**AP CSP CodeBot**

|  |  |  |
| --- | --- | --- |
| **LESSON: Functions with Parameters** | | **Time: 45 minutes** |
| **Project Goal:** Students will learn and to define and call functions with parameters.  **Learning Targets**   * I can identify places in code where a function with parameters can be defined. * I can define a function with one or more parameters. * I can call a function with one or more arguments. | **Key Concepts**   * A function with a parameter can be generalized to use with many different situations, instead of specific to one case. * If a function has multiple parameters, the arguments in the function call must be in the same order as the parameters. | |
| **Assessment Opportunities**   * Functions with Parameters Activity Guide * SequenceLEDs\_functions\_2 program * NavSquare\_functions\_2 program * BinaryLEDS\_functions\_2 (challenge program) | **Success Criteria**   * Identify when a function can have parameters * Define a function with parameters * Call a function with arguments | |
| **AP CSP Framework**  **AAP-3.A** Write statements to call procedures.  **AAP-3.B** Explain how the use of procedural abstraction manages complexity in a program.  **AAP-3.C** Develop procedural abstractions to manage complexity in a program by writing procedures.  **Computational Thinking Practices 3.B** Use abstraction to manage complexity in a program.  **Computational Thinking Practices 3.C** Explain how abstraction manages complexity. | **Materials**   * Functions with Parameters slides * Functions with Parameters Activity Guide / Answers * Solution for SequenceLEDs\_functions\_2 * Solution for NavSquare\_functions\_2 * Solution for BinaryLEDs\_functions\_2 (challenge) | |
| **Teacher Notes**   * This lesson extends the information from “Defining and Calling Functions” to include parameters and arguments. Students will modify the same programs, but include parameters and arguments. This is a form of procedural abstraction. You may want to reinforce this concept with your students. * Students should do a “Save As” with each program to keep the original code. * The challenge is an extension if students have time. It is not necessary for the lesson. | | |