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The Chemical Level of Organization


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This pathway provides an in-depth look at elements & atoms: the building blocks of matter, chemical bonds, chemical reactions, inorganic compounds essential to human functioning, and organic compounds essential to human functioning. The pathway also provides vocabulary support for these topics, as well as opportunities for learners to self-assess their understanding by analyzing figures and answering questions.

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Learning objectives

1. You will describe the fundamental composition of matter.
2. You will identify the three subatomic particles.
3. You will identify the four most abundant elements in the body.
4. You will explain the relationship between an atom's number of electrons and its relative stability.
5. You will contrast between ionic bonds, covalent bonds, and hydrogen bonds.
6. You will explain how energy is invested, stored, and released via chemical reactions, particularly those reactions that are critical to life.
7. You will explain the importance of the inorganic compounds that contribute to life, such as water, salts, acids, and bases.
8. You will contrast the four important classes of organic (carbon-based) compounds—proteins, carbohydrates, lipids and nucleic acids—according to their composition and functional importance to human life.