# Lesson 9 – Selection

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Different tasks need to be carried out depending on whether different conditions are true or false. When executing computer code certain lines of code will only need to be run if a condition is true. This was represented as a diamond shape in the flow charts which learners studied in a previous lesson. In computer code if then else statements are used. * Learners have had some exposure to these statements through the use of MakeCode. This lesson will go through the relevant theory. | * Understand that programs will not always run in a linear fashion, line after line * Understand that if code is only to be executed if a condition is true then an if then else statement can be used * Understand that an if then else statement is required when a diamond shape is used in a flow chart |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Learners will relate the if, then, else code structure to the code that they have already produced * Learners will use a number of real-world scenarios to demonstrate how different actions will need to take place depending on whether conditions are true or false | **Expected Progress:**   * Learners will understand the need for different pathways to be taken through programs depending on whether certain conditions are True or False and should be able to trace through given algorithms to determine the output   **Good Progress:**   * Learners will understand the need for if, then, else statements to determine whether a line of code should be run. They will be able to trace through algorithms to determine outputs and create their own flow charts using decisions   **Exceptional Progress:**   * Learners will be able to use if then else statements appropriately within their code. They will understand that the else statement is needed as a ‘catch all’ to handle unexpected inputs without crashing |
| Key Concepts | Key Words |
| * Code will not always run line by line in the same order * At times certain lines of code will only need to be executed if a condition is true or false * Computer languages use if, then, else statements to take different pathways through programs | * Sequence * Program flow * If, then, else * Selection * Condition * True and False |
| Differentiation | Resources |
| More capable Learners will be able to create their own algorithms using their own if, then, else statements. The final task gives users the opportunity to develop an algorithm for their own adventure game. More capable learners will be able to introduce a wider range of decision blocks and creativity in their algorithm | * Lesson 9 ppt * Lesson 9 If, Then, Else worksheet * Access to <https://makecode.microbit.org> |
| Lesson Flow | |
| * Begin by asking whether computer programs always do the same thing in the same order * Ask learners how their decisions may be different depending on external conditions. Use the ppt to support the discussion. Go through the example of how you would dress differently depending on the weather * Discuss how flow charts use a diamond shape to ask a question. Depending on the answer to the question a different route may be taken through the flow chart. If we were to program this in a computer program we would use an if then else statement * Learners should then work through the if then else worksheet to trace through the flow chart * Explain to learners should they will be creating a rock:paper:scissors game. They should try to create a flow chart to demonstrate what is happening in the game. Remind learners to use the provided football flow chart to help them get started. | |
| Making | |
| There are no making activities in this lesson. | |