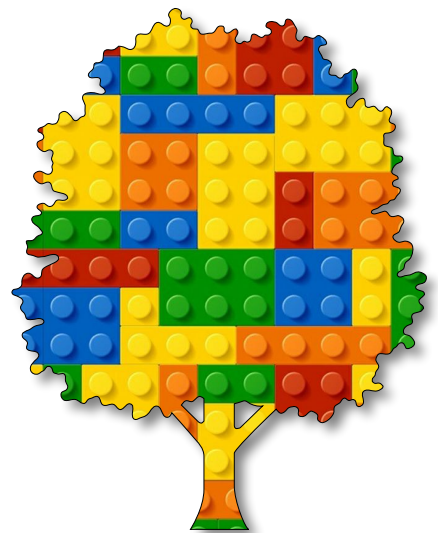


Algorithmic Art

Module B

Unit #4

RGB colour
slider





Module B Unit #4 RGB colour slider

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Introducing RGB and the slider

So far, I have introduced colour as a name and as RGB values with red, green, and blue components. Before jumping into the other colour methods, I just want to expand on RGB.

Key concepts:

- 中 `colorMode()`
- 中 sliders
- 中 RGB slider colour change



Sketch B4.1 using RGB for the colour

We have already introduced RGB. Here is a reminder: a green circle on an orange background.

```
function setup()
{
  createCanvas(400, 400)
}

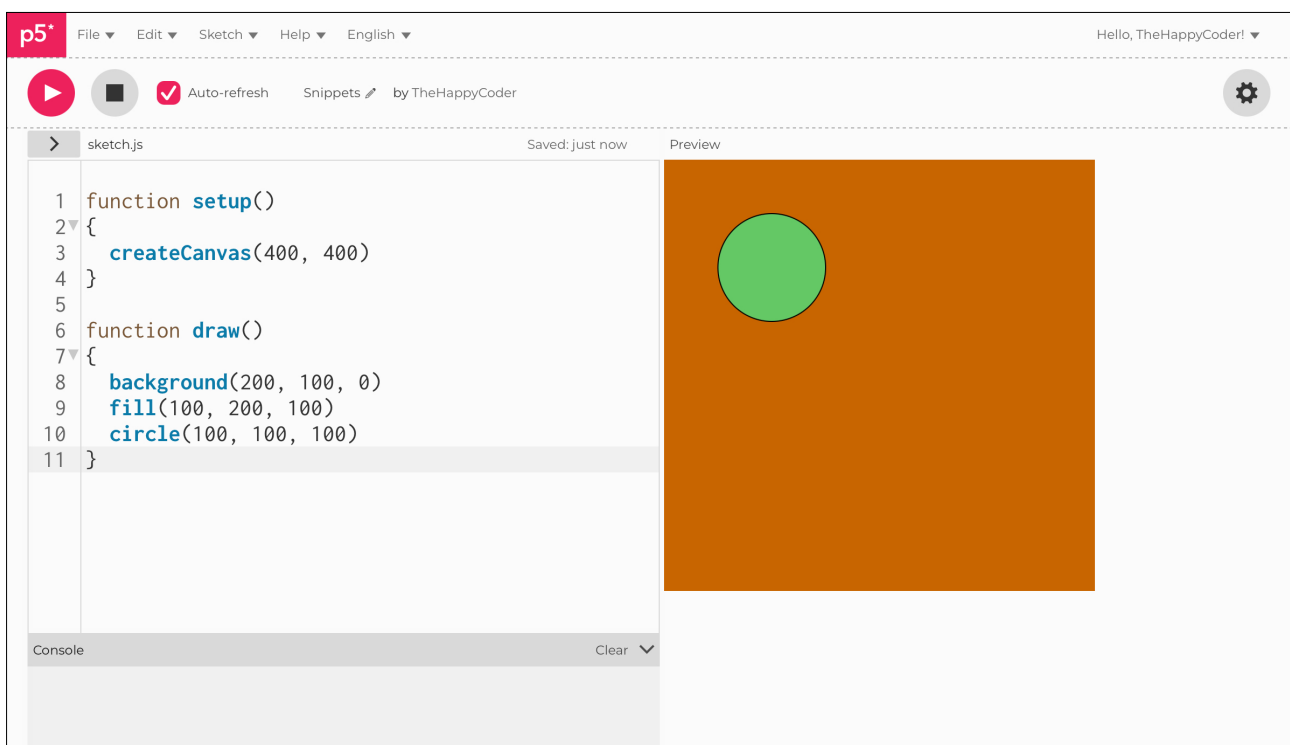
function draw()
{
  background(200, 100, 0)
  fill(100, 200, 100)
  circle(100, 100, 100)
}
```



Notes

By default, it assumes values (arguments) are for RGB, three for the red, blue, and green; the fourth is the amount of transparency.

Figure B4.1





Sketch B4.2 colorMode()

We have even introduced `colorMode()` briefly. Here we can explore it more as we look at other colour modes. If we have `colorMode(RGB, 100)`, we can scale it to `100` (think of it as a percentage).

```
function setup()
{
  createCanvas(400, 400)
  colorMode(RGB, 100)
}

function draw()
{
  background(100, 100, 0)
  fill(0, 75, 75)
  circle(100, 100, 100)
}
```



Notes

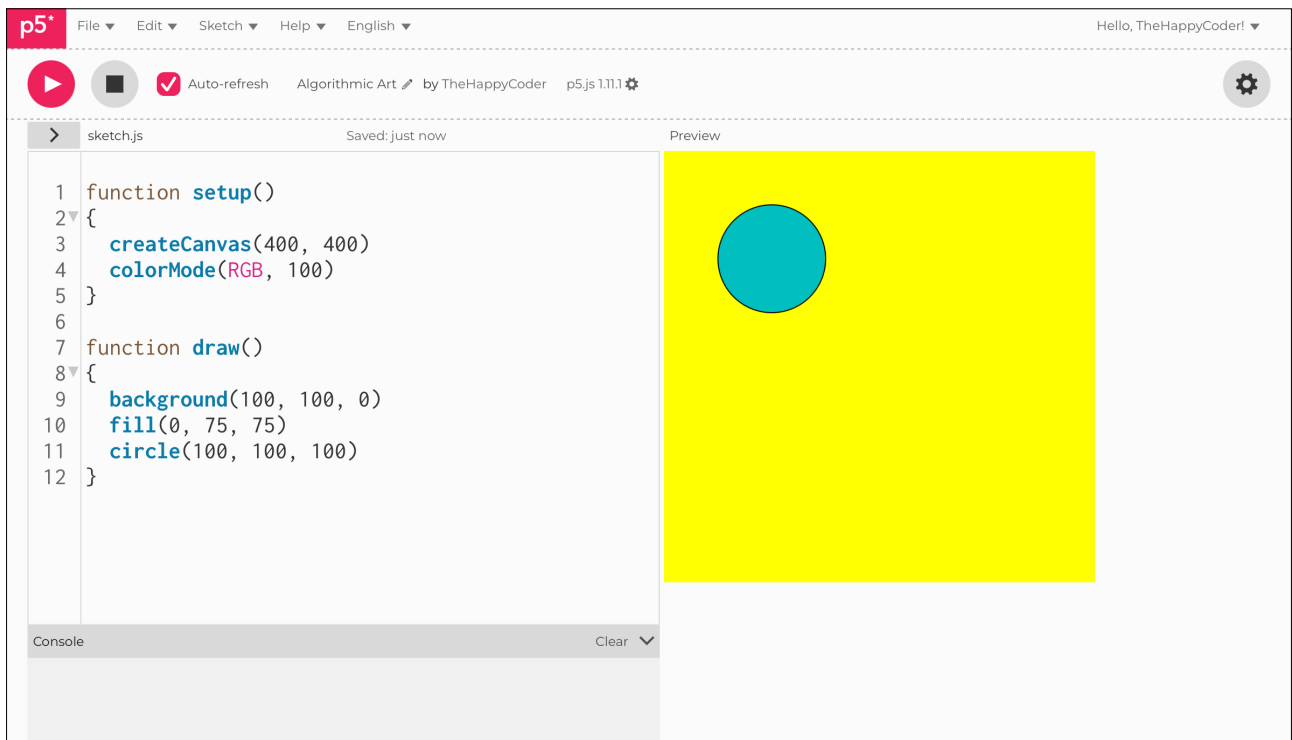
All the RGB values should be between `0` and `100`. If they exceed that value, then it will take the maximum, in this case `100`.



Challenge

You can add more arguments (any values you like), one for each element including alpha: `colorMode(RGB, 100, 100, 100, 100)`. Try it.

Figure B4.2





Sketch B4.3 starting sketch

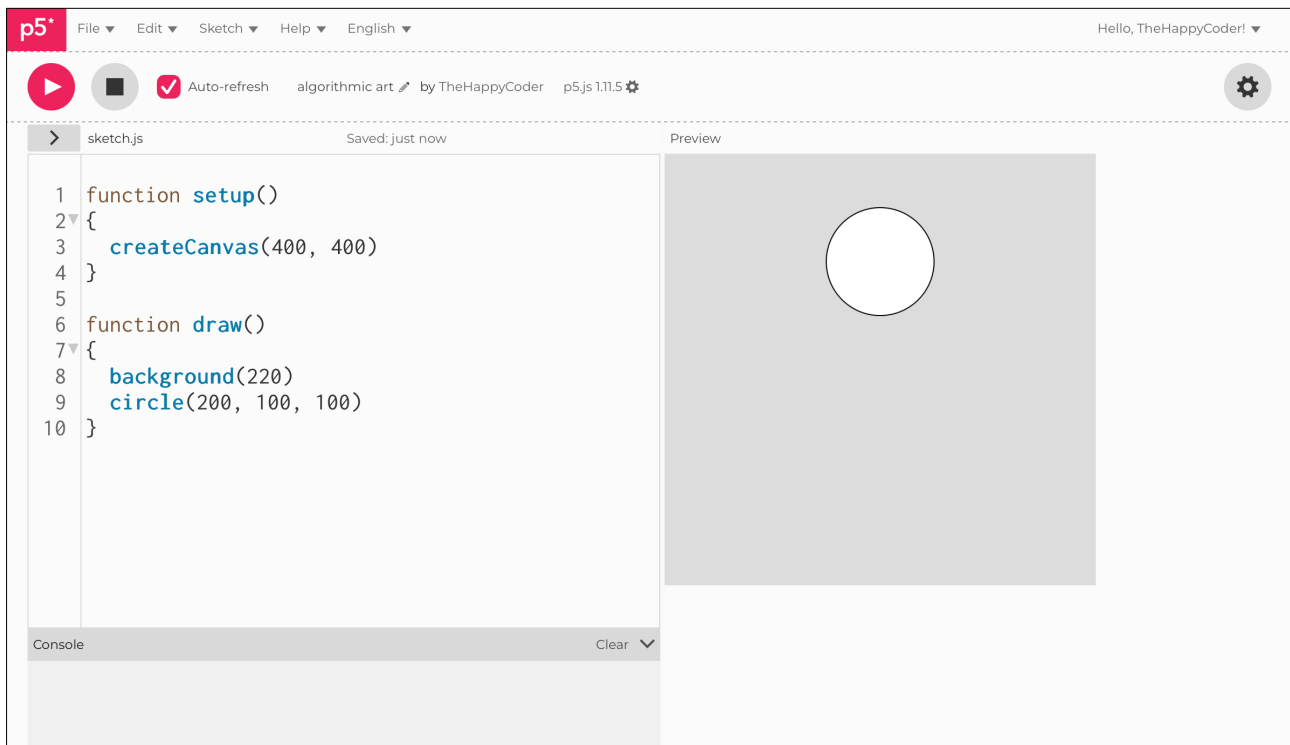
! new sketch

Circle on a blank canvas.

```
function setup()
{
  createCanvas(400, 400)
}

function draw()
{
  background(220)
  circle(200, 100, 100)
}
```

Figure B4.3





Sketch B4.4 create a slider

Firstly, we give the slider a name, in this case the rather unimaginative name of `slider`. Secondly, we create the slider with three arguments:

- A. Begin value (`0`)
- B. End value (`255`)
- C. Default value (`100`)

The range is between `0` and `255`. We will set the slider to `100` initially when you run the sketch. You can give it any value you want. Just use your mouse to slide it backwards and forwards.

```
let slider

function setup()
{
  createCanvas(400, 400)
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  circle(200, 100, 100)
}
```



Notes

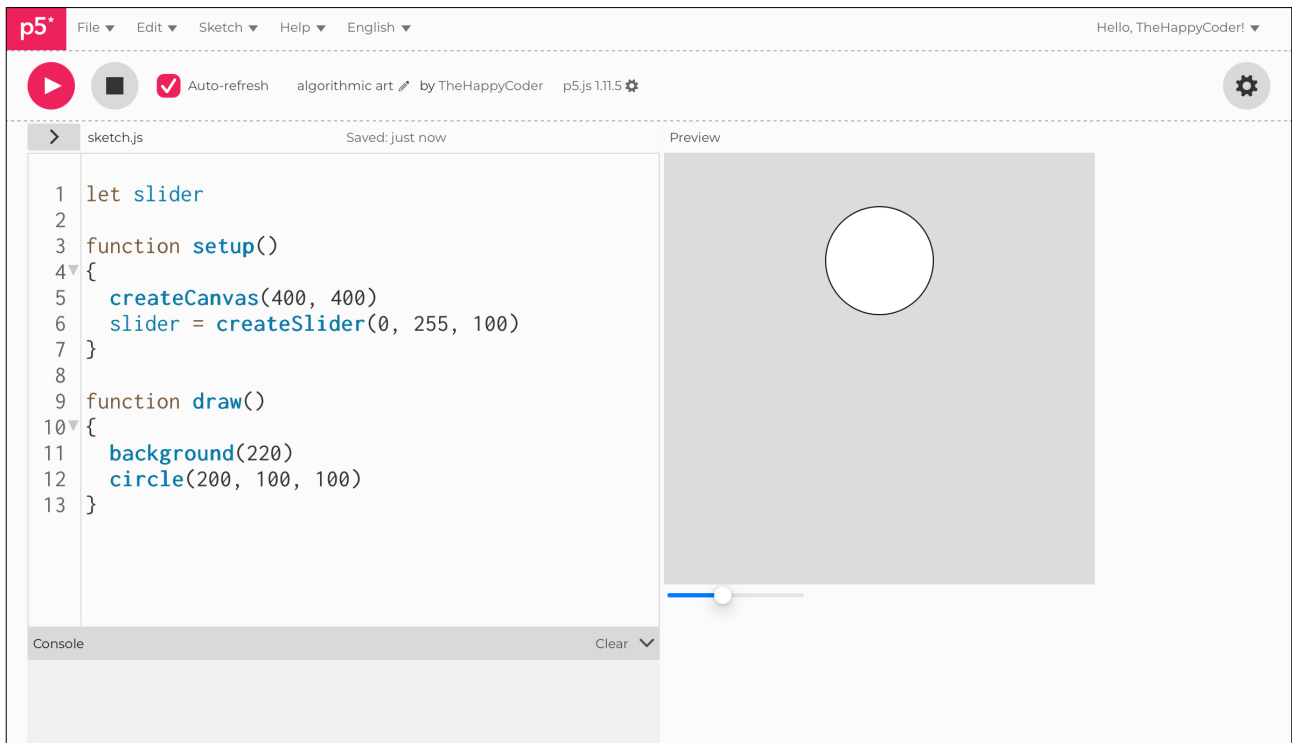
You will notice that the slider is off the canvas; this is because we have not given it any coordinates, so by default it puts it at the bottom, below the canvas. Also, the slider doesn't do anything except slide!



Code Explanation

<code>let slider</code>	Slider object
<code>slider = createSlider(0, 255, 100)</code>	Create the slider object with the corresponding values

Figure B4.4





Sketch B4.5 slider value

We can take the value of the slider using `slider.value()`, the `value()` function returns the value. We can fill the circle with that value. Now when you move the slider, it changes the colour of the circle.

```
let slider

function setup()
{
  createCanvas(400, 400)
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  fill(slider.value())
  circle(200, 100, 100)
}
```



Notes

You should see it change as you move the slider. We have put it straight into the `fill()` function.



Challenges

1. Try different start, final, and initial values for the slider.
2. You could create a variable for the slider value.

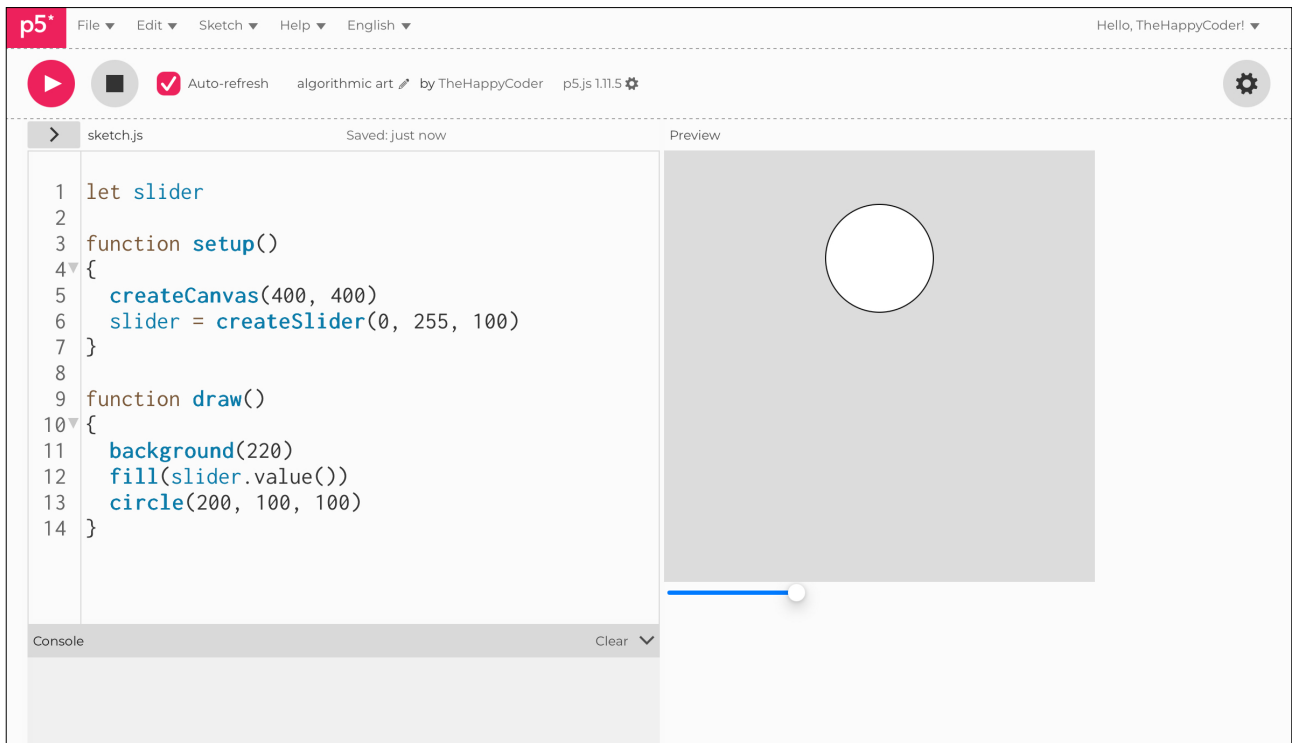


Code Explanation

```
fill(slider.value())
```

Returns the value of the slider

Figure B4.5





Sketch B4.6 position slider

We will now move it to the canvas; we simply give it the coordinates we want to display it at.

```
let slider

function setup()
{
  createCanvas(400, 400)
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  slider.position(50, 200)
  fill(slider.value())
  circle(200, 100, 100)
}
```



Notes

Slider now on the canvas.



Challenge

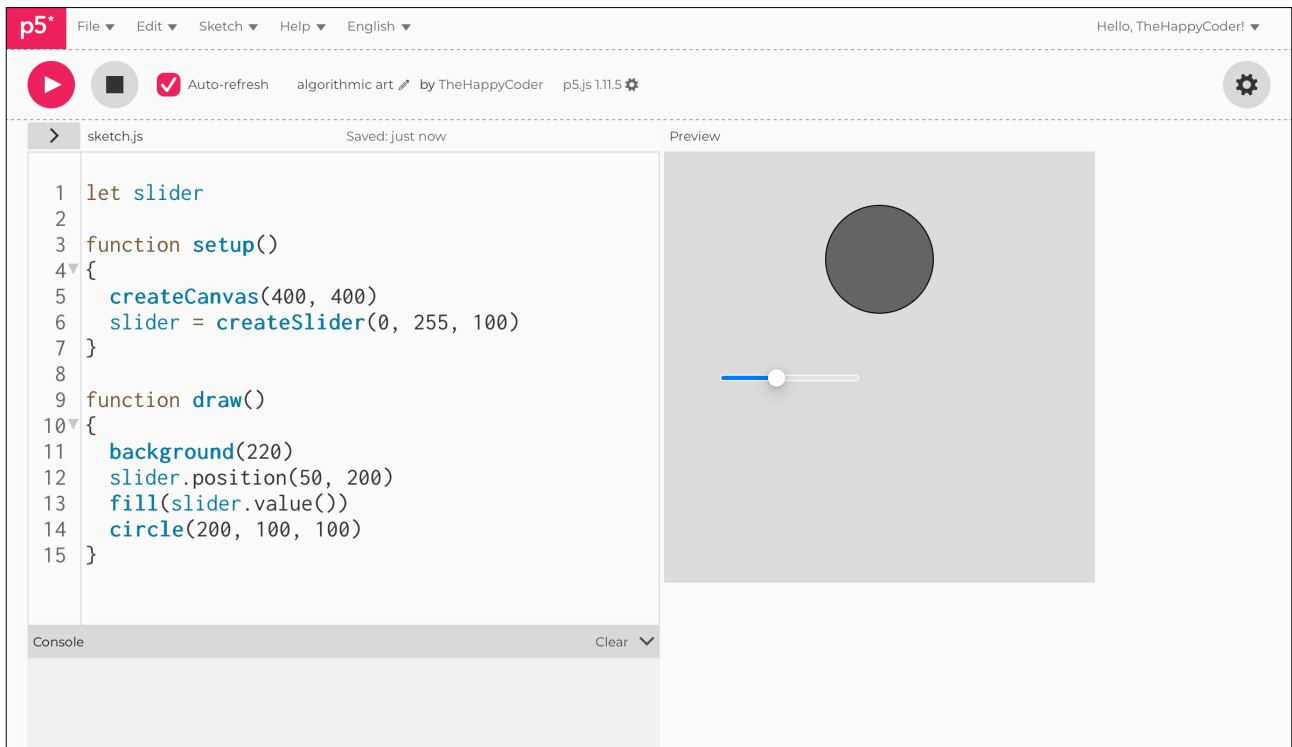
Try different positions.



Code Explanation

```
slider.position(50, 200)    Positioned the slider at 50 from the left and 200 down from the top
```

Figure B4.6





Sketch B4.7 showing the value

We can display the value of the slider.

```
let slider

function setup()
{
  createCanvas(400, 400)
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  slider.position(50, 200)
  fill(slider.value())
  circle(200, 100, 100)
  textSize(20)
  text(slider.value(), 200, 215)
}
```



Notes

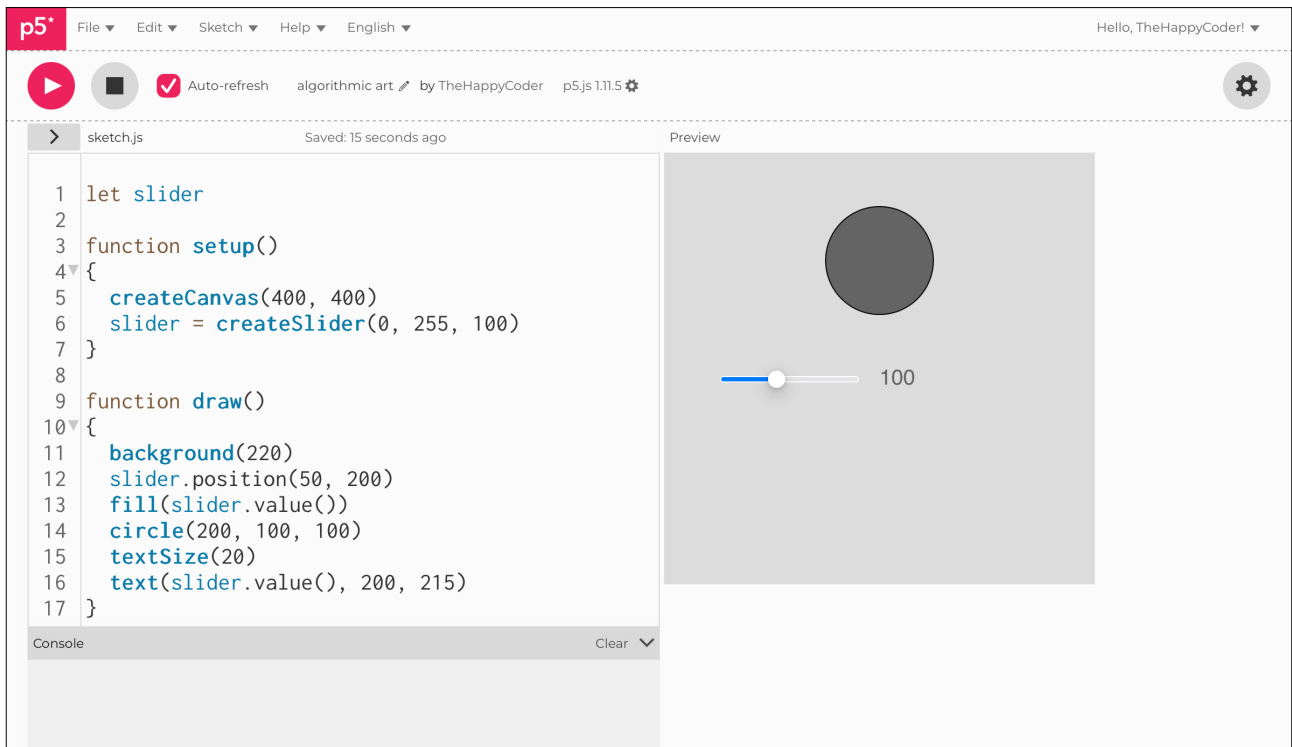
One issue, as you will see when you slide the slider, is that the text changes colour as well.



Challenge

Do you know how to stop that?

Figure B4.7





Sketch B4.8 text colour

Just to keep the text from changing colour.

```
let slider

function setup()
{
  createCanvas(400, 400)
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  slider.position(50, 200)
  fill(slider.value())
  circle(200, 100, 100)
  fill(0)
  textSize(20)
  text(slider.value(), 200, 215)
}
```



Notes

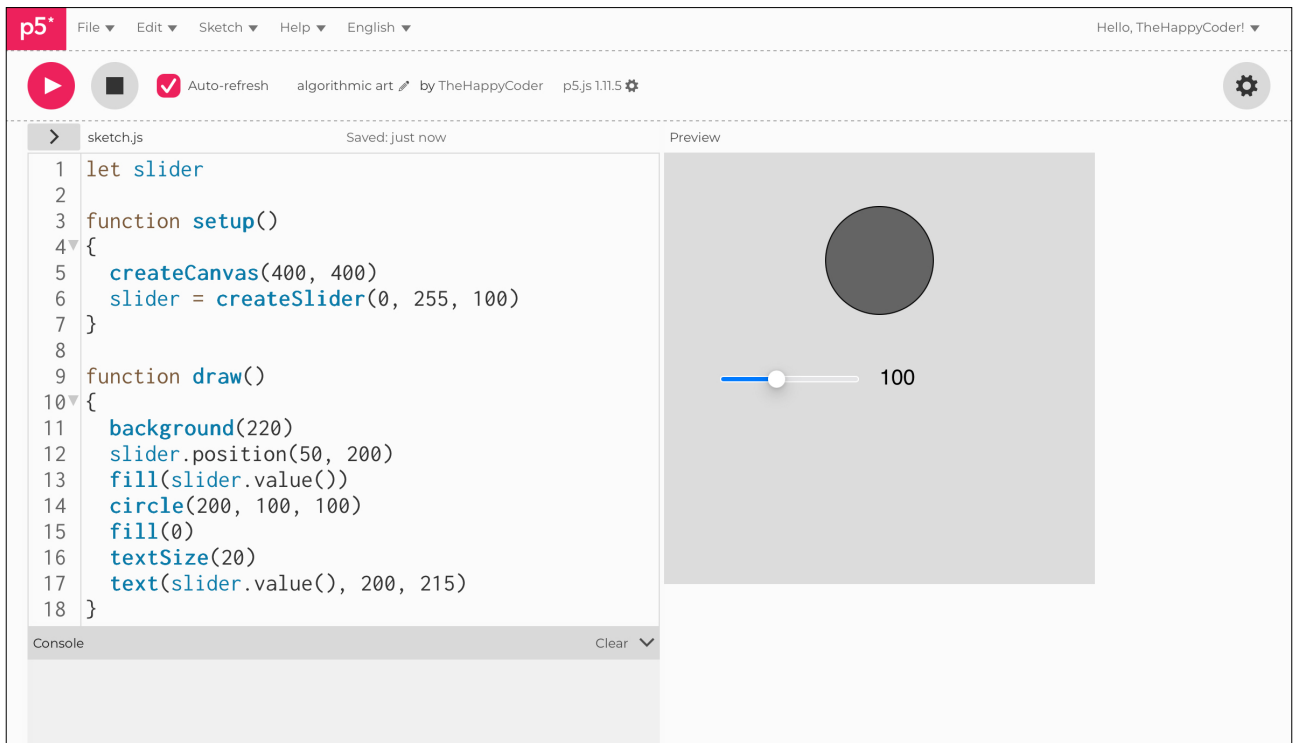
We have taken this bit nicely and slowly; next, we will look at red, green, and blue.



Challenge

Any ideas how to do red, green, and blue?

Figure B4.8





Sketch B4.9 red value

We need to change the name of the slider to `sliderRed()` everywhere, and also change the `fill()` to include the values of the green and blue (`0`).

```
let sliderRed

function setup()
{
  createCanvas(400, 400)
  sliderRed = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  sliderRed.position(50, 200)
  fill(sliderRed.value(), 0, 0)
  circle(200, 100, 100)
  fill(0)
  textSize(20)
  text(sliderRed.value(), 200, 215)
}
```



Notes

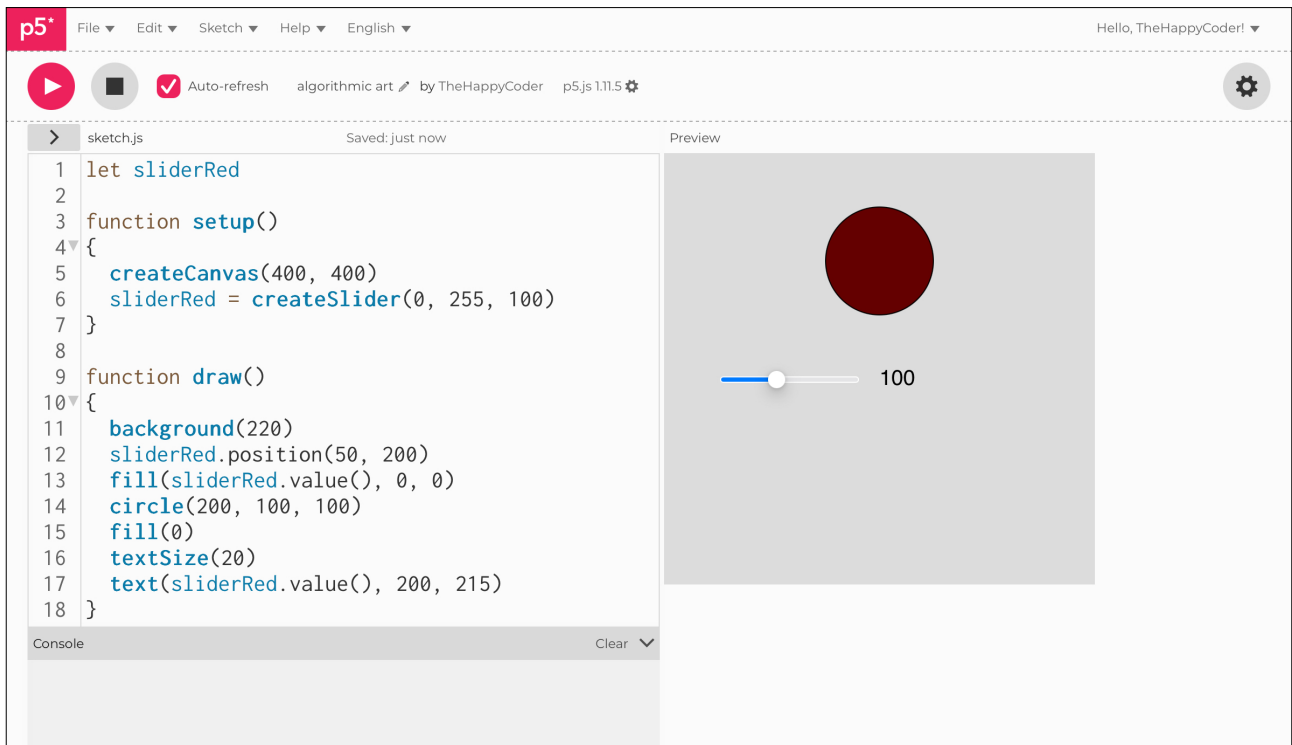
The circle will change from black to bright red.



Challenge

How about adding the green and the blue?

Figure B4.9





Sketch B4.10 full RGB

Adding the other colours.

```
let sliderRed
let sliderGreen
let sliderBlue

function setup()
{
  createCanvas(400, 400)
  sliderRed = createSlider(0, 255, 100)
  sliderGreen = createSlider(0, 255, 100)
  sliderBlue = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  sliderRed.position(50, 200)
  sliderGreen.position(50, 250)
  sliderBlue.position(50, 300)
  fill(sliderRed.value(), sliderGreen.value(), sliderBlue.value())
  circle(200, 100, 100)
  fill(0)
  textSize(20)
  text(sliderRed.value(), 200, 215)
  text(sliderGreen.value(), 200, 265)
  text(sliderBlue.value(), 200, 315)
}
```



Notes

A lot of copying and pasting.



Challenge

Have it change the background instead.

Figure B4.10

