Objective:

-SWBAT write Javascript conditional statements using “if”, “else”, “else if”, and “switch” (time permitting for switch)

-SWBAT evaluate written Javascript conditional statements and predict correct output from console

Setup: Clear out main.js. Get Do Now answers in presentation mode. Distribute Do Now

Prerequisites:

Variables (int, bool, str)
Comparison operators
document.write()
Arithmetic/assignment operators (e.g., +=, *=)

Review attached Do Now (answers: True, False, False, True, False). Note the importance of well-named variables in D and comment in E

Introduction:

Conditional statements in English: "If it rains, then we will stay inside. Otherwise we will go to the park." Javascript can do the same thing.

Show:

```
if (this thing is true) {
    do all this stuff
}
```

Note formatting; bracket alignment and spacing, parentheses vs brackets

```
var  x = 5;
document.write("x has the value of " + x + "<br/>");

if (x > 3) {
    document.write("x is bigger than 3");
}
```

change x to 2, demonstrate no output.

But if we wanted output, we could add an else statement.

```
 else {
    document.write("x is smaller than 3");
}
```

If none of the "if" statements get executed, the "else" will, regardless of whether it's true. This has the pitfall of what happens if x is exactly 3?

add an else if statement

```
if (x > 3) {
    document.write("x is bigger than 3");
} else if (x < 3) {
    document.write("x is smaller than 3");
} else {
    document.write("x is equal to 5.")
}
```

Show example1.js. Students may incorrectly "reset" the value of the integer.

Show example2.js. Students may incorrectly apply multiple if else statements and get 65. If the first "if" is executed, no subsequent "if else" will happen.

Nested conditionals (on main.js)

```
var animal = "cat";
var age = 2;

if (animal=="cat") {
    if (age <= 3) {
        document.write("You have a kitten!");
    } else {
        document.write("You have a full-grown cat!")
    }
} else {
    document.write("You have some less important animal.");
}
```

Switch statements

Show example 3; complex *if else* statement. Demonstrate a few values including an invalid one.

Switch statements are used to simplify this. Tests whether grade is equal to each of the following. Equivalent to an if...else block but often easier to read.

```
var grade = "C";
var result;

switch (grade) {
    case "A":
        result = "Great job";
        break;
    case "B":
```

```
        result = "Pretty good!";
        break;
    case "C":
        result = "Could be better!";
        break;
    case "D":
        result = "Pretty bad...";
        break;
    case "F":
        result = "Better study more!";
        break;
    default:
        result = "Invalid grade";
}

document.write(result);
```

Task: Given three integers, write nested conditionals to print the largest to the screen.
Pitfalls: Students may forget zero, negatives, or if the numbers are equal. Early finishers can expand their code to print the smallest. Show task.html on browser, start them off with task.js

One possible solution:

```
var a;
var b;
var c;

document.write("A=" + a + ", B=" + b + ", C=" + c + "<br/>");

if (a >= b) {
    if (a > c) {
        document.write("A is the biggest number");
    } else {
        document.write("C is the biggest number");
    }
} else if (b >= c) {
    document.write("B is the biggest number");
} else {
    document.write("C is the biggest number");
}
```

For each of the following examples, predict whether the output will be "true" or "false"

A.

```
var x = 2;
document.write(x * 5 == 10);
```

B.

```
var z = 27;
document.write(z >= 100);
```

C.

```
var apples = 35;
apples += 10;
document.write(apples > 50);
```

D.

```
var pennies = 100;
var quarters = 4;
var dimes = 10;
var totalChange = (pennies * .01) + (quarters * .25) + (dimes * .10);
document.write(totalChange <= 3.00);
```

E.

```
var x = 5;
var y = 3;
document.write(x * y != 15);
```