



**SOUTHERN LEHIGH SCHOOL DISTRICT**  
5775 Main Street  
Center Valley, PA 18034

## **Planned Course for Science**

**Course:** Physics: Electricity and Magnetism

### **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
- 3.3 Earth and Space Sciences

### **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.

PHYISCS: ELECTRICITY AND MAGNETISM offers students a continuation to the study of physics. This course is recommended for students considering careers in engineering, technology, or any science. In this course, students will apply the analysis techniques gained in the previous physics course to various phenomena of the universe. Utilizing Matter, Forces and Energy, students will engage in investigations of Fluid Behaviors, Thermal Dynamics, Circuits, Magnetism, Electrostatics, Inductance, Capacitance, and Optics as we study the technology of our modern world! This course provides hands-on learning experiences where students design and implement experiments to solve challenges.

### **Prerequisite(s):**

- Successful completion of a Physics 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 Physics: Electricity and Magnetism.

**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:****Teacher Resources:**

Coletta, Vincent P. *Physics Fundamentals*. Physics Curriculum & Instruction, 2010.

- Practice problems through Webassign

**Technology:**

Scientific calculator

District approved supplemental technology

**Other Resources:**

Teacher created resources

District approved supplemental resources and labs