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

Planned Course for Mathematics

Course: Introduction to Computer Science I

Standards:
This course is aligned to standards within the following Concepts of the national K-12 Computer Science Standards pursuant to the Pennsylvania Department of Education Resolution adopted January 11, 2018:

CS	Computing Systems
DA	Data and Analysis
AP	Algorithms and Programming
IC	Impacts of Computing

Course Description:
The K-12 mathematics program within Southern Lehigh School District will provide opportunities for all students to develop the ability to independently apply mathematical knowledge and skills to real-world situations. A robust and coherent curriculum will prepare students to think and reason mathematically while requiring them to demonstrate a deep understanding of mathematics. Students will develop critical thinking, problem solving, innovation, collaboration, and communication skills. A focus will be placed on using mathematics as a key to understanding the world, in order to meet the challenges of a dynamic society.

INTRODUCTION TO COMPUTER SCIENCE I explores computer science concepts commonly used in software development. This course addresses the basic syntax, logic, and operations of a structured programming language. Students will develop algorithms and applications, as well as write, implement, document, and evaluate possible solutions to problems. Students will be responsible for defining problems using mathematical concepts, logic, and problem solving skills. Throughout the course, students will write pseudo code, analyze data, test, debug, and modify programs in order to solve authentic problems.

Measurable objectives to be attained by students:
Specific objectives for this course are aligned to the Computer Science Teachers Association (CSTA) K-12 Computer Science Standards as outlined in the Scope and Sequence for Introduction to Computer Science I.

Instructional Strategies:
Below is a list of suggested strategies for high-quality instruction in mathematics:

- Instructional components outlined in the *Framework for Teaching* by Charlotte Danielson
- Promote productive struggle
- Promote collaborative discourse around computing
- Use precise language

Estimated Instructional Time:
77 minutes per day on an alternating A/B block schedule for one semester

Forms of Assessment to Measure Attainment of Course Objectives:

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

Resources:

Student Resources:
Python for Everybody. www.PY4E.com

Technology:
District approved supplemental technology

Other Resources:
Teacher created resources
District approved supplemental resources