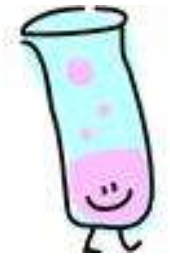
This course outline is based upon the National Science Education Standards, the Pennsylvania Academic Standards for Science and Technology, and the Pennsylvania Standards Aligned System.



Chemistry Course Outline

I. Introduction to Chemistry
- A. Chemistry and matter *(p. 4)*
  - 1. Chemistry
  - 2. Matter
  - 3. Energy
  - 4. Space
- B. Scientific methods *(p. 12-16)*
  - 1. Observation
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    - b. Quantitative
  - 2. Hypothesis
  - 3. Experiment
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    - b. Dependent variable
    - c. Control
    - d. Constants
  - 4. Conclusion
  - 5. Design loop *(handout)*
  - 6. Theory
  - 7. Law
- C. Laboratory safety *(p. 18-19)*

II. Characteristics of Matter
- A. Properties of matter *(p. 73-75)*
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    - b. Intensive
  - 2. Chemical properties
  - 3. le Système international d'unités *(p. 32-36)*
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  - 5. derived units
  - 6. prefixes
- B. Uncertainty in data *(p.47 -54)*
  - 1. Accuracy
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  - 5. Significant figures

III. The Mathematics behind the Science
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  - 2. Charts
  - 3. Graphs
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- A. Types of matter
  - 1. Pure substances *(p. 84-91)*
    - a. Elements
    - b. Compounds
    - c. Law of definite proportions
    - d. Law of multiple proportions
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- B. Separation of mixtures *(p. 82-83)*

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- A. The covalent bond *(p. 241-247)*
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  - 3. Lewis structure
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- B. Formulas for binary covalent compounds *(p. 248-249)*
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  2. Conversions using dimensional analysis
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  2. Mole ratio
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- C. Amounts of reactants
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- A. Properties of gases *(p. 442-451)*
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   1. Electromagnetic radiation
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