08 Final Game Project

Description

In this lesson students are introduced to the final project for this unit. They will be able to choose a challenge level and begin working on their game.

Decide ahead of time how many days you will give to complete the game, whether in class or as homework.

Objectives

- I can use p5 and the p5.play library to build a browser based video game.
- I can use conditional statements to create win/lose scenarios and check for sprite collisions.
- I can incorporate Object Oriented Programming patterns using sprite objects.
- I can use for loops to iterate through groups of sprites.

Brain-Starter (5 min)

Groups review. Say we have a group of sprite named “dots”.

1) How would we change the x velocity of ALL the sprites in the group so that they move DOWN the screen?
2) How would we change the color of the 3rd sprite in the list to blue?

Share out and discuss student answers. Look for common misconceptions.

1) A: dots.vel.x = 2;
    a) Students may say a negative velocity.
2) A: dots[2].color = ‘blue’;
    a) Students may say 3, but counting starts at 0!

Code it!

```
let dots;
//start with a for loop creating the sprites.
function setup() {
  createCanvas(400, 400);
    dots = new Group() //creation of group
    for(let i = 0; i < 5; i++){
      new dots.Sprite(100, i * 60 + 100 ,50)
    }
  //code this!
  dots.vel.x = 2; //move all the sprites!
  dots.color = 'green'; //color all the sprites!
  dots[2].color = 'blue'; //color one sprite!;
}

function draw() {
  clear();
}
```

Introduce Project (10 min)

Have students read Game Introduction

There are different levels of challenge that you could attempt for this project:

Level 1 - Remix Game 1	Level 2 - Coin Collector	Level 3 - You Choose

• One obstacle was just too easy! Add a group of obstacles to avoid.
• Add a group of coins to collect.
• **Challenge!** Make the game get harder the longer you survive.
• **Boss Level!** Make animations for when the sprites collide!
 	
Starter Code
Example
	• Coins that appear in random places.
	• Mouse or keyboard to control the sprite movement.
	• Collisions/overlaps, add points when coins are collected.
	• **Challenge!** Add a timer, how many coins can you collect in 10 seconds.
	• **Boss Level!** Add an enemy sprite that moves around the screen, player must avoid it!
	
	Starter Code
	Example
		• Design your own unique game.
		• Game must incorporate the following elements:
		  ○ Groups
		  ○ User Input
		  ○ Animations
		  ○ Collisions/Overlaps
		• The game must have a win/lose condition!

Planning (10 min)

Have the students spend some time planning their game. The game planner from Lesson 6 can be reused here.

During this time poll students to see what level they are working on. You can group students into “Brain Teams” based on their chosen level to collaborate and help each other.

If students are feeling ready to get started, have them try and write pseudocode for one part of the game.

Work Time (30 min)

Give students time to get started on their game. Help students find the starter code to match their desired Level.

As much as possible, try to lead students to find solutions to their problems by reading through the p5 play reference page, past in class examples, or google searches.

Closing (5 min)

Practice stand ups! Group students in threes or fours, people they don’t normally interact with. Have them share a success and a difficulty that they had today! Students take turns sharing and offering advice.