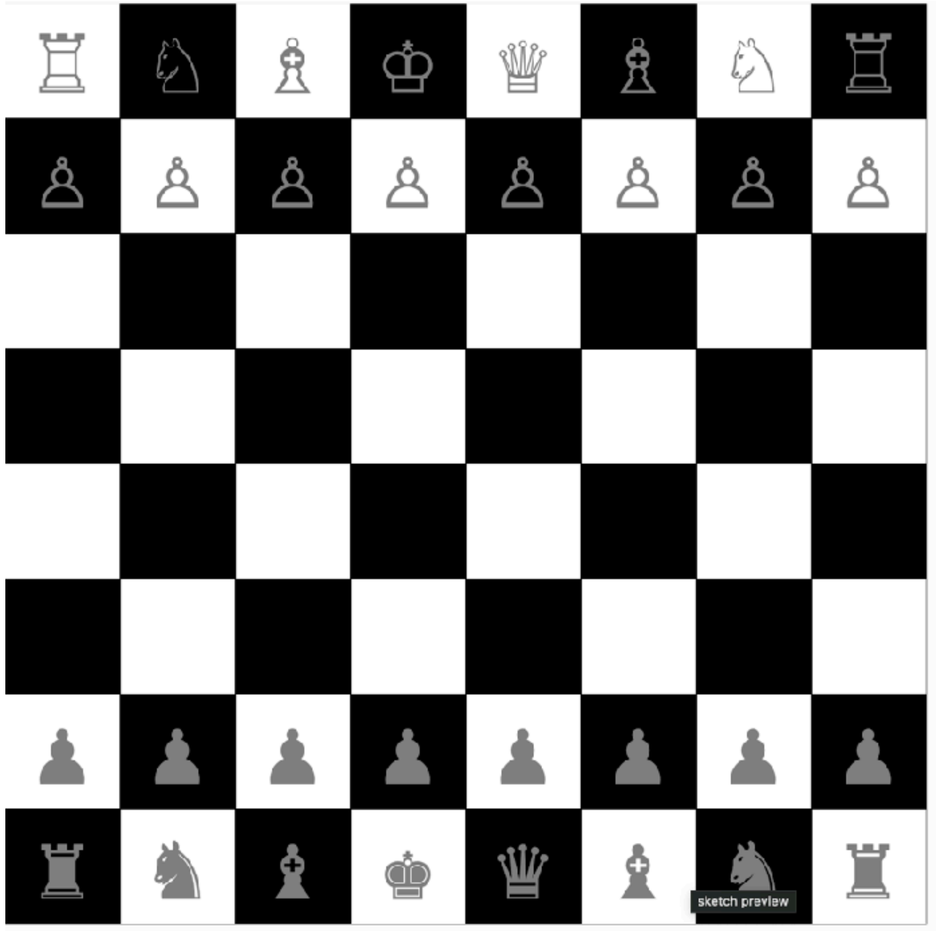
INTRODUCTION TO PROGRAMMING

Lecture 10: Objects with constructors and Vectors

2 ARRAYS CHESS

https://editor.p5js.org/EdwardAnstead/sketches/crY7Xa5LX



VECTORS IN P5.JS

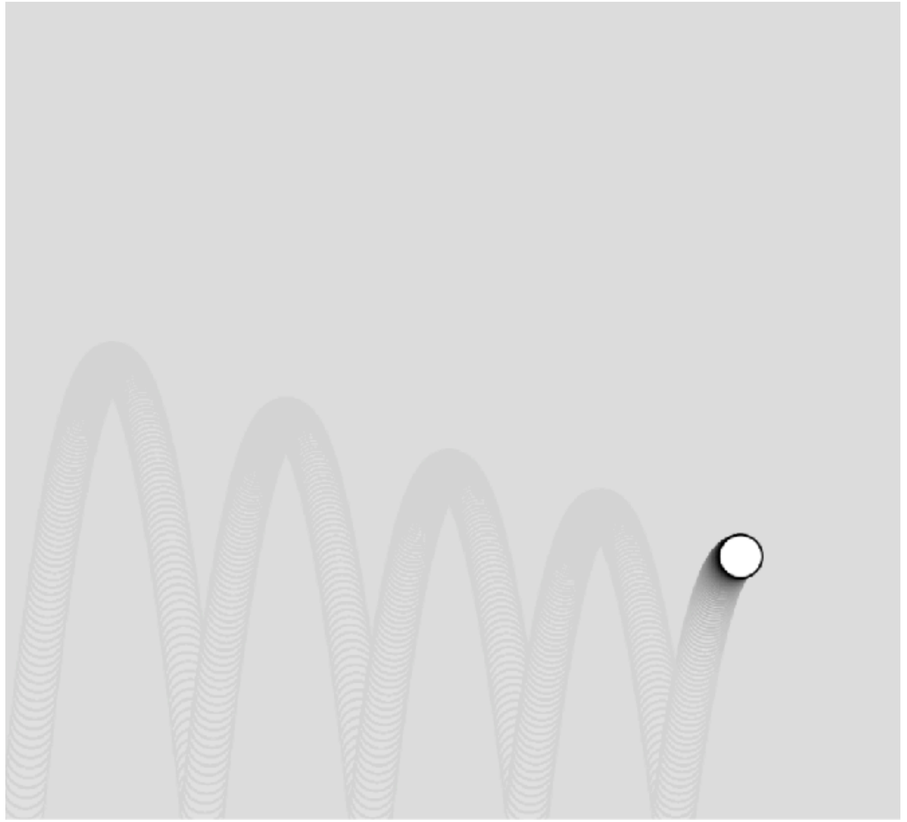
p5.js contains a Vector class.

We can create new instances of Vector by calling createVector(x, y, [z]);

The Vector class has a range of properties and methods we can use

VECTOR EXAMPLE 1

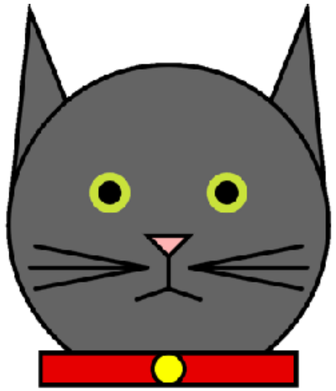
https://editor.p5js.org/EdwardAnstead/sketches/RNpuU4o9w



WHAT'S WRONG WITH LITERALS

Object literals aren't very reusable

They are modular but quite unreadable when large



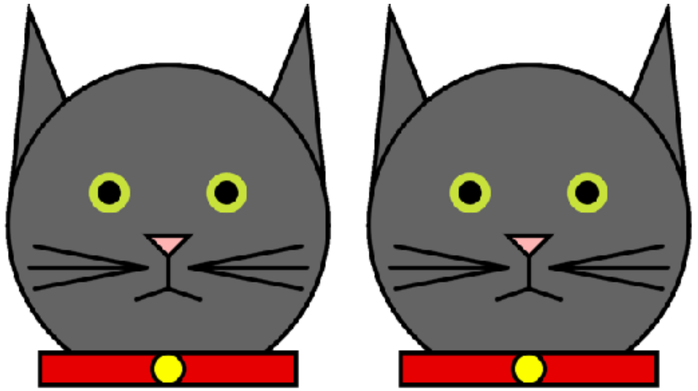
CAT PROPERTIES

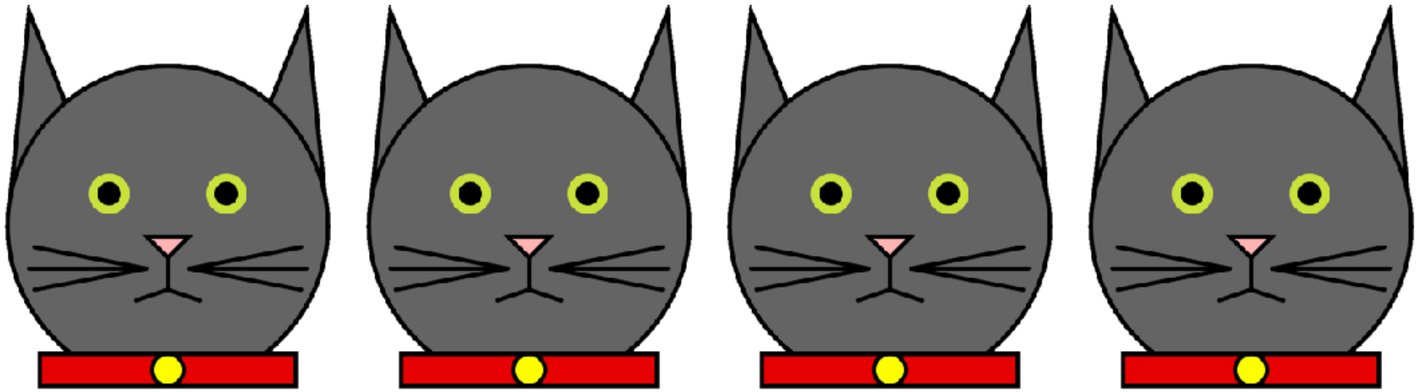
ATTRIBUTES OF BEING A CAT

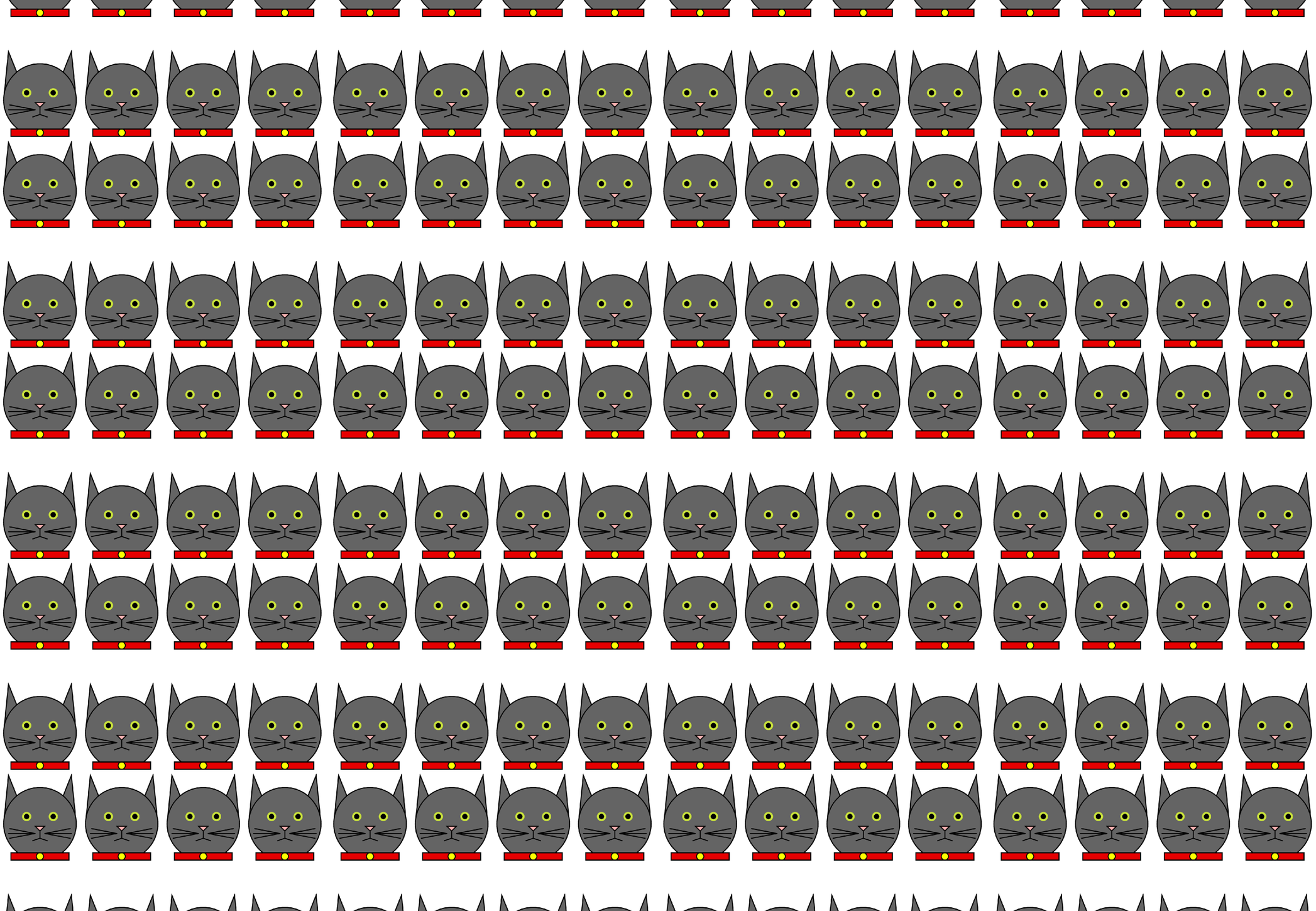
CAT METHODS

THINGS A CAT CAN DO

OBJECTS THAT MAKE UP A LECTURE







OBJECT LITERALS VERSUS CONSTRUCTOR FUNCTIONS

```
var literallyMyObject = {
    x: 15,
    y:20,
    name: "hal",
    display: function(){
        //rendering code
    }
};
```

```
function MyObjectConstructor(x, y, name){
    this.x = x;
    this.y = y;
    this.name = name;
    this.display = function(){

    };
}
```

object Literals define the object. Constructor functions are a ‘blueprint’ for making objects

THE NEW KEYWORD

```
function myObjectConstructor(x,y,name){
    this.x = x;
    this.y = y;
    this.name = name;
    this.display = function(scale){
        //draw to scale
    };

    return this;
}

myObjects = [];

function setup(){
    myObject = new myObjectConstructor(3,5,"Peter")
}
```

Create a new

THE NEW KEYWORD

```
function myObjectConstructor(x,y,name){
    this.x = x;
    this.y = y;
    this.name = name;
    this.display = function(scale){
        //draw to scale
    };

    return this;
}

myObjects = [];

function setup(){
    myObjects.push(new myObjectConstructor(3,5,"Peter"));
}
```

Create a new

WHAT DO CONSTRUCTOR FUNCTIONS RETURN?

```
function myObjectConstructor(x,y,name){
    this.x = x;
    this.y = y;
    this.name = name;
    this.display = function(scale){
        //draw to scale
    };

}
```

We can omit