

Scratch Programming Lesson 10:

Game Programming Part 1 – Game Design

In lesson 7, we took a look at an existing sample game, The Pong Game, and we also had made changes to this game to make it more interesting. In lesson 10 through 14, I will cover what you need to learn to make a mini Super Mario game.



We will cover the following:

- Designing a Game (Lesson 10)
- Creating Game sprites (Lesson 11)
- Adding Game Rules to Game Sprite (Lesson 12)
- Changing Background when Mario Moves (Lesson 13)
- Managing Score and Levels (Lesson 14)

After following these classes, you should feel very comfortable creating your own game. Let's start!

Here is a basic table that we need to fill in:

Game Name	Mini Mario
Sprites	List of sprites: name, costumes, sounds, movements
Sprite Interaction	How sprites interact in this game
Backgrounds	Backgrounds for each level
Scores	Scoring rule
Levels	Level advancement rule

Let's expand each item to its own table.

BASIC GAME INFO TABLE

Game Name	How to Play	How to Win

SPRITE TABLE

Sprite Name	Sprite Costumes	Sprite Sound Bites	Sprite Movement

SPRITE INTERACTION TABLE

Sprite1	Sprite2	Interaction

BACKGROUND TABLE

Background Name	Background Look

SCORE MANAGEMENT TABLE

How	How many points

LEVEL MANAGEMNT TABLE

Level	Requirement	Starting Background	Ending Background

Let's fill in each table for this game:

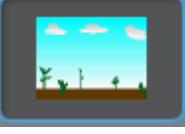
BASIC GAME INFO TABLE

Game Name	How to Play	How to Win
Mini Mario	Collect coins to earn points; avoid crabs and bats	Get all coins without being bitten by crabs nor bats

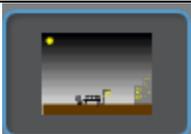
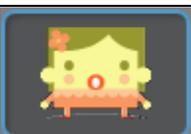
SPRITE TABLE

Name	Look	Sound	Movement/ Action
Mario 	-Walk1 -Walk2 -Jump Up -Jump Down	-Jump -Die -Enter -Score -Grow -Shrink	-Walk -Jump -Die -Grow -Shrink
Fruit Platter 	-Delicious	None	None
Princess 	-Surprised -Happy	-Happy tune	-Jump up and down for joy
Brick 	-Regular -Cracked	-Crushed	-Crushed
Bat 	-Fly1 -Fly2	-Wing flap	-Fly
Coin 	-Spin1 -Spin2 -Spin3	-Bling-bling	-Spin
Crab 	Walk1 Walk2	-None	-Walk

SPRITE INTERACTION TABLE

Sprite1	Sprite2	Interaction
Mario 	Brick 	If Mario hand hits Brick, then Brick would crack.
Mario 	Coin 	If Mario touches Coin, Coin would disappear and Mario would score 1 point.
Mario 	Crab 	If Mario touches Crab, he would die.
Brick 	Coin 	When Brick cracks, Coin would show spinning above Brick
Mario 	Stage 	When Mario hits the bottom of the stage, he would die.

BACKGROUND TABLE

Name		Description
Level1_1		Solid ground, several bricks (to be added from sprites), crabs as enemies
Level1_2		Holes in ground, several bricks, crabs as enemies
Level1_End		Fruit platter
Level2_1		Solid ground, several bricks, bats as enemies
Level2_2		Holes in ground, several bricks, bats as enemies
Level2_End		Princess

SCORE MANAGEMENT TABLE

How	How Many Points
Mario collects a Coin	1
Mario eats a Fruit Platter	5
Mario meets the Princess	10

LEVEL MANAGEMNT TABLE

Level	Requirement for this Level	Starting Background	Ending Background
1	When the game is started	Level1_1	Level1_2
2	When Mario grabs the Fruit Platter in Level 1	Level2_1	Level2_2

Whew!! We are done for the design stage. This may seem a lot of work but it's always a good idea to lay out the design in as much detail as possible for your masterpiece, whether it is an animation or a game. Once you take the time to design your game, the building part should be straight forward.

In Lesson 11, we will work together to create the sprites for our Mini Mario game.