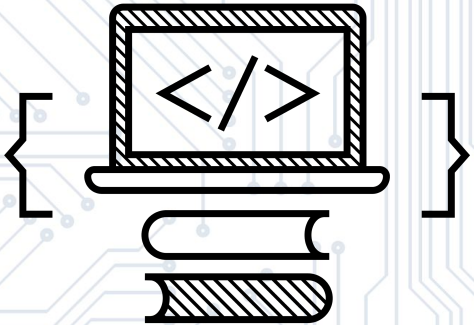
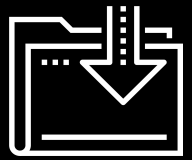


Jumping for JavaScript

Web Development Boot Camp

Lesson 3.2



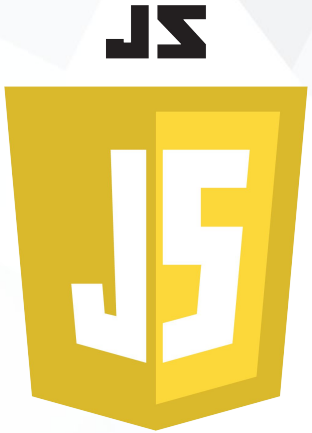
Today’s Class

Objectives

In today's class, we'll cover:

- Array assignments
- The concept of `for` loops
- The art of pseudocoding
- Building Rock-Paper-Scissors

Basics Recap



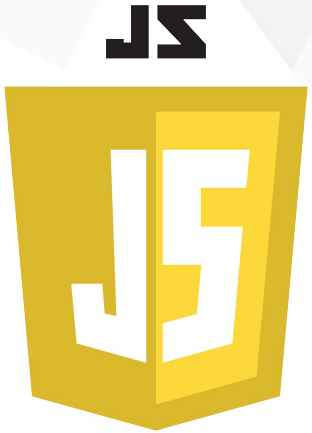
What is JavaScript?

And what is it used for?

JavaScript Definitions

JavaScript is the third of the three fundamental programming languages of the modern web (along with HTML and CSS).

JavaScript allows developers to create dynamic web applications capable of taking in user inputs, changing what’s displayed to users, animating elements, and much more.



What is a variable?

And how do we declare one?

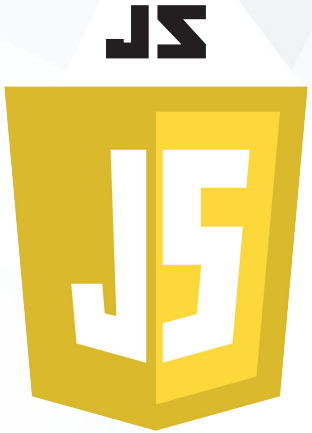
Variable Basics

Variables are the “nouns” of programming.

They are “things” (numbers, strings, Booleans, etc.).

A variable is composed of a variable name and a value.

```
var name = "Snow White";
var dwarfCount = 7;
var isSleeping = true;
```



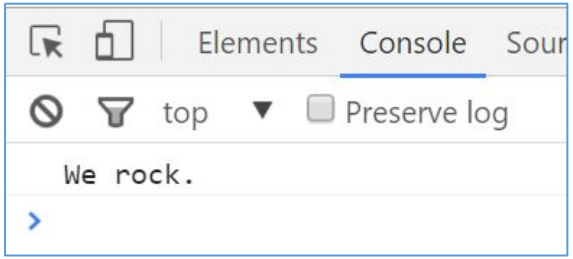
What is meant by `console.log`?

And how does it differ from an alert, prompt, or confirm?

Console.log vs. JavaScript popup boxes

- `console.log` displays discreetly to the debugger.
- `alert` displays a pop-up message to the user.

```
console.log("We rock.");
```

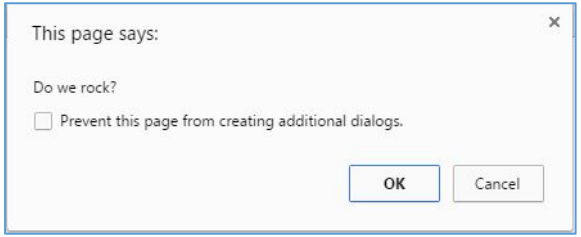



```
alert("We Rock.");
```

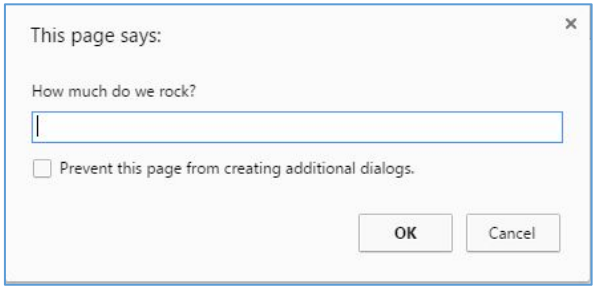
Console.log vs. JavaScript popup boxes

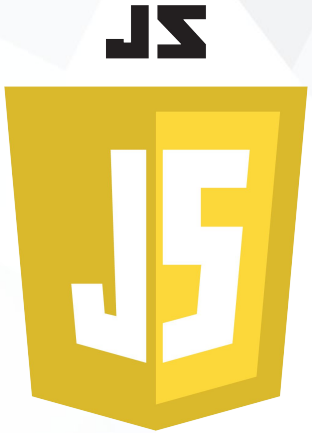
- `confirm` displays a true/false popup.
- `prompt` displays a popup with a text-box input.

```
confirm("Do we rock?");
```




```
prompt("How much do we rock?");
```



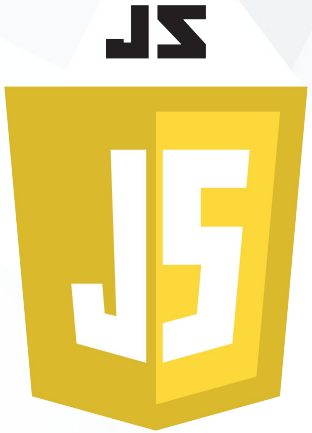


How do we **check conditions**?

If/Else Statements Are Critical

Each statement is composed of an if, else-if, or else (keyword), a condition, and the resulting code in { } curly brackets.

```
// If the user likes sushi (confirmSushi === true), we run the following block of code.
if (confirmSushi) {
  alert("You like " + sushiType + "!");
}
// If the user likes ginger tea (confirmGingerTea === true), we run the following block of code.
else if (confirmGingerTea) {
  alert("You like ginger tea!!");
}
// If neither of the previous condition were true, we run the following block of code.
else {
  alert("You don’t like sushi or ginger tea.");
```



What is an **array**?

Basic Arrays

Arrays a type of variable that are collections.

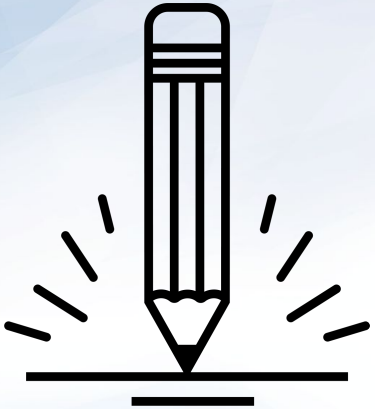
These collections can be made up of strings, numbers, Booleans, other arrays, objects—anything!

Each element of the array is marked by an `index`. Indexes always start with `0`.

```
var nickCharacters = ["Tommy", "Doug", "Oblina"];

var diceNumbers = [1, 2, 3, 4, 5, 6,];

var mixedArray = ["Zoo", 12, "Carrot", 3];
```



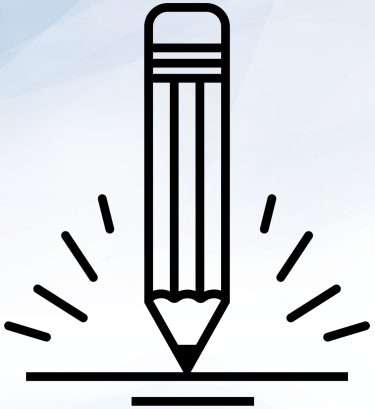
Activity:
Basic JavaScript Dissection

Suggested Time:
3 minutes

Activity: Basic JavaScript Dissection

- Re-examine the file sent to you during yesterday's class.
- See if you now better understand how it works.
- Prepare to share when time is up.

Suggested Time: 3 minutes



Activity:
Array Logging

Suggested Time:
5 minutes

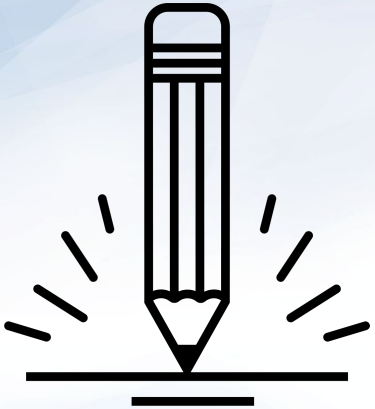
Activity: Array Logging

Follow the instructions provided in the file to `console.log` each of the names in the `coolPeople` variable.

Hint: You should be repeating the same line six times.

Be prepared to share when time is up.

Suggested Time: 5 minutes



Activity: Array Setting

Suggested Time:
5 minutes

Activity: Array Setting

Follow the instructions in the file provided to convert each item in the array to lowercase.

Make sure to only add in lines of code where instructed.

Hint: You will need to use the method `.toLowerCase()`. Research if you don't remember how to use it.

Be prepared to share when time is up.

Suggested Time: 5 minutes

Back to The Zoo Pen

Array name: zooAnimals

Zebra	Rhino	Giraffe	Owl
Index 0	**Index 1**	**Index 2**	**Index 3**

Coded in JavaScript using an array

```
// Our array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];
```

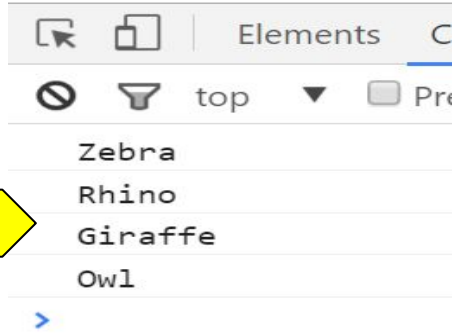
Back to The Zoo Pen

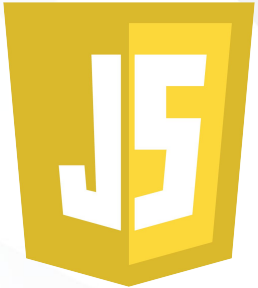
Array name: zooAnimals

Zebra	Rhino	Giraffe	Owl
Index 0	**Index 1**	**Index 2**	**Index 3**

```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

console.log(zooAnimals[0]);
console.log(zooAnimals[1]);
console.log(zooAnimals[2]);
console.log(zooAnimals[3]);
```

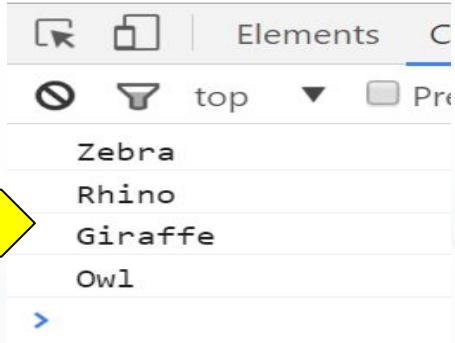




What’s wrong here?

```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

console.log(zooAnimals[0];
console.log(zooAnimals[1];
console.log(zooAnimals[2];
console.log(zooAnimals[3];
```

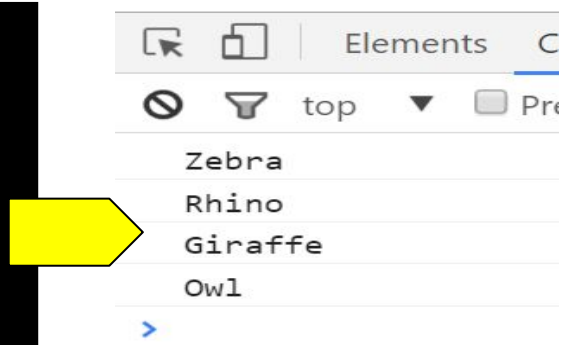


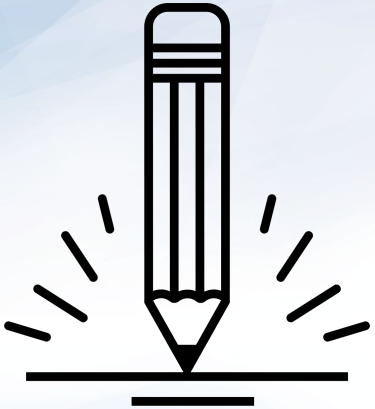
Don’t Repeat Yourself (DRY)

Repeated code! Let’s be more efficient.

```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

console.log(zooAnimals[0];
console.log(zooAnimals[1];
console.log(zooAnimals[2];
console.log(zooAnimals[3];
```





Activity:
Dissecting `for` Loops

Suggested Time:
5 minutes

Activity: Dissecting for Loops

- With a partner, spend a few moments trying to dissect the code sent to you.
- Try to explain to one another what is happening in each line of code.
- Feel free to do research if you are stumped. As a **hint**, look into the phrase “for loop”.
- Be prepared to share when time is up.

Suggested Time: 5 minutes

for Loops

for loops are **critical** in programming. We use them to run **repeated blocks of code** over a set period.

Each for loop is composed of a:

- Variable declaration or counter (iterator)
- Loop condition
- Iteration (addition)

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

for Loops

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}

// Logs:
// I love Carrots
// I love Peas
// I love Lettuce
// I love Tomatoes
```

Iterator Condition Increment

for Loops

Code between the { } gets repeated each time the iterator is smaller than the condition (in this case, as long as i < 4).

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}

// Logs:
// I love Carrots
// I love Peas
// I love Lettuce
// I love Tomatoes
```

for Loops

Running the code “loops” through and prints each element in the array.

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

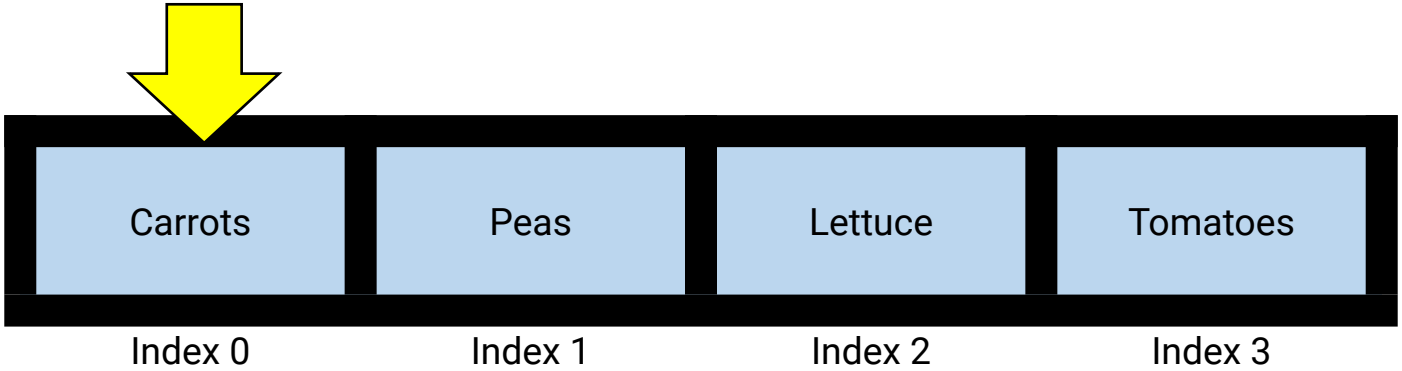
```
// Logs:
// I love Carrots
// I love Peas
// I love Lettuce
// I love Tomatoes
```

Run That Loop

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

When i = 0 … console.log(“I love Carrots”)

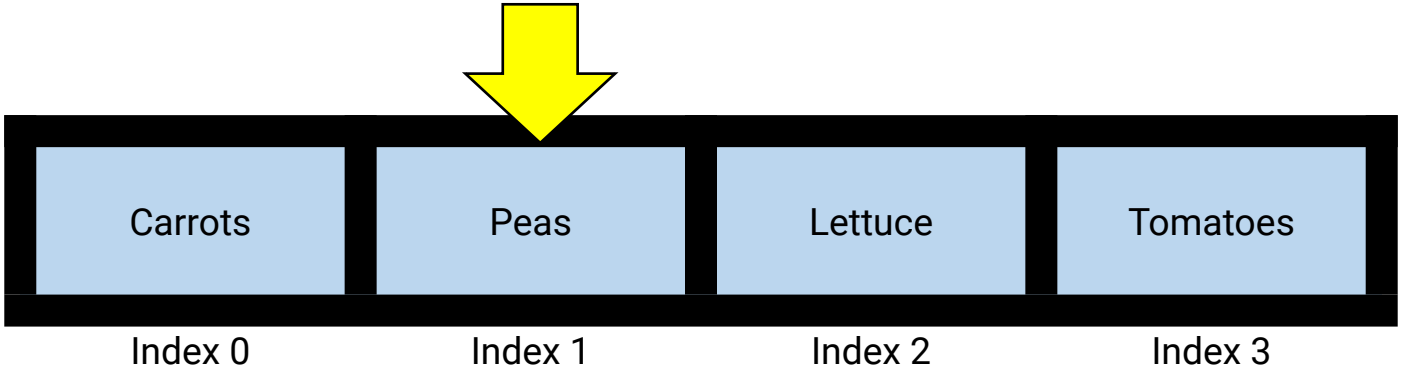


Run That Loop

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

When i = 1 … `console.log`(“I love Peas”)

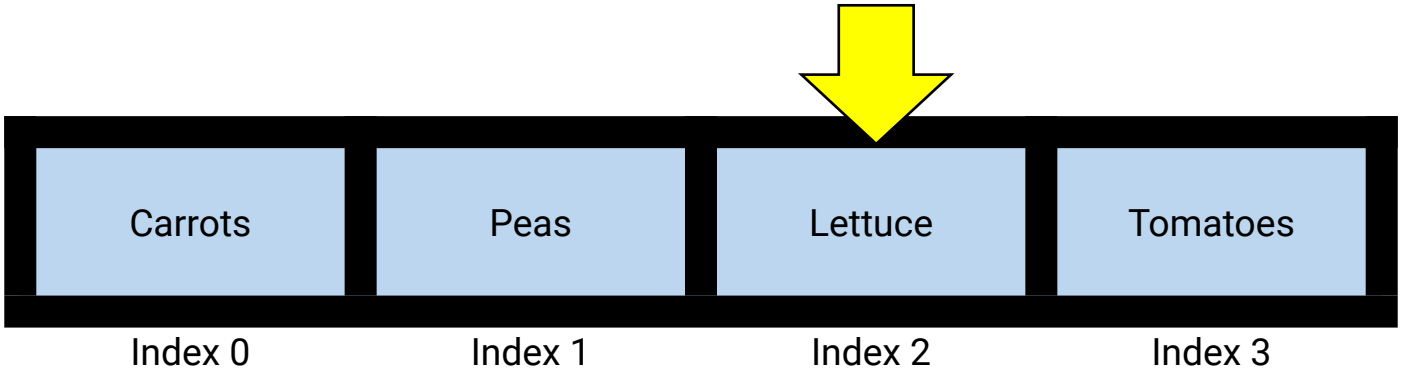


Run That Loop

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

When i = 2 … `console.log`(“I love Lettuce”)

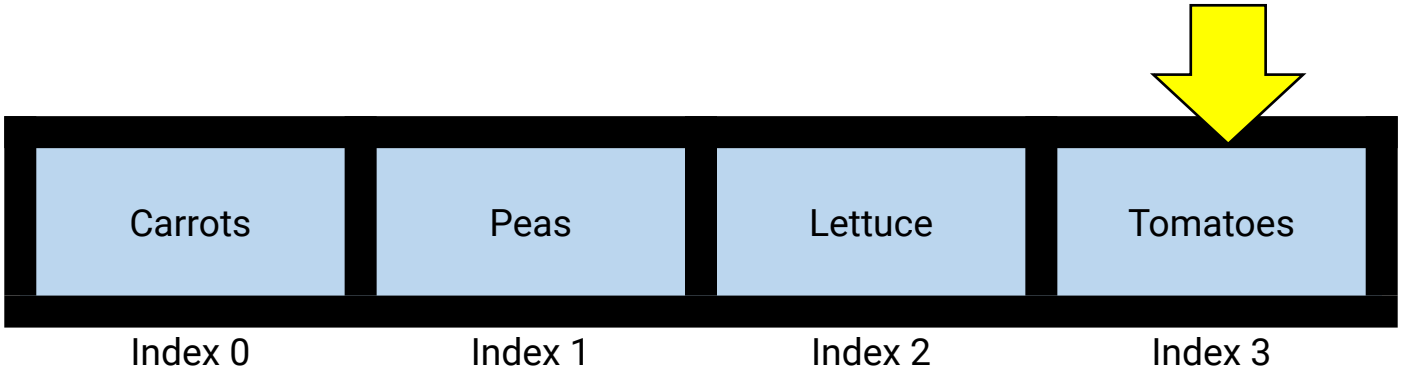


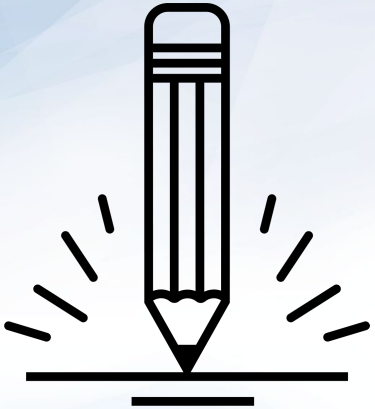
Run That Loop

```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// Loops through each index of the Array.
for (var i = 0; i < vegetables.length; i++) {
  console.log("I love " + vegetables[i]);
}
```

When i = 3 … `console.log`(“I love Tomatoes”)





Activity: for Loop Zoo

Suggested Time:
15 minutes

Activity: for Loop Zoo

01 Spend a few moments rewriting the code below using a for loop.

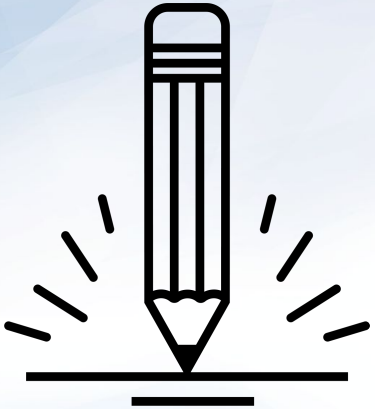
02 If you need help, use the code from the previous example as a guide.

03 Then try to explain to the person next to you how your code works.

```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

console.log(zooAnimals[0];
console.log(zooAnimals[1];
console.log(zooAnimals[2];
console.log(zooAnimals[3];
```

Suggested Time: 15 minutes



Activity: Another Loop

Suggested Time:
15 minutes

Activity: Another Loop

Starting from scratch, create a for loop that prints the following lines:

```
I am 0
I am 1
I am 2
I am 3
I am 4
```

This time, don't use an array!

Suggested Time: 15 minutes

Partner Activity:
Loop with Conditions

Suggested Time:
10 minutes

Partner Activity: Loop with Conditions

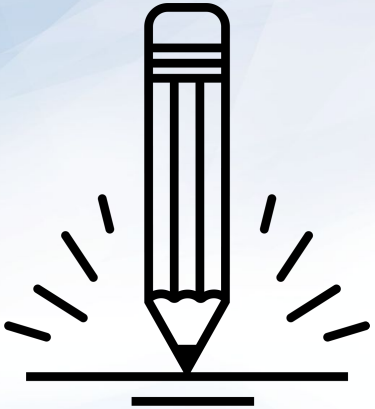
Starting from scratch, write code that loops through the following array:

```
// This is our starting myFarm array.
var myFarm = ["chickens", "pigs", "cows", "horses", "ostriches"];
```

Use `console.log` to display the name of each animal on the farm.

Using the `.charAt()` method (research it), check if the first letter in the animal's name begins with a "c" or "o". If it does, create an alert saying: "Starts with c or an o!"

Suggested Time: 10 minutes



Activity: Random Numbers

Suggested Time:
7 minutes

Activity: Random Numbers

Research how to use `Math.random()` to generate a whole number between 1 and 10.

Open **`21-RandomNumbers/Unsolved`** and modify the code so that is logs random *whole numbers* from 1 to 10 inclusive.

Suggested Time: 7 minutes

Rock-Paper-Scissors with a Partner!

Play five rounds.

Partner Activity:
Pseudocode
Rock-Paper-Scissors (RPS)

Suggested Time:
8 minutes

Partner Activity: Pseudocode RPS

- With a partner, spend a few moments outlining all the steps and conditions that go into a single game of Rock-Paper-Scissors.
- Try to break it down into steps that you could “code out.”
- Think of basic elements like loops, if-then statements, arrays, alerts, etc.
- Be prepared to share your outlined approach.

Suggested Time: 8 minutes

You just **pseudocoded!**

And now, for the rest of the class you will be coding it out!

Don’t worry. We’ll be here to help you along the way.

Group Challenge:
Coding RPS

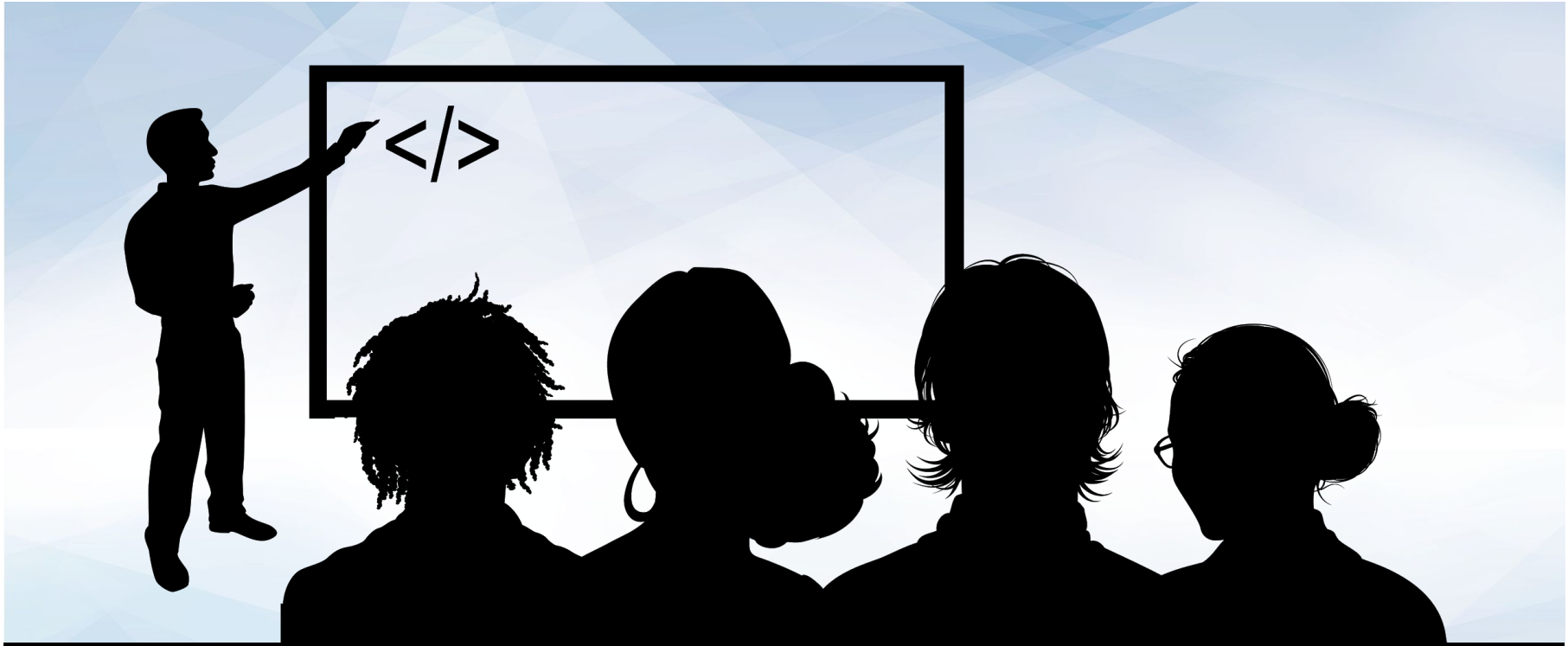
Suggested Time:
60 minutes

Group Challenge: Coding RPS

In groups, begin the process of coding out the Rock-Paper-Scissors game.

Do as much as you can on your own, but don't be afraid to ask for help if you feel your team is struggling.

Suggested Time: 60 minutes



Instructor Demonstration

Let’s Fill in the Missing Code (Together)

Questions?