Software Engineering 1: Game Maker - Unit Plan

Standard 1: ITIM.02.01 Demonstrate the ability to work with appropriate software tools.
Standard 2: ITPR.02.02 Create design specifications of a computer application.
Standard 3: ITPR.03.01 Demonstrate proficiency of programming language concepts.
Standard 4: ITPR.03.02 Demonstrate proficiency in developing an application using an appropriate programming language.

Knowledge (what do you want them to be able to **KNOW** at the end of the unit):

• Students will be able to use Adobe Fireworks to create game graphics.
• Students will understand basic programming terms.
• Students will be able to use Game Maker to program a basic game.

Skills (what do you want them to BE ABLE TO DO at the end of the unit):

Planning:
• Students will be able to write a game story that includes game objectives, scoring, and characters.

Graphic Design:
- Students will be able to use Fireworks to edit static and animated graphics from sprite sheets.
- Students will be able to use Fireworks to create static and animated graphics of their own design.

Programming:
• Students will create instructions and user documentation for a Game Maker game.
• Students will be able to create objects in Game Maker that are programmed to respond to multiple events.
• Students will be able to create rooms for Game Maker programs.

Essential Question(s):
What are the resources required to create a game with Game Maker?
What are the programming skills needed to create a game with Game Maker?

Key words/vocab:
Sprite: graphics used in a Game Maker program, both static and animated.
Object: an entity in Game Maker that responds to events in the program.
Room: the environment in a Game Maker program in which the game takes place, objects are placed in a room.
Event: are messages from the computer that indicate something has happened (i.e. a key press). Programmers define which events program objects will respond to.
Action: are the things that happen to objects in a Game Maker program.
Collision: the point at which two objects touch each other in a room.
Pixel: the smallest addressable element in a graphic

Animation: a graphic with multiple frames, when played it simulates movement.
Variable: a storage location for data in a computer program.

WICOR Strategy:
Organization - Students will plan programming projects and define task completion deadlines.
Inquiry - Students will identify, brainstorm, and solve a problem

Unit Performance Assessment:

1. Write a story and project plan for a Game Maker program of the student's own design.
2. Create a Game Maker program that matches the student's design documents.

Formative Assessments (daily/weekly):

1. Writing prompts/discussions.
2. Program plans in blog.
3. Daily skills practice with Fireworks and Game Maker.
4. Multi-day programming assignments.