**Lesson: JavaScript Conditionals**

SWBAT: Write code for “if-else” and “if-else if-else” conditional statements.

This is an introductory lesson for high school students who are beginning to learn how to code using JavaScript. It is a precursor to standard: 9-12.CT.8 Develop a program that effectively uses control structures in order to create a computer program for practical intent, personal expression, or to address a societal issue. The focus is on combining different forms of repetition and conditionals, including conditionals with complex Boolean expressions

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| **Time** | **Part** |
| 7 min | Do Now: Read the scenario from Alice’s Adventures in Wonderland by Lewis Carroll. Write down all the conditional statements in the text.  "If you think we're wax-works," he said, "you ought to pay, you know.” "Contrariwise" added the one marked 'DEE', "if you think we're alive, you ought to speak." "I'm sure I'm very sorry," was all Alice could say. "I know what you're thinking about," said Tweedledum: "but it isn't so, nohow." "Contrariwise," continued Tweedledee, "if it was so, it might be; and if it were so, it would be: but as it isn't, it ain't. 'That's logic."  Show students the scene from Disney’s Alice in Wonderland. <https://www.youtube.com/watch?v=ksnloU_LXyU> (up to around 1 minute). Call on students to identify the conditionals from the scene and the text from the Do Now. There are 5 different statements. Lewis Carroll, the author of *Alice’s Adventures in Wonderland*,” was a mathematician whose field was Logic. There are lots of mathematical, logical, and illogical references in the books. |
| 13 min | Mini-Lesson: Review: Conditionals are “if-then” statements. In the first conditional, what is implied if Alice doesn’t think Dee and Dum are wax figures? Call on a student. The implication is that if they are not wax figures, you don’t have to pay. Ask about the implication for the second statement. If Alice doesn’t think Dee and Dum are alive, she doesn’t have to speak. These statements are related to writing conditionals in JavaScript. In JavaScript, instead of “then” we use “else.”  Instruct students to open the “Conditionals” file (currently called Lesson2ConditionalsDemo.js). Run the code. Answer the prompted questions. Look at the outputs. Then re-run the code using different responses to the prompts. Look at the outputs. Instruct students to look at the code after they’ve run it a few times. Ask: What do you notice? How does the computer know what to display? Show the syntax for writing conditionals with “if- else” and “if-else if-else.”  Graphical user interface, text  Description automatically generated  Text  Description automatically generated  Explain to students that in order for a condition with a string to be true, the input has to typed exactly as written in the condition, ie capitalization, etc. (Note, this is similar to how google forms read answers). To address more string possibilities, students can try adding some more conditions for inputs using the logical operator for “or”: ||. Go over comparison and logical operators. Show the chart in the presentation.  Table  Description automatically generated  Look at the code for Scenarios 3 and 4. In scenario 3, the condition is an integer rather than a string, like in the previous examples. Discuss compound conditionals with &&. In order for the condition to be true, all conditions must be met. |
| 15 min | Activity: Instruct students to comment out Scenario 1 through Scenario 4 in the program using a comment block (/\* and \*/). There are some practice statements with comparison operators and then examples involving conditionals.  Instructions for the practice with comparison operators: Set 1: Replace the blanks with comparison operators to make true statements. Then uncomment the console.log statements and run the code. If they are true, the lines should say TRUE. Set 2: Replace the blanks with comparison operators to make false statements. Then uncomment the console.log statements and run the code. If they are false, the lines should say FALSE.  Instructions for Practice with Conditionals 1: Scaffolded code: Replace the blanks with a conditional statement that prints the correct statement depending on the height, in inches, that you input.  Instructions for Practice with Conditionals 2: Write a program the compares the speed of a car to the maximum speed limit and minimum speed limit on a highway. Pseudo code example: For example, if the car goes too fast, display a message that tells the driver to slow down. If the car goes too slow, display a message that tells the driver to speed up. If the car is going within the limits, display a message the tells the driver they are driving at a good speed.  Students will code on their own computers, however, they should discuss answers or questions with a partner. As students work, circulate and see how they are doing. They may need guidance on using the variables to write the conditions.  If students finish the examples early, students can program the variables to get user input and/or change the messages. |
| 10 min | Summary: Pair Program: Work with your partner to write a short program involving conditionals. The “Driver” will type the code while “Navigator” instructs the Driver. |