

Unit 2: Interactive Animations & Games

7th Grade Video Game Coding

21 Class Meetings

Written August 2023

Essential Questions

- How does coding enable creativity and individual expression?
- What practices and strategies will help me as I write code?
- How do software developers manage complexity and scale?

Enduring Understandings with Unit Goals

EU 1: How can the skills used in game design transfer to many other high-demand fields?

- Skills in problem-solving, teamwork, marketing, and interface design are essential components when developing a video game.

EU 2: Games consist of multiple stages with interactable objects.

- Design multiple stages to play through with variance in challenge.
- Create objectives or puzzles that allow for an immersive gameplay experience.

Standards

National Media Arts Standards:

MA:Cr1.1.6: Formulate variations of goals and solutions for media artworks by practicing chosen creative processes, such as sketching, improvising and brainstorming.

MA:Cr2.1.6: Organize, propose, and evaluate artistic ideas, plans, prototypes, and production processes for media arts productions, considering purposeful intent.

MA:Cr3.1.6b: Appraise how elements and components can be altered for intentional effects and audience, and refine media artworks to reflect purpose and intent.

MA:Pr5.1.6c: Demonstrate adaptability using tools and techniques in standard and experimental ways in constructing media artworks.

MA:Pr6.1.6c:a. Analyze various presentation formats and fulfill various tasks and defined processes in the presentation and/or distribution of media artworks.

MA:Pr6.1.6c:b. Analyze results of and improvements for presenting media artworks.

MA:Re7.1.6:a Identify, describe, and analyze how message and meaning are created by components of media artworks.

MA:Re7.1.6:b Identify, describe, and analyze how various forms, methods, and styles in media artworks manage audience experience.

MA:Re8.1.6: Analyze the intent of a variety of media artworks, using given criteria.

MA:Re9.1.6: Determine and apply specific criteria to evaluate various media artworks and production processes, considering context and practicing constructive feedback.

MA:Cn 10.1.6: a. Access, evaluate, and use internal and external resources to create media artworks, such as knowledge, experiences, interests and research.

MA:Cn11.1.6: a. Research and show media artworks and ideas relate to personal life, and social,

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community, and cultural situations, such as personal identity, history, and entertainment.

ISTE Standards

Standard 1: Empowered Learner. Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

Standard 2: Digital Citizens. Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

Standard 3: Knowledge Constructor. Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

Standard 6: Creative Communicator. Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goal.

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. Coding

- Create animations, computer games, and interactive projects using Scratch, a graphical programming language developed at MIT.
- Utilize interface controls to work in the environment to create interactive programs.
- Apply code to create, correct, and modify their own Scratch programs.

2. Computer Concepts

- Apply computer science concepts to control, compute, and accurately respond to user commands within original programs.
- Evaluate and modify the code created by others to create a functional program.
 - Unit 3: Inside the Earth
 - Unit 5: Ecosystems & Human Impact

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Daily Learning Objectives

Students will be able to...

- Use visual programming language, Scratch, to gain an understanding of input, output and the logic of Block code work.**
- Apply graphic effects to create visual interest, create their own sprites, backgrounds, and costumes.**
- Write blocks of code that changes the costumes of sprites, add animations to sprites and repeat blocks using loops. Make a sprite do simple tasks, and create code to better control how a sprite moves. Use a mouse to change instructions and create effects.**
- Use the sensing blocks to detect what a user is doing; get information from the user, and track the location of a sprite. **
- Create variables to explain how data changes in variables and how to show and hide blocks. Insert backdrops, change backdrops and use sensing commands.**
- Use broadcasts as a trigger to start scripts and change backdrops; how to trigger a script based on video or audio input.**
- Use variables in your scripts to store information such as user information, or track information such as the score in of a game**
- Write blocks of code that create music in Scratch. Add sound to a sprite; have a sprite play music.**
- Create simple drawings. Write blocks of code that insert sound in Scratch; Change the costumes of sprites, add animations to sprites and repeat blocks using loops.**
- Write blocks of code to animate a character and create stories**

Instructional Strategies/Differentiated Instruction

- Whole group instruction
- Small group instructions
- Strategic grouping
- Guided notes
- Instructional videos
- Paragraph frames and sentence starters
- Teacher/student modeling
- Written feedback – teacher and peer
- Think-write-pair-share and small-group discussions
- Graphic organizers
- Accountable talk
- Homework
- Electronic word walls with visuals
- Anchor charts
- Conferencing
- Text and video chunking with guiding questions
- Key vocabulary - translation, reinforcing the contextual definition with visuals
- Provide correct pronunciation by repeating student response
- Word wall
- Do Nows as vocabulary review

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- Culturally responsive teaching
- Explicit modeling
- Non verbal assessment
- Assignment modification

EL Differentiation Instruction:

- Verbal: Prompting, questioning, elaborating, higher level thinking skills
- Explicit modeling
- Word walls with visuals
- Pre reading strategies
- Guided and independent practice
- Small group instruction
- Strategic grouping
- Key Vocabulary
- Graphic organizers

Assessments

FORMATIVE ASSESSMENTS:

- Quick Write responses
- Exit Slips
- Accountable Talk Discussions
- Do Now
- Oral questioning
- Graphic organizers
- Regular Homework
- Thumbs up/Thumbs down

SUMMATIVE ASSESSMENT(S):

- Unit Task scoring guide
- Teamwork rubric

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Unit Task

Unit Task Name: Making Music, Scratch Game, Animated stories

Description: Students create a 45: radio advertisement promoting a new bubble gum product. (EU1) Students create a simple 'Guessing Game' and a Pong Game in Scratch which makes use of user interaction. (EU2) Students create a simple story in Scratch where they develop skills in using suitable backgrounds and sounds. (EU1)

Evaluation: Unit 2 Summative Assessment and Problem -Solving Rubric

Unit Resources

- Edulastic
- Engageny
- Math In Focus
- Math Antics
- State Common Core Standards Transition Tasks
- Match Fishtank
- Worksheets
- Individual White boards
- Interactive notebook
- Laptops
- SBAC Prep Online
- 2 Truths & One Lie
- Your Mathematics Standards Companion (grades 3-5)

Unit Resources

- Worksheets
- Individual white boards
- Interactive notebook
- Chromebooks