

Build the next Great Video Game Using the Hottest Tools

Lesson 2

In the `draw()` function, we will write a new command.

```
function setup(){
  createCanvas(800, 600);
}

function draw(){
  background(0);
  ellipse(30, 30, 50, 50);
}
```

The syntax for the `ellipse()` command is the **x** position, **y** position, **width** and **height**.

Here, the ellipse is created at **x 30**, **y 30** with a **width** and **height** of **50** pixels each.

Next, we'll modify the code a bit.

```
function draw(){

  background(0);

  ellipse(100, 100, 50, 50);

}
```

The ellipse is now drawn at **x 100**, **y 100** with a **width** and a **height** of **50** pixels each.

Next, we use the `rect()` command to add a rectangle to the canvas.

```
function draw(){

  background(0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 300);

}
```

The syntax for the `rect()` command is the **x** position, **y** position, **width** and **height**.

In this example, the rectangle is drawn at **x 200**, **y 200** with a **width** and a **height** of **300** pixels each. Next, we'll modify the code so that it becomes;

```
function draw(){

  background(0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 100, 100);

}
```

The rectangle now has a **width** of **100** and a **height** of **100**. Again, we can modify the code so that it becomes;

```
function draw(){

  background(0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

The **width** of the rectangle is now **300** pixels, while the **height** of the rectangle is **100** pixels.

We can also change the background color if we want.

```
function draw(){

  background(255);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

Here, we set the color of the background to white.

The range for colors is **0** to **255**. A value of **0** is black and a value of **255** is white.

A number closer to **0** gives us a darker grey color.

A number closer to **255** gives us a lighter grey color.

```
function draw(){

  background(50);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

Here, a value of **50** will give us a dark grey color.

A value of **50** is really is shorthand for writing **50, 50, 50**. This is known as the **RGB** system of colors. Red is the first value, green is the second and blue is the third.

When the values of **r**, **g** and **b** are the same, we get various shades of grey. However, we can modify the values of **r**, **g** and **b** independently in order to mix colors.

```
function draw(){

  background(255, 0, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a full red background.

```
function draw(){

  background(0, 255, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a full green background.

```
function draw(){

  background(0, 0, 255);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a full blue background.

```
function draw(){

  background(255, 0, 255);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a pink background.

```
function draw(){

  background(101, 44, 144);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a purple background.

```
function draw(){

  background(255, 255, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

}
```

This code gives us a yellow background.

Next, we create a fill color. A fill color uses the same **RGB** system of colors.

The `fill()` command sets the inside color of the shapes and text below it.

```
function draw(){

  background(255, 255, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

  fill(0);

  text("Hi, welcome to P5", 150, 100);

}
```

The `text()` command has **3 parameters**. **Parameters** are information we give to a command so that it knows what to do.

The first **parameter** of the `text()` command is the text we want to display.

In order for the command to work properly, we put the text inside quotes (" ").

The next **2 parameters** are the **x** position and the **y** position of the text. In this example, the **x** position is at **150** and the **y** position is at **100**.

By providing all the **parameters**, **P5** knows to display the text at that location.

```
function draw(){

  background(255, 255, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

  fill(0);

  textSize(20);

  text("Hi, welcome to P5", 150, 100);

}
```

Here, we set the size of the text to be **20** pixels, so that it is more readable.

```
function draw(){

  background(255, 255, 0);

  fill(255, 0, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

  fill(0);

  textSize(20);

  text("Hi, welcome to P5", 150, 100);

}
```

Here, the red `fill()` applies to the shapes below it until another `fill()` comes along.

In this example, while the red fill applies to both the ellipse and rectangle below it, the black fill applies to the text.

```
function draw(){

  background(101, 44, 144);

  fill(255, 0, 0);

  ellipse(30, 30, 50, 50);

  rect(200, 200, 300, 100);

  fill(255);

  textSize(20);

  text("Hi, welcome to P5", 150, 100);

}
```

Here, we've set the background color back to purple.

We also change the fill color so that it applies to the text. The text turns white.

```
function draw(){

  background(101, 44, 144);

  fill(255, 0, 0);

  stroke(255);

  ellipse(30, 30, 50, 50);

  fill(255, 255, 0);

  stroke(0);

  rect(200, 200, 300, 100);

  fill(255);

  textSize(20);

  text("Hi, welcome to P5", 150, 100);

}
```

Next, we create a stroke color. A stroke color also uses the **RGB** system.

The `stroke()` command sets the outline color of shapes and text below it. In this example, we set the stroke color to white. The ellipse, rectangle and text now have a white outline.

```
function draw(){

  background(101, 44, 144);

  fill(255, 0, 0);

  stroke(255);

  ellipse(30, 30, 50, 50);

  fill(255, 255, 0);

  stroke(0);

  rect(200, 200, 300, 100);

  fill(255);

  textSize(20);

  text("Hi, welcome to P5", 150, 100);

}
```

Here, the yellow `fill()` applies to the rectangle shape.

We also set the stroke color to black.