Lesson 2 - Scratch Scavenger Hunt

**Problem statement:**

Your team must design a new game and present your product to the leadership team of Games R Us, your goal is to get approval from the Games R Us executives to produce your game.

This lesson will introduce students to Scratch and its basics features.

**Learning objectives:**

Students will be able to describe and use sprites (characters) that incorporate movement, sound and background settings available.

**Washington State Computer Science Learning Standards (3-5)**

1B-A-2-1

Apply collaboration strategies to support problem solving within the design cycle of a program

1B-A-5-3

Create a plan as part of the iterative design process, both independently and with diverse collaborative teams (e.g., storyboard, flowchart, pseudo-code, story map).

1B-A-5-4

Construct programs, in order to solve a problem or for creative expression, that include sequencing, events, loops, conditionals, parallelism, and variables, using a block-based visual programming language or text-based language, both independently and collaboratively (e.g., pair programming).

1B-A-3-6

Decompose (break down) a larger problem into smaller sub-problems, independently or in a collaborative group.

1B-A-3-7

Construct and execute an algorithm (set of step-by-step instructions) that includes sequencing, loops, and conditionals to accomplish a task, both independently and collaboratively, with or without a computing device.

**Next Generation Science Standards (NGSS)**

3-5 ETS1-1

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost

3-5 ETS1-2

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5 ETS1-3

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved

**Common Core State Standards (CCSS) Mathematical Practices**

1. Make sense of problems and persevere in solving them.

6) Attend to precision.

7) Look for and make use of structure.

8) Look for and express regularity in repeated reasoning.

**Soft Skills:**

**Partnership for 21st Century Learning (P21)**

* Think creatively
* Work creatively with others
* Reason effectively
* Use systems thinking
* Make judgements and decisions
* Solve Problems
* Communicate clearly
* Collaborate with others
* Create media products
* Apply technology effectively
* Adapt to change
* Be flexible
* Manage goals and time
* Work independently
* Be self-directed learners
* Interact effectively with others
* Manage projects
* Produce results
* Guide and lead others
* Be responsible to others

**Locally and/or Personally Relevant for Students:**

Companies like Amazon Game Studios and Nintendo are doing game development right here in Seattle. There are many different type of jobs that get involved in the development of a game including:

* Animator: responsible for the portrayal of movement and behavior within the game
* Assistant Producer: Works with the game’s production staff to ensure timely delivery of the product
* Audio Engineer: Create the soundtrack for the game including music, sound effects, character voices, and spoken instructions
* Creative Director: Responsible for the overall look and feel of a computer game
* Development Operations Engineer: Responsible for creating the online infrastructure for online games which ensures the stability and security of the web services
* Game Designer: devise what the game consists of and how it plays, they define all of the core elements of the game
* Game Programmer: Design and write the computer code that runs and controls a game

**Connections to career and educational pathways:**

* Software applications developer
* Computer systems analyst
* Computer systems engineer
* Web developer
* Computer programmer

**Materials**:

* Computers
* Student worksheet -- “Scratch Scavenger Hunt”
* Internet access -- <https://scratch.mit.edu/projects/141280894/#editor>

**Lesson preparation:**

Students should access Scratch to prepare for the scavenger hunt.

**Time required:**

60 minutes

**Grouping of students for instruction:**

Grouping of students is dependent on computer access.

* If computers are available, students will be working independently on this assignment.
* If computers are not available, have students use pair programming. Student A will be the “driver,” inputting information into the computer. Student B will act as the “navigator,” directing the driver and what to input. Use the following video to instruct the students in how to pair program -- <https://www.youtube.com/watch?v=vgkahOzFH2Q> . Be sure that partners switch the roles often.

**Lesson:**

1. The teacher will make sure that each student has a computer and a copy of the worksheet “Scratch Scavenger Hunt.”
2. If students are sharing a computer, begin the class by showing the video for partner programming (<https://www.youtube.com/watch?v=vgkahOzFH2Q>).
3. The teacher will introduce the challenge: “Today you will be exploring a computer program called Scratch. You will be completing a scavenger hunt on Scratch, exploring as you go.”
4. The teacher will monitor students as they begin to work on the activity. Instruct students that if they have a question, use a post-it note as a flag on their monitor. This will create a visual for the teacher to see where students need assistance.
5. Students will explore using the Scavenger Hunt worksheet as a guide. Students may also collaborate with other students in the classroom as they hunt for answers.
6. After students have completed the scavenger hunt, share answers and any missing information.
7. Close the activity by having students fill in the Engineering booklet.

**Accommodations:**

* For students that are ELL:Partner with another student.

**Assessment:**

Formative Assessment in the Lessons -- As students are working you can collect informal information of their understanding. In addition, students will be providing peer feedback on the student worksheet.