**AP CSP CodeBot**

|  |  |  |
| --- | --- | --- |
| **LESSON: Unit 3 Remix Project / Assessment** | | **Time: 1-3 Class Periods** |
| **Project Goal:** Students will create an original program for CodeBot that uses the concepts from Mission 6 & 7.  **Learning Targets**   * I can summarize the programs from Mission 6 & 7. * I can plan a program. * I can create an original program using concepts and code from programs in Mission 6 & 7. * I can get feedback on my project. | **Key Concepts**   * Code snippets from previous programs can be reused and repurposed in a new project. * The program development in the planning guide follows the software design process. * Creating a new project from the beginning, without CodeTrek or starter code, is an excellent way for students to master their learning. | |
| **Assessment Opportunities**   * Unit 3 Remix Planning Guide * Unit 3 Remix Project * Unit 3 Kahoot Reviews * Unit 3 Vocabulary and Coding Tests | **Success Criteria**   * Plan an original program * Create an original program * Incorporate feedback in a program * Answer exam questions with at least 70% accuracy | |
| **AP CSP Framework**  **CRD-1.A** Explain how computing innovations are improved through collaboration.  **CRD-1.C** Demonstrate effective interpersonal skills during collaboration.  **CRD-2.E** Develop a program using a development process.  **Computational Thinking Practices 1** Computational Solution Design: Design and evaluate computational solutions for a purpose.  **Computational Thinking Practices 2** Algorithms and Program Development: Develop and implement algorithms.  **Computational Thinking Practices 3.B** Use abstraction to manage complexity in a program.  **Computational Thinking Practices 4.C** Identify and correct errors in algorithms and programs, including error discovery through testing.  **Computational Thinking Practices 6.A** Collaborate in the development of solutions. | **Materials**   * Unit 3 Remix Project slides * Unit 3 Remix Planning Guide * Unit 3 CodeBot Vocabulary * Unit 3 CodeBot Python Code by Mission * Unit 3 Review and Test Questions * Unit 3 Kahoot Vocabulary Review * Unit 3 Kahoot Coding Concepts Review * Unit 3 Vocabulary Test (MS Forms) * Unit 3 Coding Concepts Test (MS Forms) * Create PT Written Response prompts | |
| **Remix Project Teacher Notes**   * The remix project gives students an opportunity to practice and apply what they have learned in a program that interests them. I highly recommend using pair programming for this project, especially if students have been working individually during the missions. Collaboration is an important skill. * A set of slides is prepared to explain the project and give step by step guidance. The slides also give some suggestions for the project. The suggestions are meant to prompt students with their own ideas and should not be required. It is important to let students pick their own projects, but they can be used for students who are drawing a complete blank. * A planning guide is provided to help students know where to start, and to guide them throughout the process. I recommend that you give it to students digitally so they can easily expand the tables if needed, and to give them enough space to answer all the reflection questions. * You can modify the planning guide as needed by changing or adding to the questions. * Each remix project is an opportunity to have students practice the written response questions. They are not included in the planning guide, but you may want to pick one or two of the prompts and add them to the remix project. * Consider how you want to end the remix project. You can have students present them to the class, have a “gallery walk” of projects, have students create a slide show about the project, etc. * A checklist for the remix project is below.   **Unit 3 Assessment Teacher Notes**   * Kahoot Reviews are available for Mission 6 and Mission 7 and for Unit 3. They can be given in class any time or assigned for individual review. * Consider having reviews throughout the remix project as a way to start or end the class period. This can help students prepare for the unit tests and also become familiar with the format of multiple choice questions. * The Kahoot Reviews and Unit 3 tests do not include concepts from the supplemental lessons. A list of all review and test questions is provided. Additional questions for the supplemental lessons are included on the document. You can create your own reviews and/or tests for these topics, or add them to existing materials. * The Unit 3 Tests are divided into two exams: vocabulary and coding concepts. Use the questions in the way that fits your classroom procedures the best. The tests are given as Microsoft Forms. | | |

**Remix Project Checklist:**

* Filename is descriptive
* Uses one or more variables, each with a descriptive name
* Program has at least one function
* Program uses functions appropriately – defined when needed
* Moves the CodeBot forward and/or backward one or more times
* Turns the CodeBot one or more times
* Uses either the lines sensors or the proximity sensors (or both) to control the CodeBot
* Turns on one or more LED lights
* Uses one or both buttons as input
* Includes something extra (sounds, more than one sensor, more than one function, etc)
* Optional - uses a binary number to turn on an LED
* Includes comments and whitespace for readability
* Code follows programming conventions of indenting, punctuation and capitalization
* Code runs with no errors