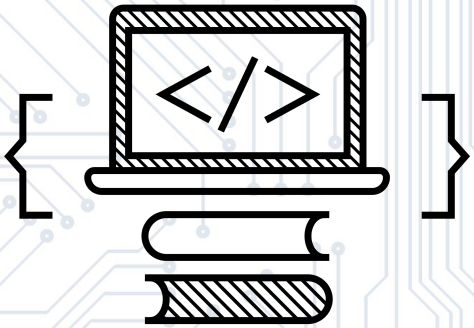


The Joys of JavaScript

Web Development

Lesson 2.1

Today’s Class

Class Objectives

In today's class, we will introduce:

- JavaScript Definitions
- JavaScript Basics:
  - Variables
  - Logging, alerting, prompting
  - Arrays
  - If/else statements

JavaScript

Prepare to become true coders!

How to Learn JavaScript

Your Brain on JavaScript

Time to Take Notes!


And Stay Organized!

Learning JavaScript

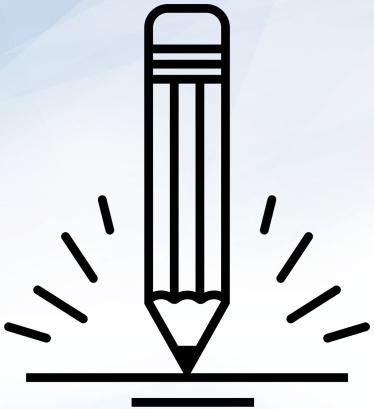
Follow these general tips:

Review classwork immediately.

Redo class activities at home.

Come to office hours and keep asking questions.

Do not fear—you will get this!



Partner Activity:
Code Dissection

A big part of being a developer is learning on the fly!

Instructions sent via Slack

Suggested Time:
7 minutes

Partner Activity: Code Dissection

01 Download the file sent to you via Slack.

02 Open it in Chrome and observe what happens.

03 With a partner, try to explain how the code connects to the events that happen on the page.

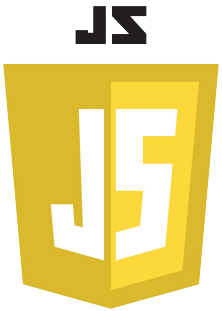
When downloading code from Slack, make sure you choose **Download**.
If you copy and paste directly from Slack, your code will not work!

Suggested Time: 7 minutes

What Is JavaScript?

JavaScript Definition

JavaScript is one of the three fundamental programming languages of the modern web (the others are HTML and CSS).

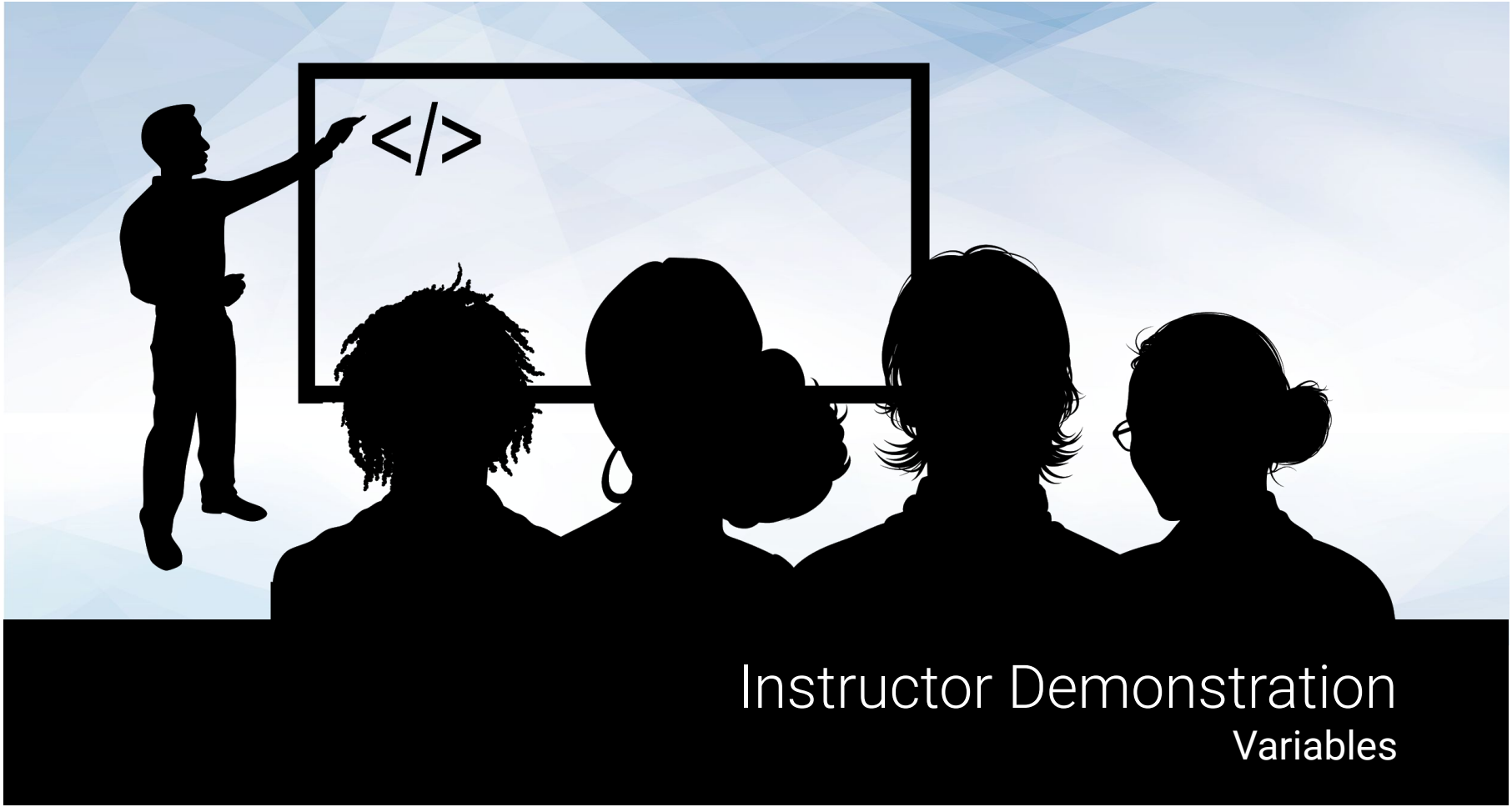
HTML	CSS	JavaScript
Used to write content. 	Used to format content. 	Used to create dynamic web applications that take in user inputs, change what's displayed to users, animate elements, and much more. 

Variables

Variables

- The *nouns* of programming
- Numbers, strings, Booleans, etc.
- Made up of a **name** and a **value**

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

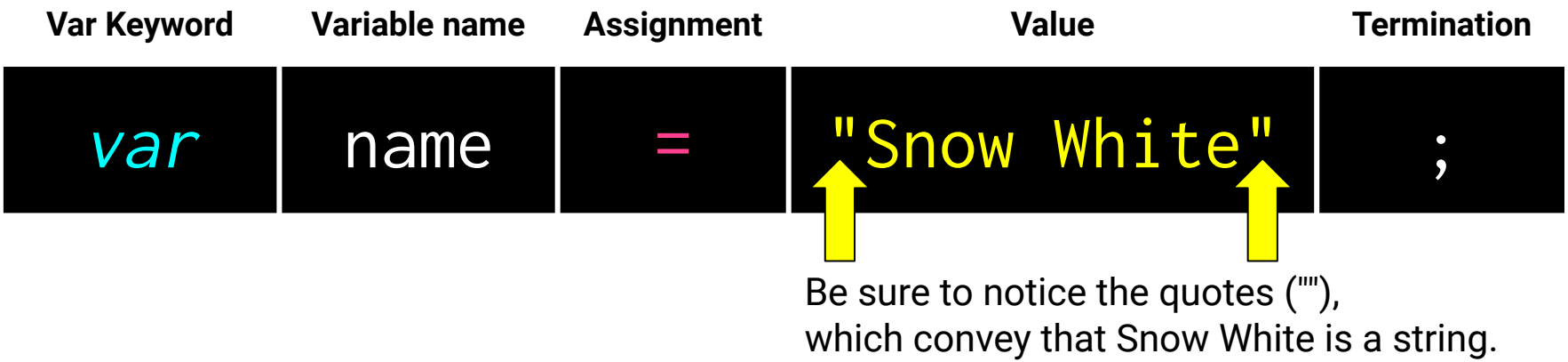


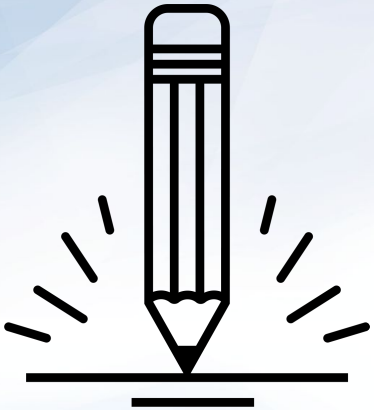
Instructor Demonstration

Variables

Variable Basics: Syntax

Variable Basics: Syntax





Activity: Variables

In this activity, you will fill in the missing JavaScript code to create variables.

Instructions sent via Slack

Suggested Time:
10 minutes

Activity: Variables

01 Using the instructions in the file sent to you, fill in the missing JavaScript code to create variables.

02 When you are done, open the file in Chrome and check the output.

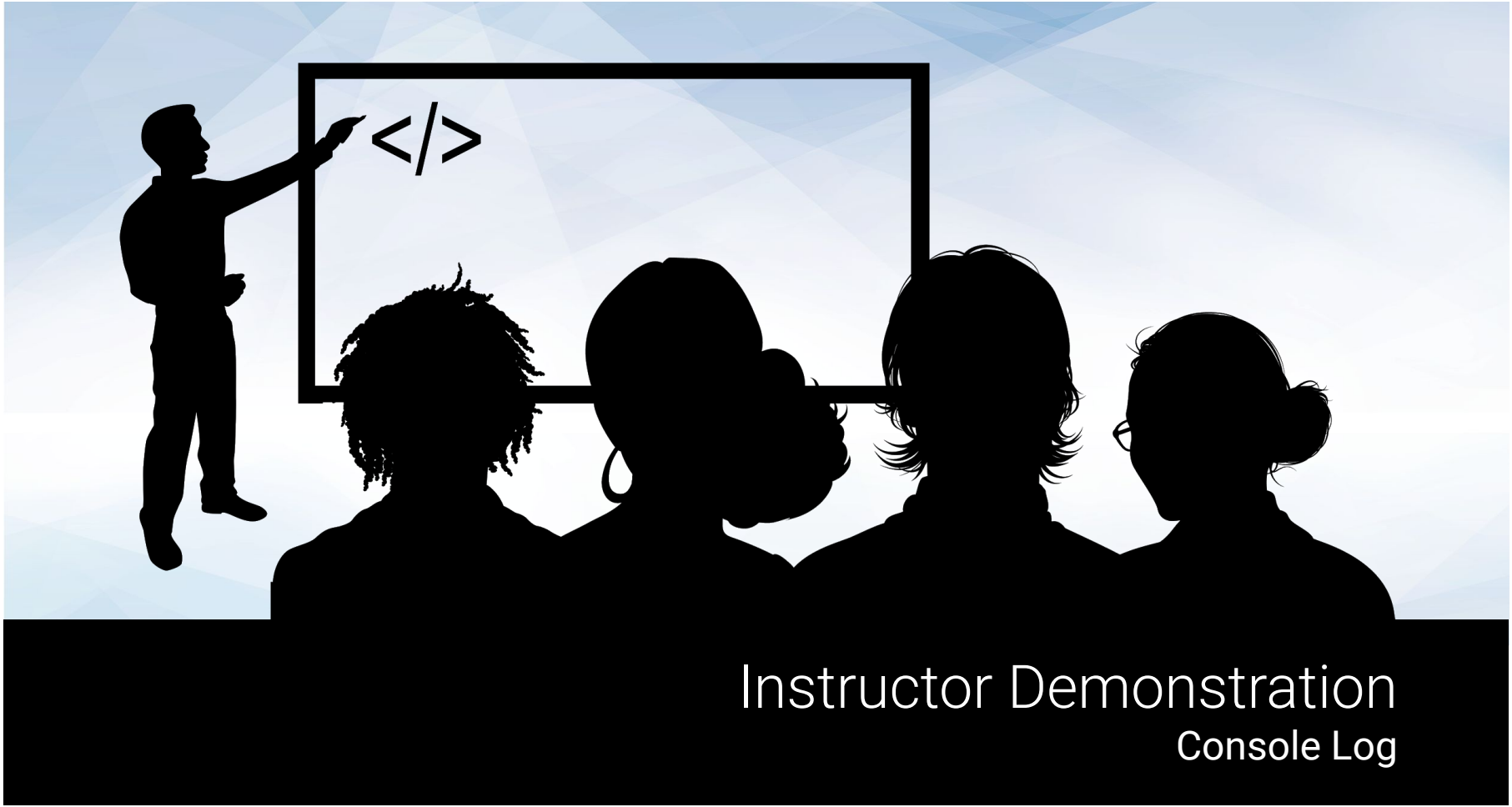
03 If you successfully complete the activity, you will see a series of pop-up windows with text inside.

04 Finally, look at the rest of the code and try to figure out why the text displayed the way it did.

Suggested Time: 10 minutes

Time’s Up! Let’s Review.

Console Log



Instructor Demonstration

Console Log

Console.log

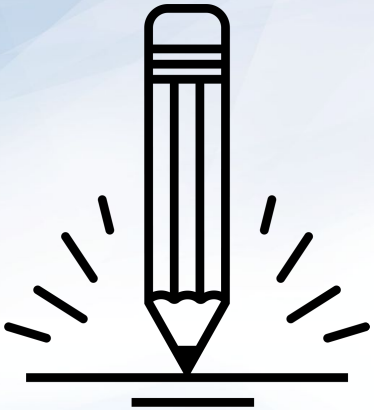
`console.log` is a quick expression that prints content to the debugger—very useful during development and debugging!

```
var quick = "Fox";
var slow = "Turtle";
var numbers = 121;

// The console.log() method is used to display data in the the browser's console.
// We can log strings, variables, and even equations.

console.log("Teacher");
console.log(quick);
console.log(slow);
console.log(numbers + 15);
```

How do you comfort a **JavaScript bug**?

How do you comfort a **JavaScript bug**?

You `"console"` it!



Activity: Console Log

Instructions sent via Slack

Suggested Time:
7 minutes

Activity: Console Log

01 Using the file sent to you as a guide, modify the code so that is uses `console.log` instead of alerts to display messages.

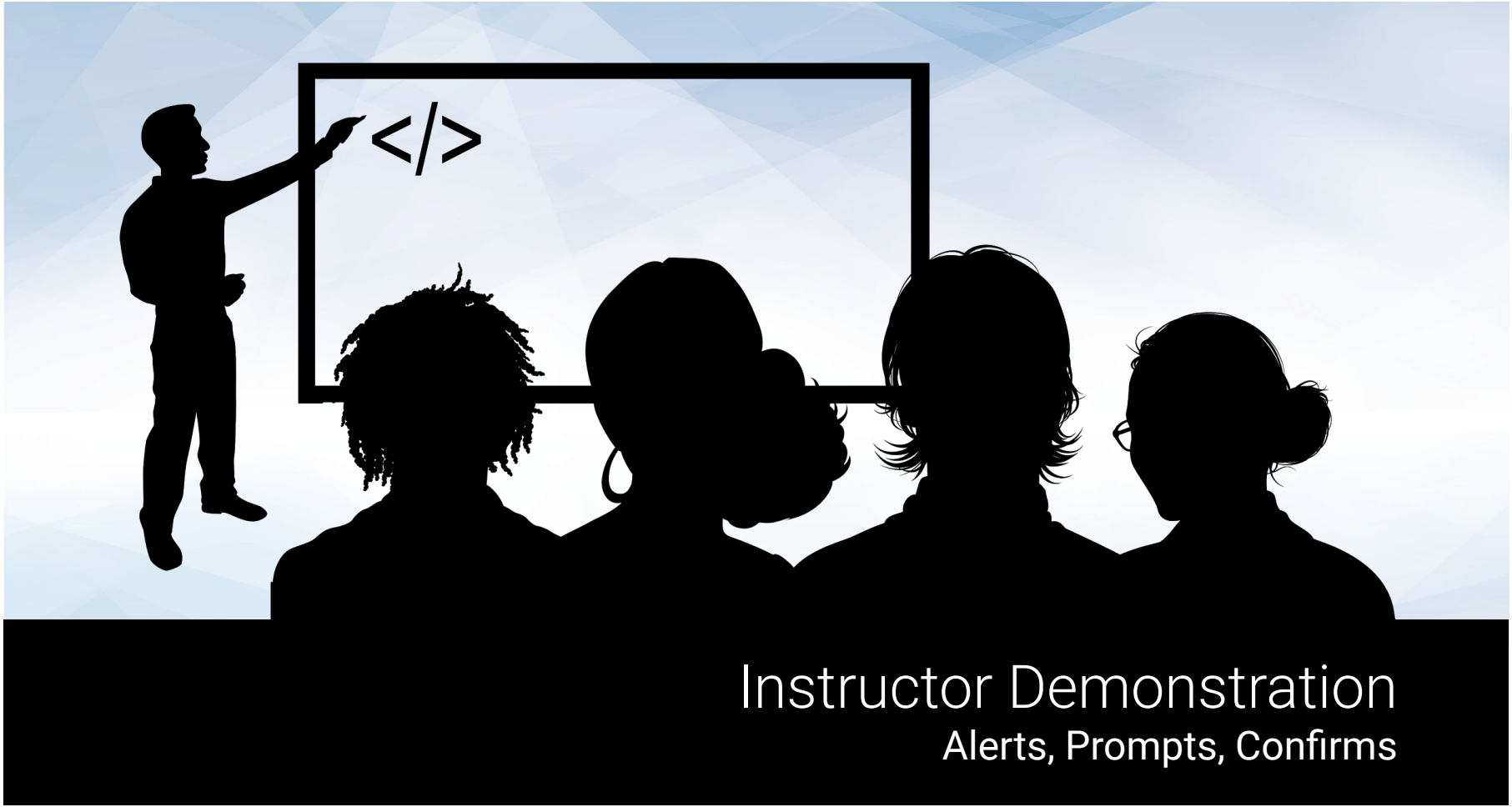
02 Then open the file in the browser and open up Chrome Developer Tools -> Console to confirm that the changes worked.

03 With a partner, discuss the difference between `console.log` and `alert`.

```
alert("Welcome: " + name);
alert("Pizzas cost $5 each");
alert("Your total is: $" + totalCost);
alert("Still Hungry: " + isHungry);
```

Suggested Time: 7 minutes

Alerts, Prompts, Confirms



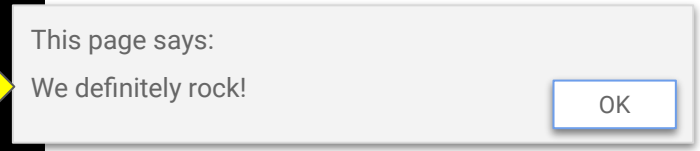
Instructor Demonstration

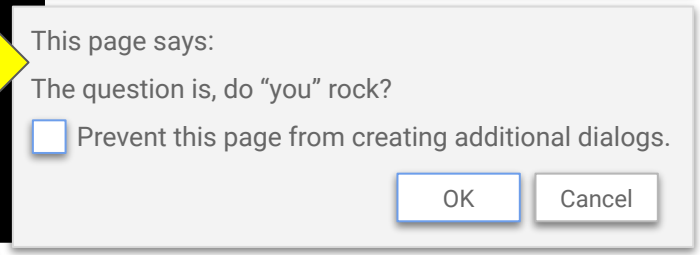
Alerts, Prompts, Confirms

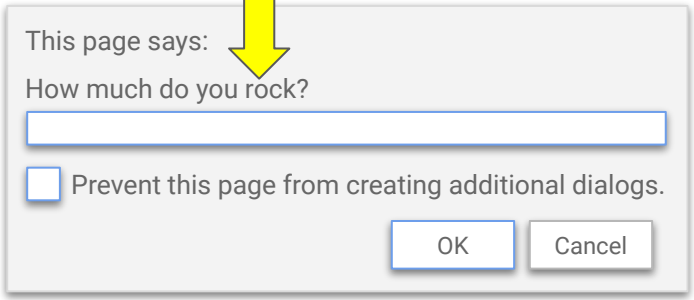
Alerts, Prompts, Confirms

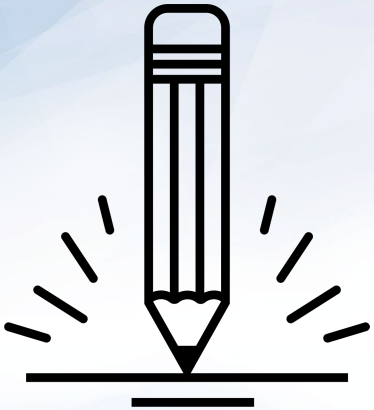
Alerts, prompts, and confirms create a popup in the browser when run.
These are also useful for development and debugging.

```
// Alert
alert("We definitely rock!");

// Confirm
var doYouRock = confirm("The question is, do *you* rock?");

// Prompt
var howMuchRock = prompt("How much do you rock?");
```









Activity: Alerts

Instructions sent via Slack

Suggested Time:
15 minutes

Activity: Alerts

Write JavaScript code that does the following:

01 Using a `confirm`, ask the user “Do you like _____?” and store their response in a variable.

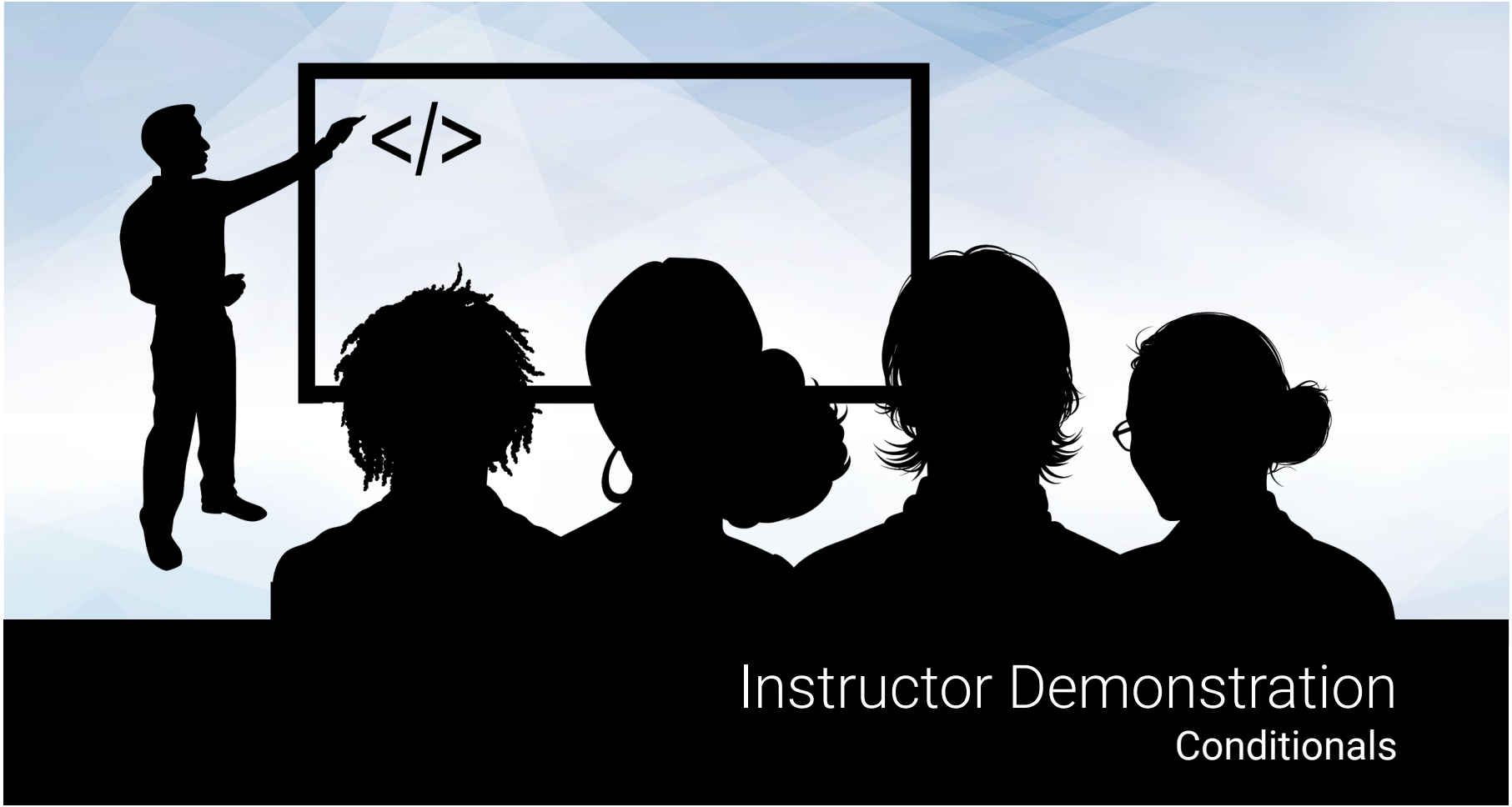
02 Using a `prompt`, ask the user: “What kind of _____ do you like?” and store their response in a variable.

03 `alert` both variables to the screen.

Suggested Time: 15 minutes

Time’s Up! Let’s Review.

If/Else Statements



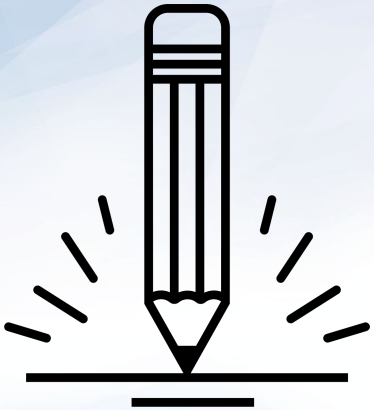
Instructor Demonstration

Conditionals

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.");
```



Partner Activity: If/Else Part 1

With a partner you will create a website (from scratch) that asks users if they eat steak.

Suggested Time:
15 minutes

Partner Activity: If/Else Part 1

01 With a partner, create a website (from scratch) that asks users if they eat steak.

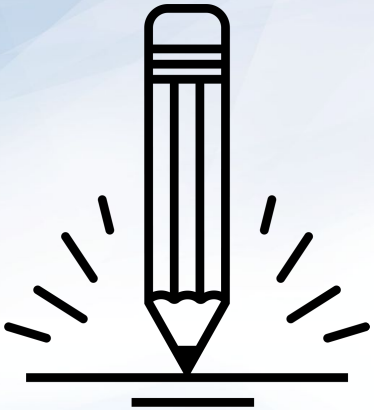
02 If they respond with yes, alert the following to the page: *“Here’s a Steak Sandwich!”*.

03 If they respond with no alert the following to the page: *“Here’s a Tofu Stir-Fry!”*.

Bonus: Ask what the user’s birth year is. If they are under 21, alert the following: *“No sake for you!”*

Suggested Time: 15 minutes

Time’s Up! Let’s Review.



Activity: If/Else Part 2

As a class, we will go through and predict what the result of a conditional statement will be.

Instructions sent via Slack.

Suggested Time:
10 minutes

Activity: If/Else Part 2

Do this activity as a class.

- Open the file sent to you in Sublime.
- As a class, go through and predict what the result of each conditional statement will be (i.e., will the “if” or the “else” be triggered).
- Then run the program to check if you are right. Note any that you got wrong and ask about it in class.

Suggested Time: 10 minutes

Take a Break!

Arrays

The Zoo Pen

Array Name: zooAnimals

The Zoo Pen: Coded

Array Name: zooAnimals

Coded in JavaScript using an array:

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

Arrays

Arrays are 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`.

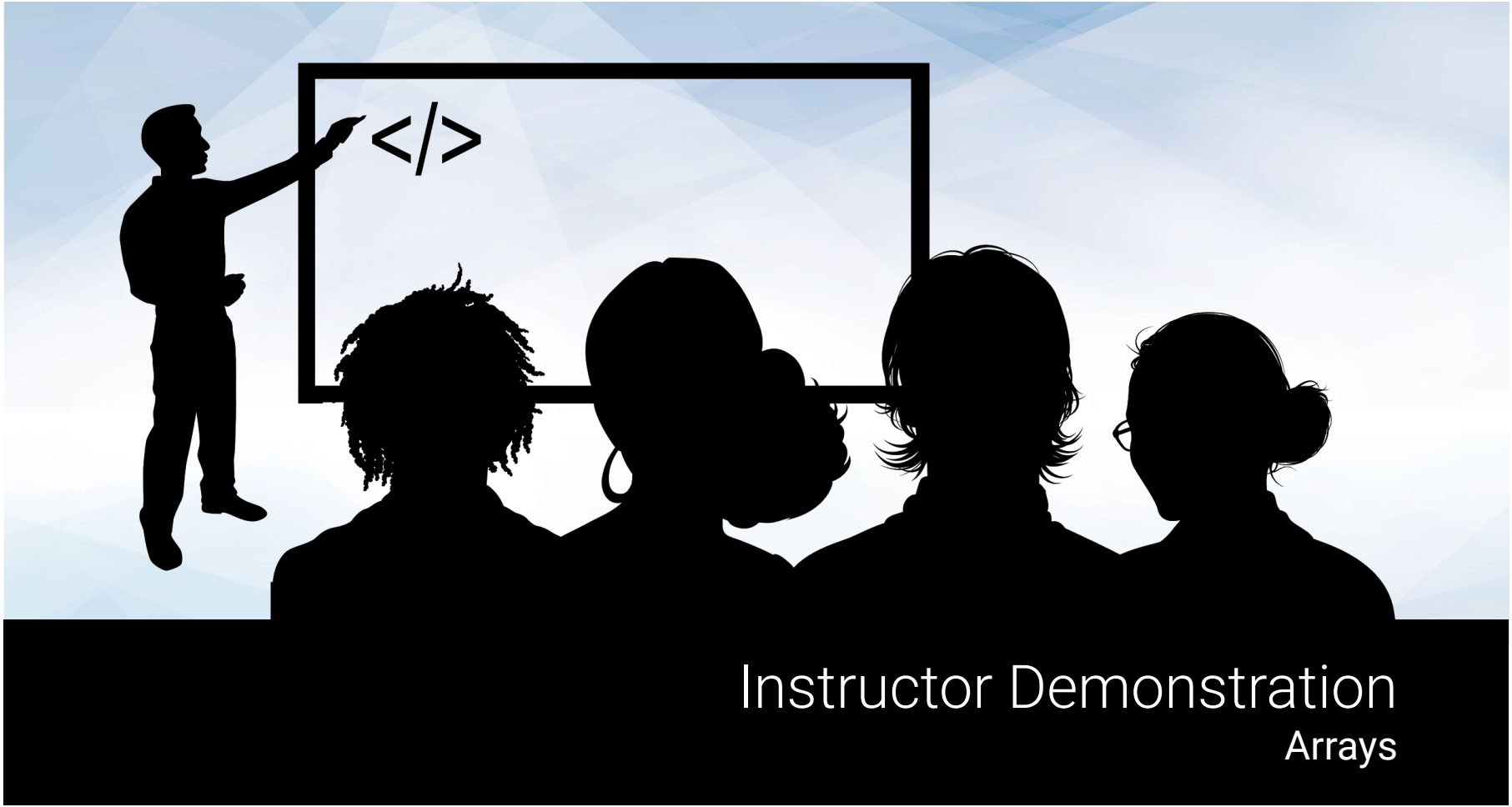
```
var nickCharacters = ["Tommy", "Doug", "Oblina"];

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

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

Arrays: Indices

To recover the value at any specific index, include the name of the array with a square bracket `[ ]` and inside the bracket is the element's index.

You can easily grab the number of elements in the array using the method `array.length`.

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

// Prints 4 to the console because there are 4 items in our zooAnimals array.
console.log(zooAnimals.length);

// Prints Rhino to the console. Remember, the first item in an array has an index position of 0!
console.log(zooAnimals[1]);

// Prints undefined...because the last index ("Owl") is 3.
console.log(zooAnimals[4]);
```



Instructor Demonstration

Arrays

Partner Activity: Code Dissection

With a partner, take a few moments to look over the following code (sent via Slack).

Above each `console.log()`, write a comment predicting what you think the output will be.

Suggested Time: 7 minutes

Challenge: Favorite Band Array

In this challenge, you will create an array of your favorite bands.

Suggested Time:
10 minutes

Challenge: Favorite Band Array

Create a website that accomplishes the following:

01 Create an array of your favorite bands.

02 With a prompt, ask the user's favorite band.

03 If it's one of your favorites, alert: *"YEAH, I LOVE THEM!"*

04 If it's not, alert: "*Nah. They're pretty lame.*"

Hint: You will need to research how to use `.indexOf()`

Hint: You will also need to research how to use `.toLowerCase()`

Suggested Time: 15 minutes

Challenge: Code Dissection (Re-examined)

Re-examine the file sent to you at the start of class. See if you can better understand how it works after having completed today's class.

Suggested Time:
5 minutes

For Loops

Back to The Zoo Pen

Array Name: zooAnimals

Coded in JavaScript using an Array

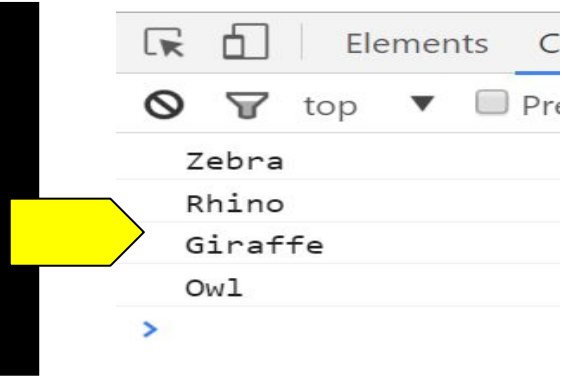
```
// Our array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];
```

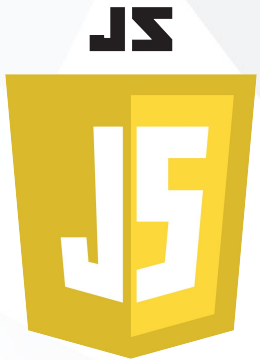
Back to The Zoo Pen

Array Name: zooAnimals

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

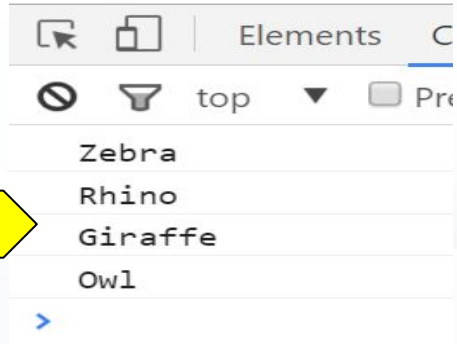
```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

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





What's wrong here?

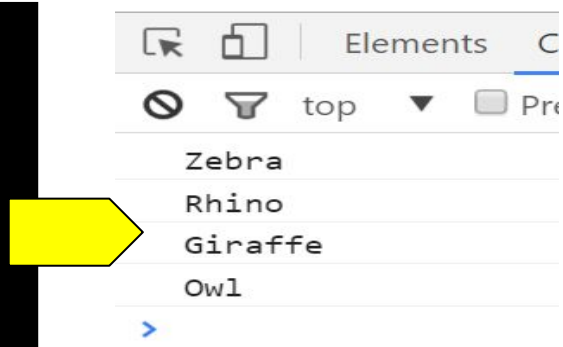
```
// Array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

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

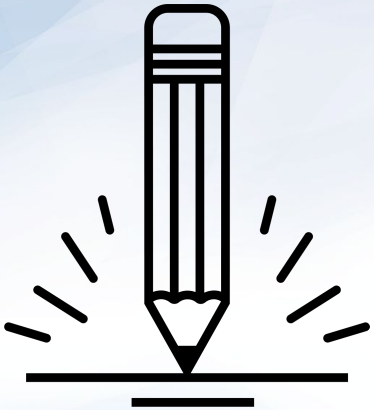


Don’t Repeat Yourself (DRY)

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:
For Loop Dissection

Suggested Time:
5 minutes

Activity: For Loop Dissection

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

Enter the For Loop

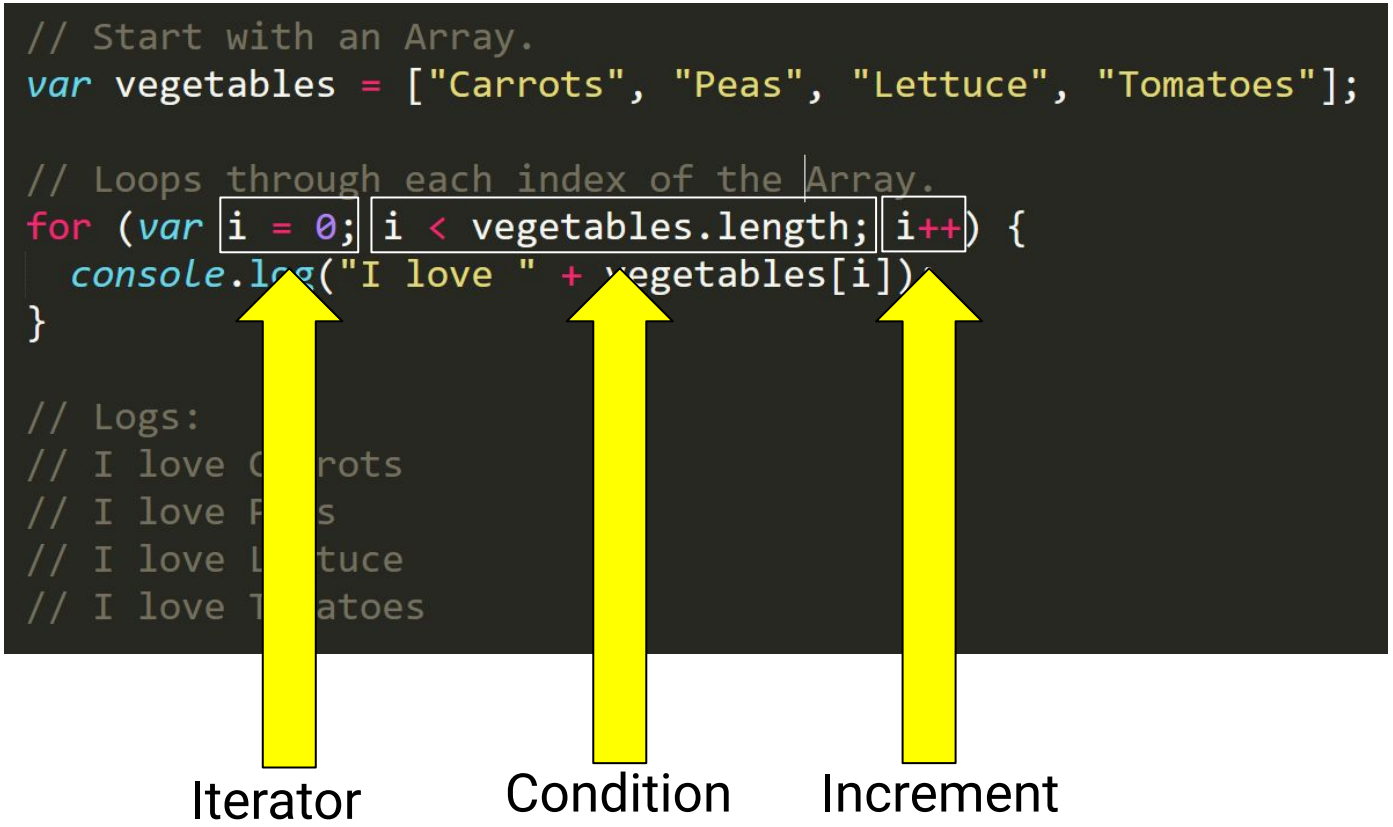
For loops are **critical** in programming.
We use for loops to run **repeated blocks of code** over a set period.

Each for loop is composed of a:

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

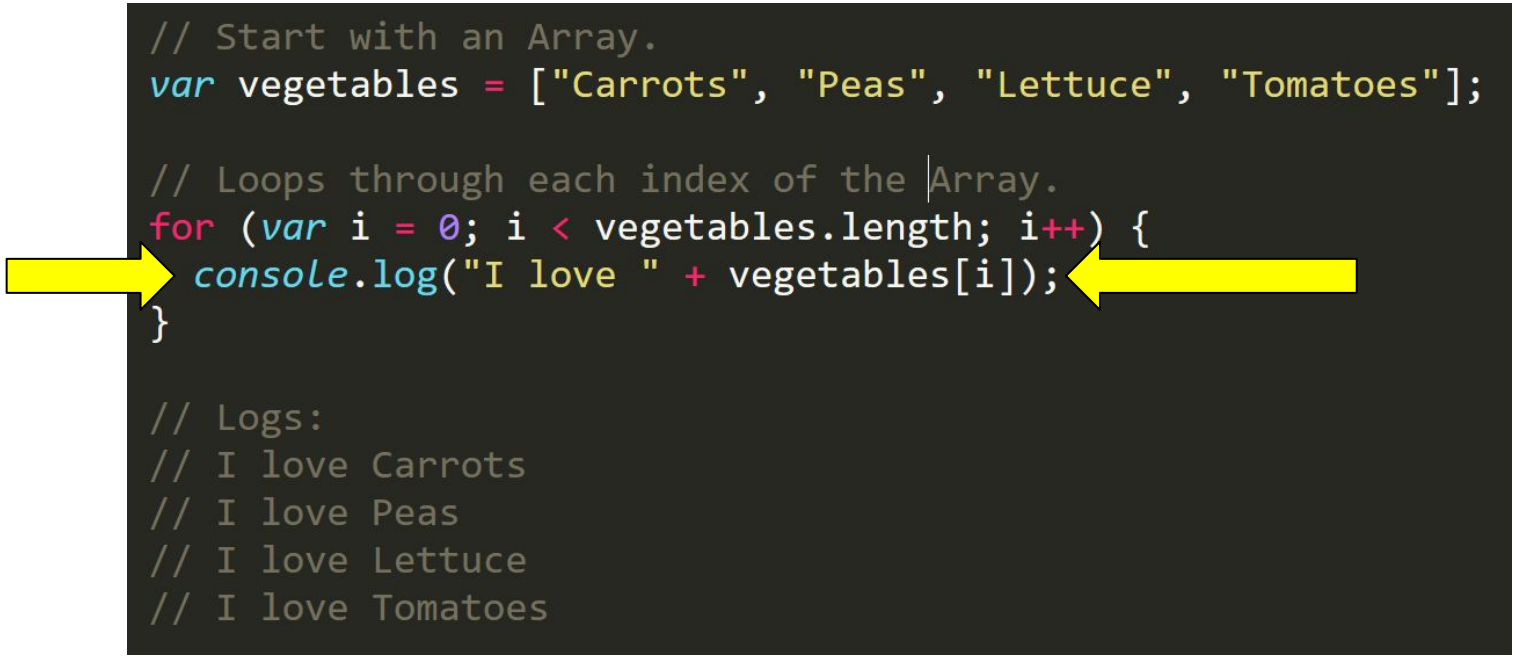
```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

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

Enter the For Loop



Enter the For Loop

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
```

Enter the For-Loop

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

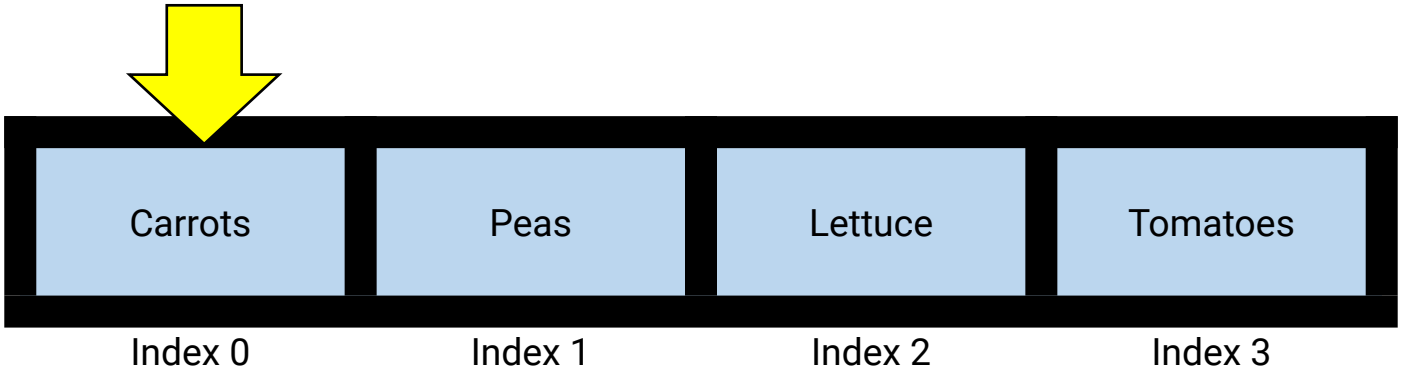
```
// Start with an Array.
var vegetables = ["Carrots", "Peas", "Lettuce", "Tomatoes"];

// 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]);
}
```

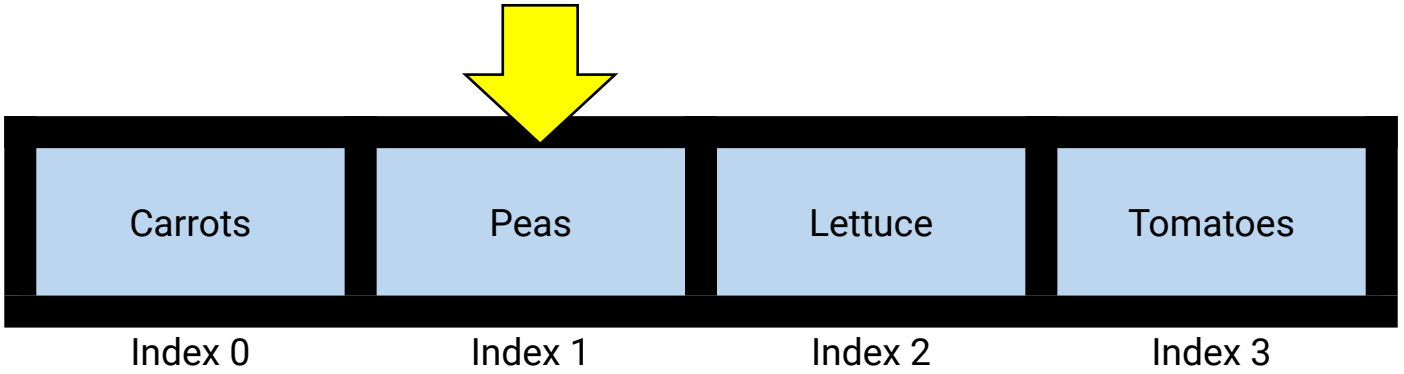
When i = 0 … `console.log`(“I love Carrots”)



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]);
}
```

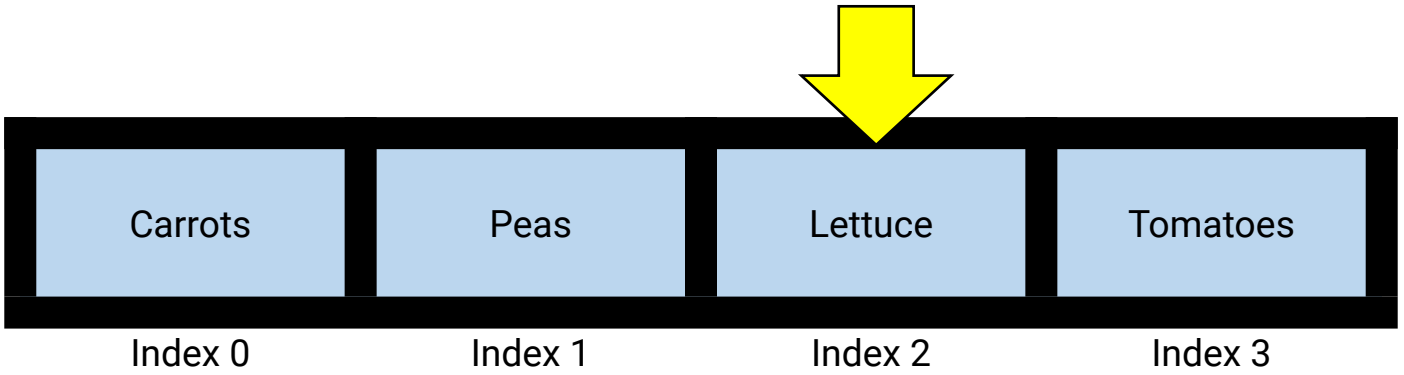
When i = 1 … `console.log`(“I love Peas”)



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]);
}
```

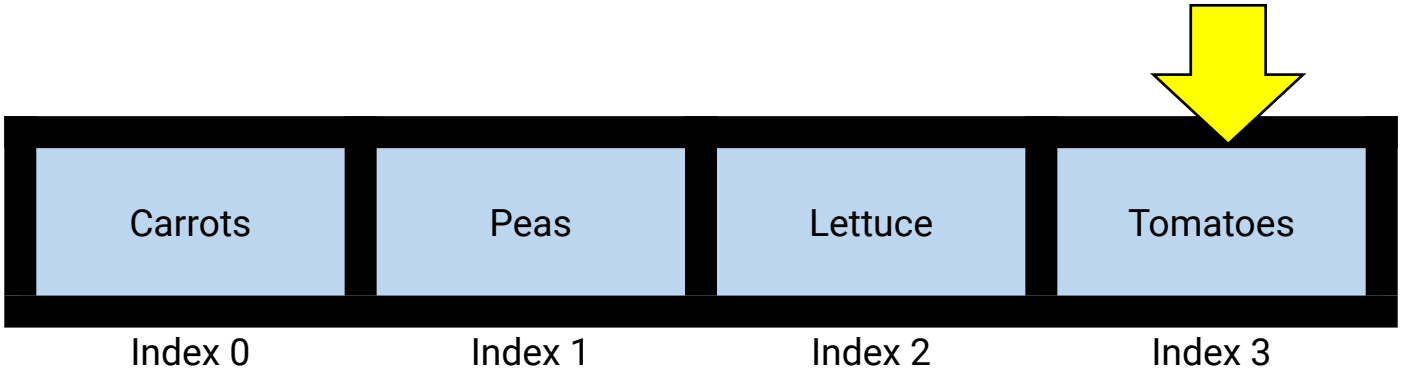
When i = 2 … `console.log`(“I love Lettuce”)

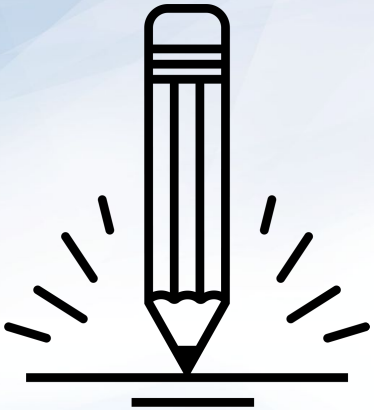


Run That Loop

```
// 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

Questions?