

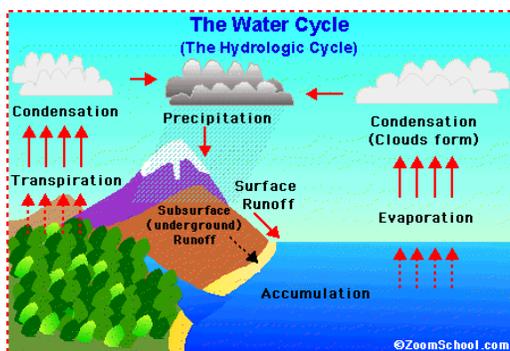
REVIEW UNIT 2: Chemistry & Matter Cycles

Write ANSWERS AND QUESTIONS in your notebook.

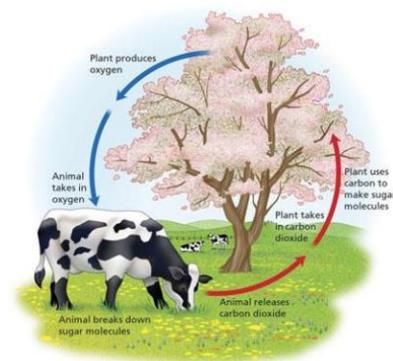
1. What is the 1st law of thermodynamics?
2. Give an example of the 1st law of thermodynamics:
3. How does the carbon cycle obey the 1st law of thermodynamics?
4. Name 4 places carbon can be found:
5. Explain the role of carbon in the atmosphere. Make sure you use the word “Greenhouse”
6. How can we reduce the amount of carbon in the atmosphere?
7. What does assimilate mean?
8. How can animals assimilate carbon?
9. How can plants assimilate carbon?
10. What is a carbohydrate?
11. Write the photosynthesis equation and circle the carbohydrate.
12. What form is Nitrogen in the atmosphere?
13. What does it mean that “Nitrogen has to be Fixed”?
14. What is ammonification?
15. What is nitrification?
16. Decomposers convert nitrogen found in other organisms into ammonia (AMMONIFICATION AGAIN) and return it to the soil. A few of these type of bacteria return nitrogen to the atmosphere by a process called denitrification, however this amount is small. If you are paying attention, you will realize that you do not need to respond to this question ☺.... Happy Birthday!
17. Why is nitrogen essential to living organisms?
18. How do plants assimilate nitrogen?
19. How do animals assimilate nitrogen?
20. If you are vegetarian, how do you assimilate nitrogen?
21. Is extra “fixed” nitrogen being added to ecosystems? Circle one: Yes / No
22. If so, HOW?
23. What are the effects?

Describe what each of these terms mean:

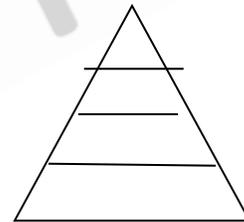
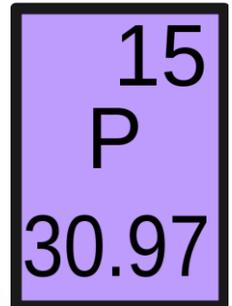
24. Evaporation
25. Transpiration
26. Condensation
27. Surface Runoff
28. Accumulation



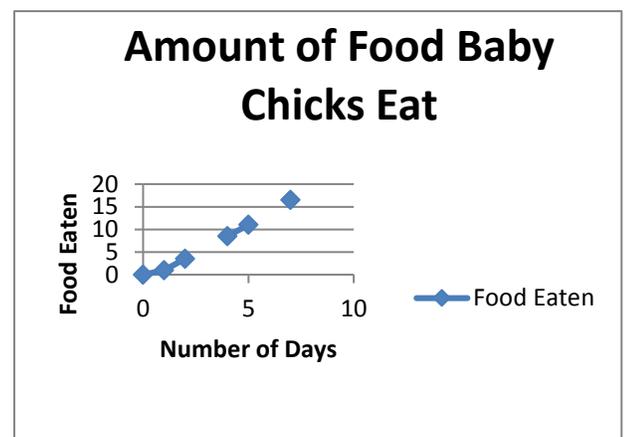
29. Oxygen is cycled in different forms between organisms and the atmosphere and ocean! Animals and other organisms use oxygen in what form?
30. What is this process called?
31. The waste product of respiration is called?
32. Does the waste product have oxygen in it?
33. Plants use Oxygen in what form?
34. What is the process called when they use CO₂ to make food?
35. What is the waste product of photosynthesis?



36. Where does all energy flow from?
37. We have talked about all sorts of matter cycles (carbon; oxygen; nitrogen; phosphorus; potassium; water etc.). Can energy be cycled? Think carefully about this answer. Give a DETAILED answer below
38. Atoms are the Smallest Unit of Matter. **Protons** have a _____ charge, **Neutrons** are _____, **Electrons** have a _____ charge
39. This is Phosphorus. What is phosphorus' Atomic Number _____?
40. How many protons does Phosphorus Have in the nucleus of one atom of the element Phosphorus _____?
41. How many Neutrons are in the nucleus of this atom _____?
42. How many Electrons are in the electron cloud of a Neutral Phosphorus Atom _____?
43. Draw the element Phosphorus the way we did in class. Remember that you can fit 2 in the first shell, and 8 in the second and third shells.
44. How many electrons are in the valence shell of Phosphorus? How many does it need to fill its valence shell?
45. Covalent bonds are what type of bonds? Strong/Weak
46. Ionic bonds are what type of bonds? Strong/Weak
47. Draw the covalent bonds between a Carbon atom and 4 Hydrogen atoms. Make sure you draw all of the Electrons.
- 48. Review from Unit 1: (Based on the most missed test questions)**
49. Draw a Picture AND put in order the correct pathway of energy. Chemical; Light; Heat
50. Label this pyramid with the terms: Producer; Primary or 1st Consumer; Secondary or 2nd Consumer; Tertiary or 3rd Consumer



51. On the pyramid above, how much energy is LOST and how much energy is PASSED ON? Label it.
52. What is the Independent Variable in the graph?



53. Explain why there might be 10,000 organisms available at the base of the food chain (producers) then at the second level of the food chain will only support 1000 organisms.

54. Explain what this graph shows?

