

# Game Development with Scratch: Level I Suitable for: G4 - G7

**Prerequisite:** Basics Of Scratch

**Duration:** 20 Weeks

**Classes per Week:** 1 class (45 minutes each)

## Course Overview:

In this course, students will deepen their understanding of programming concepts using Scratch, with a focus on advanced game mechanics, conditionals, cloning, variables, and operators. By the end of the course, students will be able to create more complex and interactive games, incorporating strategic game elements and animations.

## Covered Topics

### Unit 1: Advanced Programming Concepts

- Overview of Conditional Statements
- Review conditionals from Basics Of Scratch
- Using conditionals to control game flow
- Combining Loops and Conditionals
- Creating complex actions in response to in-game events

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## Unit 2: Game Design and Animation

- Sprites and Backgrounds
- Designing engaging backgrounds
- Drawing and customizing sprites
- Dimensions and Positioning
- Understanding sprite dimensions
- Using X and Y coordinates for positioning

## Unit 3: Game Mechanics and Interactivity

- Adding Interactivity with Variables
- Introduction to variables in games
- Using variables to track scores, lives, and levels
- Cloning for Advanced Game Dynamics
- Introduction to cloning in Scratch
- Implementing clones to create obstacles and additional challenges

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## Unit 4: Creating Popular Game Types

- Maze and Puzzle Games
- Creating mazes with interactive paths
- Adding logic to make puzzles more engaging
- Platformer and Adventure Games
- Implementing jump and gravity mechanics
- Creating levels and enemy characters

## Unit 5: Thematic Game Projects

- Designing a maze with rewards and penalties
- Using clones and conditionals to catch moving items
- Creating a pong-style game with scoring mechanics

## Unit 6: Game Development Challenges

- Developing a game where players avoid obstacles
- Using conditionals and variables for a scoring system

## Materials Needed:

- Access to a computer or tablet
- Internet connection
- Chrome browser

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## **Assessment**

At the end of each lesson, learners will be assessed on their ability to apply concepts such as conditionals, cloning, sprite interactions, variables, and messaging within their game projects. Each assessment will focus on how effectively they integrate these advanced programming elements to create dynamic, functional, and engaging games using Scratch.

## **Certification**

A certificate of completion will be awarded upon the successful completion of the course.