SPRITE OBJECTS

What is our GOAL for this MODULE?

We created an animated ball in a playground project where we experimented with different sprite properties.

What did we ACHIEVE in the class TODAY?

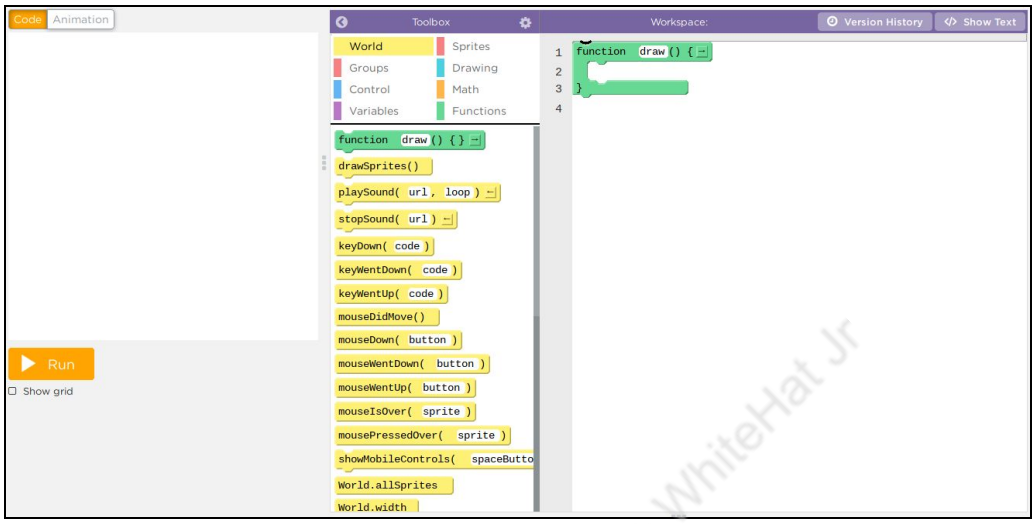
- Created a sprite object.
- Accessed predefined sprite properties and functions.

Which CONCEPTS/ CODING BLOCKS did we cover today?

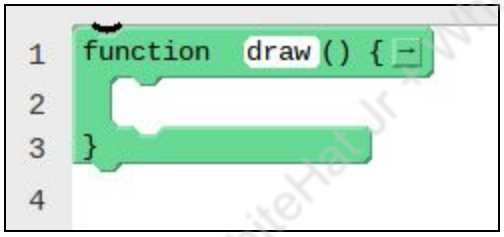
- sprite class
- bounceoff() function
- velocity properties

How did we DO the activities?

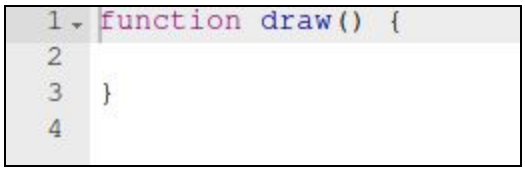
1. Learn about the coding environment in code.org.



2. Understand the workspace where we need to type the code.
    - Workspace in Block mode:

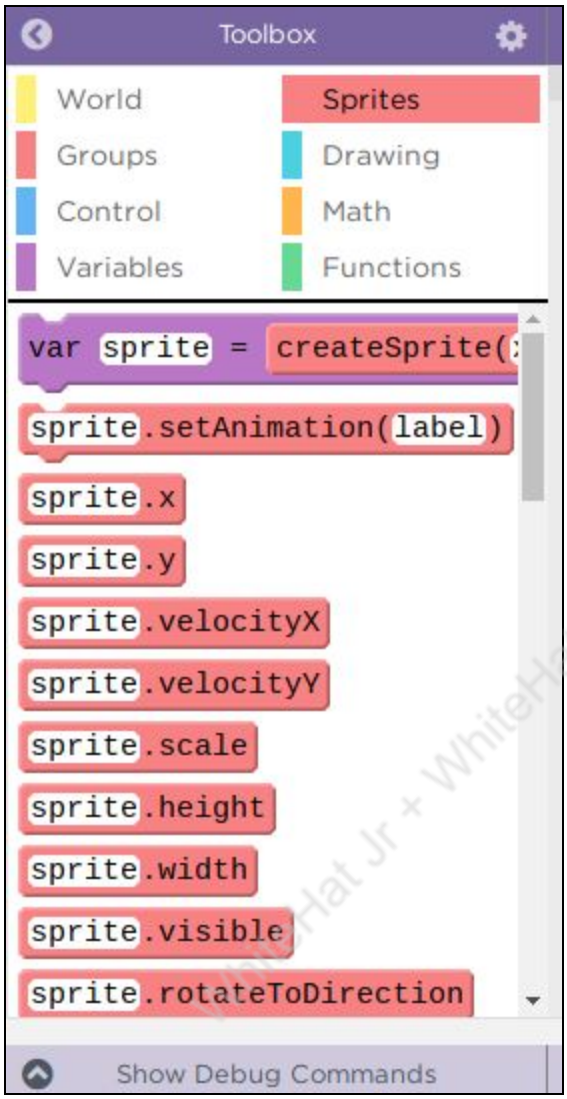


    - Workspace in Text mode:



3. Create a project 'Playground'.

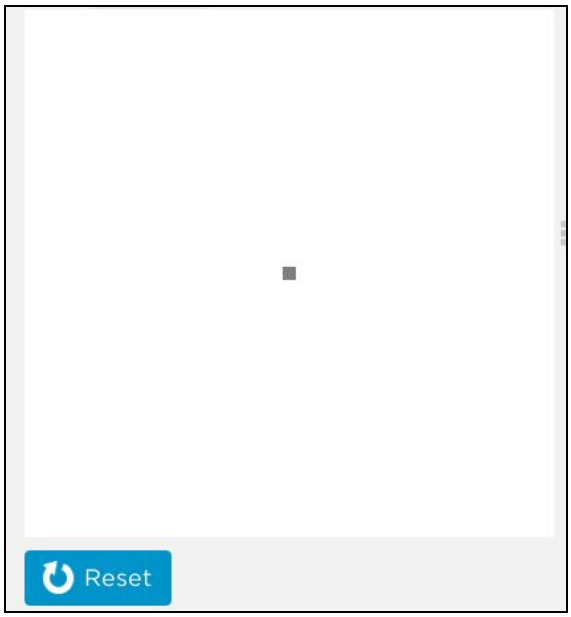
4. Look into the 'Sprites' section under our Toolbox. It should tell us how to create a Sprite object and what properties and functions it has.



*Note: Sprites are always rectangular, you can give them a shape later.

```
1  var ball = createSprite(200,200,10,10);
2  function draw() {
3    drawSprites()
4  }
5
```

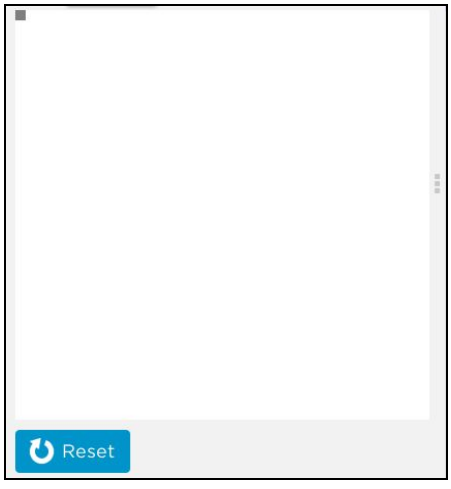
Output:



5. Rename the Sprite to “ball’ and give it a position.

```
1  var ball = createSprite(200,200,10,10);
2  function draw() {
3    ball.x = 5;
4    ball.y = 5;
5    drawSprites();
6  }
```

Output:



6. Animate the ball by giving the velocity so that the ball keeps moving to and fro near the boundary.

```
var ball1 = createSprite(5,5,10,10);

ball1.velocityX = 2;
ball1.velocityY = 2;

function draw() {
    background("white");
    createEdgeSprites();
    ball.bounceOff(edges);
  drawSprites();
}
```

7. Create another sprite name it as ball2 and make the ball bounce off the walls.

```
1  var ball1 = createSprite(5,5,10,10);
2  var ball2 = createSprite(395,395,10,10);
3
4  ball1.velocityX = 2;
5  ball1.velocityY = 2;
6
7  ball2.velocityX = -2;
8  ball2.velocityY = -2;
9
10 function draw() {
11
12   background("white");
13
14   createEdgeSprites();
15
16   ball1.bounceOff(edges);
17   ball2.bounceOff(edges);
18
19   drawSprites();
20 }
21
```

The ball bounces off all the edges.

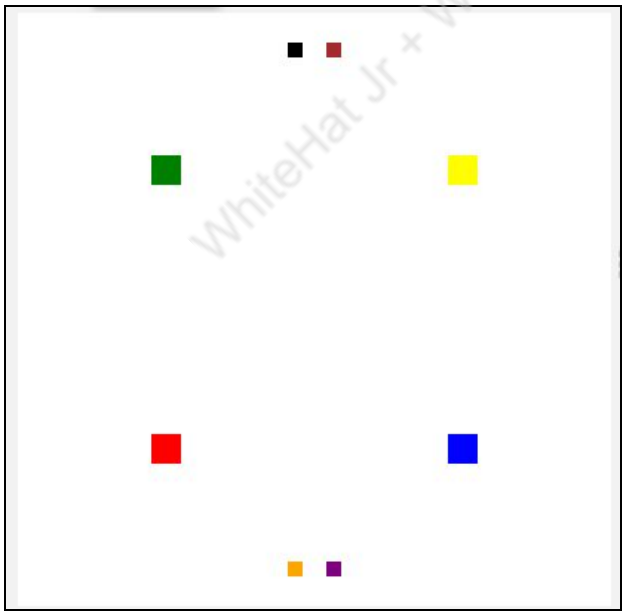
8. Make 2 balls bounce off each other.

```
//create 2 ball sprites
 ball1 = createSprite(5,5,10,10);
var ball2 = createSprite(395,395,10,10);
//assign velocity to our balls
ball1.velocityX = 2;
ball1.velocityY = 2;

ball2.velocityX = -2;
ball2.velocityY = -2;

function draw() {
//make the background white
  background("white");
    //create boundaries on the edges
  createEdgeSprites();
  //make the balls bounce off the edges
  ball1.bounceOff(edges);
  ball2.bounceOff(edges);
    //make the balls bounce off each other
  ball1.bounce(ball2);
 //draw the sprites
  drawSprites();
}
```

Output:



Same Code in p5:

```html
<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
    <title>Bouncing Ball</title>
    <script src="p5.js"></script>
    <script src="p5.dom.min.js"></script>
    <script src="p5.sound.min.js"></script>
    <script src="p5.play.js"></script>
    <script src="sketch.js"></script>
  </head>
  <body>

  </body>
</html>
```

```javascript
var canvas, ball, edges

function setup(){
  canvas = createCanvas(500,500)
  ball = createSprite(5,5,10,10);

  ball.velocityX = 2;
  ball.velocityY = 2;
}

function draw(){
  background("white");
  edges = createEdgeSprites();

  ball.bounceOff(edges);
  // ball.bounceOff(edges[1]);
  // ball.bounceOff(edges[2]);
  // ball.bounceOff(edges[3]);

  drawSprites()
}
```

What's NEXT?

We will continue to work on the same game. We are going to use the bouncing ball animation to create a more challenging game.

EXTEND YOUR KNOWLEDGE

- To Know more about Sprites:https://studio.code.org/docs/concepts/game-lab/sprites/