Learning Path For
EARLY ACHIEVERS

2D ANIMATION AND GAME DESIGN USING JAVASCRIPT

During these classes, the students will explore the drawing commands of JavaScript and create beautiful landscapes and drawings. They will then learn how to create sprites, manipulate their properties and use events to create animations and interactive games.

SESSION	CONCEPT	SKILLS
01	Revisiting The Cartesian Coordinate System	**Exploration** Explore the JavaScript platform, basic drawing commands.
02	Shapes And Angles	**Creativity, Decomposition** Create art by superimposing shapes.
03	Adding Colors	**Creativity, Decomposition** Create colorful art using JavaScript commands.
04	Variables, Random Numbers	**Numeracy, Computation** Use random numbers to get different outputs.
05	**Formative Assessment**	**Assessment Of Learning**
06	Functions In JavaScript	**Abstraction** Define and use functions specific tasks in their code.
07	Draw Loop And Animations	**Generalization, Pattern Recognition** Write code to create animated shapes.
08	Counter Pattern And Sprite Animations	**Numeracy, Decomposition** Use the counter pattern to animate sprites .
09	Conditionals	**Logic, Decision Making** Use conditionals to control the sprite's behaviour and movements.
10	**Formative Assessment**	**Assessment Of Learning**

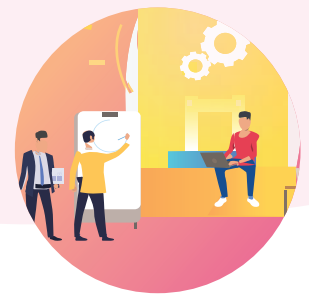| 11	Events With Mouse Click	**Logic, Generalization** Use mouse events to create a simple clicker game.
12	Events with Keys	**Logic, Generalization** Use key events to control the sprite using keyboard keys.
13	Upload New Sprites	**Creativity** Learn how to upload and edit sprites.
14	Create Multiple Sprites Using Arrays	**Logic, Generalization** Differentiate between variables and arrays. Learn the concept of Arrays to create multiple sprites.
15	Game Design Process	**Algorithms, Decomposition** Plan the interface, layout and create UI of the game , Add variables to store the game score.
16	Single Player Game Development	**Generalization, Persistence** Write the UX code for the game.
17	Multi Player Game Development	**Generalization, Persistence** Plan and create a multi-player game.
18	Platform Jumper Game	**Generalization, Persistence** Plan and create a platform jumper game.
19	Project Work - I	**Logic, Persistence, Creativity** While applying the learned concepts of JavaScript, write code for different levels of the game.
20	Project Work - II	**Logic, Persistence, Creativity** While applying the learned concepts of JavaScript, write code for different levels of the game.

3D ANIMATION AND GAME DESIGN

During these classes, the students will learn the basics of 3d designing in the Roblox studio. They will learn to create 3d objects and scenes. They will also learn the basic commands of LUA programming script to create different animations and a maze game.

SESSION	CONCEPT	SKILLS
21	Digital Citizenship	**Exploration** Cyber security, Software Set-up.
22	Introduction To Roblox Studio	**Exploration, Visualization** Getting familiar to the 3D Game designing platform.
23	Working With 3D Parts - I	**Creativity, Spacial Visualization** Putting 3D parts together to build an obstacle course.
24	Working With 3D Parts - II	**Creativity, Spacial Visualization** Putting 3D parts together to build an obstacle course.
25	Creating Game Levels	**Creativity, Logic** Creating multiple check points that serve as the milestones for the player.
26	LUA Coding Fundamentals - I	**Computational Thinking** Learning how to code using Lua programming language : Loops, Functions, Variables .
27	LUA Coding Fundamentals - II	**Computational Thinking** Learning how to code using Lua programming language : Loops, Functions, Variables .
28	Developing The Game Theme -I	**Creativity, Imagination** Adding an ambience to the game.
29	Developing The Game Theme -II	**Creativity, Imagination** Adding an ambience to the game.

30	Deadly Lava	**Creativity, Logic** Making the game adventurous by introducing Lava lands and touch events.
31	Formative Assessment	**Assessment Of Learning**
32	Getting Started With Building A Maze	**Step wise Thinking** Planning of a 3D Maze game.
33	Create A Score System - I	**Numeracy, Critical Thinking** Adding collectable items, enemies and score board to the game.
34	Create A Score System - II	**Numeracy, Critical Thinking** Adding collectable items, enemies and score board to the game.
35	Build The Maze - I	**Persistence, Problem Solving** Completing the construction of the Maze as per the plan.
36	Build The Maze - II	**Persistence, Problem Solving** Completing the construction of the Maze as per the plan.
37	Finish Line - I	**Persistence, Generalization** Building the destination for the Maze.
38	Finish Line - II	**Persistence, Generalization** Building the destination for the Maze.
39	Blocked Door - I	**Logic, Computation** Making use of coding a closed door which opens only if the player satisfies certain conditions.
40	Blocked Door - II	**Logic, Computation** Making use of coding a closed door which opens only if the player satisfies certain conditions.
41	**Formative Assessment**	**Assessment Of Learning**

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42	Build A 3D World Map - I	**Exploration** Getting familiar with the components of 3D scene building.
43	Build A 3D World Map - II	**Exploration** Getting familiar with the components of 3D scene building.
44	Bob The Builder - I	**Spatial Visualization, Step-Wise Thinking , Creativity** Build complex 3D objects from the basic building blocks.
45	Bob The Builder - II	**Spatial Visualization, Step-Wise Thinking , Creativity** Build complex 3D objects from the basic building blocks.
46	Building A Fireplace - I	**Visualization, Generalization, Creativity** Use of 3D game designing techniques to build a fireplace.
47	Building A Fireplace - II	**Visualization, Generalization, Creativity** Use of 3D game designing techniques to build a fireplace.
48	Be An Architect - I	**Visualization, Generalization, Creativity** Use of 3D game designing techniques to build a House.
49	Be An Architect - II	**Visualization, Generalization, Creativity** Use of 3D game designing techniques to build a House.
50	World Building	**Creativity, Decomposition** Learning about Decals and Textures. Plan a theme for your virtual 3D World.

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51	Light Effects - I	**Persistence** Working with light and sound effects to create a Theme based World : Fantasy / Horror / Realistic.
52	Light Effects - II	**Persistence** Working with light and sound effects to create a Theme based World : Fantasy / Horror / Realistic.
53	Terrain Building	**Visualization, Generalization, Creativity** Add details to the game ambience like Trees , Chairs, Tables, Lamps, Wallpapers.
54	Formative Assessment	**Assessment Of Learning**
55	Adventure Game - I	**Spatial Visualization, Step-Wise Thinking, Creativity , Game Designing** Plan to build an Adventure Game around the 4 major components : Explore , Harvest, Buy and Sell.
56	Adventure Game - II	**Spatial Visualization, Step-Wise Thinking, Creativity , Game Designing** Plan to build an Adventure Game around the 4 major components : Explore , Harvest, Buy and Sell.
57	Scripting Game Mechanics - I	**Computational Thinking, Logic** Application of Lua Coding to achieve game outcomes.
58	Scripting Game Mechanics - II	**Computational Thinking, Logic** Application of Lua Coding to achieve game outcomes.
59	3D Animations	**Spatial Visualization, Step-Wise Thinking** Learn about Roblox Animations.
60	Formative Assessment	**Assessment Of Learning**

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