

Chem Unit Review-Honors

Atomic Structure

Know the charges, masses and locations of the proton, neutron and electron inside an atom.

Know the what the mass #/atomic # are and how to use them.

Be able to draw the atomic diagram for any of the elements #1-20 on the periodic table.

1. Which particles is responsible for atomic bonding?
2. How many electrons fit on each of the first three energy shells/levels? How many to be stable?
3. What is a valence number? How does it relate to an oxidation number?
4. Pick an element (1-20) draw the atomic model, e- dot diagram & determine the oxidation #. Will it give, take or share?
5. What are some periodic and group trends of the periodic table?

Bonding

Review how to draw ionic and covalent compounds

6. Why do atoms bond? Which don't bond; why?
7. What is the difference between an ionic bond and a covalent one?
8. What is the difference between polar covalent and nonpolar covalent?

Balancing Equations

9. What are the elements on either end of the arrow called in a chemical reaction?
10. What factors affect the rate of a chemical reaction?
11. What indicates that a chemical reaction has occurred?
12. What is the law of conservation of mass? Why then must reactions be balanced?
13. What do coefficients and subscripts mean?
14. Balance the following equations $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$
 $\text{H}_2\text{C}_2\text{O}_4 + \text{KOH} \rightarrow \text{K}_2\text{C}_2\text{O}_4 + \text{H}_2\text{O}$

Photosynthesis

15. What is the chemical reaction for photosynthesis? (include what goes on the arrow)
16. What is the purpose of photosynthesis? Though it is not for us, how do we benefit?
17. Where does it occur (what layer of cells, what organelle in those cells and what pigment absorbs the light)
18. What are the 4 layers of the leaf and the purpose of each?
19. How do the reactants enter the leaf and the product leave the leaf?
20. What colors of light are absorbed and what color/s are reflected by chlorophyll? How does that relate to the color of most plants?

Water Cycle

Be able to identify elements in a diagram of the water cycle.

21. What makes the water cycle happen (what is the energy source?).
22. How can water become polluted? What process naturally clean it?
23. What is transpiration?
24. How are the water cycle and carbon cycle linked?

Carbon Cycle

Be able to identify elements in a diagram of the carbon cycle.

25. The cellular respiration reaction is the opposite of the photosynthesis reaction. Infer the purpose of this reaction.
26. How does carbon cycle into/out of the atmosphere?
27. What is causing the current increase in CO_2 in the atmosphere?
28. What is the link between CO_2 the Greenhouse Effect and Climate change?
29. How does carbon cycle into/out of the oceans?
30. What happens to the pH of water when CO_2 diffuses into it (dry ice + water)? Why is that a problem for shelled organisms like plankton, crabs and clams?