**AP CSP CodeBot**

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| **MISSION 3 Obj 10-11 Time and Motion** | | **Time: 45 minutes** |
| **Project Goal:** Students will learn the basics of using a button and selection to move the CodeBot.  **Learning Targets**   * I can write an if:elif:else conditional statement. * I can use a button to control the ‘bot. * I can follow an algorithm to accomplish a task. | **Key Concepts**   * Branching with if:elif:else statements controls the flow of the program. * The colon (:) at the end of an if statement introduces a new block of code. Everything inside the block should be indented at the same level. | |
| **Assessment Opportunities**   * Mission 3 Obj 10-11 Assignment * Submit the “WhatIf” program * [Obj 10-11 Kahoot Review](https://create.kahoot.it/share/firia-labs-codebot-mission-3-obj-10-11/68a85b45-3616-4657-ad5d-472632455efd) | **Success Criteria**   * Incrementally test code * Plan a program using a flowchart or pseudocode * Write code to drive in a specified pattern * Use if:elif:else conditional statements to perform actions based on conditions | |
| **AP CSP Framework**  **AAP-2.B** Represent a step-by-step algorithmic process using sequential code statements.  **AAP-2.G** Express an algorithm that uses selection without using a programming language.  **Computational Practice 2.B** Implement and apply an algorithm.  **Computational Practice 4.C** Identify and correct errors in algorithms and programs, including error discovery through testing. | **Materials / Resources**   * Mission 3 Obj 10-11 Assignment * [Mission 3 Obj 10-11 Kahoot Review](https://create.kahoot.it/share/firia-labs-codebot-mission-3-obj-10-11/68a85b45-3616-4657-ad5d-472632455efd) * Solution code for WhatIf | |
| **Teacher Notes**   * Students will have completed the two supplemental lessons on functions prior to completing this mission. Therefore the instructions are different from CodeTrek. Students will be expected to continue using functions in their code. Students should follow the step by step instructions in the assignment as opposed to CodeTrek. * The validator for Objective 11 looks for motor.run() to be called at least 6 times. Using functions, this doesn’t happen. To get around this problem, students should add a couple lines of code in the else: block. The instructions are in Objective 11 Step G. They don’t affect the program run at all but will meet the requirements of the goals. * Another suggestion for assessment is for students to keep a daily journal, or use a reflection form for students to process information they learned and reflect on questions they may still have. * Refer to the CodeBot Curriculum Guide for specific information about this mission. | | |