

Upper Moreland Township School District
2900 Terwood Road
Willow Grove, PA 19090

Planned Course for Business and Technology

Course: Eighth Grade Code Maker

PA Academic Standards for Business, Computer and Information Technology

15.4.8 Computer and Information
Technologies

PA Academic Standards for Career Education and Work

13.1.8 Career Awareness and Preparation
13.2.8 Career Acquisition

ISTE Standards

1. Empowered Learner
2. Digital Citizen
3. Knowledge Constructor
4. Innovative Designer
5. Computational Thinker
6. Creative Communicator

CSTA Standards

- 2- CS – Computing Systems
- 2- NI – Networks & The Internet
- 2- DA – Data & Analysis
- 2-AP – Algorithms & Programming
- 2-IC – Impacts of Computing

Course Description:

The K-8 Business, Computer and Information Technology program is standards-based. It is designed to help students build the knowledge and skills that will enable them to be productive and innovative learners in the ever-changing world. The curriculum is organized to include the following four focus areas: coding, digital citizenship, application/skill and financial literacy. Each focus area helps students develop the essential skills of communication, collaboration, critical thinking, and creativity. The program is progressive and developmentally sequential across grade levels. It reflects the increasing complexity and rigor that will provide students with the foundations for a career in tomorrow's workforce.

The Code Maker elective is designed to engage students with computer science as a medium for creativity, communication, problem solving, and fun, while transitioning from block based to text based programming. At the beginning of the course, students will learn a brief history of computer science, the foundations of programming, and the importance of making ethical decisions when using a computer. As the course progresses, students will need to be creative thinkers as they collaborate to design and build their own games. Students will write, run, test, and debug solutions using GameMaker programming language. They will also enhance their problem solving and critical thinking skills as they use variables, conditional statements, loops, and arrays to program robots to complete a variety of tasks and challenges.

Specific and measurable objectives to be attained by students:

Specific objectives for this course are aligned to the ISTE and CSTA Standards, as well as the Pennsylvania State Standards outlined in the scope and sequence document for the 8th grade Code Maker elective course.

Materials:

Coding: Zulama, Finch Robots

Digital Citizenship: Learning.com, Common Sense Media

Application/Skill: Google Suite, Impero, Computer for each student, SmartBoard, Printer

Instructional Strategies:

A standards-based Business, Computer and Information Technology program provides authentic experiences and incorporates technology into content areas promoting student inquiry and problem solving. These learning experiences will develop thinking processes that are self-directed, creative, critical, and reflective. Instructional activities include the following best practices:

- Modeling
- Guided Practice
- Collaboration
- Whole Group Discussions
- Hands-on Activities
- Think-Pair-Share
- Teacher/Student Conferencing
- Peer Conferencing
- Direct Instruction
- Spaced Practice
- Vocabulary Instruction
- Summarizing
- Note Taking
- Class Discussion
- Self-Questioning
- Concept Mapping
- Reciprocal Teaching
- Problem Solving
- Identifying Similarities and Differences
- Extended Writing
- Peer Tutoring
- Debates/Formal Discussion

Estimated instructional time to be devoted to achieving objectives:

Every other day for one semester (45 classes)

Procedure for measurement of student progress on the objective:

A variety of assessments will be used to determine student progress. The Assessment Plan includes the following components:

- Teacher Observations
- Rubric/Checklists
- Participation
- Performance Assessments
- Completion of Simulation/Project
- Completion of Teacher generated activities

An explanation of how student grades will be determined:

Students will be evaluated in the areas of class work, class participation, and teacher observation. A minimum of three performance tasks will be considered in determining the student's grade.