Unit 3: Scratch!

Content Area: **Technology**
Course(s): **Technology**
Time Period: **Generic Time Period**
Length: **Weeks**
Status: **Published**

Unit Overview

This introduction unit introduces the basic programming elements to move a sprite several steps forwards or backwards. Students will learn how to select building blocks from different menus (beginning with the Blue menu of Motion) and how to execute an action by double-clicking on it.

Standards

TECH.8.1.5.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.5.E.CS1	Plan strategies to guide inquiry.
TECH.8.2.5.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.5.C.1	Collaborate with peers to illustrate components of a designed system.
TECH.8.2.5.C.2	Explain how specifications and limitations can be used to direct a product's development.
TECH.8.2.5.C.3	Research how design modifications have lead to new products.
TECH.8.2.5.C.4	Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.
TECH.8.2.5.C.5	Explain the functions of a system and subsystems.
TECH.8.2.5.C.6	Examine a malfunctioning tool and identify the process to troubleshoot and present options to repair the tool.
TECH.8.2.5.C.CS1	The attributes of design.
TECH.8.2.5.C.CS2	The application of engineering design.
TECH.8.2.5.C.CS3	The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.
TECH.8.2.5.D.1	Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.
TECH.8.2.5.D.2	Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process to evaluate potential solutions.
TECH.8.2.5.D.6	Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used.
TECH.8.2.5.D.7	Explain the impact that resources such as energy and materials used in a process to produce products or system have on the environment.
TECH.8.2.5.D.CS1	Apply the design process.

Essential Questions

- How do you edit, compile, run, and test a program using Scratch?
- How do you format a program to give consistent results using Scratch?
- What is Scratch?
- How can I use technology to create my own programs and games?
- How do I use the Scratch interface to develop my own ideas?

Application of Knowledge and Skills...

Students will know that...

- A programming language is used to create programs that run on digital devices
- Engineers have an impact on the world they live in and their daily lives.

Students will be skilled at...

- communicating using digital media
- Creating a program
- use conditional logic with Scratch control blocks (yellow)
- using conditional logic with Scratch control blocks (yellow)

Assessments

The teacher will formally assess students throughout the unit by observing their natural usage of the following skills:

- Scratch Program

Activities

- Students will start each class by navigating to Google Classroom and responding to a writing prompt. In responding to the writing prompt, students will be collaboratively conversing with each other and their teacher digitally, using their schema of keyboarding and mouse skills.
- Engineer of the Week: Each week, a new engineer will be briefly introduced to the class, highlighting their impact on their current world.
- Divide the class into groups which will provide the various features of the project, for example, a

sound clips group, a writing group, an art group and a programming group,etc. Then combine all the parts of the program together to create a class program.

- Reproduce the actions of movement in the tutorial shown by teacher. Experiment with the size and direction of the steps.
- Reproduce the actions of repeating action in the tutorial shown by teacher. Experiment with the size and direction of the steps.
- Reproduce the actions of repeating color t in the tutorial shown by teacher. Experiment with the size and direction of the steps.
- Create an anti-bullying cartoon

Activities to Differentiate Instruction

Extension Activities:

- Experiment with step sizes: very small, small, larger, very large.
- Experiment with sounds: select and combine different sounds.
- Experiment with dances: two, three, more steps in the dance. Select and combine short and long steps.

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Integrated/Cross-Disciplinary Instruction

Math- Using the programming blocks, students will need to make sure they have the proper amount of blocks as well as proper sequences

Resources

- Scratch program
- Sprite Activity Cards