

Mon., Day 1

01_Sprite_Lab

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:

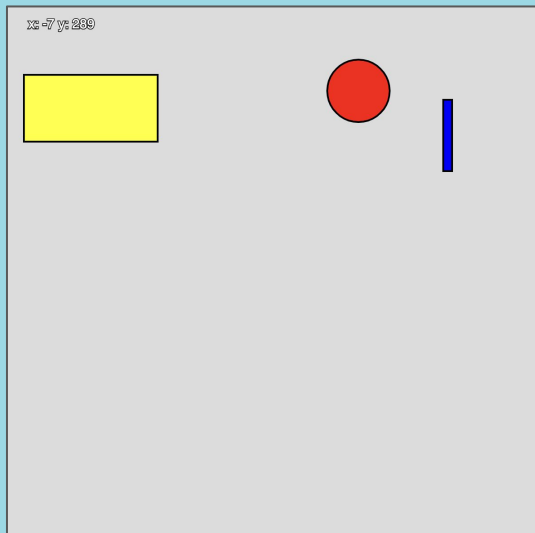
<https://tinyurl.com/01spriteLab>

Practice #1

Create two new sprites in the upper-right corner of your sketch:
one red circle and 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

01_Sprite_Lab

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

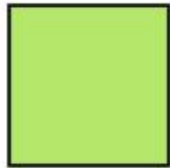
FOCUS: How can we make and use sprites in p5.play?

Brainstarter:

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

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

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



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*

Mild 🌶️: Using a PNG Image

Let's make a custom sprite.

We need to find a transparent image for our sprite.

Transparent images are generally .png images.





cat



All

Images

Videos

Books

News

More

Tools

SafeSearch



kitten



anime



baby



wallpaper



white



fluffy



drawing



pet guru Yuki Hattori explain | Cat...
thetransition.com



How the Cat Gets its Stripes: It's ...
atlantis.com



Cat | National Geographic
nationalgeographic.com



cat - Wiktionary
en.wiktionary.com

Let's try to make custom sprites!

Open the following editor and duplicate it:
<TINYURL>

Challenges



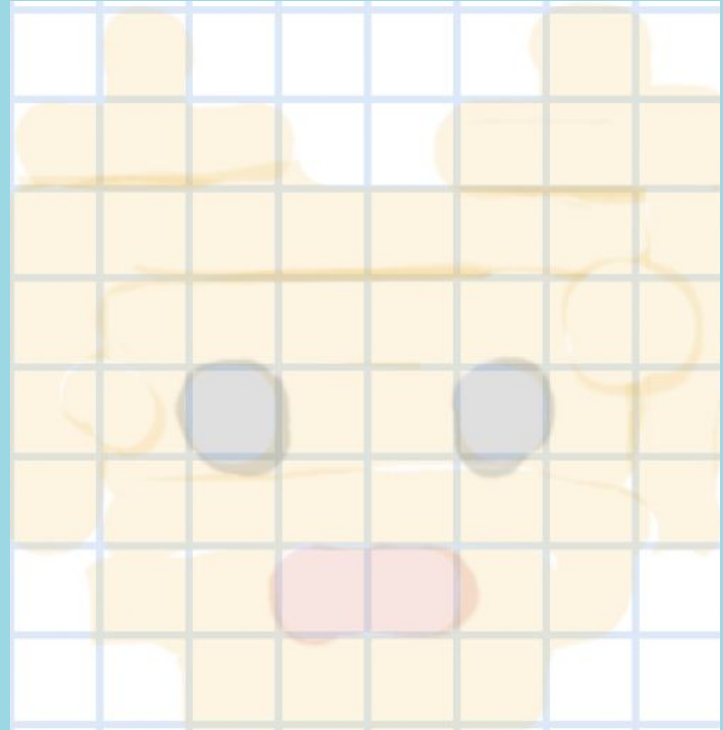
Medium 🌶️🌶️: Making our OWN!

Spicy 🌶️🌶️🌶️: Making our own
animated

Let's plan out a sprite.

On your 8x8 grid, plan out your sprite.

Your sprite should be made up of colors and blank spaces.



Turn your sprite into a string.

When we turn our sprite into a string, we use characters to represent blanks and colors.

.	y	y	.
y	y	y	.	.	y	y	y
y	y	y	y	y	y	y	y
y	y	y	y	y	y	y	y
y	y	b	y	y	b	y	y
y	y	y	y	y	y	y	y
.	y	y	r	r	y	y	.
.	.	y	y	y	y	.	.

Let's try to make custom sprites!

Open the following editor and duplicate it:
<TINYURL>

Challenges



Thurs., Day 4

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

Brainstarter:

List some of the
properties of a
sprite.



Turn && Talk: What do you think these might mean?

.hovering()

.presses()

.dragging()

.hovers()

.pressing()

.released()

.hovered()

.pressed()

Let's try to use mouse interaction

Open the following editor and duplicate it:
<TINYURL>

Challenges



Fri., Day 5

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

Brainstarter:

What is the difference
between `.hovering()`
and `.pressing()`?

Challenges



Mon., Day 6

FOCUS: Let's make a game!

Brainstarter:

What skills have
we learned in
p5.play thus far?



06_Game1

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.

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. - Fri., Day 7 - 10

FOCUS: Let's make a game!

Brainstarter:

Please write down ONE thing
you would like to accomplish
on your game today.

Be specific.



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.

Mon., Day 11

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.

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>

Challenges

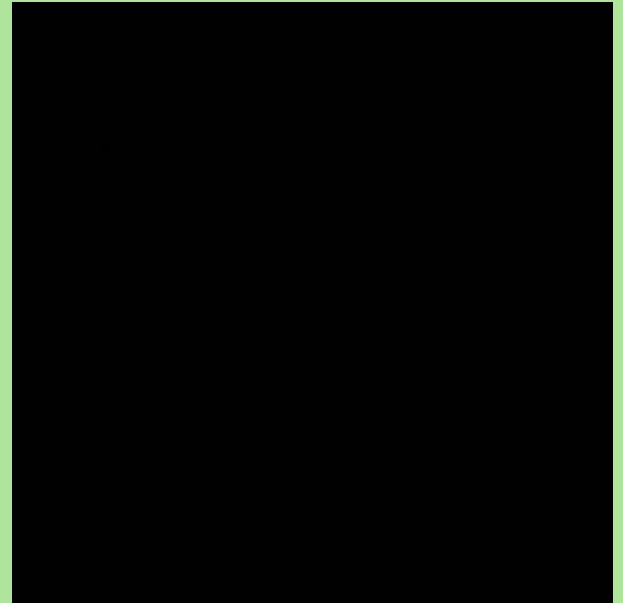
Create 200 rectangles on the canvas by using a group.

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

08_Groups_Lab



Tues., Day 12

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

```
11 ▼ for (var i=0; i<26; i+=1) {  
12  
13     new dotList.Sprite(i*20,25,10)  
14  
15 }
```

Brainstarter:

A lot is happening in the image above. Explain one part **OR** write a question about it.

Challenges

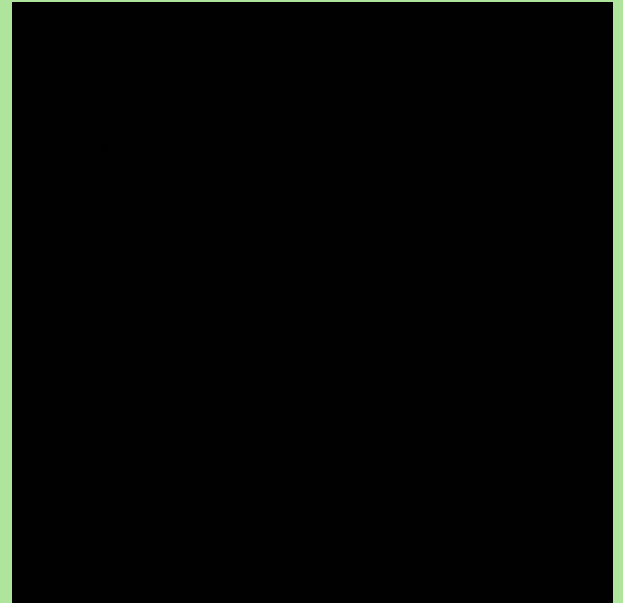
Create 200 rectangles on the canvas by using a group.

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

08_Groups_Lab



Wed., Day 13

FOCUS: Let's make a final game!

Brainstarter:

Pick either a sprite **OR**
a group.

What can you do to
your choice?



What have we learned so far in p5.play?

Final Project!

Goal: Make a game that blows our minds!

You must:



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!

Thurs. - Mon., Day 14 - 16

FOCUS: Let's make a game!

Brainstarter:

Please write down ONE thing
you would like to accomplish
on your game today.

Be specific.



Final Project!

Goal: Make a game that blows our minds!

You must:



Tues., Day 16

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

Brainstarter: Think about your final project and answer the following questions:

- What is something you are proud of?
- What was something that was challenging?
- What would you add with more time?

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?

**These are
INFORMAL
and
SHORT!**