# K2L Javascript Objects

## Today we are going to be learning about Javascript Objects. What they are, how to create them, and why we need them for our games. This will be a setup for the brickbreaker game that we will create next week.

Part 1 (Creating a Person)

In any objected oriented programming language, we use something called “Objects” to represent things that contain many attributes, behaviors, or functions. For example, **You** could be considered an object! Your name is an attribute, for example. So to begin, let’s try creating **yourself** as a Javascript Object!

1. In Javascript, we can declare an Object in a couple of ways. We are going to use Brackets ( { … } ) to do it in this tutorial.
   1. To start, lets create a variable at the top of mycode.js like so:  
      var person = {};
   2. What this does is create an empty variable, but he/she has no name! Let’s give him/her one like this:  
      var person = {name: “Garrett”};
   3. As you can see, this person now has the name “Garrett”.
2. Now let’s give your person a couple more attributes! For example, let’s give him a trait called “height”.
   1. In order to add additional attributes to your person, we now separate them by commas like so:  
      var person = {name: “Garrett”, height: 68};
   2. This means that person now has both a name, and a height!
3. Finally, let’s have you make one for yourself! Create an object and give it your name, your height, your favorite video game, and your favorite color. If you have trouble, raise your hand and I will come help you.

Part 2 (Creating Multiple Objects)

Now that you know how to create one object (Just a person) let’s try creating a bunch of objects at one time, inside an **array**.

1. First, let’s create a new object like so:  
   var objects = [];
   1. The [] means it’s an array of objects, which basically means it can hold more than one object. You’ll see how to use it in a second.
2. Next, let’s create a **For** loop to create our objects. I’m going to only create **10** but feel free to make it larger if you want! (Just not too large, or your computer will freeze)  
   for(var i = 0; i < 10; i++){  
     
   }
   1. What this basically does is go through 10 times and does whatever is in between the two brackets. If you make the 10 larger, it will repeat more times and create more objects.
3. Now we are going to add in the code to create a bunch of rectangle objects, that we are going to draw later. We are going to give them **X**, **Y**, **Width**, and **Height**, attributes, so we can draw them on the screen!
   1. Inside your for loop, add in this code so it looks like this:  
      for(var i = 0; i < 10; i++){  
       objects[i] = {width: 50, height:50, x:i\*30, y:i\*30};  
      }
   2. What this does is creates rectangles we can draw later. The width and height of these rectangles is 50, but the x and y are different…
      1. X: i\*30 means x will have the value of the current “i” multiplied by ***30***. So if it’s the first object you created, it’ll be 0. Second will be 30. Third will be 60. And that pattern continues. (Remember, the for loop starts at **0**).
      2. Y: i\*30 means the same thing, but for the **Y** value.
4. Lastly let’s try drawing them on the screen. Inside your draw method, add this code to draw the rectangles on the screen:  
   function draw(elapsedTime){

for(var i = 0; i < objects.length; i++){

c.fillRect(objects[i].x, objects[i].y, objects[i].width, objects[i].height);

}

}

1. As you can see, you now have a bunch of squares drawn on your screen! Your next challenge is to create a brickbreaker set up at the top of the screen to prepare for next week, as seen here:  
   <http://sandbox.yoyogames.com/extras/image/name/san2/273/507273/original/screenshot102.png>  
   1. If you have trouble, you don’t have to use a loop. We will be using arrays and loops next week though.
   2. If you want help/tips, raise your hand and I’ll help you. I will also be showing you guys some other tricks with loops towards the end of class if you are done.