ALGORITHMS
Lesson Plan: Class 04 / ALG / 01

Overall goal of the lesson: Children will get a quick introduction to what algorithms and loops are

Prior knowledge required: none

MODULE 1: Module time: 35 minutes
Goal: To give a brief introduction to the concept of an algorithm
Description: Using activities, children will learn what an algorithm is and what loops are
Material required:
Physical:

1. One copy of the worksheet (Algorithms) per child.
2. Writing material to solve the worksheet: pencil and eraser.

Electronic:
PPT Presentation for Algorithms
Procedure Summary:

1. Distribute the worksheets (Algorithms) to the children.
2. Use the presentation to discuss Algorithms

Procedure Details:

1. The intention of the first slide is to do an activity with instructions and show that is an algorithm to draw a rectangle. So begin by telling students we'll be doing some drawing. Read out all steps one by one and ask them to draw on their paper. It's quite likely that some may misinterpret the steps or not execute it perfectly, but that is fine.
2. Ask students to show to their neighbor what they drew.
3. Using the animation, show the lines corresponding to your steps and ask what it forms (a rectangle). Different forms of rectangles (including squares) are valid.
4. Read out the statements on the slide to tell the students that what they saw was an example of an algorithm. The main idea is to do a task or solve a problem by doing a sequence of small steps.
5. Algorithms are central to computer programs – everything in software is essentially an algorithm, big or small
6. We'll take the example of "searching" to introduce the idea of thinking about algorithm design. Here's a toy example of a simple robot that goes to a supermarket with mangoes and has to return with a good mango.
7. What are the steps to find a good mango in this scenario? Ask students to take a shot.
8. Here's one way: Start with the first mango, and make your way through the rest until you find a good mango. While this is a working algorithm, it's a little long.
9. It's clear there is a repetition of steps. We will now use this observation to introduce the idea of loops. This results in a smaller, simpler, and easier algorithm
10. Talk about loops. Take another example of clapping repeatedly.
11. Go back to the Aambot algorithm. This now uses loops. We'll recap the whole algorithm here.
12. A quick exercise, again on searching. This is very similar to the mango finding game, but the context is different. Ask students to talk about the algorithm before showing the solution
13. Here's the solution for the grid
14. Recap algorithms and loops
15. Let's move to the activities

Activities

Ans to Activity 1: Option a because it is a single step and has no repetition.

Ans to Activity 2: There should be some mention of the other sides having the same length as the first side.Ans to Activity 3: Any reasonable sequence of steps is fine. There is no perfect answer for this.

Information Broadcast : In Computer Science, the children revised Algorithms and Loops