Unit 3 Programming

Content Area: **Technology**
Course(s):
Time Period: **November**
Length: **5 Days**
Status: **Published**

Unit Overview

Students will use a variety of development environments to learn fundamentals of computer programming. From simple drag-and-drop programming to full text entry, students will learn scripting, loops, if-then statements, graphical commands, XY coordinates, and other basic programming concepts. Students will create both script programs and event-driven programs during the course of the unit, as well as developing assets for their programs. In the end, students will share their creations with each other, giving and getting feedback on how to improve their programs.

Standards

8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
8.1.5.DA.5	Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
8.1.5.AP.1	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
8.1.5.AP.2	Create programs that use clearly named variables to store and modify data.
8.1.5.AP.3	Create programs that include sequences, events, loops, and conditionals.
8.1.5.AP.4	Break down problems into smaller, manageable sub-problems to facilitate program development.
8.1.5.AP.5	Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program.
8.1.5.AP.6	Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended.
8.2.5.NT.1	Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem.

Materials

- Laptops
- Spheros
- littleBits

Assessment

Formative Assessment

- Teacher Observation
- Checks for Understanding
- Exit Tickets

Summative Assessment

- Performance Tasks & Projects

Accommodations & Modifications

Special Education

- Follow IEP Plan which may contain some of the following examples…
- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

504

- In class/pull out support with special ed teacher or assistant
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

ELL

- Translation device/dictionary
- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

At-risk of Failure

- Preferred seating
- Directions repeated/clarified
- Extended time for completing tasks
- Vocabulary support
- Limit number of tasks

Gifted & Talented

- Independent projects
- Online games
- Extension activities

Interdisciplinary Connections

Career Readiness, Life Literacies & Key Skills

9.4.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
9.4.5.CI.4	Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6).
9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
9.4.5.TL.1	Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.