**AP CSP CodeX**

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| **LESSON: Traversing a List #1** | | **Time: 45 minutes** |
| **Project Goal:** Students will traverse a single list using a for loop in a program.  **Learning Targets**   * I can traverse a list using a for loop. * I can traverse a list using a specialized for loop. * I can traverse a list multiple times without getting an index out of range error. | **Key Concepts**   * Traversing a list means accessing each element in a list, in order. * The easiest way to traverse a list is to use a for loop. * Use a specialized for loop to traverse a list one time. * You can traverse a list multiple times using a for loop. | |
| **Assessment Opportunities**   * Traversing a List #1 Activity Guide * Answer\_Bot\_traversals program * Billboard\_traversals program * Game\_Spinner\_traversal program | **Success Criteria**   * Traverse a list using a for loop * Traverse a list using a specialized for loop * Traverse a list multiple times using a for loop and the modulo operator | |
| **AP CSP Framework**  **AAP-1.D** Develop data abstraction using lists to store multiple elements.  **AAP-2.N** Write expressions that use list indexing and list procedures.  **AAP-2.O** Write iteration statements to traverse a list.  **Computational Thinking Practice 3.B** Use abstraction to manage complexity in a program  **Computational Thinking Practice 4.C** Identify and correct errors in algorithms and programs, including error discovery through testing. | **Materials**   * Traversing a List #1 slides * Traversing a List #1 Activity Guide / Answers * Unit 3 Review and Test Questions * Code solutions for program modifications   + Answer\_Bot\_traversals   + Billboard\_traversals   + Game\_Spinner\_traversals | |
| **Teacher Notes**   * This lesson will be completed on the computer, using CodeSpace for programming. * Use the Sandbox in CodeSpace for programming. This lesson is not part of a mission. * The activity guide can be distributed digitally. Space is provided for students to take notes during the programming. * Students will add functions to Answer\_Bot and Billboard, and also modify the Game\_Spinner program. * The best experience will come from them modifying their own code. However, we want all students to be engaged, so you can give them the original code to modify if needed. * The most recent version of each program can be found in the earlier assignments. If you are giving code to students, use the solution code found here:   + Answer\_Bot\_functions: Functions with Parameters #2 Lesson   + Billboard\_functions: Mission 7 Obj 7-9   + Game\_Spinner: Mission 9 * Follow the slides for instructions and guidance. * Solution code for all three program modifications are provided. | | |