FUNCTIONS

WEEKLY OVERVIEW

WEEK 6	JS Lab / Functions
WEEK 7	Animations / Interactions Lab
WEEK 8	Responsive Design / Final Project Lab
WEEK 9	Interactions Lab / Students' Choice

LEARNING OBJECTIVES

- Describe why functions are useful
- Describe how parameters relate to functions
- Given a function and a set of arguments, predict the output of a function
- Define and call a function
- Compare global and local scope

AGENDA

- Review
- Functions — What are Functions?
- Functions — Syntax
- Functions — Scope
- Lab — Rock, Paper, Scissors

REVIEW

EXERCISE — WRITING FUNCTIONS

KEY OBJECTIVE

- Review conditionals, boolean operators, variables

TYPE OF EXERCISE

- Individual/paired

LOCATION

- starter code > ice cream (part 1)

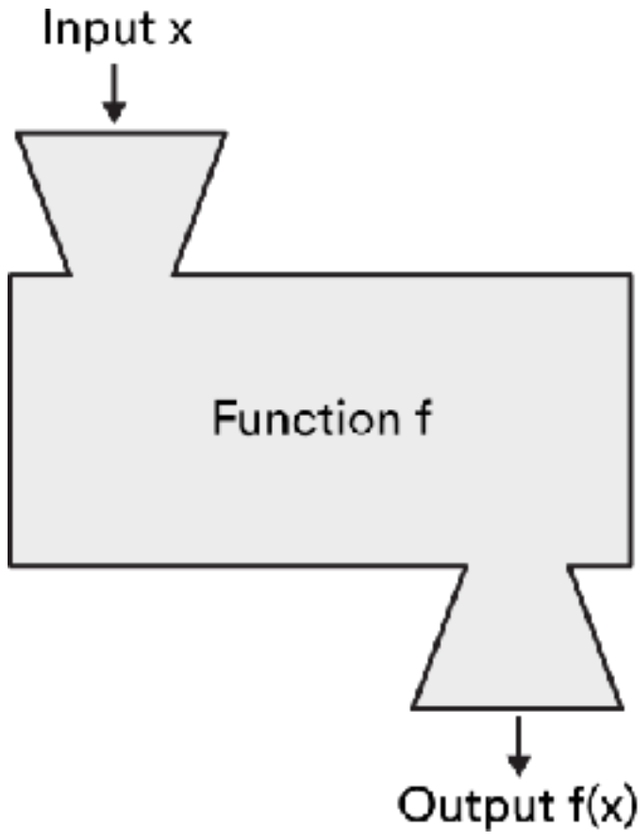
EXECUTION

8 min Follow the instructions under Part 1 (conditionals review)

FUNCTIONS

WHAT ARE FUNCTIONS?

FUNCTIONS



x	f(x)
-1	-2
0	0
1	2
2	4
3	6

EXERCISE — FUNCTIONS INTRO

KEY OBJECTIVE

- Practice reading code and guessing what's happening.

TYPE OF EXERCISE

- Groups of 3 - 4

LOCATION

- starter code > functions_intro

EXECUTION

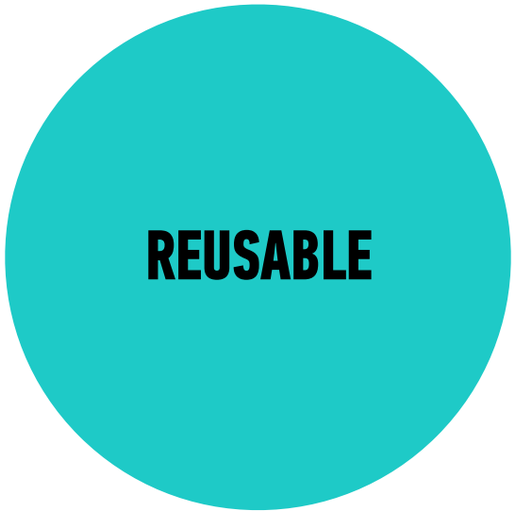
8 min

1. Walk through the questions at the top of main.js and discuss.
2. Walk through the questions in part 2 and discuss.

FUNCTIONS

FUNCTIONS

Allow us to group a series of statements together to perform a specific task



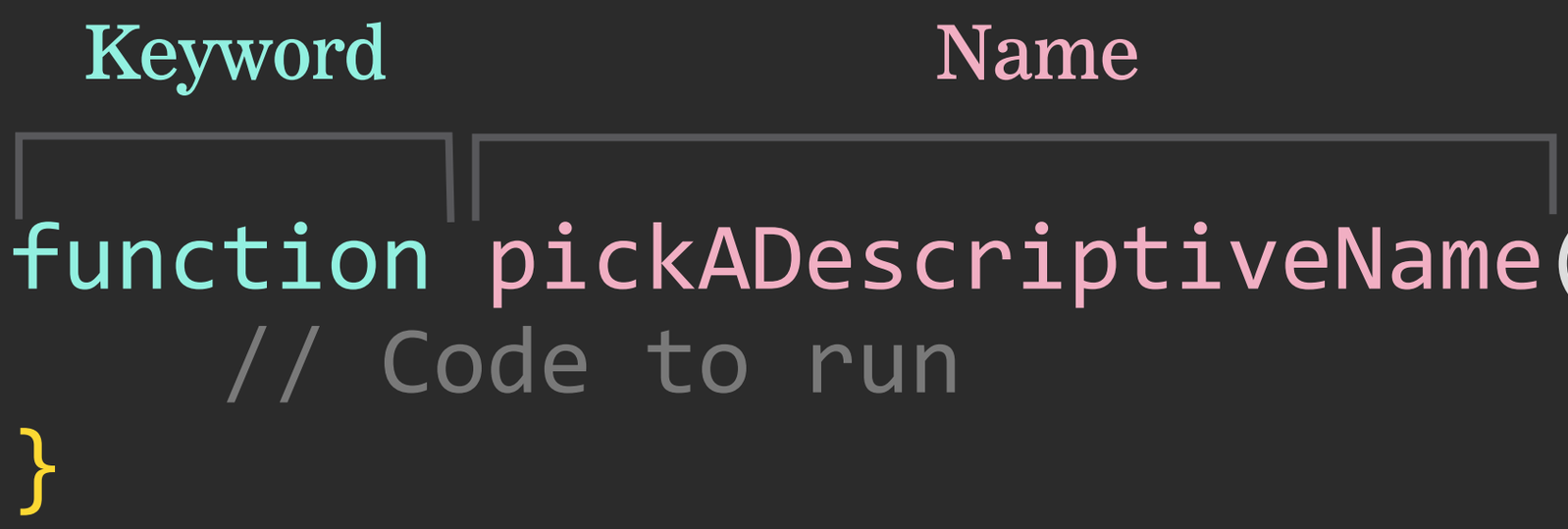
We can use the same function multiple times

Not always executed when a page loads. Provide us with a way to 'store' the steps needed to achieve a task.

DRY — DON'T REPEAT YOURSELF

SYNTAX

SYNTAX — DECLARING A FUNCTION



SYNTAX — DECLARING AND CALLING A FUNCTION

```
function pickADescriptiveName() {
    // Code to run
}
```

To run the function, we need to *call* it. We can do so like this:

```
pickADescriptiveName();
```

Function name + parentheses

FUNCTIONS — LET'S PLAY SOME MUSIC!

```
function playSong () {
    var song = "Don't Stop 'Til You Get Enough";
    var artist = "Michael Jackson";

    $('#nowPlaying').html('Now playing: ' + song + ' by ' + artist);
}
```

FUNCTIONS — LET'S PLAY SOME MUSIC!

```
function playSong () {
    var song = "Don't Stop 'Til You Get Enough";
    var artist = "Michael Jackson";

    $('#nowPlaying').html('Now playing: ' + song + ' by ' + artist);
}

playSong();
```

EXERCISE — WRITING FUNCTIONS

KEY OBJECTIVE

- Practice defining and executing functions

TYPE OF EXERCISE

- Individual/paired

LOCATION

- starter code > ice cream

EXECUTION

4 min

1. Follow the instructions under Part 2 in the ice cream lab

SYNTAX — DECLARING A FUNCTION (WITH PARAMETERS)

Parameters

```
function multiply (param1, param2) {
    $('h1').html(param1 * param2);
}
```

We can use these parameters like variables from within our function

Arguments

```
multiply(350, 140)
```

FUNCTIONS — LET'S PLAY SOME MUSIC!

```
function playSong (song, artist) {
    $('#nowPlaying').html('Now playing: ' + song + ' by ' + artist);
}
```

FUNCTIONS — LET'S PLAY SOME MUSIC!

```
function playSong (song, artist) {
    $('#nowPlaying').html('Now playing: ' + song + ' by ' + artist);
}

playSong("Don't Stop 'Til You Get Enough", "Michael Jackson");
```

```
function sayHello (greeting, name) {
    $('.greeting').html(greeting + " " + name);
}
```

What will be the html that gets added to .greeting we call the function using these arguments:

```
sayHello("Drake", "Hello");
```

```
function sayHello (greeting, name) {
    $('.greeting').html(greeting + " " + name);
}
```

What will be the html that gets added to .greeting we call the function using these arguments:

```
sayHello("Hello", "Drake");
```

EXERCISE — WRITING FUNCTIONS

KEY OBJECTIVE

- Review conditionals, boolean operators, variables

TYPE OF EXERCISE

- Individual/paired

LOCATION

- starter code > ice cream

EXECUTION

8 min Follow the instructions under Part 3

EXERCISE — FUNCTIONS

KEY OBJECTIVE

- Describe why functions are useful
- Describe how parameters relate to functions

TYPE OF EXERCISE

- Turn and Talk

EXECUTION

1 min

1. Summarize why we would use functions in our programs. What purpose do they serve?
2. How do parameters relate to functions?

LEARNING OBJECTIVES

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SCOPE

VARIABLE SCOPE

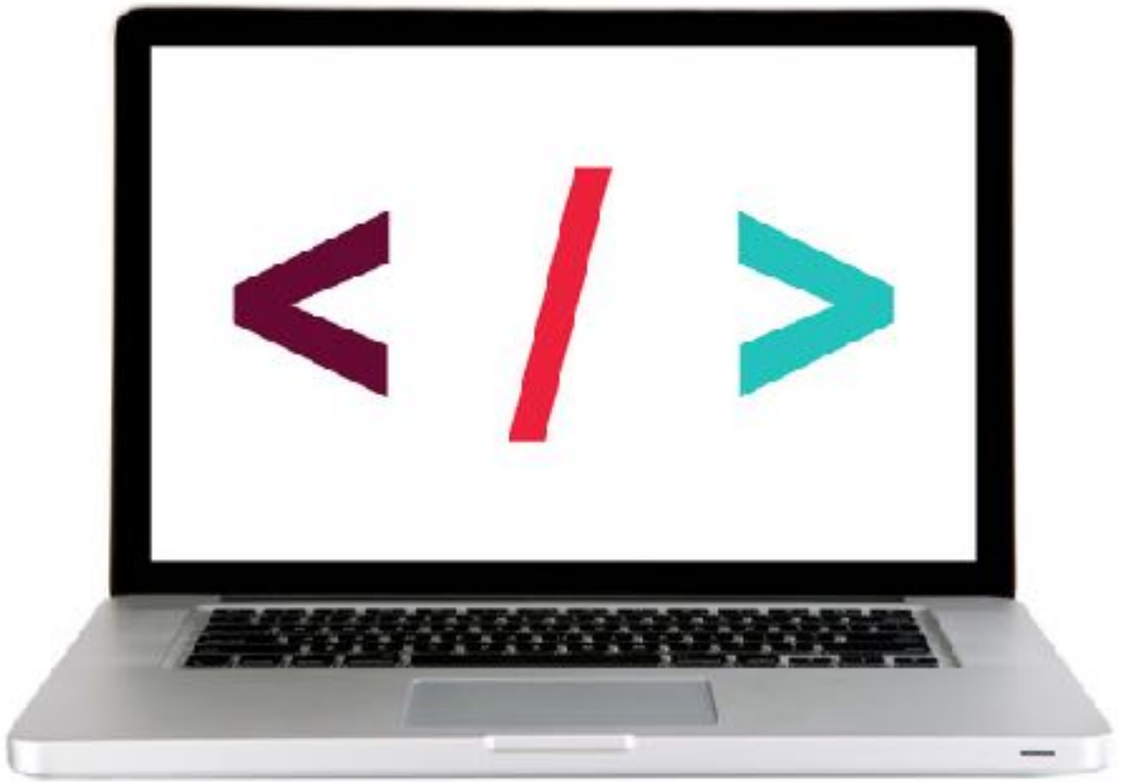
LOCAL VARIABLES

- A **local** variable is a variable that is declared *inside* a function.
- It can **only be used in that function**, and cannot be accessed outside of that function

GLOBAL VARIABLES

- A **global** variable is a variable that is declared *outside* of a function.
- It can be used **anywhere in the script**.

LET'S TAKE A CLOSER LOOK



View example in Codepen

EXERCISE — READING FUNCTIONS

KEY OBJECTIVE

- Given a function and a set of arguments, predict the output of a function

TYPE OF EXERCISE

- Groups of 2 - 3

LOCATION

- starter code > scope

EXECUTION

8 min

1. Follow the instructions in main.js

EXERCISE — FUNCTIONS

KEY OBJECTIVE

- Describe why functions are useful
- Describe how parameters relate to functions

TYPE OF EXERCISE

- Turn and Talk

EXECUTION

3 min

1. Draw a chart for global and local scope
2. Bonus: Think of an analogy

LEARNING OBJECTIVES

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LAB TIME!

DEBUGGING — STEPS

1. Check your console for errors.
2. Check to make sure you're using # for ids and . for classes
3. Check to make sure your classes and ids are spelled the same in your HTML and JS file
4. Walk through your code in the debugger ("Sources" panel) and check values
5. Google it!

EXERCISE — ROCK, PAPER, SCISSORS

KEY OBJECTIVE

- Practice JavaScript basics, then refactor code to avoid repetition.

TYPE OF EXERCISE

- Groups of 2 - 3

LOCATION

- starter code > Rock, Paper, Scissors

EXECUTION

Until 9:20

1. Continue building the game, enabling the Paper and Scissors buttons, as well as feedback in the browser window.
2. Use functions to group together any repeated code.
3. **Bonus**: Create a "Best of three" version of the game. After three rounds, there should be some visual feedback for the user as to who is the "final" winner. Get creative!

BONUS — TEMPERATURE CONVERTER

KEY OBJECTIVE

- Practice JavaScript basics and refactor code to avoid repetition.

TYPE OF EXERCISE

- Individual

EXECUTION

1. Refactor the temperature converter from last class to avoid repetition by using a function
2. BONUS: Add validation to the form (Can you find a way to group this functionality into a function?)
3. BONUS: Change the background color of the body based on whether the temperature is hot or cold.

LAB

LEARNING OBJECTIVES

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EXIT TICKETS!