# Canvas Animation Lab Exercise: Arrays and Multiple Balls

Arrays allow developers to store multiple pieces of information using the same variable name. In our bouncing ball application will define an array of x,y coordinates to store the locations of multiple balls.

Simple arrays can be defined using the following syntax. For more information please read the following tutorials:

* <http://www.hunlock.com/blogs/Mastering_Javascript_Arrays>
* <http://www.w3schools.com/js/js_obj_array.asp>

The following block of code defines two arrays for the variable x,y allowing us to keep track of 5 balls. Arrays allow us to simplify our code and run the same operation over each pair of x,y coordinates.

|  |
| --- |
|  var x = [150,0,60,250,290]; var y = [0,100,0,250,0]; |

To iterate or process each of the x,y coordinates use a for-loop similar to the following to iterate through the location for each ball.

|  |
| --- |
|  for(var i = 0; i< x.length; i++) { ctx.beginPath(); ctx.arc(x[i], y[i], radius, 0, 2 \* Math.PI, true); ctx.closePath(); ctx.strokeStyle = "red"; ctx.fillStyle = "red"; ctx.fill(); ctx.stroke(); // define boundary checking for each ball } |

In this example, the new variable i is defined as an index variable and is used to keep of our position in the array. The for-loop allows us to incrementally process the different locations inside the x,y coordinate arrays.

1. Use a for-loop as an index into the x,y coordinate arrays and for each ball run through the same code that you developed in question 10. This should result in an animation loop that looks similar to the following screen shot. Note. the balls will not collide with each and will simply pass through each other as we have not developed any code to handle that situation.

