**AP CSP CodeBot**

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| **LESSON: Functions, Parameters and Variables** | | **Time: 45 minutes** |
| **Project Goal:** Students learn about parameters, local variables and global variables.  **Learning Targets**   * I can identify a parameter and what it is used for. * I can identify a local variable and what it is used for. * I can identify a global variable and what it is used for. * I can determine when to use a parameter, local variable and global variable. | **Key Concepts**   * A parameter is used in a function when it needs information from the main program to complete a task. * Using a parameter with a function is a form of procedural abstraction because the details of how the function accomplishes a task are hidden. * Local variables are defined inside a function and can only be used in the function. * Global variables are defined outside a function and can be used throughout a program. * If a function updates a global variable, it must include the global statement. | |
| **Assessment Opportunities**   * Functions, Parameters and Variables Activity Guide | **Success Criteria**   * Identify parameters in a function definition and state what they are used for * Identify local variables in a function definition and state what they are used for * Identify global variables in a function definition and state what they are used for | |
| **AP CSP Framework**  **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 Practice 3.A** Generalize data sources through variables.  **Computational Thinking Practice 3.B** Use abstraction to manage complexity in a program. | **Materials**   * Functions, Parameters and Variables slides * Functions, Parameters and Variables Activity Guide / Answers | |
| **Teacher Notes**   * This lesson is best with partners or in groups of three. If students are working in small groups, you may want to print the activity guide so students can easily work together. * If the activity guide is printed, you may want to give students highlighters to help them identify the variables and where they are being used. * The assignment can be distributed and completed digitally. * Follow the slides for instructions and guidance. The slides provide additional information throughout the lesson to accompany the activity guide. | | |