



Earl

The Penguin

Earl the Penguin Game Design Document



You think You
are a WARRIOR?

DOCUMENT OVERVIEW

OVERVIEW

This is the design document for **Earl the Penguin**. This document is broken into major sections, each describing a particular aspect of the game. The appendices offer supporting information for the development of the game.

REVISION HISTORY

This is a brief description of this document. A list of the major changes is provided following each revision number. Furthermore, a list of any outstanding topics or any topic that needs further details is provided.

REVISION	DATE	CHANGE DESCRIPTION	SECTION
Version 1.1 Update	August 28, 2013	<ul style="list-style-type: none">Created Overview, High concept, Common Questions	
Version 1.2 New Content	September 12, 2013	<ul style="list-style-type: none">Added Character, Camera & Control. (CCC)	Characters Camera Controls
Version 1.3 Update	September 17, 2013	<ul style="list-style-type: none">Created Mechanics Sections for Player and EnemiesUpdated CCC.	Mechanics (Player & Enemies) CCC
Version 1.4 Update	October 5, 2013	<ul style="list-style-type: none">Detailed Game WorldLevel Progression was implemented.	World Overview Single Player Game Levels
Version 1.5 New Content	October 10, 2013	<ul style="list-style-type: none">Updated Mechanics.Updated CCC.Table of Contents introduced.	Mechanics CCC
Version 1.6 New Content	October 13, 2013	<ul style="list-style-type: none">Updated Level Progression with beat charts.	Levels

Contents

Game Concept	8
Overview.....	8
High Concept	8
Common Questions.....	8
Why Create this Game?	8
Who Is The Target Audience?	9
Competitive Analysis	9
Where does this game take place?	10
Feature Set.....	10
Major Features	10
Overview.....	14
Playable Character(s).....	14
Overview	14
Main Character(s).....	14
Non-Playable Character(s).....	15
Overview	15
Mike the Seal	15
Carlos the Alligator	16
Sid the Shark.....	18
Juan the Pelican.....	19
Dom the Penguin.....	19
Enemy Character(s).....	20
Overview	20
Seal Mob Grunt	21
Seal Mob UnderBoss	21
Alligator Gang Grunt.....	22
Overview.....	23
Right Direction Camera.....	23
Left Direction Camera	24
Snapping Camera	25

Controls.....	26
Overview.....	26
Xbox 360 Controller.....	26
Gameplay Details	28
Overview.....	28
Mechanics	28
Movement	28
Jumping	28
Shooting.....	30
Melee Combat.....	30
Weapons.....	31
AI.....	32
AI Details.....	33
Death and Respawn Mechanics Details	34
Game Modes Overview	35
Single-Player Game.....	35
Story.....	35
Single Player Progression	36
Single-Player Time Projections.....	36
Single-Player Beat Chart	37
Victory Conditions	38
Overview.....	39
New York City Aquarium.....	40
Overview	40
Scale	41
Weather	41
Time of Day.....	41
Travel.....	42
Levels	42
Overview	42
Level Breakdown.....	42
Level Progression	43

Overview	43
Level Completion.....	43
Overview.....	51
Single Player HUD	51
Level Select Screen.....	52
Flow Chart of Screens.....	53
Art Style.....	55
Overview.....	55
Figure 1: Figure 1 Enemy Avoidance	Error! Bookmark not defined.
Figure 2: Figure 2 Enemy Attack Avoidance	Error! Bookmark not defined.
Figure 3: Figure 3 Environment Concept	Error! Bookmark not defined.
Figure 4: Figure 4 Earl Concept	11
Figure 5: Figure 5 Mike the Seal Concept.....	12
Figure 6: Figure 6 Mike Battle Concept.....	13
Figure 8: Figure 7 Carlos Concept	14
Figure 9: Figure 8 Carlos Battle Concept	14
Figure 10: Figure 9 Sid The Shark Concept.....	15
Figure 11: Figure 10 Juan the Pelican Concept.....	16
Figure 12: Figure 11 Dom the Penguin Concept.....	17
Figure 13: Figure 12 Seal Mob Grunt Concept	18
Figure 13: Figure 13 Seal Mob UnderBoss Concept.....	18
Figure 14: Figure 14 Alligator Gang Grunt Concept.....	19
Figure 15: Figure 15 Alligator Gang UnderBoss Concept	20
Figure 16: Figure 16 Right Direction Camera Example.....	21
Figure 17: Figure 17 Left Direction Camera Example	22
Figure 18: Figure 18 Snapping Camera	22
Figure 19: Figure 19 Xbox 360 Controls Concept	23

Figure 20:	Figure 20 Earl Jumping Concept.....	26
Figure 21:	Figure 21 Earl Melee Attack Range	27
Figure22:	Figure 22 Enemy Vision Example	31
Figure 23:	Figure 23 Beat Chart for Single Player	34
Figure 24:	Figure 24 Game World Reference Image 1	36
Figure 25:	Figure 25 Game World Reference Image 2	36
Figure 26:	Figure 26 Game World Reference Image 3	37
Figure 27:	Figure 27 Time of Day and Weather Reference Image.....	38
Figure 28:	Figure 28 Level 1 Concept.....	40
Figure 29:	Figure 29 Level 1 Beat Chart	40
Figure 30:	Figure 30 Level 2 Concept.....	41
Figure 31:	Figure 31 Level 2 Beat Chart	40
Figure 33:	Figure 32 Level 3 Concept.....	41
Figure 33:	Figure 33 Level 3 Beat Chart	40
Figure 34:	Figure 34 Level 4 Concept.....	42
Figure 35:	Figure 35 Level 4 Beat Chart	40
Figure 36:	Figure 36 Level 5 Concept.....	43
Figure 37:	Figure 37 Level 5 Beat Chart	40
Figure 38:	Figure 38 Sid Boss Level Concept.....	43
Figure 39:	Figure 39 Juan Boss Level Concept	44
Figure 40:	Figure 40 Carlos Battle Concept.....	44
Figure 41:	Figure 41 Mike Boss Level Concept	45
Figure 42:	Figure 42 Single Player HUD Concept.....	46
Figure 43:	Figure 43 Level Select Screen Concept.....	47
Figure 44:	Figure 44 Flow Chart of Screens	48
Figure 45:	Figure 45 Art Style Reference 1	54

Figure 46:	Figure 46 Art Style Reference 2.....	54
Figure 47:	Figure 47 Art Style Reference 3.....	55
Figure 48:	Figure 48 Art Style Reference 4.....	55
Table 1:	Power-Ups	9
Table 2:	Right Direction Camera.....	21
Table 3:	Left Direction Camera	22
Table 4:	Snapping Camera	23
Table 5:	Power-Ups	29
Table 6:	Single Player Time Projections	34
Table 7:	Level Breakdown	39

Game Concept

Overview

Earl the Penguin runs through the aquarium hitting and shooting at enemies and grabbing power-ups to reach the next exhibit.

High Concept

You think you are a warrior?

Earl the Penguin is a 2.5D side scrolling shooting platformer for the Xbox 360 where the player plays as Earl, a penguin mob boss, who attempts to escape from the New York City aquarium by throwing snowballs, jumping on enemies, harassing anyone in Earl's path and recruiting new allies to ultimately reveal the culprits behind Earl's kidnapping.

Common Questions

Why Create this Game?

Filling a Void & Opportunity:

Platform and shooting games have been around since the early days of gaming, with examples such as Mario Bros. and Space Invaders. These two genres have endlessly expanded from the time they were introduced. Combining these genres have proven successful in the path for titles such as Contra and Metroid.

Recently the two genres have split with shooting games moving towards first person games like **Call of Duty** and **Battlefield**, with the platforming genre steering towards side scrolling games focused solely on platforming with games such as **New Super Mario Bros. U** and **Rayman Legends**.

Platformers have declined in popularity in recent years. The market is over saturated with first person shooter games. Taking a shooting mechanic that is popular can appeal to fans of shooting games. Combining shooting with platforming branches out into a market that has been abandoned in recent years.

The goals set forth in creating this game include, but are not limited, to the following:

- Develop an enjoyable but challenging platforming experience that players have to invest time to master
- Provide strong shooting mechanics that do not feel tacked on
- Successfully merge two genres with an equal balance between the two

What is the target Hardware?

Microsoft Xbox 360 Xbox Live Arcade

Who Is The Target Audience?

GEOGRAPHIC

- Northeastern United States
- People living in New York City because the game takes place at the Aquarium

DEMOGRAPHIC

- Hardcore games between the ages of 18-21
- Some high school educational background
- Living at home with parents and part-time or no job
- Income is derived mostly from parents

PSYCHOGRAPHIC

- Fans of television shows such as South Park and Family Guy
- Attracted to unique games that are different from the traditional stories such as hero saves princess or unwilling hero saves world
- Fans of challenging games that require time to master

BEHAVIORS

- Continually play a game until they complete it
- Enjoy games with adult themes without the extreme violence and gore
- Spend leisure time playing video games

Competitive Analysis

Trine 2

Trine 2 is an action adventure 2.5D platforming game available on the Xbox Live Arcade. Trine 2 mixes a brilliant art style with strong gameplay to forge an exceptional experience. Despite good overall reviews and favorable gameplay Trine 2 went on to sell 30,000 copies. Providing a strong marketing campaign to accompany Earl the Penguin will allow the game to reach more people.

The Cave

The Cave is a 2.5D puzzle solving side scroller for the Xbox Live Arcade. The Cave has players select 3 of 7 characters and enter a cave which explores peoples darkest personality traits. Players must use all three characters to work together to solve puzzles. The Cave offers a more puzzle oriented game than Earl the Penguin, but Earl the Penguin offers a more action and platforming experience. Earl the Penguin delivers a similar 2.5D style gameplay, but uses shooting mechanics and difficult platforming to challenge and reward players.

Where does this game take place?

The game takes place at the New York City Aquarium. The game is traversing the different exhibits of the aquarium.

Feature Set

This section describes the features that make up the overall gameplay experience of Earl the Penguin.

Major Features

Ranged Combat

Earl picks up power-ups throughout the game that give him weapons. All power ups are used at range on enemies. Power-ups such as the snowball allow Earl to throw snowballs at enemies and hit them from a safe distance away from their attacks.

Obstacle Avoidance

Earl the Penguin builds of classic platforming using obstacle avoidance. Playing through the levels, players must avoid enemies, dangers in the environment and enemy weapons.

1. **Enemies:** Earl can avoid enemies by jumping over them. Earl's minimum jump can jump over enemies. The enemy will walk under Earl when he jumps, or he can jump over them.



Figure 1: Enemy Avoidance Concept

2. **Enemy Weapons:** The enemies can use their weapons to shoot at Earl. Earl can avoid these attacks by jumping over them or ducking under them. Earl can use the minimum jump to jump over enemy attacks. Ducking makes Earl's size 1 foot. Enemy Attacks are 1.2 feet high, allowing Earl to duck under them. The attacks take .2 seconds to pass by Earl.



Figure 2: Enemy Attack Avoidance Concept

3. **Environment:** Obstacles in the environment stop Earl from proceeding in the level. Earl must jump over these. Earl can jump over gaps to avoid falling to his death. Earl can also jump on objects in the environment to reach other areas.






Figure 3: Environment Concept

5 Unique Power-Ups

Earl can hit enemies with his flippers in the game. In levels Earl can find power-ups that give him a weapon, which can be used at range. Power-ups, when obtained are limited in quantity, but can be replenished by finding another power-up. Power-ups have no time limit, and cannot be carried over to the next level. Only one power-up can be equipped at once.

Table 1: Power-Ups

Power-Up	Description
 <p>Snowball</p>	<p>The Snowball is the most common weapon Earl finds. The Snowball is thrown in a lob the direction Earl is facing. The Snowball goes 5 feet in the air and 5 feet forward. One Snowball is needed to kill a basic enemy, two Snowballs are needed to kill a medium or hard enemy. Snowballs are picked up in quantities of 10, with a maximum of 30 at one time. Snowballs move at 5 feet per second.</p>
 <p>Icicle</p>	<p>The Icicle is a weapon not found until level three in the game. The icicle is thrown in a straight line and continues until it hits an enemy or object. On contact the icicle breaks. The Icicle moves at 3 feet per second. The Icicle kills an enemy on contact, but not bosses. Icicles count as 1 damage to a boss. Icicles are picked up in quantities of 10, with a maximum of 30 at one time.</p>
 <p>Fish</p>	<p>Fish are weaker than Snowballs and two are required to kill a basic enemy, four fish are required to kill medium enemy, and five fish are needed to kill a hard enemy. Fishes are picked up in quantities of 15 and have a maximum of 50. Fishes are thrown the direction Earl is facing and forward at 5 feet per second. Fishes travel for 10 feet before they fall to the ground on the 10th foot traveled. They disappear .2 seconds after hitting the ground.</p>



Water Gun

The Water Gun sprays water on the ground ten feet in front of Earl, the water then freezes and becomes ice. Earl can then slide by running and pressing the B button. While sliding the player can continue to spray water to keep sliding. While sliding Earl can kill enemies. Earl slides at 5 feet per second. When the ice ends Earl will slide for 3 feet and then stand up. While sliding Earl will kill enemies he comes into contact with. Earl can still be hit by attacks during the slide. Earl is 1 foot high and 2 feet wide during sliding. Water depletes at 1% per every .1 second held down. The Water Gun starts at 100% and when it reaches 0% Earl loses the weapon.



Tar Gun

The Tar Gun is the most powerful weapon in the game. The Tar Gun starts at 100% and depletes at 1% per .1 second. The Tar Gun shoots Tar in a straight line for 10 blocks. It kills all enemies that the tar hits, and slows all enemies walking through it by half of their speed.

Game Characters

Overview

Earl the Penguin has one playable character, Earl. The game features other characters such as the Alligator and the Seal who play a pivotal role in the direction the story takes, and who become allies or enemies depending on player choices.

Playable Character(s)

Overview

The main character of the game is Earl the Penguin. The player plays as Earl the entire game.

Main Character(s)

Earl the Penguin

Earl is the Don of the Penguin Mob in the Arctic Circle. While vacationing , Earl is attacked and wakes up in at the New York City aquarium. Determined to find his kidnapper and return to the Arctic, Earl attempts to leave the aquarium. Earl's default attack to hit enemies with his fins, but can find power-ups for different weapons such as snowballs to throw. Earl is 1 foot wide and 2 feet high. A complete list of Earl's abilities can be found in the Mechanics Section.



Figure 4: Earl Concept

Earl is the only playable character in the game.

Non-Playable Character(s)

Overview

The non-playable characters (NPC) are a mixture of other criminal organizations and the animals found inside the aquarium.

Mike the Seal

Mike is the Don of the Seal Mob. Mike has a fierce rivalry with Earl for control of the Arctic Circle. Mike is the final boss in the game. Mike swims underwater and pops up to shoot water at the player. Mike swims underwater for 2 seconds before emerging. Mike will stay above the water for 2 seconds, before going back under. Every time he emerges he has a 30% to shoot water at the player. Mike swims underwater 5 feet before popping. Mike is defeated by being hit with 5 attacks. Mike is 2 feet wide and 2 feet high.

**Figure 5:** Mike the Seal Concept

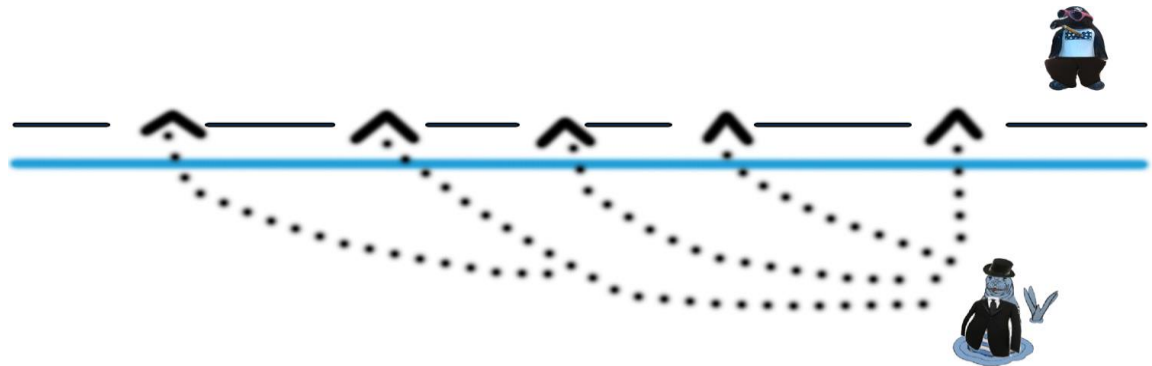


Figure 6: Mike Battle Concept

Carlos the Alligator

Carlos is the Don of the Alligator Mob. The Alligator Mob is located in the Gulf of Mexico and is trying to expand to the Arctic region. When fighting Carlos he runs at the player and tries to bite them. Carlos runs at 5 feet per second and runs into the wall if the player is not in the way. If Carlos makes contact with Earl he bites him, if he runs into the wall he is stunned for 1 second allowing the player to attack him. The player must jump over Carlos and get behind him to hit his tail. His tail can be hit by a ranged power-up attack or Earl's normal flipper attack. While jumping, if the player lands on Carlos's head Carlos will stop running and change direction. The player must hit his tail 5 times to defeat him. Every time his tail is hit he jumps and becomes more angry, increasing his running speed by 1 feet per second. Carlos is 2 feet wide and 3 feet high.



Figure 7: Carlos Concept

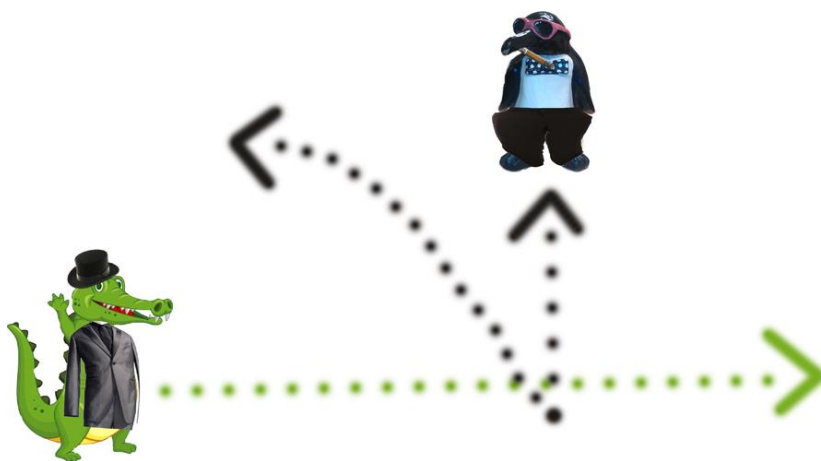


Figure 8: Carlos Battle Concept

Sid the Shark

Sid the Shark is the Don of the Shark Mob, which controls the NYC Aquarium. Sid tries to stop Earl from escaping the museum and is the first boss in the game. Sid tries to stop Earl by throwing Fish at him as he runs through the level. Earl must run through the level, evading enemies and obstacles in the environment to reach the shark tank. Sid swims underwater for 3 seconds, there are 2 set spots for Sid to emerge at. When Sid comes up he will throw 3 fish at the player, one fish per second. The fish are 1 foot high and 1 foot wide. The fish travel at 3 feet per second. Earl must use this chance to avoid the fish and shoot Sid. Sid must be hit 3 times to be defeated. Sid is 2 feet wide and 3 feet high.



Figure 9: Sid the Shark Concept

Juan the Pelican

Juan the Pelican is a small time criminal who has just made it big. The Pelican Gang is looking to expand beyond its borders of the Gulf of Mexico. Juan contacted Dom the Penguin to orchestrate the kidnapping of Earl. While in the NYC Aquarium Juan becomes friends with Earl to be rewarded for his friendship or betray Earl when the time is right.

Juan is the second boss in the game. Juan flies back and forth across the top of the screen 10 feet from the top. Juan moves at 5 blocks per second and throws bombs down at the player. Bombs are 1 feet wide and high and fall at 5 blocks per second. Bombs have a damage area of 3 feet wide and 2 feet high. Earl will have the icicle power-up for the fight and must dodge bombs and shoot at Juan. When Juan is hit he falls to the ground at 7 feet per second. When he is on the ground Earl hits him with his flippers. After Earl hits Juan 5 times he is defeated. Juan is 1 foot wide and 3 feet high.



Figure 10: Juan the Pelican Concept

Dom the Penguin

Dom the Penguin is a secret character that the player only encounters in ending number 4. Dom is the mastermind behind the kidnapping of Earl and wants to lead the family. Dom is only seen in the final scene of the game when Earl returns home. Earl Confronts Dom and the game ends setting things up for the sequel. Dom is 1 feet wide and high.



Figure 11: Dom the Penguin Concept

Enemy Character(s)

Overview

Enemy characters in the game are based off of the Seal Mob and Alligator Gang. Enemies range from four difficulties.

- **Basic** — Basic enemies are the easiest in the game. Basic enemies move at a rate of 3 blocks per second and move left to right, in a set pattern, turning around at objects and cliffs. Basic enemies require 1 hit from Earl's flipper to be killed.
- **Medium** — Medium enemies walk at 3 feet per second and will move towards Earl. If Earl jumps over a medium enemy, the enemy will turn around and follow him until the enemy is off screen. Medium enemies can jump 5 feet in the air to reach platforms to follow the player. Medium enemies require 3 hits from Earl's flipper to be killed.
- **Hard** — Hard enemies move at a rate of 5 feet per second and jump 5 feet in the air. Hard enemies will follow Earl even if they are off screen. Hard enemies are killed with 5 hits from Earl's flippers.

Seal Mob Grunt

Seal Mob Grunt (**SMG**) is a basic enemy. SMG moves left to right and attacks the player by rolling snowballs at them. Snowballs are 2 feet high and wide (small) or 3 feet high and wide (Big). Every snowball has a 70% chance to be a small snowball and a 30% chance to be a big snowball. Snowballs move at 3 feet per second and Earl must jump over them. If the snowball is on ice it moves at 5 feet per second.

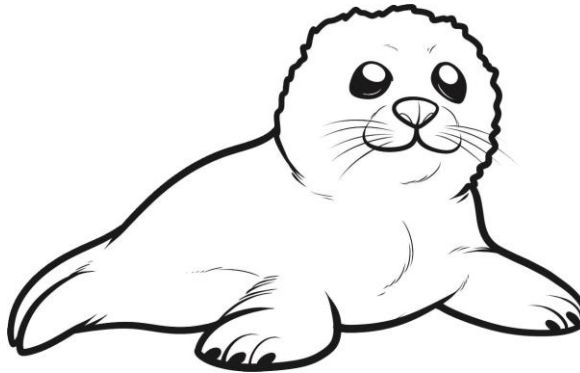


Figure 12: Seal Mob Grunt Concept

Seal Mob UnderBoss

Seal Mob UnderBoss (**SMU**) is a medium enemy. SMU will follow the player when the player is within 5 feet. SMU attacks by flipping snow at Earl. SMU has a 30% chance to flip snow every 2 seconds. Snow is flipped 2 feet into the air and travels 5 feet, at a rate of 5 feet per second. Snow is 3 blocks wide and 1 block high.



Figure 13: Seal Mob UnderBoss Concept

Alligator Gang Grunt

Alligator Gang Grunt (**AGG**) is a medium enemy. AGG will follow the player when they are within 5 feet. AGG attacks by spitting at Earl. AGG has a 50% chance to attack every 3 seconds. The spit is 2 blocks long and 1 block high. It moves at 5 feet per second.



Figure 14: Alligator Gang Grunt Concept

Alligator Gang UnderBoss

Alligator Gang UnderBoss (**AGU**) is a hard enemy. AGU will follow the player when they are within 8 feet. Every 3 seconds AGU has a 40% chance to do a ranged attack if they are not within 3 feet of the player. The ranged attack is them throwing their briefcase at Earl. The briefcase is 1 foot high and wide. It moves at 5 blocks per second. AGU has unlimited briefcases. When AGU is within 3 feet of the player they do a melee attack. The melee attack is to hit Earl with their briefcase. The briefcase can hit Earl if he is within 2 feet of AGU. The animation to swing the brief case takes .5 seconds. The animation consists of AGU putting their hand back and then swinging it over their head at the player.



Figure 15: Alligator Gang Underboss Concept

Camera

Earl is 1 foot wide and 2 feet high.

Overview

The camera in Earl the Penguin is a side scrolling camera that locks to player locations in the game world and scrolls side to side to move along with the player.

Right Direction Camera

The Right Direction Camera follows Earl when he is moving right. The camera keeps a minimum distance of 10 feet between Earl and the left side of the screen, and moves when Earl reaches 10 feet from the right side. Earl can move for 30 feet before the camera moves. The camera does not move up or down, it is static along the Y axis.

Table 2: Right Direction Camera

Camera Example	Description
1	Minimum distance between Earl and left side of screen. 10 Feet
2	Distance Earl can run freely before camera moves 30 Feet

3	Minimum distance between Earl and right side of screen. 10 Feet
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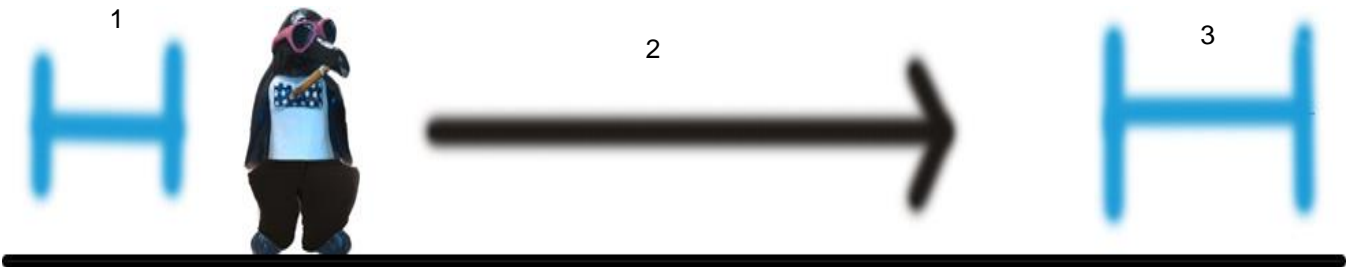


Figure 16: Right Direction Camera Example

Left Direction Camera

The Left Direction Camera follows Earl when he is moving Left. The camera keeps a minimum distance of 10 feet between Earl and the right side of the screen, and moves when Earl reaches 10 feet from the left side. Earl can move for 30 feet before the camera moves. The camera does not move up or down, it is static along the Y axis.

Table 3: Left Direction Camera

Camera Example	Description
1	Minimum distance between Earl and left side of screen. 10 Feet
2	Distance Earl can run freely before camera moves 30 Feet
3	Minimum distance between Earl and right side of screen. 10 Feet

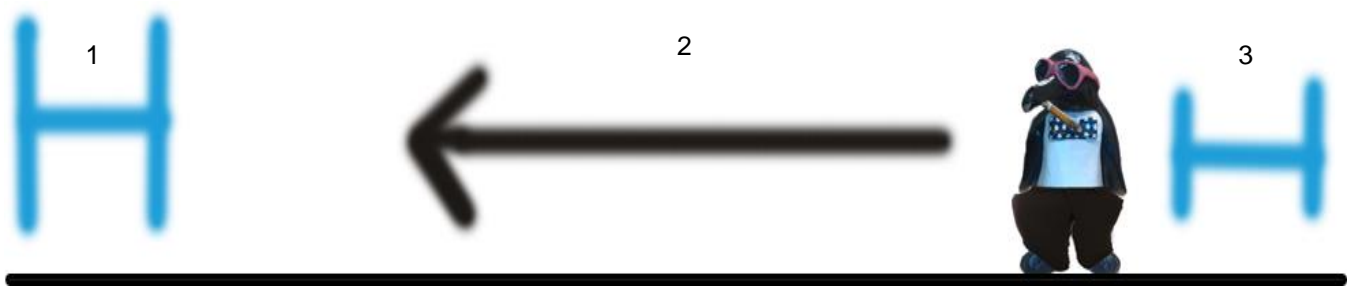


Figure 17: Left Direction Camera Concept

Snapping Camera

The Snapping Camera snaps to platforms when Earl jumps on them, along with using the minimum 10 feet on both sides of the screen. The Snapping Camera can move on both the X and Y axis. When Earl jumps on a platform 10 Feet off the ground, the camera snaps, making the bottom of the screen just underneath the platform. The camera will snap a maximum of 2 times. When a player jumps off a platform and there is not platform under them, when they hit 3 feet from the ground, the camera will move down at the same rate the player falls 5 feet per second. When a player hits the ground, or 0 feet, the camera reverts back to the Right Direction or Left Direction Camera.

Table 4: Snapping Camera

Camera Example	Description
1	The ground is 0 feet high in the game
2	The camera will snap to this platform 10 feet from the ground
3	The camera will snap to this platform, 20 feet, but never higher than this point

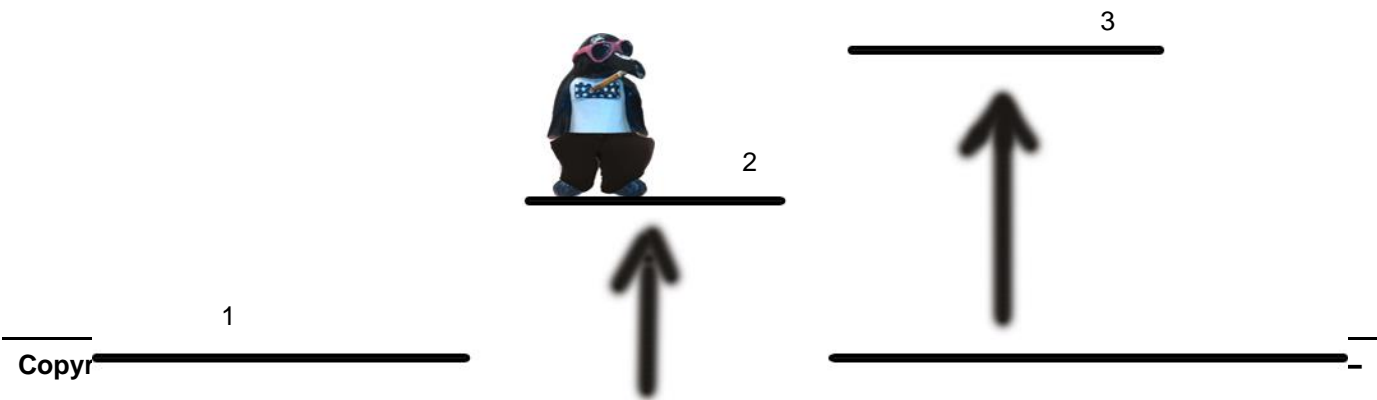


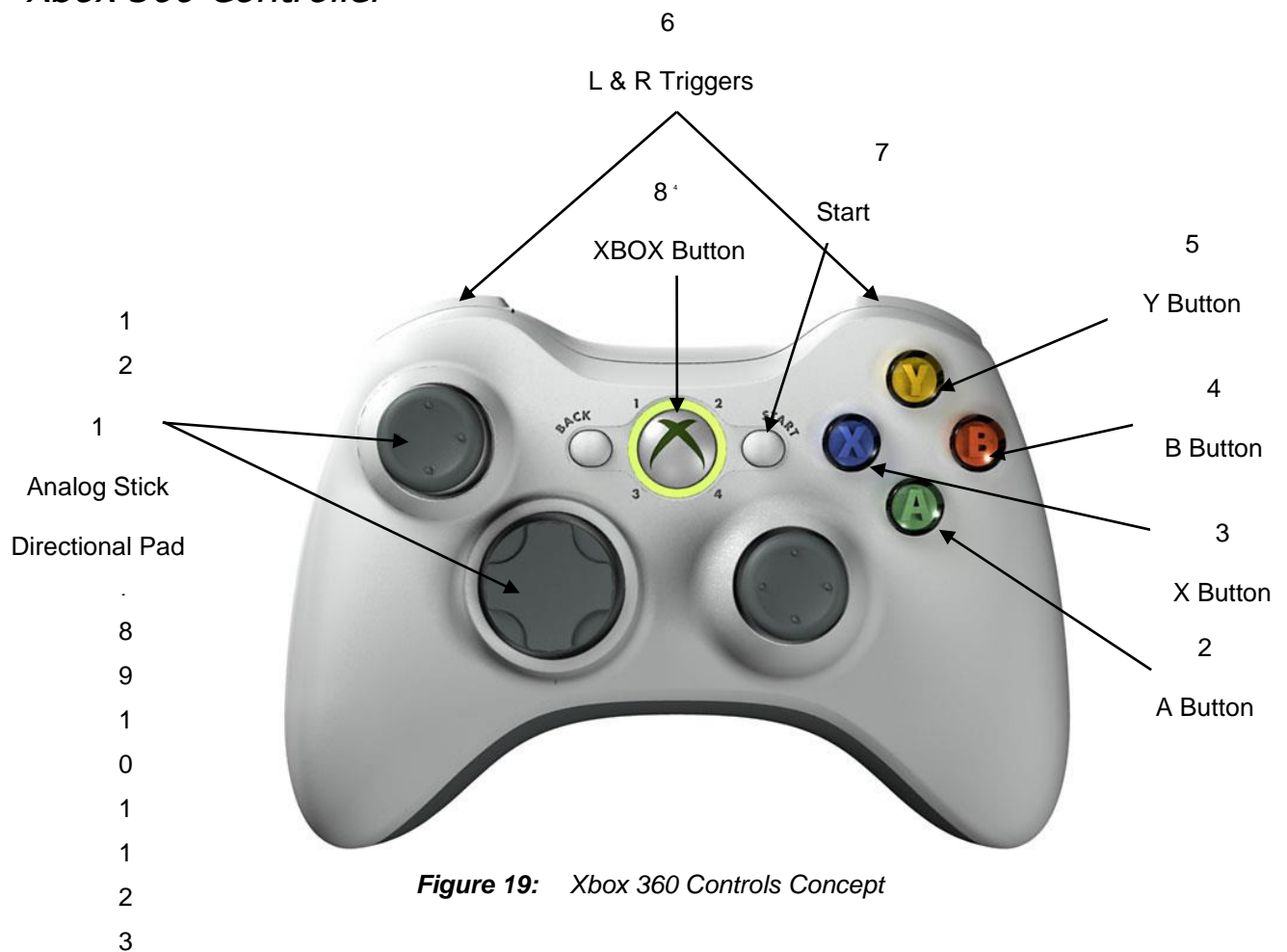
Figure 18: Snapping Camera Example

Controls

Overview

The controls for the Earl the Penguin are plotted to an Xbox 360 controller utilizing 8 buttons and allowing maximum comfort when playing.

Xbox 360 Controller



The button layout is explained by the corresponding number:

1. The analog stick or the directional pad moves the player throughout the game. Pushing the analog stick forward slightly causes Earl to walk, and pushing the analog stick all the way in any direction causes Earl to run. The directional pad does not have this

functionality. Pressing the Analog Stick down, or the Directional Pad down makes Earl duck. Earl runs at 5 blocks per second and walks at 3 blocks per second.

2. The A button is the jump button. Pushing the A button Earl will jump 3 feet in the air (minimum jump). Holding the A button Earl can jump a maximum of 6 feet in the air. The button must be held down for .5 seconds to complete the maximum jump. Releasing the button anytime in between the press and .5 seconds will determine the height of Earl's jump.
3. The X button is the harass button. When the X button is pressed Earl yells a sentence, like his catch phrase, you think you are a warrior?
4. The B button is the interact button. Interacting is talking to NPC's and opening doors. While running, with water on the ground, pressing the B button makes Earl slide on the ground until the end of the water.
5. The Y button is to switch weapons. Pressing the Y button cycles through the weapons Earl currently has. If Earl only has the default weapon of his flippers to hit enemies with, a small chime plays to tell the player Earl has no other weapons.
6. The L and R buttons are the shoot buttons. Both L and R make Earl shoot. Earl does not dual wield, the player is given a choice of which button they want to use to shoot. Pressing them both at the same time does not make Earl shoot two times. Earl will shoot once, just as he does when either L or R is pushed solely. If Earl does not have a power-up the L and R buttons make him hit enemies with his flippers.
7. The START button is the pause button. Pausing the game brings up the menu and the player can exit the pause menu by pressing START a second time or by selecting to return to the game.
8. The XBOX button brings up the Xbox 360 menu screen.

Gameplay Details

Overview

This section describes the gameplay and mechanics found in *Earl The Penguin*, and contains topics describing the mechanics, how they are used, and their implementation into the game.

Mechanics

Movement

Earl moves at in three different speeds, walking speed, mid speed and run speed. Walking speed is when the analog stick is moved between 1%-75% to left or right. Walking speed is 3 feet per second. Mid speed is a transition between walking and run speed. When the analog stick is pushed 76% or more in the left or right direction Earl will enter a transition stage with his movement. For .2 seconds Earl move in walking speed. For the next .3 seconds Earl will move at mid speed which is 4 feet per second. After these two phases (.5 seconds), Earl will enter run speed. Run speed is 5 feet per second.

While in walking speed Earl will stop immediately if the analog stick is no longer held in the right or left direction. If Earl is in mid speed he will travel an additional foot when the analog stick is no longer held. An animation of Earl stopping will play and last for .2 seconds. In run speed Earl will travel an additional 3 feet before stopping and an animation of Earl stopping will play for .5 seconds.

IF Earl turns around the same rules apply while stopping. If Earl is walking he will turn around instantly and start moving the other way. The animation of Earl turning around is .2 seconds. If Earl is in mid speed he will travel an additional block and turn around. The animation is .2 seconds and is in sync with the .2 seconds of Earl sliding. While running Earl will travel 3 blocks before stopping and turn around which takes .2 seconds. Earl will turn around while sliding and be facing the other direction before the animation is over because turning around takes .2 and stopping takes .5.

Jumping

Earl takes no fall damage. Earl can fall from any height.

Earl jumps when the A button is pressed. Earl will jump 3 feet into the air if the player presses the button. If the button is held Earl will jump 6 feet into the air. The button can be held down for a maximum of .5 seconds, if the button is released Earl will stop moving up and start falling. Earls jumping and falling speed are determined by his current moving speed. If Earl is not moving jumping and falling are 3 feet per second. The height of Earls jump is determined by the length of the press. The height remains constant, the distance changes based on move speed.

- Walking Speed & Mid Speed

1. While in walking and mid speed Earl jumps and falls at 3 feet per second. While walking Earl can jump and move in a direction. While jumping and in walking speed Earl moves two feet forward on a minimum jump. If the jump button is held down up to .5 seconds Earl jumps up to 3 feet forward.

- Running Speed

- While in run speed Earl jumps and falls at 5 feet per second. A minimum jump in run speed makes Earl move 3 feet forward. When the jump button is held down longer Earl can move up to 6 feet forward.

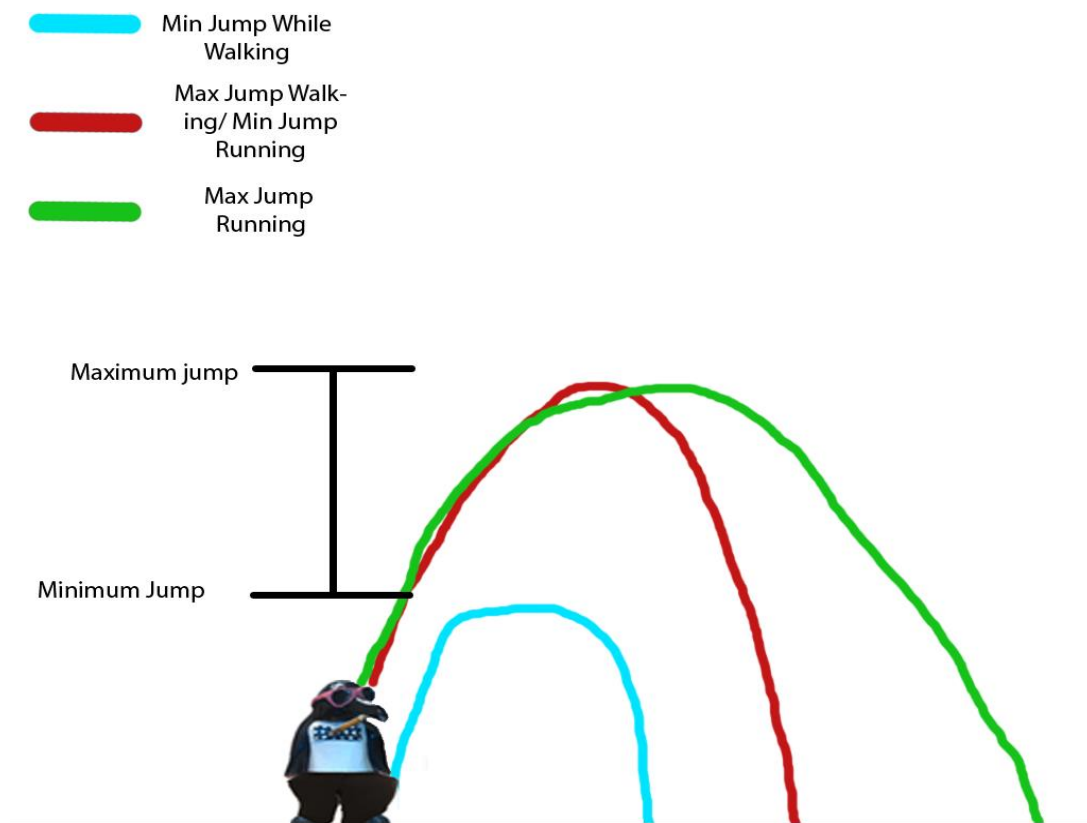


Figure 20: Earl Jumping Concept

Shooting

All shooting in Earl the penguin follows the same mechanic. Earl will be holding the weapon. There is no reticule used for aiming. Earl will shoot in the direction he is facing. There is an animation specific to each weapon, but they are all .2 seconds long. The time does not change, only the animation. Earl can shoot every .5 seconds. If Earl fires three times and all of the bullets are on screen, then Earl cannot fire until one bullet is off screen. Only 3 bullets on screen at a time.

Melee Combat

If Earl is not in possession of a weapon he can hit enemies with his flippers. Earl can hit enemies within 1 foot of him. Earl swings his flippers in an animation that takes .2 seconds. Melee attacks knock an enemy back 3 feet. The enemy will become stunned for 2 seconds. Stars will appear around the enemies head and they will look dizzy. A basic enemy needs to be hit 3 times to be defeated, a medium enemy 4 and a hard enemy 6 times. During boss fights Earl will always have a weapon and not be able to use melee combat.

Jumping has the same radius with melee combat. Earl will be able to attack one foot ahead of him. If Earl attacks while jumping he will stay in the same place in the air and attack, before beginning to fall. Earl stays in the air the length of the animation, .2 seconds.

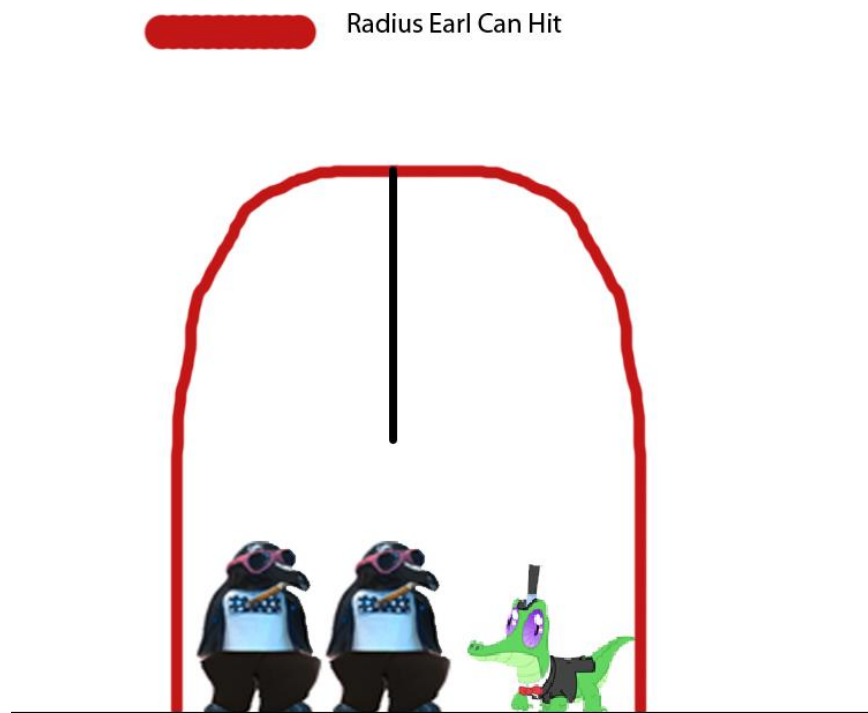







Figure 21: Earl Melee Attack Range

Weapons

Earl can have only one power-up at a time. If Earl currently has a power-up and touches another one, he will gain the new power-up and lose the old one.

Table 5: Power-Ups

Power-Up	Description
 <p>Snowball</p>	<p>The Snowball is the most common weapon Earl finds. The Snowball is thrown in a lob the direction Earl is facing. The Snowball goes 5 feet in the air and 5 feet forward. One Snowball is needed to kill a basic enemy, two Snowballs are needed to kill a medium or hard enemy.</p> <p>Snowballs are picked up in quantities of 10, with a maximum of 30 at one time. Snowballs move at 5 feet per second.</p>
 <p>Icicle</p>	<p>The Icicle is a weapon not found until level three in the game. The icicle is thrown in a straight line and continues until it hits an enemy or object. On contact the icicle breaks.</p> <p>The Icicle moves at 3 feet per second. The Icicle kills an enemy on contact, but not bosses. Icicles count as 1 damage to a boss. Icicles are picked up in quantities of 10, with a maximum of 30 at one time.</p>
 <p>Fish</p>	<p>Fish are weaker than Snowballs and two are required to kill a basic enemy, four fish are required to kill medium enemy, and five fish are needed to kill a hard enemy. Fishes are picked up in quantities of 15 and have a maximum of 50. Fishes are thrown the direction Earl is facing and forward at 5 feet per second. Fishes travel for 10 feet before they fall to the ground on the 10th foot traveled. They disappear .2</p>

	seconds after hitting the ground.
 <p>Water Gun</p>	<p>The Water Gun sprays water on the ground ten feet in front of Earl, the water then freezes and becomes ice. Earl can then slide by running and pressing the B button. While sliding the player can continue to spray water to keep sliding. While sliding Earl can kill enemies. Earl slides at 5 feet per second. When the ice ends Earl will slide for 3 feet and then stand up. While sliding Earl will kill enemies he comes into contact with. Earl can still be hit by attacks during the slide. Earl is 1 foot high and 2 feet wide during sliding. Water depletes at 1% per every .1 second held down. The Water Gun starts at 100% and when it reaches 0% Earl loses the weapon.</p>
 <p>Tar Gun</p>	<p>The Tar Gun is the most powerful weapon in the game. The Tar Gun starts at 100% and depletes at 1% per .1 second. The Tar Gun shoots Tar in a straight line for 10 blocks. It kills all enemies that the tar hits, and slows all enemies walking through it by half of their speed.</p>

AI

The AI in Earl the Penguin is very basic. Enemies move in paths and then move towards the player when the player moves in front of them. The enemies will then attack the player or follow them and attempt to attack them. Enemies jump and fall at 3 feet per second.

If Earl jumps on or touches an enemy he will take 1 point of damage. After taking damage Earl's character model will blink for .1 second. This is for players to know they took damage and to give them time to move away from the damage. Earl can still damage enemies during this animation.

AI Details

Basic

- Basic enemies are the easiest in the game. Basic enemies move at a rate of 3 blocks per second and move left to right, in a set pattern, turning around at objects and cliffs. Turning around takes .2 seconds. Basic enemies require 2 hit from Earl's flipper to be killed.
- Basic enemies will attack Earl when he is 3 blocks in front of them. Basic enemies will stop trying to attack Earl if he jumps over them or jumps above to a platform out of their view. Basic enemies can only see 3 feet in front of them.

Medium

- Medium enemies walk at 3 feet per second and will move towards Earl. If Earl jumps over a medium enemy, the enemy will turn around and follow him until the enemy is off screen. Medium enemies can jump 5 feet in the air to reach platforms to follow the player. Medium enemies require 4 hits from Earl's flipper to be killed. When an enemy is off screen they are no longer rendered. If the player goes back in the level, the enemy is rendered in its original position.
- Medium enemies will move towards Earl once he is within 10 feet of them and on the same level on the Y axis. If Earl is above or below a medium enemy they will not see him. Medium enemies that detect Earl will move towards him. Medium enemies jump 1 foot before obstacles in their path and over gaps in a level. Medium enemies jump over other enemies 1 foot before making contact with them. If two medium enemies are moving toward each other, the one closer to Earl jumps over the farther away.

Hard

- Hard enemies move at a rate of 5 feet per second and jump 5 feet in the air. Hard enemies will follow Earl around the screen. The camera will become locked until the hard enemy is defeated. Hard enemies are killed with 6 hits from Earl's flippers.
- Hard enemies can see 20 feet in front of them. Hard enemies can see 5 feet up and down. This means Earl can be detected above or below a hard enemy. Hard enemies jump over obstacles and gaps in the level 1 foot before them. Hard enemies have priority over medium

enemies and will jump over them 2 feet before making contact. This stops the two enemies from colliding. If two hard enemies are moving towards Earl the one closer to Earl jumps over the second one.

Enemy Vision

- **Basic:** 3 feet
- **Medium:** 10 Feet
- **Hard:** 20 Feet

Enemy Vision

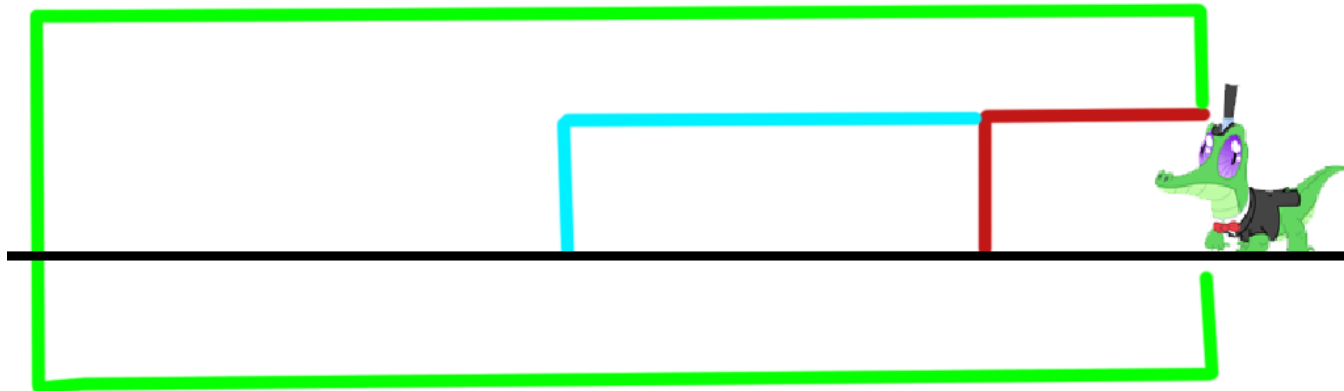
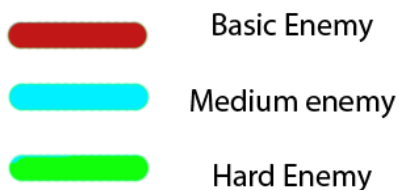


Figure 22: Enemy Vision Example

Death and Respawn Mechanics Details

- In Earl the Penguin players have 3 hit points. Every enemy in the game, including bosses do 1 point of damage, a player can be hit 3 times per level, there are no recovery items. If the player takes 3 points of damage an animation of Earl dying plays for .5 seconds. The screen then turns black and the a menu pops asking the player if they want to play the level again, select a new level or quit. There are no lives in the game.

- The player takes damage by touching enemies or getting hit with their attacks. When the player dies and they choose to restart the level, they have to redo the entire level. There are no checkpoints.

Game Modes Overview

Earl the Penguin has one game mode, the single-player campaign. The single-player campaign consists of Earl trying to escape the Aquarium and return home.

Single-Player Game

The single-player game is Earl traversing the aquarium to escape. The 5 levels in the game become progressively challenging by introducing harder enemies and more complex levels.

Story

Earl the Penguin was kidnapped while he was vacationing. Earl wants to get revenge on the culprit of his kidnapping and attempts to escape the New York City aquarium.

- Earl breaks out of the Penguin Exhibit. (Level 1)
- Earl goes through the Pelican Exhibit to find someone who can tell him who runs the aquarium. He finds Juan the Pelican and fights him, revealing Sid the Shark is in charge. (Level 2 & Boss Fight 1)
- Earl fights his way through the Shark Exhibit to find Sid and confront him about who brought him here. Sid tells Earl it was Carlos the Alligator. (Level 3 & Boss Fight 2)
- Earl confronts Carlos and forces him to explain why he kidnapped Earl. Carlos tells him Mike the Seal paid him to do it. (Level 4 & Boss Fight 3)
- Earl goes to the Seal Exhibit to fight Mike, and then escape the aquarium. (Level 5 & Boss Fight 4)

Story Breakdown

The story unfolds in 5 levels. Each level reveals a little more of the story to Earl and the player, by going through different aquarium exhibits and introducing new characters. The player has no interaction with the direction of the story, it is a linear game.

Single Player Progression

Before each level a small screen is displayed showing the area of the aquarium the level takes place. A brief description of the story from the previous level under the picture. The player can always go back to earlier levels or continue with the story.

Increased Enemies & Harder Enemies

Each level increases the number or difficulty of enemies. Adding more enemies into the level make it more of a challenge for the player. Adding harder enemies to the level allows the number of enemies to be scaled back, while increasing the challenge to the player. This happens by adding enemies to the level or placing stronger enemies into the level.

More Difficult Platforming

As the player progresses the platforming challenge increases slowly over the first three levels. The fourth and fifth level drastically increase the platforming challenge to test the player on the ability they have been mastering throughout the game.

Harder Boss Battles

The boss battles starting after level two are used to test the players platforming and combat abilities. The boss battles start easy with the Pelican Boss testing basic platforming. The Shark Boss tests platforming again and increases the combat difficulty. The Alligator Boss focuses more on combat and less on platforming. The Alligator Boss is used to prepare the player for the Seal Boss. The Seal Boss mixes platforming and combat into the hardest level in the game. The player will already have solid platforming skills from the first two bosses and 4 levels. The Alligator boss pushes the player to develop their combat skills to maximum potential.

Single-Player Time Projections

Earl the Penguin's single player campaign is projected to last 33 - 49 minutes.

Table 6: Level Time Projections

Level	Time Projection
Level 1	• 3-4 Minutes
Level 2	• 3-4 Minutes
Juan Boss Fight	• 3-5 Minutes
Level 3	• 4-6 Minutes
Sid Boss Fight	• 3-5 Minutes

Level	Time Projection
Level 4	• 5-7 Minutes
Carlos Boss fight	• 3-5 Minutes
Level 5	• 5-7 Minutes
Mike Boss Fight	• 4-6 Minutes

Single-Player Beat Chart

The single player mode is designed to have a steep difficulty curve and maintain a high intensity level, throughout the game. The intensity starts low, but builds quickly, surpassing the difficulty, to make easier parts of the game seem more difficult. The difficulty of the game increases quickly, but stays below the intensity, until the end of the game. The difficulty and intensity are designed this way to challenge the player's skill throughout the game, and force players to improve their abilities to progress.

A 1 on the beat chart for difficulty means the level is very easy with no challenge to the players. A 5 on for difficulty means the level poses a decent challenge for the player, but can be accomplished without perfecting the mechanics of the game. A 10 for difficulty means the level requires the player to have mastered the mechanics of the game, and be able to adapt to any challenges presented.

A 1 for intensity on the beat chart means the level feels easy. The level can be difficult, but the level will feel easy. Example: The level could have difficult platforming, but take place over water that the player does not die if they fall into. The level itself is difficult, but the player does not worry about death, making the level feel easy. A 5 for intensity means the level provides a feeling of challenge to the player, even if the level itself is not challenging. For example, the level could take place above a shark tank, with a lot of platforming. The enemies in the level could be very easy and avoidable. This causes the player to believe there is a challenge, when there isn't one. A 10 for intensity means the level feels difficult, even if it is very easy. Example: The level has simple platforming and jumping, but takes place inside a volcano and the lava is rising. The lava is rising causing the player to have to react quickly, but the level is easy. This gives the player the illusion the level is difficult.

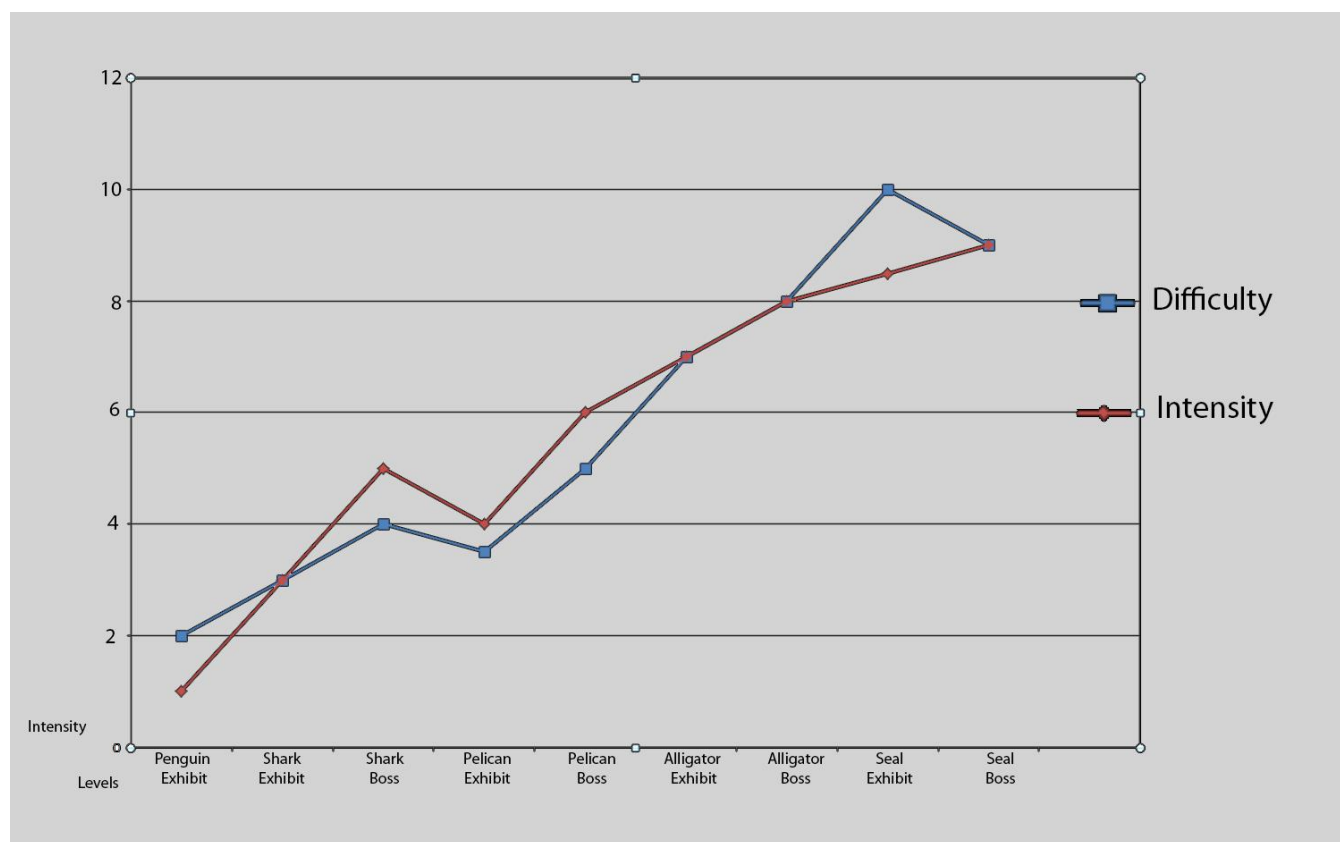


Figure 23: Beat Chart for Single Player Campaign

Victory Conditions

Levels in the Earl the Penguin have one victory condition. There are two types of levels. The two types are regular levels and boss fights.

Regular Levels

Regular levels in Earl the Penguin victory condition is reaching the end. To complete regular levels, players must survive until the end of the level. All regular levels end with a door that has Earl on it. When players touch the door, it triggers a 1 second animation of Earl walking into the door and the level ends.

Boss Fights

Boss fights in Earl the penguin have the victory of defeating the boss. Defeating the boss ends the level.

Game World

Overview

The game world takes place inside the New York City Aquarium. Levels range from humid environments with exotic plant life, to jumping over the shark tank to avoid falling to certain death. The 5 levels follow a constant theme of aquatic environments and animals.

The following pictures provide a real life look of the aquarium. These are reference images, not the art style.



Figure 24: Game World Reference Image 1



Figure 25: Game World Reference Image 2



Figure 26: Game World Reference Image 3

New York City Aquarium

Overview

This topic provides a description the key components of the world including scale, time of day, travel, weather. More details for each “stage” of the world are provided in the following sections.

Scale

There is no over world in Earl the Penguin, just level select screens. The levels in Earl the Penguin are 300 feet long and 40 feet high. All the levels are the same length and width, but the intensity is increased in each level by the enemies and obstacles presented to the player. Earl is 1 foot wide and 2 feet high.

Weather

The weather never changes in Earl the Penguin. The levels all take place indoors and weather is not an issue in the game. When the outside world is shown in the beginning of the game, during cut scenes and later in the game, through windows in levels. The sky appears blue and it is very sunny. The time of year is August and it is easily recognizable through the clear day and bright sky.

Time of Day

The time of day during the game is mid-day, 2 P.M. Every time the player sees outside of the aquarium, the world will appear very warm and bright.

The following image is used to show time of day and weather. The image is just a reference and not an art style.



Figure 27: Time of Day and Weather Reference Image 1

Travel

Earl travels the world by walking and running. The player does not travel outside of levels, and are placed at the start of them. In levels players can walk and run, but have no other methods of transportation.

Levels

Overview

The levels in Earl the Penguin all take place inside the New York City Aquarium. The levels represent different exhibits inside the aquarium.

Level Breakdown

The stages are based off different exhibits inside the aquarium.

Table 7: Level Breakdown

Stage	Level Description
Penguin Exhibit	<ul style="list-style-type: none">This stage takes place inside the penguin exhibit and is made to have a cold feel. The background is ice and snow with water underneath level for the player to fall into if they miss a jump.
Shark Exhibit	<ul style="list-style-type: none">The second level takes place over a shark tank. Sharks can be seen swimming underneath the platforms, but are not NPC's or have any function then swimming back and forth. The level is made to give a feeling of suspense.
Pelican Exhibit	<ul style="list-style-type: none">The Pelican Exhibit gives a warm feeling with sand as the platforms. Water is used to create gaps for the player to jump over. The walls in the background are painted with trees and the ocean.
Alligator Exhibit	<ul style="list-style-type: none">The Alligator Exhibit is a swamp. The area has green water with alligators swimming through it. The background has a thick overgrowth of trees.
Seal Exhibit	<ul style="list-style-type: none">The Seal Exhibit is very cold. The platforms are ice and under them is water. The platforms here are smaller to test the players jumping ability they improved throughout the game.

Level Progression

Overview

Level progression is very linear. The player moves from left to right across the screen trying to reach the end of the level. Individual beat charts can be found under levels.

Level Completion

Levels are completed when the position of the reaches 300 feet the player will reach the end of the level. Boss levels are completed when the player defeats the boss. Boss Levels come after levels, starting at level 2.

The goal is represented by the green Earl with the black outline.

Regular Levels

Levels are represented going left to right in the following pictures. The areas are labeled 1, 2 & 3. These numbers represent the first, middle and last sections of the level. In the game, the level would be loaded on one screen, with the camera scrolling. The levels are connected in the game and in a straight line, due to the page not being wide enough to display them, they cut into 3 sections.

Legend:

- **Earl** is represented by his concept picture
- **Enemies** are represented by their concept pictures
- **Power-ups** are represented by their concept pictures
- **Bosses** are represented by their concept pictures

Level 1 – Penguin Exhibit

The first level is used to introduce the player to the jumping and movement in the game. The snowball power up is placed in the center of the level to get the player familiar with power up usage. The end of the level has a small challenging in jumping to force the player to use the skill they developed throughout the level.

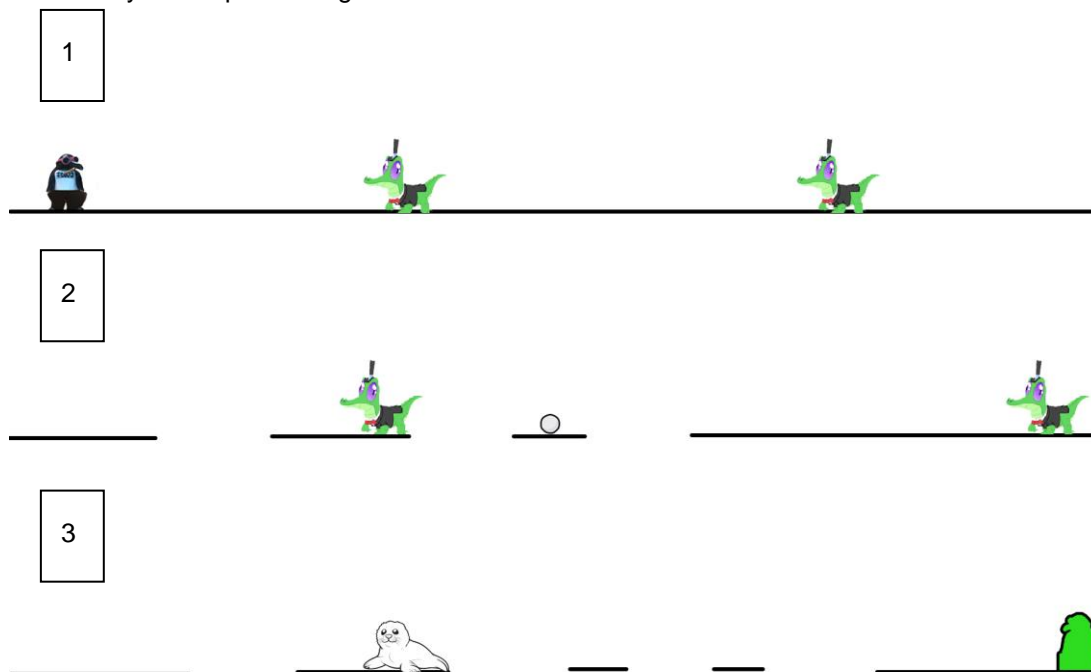


Figure 28: Level 1 Concept

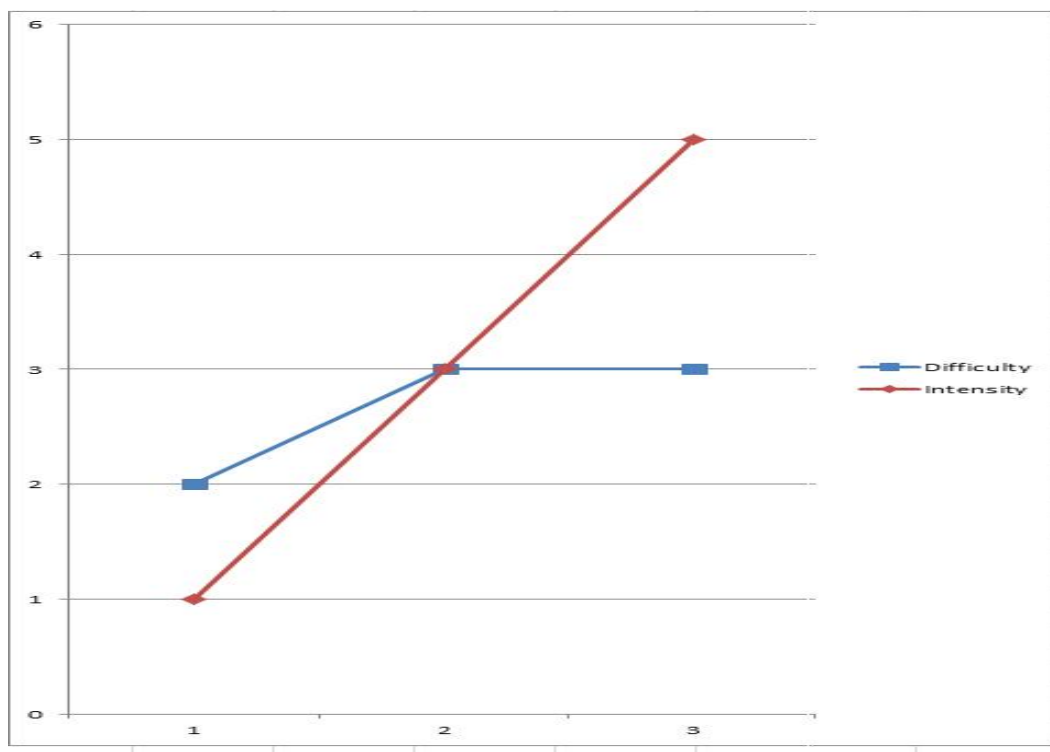


Figure 29: Level 1 Beat Chart

Level 2 – Shark Exhibit

The second level builds off the jumping ability the player used in the first level and creates more gaps for the player to jump over. A new power up is introduced, the fish, and a new enemy. The second level focuses more on combat while keeping the player using the jumping ability.

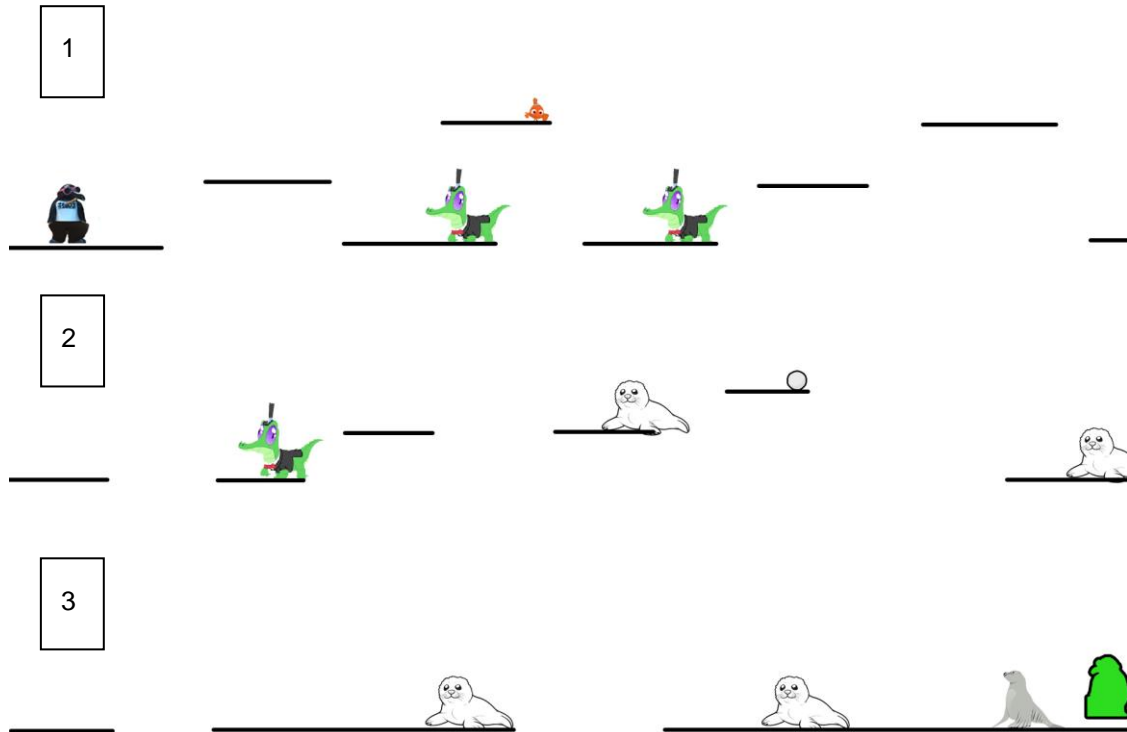


Figure 30: Level 2 Concept

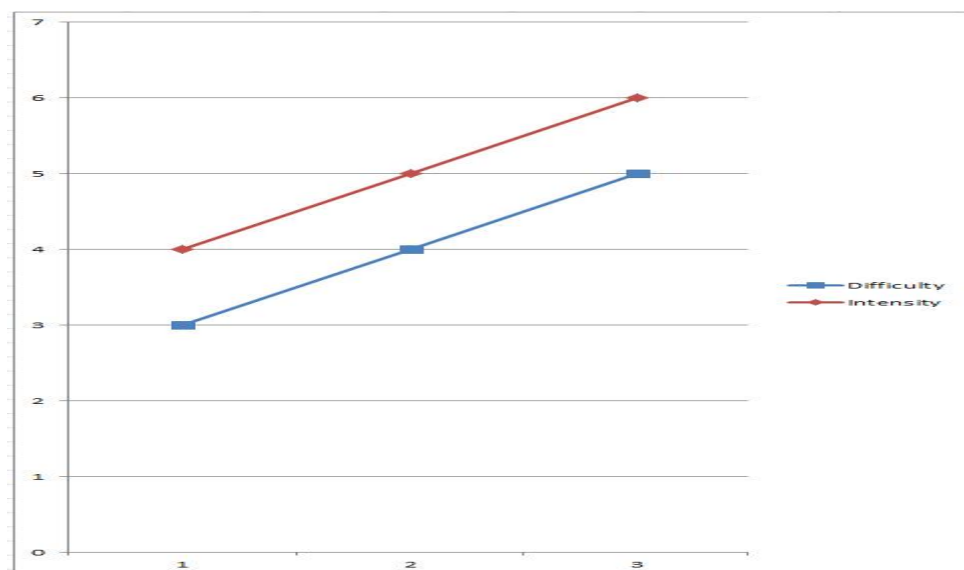


Figure 31: Level 2 Beat Chart

Level 3 – Pelican Exhibit

Level 3 adds new enemies and increases the challenges with jumping. Level 3 contains two medium enemies and introduces the player to hard enemies and the icicle power up. The Pelican Exhibit is used to prepare the players for the jump in difficulty over the next two levels.

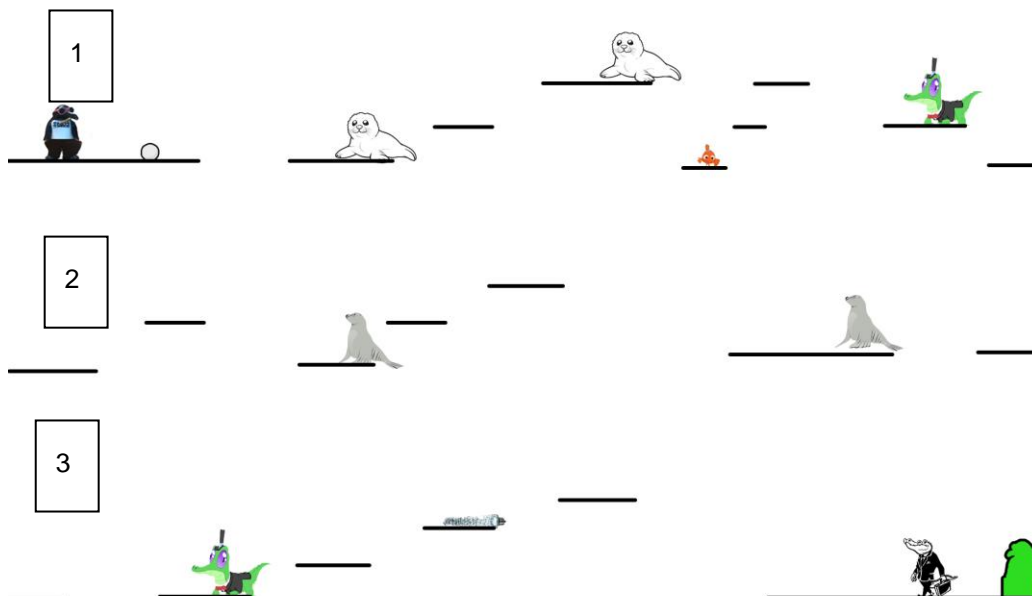


Figure 32: Level 3 Concept

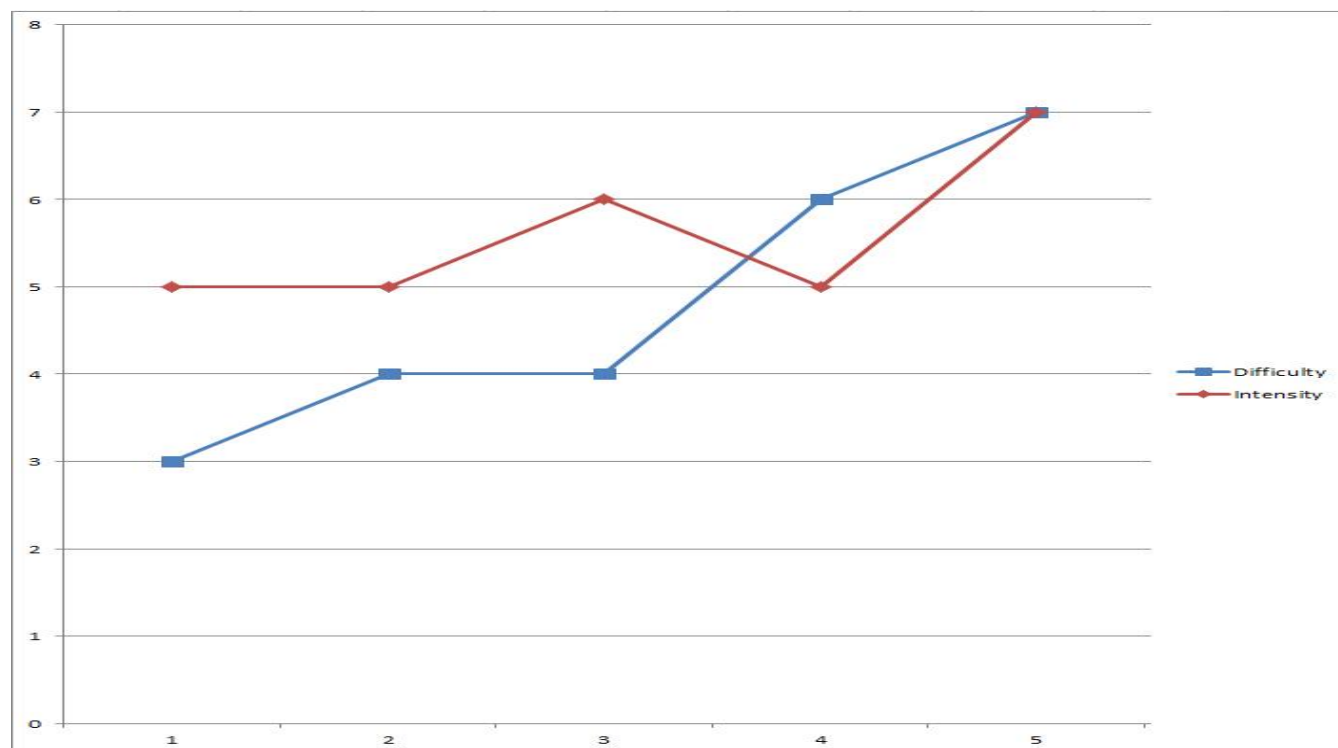


Figure 33: Level 3 Beat Chart

Level 4 – Alligator Exhibit

The fourth level is the transition to the ending part of the game. The fourth level has a significant difficulty increase over the third level. The Alligator Exhibit forces the player to fight double the amount of enemies as the Pelican Exhibit, but tones down the platforming difficulty to allow the player to adjust to the flurry of new enemies.

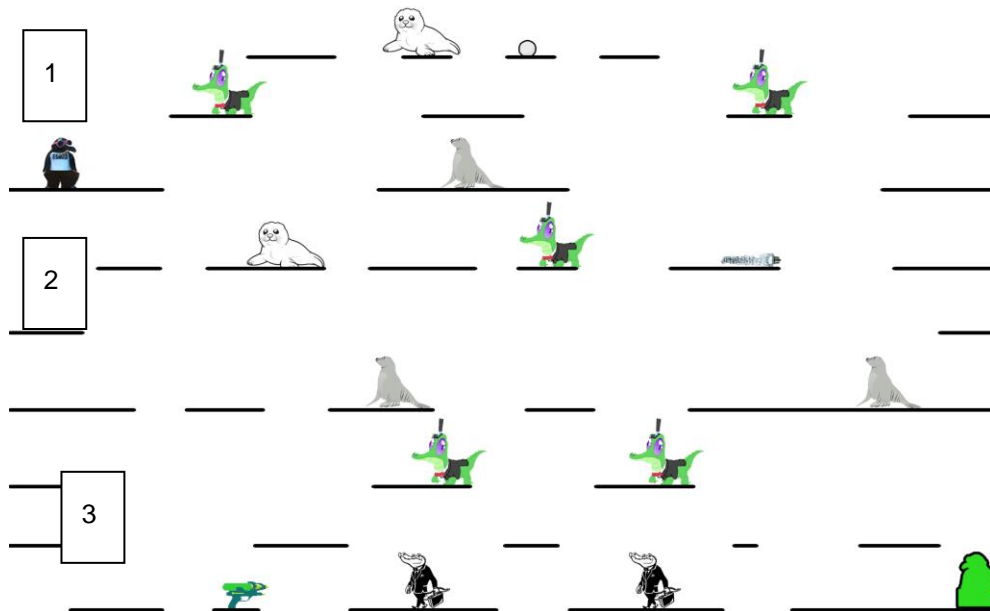


Figure 34: Level 4 Concept

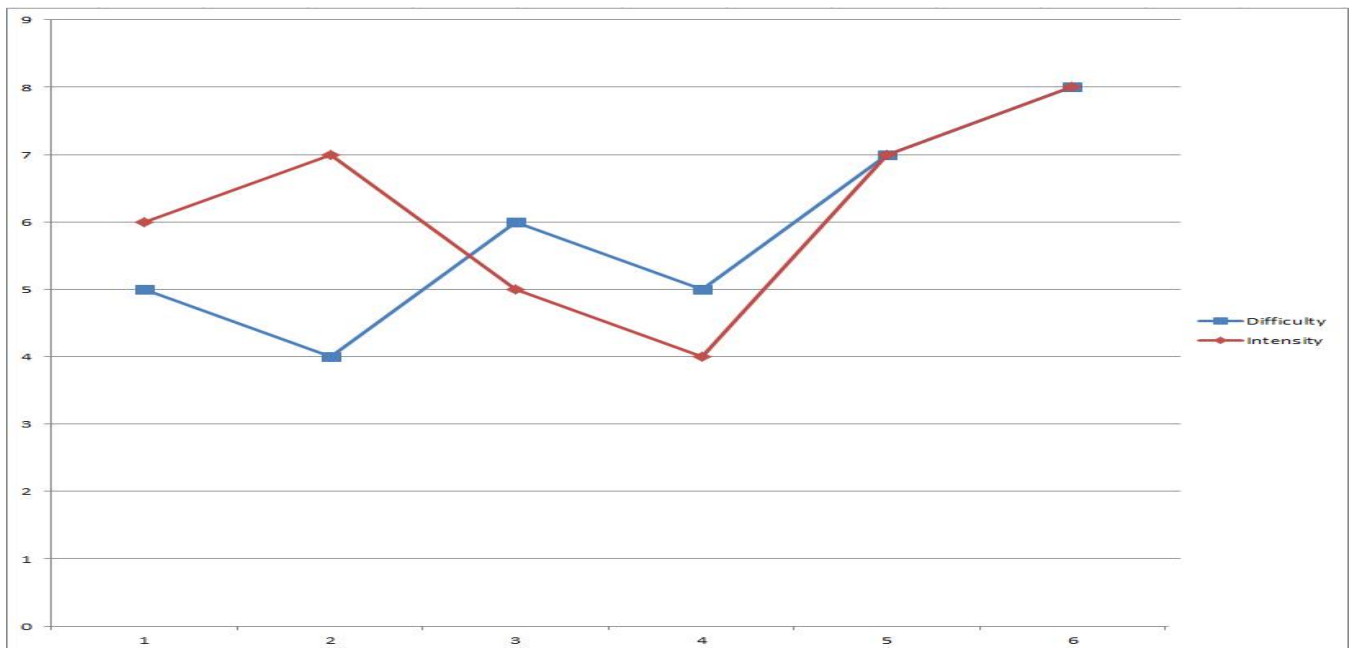


Figure 35: Level 4 Beat Chart

Level 5 – Seal Exhibit

The final level in the game decreases the number of enemies from the fourth level, but increases the platforming challenge to test the players jumping and fighting ability they have acquired over the course of the game. This level prepares the player for the final boss battle at the end.

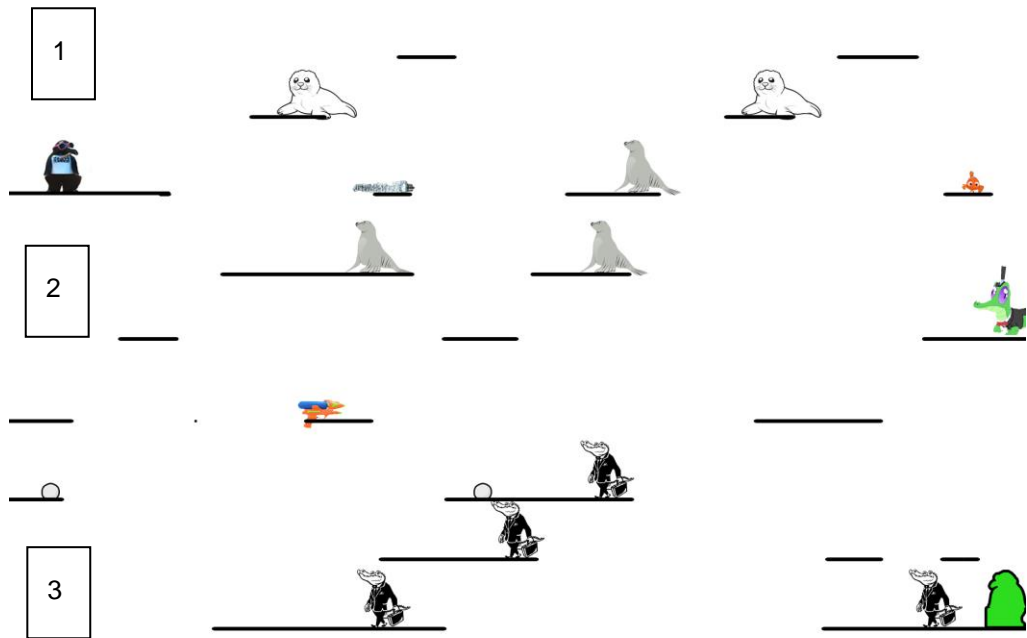


Figure 36: Level 5 Concept

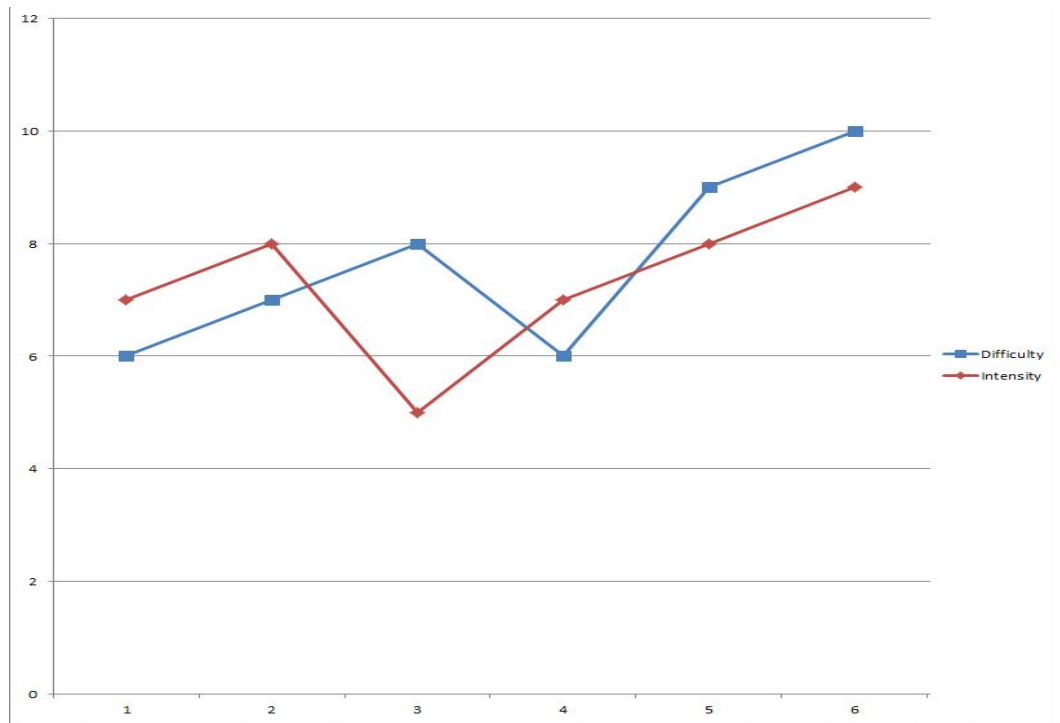


Figure 37: Level 5 Beat Chart

Boss Levels

Boss levels are 50 feet wide. The levels combine platforming with shooting.

All boss fight descriptions can be found under the characters, in the NPC section.

Shark Boss — Sid the Shark is meant to be an easy platforming challenge, providing small jumps for the player. The player is given the snowball power-up to introduce them to boss fights.



Figure 38: Sid Boss Level Concept

Pelican Boss — Juan the Pelican increases the difficulty of the platforming and the fighting. The platforms are smaller and have a third jump. Juan flies over the player and then throws bombs down at them. When hit Juan will fall to the ground allowing the player to hit him.



Figure 39: Juan Boss Level Concept

Alligator Boss — Carlos the Alligator keeps the platform difficulty from the Pelican fight by have two jumps, but longer distances. This fight increases the fighting difficulty. The player has to dodge Carlos by jumping over him when he charges. Carlos can jump over gaps and continue charging onto the next platform. Carlos can also go underwater and then reappear, performing a charge attack. The player is given the water gun to make Carlos slip and fall, giving them a chance to hit him.



Figure 40: Carlos Boss Level Concept

Seal boss — Mike the Seal is the final boss in the game. This boss fight greatly increases the platforming difficulty by adding 3 jumps from the Alligator Boss fight. The fighting difficulty is also increased by giving Mike the Seal more options to attack the player. Mike has 5 different openings to spring up from underwater. Mike can also go onto the platforms and try to attack the player. The player is given the fish power-up because it has the highest quantity and also for difficulty.

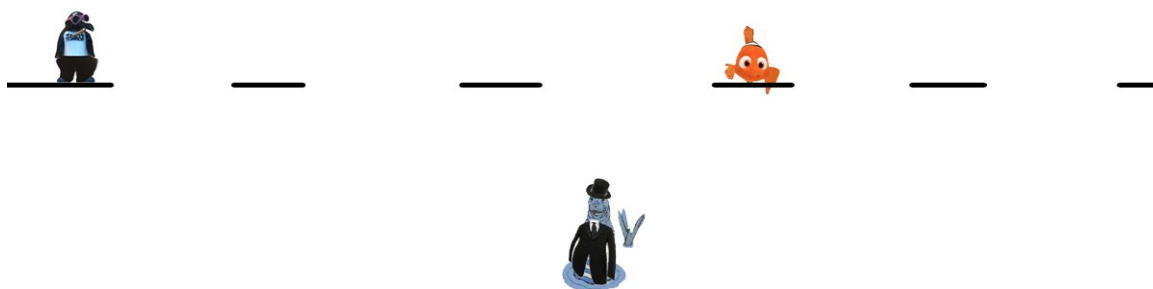


Figure 41: Mike Boss Level Concept

Appendix A – HUD and Screenflow

Overview

[Insert A Brief Overview Of The Wireframes Described In This Topic]

NOTE: The style, shape, and layout of the elements presented here, is merely a guide. The actual element design will be determined as they are created, and by the art style as well.

Single Player HUD

The HUD in Earl the Penguin contains only a few elements to free up as much screen space as possible. The player's hit points are displayed in the top left and the name of the level is displayed on the top right of the screen.

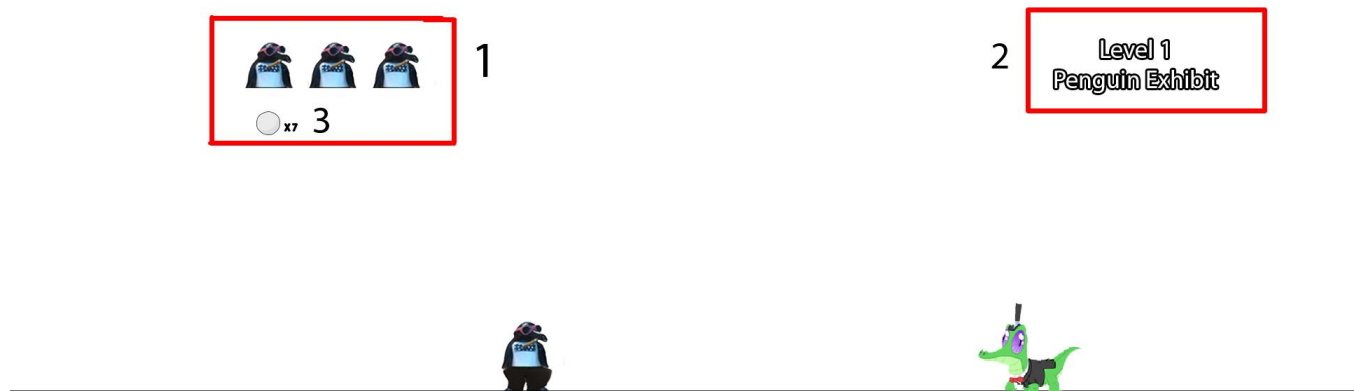


Figure 42: Single Player HUD Concept

- 1 The players hit points, they decrease right to left.
 - The player starts a level with three hit points. When they are hit by an enemy attack or are touched by an enemy they lose one hit point. Hit points cannot be recovered. The hit points are pictures of Earl so the player can easily identify them. When a player is hit, a hit point fades in a .3 second animation.
- 2 The level the player is current on.

- The player can always tell what level they are on by looking at the top right side of the screen.
- 3 Power-Up
- The current power-up is shown under the players life, along with the remaining ammo supply.

Level Select Screen

The level select screen is shown below. The screen features the name of the game, Earl the Penguin, on top of the screen and Earl to the left of the screen. In the middle of the screen there are two boxes. The top box shows a picture of the level and the character that represents that area. For the example it shows Carlos the Alligator and the swamp section of the aquarium behind him.

The second box displays a short summary current story progression from the last level, and information about the level displayed above.

On both side of the top box there are arrows. By pushing the left analog stick left or right, the player can cycle between levels. When the Seal Exhibit (Level 5) appears in the box, pushing the analog stick puts the Penguin Exhibit (Level 1) in the box.

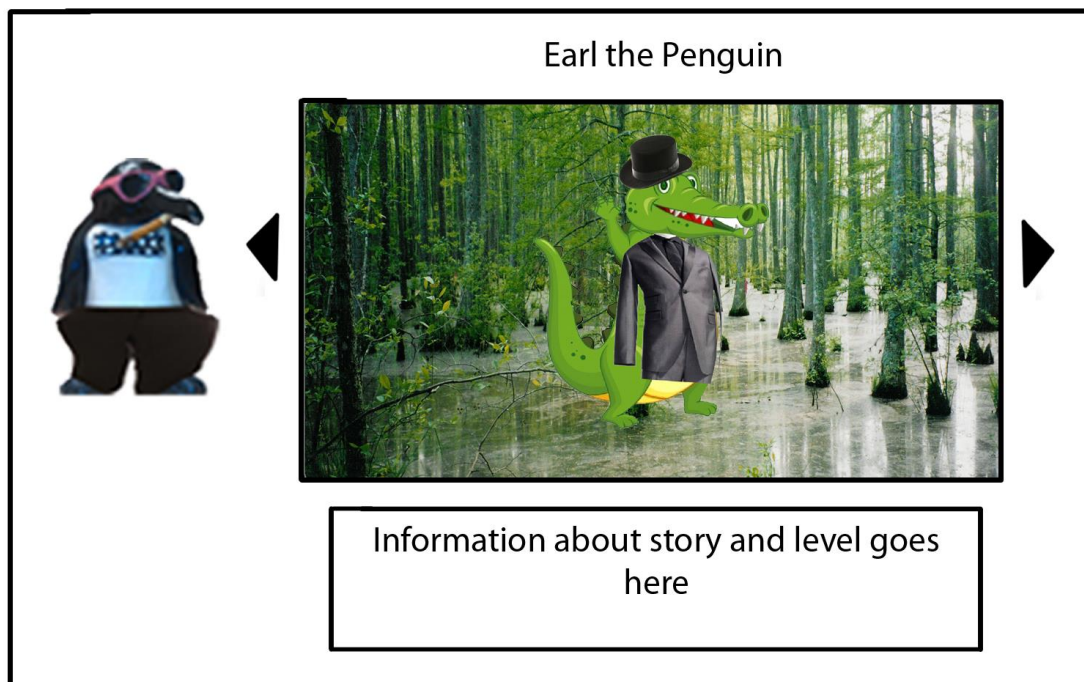


Figure 43: Level Select Screen Concept

Flow Chart of Screens

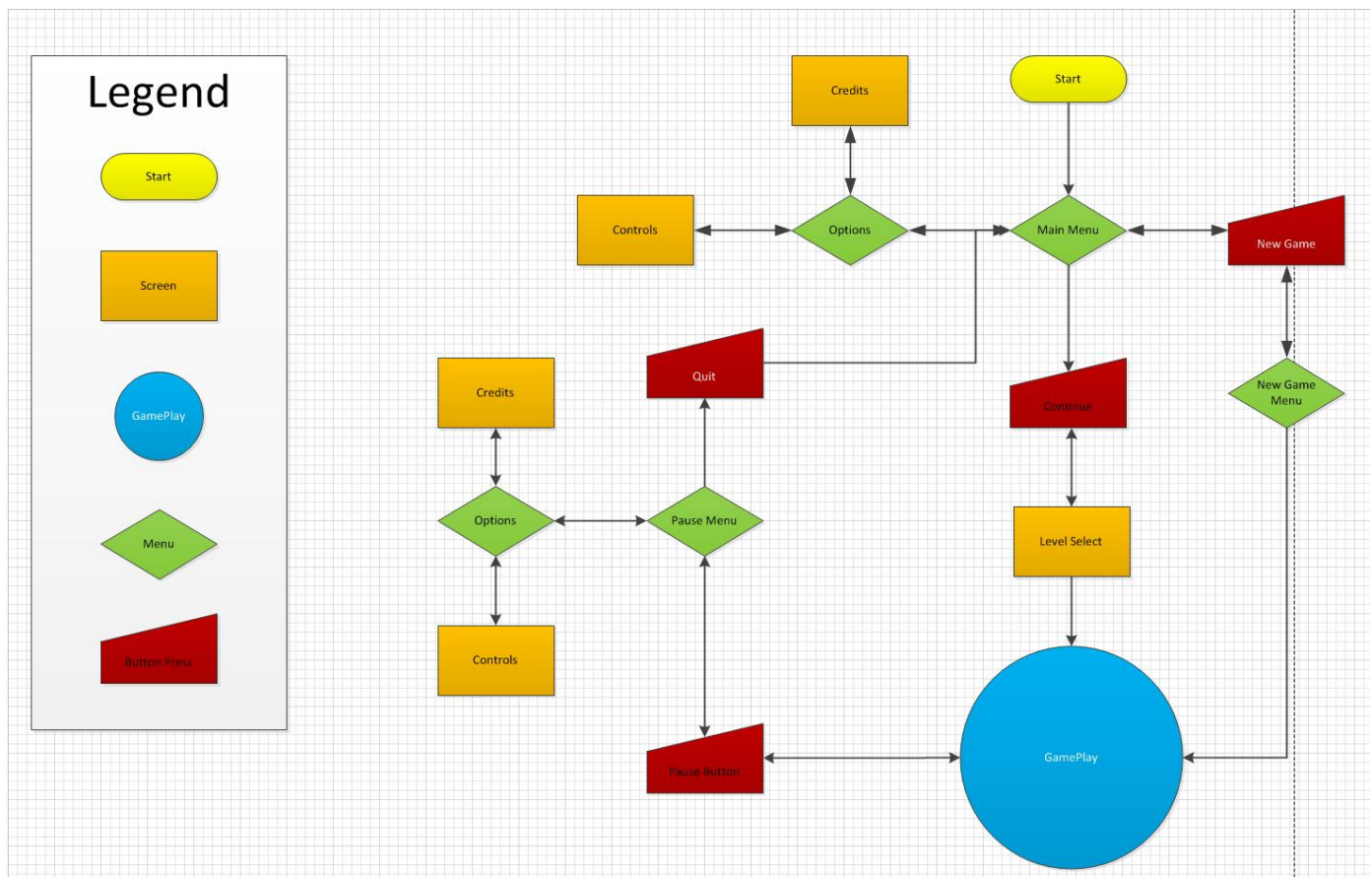


Figure 44: Flow of Screens Concept

Art Style

Overview

These images are the art style for Earl the Penguin. They are not representative of gameplay.

The art style is cartoonish, with high detail into the environment. The colors are vibrant and bright.



Figure 45: Art Style Reference 1



Figure 46: Art Style Reference 2



Figure 47: Art Style Reference 3



Figure 48: Art Style Reference 4