Unit 2- Scratch - Advanced Concepts - 4th Grade

Content Area: **Gifted and Talented**
Course(s): **Gifted and Talented, Technology**
Time Period: **Marking Period 3**
Length: **Weeks**
Status: **Published**

Unit Overview

This unit will teach students the basics of programming using Scratch 2.0. Students will develop an understanding of sequencing information. They will learn advanced programming and scripting. They will refine and improve sequencing and discuss the effects of the changes they make to the program they create.

Standards

CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
TECH.8.1.5.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.5.A.CS1	Understand and use technology systems
TECH.8.1.5.B.1	Collaborative to produce a digital story about a significant local event or issue based on first-person interviews.
TECH.8.1.5.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.5.B.CS2	Create original works as a means of personal or group expression.

Essential Questions

- How can I create advanced variables?
- How can I insert backdrops?
- How can I use sensing commands?

Application of Knowledge: Students will know that...

- a script is an action or command
- Backdrops can be changed with the relevant Scratch blocks.
- Music features and music locks in Scratch can create music with different instruments .

- variables can store numbers or strings.

Application of Skills: Students will be able to...

- change backdrops
- create advanced variables
- explain how data changes in variables
- insert backdrops
- Use sensing commands

Assessments

- Run programs in Scratch 2.0
- Changing backdrops during program
- Adding music to program
- Vocabulary quiz of terms used in programming.
- Observation
- Class participation

Suggested Activities

- Students will use a teacher created workbook along with Scratch 2.0.
- View various programs made from their peers
- View worksheets
- Create advanced Sprites with some of the following activities
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    - Draw a Sprite and Background
    - Turtle Graphics
    - Moving and Sensing
    - Sounds and Graphics
    - Variables
    - Broadcast and Receive
    - Make a Game
    - Build a multimedia presentation

Activities to Differentiate Instruction

Differentiation for special education:

- General modifications may include:
  - Modifications & accommodations as listed in the student's IEP
  - Assign a peer to help keep student on task
  - Modified or reduced assignments
  - Reduce length of assignment for different mode of delivery
  - Increase one-to-one time
  - Working contract between you and student at risk
  - Prioritize tasks
  - Think in concrete terms and provide hands-on-tasks
  - Position student near helping peer or have quick access to teacher
  - Anticipate where needs will be
  - Break tests down in smaller increment

Differentiation for ELL's:

- General modifications may include:
  - Strategy groups
  - Teacher conferences
  - Graphic organizers
  - Modification plan
  - Collaboration with ELL Teacher
  - content specific vocabulary for ELL students: Sprite, variables, commands, script, action, sensing

Integrated/Cross-Disciplinary Instruction

Students will learn important mathematical and computation ideas, while also learning to think creatively, reasoning systematically, and work collaboratively.

Resources

- Teacher created workbook
- Scratch 2.0
- Computer lab

21st Century Skills

CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP9.1	Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.
CRP.K-12.CRP10.1	Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.