

Brunswick School Department
Science
Grade 7: Chemistry

Adopted:

Unit Overview

In this unit, understanding of atoms and elements will be expanded to molecules and compounds. The difference between physical changes and chemical changes will be explored, including methods for determining if a chemical reaction has occurred. The Law of Conservation of Mass will be investigated, including its role in chemical reactions.

Essential Understandings

- In a chemical reaction, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.
- The total number of each type of atom is conserved, and thus the mass does not change (the Law of Conservation of Mass).
- Each pure substance has physical and chemical properties that can be used to identify it.
- Physical changes change appearance but not molecules; chemical changes alter substances at the molecular level.
- Chemical reactions cause chemical changes; chemical changes indicate that a chemical reaction has occurred.

Priority Standards and Performance Indicators

(as based on Next Generation Science Standards)

P.S.S 1 Demonstrate an understanding of energy and matter.

b. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

P.S. S-3 Recognize and interpret patterns in the physical and natural world.

b. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

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Next Generation Science Standards Addressed in this Unit

- MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.
- MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
- MS-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved
- MS-PS1-6 Undertake a design project to construct, test and modify a device that either releases or absorbs thermal energy by chemical processes.

Examples of Formative / Summative Assessments

- Chemistry pre-test
- Labs
- Activities
- Quizzes
- Discussions
- Handouts,
- Home work
- Chemistry Test

Sample Texts and Materials/Resources

University of Colorado PhET simulations
PBS Learning Media
American Chemical Society Middle School Chemistry