

Name _____

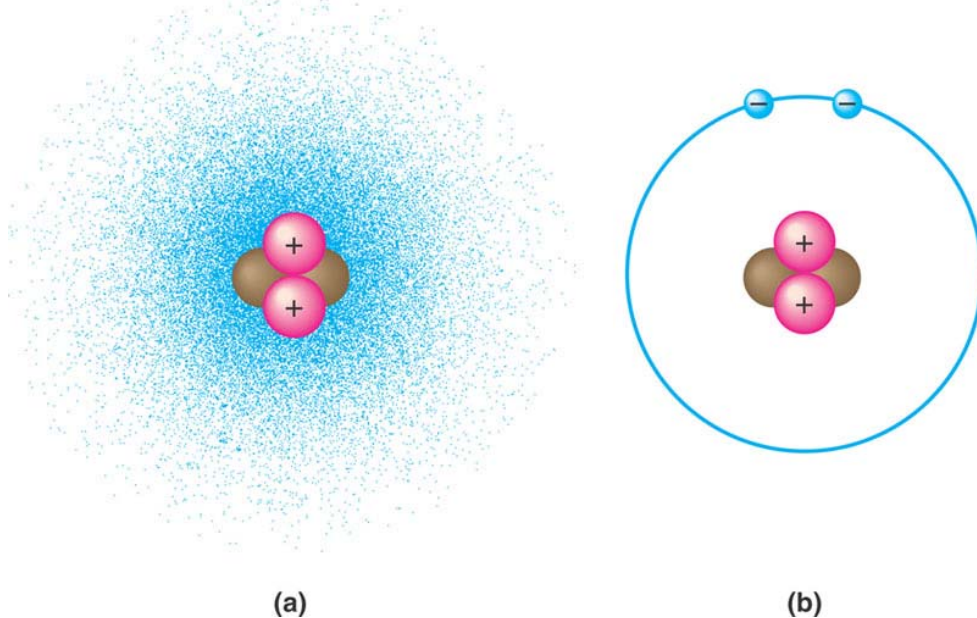
AP Biology

TEXT: *Biology*, Campbell and Reece

7th Edition

Chapter 2 – The Chemical Context of Life
Guided Reading

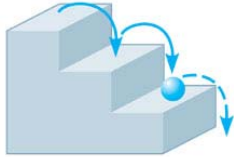
1. Compare and contrast the terms element and compound.
2. Label the diagram below and define the terms that you label.



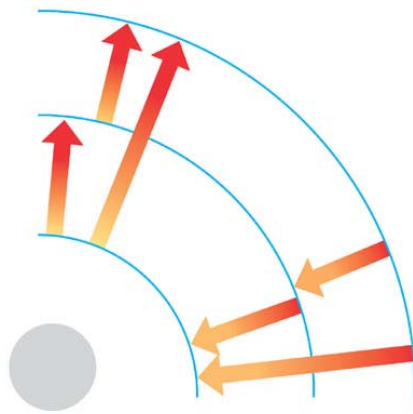
3. Compare and contrast the terms atomic mass and atomic number.
4. Identify and explain the difference between the terms atomic mass and atomic weight?

5. What is an isotope and what is “special” about radioactive isotopes?
6. Explain how radioactive tracers are used in science?
7. Explain how the movement of electrons relates to the concept of potential energy. *Use the diagram below to help answer the question.*

(a)



(b)



8. What determines interactions between atoms? Why are valence electrons important to several biological functions?
9. Define the following terms:
 - a. Chemical bond
 - b. Covalent bond
 - c. Single bond
 - d. Double bond
 - e. Valence
 - f. Electronegativity

- g. Nonpolar covalent bond
- h. Polar covalent bond

10. What is the difference between a structural formula and a molecular formula?
11. How do ionic bonds compare with covalent bonds?
12. Compare and contrast hydrogen bonds and Van der Waals interactions.
13. Based on this chapter's reading, what is an example in a living system of how molecular shape is critical to its function?
14. Define a dynamic chemical equilibrium in terms of quantities of reactants and products.

AP Biology Exam Checkpoint

15. The partial negative charge at one end of a water molecule is attracted to a partial positive charge of another water molecule. What is the cause of this attraction?
 - a. a polar covalent bond
 - b. an ionic bond
 - c. a hydration shell
 - d. a hydrogen bond
 - e. a hydrophobic bond