



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

## **Planned Course for Technology Education/STEM**

**Course:** Grade 7 STEM: Design and Modeling

### **Standards:**

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

- 3.4.A Scope of Technology
- 3.4.B Technology and Society
- 3.4.C Technology and Engineering Design
- 3.4.D Abilities for a Technological World
- 3.4.E The Designed World

### **Course Description:**

The 4-12 Technology Education/STEM program within Southern Lehigh School District will provide an authentic and hands-on learning experience for all students. Courses are designed to empower students to develop, refine, and apply technological solutions focused on improving the world around them. Students will work collaboratively to make sense of and solve problems. Learning experiences will be inquiry-based, challenging students to reflect upon and revise their thinking. Teachers will provide opportunities for students to apply technology, as well as concepts from science and mathematics, to the engineering and design processes.

Grade 7 STEM: Design and Modeling provides students opportunities to apply the design process to creatively solve problems. Students are introduced to a problem and are asked to make connections from their own experiences throughout the lessons in the units. Students learn and utilize methods for communicating design ideas through sketches, solid models, and mathematical models. Students will understand how models can be simulated to represent an authentic situation and generate data for further analysis and observations. Students work in teams to identify design requirements, research the topic, and engage stakeholders. Teams are provided design challenges throughout this course.

### **Measurable objectives to be attained by students:**

Specific objectives for this course are aligned to the National Standards for Technology Literacy, 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 Grade 7 STEM: Design and Modeling.

**Instructional Strategies:**

A well-rounded Technology Education/STEM program requires a wide range of instructional strategies that empower students to develop, refine, and apply technological solutions. Below is a list of suggested strategies for high-quality instruction:

- Instructional components outlined in the *Framework for Teaching* by Charlotte Danielson
- Provide hands-on learning experiences
- Following the engineering design process
- Inquiry and project-based learning focused on problem-solving
- Use of design notebooks

**Estimated Instructional Time:**

46 minutes per day for one quarter of the school year (45 days)

**Forms of Assessment to Measure Attainment of Course Objectives:**

- Curriculum-Based Measures
- Summative Assessments
- Formative Assessments
- Performance-Based Assessment

**Resources:****Technology:**

“Homepage.” *Project Lead the Way*, [www.pltw.org/](http://www.pltw.org/).  
Computer Aided Design software  
District approved supplemental technology

**Other Resources:**

Teacher created resources  
District approved supplemental resources