# Game Design Document – The Depths

## Introduction

This document provides a brief description of the game “The Depths”, which is a simple 2D platformer created using C++ and the SFML library. The game will utilise sprite-based animation, collision detection, level creation using JSON files, physics, memory management and render threading.

## Technology

“The Depths” will be developed using C++ 17 and three libraries, the SFML graphics library, the Box2D physics library and Neil Lohmann’s JSON for Modern C++ library.

## Backstory

After being warned not to go outside by his parents while they weren’t home, Arthur falls down into a mysterious cave while exploring a forest near his home. After waking up in the depths of the cave, he now needs to make his way back to the surface and return home.

## Objective

Arthur’s goal is to make his way upwards through the cave and to hopefully find an exit which will lead him back to the surface.

## Gameplay

“The Depths” will function as a simple 2D side scroller, with Arthur able to move left and right and to jump onto platforms in order to complete each of the game’s three levels.

While exploring the cave, Arthur will be able to find gems which he can bring with him, as treasures to serve as mementos of his adventures.

## Levels

The game will consist of 3 different levels, each of which will have a defined entrance and exit where the player will spawn and then proceed to the next level respectively.

## Controls

The game will be played using the keyboard, the controls are as follows:

* **Left Arrow –** Move Left
* **Right Arrow –** Move Right
* **Up Arrow –** Jump
* **ESC –** Quits the Game

## GUI/In-Game Menu

The games GUI will consist of the following:

* **Start Screen –** The games start screen will be presented to the player upon starting the game and will have a simple background as well as the game title. There will also be two buttons the player can select, one labelled ‘Start’ which will load the first level of the game, and the other will be labelled ‘Exit’ which will simply quit the game and close the window.

## Artwork

The artwork in the game was sourced from the following locations:

* **Arthur Sprite -** <https://lhteam.itch.io/finn-sprite>
* **Level Tileset -** <https://free-game-assets.itch.io/free-swamp-2d-tileset-pixel-art>
* **Background Image -** <https://ar.pinterest.com/pin/814799757575435665/>
* **Gem Sprite -** <https://laredgames.itch.io/gems-coins-free>

## Sound

The sound effects in the game only consist of the following:

* **Button Click –** Included with original Drop Pod starter code.
* **Gem Pickup -** <https://freesound.org/people/plasterbrain/sounds/608431/>

## Music

The music in the game will consist of the following:

* **In-Game Music -** <https://freesound.org/people/Victor_Natas/sounds/663502/>