Madison Public Schools

Grade 6 Unit 1: Animation Design via Block Coding

Unit Focus

Students will learn about the different facets involved in animation design. Using Scratch, and its block based language, students will learn how to develop, test, and debug an animation. Students will have the opportunity to learn how to create their own sprites, adding conversations, switching scenes, adding interactions and adding voice as part of their iterative design process. A PBA will have the students create an animation (story) based on a narrative written in fifth grade. This process will include a peer review element in which data will be collected for use in Unit 2.

Stage 1: Desired Results - Key Understandings

Established Goals

Common Core

English Language Arts: 5

- Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. *CCSS.ELA-LITERACY.W.5.3.A*
- Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. *CCSS.ELA-LITERACY.W.5.3.B*
- Use concrete words and phrases and sensory details to convey experiences and events precisely. *CCSS.ELA-LITERACY.W.5.3.D*
- With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. *CCSS.ELA-LITERACY.W.5.5*

Connecticut Goals and Standards

Business and Finance Technology (CTE)

- Computer Information Systems *BFT.C*

Computer Information Systems: 5

- Apply design principles to programming tasks. *CIS.6.1.I.2*
- Test, debug, and document code. *CIS.6.1.I.3*

Transfer

T1 Explore and hone techniques, skills, methods, and processes to create and innovate
T2 Develop a product/solution that adheres to key parameters (e.g., cost, timeline, restrictions, available resources and audience).

Meaning

Understandings	Essential Questions
U1 Coding involves using an increasingly sophisticated programmatic language to meet a lot of our societal needs. **U2** Programmers debug and revise their programs to improve the stability of the program and end user experience. **U3** Writers explore ideas that are important to them for a variety of audiences, purposes, and messages. **U4** Collaboration with others can improve the end product by incorporating different perspectives in the animation.	**Q1** How do I trace through the operation of my program/game to find out where the problem is? What is a possible fix? To what extent does that make the program/game run better? **Q2** What do I do when I don't know what to do? How are the resources I'm connecting with growing my capacity? **Q3** How do I capture ideas that are important to me? What ideas are worth growing? How do I do that in my writing? **Q4** What is my story really about? **Q5** Personal Narrative and Memoir Focus: What's the best way to bring this scene/moment to life?

Acquisition of Knowledge and Skill

Knowledge	Skills
K1 Basic terminology of coding: sprite, algorithm, event, broadcast, variable, sequencing, conditionals, parallelism,	**S1** Create an animation using block coding (language). **S2** Sequence events in a narrative.

CSTA: Computer Science Standards (2017-) *CSTA: 3-5* • Create programs that include sequences, events, loops, and conditionals. 1B-AP-10 • Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. 1B-AP-11 • Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. 1B-AP-13 • Test and debug (identify and fix errors) a program or algorithm to ensure it runs as 1B-AP-15 *CSTA: 6-8* • Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. 2-AP-12 • Seek and incorporate feedback from team members and users to refine a solution that meets user needs. 2-AP-15 **Student Growth and Development 21st Century Capacities Matrix** *Critical Thinking* • Synthesizing: Students will be able to thoughtfully combine information/data/evidence, concepts, texts, and disciplines to draw conclusions, create solutions, and/or verify generalizations for a given purpose. MM.1.3 *Creative Thinking* • Imagining: Students will be able to conceive of a novel approach to create a text, performance, solution, application, or inquiry. MM.2.2	debug, and loops. **K2** Block code is written in a sequential order **K3** Bugs in a program are natural and are part of the iterative design process **K4** Gaining feedback from others is an important step in optimizing the efficiency of your animation. **K5** Writing Vocabulary: dialogue, actions, description, memoir, figurative language, metaphor, simile, gestures, transitions, internal development, setting, sensory details, tone, mood, personal narrative, memoir, audience, purpose, message, audience.	**S3** Plan and develop a story using a storyboard. **S4** Manipulate sequences and loops through the use of Control blocks. **S5** Debug problems within programs using a variety of different strategies.