

1. Briefly review the 3 structure/parts of atoms. (A chart might be helpful for organization) Be sure to include location, individual charge, etc.
2. Helium has an atomic number of 2 and an atomic mass of 4. Explain.
3. Define what an isotope is and give some examples.
4. How are isotopes used in biology?
5. What happens when electrons change energy levels?
6. Explain what a chemical bond actually entails.
7. What are ions? Cations? Anions? Give examples.
8. Why would an atom form a covalent bond rather than an ionic bond?
9. What is the difference between polar and non-polar covalent bonds?
10. What is a hydrogen bond? How is it formed? Why are they so important to the properties of water?

11. Describe/Draw the structure of water. Why is it considered a polar molecule?
12. If a molecule is HYDROPHILIC, it is a water \_\_\_\_\_ substance.
13. If a molecule is HYDROPHOBIC, it is a water \_\_\_\_\_ substance.
14. Describe water's temperature-stabilizing effects.
15. What are solvents? Why is water an excellent solvent?
16. What is cohesion? Adhesion? What role do hydrogen bonds play in cohesion?
17. What is the difference between acids and bases on the pH scale?
18. Acids \_\_\_\_\_ hydrogens (accept/release)
19. Bases \_\_\_\_\_ hydrogens. (accept/release)
20. What determines whether an acid or base is strong or weak?
21. Your body's internal pH is usually around \_\_\_\_\_
22. How do buffers work? Why are they so important in biological systems (animal and plant bodies)?