# Mon., Day 1



FOCUS: How can we make and use sprites in p5.play?

Brainstarter:

Think about some of your favorite video games, books, movies, etc.
Who is the main player or character?

# ALL of the players in p5.play are represented with sprites.

**sprite ==** characters, items, or anything else that moves above a background.

# Let’s try to make some sprites!

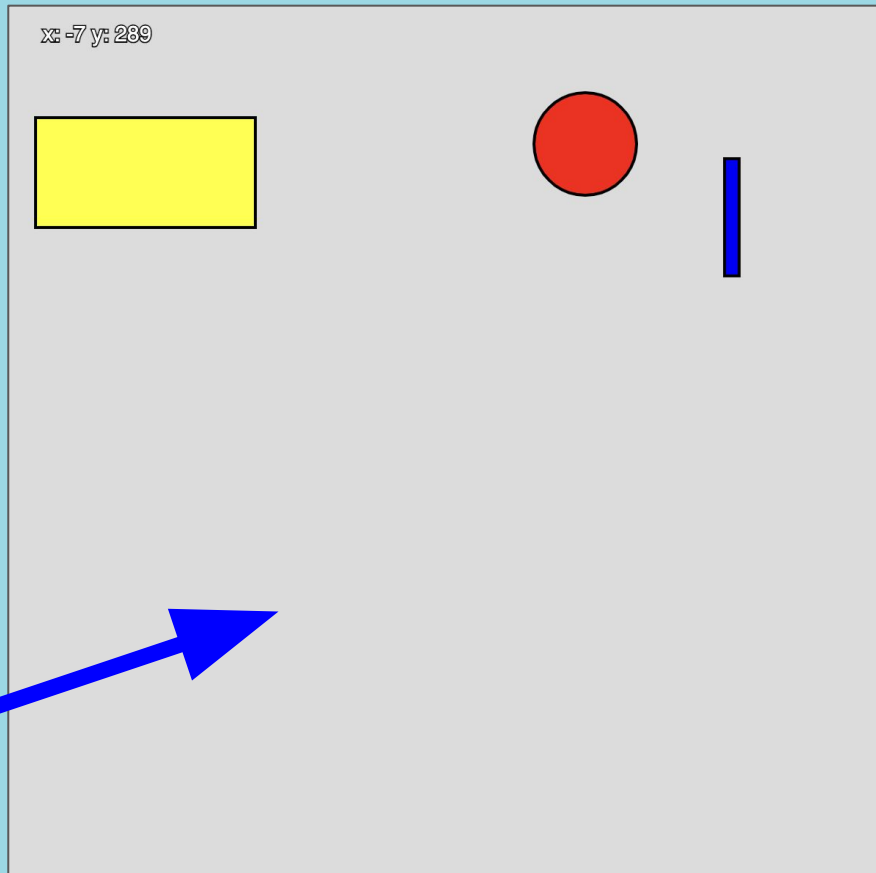
Open the following editor and duplicate it:

https://tinyurl.com/01spriteLab

# Practice #1

Create two new sprites in the upper-right corner of your sketch:

- one red circle
- one blue rectangle




**Example:**
Your circle and rectangle can look different!

# Practice #2

Rewrite your code for your rectangle and circle to use the Sprite constructor. If time, create a new polygon sprite. Examples below!

```
player = new Sprite(100, 120, 150, 75);
// creates new rectangle Sprite with x: 100, y: 120, w: 200, h: 75
```

```
player = new Sprite(100, 120, 150);
// creates new circle Sprite with x: 100, y: 120, diameter: 150
```

```
player = new Sprite(100, 120, 150, "triangle");
// creates new triangle Sprite with x: 100, y: 120, sidelength: 150
```

**For regular polygons, you can use:**

triangle, square, pentagon, hexagon, septagon, octagon, enneagon, decagon, hendecagon, or dodecagon

# Challenges

- Make your blue rectangle move straight down in your sketch.
- Make your red circle move towards the bottom left corner of the sketch.
- Create two polygon sprites at the bottom left and right corners of your sketch.  Make them rotate in opposite directions.


Stretch goal:  check out https://tinyurl.com/day1Stretch and make a sprite that moves using your keyboard.

# Closing

On a sticky note, write your name and answer one of the following:

- What is something you learned today?
- What is something you made a connection to?
- What is something that is standing in the way of your learning?

# Tues., Day 2



FOCUS: How can we make and use sprites in p5.play?

Brainstarter:

1. When making a sprite. Does it get created in the draw or setup function?
2. What are some of the built in properties of a sprite?

# One more property:  collider

A sprite's collider is used to detect collisions with other sprites. You may have noticed this yesterday when your sprites ran into each other!

By default, sprites have a 'dynamic' physics collider that allows the sprite to move freely and be affected by gravity.

The other collider types are 'static' and 'none'. Sprites that have a 'static' collider can't be moved by other sprites and aren't affected by gravity. Setting a sprite's collider type to 'none' removes its collider from the physics simulation.

# Let's make some sprites collide & interact!

Open the following editor and duplicate it:

https://tinyurl.com/spriteLab2CA

# Challenges

https://tinyurl.com/spriteLabChallenge

You **must** complete Mild before attempting Medium or Spicy.

# Challenges: Mild

https://tinyurl.com/spriteLabChallenge

**Remember; you MUST do this one first!**

- Set world gravity to simulate Earth's gravity.
- Create a static floor sprite that takes up the bottom part of your sketch.
- Create a dynamic sprite that will collide with the floor sprite.  When this sprite and the floor collide, change 1 attribute of either sprite.
- Create a static sprite that is between your dynamic sprite and your floor sprite.  When the dynamic sprite overlaps the static sprite, change one attribute of either sprite.


If you later do Medium or Spicy, comment out your Mild code.

# Challenges: Medium

https://tinyurl.com/spriteLabChallenge

**Remember; you MUST do Mild first!**

- Set world gravity to simulate Earth's gravity.
- Create a dynamic circle sprite that will fall to collide with a static rectangle sprite.  Make the sprites change 2 attributes each when they collide.
- Create a dynamic polygon sprite that will fall to overlap with a static circle sprite.  Make the static circle sprite change or disappear when the polygon overlaps with it.

Comment out your Mild code, then start this one.

# Challenges: Spicy

https://tinyurl.com/spriteLabChallenge

**Remember; you MUST do Mild first!**

Recreate challenge:
https://01Sprite-LabPt3.kmaschm.repl.co

(link in starter code)

# Closing

Please submit your Challenges work in today's post on Google classroom!

# Wed., Day 3

FOCUS: How can we make and use sprites in p5.play?

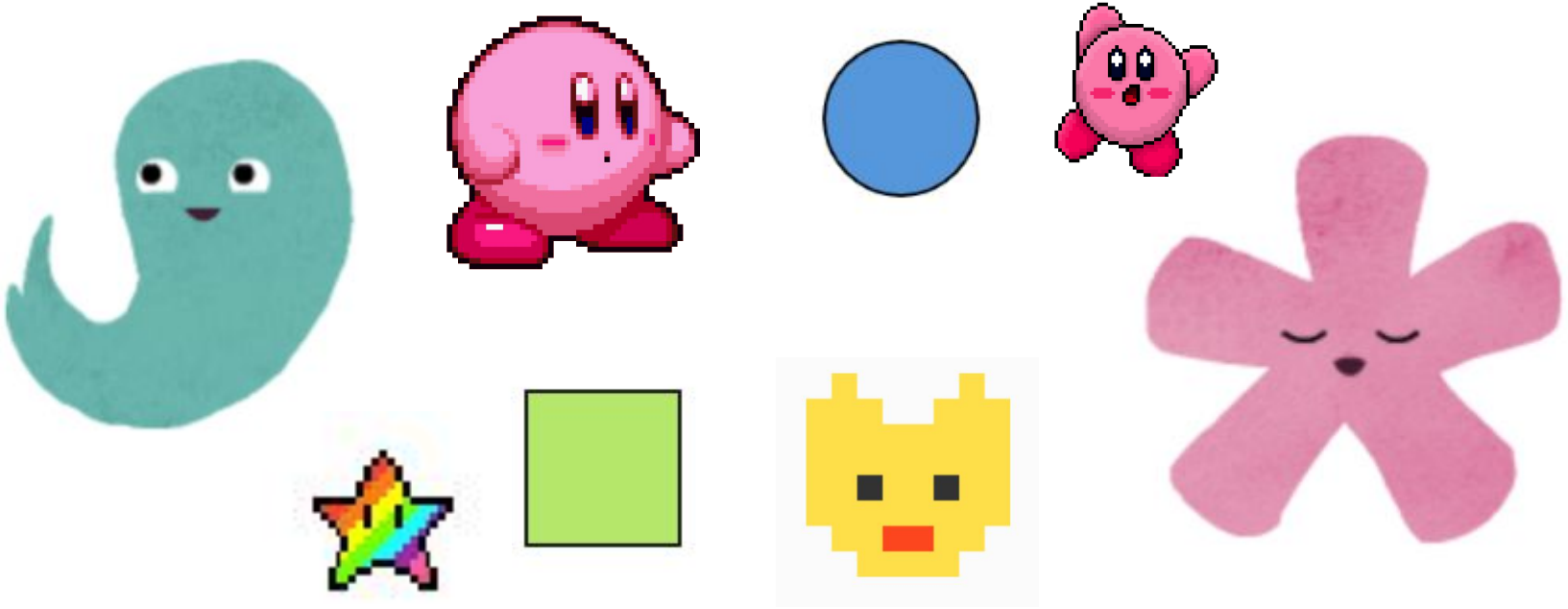
Brainstarter:

The sprites we have made are cool, buttttttt they could be cooler.

What would you like to change about our sprites to make them more personalized?

03_Sprite_Art_Lab

**Turn && Talk:** Which sprite would you use in a game? Explain WHY.



Today we are going to talk about making some unique sprites.

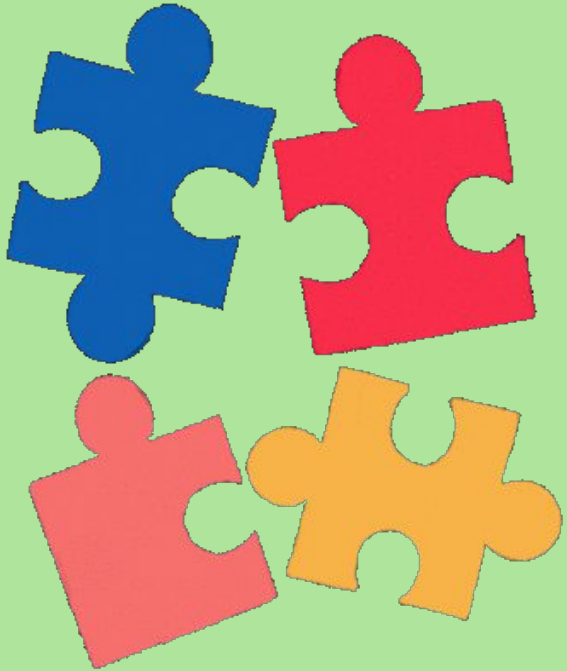
Think about how you have been feeling about p5 and sprites so far. TODAY: do you feel up for a:

Mild, medium or spicy challenge?

# Lab Jigsaw

You are going to become an expert of your challenge.

**Your goal:** learn how to make a sprite and be ready to share to a new group of your peers.



# There are a few different ways we can make custom sprites.

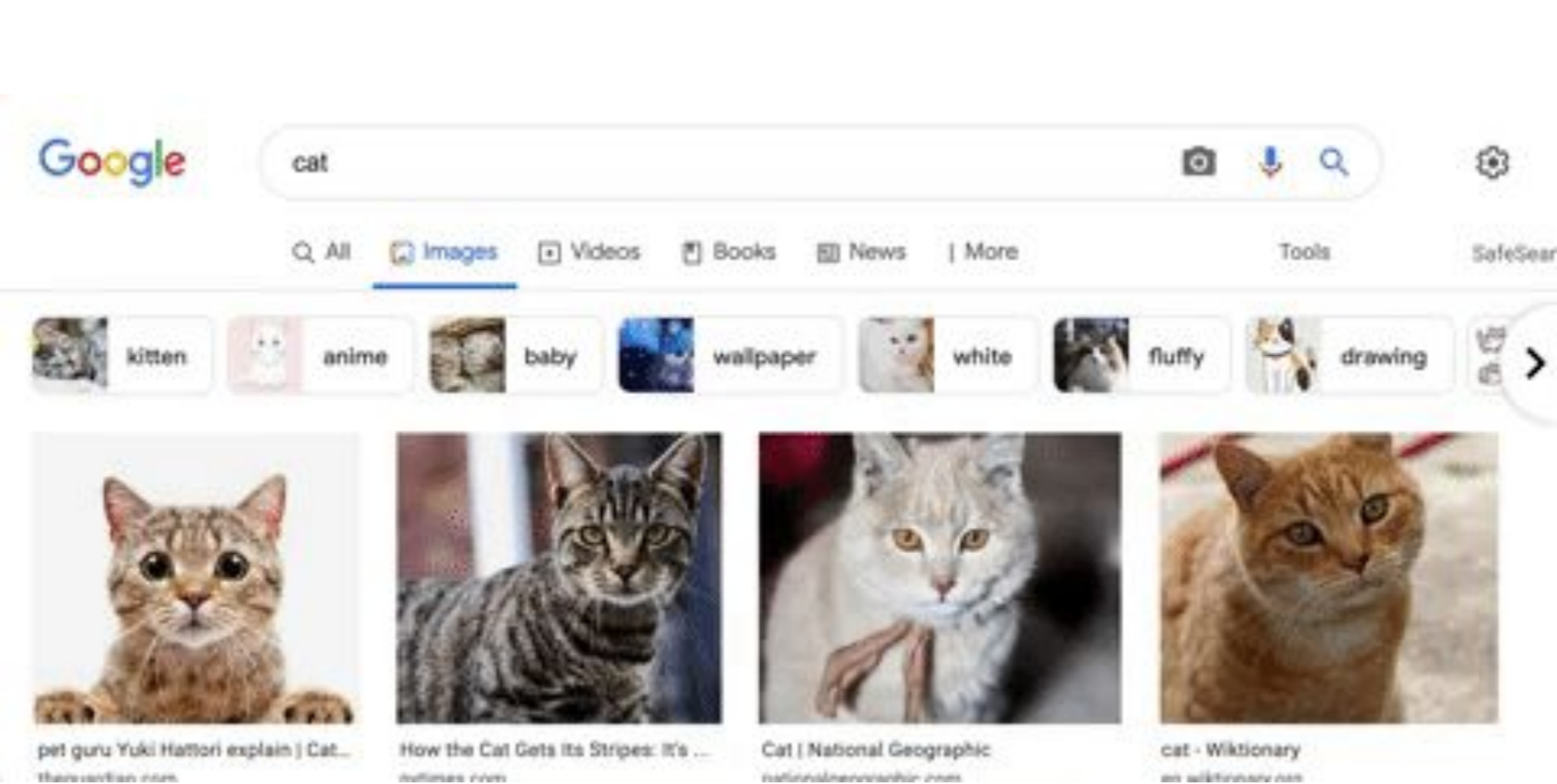
- **Mild 🌶️:** Using a PNG Image
- **Medium 🌶️🌶️:** Making our OWN!
- **Spicy 🌶️🌶️🌶️:** Making our own *animated*

# Let's come back together

In your new groups, share your challenge method – and show your code!

**Sentence Starters:**

- My method was to…
- Here are the most important lines of code, this is how they work…
- A 'hang up' to watch out for is…
- Do you have any questions?


Google
cat
All
Images
Videos
Books
News
More
Tools
kitten
anime
baby
wallpaper
white
fluffy
drawing
pet guru Yuki Hattori explain | Cat...
How the Cat Gets Its Stripes: It's ...
Cat | National Geographic
cat - Wiktionary

# Let's recap.

What are the advantages of each method?

What are the disadvantages of each method?

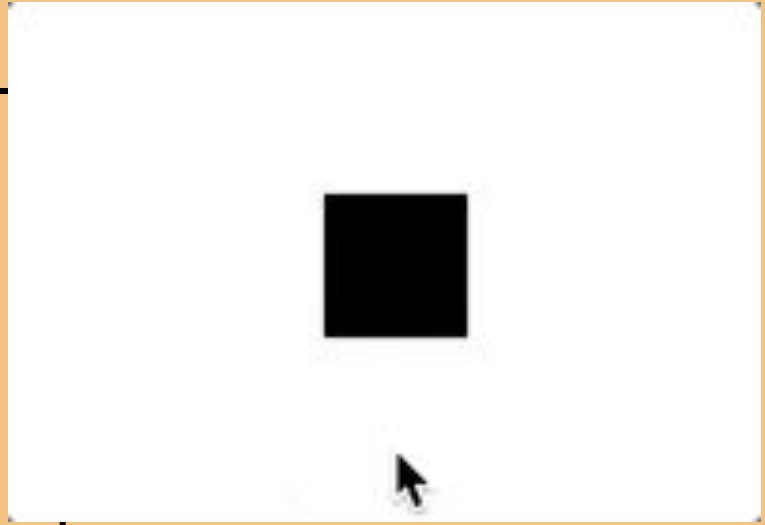
Which method do you prefer?

# Thurs., Day 4

FOCUS: How can we use our mouse to manipulate our sprites?

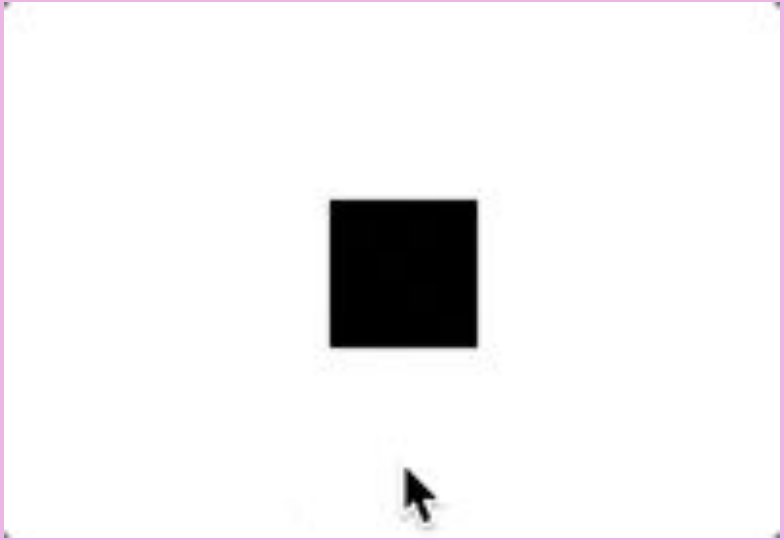
Brainstarter:

Look at the gif. What is happening?



04_Mouse_Movement_Lab

**Turn && Talk:** What is happening in the gif?



# Let's try to use mouse interaction

Open the following editor and duplicate it:

https://tiny.one/mouseMove

# Challenges

https://tinyurl.com/mouseMoveLab

With your partner, open the editor above.

At the top of the editor is a Google Doc Link. Open it to read through some documentation.

**Let's recap.**

What is the difference between "hover" and "press"?

# Fri., Day 5

FOCUS: How can we use our keyboard to manipulate our sprites?

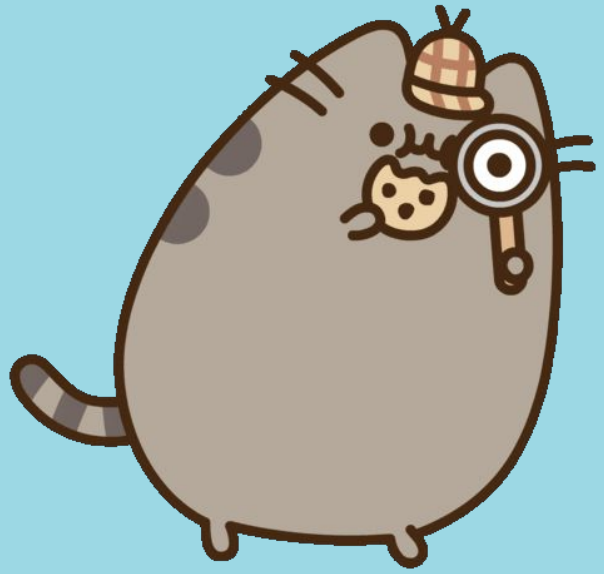
Brainstarter:

In the last lesson you learned how to control sprites using the mouse. How else would you want to interact with a p5 game?

# Exploration tinyurl.com/keyExplore

With your group, go to the above link and try to identify how to get each event to trigger.

Complete the sentence starters on your note catcher.



# Let’s try one together.

**Press** is triggered when _____ but not when _____.

# Let's try to use keys.

Open the following editor and duplicate it:

tinyurl.com/keyboardCodeAlong

# Challenges: tinyurl.com/keyboardTask

Create a new sprite and give it a flappy animation.

Make the bird move up and down with the keyboard.

Challenge - Stop and Stop animation when the keys are being pressed.

Check out the code for Boss Level!

# Let’s go back to our code along and create a wall for Kirby.

# Challenges:

Continue where you left off and now add a “ground” sprite that keeps the bird from exiting the screen at the bottom.

Birds can fly as high as they like!

# Recap: Turn && Talk

We have now seen how to move a sprite with a keyboard and the mouse.

Which type of input do you like most? Which type do you think you will use in your first game?

# Mon., Day 6

FOCUS: Let's make a game!

Brainstarter:

## What makes a good game?

# Asteroids!

**Goal:** You must make a game where you control a sprite with keyboard movement so that it avoids falling sprites.

**You must:**

- Make falling sprites (asteroids)
- Use keyboard movement to move player sprite
- Check for collisions
- Survive to win
- Spicy 🌶️: make it icy so movement is faster, add falling coins to collect, etc…

# Let's see an example.

You will have a few choices in your game design.

- Obstacles come from the top or from the size.
- You can change the appearance of any and all sprites.
- Decide whether you want mouse or keyboard control.

# Let's make a plan.

## Player Sprite

Draw a sketch of what the player will look like.

Describe how the player will be moved.

Will the player sprite be animated?

## Obstacle Sprite

Draw a sketch of what the obstacle will look like.

Describe how the obstacle will move across the canvas.

Will the obstacle  sprite be animated?

# Progression of Asteroids

**TODAY:**

Make a plan.

What will you code NOW (first)?

What will you code SOON (after you have some basics)?

What will you code LATER (if you have time)?

**Rest of the Week:**

Code!

# Tues., Day 7

FOCUS: How can we use groups to simplify our games?

Brainstarter:

You have **4 minutes** to recreate the above image. Each circle should be its own sprite.

07_Groups_Lab

**Turn && Talk:** Answer the following questions with your partner.

- Did you finish the task?

- How did it feel?

# Let's try to make a group.

Open the following editor and duplicate it:

tinyurl.com/p5playtemplate

# Challenges tinyurl.com/groupsLab

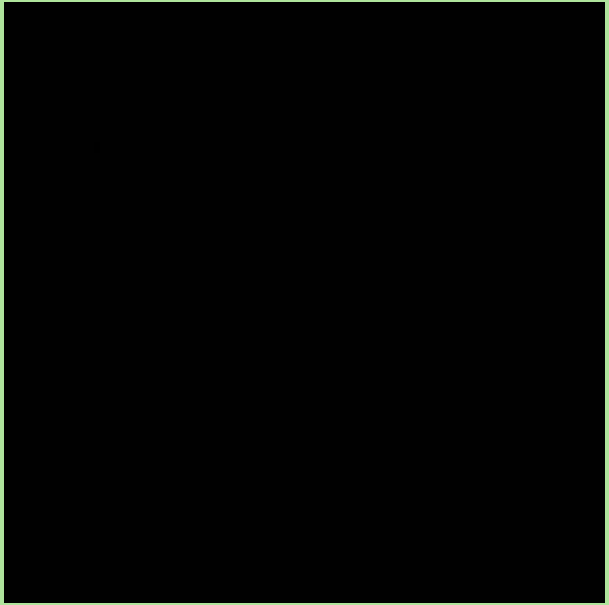
Create 200 rectangles on the canvas by using a group.

Set at least 3 properties for the group.

Use indexing to change a property of 1 of your sprites in the group – make it unique!

Create a non-grouped sprite (a player)

Have the non-group sprite and group sprites interact in some way.



# Pair Programming

ONE computer is open at a time (the other is pacman-ed)

**Driver ==** typing on the computer && executing the code, only following Navigator's directions

**Navigator ==** giving coding directions to the driver, they DO NOT touch the keyboard

# Wed., Day 8

FOCUS: Let's make a final game!

Brainstarter:

Say we made a group of sprites named "dots".

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

# Let’s code the brainstarter!

# Let's talk about our final project.

tinyurl.com/finalGamep5Play

With your partner, head to the URL above.

On your post its, write down 2 questions you have about 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.<br>• Add a group of coins to collect.<br>• **Challenge!** Make the game get harder the longer you survive.<br>• **Boss Level!** Make animations for when the sprites collide! | • Coins that appear in random places.<br>• Mouse or keyboard to control the sprite movement.<br>• Collisions/overlaps, add points when coins are collected.<br>• **Challenge!** Add a timer, how many coins can you collect in 10 seconds.<br>• **Boss Level!** Add an enemy sprite that moves around the screen, player must avoid it! | • Design your own unique game.<br>• Game must incorporate the following elements:<br>  ○ Groups<br>  ○ User Input<br>  ○ Animations<br>  ○ Collisions/Overlaps<br>• The game must have a win/lose condition! |

# Let's make a plan.

## Player Sprite

Draw a sketch of what the player will look like.

Describe how the player will be moved.

Will the player sprite be animated?

## Obstacle Sprite

Draw a sketch of what the obstacle will look like.

Describe how the obstacle will move across the canvas.

Will the obstacle  sprite be animated?

# Progression of Asteroids

**TODAY:**

Make a plan.

What will you code NOW (first)?

What will you code SOON (after you have some basics)?

What will you code LATER (if you have time)?

**Rest of the Week:**

Code!

# Closing:

Share out:

- A success you had today
- Something challenging
- A shout out to someone who helped you!

# Thurs., Day 9

FOCUS: How can we give and get feedback about our games?

Brainstarter:

On the CAT scale, how are you feeling about your game?

# Play Testing

"Playtesting is a commonly used testing technique for games. This quality control method repeats itself at many points of the gaming application/software design process. A nominated group of players play on-going versions of a game to find failings in the game, and to discover bugs and gaming glitches. It also focuses on describing out the unclear points, increasing fun features or decreasing boredom, etc."

# Play Testing Protocol

You will be paired with someone who hasn't seen your game yet.

Developers **cannot speak!** No background information, no directions, nothing.

During the test, they should be making observations and taking notes.

Testers **must always be speaking!** State the goal or expectation for each action they take.

Focusing on user experience and not likes and dislikes.

# Time to revise and Improve

# Think, Pair, Share

How did play testing help you improve your game?

What part of the play testing was difficult? What was easy?

# Next class: Presentations

You will present your final game and code for review.

Focus on your game design process and highlight areas of difficulty and success.

# Fri., Day 10

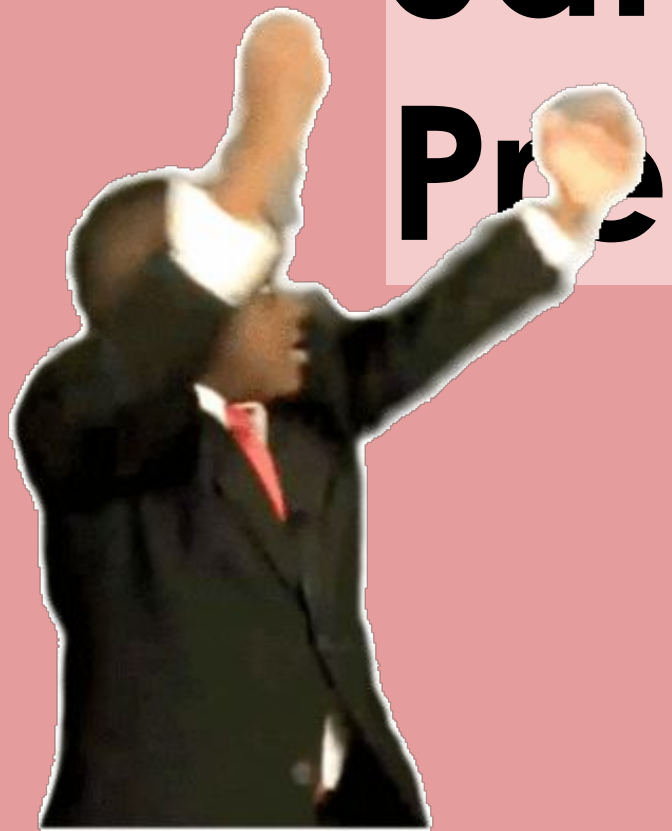
FOCUS: How can we show our pride and our learning?

**Brainstarter:** Standing up in front of a group of people and showing your work can be hard!

At your table, come up with a list of "norms" that you think we should follow as a class.

Ex: we should listen to the speaker and not talk during presentations.

# Sample Presentation



# Presentations:

In Presentations:

- What are you proud of?
- What was one thing that you found challenging?
- What would you add with more time?

# Shoutouts!

“I want to shoutout _____ for …”