

Unit 0 Outline: Biology Foundations

1.2: 10-12

Major Biology themes

- Diversity of life
- Interdependence
- Evolution of life

1.1: 4-9

What is Biology?

Seven characteristics of life

1.3: 13-20

The scientific method – 8 steps!

1.4: 21-24

Tools and techniques

- Three microscopes
- Metric system
- Measuring viewing diameter

2.1: 30-34

Chemistry

- Matter, mass, elements
- Atoms and their three parts
- Three main chemical bonds

2.2: 35-38

Energy

- Chemical reaction
 - Reactants and products
 - Activation energy
 - Catalysts
- Oxidation-reduction reaction

3.1: 50-54

Large carbon molecules

- Monomers and polymers
- Condensation reaction and hydrolysis

3.2: 55-60

Molecules of life

- Carbohydrates

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Proteins
Lipids
Nucleic acids
Water

2.3: 39-44

Water's five special characteristics

Solutions

1. Discuss the major themes of biology: diversity, interdependence, and evolution.
2. What is biology?
3. What makes something living?
4. Understand and implement the eight steps of the scientific method.
5. Know the parts of the microscope and use them.
6. Estimate the sizes of objects under the microscope.
7. What is the basic unit that everything is made of?
8. Compare and contrast the three chemical bonds.
9. Explain the different kinds of energy and states of matter.
10. Organize a chemical reaction.
11. Compare and contrast oxidation and reduction reactions.
12. How are large organic molecules built? Broken down?
13. Differentiate the groups of organic molecules.
14. Why is water such a unique compound?
15. Identify the roles of solutes and solvents in solutions.