0 Open the Editor

Go to **editor.p5js.org** in your browser. You will write the code in the p5.js editor. If you use Processing on your computer, select the p5.js mode from the menu.

Let's set the **createCanvas** values to **600**:

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


Coordinates start from the top-left corner. **x** increases to the right, and **y** increases downwards.

1 Prepare the Canvas

Let's continue by adding these lines:

```
function setup() {
  createCanvas(600, 600);
  rectMode(CENTER);
  noFill();
  noLoop();
}
function draw() {
  background(30);
}
```

background(30) paints the canvas gray.
rectMode(CENTER) draws squares from the center.
noFill() does not fill the inside of shapes.
noLoop() runs the draw() function only once.

▶ Click the Play button.

2 Set Up the Grid

Let's add nested loops below **background()**:

```
function setup() {
  createCanvas(600, 600);
  rectMode(CENTER);
  noFill();
  noLoop();
}
function draw() {
  background(30);
  for (let x = 25; x < width; x += 50) {
    for (let y = 25; y < height; y += 50) {
      // drawing here
    }
  }
}
```


600 ÷ 50 = 12 columns and 12 rows: 144 cells. **x** and **y** represent the center of each cell.
First center: **(25, 25)**.

width / **height**: Width and height of the canvas (600); the loop goes up to this limit.

Nested **for**: Each **(x, y)** is a cell center;

with **+= 50**, it continues by defined increments of 25, 75, 125... up to the limit.

3 Leave it to Chance

Replace **// drawing here** with this:

```
let choice = random();
if (choice < 0.6) {
  // draw circle (60%)
} else {
  // draw square (40%)
}
```

Circle 60%	Square 40%

random() generates a new number between 0 and 1 every time.
The **choice** variable is checked with **if**: if true, a circle, otherwise (**else**), a square.

4 Yellow Circle

Replace **// draw circle** with:

```
let size = random(10, 50);
stroke(255, random(200, 255), 50);
strokeWeight(random(1, 5));
circle(x, y, size);
```


size is chosen in each cell via **random(10, 50)**. This is where the diameter of the circles comes from.
stroke(...) uses a fixed **255** for red, **random(200, 255)** for green, and a fixed **50** for blue respectively. Thus, the circles are drawn in shades of yellow.
strokeWeight(...) is chosen for each circle with **random(1, 5)**. This is where the border thickness of the circles comes from.

5 Green Square

Replace **// draw square** with:

```
let size = random(10, 50);
stroke(0, random(200, 255), 0);
strokeWeight(random(1, 5));
square(x, y, size);
square(x, y, size / 2);
```


YOUR TURN

- Change the value 0.6 inside if (choice < 0.6) to 0.2. Which shape multiplied?
- In both loops, replace += 50 with += 110. How did the grid change?
- Change the random() values. Add your own shapes.

▶ Sketch

```
function setup() {
  createCanvas(600, 600);
  rectMode(CENTER);
  noFill();
  noLoop();
}
function draw() {
  background(30);
  for (let x = 25; x < width; x += 50) {
    for (let y = 25; y < height; y += 50) {
      let choice = random();
      if (choice < 0.6) {
        let size = random(10, 50);
        stroke(255, random(200, 255), 50);
        strokeWeight(random(1, 5));
        circle(x, y, size);
      } else {
        let size = random(10, 50);
        stroke(0, random(200, 255), 0);
        strokeWeight(random(1, 5));
        square(x, y, size);
        square(x, y, size / 2);
      }
    }
  }
}
```

P5.JS ACTIVITY GUIDE

Circle, or Square?

Let chance decide.

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