



Science Experiment:

Project: Coding Lesson 3, Debugging & Algorithms

Supplies:

Lined paper or graph paper
Pencils or crayons or markers
Chalk Board or White Board for front of room.

Time:

60 minutes

What to Do:

1. Draw a 3X3 Checker Board on a piece of paper or white board, next to it write out the Following key:
 - Move One Square Right
 - ← Move One Square Left
 - Down Arrow = Move one Square Down
 - Up Arrow = Move one square Up
 - XXX = Fill in Square
2. Ask the youth to write an algorithm (or Instructions) for drawing this image.
3. Go through some of their algorithms to see if they work.
4. Now write this sample algorithm on the white board/chalk board where all can see.
 - “Move right, fill-in, move right, move down
 - move left, move left,
 - fill-in, move right, move right, fill-in, move down
 - move left, move left
 - move right, fill in, move right”
5. Ask the youth to write a program code for the algorithm using the program key.
6. Go through some of their programs to see if they work.

Reflect:

Why do you think computer programmers use programs and code instead of typing out verbal algorithms?
What are some of the challenges of debugging code written by another person?

Apply:

Why are symbols useful? Can you think of some examples of useful symbols that you see everyday?

Resources:

K-8 Intro to Computer Science Course (2013). Retrieved from <http://learncode.org>