**AP CSP CodeX**

| **LESSON: Algorithms #1** | | | | **Time: 45 minutes** | |
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| **Project Goal:** Students will determine the result of code segments.  **Learning Targets**   * I can follow sequential code to control a robot. * I can evaluate multiple algorithms to determine which one leads to the correct result. * I can evaluate multiple algorithms to determine if they yield the same result. | | | **Key Concepts**   * The AP CSP multiple choice exam will have questions that involve robot code. This first assignment introduces students to robot code with sequential algorithms. * Students can make a little paper robot and label left and right to help them evaluate the code. | | |
| **Assessment Opportunities**   * Algorithms #1 Activity Guide | | | **Success Criteria**   * Evaluate sequential segments of robot code * Select algorithms that accomplish the task | | |
| **AP CSP Framework**  **Computational Thinking Practice 1.D** Evaluate solution options.  **Computational Thinking Practice 4.B** Determine the result of code segments.  **Computational Thinking Practice 4.C** Identify and correct errors in algorithms and programs, including error discovery through testing. | | | **Materials**   * Algorithms #1 slides * Algorithms #1 Activity Guide / Answers | | |
| **Teacher Notes**   * This lesson is best with partners or in groups of three. * This lesson is better on paper than digitally. I suggest printing the assignment for each group. * This lesson may not take the full 45 minutes, depending on the experience of your students. If you think you will have extra time, you can use one of the unplugged activities from the introductory week. * This lesson introduces robot code. The AP CSP exam will have several questions with robot code. The lesson is the first of three lessons, using only sequential code. It is a good introduction. * Students can easily confuse the robot left and right. Have them create a little paper robot and label the left and right on the robot. Then when it is time to turn, they will turn in the correct direction. It isn’t the student’s left or right, but the robot’s left and right. * Help students remember that turning left or right doesn’t mean moving. The robot just turns in the square. * An alternative to doing this activity on paper is to give students sheets of paper to use as squares on a grid. Lay out the squares on the floor and have one student be the robot and another student read the code. Physical activity is an excellent way to engage students and stimulate learning. | | | | | |