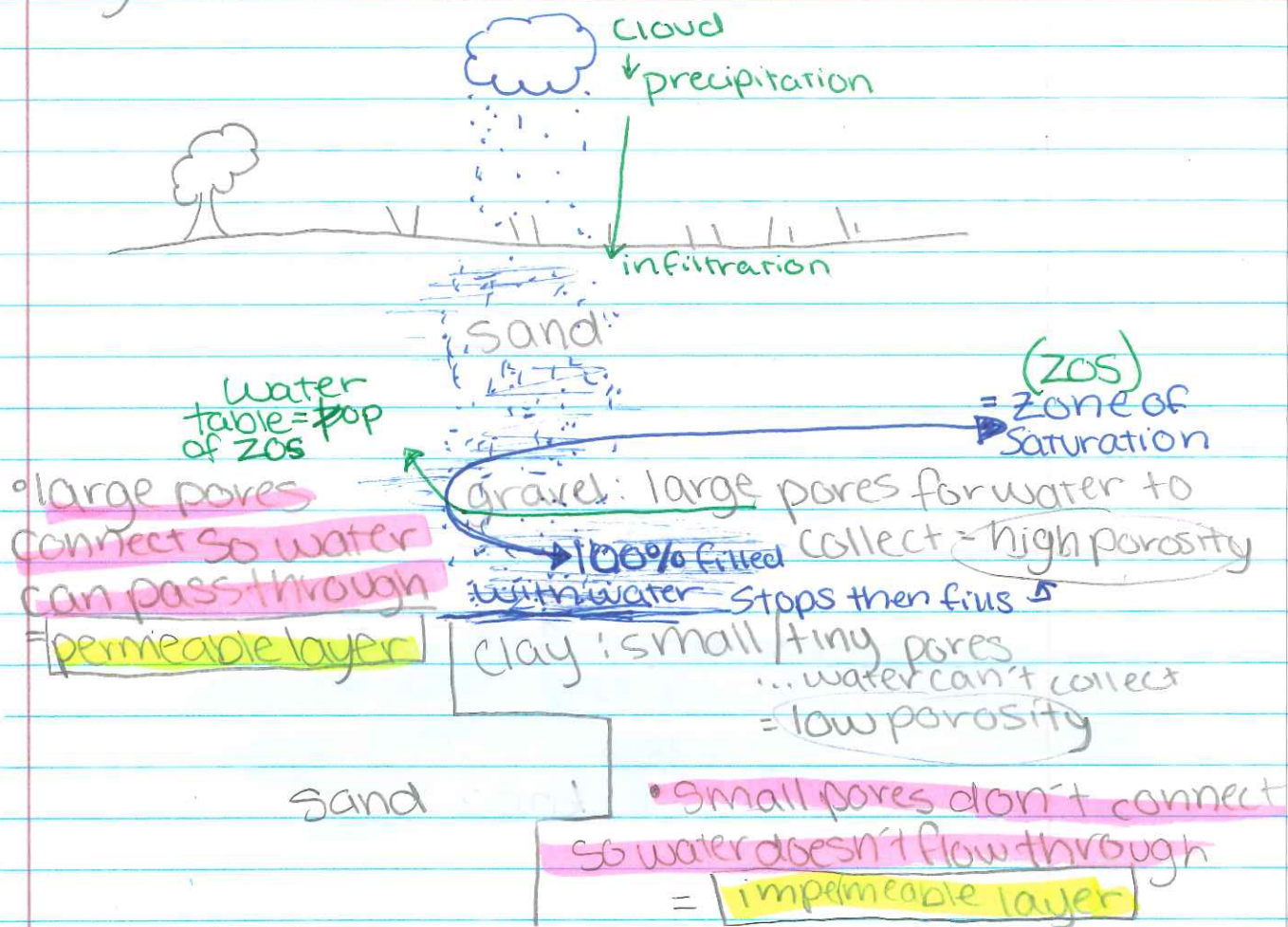
Water Table: top of the zone that is saturated

① Clay → silt → sand → Gravel	
(smallest pores)	(Largest pores)
low porosity	highest porosity
low permeability	high permeability

9/22

33

Hydrosphere

Aquifer =

groundwater system

parts

- infiltration
- impermeable layer
- ZOS
- water table

precipitation $\uparrow$ $\rightarrow$ water table $\uparrow$

more wells $\rightarrow$ water table $\downarrow$

- How deep do you need to go to get to ZOS?
depends on depth of impermeable layer

