

Lesson Plan 12 | Form 1 | Concept of an Algorithm

Objective

Students will be introduced to the term “algorithm,” what it means conceptually, and examples of it in practice.

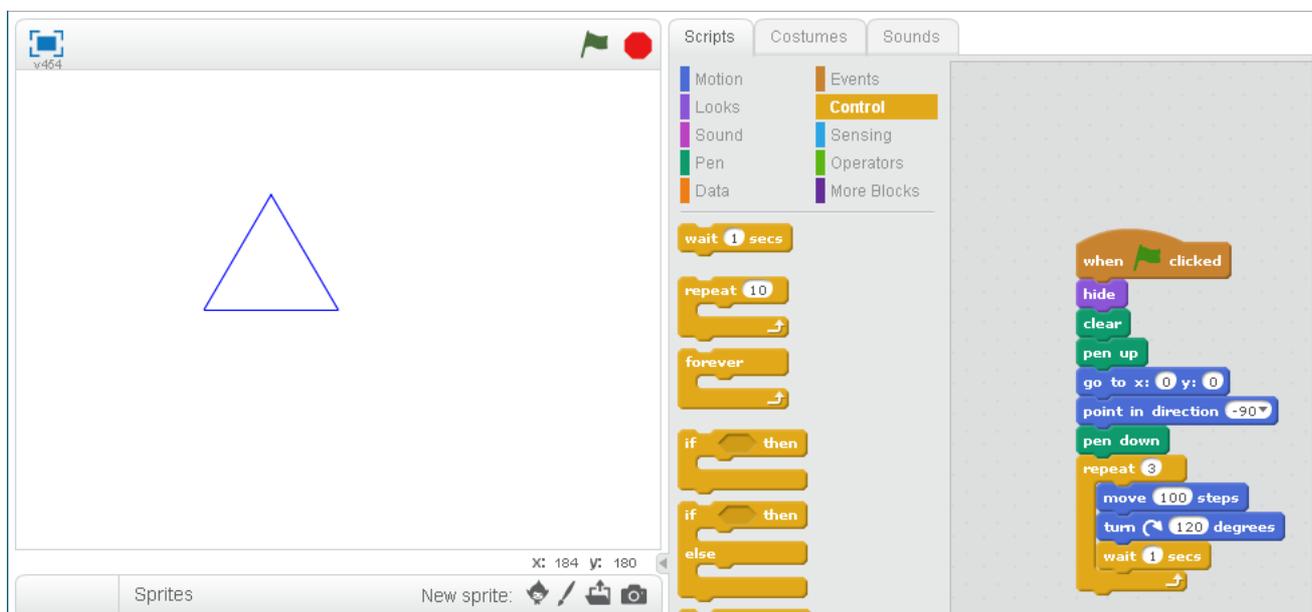
Warm-up

In lecture, ask for a student to volunteer for an activity. Have the student stand in one corner of the room, and explain that he/she is to move only according to instructions that will be contributed by the class and written on the board. Explain to the class that the goal is to have the student move to the corner on the opposite side of the classroom. Begin asking for volunteers to explain how the student should move. Vague steps should be put on the board initially but crossed off after it's clear that they're not useful.

At the end, after the student has reached the other corner for the first time, have them go back and repeat the steps again, this time in one fluid motion. Impart the similarity between these steps and those in Scratch, and also explain that these series of steps are called an “algorithm.” Compare algorithms to recipes, driving directions, etc.

Presentation

On the chalkboard, draw a sketch of the Scratch user interface, then ask for ideas as to how we can use Scratch to draw a triangle. Guide the students through recreating the following steps on the board:



Guided Practice

In lab, ask students to draw a square on their screen by changing the script used to draw a triangle. Encourage them to work together and help each other out.

Independent Practice

None.

Closing

None.

In Hindsight

02/28/2017: The activity involving directing volunteer students across the room was helpful to show students how precise they need to be when giving instructions. Some students seemed to lose interest or understanding when the word “algorithm” was introduced, so I purposely cut that discussion short. I emphasized the fact that computers are “dumb,” contrary to what most students asserted when I asked them whether computers are “smart” or not. I told them that computers are only as “smart” as the people who program them and tell them what to do, so it’s important that they remember to be very specific in how they tell the computer what to do.