

The Joy of Coding Book 1

Creating Shapes & Movement

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Introduction

This is just a printable version of the Joy of Coding series that you can buy as an eBook on Amazon, visit my website www.thehappycoder.org for more information.

Getting started

Step 1:

First thing is to open your **Chrome** browser, others do work but **Chrome** works best

Step 2:

Type in editor.p5js.org into your web browser (e.g. Google) and you are good to go, just delete the default code and type in the code that is in the boxes below working through each example.

Unit #1 Shapes

Sketch A1.1.1 screen size

```
function setup()
{
  createCanvas(600, 600)
  background(220)
}

function draw()
{
}
```

Sketch A1.1.2 first shape

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  circle(300, 300, 100)
}
```

Sketch A1.1.3 background colour

```
function setup()
{
  createCanvas(400, 400)
  background(255, 0, 0)
}

function draw()
{
  circle(300, 300, 100)
}
```

Sketch A1.1.4 fill

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  fill(255, 255, 0)
  circle(300, 300, 100)
}
```

Sketch A1.1.5 stroke

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  stroke(255, 0, 0)
  circle(300, 300, 100)
}
```

Sketch A1.1.6 strokeWeight

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  strokeWeight(5)
  circle(300, 300, 100)
}
```

Sketch A1.1.7 drawing an ellipse

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  ellipse(200, 300, 200, 100)
}
```

Sketch A1.1.8 draw a square

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  square(100, 100, 200)
}
```

Sketch A1.1.9 draw a rectangle

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  rect(100, 200, 250, 100)
}
```

Sketch A1.1.10 drawing a line

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  line(100, 200, 300, 300)
}
```

Sketch A1.1.11 colouring a pixel

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  stroke(200, 100, 50)
  strokeWeight(10)
  point(100, 200)
}
```

Sketch A1.1.12 drawing a triangle

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  triangle(200, 100, 300, 300, 100, 350)
}
```

Sketch A1.1.13 basic text

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  textSize(40)
  text("the happy coder", 50, 300)
}
```

Sketch A1.1.14 text colour

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  textSize(40)
  fill(0)
  text("the happy coder", 50, 300)
  fill(250, 100, 0)
  text("the happy coder", 50, 350)
}
```


Unit #2 Movement

Sketch A1.2.1 let the variable

```
let x = 200
let y = 200

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  circle(x, y, 100)
}
```

Sketch A1.2.2 width and height

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  circle(width/2, height/2, 100)
}
```

Sketch A1.2.3 drawing random circles

```
let x = 0
let y = 0

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  x = random(400)
  y = random(400)
  circle(x, y, 20)
}
```

Sketch A1.2.4 random colour alpha size

```
let x = 0
let y = 0
let r = 0
let g = 0
let b = 0
let d = 0
let a = 0

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  x = random(400)
  y = random(400)
  r = random(255)
  g = random(255)
  b = random(255)
  d = random(100)
  a = random(255)
  fill(r, g, b, a)
  circle(x, y, d)
}
```

Sketch A1.2.5 while loop circles

```
let i = 0
let x = 0
let y = 0

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  while (i < 100)
  {
    x = random(400)
    y = random(400)
    circle(x, y, 20)
    i = i + 1
  }
}
```

Sketch A1.2.6 using for loops

```
let x = 0
let y = 0

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  for(let i = 0; i < 100; i++)
  {
    x = random(100, 300)
    y = random(100, 300)
    circle(x, y, 20)
  }
  noLoop()
}
```

Sketch A1.2.7 make a circle move

```
let x = 0

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

function draw()
{
  background(220)
  circle(x, 200, 50)
  x = x + 1
}
```

Sketch A1.2.8 using an if statement

```
let x = 0

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

function draw()
{
  background(220)
  circle(x, 200, 50)
  x = x + 1
  if(x == 400)
  {
    x = 0
  }
}
```

Sketch A1.2.9 bounce off the edge

```
let x = 0
let speed = 7

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

function draw()
{
  background(210)
  circle(x, 200, 50)
  x = x + speed
  if(x >= 400)
  {
    speed = -speed
  }
}
```


Sketch A1.2.10 bounce from every side

```
let x = 0
let speed = 7

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

function draw()
{
  background(220)
  circle(x, 200, 50)
  x = x + speed
  if(x >= 400 || x <= 0)
  {
    speed = -speed
  }
}
```

Unit #3 Mouse

Sketch A1.3.1 circle follows mouse

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

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

Sketch A1.3.2 stretchy ellipse

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

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

Sketch A1.3.3 text following mouse

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

function draw()
{
  background(220)
  textSize(40)
  fill(100)
  text('word', mouseX, mouseY)
}
```

Sketch A1.3.4 mouse co-ordinates

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

function draw()
{
  background(220)
  textSize(40)
  fill(100)
  text(mouseX, 100, 100)
  text(mouseY, 100, 150)
}
```

Sketch A1.3.5 line following mouse

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

function draw()
{
  background(220)
  line(width/2, height/2, mouseX, mouseY)
}
```

Sketch A1.3.6 on click change colour

```
let r = 255
let g = 0

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

function draw()
{
  background(220)
  fill(r, g, 0)
  circle(200, 200, 200)
}

function mousePressed()
{
  if (r == 0)
  {
    r = 255
    g = 0
  }
  else
  {
    r = 0
    g = 255
  }
}
```

Sketch A1.3.7 continuous draw

```
function setup()
{
  createCanvas(400, 400)
  background(220)
  strokeWeight(5)
}

function draw()
{
  line(mouseX, mouseY, pmouseX, pmouseY)
}
```

Sketch A2.3.8 paint programme

```
function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  noStroke()
  fill(0, 0, 255)
  circle(mouseX, mouseY, 30)
}

function mousePressed()
{
  background(220)
}
```

Sketch A1.3.9 drawing with boolean

```
let x = true

function setup()
{
  createCanvas(400, 400)
  background(220)
  strokeWeight(10)
}

function draw()
{
  if (x == false)
  {
    stroke(255, 0, 0)
  }
  if(x == true)
  {
    noStroke()
  }
  line(pmouseX, pmouseY, mouseX, mouseY)
}

function mousePressed()
{
  x = false
}

function mouseReleased()
{
  x = true
}
```

Sketch A1.3.10 very stretchy rectangle

```
let length = 0

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

function draw()
{
  background(220)
  length = map(mouseX, 0, 400, 0, 600)
  fill(100)
  rect(0, 100, length, 200)
}
```

Sketch A1.3.11 mapping the grey

```
let col = 0

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

function draw()
{
  background(col)
  col = map(mouseX, 0, 400, 0, 255)
  circle(mouseX, 200, 50)
}
```