

SCRATCH AND ARTIFICIAL INTELLIGENCE

During these classes, students are given a quick overview of Scratch programming interface using a movie making project and a game project. They are then introduced to the basics of Artificial intelligence concepts and terms. The students then learn to train machine learning models to recognize text, voice and image commands and use the same models to create projects in Scratch platform.

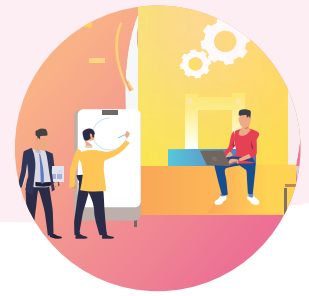
SESSION	CONCEPT	SKILLS
01	Scratch Coding & Movie Making	Numeracy, Creativity, Logic Understanding scratch interface and program sprite to move in positive and negative direction. Making an animation scene.
02	Sprites	Pattern Abstraction, Decomposition Animate a scene by changing sprite costume and background. Create a Dance Party Animation Scene.
03	Algorithms & Scene Building	Pattern Abstraction, Decomposition Use the broadcast method to make an interactive animation between multiple sprites.
04	Movie Making - I	Problem Solving, Resilience Identifying errors in the given code.
05	Movie Making - II	Decomposition, Creativity, Logic Debugging Code and Editing scenes to create a meaningful movie sequence of a Tom and Jerry Movie.
06	Events & Game Design - I	Decomposition, Creativity, Logic Creating a Clicker game in Scratch using either mouse or keyboard for communication.
07	Events & Game Design - II	Decomposition, Creativity, Logic Creating a Clicker game in Scratch using either mouse or keyboard for communication.



08	Conditionals - I	<p>Pattern Abstraction, Decision Making</p> <p>Using loops and conditionals while making a simple animation. Learning about nested if.</p> <p>Building entertaining games using learnt concepts in Scratch.</p>
09	Conditionals - II	<p>Pattern Abstraction, Decision Making</p> <p>Using loops and conditionals while making a simple animation. Learning about nested if.</p> <p>Building entertaining games using learnt concepts in Scratch.</p>
10	Etch-Sketch	<p>Step-wise Thinking, Creativity, Logic</p> <p>Use extension tool to experiment with different sizes for the drawings and width for the pen in Scratch.</p>
11	Cloning - I	<p>Creativity, Logic</p> <p>Introducing cloning to create multiple sprites without code duplication. Building interactive project using learnt concepts in Scratch.</p>
12	Cloning - II	<p>Creativity, Logic</p> <p>Introducing cloning to create multiple sprites without code duplication. Building interactive project using learnt concepts in Scratch.</p>
13	Operators - I	<p>Creativity, Logic</p> <p>Introducing the use of logical and comparison operators to use in selection statements. Build an interactive "Brain Game".</p>
14	Operators - II	<p>Creativity, Logic</p> <p>Introducing the use of logical and comparison operators to use in selection statements. Build an interactive "Brain Game".</p>



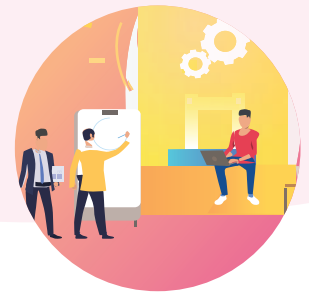
15	List - I	<p>Step-wise Thinking, Creativity, Logic</p> <p>Learn about Creating list in Scratch, it's need, use, real life examples. Use list to store multiple variables in an organised manner and create an interactive project using the concept learnt in scratch.</p>
16	List - II	<p>Step-wise Thinking, Creativity, Logic</p> <p>Learn about Creating list in Scratch, it's need, use, real life examples. Use list to store multiple variables in an organised manner and create an interactive project using the concept learnt in scratch.</p>
17	Function - I	<p>Logic, Data Manipulation</p> <p>Learn about functions, need, use, real life examples and create functions using code. Build an interactive animation using the concepts learnt in Scratch.</p>
18	Function - II	<p>Logic, Data Manipulation</p> <p>Learn about functions, need, use, real life examples and create functions using code. Build an interactive animation using the concepts learnt in Scratch.</p>
19	Video Sensing - I	<p>Decomposition, Creativity, Logic</p> <p>Use extension tool to experiment with motion by creating an interactive projects using Video Sensing.</p>
20	Video Sensing - II	<p>Decomposition, Creativity, Logic</p> <p>Use extension tool to experiment with motion by creating an interactive projects using Video Sensing.</p>
21	Formative Assessment	<p>Assessment of learning</p>



TEXT RECOGNITION

22	Introduction To Artificial Intelligence	Step-wise Thinking , Decomposition Planning steps of instructions, Responding to creative and logical thinking questions.
23	History of AI	Step-wise Thinking Planning steps of instruction before writing code.
24	How Does AI Work?	Logic , Decomposition Planning steps of instructions, Responding to creative and logical thinking questions.
25	Emotion Detector Bot - I	Decomposition, Creativity, Logic Using the concept of AI , build an emotion detector robot.
26	Emotion Detector Bot - II	Decomposition, Creativity, Logic Using the concept of AI , build an emotion detector robot.
27	Chatbot - I	Decomposition, Creativity, Logic Using the concept of AI , build a chat bot.
28	Chatbot - II	Decomposition, Creativity, Logic Using the concept of AI , build a chat bot.
29	Smart Room - I	Decomposition, Creativity, Logic Using the concept of AI , build a smart room.
30	Smart Room - II	Decomposition, Creativity, Logic Using the concept of AI , build a smart room.
31	News Paper - I	Logic , Decomposition Using computer's ability to recognize use of language.

Learning Path For YOUNG LEARNERS



32	News Paper - II	Logic , Decomposition Using computer's ability to recognize use of language.
33	Formative Assessment	Assessment of learning

VOICE RECOGNITION

34	Storyboarding	Decomposition, Creativity, Logic Using the concept of voice recognition, create a story or quiz game.
35	Alien Walk	Decomposition, Creativity, Logic Give voice commands to an Alien to perform various activities.
36	Jargon Buster	Creativity, Logic Train the computer to understand special words or expressions used by a professional or group that are difficult for others to understand.
37	Secret Code	Creativity, Logic Train the computer to understand secret code words. Tell your commands to a spy for guiding it around a town.
38	Formative Assessment	Assessment Of Learning

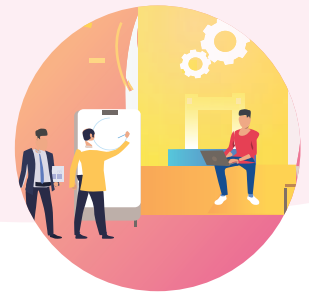


IMAGE RECOGNITION

39	Image Detection, Recognition	Problem Solving, Resilience Learning about using AI for Feature Extraction, Object Detection and Classification.
40	Image Classification With Machine Learning	Problem Solving, Resilience Learning about how Image Recognition Technology Actually Works?
41	Teachable Machine	Creativity, Logic What is the model "learning"?
42	Chameleon - I	Creativity, Logic Train a computer to recognise color of a picture.
43	Chameleon - II	Creativity, Logic Train a computer to recognise color of a picture.
44	Emoji Mask	Creativity, Logic Create a face recognizer App using the AI technique.
45	Face Recognizer	Creativity, Logic Create a face recognizer App using the AI technique.
46	Laser Eyes	Creativity, Logic Create a face recognizer App + Voice Control Project using the AI technique.
47	Introduction to Fooled Project	Image Representation Understanding an Image as an ordered collection of pixels.
48	Foiled Project - Coding & Testing	Image Manipulation Make simple modifications to existing images like creating overlays and cropping images.

Learning Path For YOUNG LEARNERS



49	Shy Panda	Creativity, Logic Teach the machine to identify images. Understand the trained model as the 'Image Classifier'.
50	Formative Assessment	Assessment of learning