


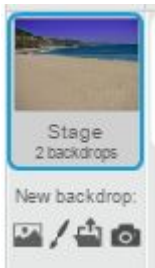


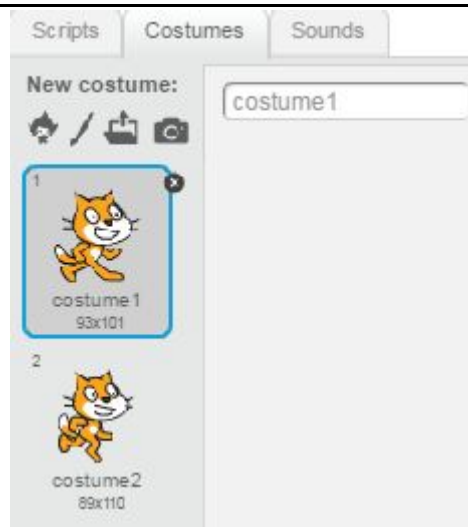
SCRATCH Programming **Lesson Plan: Class 05 / PRG / 01 / 10**



Overall goal of the lesson	Children will learn about the Scratch programming language
Prior knowledge required	Digital Literacy module

MODULE:

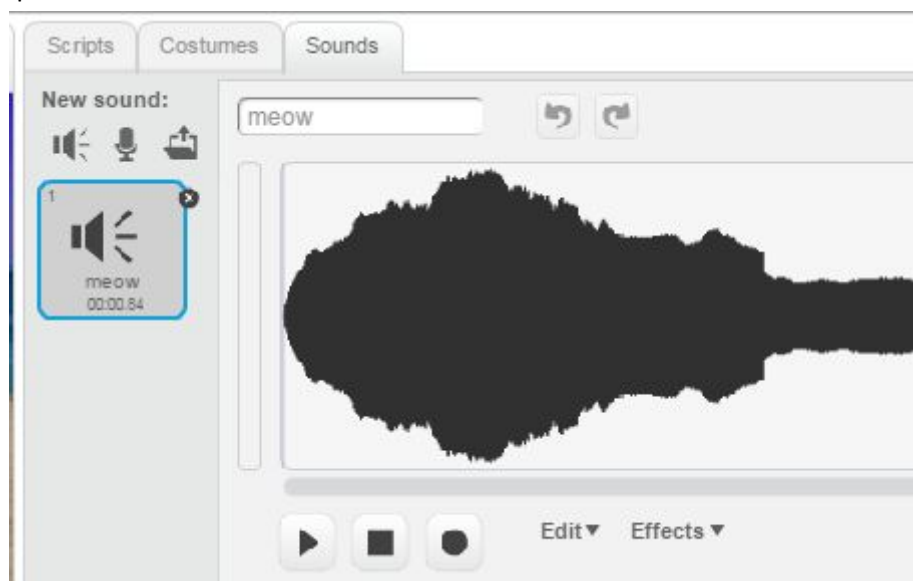
Goal:	Children to learn about the Scratch programming language
Description:	Scratch programming language has been developed by the Lifelong Kindergarten Group at the MIT Media Lab. Scratch is an excellent language to introduce programming to children without talking about many of the nuances in real computer science implementations. This document lists the problems that the children would develop as part of the learning of the Scratch language.
Material required:	Physical: None. Electronic: Scratch installed on the machines
Procedure Summary:	Request to follow the steps mentioned below for getting the students acquainted with Scratch. All steps to be performed by the teacher and students to follow the same. Students to perform later projects by themselves.
Procedure Details – Recap: (repetition of Scratch – Grade 4 – Lesson 1 and 2)	<ol style="list-style-type: none"> First explain that Scratch is software using which you can create your own interactive stories, games, and animations. Following things need to be explained in Scratch, each with an example: <ol style="list-style-type: none"> Sprite or Actor – The cat, drag it around with the mouse  Stage – The background, show that one can choose different backgrounds. Choose background which would be suitable for the cat so that the students can better appreciate it.  Costumes – Show how one can change different costumes of the cat



- d. Actor's script – Take the move command for the cat. Show them how the cat moves 10 steps by double clicking on the command. Drag it back to center once it reaches the boundaries and repeat. Change value of steps to 20 50 100 and show how the movement changes. Also, change the step values to negative and show movement changes. Repeat the same with turning of the cat.



3. Now let us see other features of the Sprite. All these instructions are should be one block each, helping children understand the features
4. Help the cat make different sounds.



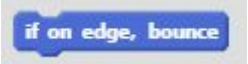

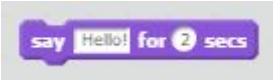


5. Next, tell them how to save their projects and open their projects again, edit them, save again and open again.
6. On a new project, we introduce different fish. For this, we take background of inside of a water body. Introduce 4 fish of different types.
7. Make the fish open and close their mouth, costume change and move fins.
8. Change 'wait' times to see differences in the speed of movement.



9. Also, make sounds from the fish.

**Procedure
Details – Class 1**

1. Recap of last lesson.
2. In this lesson, we place all fish of last lesson in an aquarium/sea. Get the fish to move

<p>to 3:</p>	<p>sideways in different steps. Bounce the fish off the edges.</p>  <ol style="list-style-type: none"> Next make the fish move performing activities of bubbles from their mouth, change costumes and movement of fins. Make various movements and sounds of the animal as explained in earlier class, all in a sequence. Variations to the same include: <ol style="list-style-type: none"> Change order of movement of animals. Different fish have different 'wait' times in their movements. Make all fish act all at one time. Make the animals act on different keystrokes. 
<p>Procedure Details – Class 4 to 7:</p>	<ol style="list-style-type: none"> Recap of last lesson. Create a story using all the above fish. Ask children if they can prepare such a story. First ask them to write a story, and then program it in Scratch involving the fish. Incase any child is having problem coming up with a story, <ol style="list-style-type: none"> Make fish introduce themselves  <ol style="list-style-type: none"> Make a daddy fish scold a child fish if the child fish collides with another fish.  <ol style="list-style-type: none"> Make two teams of fish, identified by color. Feed the fish. When food is added to the aquarium, all fish rush to the food. 
<p>Procedure Details – Class 7 to 10:</p>	<ol style="list-style-type: none"> In these lessons, we will create some simple games. Create a 'hit the rodent' game. Make an area with 5-6 burrows, with mice appearing and disappearing in the burrow at random. On seeing the mice, ask user to press a key, with respect to the burrow. On being hit, the mouse squeaks and disappears. 'Snake' game. Create a simple maze. Create a snake as a sprite, which is like a spring with delay. Navigate the snake through the maze using the mouse or keyboard. Create a 'Bouncing ball' game. Draw a red horizontal line at bottom of screen. Use a sprite as a plank to help bounce the ball over the red line. If ball touches red line, its game over. Ball to move in random on hitting the edges.
<p>Procedure Details – Additional projects:</p>	<ol style="list-style-type: none"> In these classes, we build up on the previous projects. In 'hit the rodent' game, change all mice to different animal sprites. Make respective sound of the sprite on being hit. Mark some animals which should not be hit, like horse. Also, change appearing and disappearing time of some sprites. In 'Snake' game, if the snake touches the sides of the maze, or the tail of the snake touches its head, then you restart the game. In 'Bouncing ball' game, make a ball fork into two balls on hitting the plank. It is ok for a ball to now hit the red horizontal line at bottom of screen as long as there is atleast one ball in 'play'. On completion of the above and if time permits, do the following: <ol style="list-style-type: none"> Catching game. Random objects fall from sky, first slowly then at a faster rate. Catch only required objects, like eggs and fruits. Do not catch other objects like

	<p>bombs.</p> <p>b. In the fish project of class 3, keep different fish of different sizes. When two fish collide, if they are of different size the big fish eats the small fish, or else the one of the left eats the one on the right. Once a fish reaches some big size, it disappears. Small fish keep appearing randomly for a long time. Also, when a boy is looking over, one fish does not eat the other.</p>
Information Broadcast:	In computer science children learnt about creating innovative programs