Creative Coding with P5.js

What is P5.js?

Sound

Animation

Animation 2

Interactivity

Typography/Image

Games

Auto-refresh   Nasal pike ✎

sketch.js

```
1  function setup() {
2    createCanvas(400, 400);
3  }
4
5  function draw() {
6    background(220);
7  }
```

THESE INSTRUCTIONS ARE ONLY CARRIED OUT **ONCE**, AT THE START

THESE INSTRUCTIONS CARRIED OUT REPEATEDLY
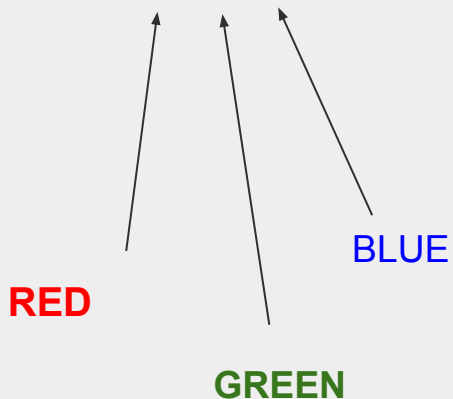
Try it Yourself

```
1▼ function setup() {
2      createCanvas(800, 800);
3      background(0,0,255);
4
5  }
6
7▼ function draw() {
8  }
```

Don't forget the semi-colons!

RGB Color!

Background (0,0,0); = black

RED
GREEN
BLUE

Play around with the numbers to make new colors in the P5 editor

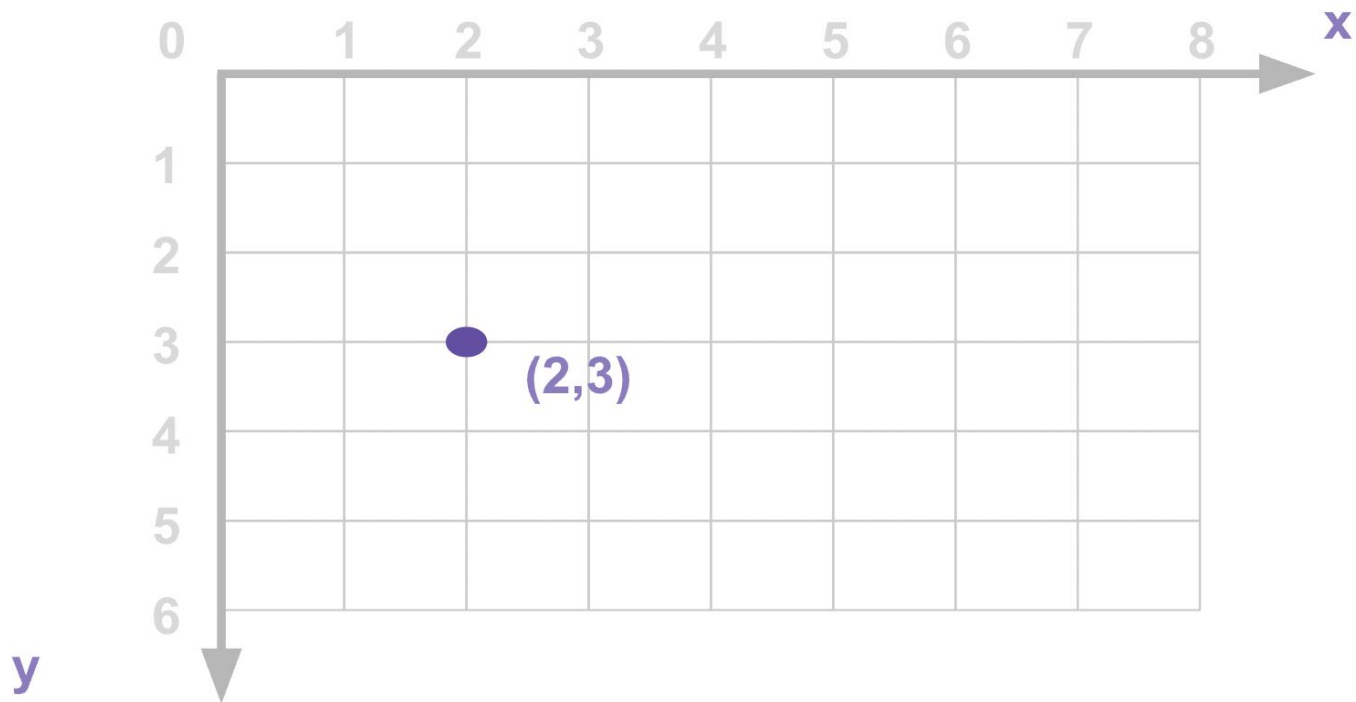- What combination makes purple?
- What about pink?
- Try making yellow?

Making Shapes

To create a shape, you must follow a specific formula in P5 which includes, X/Y coordinates as well as width and height.

Such as:

ellipse (150,150, 150);

Coordinates

Drawing References

```
ellipse(x,y,r,r)

line(x1,y1,x2,y2)

rect(x,y,w,h)

quad(x1,y1,x2,y2,x3,y3,x4,y4)

triangle(x1,y1,x2,y2,x3,y3)
```

```
fill(R,G,B,A)

stroke(R,G,B,A)

color(R,G,B,A)
```

Add a Shape

☑ Auto-refresh   Nasal pike ✏
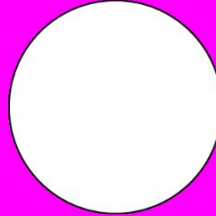
⚙

> sketch.js•   Preview

```
1▽ function setup() {
2     createCanvas(600,600);
3     background(255,0,255);
4
5 }
6
7▽ function draw() {
8     ellipse(150,150,150);|
9 }
```
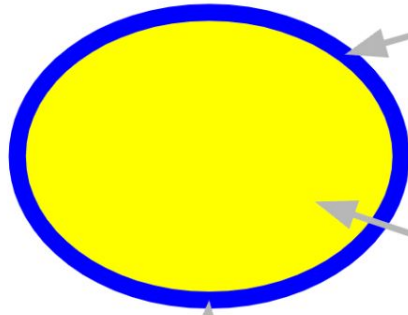
Console   Clear ⌄

>

Color and Stroke

stroke(0, 0, 255);

fill(244, 241, 66);

strokeWeight(2);

Color & Stroke

```
1 ▼ function setup() {
2     createCanvas(600,600);
3     background(255,0,255);
4
5 }
6
7 ▼ function draw() {
8     ellipse(150,150,150);
9     fill(0,0,255);
10    stroke(255,255,255);
11    strokeWeight(10);
12 }
```

Add color and a stroke to your shape!

Order of Shapes

[Emoji P5 Sketch](#)

When coding in P5 shapes load from the bottom up

```
1 ▼ function setup() {
2     createCanvas(600,600);
3     background(255,255,255);
4
5 }
6
7 ▼ function draw() {
8     fill(253,255,155);
9     ellipse(150,200,200);
10    stroke(0,0,0);
11    strokeWeight(1);
12
13    fill(255,255,255);
14    ellipse (180,170,30,60);
15    ellipse (120,170,30,60);
16
17    fill(255,255,255);
18    arc(150, 220, 130, 100, 0, PI, CHORD);  //Half Circle
19
20 }
```

Code an Emoji!

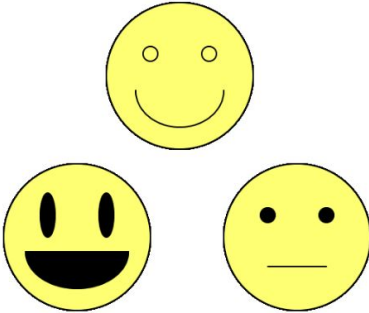Using P5 - code an Emoji if your choosing.

P5 Emojis


```
1 ▼ function setup() {
2     createCanvas(600,600);
3     background(255,255,255);
4
5   }
6
7 ▼ function draw() {
8     fill(263,275,115);
9     ellipse(150,200,100);
10    stroke(0,0,0);
11    strokeWeight(1);
12 //   face shape
13
14    fill(0,0,0);
15    ellipse (170,185,10,30);
16    ellipse (130,185,10,30);
17 //   eyes
18
19    fill(0,0,0);
```

sketch.js   Saved: 7 days ago   Preview

P5 Link

Console   Clear ⌄

P5 Day 2

What did we learn last week?

Terms?

Rules?

What was challenging?

Comments & Capitals

What is a comment in coding?

//it allows us to leave instructions or notes for reference and always looks like this - gray with to back slashes.

To comment out a line - hit command & / at the same time → try it!

It can act as a tool to help you debug your sketch quickly

Capital letters are always crucial to coding and can stop your sketch from working. A code of line starts off as lowercase but when we need to combine 2 works - we use a capital letter → createCanvas

Finishing Emojis

Take 5-10 minutes to finish coding your Emoji Designs

P5 Link
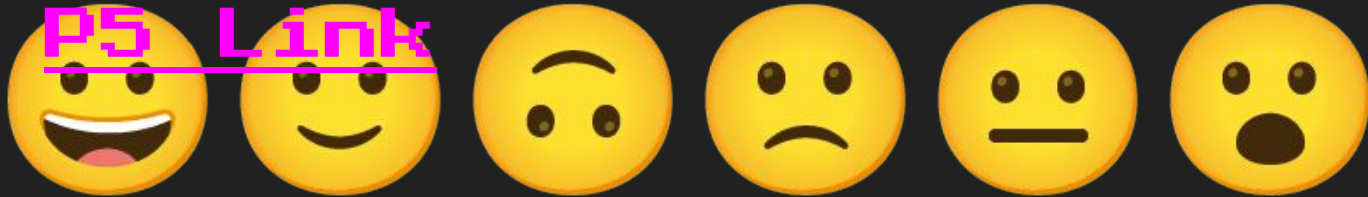
Chasing Shapes

Now that we have some experience making shapes, let's try to create simple objects in P5.
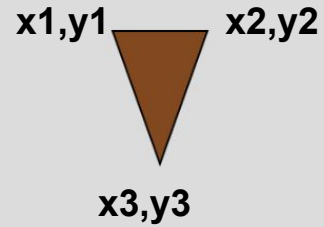
Let's make a triangle!

triangle (x1,y1,x2,y2,x3,y3);

**How can you make it look like an ice cream cone?**

Triangles

```
1▼ function setup() {
2    createCanvas(400, 400);
3 }
4
5▼ function draw() {
6    background(220);
7    fill("saddlebrown");
8    triangle( 150,150,200,150,175,220);
9 }
```

x1,y1   x2,y2

x3,y3

Coding an Ice Cream Cone

Now try to code an ice cream come with 2 scoops of ice cream! Create a name for your sketch and save as you get started! We will use this code again soon.
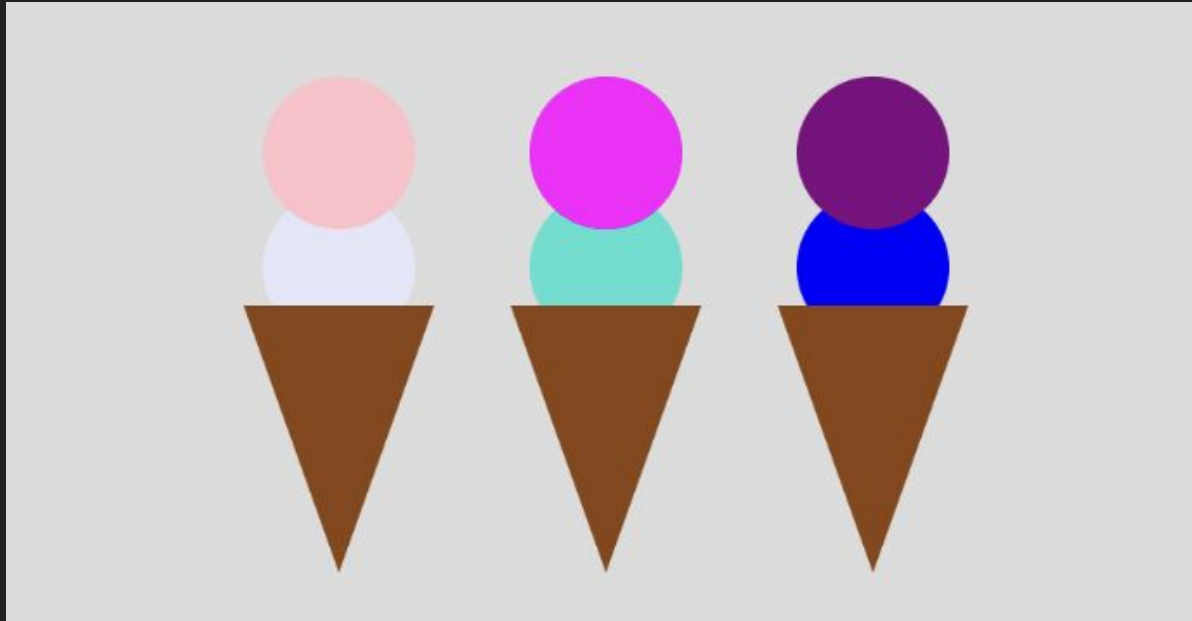
Coding an Ice Cream Cone

```
1▼ function setup() {
2    createCanvas(400, 400);
3    noStroke();|
4  }
5
6▼ function draw() {
7    background(220);
8    push();
9    fill('■turquoise');
10   ellipse(175,140,40);
11   fill("■saddlebrown");
12   triangle( 150,150,200,150,175,220);
13   fill("■magenta");
14   ellipse(175,110,40);
15   pop();
16  }
```

Link to code

P5 Day 3

What did we learn last week?

Terms?

Rules?

What was challenging?

mouseX & mouseY

When we create shapes in P5, we require X,Y coordinates to plan where we want our shape to be located on the grid.

What do you think will happen if we use this for our ellipse?

ellipse (mouseX, mouseY, 50);

mouseX & mouseY

```
sketch.js●

1▾ function setup() {
2     createCanvas(400, 400);
3  }
4
5▾ function draw() {
6     background(220);
7     ellipse(mouseX,mouseY,50);
8     stroke("□white");
9     fill("■blue");
10 }
```

Console   Clear ⌄

Preview

What happens when you move the background into draw?

Link to code

random ()

random () is a variable that can alter your visual coding outcomes including size & color

```
> sketch.js •

1 ▼ function setup() {
2     createCanvas(400, 400);
3     background(270,0,150);
4
5 }
6
7 ▼ function draw() {
8     fill(random(255), random (255), random(255));
9     ellipse (random(width),random(height),100,100);
10 }
11
12
13
```

What is a Function?

```
14▼  function iceCream (x,y,r) {
15      push();
16      translate(x,y);
17      fill(' lavender');
18      ellipse(175,140,40);
19      fill(" saddlebrown");
20      triangle( 150,150,200,150,175,220);
21      fill(" pink");
22      ellipse(175,110,40);
23      pop();
24   }
25
```

A <u>function</u> is a set of statements that perform a task just like a **recipe!**

Creating a Function

Open up your Ice Cream sketch so we can use it create your first function.

function iceCream () {

Place your code in between the curly brackets.

}

Executing Your Function

```
 5
 6 ▼ function draw() {
 7     background(220);
 8     iceCream(20,0,100);
 9
10
11 }
12
13 ▼ function iceCream (x,y,r) {
14     push();
15     translate(x,y);
16     fill('■lavender');
17     ellipse(175,140,40);
18     fill("■saddlebrown");
19     triangle( 150,150,200,150,175,220);
20     fill("■pink");
21     ellipse(175,110,40);
22     pop();
23 }
24
```

**Place the function name in your draw loop**

Your iceCream function goes below the draw loop

Link to code

Duplicating Functions

We can use our function more than once in the draw loop!

```
function draw() {
  background(220);
  iceCream(-50,0,100);
  iceCream (20,0,100);
  iceCream (90,0,100);

}

function iceCream (x,y,r) {
  push();
  translate(x,y);
  fill('lavender');
  ellipse(175,140,40);
  fill("saddlebrown");
  triangle( 150,150,200,150,175,220);
  fill("pink");
  ellipse(175,110,40);
  pop();
}
```
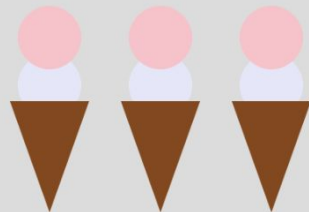
P5 Day 4

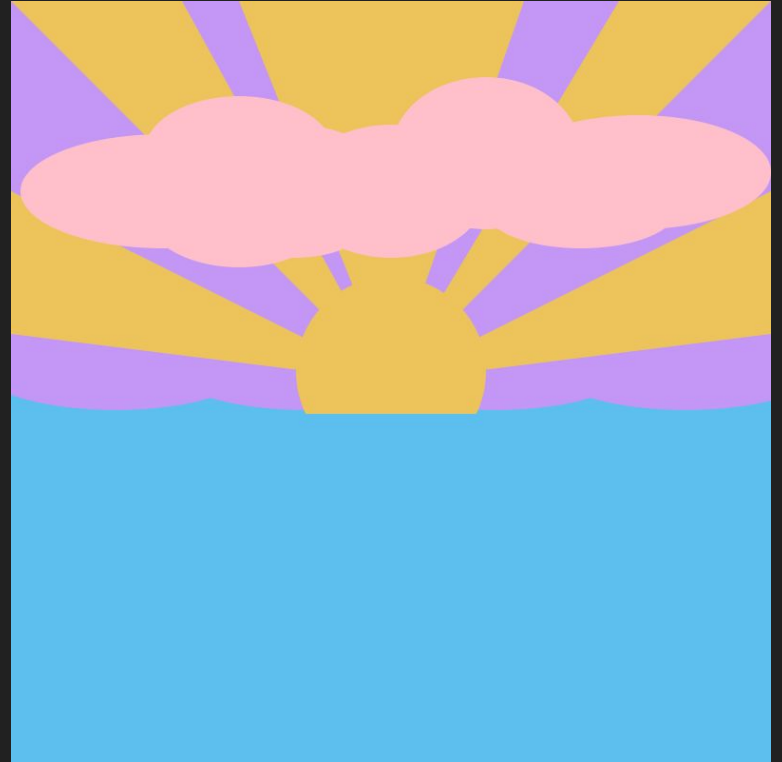What did we learn last week?

Terms?

Rules?

What was challenging?

Coding Charades

Today we're going to play a game using code! You will each take a slip of paper out of a box and will have to code that prompt in 20 minutes.

You will then drop a screenshot of your coded design in the folder in Google Classroom so we can guess each other's prompts!

Drawing References

```
ellipse(x,y,r,r)

line(x1,y1,x2,y2)

rect(x,y,w,h)

quad(x1,y1,x2,y2,x3,y3,x4,y4)

triangle(x1,y1,x2,y2,x3,y3)
```

```
fill(R,G,B,A)

stroke(R,G,B,A)

color(R,G,B,A)
```

P5 Day 5

What did we learn last week?

Terms?

Rules?

What was challenging?

Loops

```
//FOR LOOPS - use these if you know how often you'll loop
(i is the conventional variable)

for (var i = startValue ; i < endValue ; i+= increment){
}



for (var x = 0 ; x < 20 ; x++){

    ellipse (x, 20, 50, 50);
}

for (var x = 20; x < 220; x=x+40){
    ellipse(x, height/2.0, 40, 40);
  }
```