



SOUTHERN LEHIGH SCHOOL DISTRICT

**5775 Main Street
Center Valley, PA 18034**

Planned Course for Science

Course: Applied Chemistry

Standards:

This course is aligned to standards within the following categories of the Pennsylvania Academic Standards for Science and Technology and Engineering Education:

3.2 Physical Sciences: Chemistry and Physics

Course Description:

The K-12 science program within Southern Lehigh School District will foster the development of scientific thinking and logical reasoning. A rigorous curriculum will provide opportunities for students to learn how to ask questions and define problems in order to plan and carry out investigations. Students will be challenged to construct explanations and design solutions through collaborative experiences where they engage in arguments that are based on evidence. Teachers will provide students with hands-on and authentic experiences aligned to a coherent progression of learning.

APPLIED CHEMISTRY is designed for students to explore the fundamental principles of chemistry, including the properties of matter and the changes it undergoes. Students will perform various hands-on applications of the course concepts and conduct experiments. Students will then have to apply learned concepts in lab assignments and assessments. The following topics are discussed and studied throughout the APPLIED CHEMISTRY course: states of matter, phase changes, atomic structure, bonding, chemical compounds, chemical reactions, periodic laws, and gas laws. These concepts will be applied to authentic situations and the application of chemistry will be emphasized throughout the course. Algebra will be used throughout the course. Students will engage in laboratory investigations to further develop their reasoning and problem solving skills.

Prerequisite(s):

- Successful completion of a Biology course; AND
- Successful completion of an Algebra I course

Measurable objectives to be attained by students:

Specific objectives for this course are aligned to the Next Generation Science Standards, the Pennsylvania Academic Standards for Science and Technology and Engineering Education, and the Pennsylvania Core Standards for Reading and Writing in Science and the Technical Subjects as outlined in the Scope and Sequence for Chemistry.

Instructional Strategies:

A science program demands the use of a variety of instructional strategies to foster scientific thinking. Below is a list of suggested strategies for high-quality instruction:

- Instructional components outlined in the *Framework for Teaching* by Charlotte Danielson
- Hands-on learning
- Posing questions for investigation
- Cooperative learning and collaboration
- Inquiry, engineering, and design

Estimated Instructional Time:

77 minutes per day on an alternating A/B block schedule for one school year

Forms of Assessment to Measure Attainment of Course Objectives:

- Curriculum-based measures
- Benchmark Assessments
- Formative Assessments
- Summative Assessments
- Performance-Based Assessments

Resources:**Student Text Resources:**

Wilbraham, Antony C., et al. *Pearson Chemistry*. Pearson, 2017.

- Student Edition Printed Version
- Student Edition Online Version
- Guided Reading and Study Book
- Chemistry Skills and Math Book

Teacher Resources:

Wilbraham, Antony C., et al. *Pearson Chemistry*. Pearson, 2017.

- Teacher Edition Printed Version with Online Access

Technology:

District approved supplemental technology

Other Resources:

Teacher created resources

District approved supplemental resources and labs