

Create a series of unplugged computing science lessons focussing on algorithms for primary 7 pupils

Lesson 1: Introduction to Algorithms

Objectives:

- Introduce students to the concept of algorithms
- Encourage students to identify everyday problems that can be solved using algorithms

Materials:

- Blank paper/whiteboard
- Markers/pens

Activity:

Start the lesson with a brainstorming session. Ask the students to identify everyday problems that require a step-by-step approach to solve. Possible examples include following a recipe for cooking or baking, tying shoes, washing the dishes. On a whiteboard or paper, use an algorithm with the students to walk through the steps of solving one of the problems.

Lesson 2: Variables

Objectives:

- Explain the basics of what a variable is
- Introduce the concept of plugging in numbers or values to change the algorithm

Materials:

- Printouts of a simple, blank algorithm diagram
- Markers/pens

Activity:

Hand out the blank algorithm diagrams. Ask the students to identify what a variable is -- something that can have different numbers or values put into it. Ask the students to identify where variables would fit into an algorithm from previous lesson. Have the students split into pairs and fill in the blanks of the algorithm with "true" numbers or values, so that the algorithm works and "solves" the problem.

Lesson 3: Repeated Tasks

Objectives:

- Understand the concept of looping tasks or commands in an algorithm

Materials:

- Printouts of a simple algorithm with a looping task or command
- Blank paper/whiteboard
- Markers/pens

Activity:

Go over the algorithm with the students that uses a looping task or command, such as saying “repeat these instructions ten times.” Ask the students to break down the instructions step by step and then write them out on paper. Then, have them combine all of the instructions on a whiteboard, to create a single, looped algorithm. Ask them to try out the algorithm, with different numbers or values, and plug them in to get different outcomes.