Code.org Puzzle Solving Recipe

(Based on Polya's Four Step Problem Solving Process)

Talk about these steps with your students so they have tools to get themselves unstuck while working on puzzles. Also, use these steps to ask leading questions to students who ask for help.

Step 1: Understand the Puzzle

* Do you understand the situation or puzzle prompt?
* Can you restate the problem in your own words?
* Do you understand the code you are given and why?
    - What role does the code play?
* Do you know what the goal of the puzzle is?
* Is this problem similar to another puzzle you have solved?

Step 2: Create a Plan

* Can one (or more) of the following strategies be used?
    - Guess and test
    - Draw a map
    - Draw a picture
    - Look for a pattern
    - Compare to a previously solved puzzle
    - Solve a simpler problem
* Draw a diagram
* Solve an equivalent problem
* Identify subgoals
* Work backwards

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(Continued)

Step 3: Perform and Perfect the Plan

* Attempt to solve the puzzle based on the plan that you devised. If the strategy did not succeed, look carefully at the feedback provided by any errors that were created, and modify your plan.

* Test and change your strategy often. Don't be afraid to try solutions before you know that they are perfect. You can often reach the right answer by using trial and error each step of the way.

* Take a walk. If you start to get frustrated, leave the screen. Look away. Think of something else for a little while. When you get back, the answer just might come to you!

* Talk with others. They may be able to give you hints, or even explain how something works so that you can discover a solution.

Step 4: Check Your Work

* Is your solution correct? Does your answer satisfy all goals (number of blocks, use of a particular block/concept)?

* Can you see an easier or more efficient solution?

* Can you see how you can extend your solution to a more general puzzle pattern?