Brunswick School Department
Science
Grade 8: Chemistry 3

Adopted:

Unit Overview

This unit is about how simple atoms and molecules, through chemical reactions, form the necessary macromolecules for life. The cycling of matter and energy is driven by these chemical reactions. The emphasis is on developing models of molecules that vary in complexity in extended structures. The biogenic elements combine in different ways to form the macromolecules that all life requires. Chemical reactions are analyzed to determine the reactants and products to better understand how life works.

Essential Understandings

- Atoms connect together to form molecules, both simple and complex.
- The cycling of matter and the flow of energy in organisms are driven by photosynthesis.
- Photosynthesis is a process that through a chemical reaction, creates the complex macromolecules (from biogenic elements) needed for life.
- Cellular respiration chemically breaks down biomolecules to provide energy for life functions.
- Models are important for understanding processes and objects that are too large or too small to directly observe.
- Models are used to show how chemical reactions conserve mass.

Priority Standards and Performance Indicators

(as based on Next Generation Science Standards)

Priority Standard Science -1 Demonstrate an understanding of energy and matter.
b. Develop models to describe the atomic composition of simple molecules and extended structures.

Next Generation Science Standards Addressed in this Unit

- MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

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Examples of Formative / Summative Assessments

- Giant Sequoia Tree Probe
- Labs
- Carbon's Ultimate Road Trip
- Teacher Observations
- Activities
- Quizzes

Sample Texts and Materials/Resources

Astrobiology Text (required)