



Artist: Loops Over

Lesson Plan: Class 03 / ALG / 10



overall goal of the lesson: Children will learn to draw complex images by repeating simple sequences of instructions. Repeating same set of actions is called looping.

Prior knowledge required: Concepts of Programming (done in Std. 1 – Class 1/P 14: Getting Loopy).

MODULE 1:

Module time: 35 minutes

Goal: To get the students learn to draw interesting and beautiful patterns using loops. To make them understand how the instructions can be iterated multiple times to achieve desired result.

To explain them that sometimes you want your program to repeat same step of actions again, that is what loops are for.

Description: Children will learn about iterations/loops. First we revise the term 'Loop'. Then make them draw patterns and shapes which explains the usage of loops in more detail like asking them to write instructions to draw a square; and then asking them to draw more complex pictures with the help of loops.

Material required:

For the Student:

1. Assessment Worksheet: 'Artist: Loops' Assessment
2. Pens/Pencils/Markers
3. Blackboard/Whiteboard and chalk/marker

For the Teacher:

1. Teacher Lesson Plan
2. Assessment Worksheet: The 'Artist: Loops' Assessment
3. Electronic: PPT Presentation for 03-P10-PPT.

Procedure Summary:

1. Review the concept of a program as a sequence of predetermined steps.
2. Review the concept of a loop – Repetition of the set of actions
3. Chat and invite the students to give you examples of loops in real life
4. Go through the PPT and involve students in understanding the logic behind drawing a picture with reduced number of instructions by using a loop
5. Distribute the worksheets (03-P10-WS) to the children.
6. Perform the activities as mentioned in the activity sheet

Procedure Details:

1. Start the class by talking about words they have learnt earlier –Program – the idea of executing steps in a sequence.
2. Recall 'Getting Loopy' lesson where the students were introduced to the concept of repeated instructions. Prompt and probe them to explain the word loop with examples.
3. Speak about how same actions can be performed over and over again
 - a. Ask the class to draw a STAR - repeat this instruction (say it out for) 5 different times
 - b. Then instruct the class to draw a STAR – 5 times. Reinforce the concept of reduced number of instructions
 - c. Ask the class if they can think of more such examples
If they have trouble, you can remind them that a loop is a repetition of same actions
E.g. A repeating dance step, turning pages of books to read a page etc.

Prep your class to do a simple activity:

- a. I am going to ask you to draw a pattern (do not tell them that it will be a square) and ask the class to follow the instructions.
- b. Show them the slide of angles – and explain what they need to do when they are told to draw a straight line, and when they are asked to turn. So that they can easily understand what do you mean when you say turn? Explain the difference when they need to turn ‘full’ and when they need to turn slightly to draw a ‘slanting’ line

Say out the following:

- Draw a straight line (wait till they draw this ask them to wait for the next instruction)
- Turn to your right
- Draw a straight line
- Turn to your right
- Draw a straight line
- Turn to your right
- Draw a straight line

Ask them, what pattern have they drawn – Students would say it is a Square.

- c. Upon finishing that display, tell the class that now I am going to ask you to draw one more pattern and they need to follow the instructions again.

Say out the following

- Draw a straight line and turn to your right, do this for four times

Ask them again, what pattern have they drawn this time – students would again say it is a Square.

- d. Now ask them what changed? Explain them the difference in the set of instructions, how the number of instructions reduced as soon as you called out the word ‘repeat’. Reinforce that to repeat same set of instructions is to Loop!

Show them different patterns through PPT

Conduct Fun Activity:

- a. Ask the class if they can think of any other patterns that form a loop. Draw them on the board reinforcing the loops in that pattern. Ask students to name as many simple shapes as possible, focus on shapes with equal sides and angles.
- b. Choose one shape (say triangle) and ask students the following questions before they start drawing:
 - What is a smallest possible action that can be repeated to draw a shape
 - How many times this action should be repeated to draw a chosen shape
 - How would you explain to someone how to draw that shape?
 - How could you explain this using a loop?
- c. Reinforce the concept: Loops allow you take the same sequence to steps over and over again.

Assessment:

Answer questions on the activity sheet.

Information Broadcast:

In Computer Science, the children have learnt to draw patterns using simple loops.