

Design Documentation & Reverse Engineering
Super Mario Bros. for the Nintendo Entertainment System
Developed & Published by Nintendo, 1985
Written by Adam Jones

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Game Concept

Introduction

Super Mario Bros. is a 2D side scrolling action game for the Nintendo Entertainment System (NES) where players take control of the famous Mario Brothers, running, jumping, swimming and bashing their way through the Mushroom Kingdom. Their mission is to rescue the Mushroom Princess from the clutches of the evil Koopa and save the Mushroom people.

Background

The game is based upon the popular Mario Bros. and contains characters from the famous arcade and 'Game and Watch' titles made by Nintendo, so as well as appealing to newcomers the game already has a fan base created by previous titles.

Genre

Super Mario Bros. is a 2D side scrolling action game where the player runs from left to right, avoiding an array of obstacles to reach a final goal. This can sometimes be known as a 'platform' genre game due to the nature of the player jumping platforms to avoid death. The characters are bright and colourful, and the levels/worlds are made up of varying themes such as underground, jungle and ice.

Platform

The game is exclusively for use with the Nintendo Entertainment System (NES) and requires one NES control pad. An additional control pad can be used to control the second player but is not essential.

Game Mechanics

Core Game Play

As you progress through the game the screen will slowly advance to the right, therefore the player is prompted to move in this direction to proceed. Mushroom Kingdom is split into worlds, which are then split into four areas. At the end of the forth area of each world the player will reach a large castle. Each area has a time limit and the player has to reach the end within the time limit or a life will be lost. Upon reaching the castle the next level is an end boss lava themed dungeon where the player will have to battle the evil Koopa to save a Mushroom person. Once defeated the player advances onto the next world and its four areas.

Each area finishes with a flag pole which is jumped on by the player, which gives points depending on what height on the flag pole was reached when jumping. This then ends the level and a final score for the area is totalled, the player then advances to the next area. However getting to the flag pole at the end of an area is not a simple task, along the way players will encounter mountains, pits, sea, Koopa's soldiers and many puzzles.

Mario/Luigi can defeat enemies by either jumping on their head or throwing a fire ball at them if a fire flower power up has been collected. If Mario touches an enemy from any other direction than the head, falls down a pit, or touches lethal scenery (e.g. fire, spikes) a life will be lost and the player will start again from the beginning of that area. However if Mario has reached the middle of the area, if he dies he will start in the middle of the area so the player doesn't have to start from the very beginning. If all lives are lost then the player is forced to restart from area one within that current world. (E.g. if the player dies on World 4 – Area 3, they will restart on World 4 – Area 1).

Along his way through each area, Mario can head butt scenery some of which is destructible and may reveal secret items such as a Magic and 1-Up Mushrooms, Fire Flowers, Invincibility Stars and Coins. Collecting 100 coins will also give the player an extra life.

Modes of Play

There is only one mode of play in Super Mario Bros. which is the main action game. However this can be tackled by either one or two players. In two player mode player one takes the first turn to tackle the game and plays as Mario. Once player one loses a life, player two will play as Luigi and start from the beginning.

Scoring

While the main aim is to complete Worlds and Areas, every enemy Mario kills, block smashed, coins/power ups collected, area completed give the player points.

Points gained by killing enemies (all enemy descriptions and images can be found in the characters section) are as follows:

Enemy	Stomp	Fire	Star	Below
Little Goomba	100	100	100	100
Koopa Troopa	100	200	200	100
Koopa Troopa shell (moving)	100	200	200	N/A
Piranha Plant	xx	200	200	N/A
Bowser	xx	5000	N/A	N/A
Koopa Paratroopa	400	200	200	N/A
Bloober	xx	200	N/A	N/A
Cheep Cheep (water)	xx	200	N/A	N/A
Cheep Cheep (land)	200	200	N/A	N/A
Podoboo	xx	--	N/A	N/A
Hammer Bros.	1000	1000	1000	1000
Lakitu	800	200	N/A	N/A
Spiny Egg	xx	200	N/A	100
Spiny	xx	200	N/A	100
Buzzy Beetle	100	--	200	100
Buzzy Beetle shell (moving)	100	--	200	N/A
Bullet Bill	200	--	200	N/A

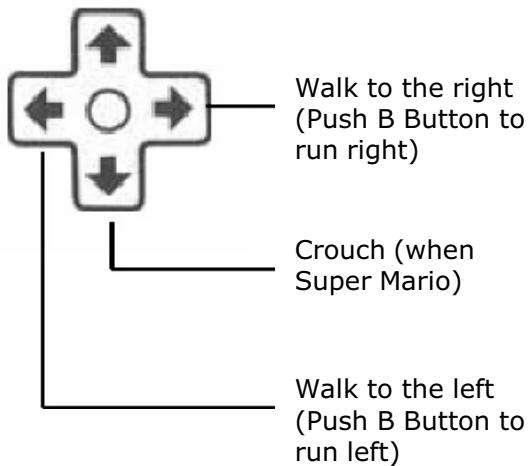
Other methods of scoring include:

Collecting Power Ups	1000 pts
Coins	200 pts
Bashing a Block	50 pts
Final Flag Pole	0-5000 pts

Types of Moves



Direction Pad controls Mario (Luigi)



A Button

Jump.....*Mario (Luigi) will jump higher the longer the button is held down*

And

Swim.....*Mario will swim/bob up when he is under water*

B Button

Run.....*Press and hold this button to speed up and jump further*

And

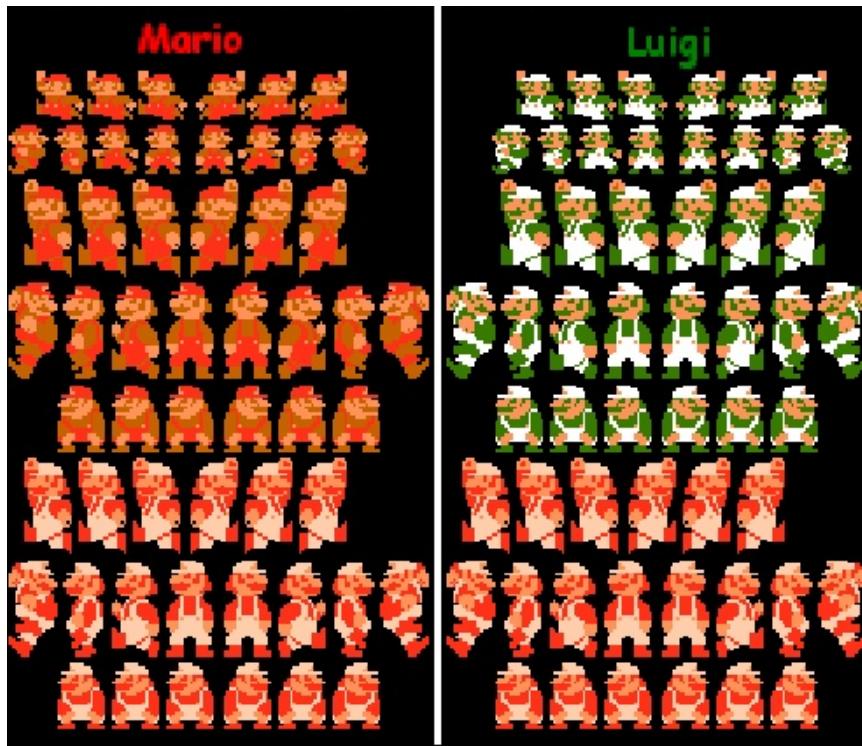
Fireball.....*With a fire flower collected press this button to throw fire ball*

Select Button

This button is used on the main menu to select which game you wish to play

Start Button

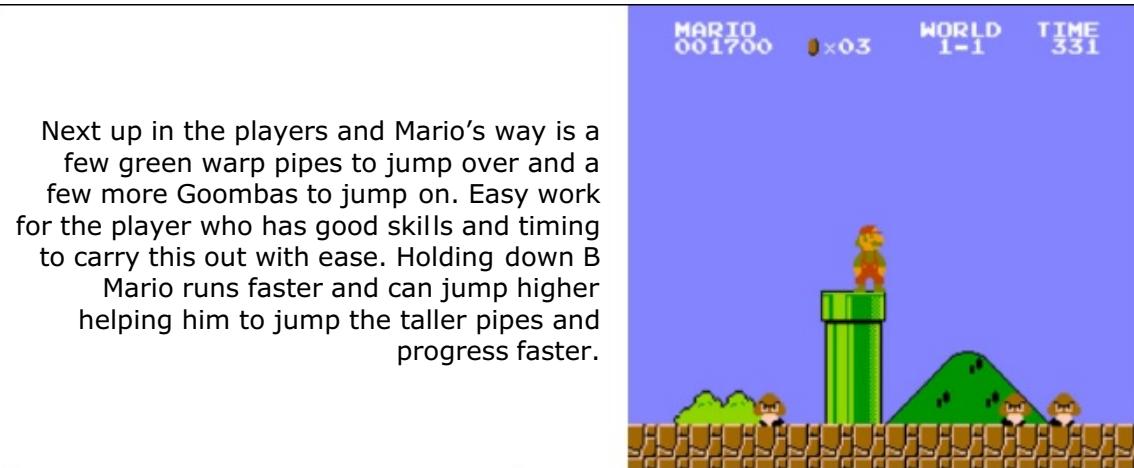
Press mid game to pause the action. Press again to restart



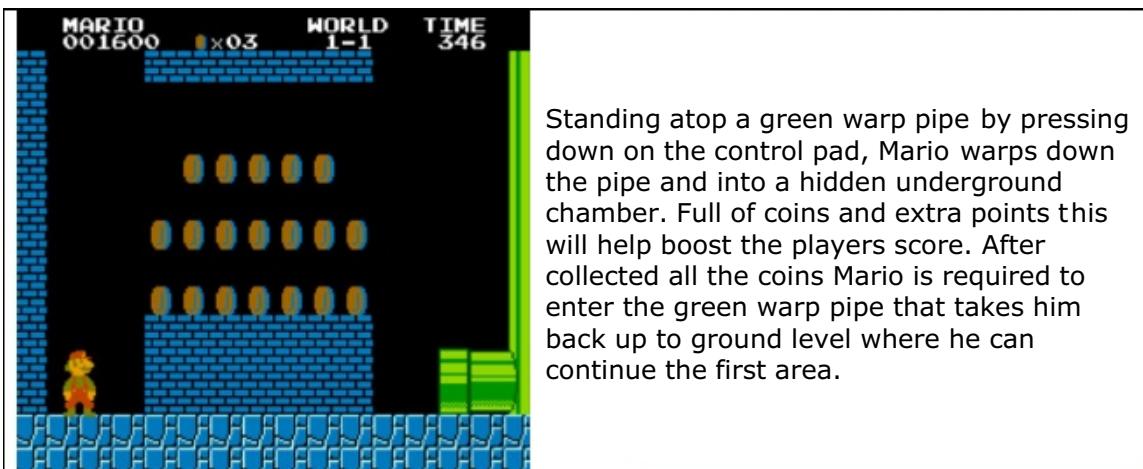
Game Flow

The player select whether they wish to play a one or two player game. Once selected the game begins on World 1 – Area 1, which is an outdoor level. The level has the most typical Mushroom Kingdom backdrop, green grass, blue skies with plenty of brown brick structures to climb on and break.

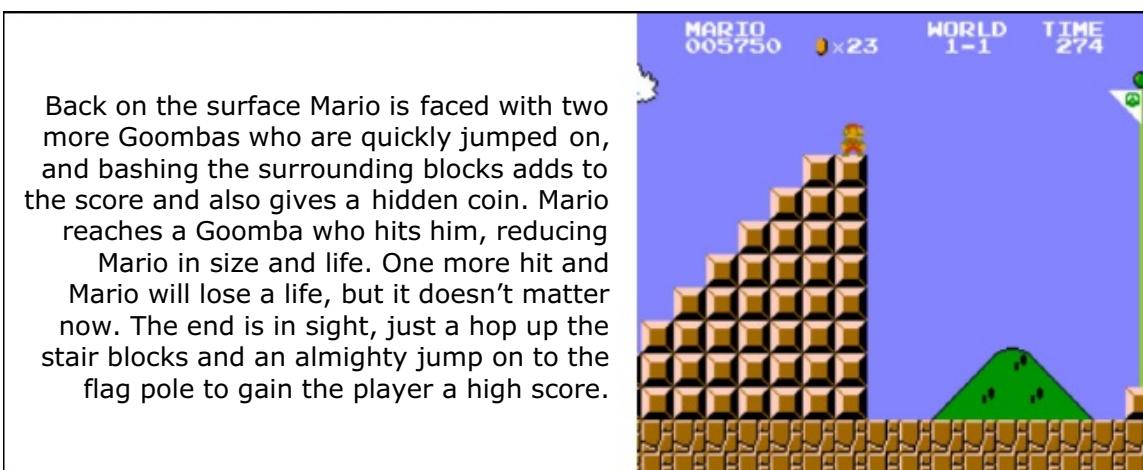
Mario sets off on his mission to save the Princess and the Mushroom people. Running left to right the first encounter will be two Goombas. Jumping on their heads quickly disposes of the foes however several suspicious boxes are scattered around. Head butting the boxes using jump gives Mario coins, points and a Magic Mushroom that turns small Mario into the taller 'Super' Mario. In this state Mario can get hurt and will reduce back to his normal size instead of dying instantly.



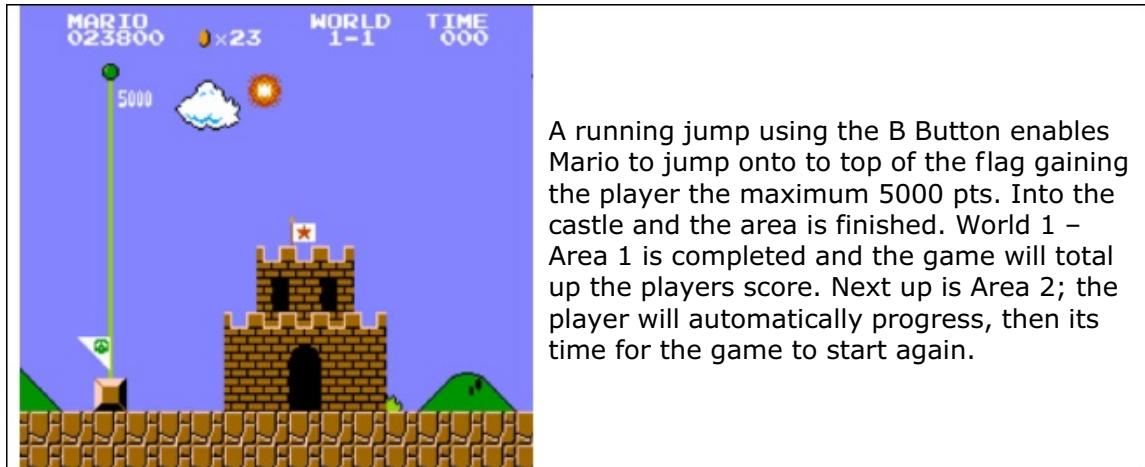
Next up in the players and Mario's way is a few green warp pipes to jump over and a few more Goombas to jump on. Easy work for the player who has good skills and timing to carry this out with ease. Holding down B Mario runs faster and can jump higher helping him to jump the taller pipes and progress faster.



Standing atop a green warp pipe by pressing down on the control pad, Mario warps down the pipe and into a hidden underground chamber. Full of coins and extra points this will help boost the players score. After collected all the coins Mario is required to enter the green warp pipe that takes him back up to ground level where he can continue the first area.



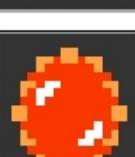
Back on the surface Mario is faced with two more Goombas who are quickly jumped on, and bashing the surrounding blocks adds to the score and also gives a hidden coin. Mario reaches a Goomba who hits him, reducing Mario in size and life. One more hit and Mario will lose a life, but it doesn't matter now. The end is in sight, just a hop up the stair blocks and an almighty jump on to the flag pole to gain the player a high score.



A running jump using the B Button enables Mario to jump onto to top of the flag gaining the player the maximum 5000 pts. Into the castle and the area is finished. World 1 – Area 1 is completed and the game will total up the players score. Next up is Area 2; the player will automatically progress, then its time for the game to start again.

Types of Characters

Picture	Name	Details
	Mario	Mario, the main character and controlled by player one. Mario is one half of the famous Mario Bros.
	Luigi	Luigi is Mario's brother. Although he has the same abilities as his brother, Luigi wears a green uniform.
	Little Goomba	'A mushroom who has betrayed the Mushroom Kingdom, one stomp and he dies' (Game Manual). Easy to kill foe who is very common throughout the game.
	Koopa Troopa (Green)	'Soldier of the Turtle Empire his orders are to find and destroy Mario. Jump on him and he stops moving for a while' (Game Manual). Also a common enemy found on most levels and easy to kill.
	Koopa Troopa (Red)	'This turtle is chicken! Very timid, he gets scared easily and runs back and forth a lot. Jump on him and he stops moving for a while' (Game Manual). Common enemy who can be awkward to kill as he moves relatively quick.

	Koopa Paratroopa (Green)	'A bit out of control, he wings around aimlessly and comes at you all of a sudden. Stomp on him and he loses his wings' (Game Manual). Harder to kill due to him usually flying right towards Mario which makes him harder to jump on.
	Koopa Paratroopa (Red)	'This turtle is under control, but likes to take it easy. Stomp on him and he loses his wings' (Game Manual). Flies in pattern making him easy to jump on.
	Buzzy Beetle	'Quite the toughy, fire balls don't even faze him' (Game Manual). Hard to kill as is immune to fire balls, and only turns over if jumped on once.
	The Hammer Bros.	'These wily twin brother turtles come at you throwing hammers' (Game Manual). Very hard to beat as hammers can hit you while you attempt to jump on his head.
	Spiny	'Lakitu's pet, but a wild fighter. You can't kill him by jumping on top of him' (Game Manual). Hard foe but can be killed easily by fire balls. Usually the number of them can cause a problem.
	Lakitu	'The mysterious turtle who controls the clouds. He chases after Mario and drops spiny eggs on him' (Game Manual). Very hard to kill as he float high above the level on cloud and drops Spiny's. Can be jumped on and killed though if Mario can get high enough.
	Pirana Plant	'Man-eating plants that live in the flower pots. They show their faces quick and without warning, so watch out! You can't kill them by jumping on top of them' (Game Manual). Fairly easy enemy that only pose a threat when they spit fire balls. Can however be killed using a fire ball.
	Spiny's Eggs	'Eggs of the turtle Spiny, pet of Lakitu. You can't destroy them by jumping on them' (Game Manual). Hard to kill as they are thrown from Lakitu's cloud and can easily hit you. Can be killed using a fire ball.

	Cheep-Cheep	'Usually found in the water, but also sprouts wings and flies so you have to be careful in the air too. Can't be killed from above while she's in the water' (Game Manual). Easy to kill when out of water, but can only be killed by a fire ball when in water.
	Bullet Bill	'Chases after Mario slowly but steadily. You can kill him by jumping on him from above' (Game Manual). Easy to kill enemy, but sometimes can be hard to avoid if carrying out another action. I.e. killing another enemy.
	Bloober	'Chases stubbornly after Mario; a guy to look out for. You can't kill him by jumping on top of him' (Game Manual). Very hard to kill and avoid under water, can be killed by a fire ball though.
	Podoboo	'Protector of the great sorcerer Koopa king, he comes flying out of the lake of fire inside the Koopa kings castle' (Game Manual). Can't be killed, but easy to avoid if timing is correct due to the repeating pattern they move in.
	Mushroom Retainer	'Seven mushrooms who originally served in the court of Princess Toadstool, but are now under the spell of the evil Koopa king' (Game Manual). These characters do not attack Mario but meet him at the end of each World.
	Bowser King of the Koopa	'The sorcerer king holding Princess Toadstool captive in the last castle. He comes at you spitting fire. There are several ways to kill him, but you only get points if you use fire balls' (Game Manual). The main boss at the end of each World, each encounter with him is different, and he gets harder to kill further you get into the game.
	Princess Toadstool	The Princess is the very reason Mario is on his quest, saving her will save the Mushroom people and the Kingdom.

For Instruction Manual for game see Appendix 1A

Collectible Items

Image	Name	Detail
	Magic Mushroom (Red & Orange)	When collected by Mario a Magic Mushroom will turn him from small Mario into the taller Super Mario. This improves his life by one, and he now has the ability to crouch.
	Fire Flower	When collected this turns Mario into the taller Fiery Mario and gives him the ability to throw fire balls at enemies using the B Button.
	Star Man	When collected by Mario this gives him invincibility for a short period of time. Mario can walk into any enemy without being hurt, and killing the enemy.
	Coin	Collecting 100 coins will give Mario an extra life, as well as adding 200 points to the players score.
	1-Up Mushroom (Green & Yellow)	A 1-Up Mushroom gives Mario an extra life instantly so if he dies he gets another go. Very rare and sometimes hard to find.
	? Block	A '? Block' when jumped into by Mario can hold any of the above collectible items.

Gameplay Elements

The game play is linear in that you have to move from left to right and only by reaching the end of an area can the player progress. Level design and enemy characters are in place to stop the player achieving this. Completing an Area takes timing and skill on the players' part. Throughout an area any main structure within can be stood on, and in the case of bricks can be interacted with and destroyed by jumping into them. Climbing on these areas can lead to hidden areas, and breaking these blocks can lead to coins, Power-up mushrooms, fire flowers etc... Each area will also end with a 'Finish Area' that comprises of steps, a flag pole and the end castle. This bears no real importance apart from finishing the level and gaining extra points.

Encountering enemies gives the player two options, avoiding them can be enough to complete an Area, however some may require to be killed to move past or killing them may provide a simpler route. Each enemy killed also offers points. Each enemy character can be killed in some way (apart from Podoboo), and it requires thought and skill to find out how this is done and how to go about either killing or avoiding them. When Mario hits an enemy from the side or above in the case of an enemy that can't be jumped on, it will cause damage to the player. Mario's life is discussed

later in the document, but hitting an enemy can cause damage to Mario and kill him if he is 'small'.

Enemies such as Koopa Troopa's (Green and Red), Buzzy Beetles and Koopa Paratroopa's (Green and Red) all have a shell that when jumped on by Mario they hide in. This in effect gives them two life points whereas most other enemies have only one. Mario can also 'kick' these shells at other enemies once the enemy has gone into hiding into it. Kicking them is carried out by simply running into them, and whatever is in the shells path once kicked will be killed.

Any of the above collectible items can be used by Mario by running into them, each having their designated effect instantly. When in 'Super' or 'Fiery' Mario state, the player can get hit by an enemy twice before dying. However once Mario is small again it will take only one hit to kill him.

Game Physics and Statistics

Movement

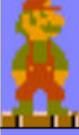
Mario/Luigi can move in eight directions, in accordance with the direction pad on an NES control pad. When stationary the direction pad allows Mario to either run to the left or right, and also duck when either 'Super' or 'Fiery' Mario. When left or right is held down along with the B Button, Mario will pick up speed and begin to run in this direction.

The A Button is a major factor in Mario's movement, as this button enables Mario to jump. This is an integral movement to the game play and can be used in conjunction with the direction pad allowing Mario to jump in a direction. The A Button can also be used with the B Button and the direction pad to perform a super jump so that Mario can clear large pits and chasms.

Enemies will move in a predictable pattern, with most just walking back and forth in a section of a level. Some enemies, especially those that fly may follow a set pattern that they will constantly repeat. No enemies have the same freedom of movement that Mario has.

Damage and Recovery

Running into enemies from the sides, jumping on spiky enemies, falling down pits, falling in lava all cause damage to Mario's health. Mario will initially start the game 'small', which signifies one health point. If the player collects either a Magic Mushroom or Fire Flower, Mario will grow in height which signifies two health points. When Mario is hit by an enemy in his taller state, he will return to the 'small' Mario, in effect losing one health point. If hit by an enemy when 'small' Mario will lose a life. The player starts the game with five lives and once all lives are lost the game is over and the player is forced to start again.

Picture	State	Health
	'Small' normal Mario	Health is equal to 1 point
	Super Mario (collect Magic Mushroom)	Health is equal to 2 points
	Fiery Mario (collect Fire Flower)	Health is equal to 2 points

Every enemy in the game removes only 1 health point from Mario. However falling down a pit or into lava removes all of Mario's health point and he loses a life.

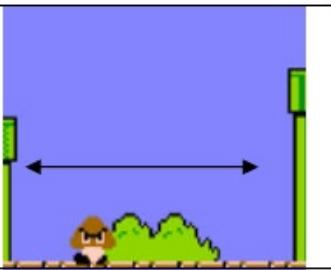
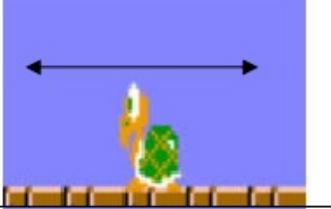
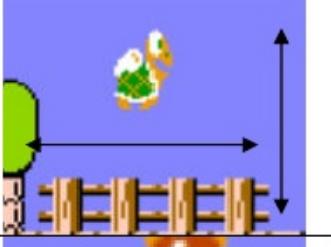
General Physics Model

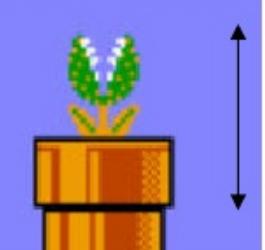
The game physics in Super Mario Bros. are extremely simple. Mario's movements are not based on reality and are all in proportion to the world around him. He moves faster than any enemies so can outrun them in any situation, and can also jump over all obstacles. Using the B Button Mario can speed up running faster and jump further, which is roughly double the speed he would normally run at.

Most level design takes into consideration the movement of Mario so all pits are approximately the length Mario can jump, and all sections above Mario are at a height Mario can reach. Therefore this keeps the world in proportion.

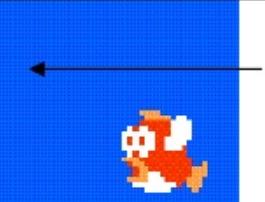
AI Features

The intelligence of the enemies can be categorised by how the enemies behave. This behaviour for most is extremely simple and can be sorted as follows:

Enemies	Behaviour	Movement
Little Goomba Buzzy Beetle Spiny Bullet Bill	These enemies behave very simply by moving along the floor in Mario's direction. Once past Mario they will either leave the screen or if an obstacle is present they will change direction and move back the opposite way.	
Koopa Troopa (Green & Red)	Koopa Troopa's behave in a similar way to Goombas as the only move along the floor and in the direction of Mario. However unlike Goombas, Koopa Troopa's have 2 health points so Mario has to jump on them twice.	
Koopa Paratroopa (Green & Red)	Koopa Paratroopa's are usually found moving in a similar way to normal Troopa's, however they have the ability to move vertically as well as horizontally. They also have 2 health points so Mario has to jump on them twice.	
Lakitu	Lakitu can be found above Mario usually at the top of the level. He only moves from left to right in a similar way to a Goomba but stays with Mario throughout the level. In effect he chases Mario throwing Spiny's at the player.	

The Hammer Bros.	The Hammer Bros. move in a pattern that takes them onto platforms above them as well as back and forth. One of the most complex moving enemies in the game as they also throw hammers in Mario's direction. However one jump on their heads and they die.	
Pirana Plant Podoboo	Pirana plants and Podoboo behave in a similar manner. They both start from stationary and only move vertically. Both cannot be killed by jumping on them.	

Water

Enemies	Behaviour	Movement
Cheep Cheep	Cheep Cheep's will simply swim in Mario's direction (right to left), but do have the ability to swim up and down. Easy enough to avoid and can be killed by fire balls.	
Bloober	Bloober are a clever enemy, following Mario throughout the level best they can. They can swim in all directions, but swim slower than Mario so can be avoided. Can also be killed using fire balls.	

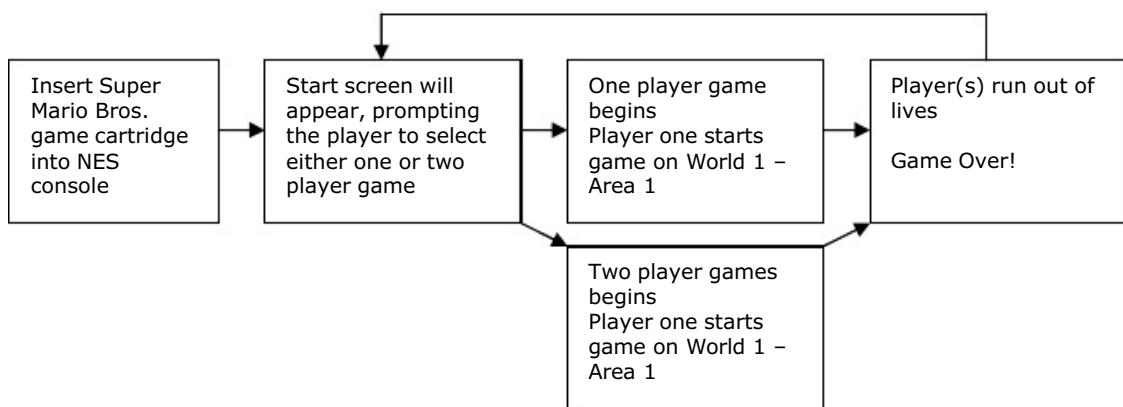
User Interface

Screen HUD

<u>Character</u> Character the current player is controlling		<u>Time</u> A countdown telling the player how much time they have to complete the level. Running out will result in losing a life
<u>Score</u> Current score accumulated by player		
<u>Coins</u> Amount of coins collected so far, 100 = Extra Life		<u>World</u> Informs the current player what World - Area they are currently on

The HUD display is there to give the player vital game information quickly on screen.

Flow Chart



The above diagram shows the simplicity of the game's structure and the user interface. This is essential to the game's appeal, giving the player an actual turn at the game after only one menu and decision. The 'pick up and play' nature of the game means it appeals to all users.

Game Flow Hierarchy

Start Screen	
<p>The start screen to Super Mario Bros. is effective, clever and simple to use. It offers the user two choices, 1 or 2 player game. This is changed by pressing the 'Select' button and the 'Start' button selects the option.</p> <p>As well as the options on offer, the start screen is designed like the first level of the game and if the user does not respond to the options will start a rolling demo of the first level. This gives the player a taste of the first level and how the game is played.</p> <p>A top score is also displayed on the Start screen that is updated every time someone playing the game beats it.</p>	

<p><u>World Screen</u></p> <p>The world screen is displayed at before the game starts and then each time a new world/area is started. It displays to the user the World and Area (e.g. World 1 – 1). It also shows the player how many lives they have (e.g. x3).</p> <p>This screen is very clear and simple, and shows the user the most essential information before they begin a level.</p>	
<p><u>Game Over Screen</u></p> <p>The game over screen displays once the player has ran out of lives. This screen is also very simple and displays for only a few seconds, when the game reverts back to the 'Start' screen shown above.</p>	

Artwork

Aims and Objectives

The overall style of the game is simple and cartoon like. The 8-Bit NES had limited capabilities in animation, colours and frame rate, so everything is kept to a minimal.

Characters are colourful, yet simple, but all have a distinguishing look so the player knows exactly what it is given the limited resources. Mario is coloured bright red and has a noticeable moustache to give him a sense of character. Luigi looks identical but has been cleverly coloured green as opposed to Mario's red. This helps the player notice which character is who, which is important for the two main personalities.

Each enemy is coloured and designed with as much thought as the two main characters. Turtles are simple and easy to draw with minimal pixels, and are coloured both red and green to define type. Goombas have large brows to look evil, and Pirana plants have spikes to look dangerous. This method of making enemies look evil using design is used throughout. When both Mario and the enemies die in

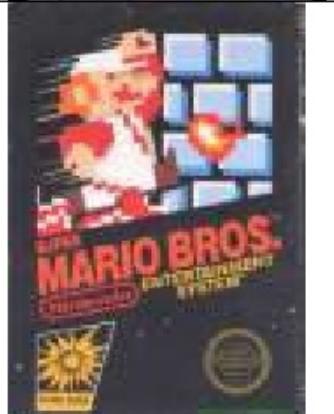
the game this is carried out in a cartoon way, with no violence being portrayed within the game, ensuring it appeals to all ages.

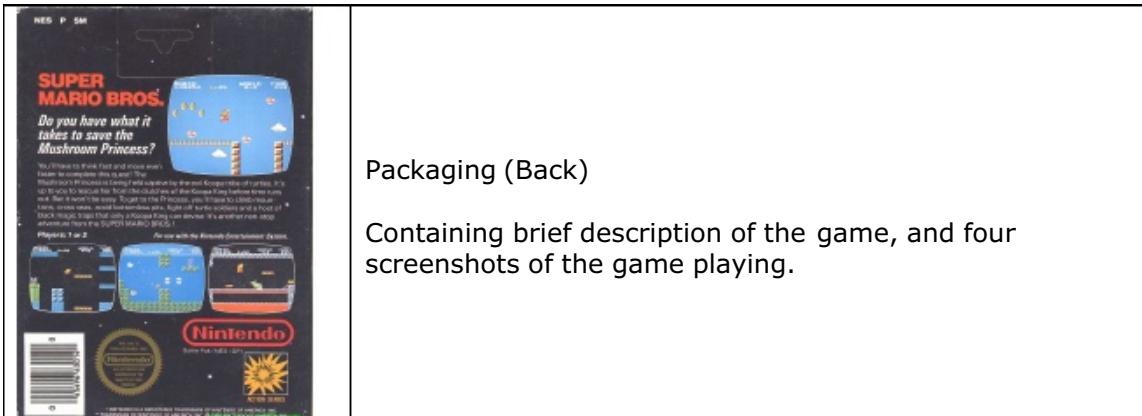
The background of each area changes throughout the game. World 1 – Area 1 is vibrant blue sky, brown brick floors, and white clouds in the sky. This gives the Mushroom Kingdom a sense of outdoors and tranquility. However as the game progresses this changes to a darker look as you get closer to the evil king Koopa's castle. Underground areas have black backgrounds with dark blue bricks and floor. This gives the feel of beneath the surface and cold, dank and dark.

** For level World-Area layouts see Appendix 1B **

Marketing and Package Art

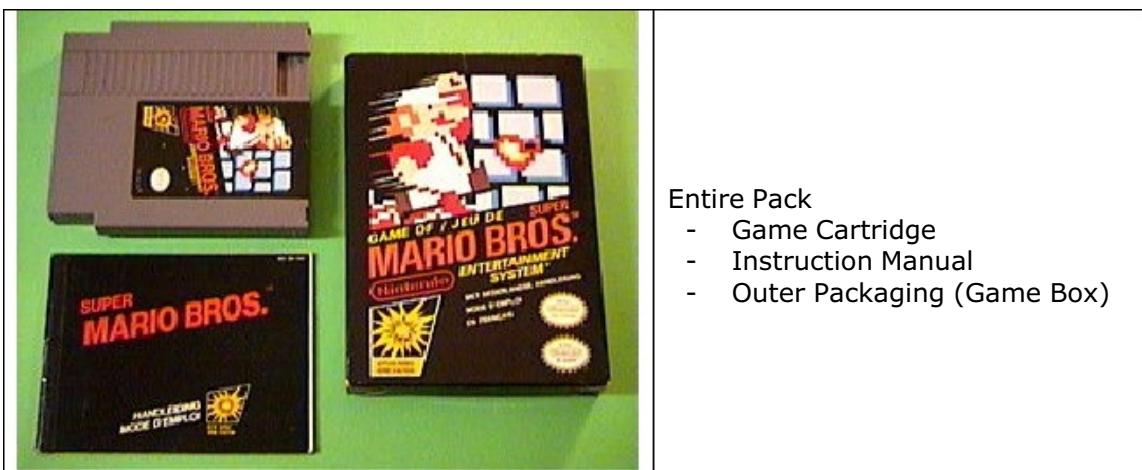
Packaging and marketing for the game is as simple as the game itself. Reflecting what the user can expect from the product. Simple and basic is also effective, and as the game is on cartridge format, it comes in a cardboard box. The game is packaged along with an instruction booklet.

	<p>Cartridge (Front)</p> <p>Contains a sticker on the plastic cartridge with a similar design to the box packaging front.</p>
	<p>Packaging (Front)</p> <p>A main image of Mario and the game title. Also contains details about the console and the region the game is for (i.e. PAL).</p>



Packaging (Back)

Containing brief description of the game, and four screenshots of the game playing.



Entire Pack

- Game Cartridge
- Instruction Manual
- Outer Packaging (Game Box)

Sound and Music

Sound Effects

Sound effects within the game are very minimal to fit with the cartridge format. There are sound effects for the following actions within the game.

Jumping and swimming
Collecting Power Ups (Fire Flower, 1-Up)
Shooting fire balls
Jumping on or squashing an enemy
Kicking a shell or beetle
Collecting a coin
Head butting a '? Block'
Head butting an empty block
Smashing a block
Going down a warp pipe
Getting hit by enemy
Dying and losing a life
Fireworks at level end
Jumping on the flagpole

High score being calculated
High score being displayed
Completing an World – Area

Music

The music for the game has to be relatively simple due to the lack of resources. The 8 Bit NES and cartridge format mean that any music and sound effects can only be coded in 8 Bit. This reduces the quality of any music that can be used for the game, but this is overcome by the huge success that is the Mario Bros. theme tune. The game contains a signature theme tune that is world renown, and fits with the game perfectly.

The theme is catchy and simple, and also fun as it is so up tempo. The music is used for most levels above land and it's only when levels switch to under ground or water is the music ever altered. Music for underground levels is changed to give a darker feel, using a slower tempo.

To use the level music more dynamically, the tempo of the music is quickened and slowed down in accordance to what is happening in the game. (e.g. collecting a 'Star Man', the music quickens).

Story

Game Story

One day the kingdom of the peaceful mushroom people was invaded by the Koopa, a tribe of turtles famous for their black magic. The quiet, peace-loving Mushroom People were turned into mere stones, bricks and even field horse-hair plants, and the Mushroom Kingdom fell into ruin.

The only one who can undo the magic spell on the Mushroom People and return them to their normal selves is the Princess Toadstool, the daughter of the Mushroom King. Unfortunately, she is presently in the hands of the great Koopa turtle king.

Mario, the hero of this story (maybe) hears about the Mushroom People's plight and sets out on a quest to free the Mushroom Princess from the evil Koopa and restore the fallen kingdom of the Mushroom People. You are Mario! It's up to you to save the Mushroom People from the black magic of the Koopa! -Taken from the Super Mario Bros. Instruction Booklet

Level Requirements

Level Design

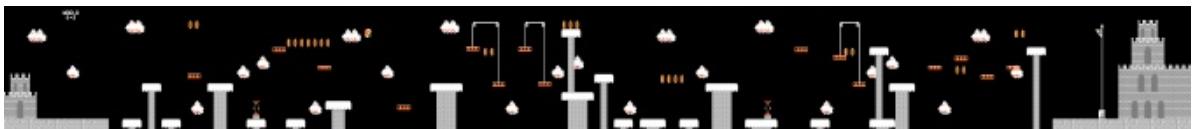
When designing levels for such a game, simplicity is essential. Making levels overly complex can frustrate a player, especially as character controls have been kept to a minimum. The levels also have to differ enough so not to make the game repetitive. This has been done using different coloured backgrounds, enemies and alternating between surface (day and night), underground, water and castle (dungeon) levels. The games levels also reflect the games difficulty as now 'difficulty setting' is used in

the game. To manage this, the early levels are designed to be a lot easier than the later levels, creating an increasing difficulty scale and challenge. Below is an example for the 4 main level types and how they differ from one another.

- *Surface (Day)*



- *Surface (Night)*



- *Underground*



- *Water*

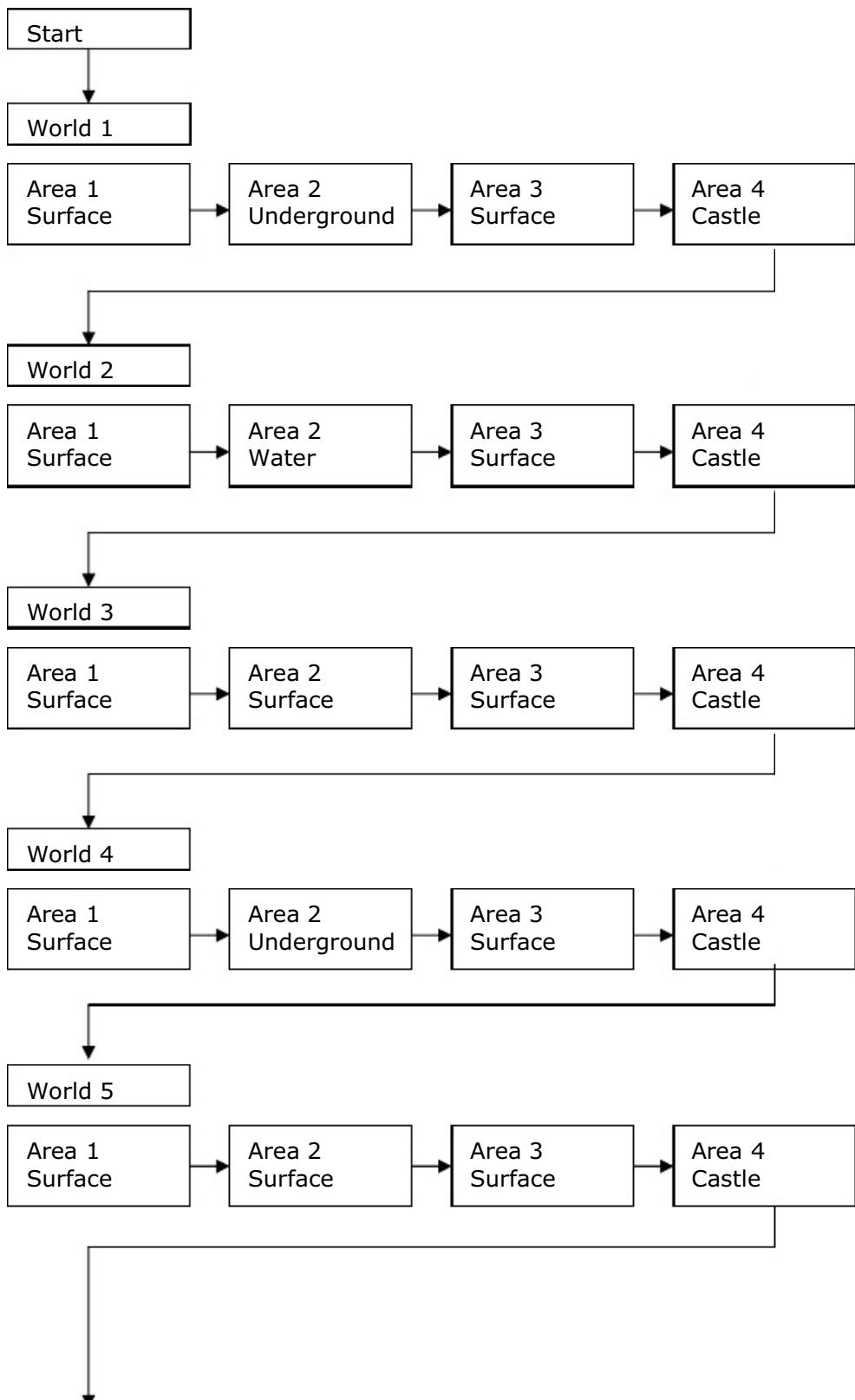


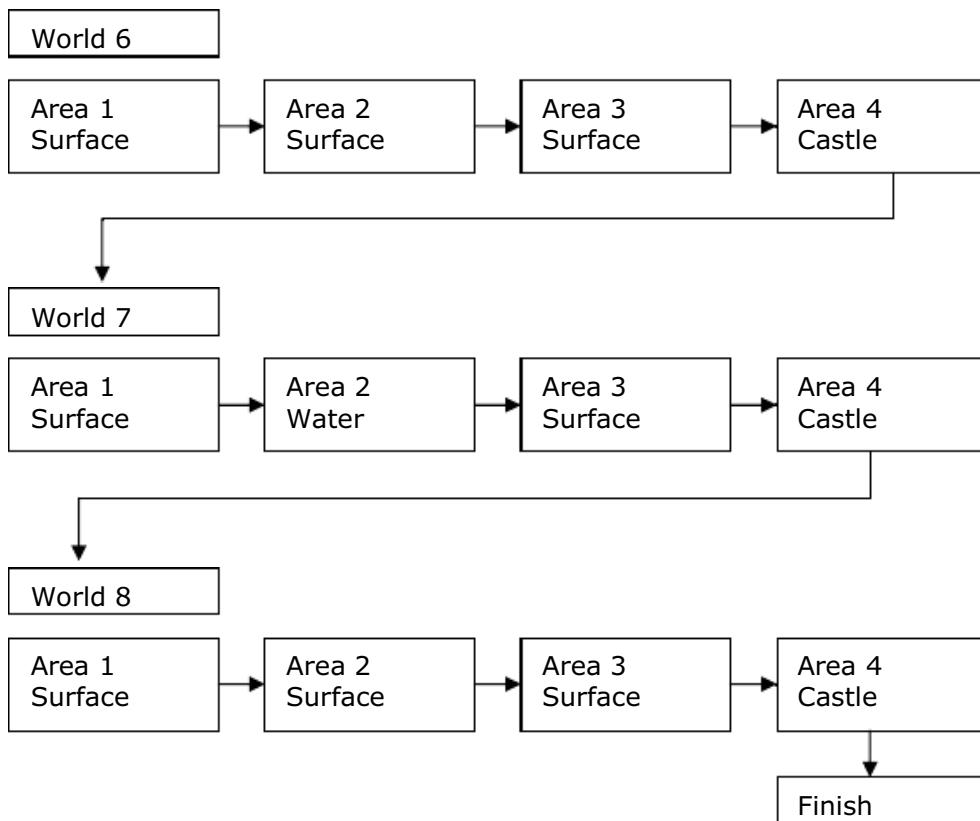
- *Castle (Dungeon)*



** For level World-Area layouts see Appendix 1B **

Level Structure

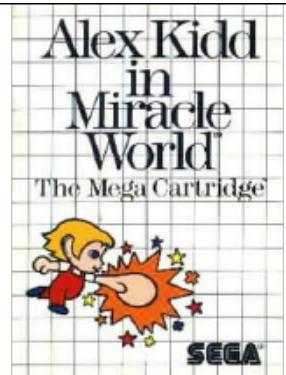


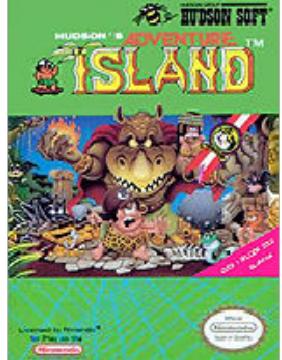


Marketing Analysis

Games in the Market Place

Super Mario Bros. is the first of a kind, bringing an action game into a believable world that the player can enjoy. The story behind the game is simple, making it easy to understand and not over complicating the player. Mario games have pushed the games industry forward in quality and game play for the last 20 years, so it is inevitable that Super Mario Bros. would have its imitators. Games in the market place when Super Mario Bros. was released were minimal, with the only real comparable games being the Mario Bros. series on the arcade. However the games arrival spawned hundreds of games that borrowed ideas from the game, so are therefore comparable to Mario itself.

	<p>Title: Alex Kidd in Miracle World Developer: Sega Genre: Action / Platform Publisher: Sega Platform: Sega Master System Release: Nov 1986</p> <p>A year after Super Mario Bros. Sega release their flagship title Alex Kidd. Sega's mascot before Sonic, Alex Kidd is a side scrolling 2D action/platform game. However Alex used motorbikes, helicopters to navigate the world in a new game play idea.</p>
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	<p>Title: Adventure Island Developer: Hudson Soft Genre: Action / Platform Publisher: Nintendo Platform: Nintendo NES Release: Sept 1988</p> <p>Arriving 3 years after Super Mario Bros. Adventure Island is a typical side scrolling action game. Obvious similarities are present in the game's look and game play. The game played very similar to Super Mario Bros. but without the quality of game play in Nintendo's title.</p>
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Technical Analysis

Console



Nintendo Entertainment System (NES)



'The original Nintendo Entertainment System was released in the US in August, 1985, and was an instant hit. Its graphics were far superior to any home-based console that had come before it, and it went on to sell over 60 million units worldwide' (Nintendo.com)

Detailed NES Hardware Specifications

- # CPU Type: modified 6502 8-bit (NMOS)
- # Clock Speed: 1.773447MHz (PAL) or 1.7897725MHz (NTSC)
- # Processor: 8-Bit PPU (Picture Processing Unit)

- # RAM Memory: 16 Kbit (2 Kb)
- # Video RAM: 16 Kbit (2 Kb)
- # Game Program Memory: 128K, 32K, 16K or 8K Bytes, 1 Meg, 256K, or 64K Bits
- # Game Character Memory: 128K, 32K, 16K or 8K Bytes, 1 Meg, 256K, or 64K Bits
- # Scrolling: Horizontal and Vertical
- # Sound: PSG sound (2 Square Waves, 1 Triangle Wave, 1 White Noise)

- # Colour: Colours Displayed: 16
- # Colours Available: 52
- # Sprite Colours: 4 per Sprite from the 52 possible

- # Minimum Sprite Size: 8x8 Pixels
- # Maximum Sprite Size: 8x16 Pixels
- # Maximum Sprites: 64 sprites
- # Maximum Sprites per Scan line: 8
- # Minimum Cartridge Size: 128 Kbit
- # Maximum Cartridge Size: 4 Mbit
- # Picture Resolution: 256 x 240

Game Credits

Nintendo Staff

Executive Producer: Hiroshi Yamauchi
Producer: Shigeru Miyamoto
Director: Shigeru Miyamoto
Assistant Director: Takashi Tezuka
Graphic Design: Shigeru Miyamoto
Takashi Tezuka
Main Program: Toshihiko Nakago
Kazuaki Morita
Yasunari Nishida
Sound Composition: Koji Kondo

References

Super Mario Bros.	Instruction Booklet	Nintendo	1985
Nintendo.com	Website	Nintendo	2005
ClassicGaming.com	Website	Dan W	2005

Images acquired through www.google.com

Appendix 1A – Instruction Booklet – Text Format

OBJECT OF THE GAME/GAME DESCRIPTION

One day the kingdom of the peaceful mushroom people was invaded by the Koopa, a tribe of turtles famous for their black magic. The quiet, peace-loving Mushroom People were turned into mere stones, bricks and even field horse-hair plants, and the Mushroom Kingdom fell into ruin.

The only one who can undo the magic spell on the Mushroom People and return them to their normal selves is the Princess Toadstool, the daughter of the Mushroom King. Unfortunately, she is presently in the hands of the great Koopa turtle king.

Mario, the hero of this story (maybe) hears about the Mushroom People's plight and sets out on a quest to free the Mushroom Princess from the evil Koopa and restore the fallen kingdom of the Mushroom People.
You are Mario! It's up to you to save the Mushroom People from the black magic of the Koopa!

NAMES OF CONTROLLER PARTS AND OPERATING INSTRUCTIONS

Controller 1/Controller 2

*Controller 1 -- for 1 player game

*Controller 2 -- for second player in 2 player game

Up: ???

Right:

Walk to the right. (Push button B at the same time to run.)

Down:

Crouch. (Super Mario only.)

Left:

Walk to the left. (Push button B at the same time to run.)

A button

Jump Mario (Luigi) jumps higher if you hold the button down longer.

&

Swim When you're in the water, each press of the button makes you bob up.

* Don't get too lazy about swimming or you'll get pulled under by the whirlpool at the bottom of the screen.

B button

Accelerate .. Press this button to speed up, then jump and you can go all the higher

&

Fireballs ... After you pick up the fire flower, you can use this button to throw fireballs.

SELECT button

Use this button to move the mushroom mark to the game you wish to play

START button

Press this button to begin.

Pause:

If you wish to interrupt play in the middle of a game, press the START button.

The pause tone will sound, and the game will stop. Press the START button again when you wish to continue playing. The game will continue from where you left off.

* The TOP SCORE will disappear if the reset switch is pressed or the power switch is turned off.

HOW TO PLAY

As this game proceeds the screen gradually advances to the right. The Mushroom Kingdom is made up of a number of worlds, and each world is divided into 4 areas. The fourth area of each world ends in a big castle. The Princess, as well as her mushroom retainers, are being held in one of the castles by the turtle tribe. In order to rescue the Princess, Mario has to make it to the castle at the end of each world within the given time. Along the way are mountains, pits, sea, turtle soldiers, and a host of traps and riddles. Whether or not you can make it to the last castle and free the Princess depends on you. You're going to need sharp wits and lightning reflexes to complete this quest!

Starting position and time progress

* At the beginning of the round, play starts from the beginning of the area; however, once Mario gets about halfway through an area, he doesn't have to go all the way back to the beginning after getting done in by the bad guys.

* When you get to the last castle, you start the game over from the castle entrance.

* When play starts, the clock in the upper right of the screen starts ticking away. Any time left on the clock when you get to the end of each area is added to your score as bonus points.

* There is no remaining-time bonus when you get to the very last castle.

Finish Area

* At the end of each area there is a small castle, but before you get to the castle you have to go up a big staircase and jump onto a flagpole. The higher you jump onto the flagpole, the higher the bonus you receive.

Pointers

Jumping Mario and Super Mario both jump the same height.

* The height Mario jumps depends on how long you hold the A button down.
* You can use the control pad to make Mario hook to the left or right even in mid-air!
* Pushing the B button makes Mario speed up, and when Mario is speeded up he can jump higher.

Bonus Prizes

* If Mario picks up 1 up mushroom, he gets an extra life.
* If Mario picks up 100 coins, he gets an extra life.

* In addition, there are other ways to get an extra Mario.

Mario, Super Mario, Invincible Mario, etc.

Mario's Friends

If you come across mushrooms who have been turned into bricks or made invisible, they reward you by giving you a power boost. With each boost Mario changes into a different, more powerful Mario, as shown below.

Mario -> Magic Mushroom -> Super Mario -> Fire Flower -> Fiery Mario
(return to regular Mario when bumped into by a bad guy)

Starman -> Invincible Mario

- * When Super Mario or Fiery Mario are bumped into by a bad guy, they don't die but simply return to their old regular-Mario selves.
- * For a short while after turning back into his regular-Mario self, Mario flickers. During this time, he can not be killed by bad guys (he's invincible).

How to topple the Turtle Tribe

- * Bad guys on top of the bricks can be taken care of by punching from below. Bad guys on the ground can be done in by jumping on top of them. If you bump into an enemy from the side or from below, you die.
 - * When in the water, no matter what direction you hit the bad guys from you die.
 - * If you stomp on a Koopa Troopa, he becomes (shell) and stays motionless for a while. During that time, you can kick him and send him flying to knock down other enemies.
 - * When Mario has fireballs, use the B button to throw them and fry the enemy.
 - * Some bad guys can't be killed. Look out for these immortal creeps!
 - * The points you get depend on how you kill the enemy. Try a few different methods to see which gives you the most points.
-

Beware! The following are deadly:

- * Bumping into members of the Turtle Tribe and other baddies. Walking into flames.
- * When you bump into a [PICTURE: Shell] you had once kicked.
 - * However, Super Mario returns to regular Mario and the game continues at that spot.
- * When you fall into a pit or get sucked down a drain.
- * Time runs out.

Little Goomba

A mushroom who betrayed the Mushroom Kingdom.

One stomp and he dies 100 PTS.

Koopa Troopa (green)

Soldier of the Turtle Empire, his orders are to find and destroy Mario. Jumps on him and he stops moving for a while.
. 100 PTS.

Koopa Troopa (red)

This turtle is chicken! Very timid, he gets scared easily and runs back and forth

a lot. Jump on him and he stops moving
for a while..... 100 PTS.

Koopa Paratroopa (green)
A bit out of control, he wings around aimlessly and comes at you all of assudden.
Stomp on him and he loses his wings. . .
..... 400 PTS.

Koopa Paratroopa (red)
This turtle is under control, but likes to take it easy. Stomp on him andhe loses his wings..... 400 PTS.

Buzzy Beetle
Quite the toughy, fireballs don't even faze him..... 100 PTS.

The Hammer Brothers
These wily twin-brother turtles come at you throwing hammers. . . . 1000 PTS.

Spiny
Lakitu's pet, but a wild fighter. You can't kill him by jumping on top of him . . .
..... 200 PTS.

Lakitu
The mysterious turtle who controls the clouds. He chases after Mario and drops Spiny's eggs on top of him 200 PTS.

Pirana plants
Man-eating plants that live in the flower-pots. They show their faces quickly and without warning, so watch out! You can't kill them by jumping on top of them
..... 200 PTS.

Spiny's eggs
Eggs of the turtle Spiny, pet of Lakitu.
You can't destroy them by jumping on them..... 200 PTS.

Cheep-cheep
Usually found in the water, but also sprouts wings and flies so you have to be careful in the air too. Can't be killed from above while she's in the water 200 PTS.

Bullet Bill
Chases after Mario slowly but steadily.
You can kill him by jumping onto him from above 200 PTS.

Bloober
Chases stubbornly after Mario; a guy to look out for. You can't kill him by jumping on top of him..... 200 PTS.

Podoboo
Protector of the great sorcerer Koopa king, he comes flying out of the lake of fire inside the Koopa king's castle.

Mushroom retainers
Seven Mushrooms who originally served in the court of Princess Toadstool, but are now under the spell of the evil Koopa king.

Princess Toadstool
Princess of the Mushroom Kingdom, she is the only one who can break the spell of the evil Koopa king.

Jumping board
If Mario jumps on it, it goes up and down. Pushing the A button when the jumping board is all the way up makes Mario jump superhigh.

Bowser, King of the Koopa
The sorcerer king holding Princess Toadstool captive in the last castle. He comes at you spitting fire. There are several ways to kill him, but you only get points if you use fireballs.
..... ??? PTS.

Super Mario Bros.
Secret Tricks

Sssh! Don't tell anyone! [PICTURE: Koopa Troopa]

[PICTURE: Shell] Bulldozer attack

- * Kick one of the shells and then run right behind it (use the B button) and your path will be cleared for you as your enemies are sent flying.
- * Just look out for ricochets. If the shell runs into a [PICTURE: Pipe], your attack will backfire and you'd better move fast to keep from getting swept off yourself.
- * If you want to get a lot of points, be sure not to leave any enemies behind you, since the more enemies you kill the more new ones appear. Especially, when using the "bulldozer attack," make sure all the enemies on the screen are wiped out before continuing to the right.
- * Because the screen moves from left to right, there are enemies off the edge of the screen that can't be seen. You can't kill enemies you can't see by sending a shell off the screen after them. Why not? Maybe they jump over the enemy when Mario isn't looking . . . !
- Strangely enough, however, if a kicked shell bumps into a pipe off the screen, it comes ricocheting back at Mario. If you hear the sound of a ricochet, jump right away so you'll be ready when it comes flying back onto the screen.
- * When a shell comes ricocheting back at you, it's possible (for a real pro,

- that is) to stomp on the turtle one more time and stop it.
* There are plenty of other tricks -- see if you can discover them on your own.
-

Chain-reaction techniques

- * Use the old "Domino Effect" (ask your parents) to wipe out a bunch of bad guys one after the other to get high points.
- * Each coin you grab is worth 200 points. If you collect 100 coins, besides the points for the coins you also get an extra Mario. Without a doubt, a lot of coins are tucked away somewhere . . . (why do ya' suppose this is under "Chain-reaction Techniques?").

Top Secret

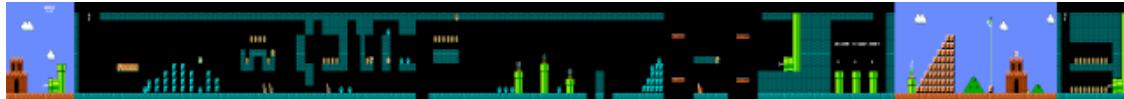
- * You get 50 points for each brick you smash... try punching lots of different places.
- * There are several different ways to get an extra Mario... try to figure them out yourself.
- * At the end of an area (after you jump onto the flagpole), fireworks may go off, and for each explosion you get 500 points. The reason the fireworks go off is a secret; see if you can figure it out.

Appendix 1B – Game Level Layouts

1-1



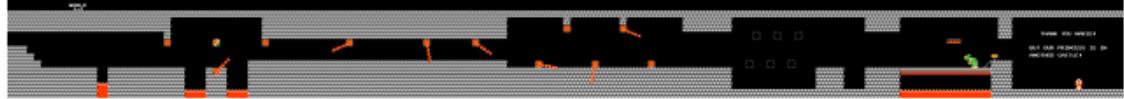
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1-3



1-4



2-1



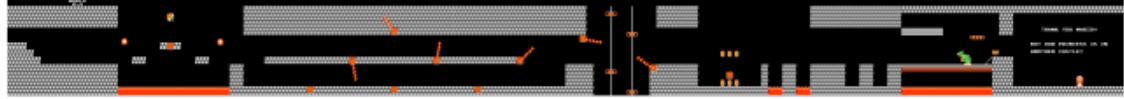
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2-3



2-4



3-1



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3-4



4-1



4-2



4-3



4-4



5-1



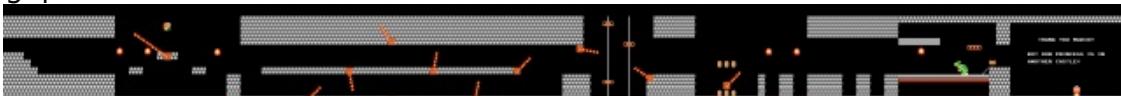
5-2



5-3



5-4



6-1



6-2



6-3



6-4



7-1



7-2



7-3



7-4



8-1



8-2



8-3



8-4



