

Name: _____

WS - Unit Review : Spheres, Cycles and Systems

1. What are the four natural spheres?
2. What name is given to the sphere that includes human impact?
3. Matching

Cycles - ____	A. the motion of matter and energy through the spheres
Dynamics - ____	B. complex interactions with inputs and outputs
Systems - ____	C. interactions of forces of within and between spheres

4. Use the categories in parentheses to determine what part of the hydrosphere composition is listed. (Salts) (Gases) (Seds./Sediments) (Biotic) (Other)

_____ Clay	_____ Detritus	_____ Hydrocarbons
_____ PCBs	_____ NaCl	_____ Feces
_____ Oxygen (DO)	_____ Silt	_____ KCl
_____ CO ₂	_____ Bacteria	_____ Microplastics

5. Describe interactions of each of these dynamic processes of water with the other spheres:
WAVES-Atmo:

Litho:

Bio:

CURRENTS- Atmo:

Litho:

Bio:

TIDES- Atmo:

Litho:

Bio:

6. The hydrosphere is 2% _____
 97% _____
 1% _____

7. Where is most liquid freshwater found?
8. While the atmosphere can be 0-4% water at any point, why is it not a major source of water?
9. Where did the water come from?
10. What is a BIF? When and why did they form?
11. What two geologic forces have had the biggest impact on ocean shape and sea level over most of earth's history?

12. Briefly state something you learned about *Microplastics* or *The Pacific Garbage Patch*.
13. For each example of energy transfer between spheres, identify by circling one- (D) conDuction, (V) conVection, or (R) radiation -
- D V R** Air particles bumping into warm surface of ocean
- D V R** Cool, dense water sinking to the seafloor
- D V R** Sun's rays passing absorbed by warm rock
- D V R** Sediments pound the shore in a wave
- D V R** Air rising up a mountain in the day
- D V R** Static charge rapidly passing through air particles in lightning
14. What process may have led to the death of the fish pictured at right?



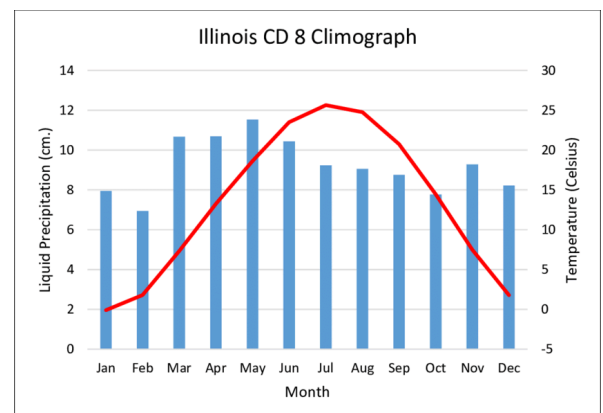
15. Complete this chart of the atmosphere

Percent	Gas	Percent	Gas
	Nitrogen		Water vapor (average)
21%		0.93%	
	H, He, Methane	0.03%	

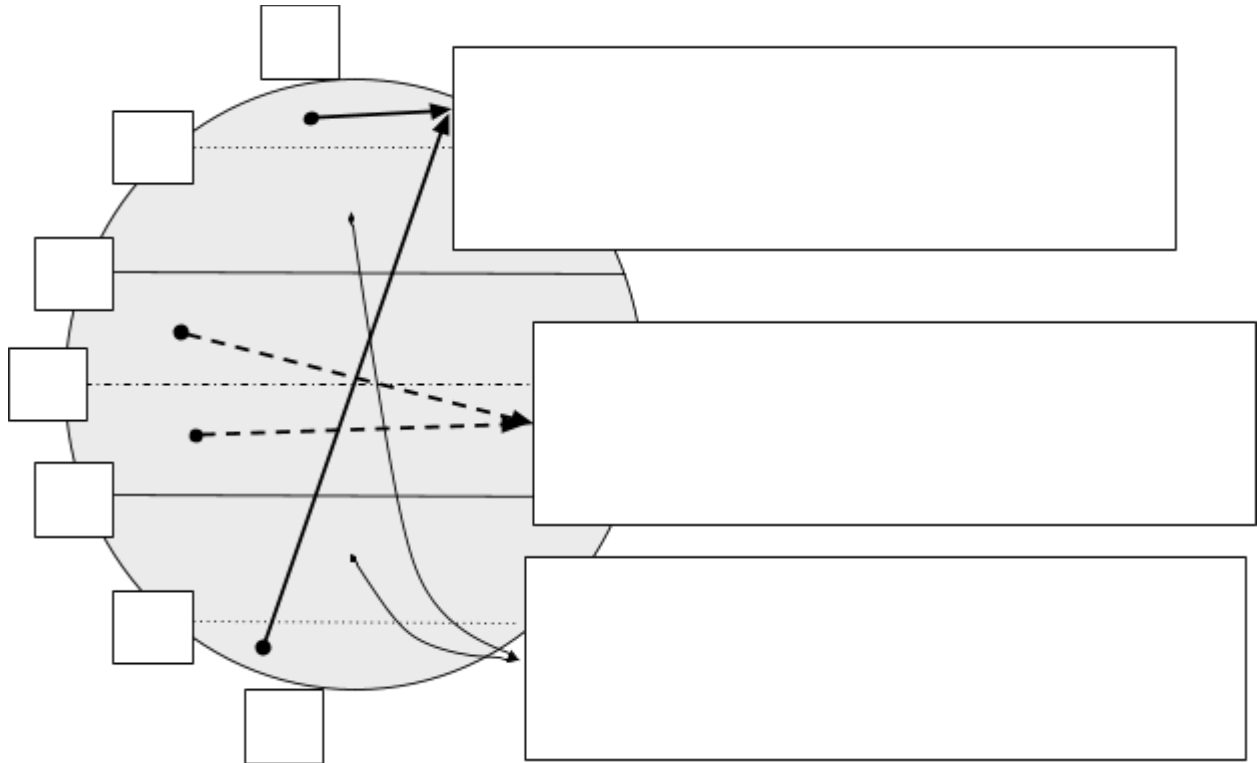
16. Which gas listed above was once found in very high amounts, dropped to very low levels, but is on the way up again?
17. What happened about 3 bya that led to increases in oxygen levels?
18. High pressure is (more dense / less dense) and air moves (away from / towards) it.
19. Low pressure is (more dense / less dense) and air moves (away from / towards) it
20. Assume that the troposphere is layer 1 and the exosphere layer 5 (with the others numbered in order between). Use those numbers to identify the feature of the atmosphere
- | | | |
|---------------------|----------------------------|------------------------|
| _____ Troposphere | _____ Contains Ozone | _____ 75% of gases |
| _____ Coldest layer | _____ Fades away | _____ Above the clouds |
| _____ Middle layer | _____ Contains Ionosphere | _____ Auroras happen |
| _____ We live in it | _____ CFCs are damaging it | _____ Hottest layer |

21. Use this climograph to complete the chart

Month	Jan	Feb	Mar	Apr	May	Jun
Precip						
Temp						
Month	Jul	Aug	Sep	Oct	Nov	Dec
Precip						
Temp						



22. Climate: the _____ year average of _____ and _____
23. In the boxes on the left, record the measure of latitude in degrees N/S. Identify the climate zone and compose a short description of the climate within the appropriate larger boxes at right.



24. The eight most common elements in the crust? (symbols)

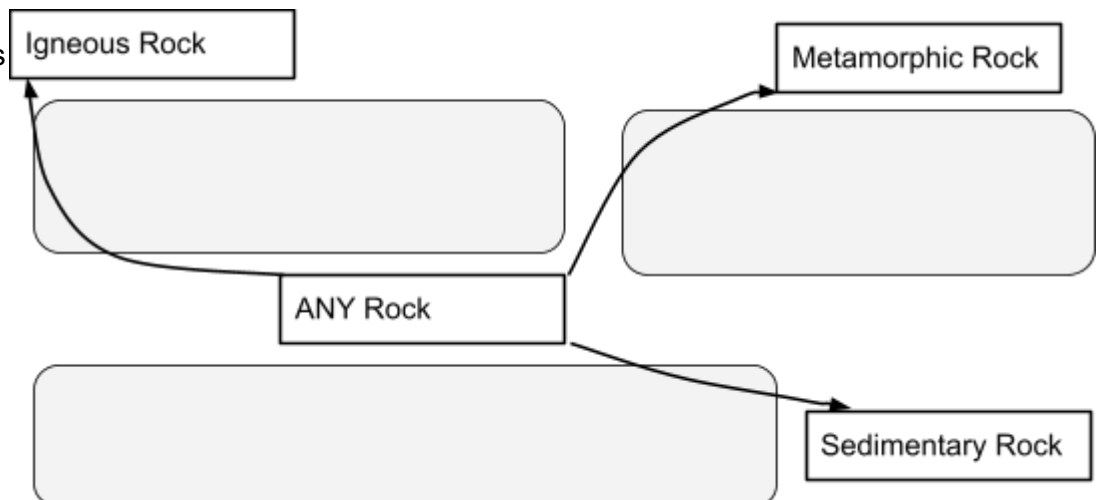
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25. Which two layers of the earth are responsible for generating the magnetic field?

26. Identify the basic features of the two types of crust.

<i>Continental Crust</i>	<i>Oceanic Crust</i>

27. What steps are missing from this rock cycle?



28. What evidence backs up Plate Tectonic Theory?
29. The processes by which organisms change over time?
30. The process by which organisms fail to change and are no longer found on earth?
31. What name is given to the remains and traces of organisms that provide a record and timeline of life on earth?
32. Along with the progressive climate changes that occurred as continents broke apart, moved, and formed supercontinents, what other type of event is associated with at least one major disappearance of life 65 mya?
33. Why have geologists named this time the *Anthropocene Epoch*?
34. How are humans changing the hydrosphere?
35. How are humans changing the atmosphere?
36. How are humans changing the lithosphere?
37. How are humans changing the biosphere?