Escape Room: Game Design Document

By Luke Hodinka

Contents

1.0 Introduction

"Escape Room" is a multi-minigame game; designed and made for the George Brown College Center of Construction and Engineering. The goal is to get players aware of the different careers George Brown offers. In this game, we are trying to bring awareness to the Electrical, Plumbing, Carpentry and Welding fields. We will also use simple logic from the different areas to inspire the minigames. The goal is to give players actual knowledge and interest in these various fields while having fun.

1.1 Scope

The target audience is students in grades seven to nine. Since they will be playing these games in school, each minigame can not be too long so that the player can beat the game at a reasonable time. Based on the ages of the target audience and the purpose of being educational, the minigames will be simple puzzles. They will need to keep the player's attention and make them think about solutions but not take too much time.

2.0 Overview

2.1 Concept

The player plays as "Husky," the George Brown College mascot stuck in one of the College's buildings and needs to escape. Each of the four significant labs, but in this case, minigames, has one of the keys to the door. The player must complete all the minigames to escape the building.

2.2 Core X Statement

The player plays as Husky, stuck in a college building and must solve different puzzles in hopes of escaping.

2.3 Game Pillars

- **Educational:** This is to get the awareness of the different career options that George Brown provides. It needs bits of information available when playing.
- **Quick minigames:** Being played at schools, the games can not last too long, and they must beat each game to win.
- **Simple:** Games need to be simple, with straightforward controls and goals for the target audience and time.
- **Mind puzzles:** Since the game is to be educational, mind puzzles seem appropriate to distribute this information in a fun way.

2.4 Genre

The "Escape Room" genre is a Top Down, third-person, pixelated videogame.

2.5 Art Style

The view and art style can be represented in the "Enter the Gungeon" video game. The use of colours and light draw attention and add depth that would be great for "Escape Room."

3.0 Gameplay

3.1 General Player Controls

Title	Description	Keyboard and Mouse
Movement	Moving the character around the screen	WASD Buttons
Pick Up / Drop / Interact	Pick up, drop and interact with objects. When dropping an item, it either goes onto the ground or into the nearby slot if the player is close enough.	E Button

3.2 General Animation

- Character Movement Animation
  - A simple character movement that animates the legs moving back and forth
  - When the character is carrying an item and moving, the item should be carried over their head. The legs should be doing the same animation.
- Character Pick-Up Animation
  - The character uses their arms to pick up the item and then starts holding it over their head. Their arms should be holding it.
- Character Drop Animation
  - The character drop animation is the reverse of the pickup animation. Therefore, once the item is dropped, the arms should return to their original position.
- Character Interact Animation
  - When the character interacts with an item, one arm should extend as if they are going to push a button, and then it will return to its normal position.
- Waking up
  - If the character dies or loses a minigame, they should wake up. They will lie on the ground and stand up in the original position.

4.0 Character

The player's character will be a pixelated cartoon version of the George Brown College mascot Husky.

5.0 Main Menu

5.1 Main Menu Overview

At the start of the game, the player is spawned into the main menu. Dialogue appears before the player explaining the scenario the player is in and how to get out. Then the player is given control of the character; pop-up dialogue will appear as the player explores the room.
Before the player can enter the other rooms, the player will go through a quick tutorial to turn on the power and unlock the doors. The first step is a pop that will lead the character to a battery, where it will introduce the player to the pickup mechanic. They will then be directed to where the battery needs to go. When the player gets close to the battery slot and drops the battery, the battery will go into the slot.

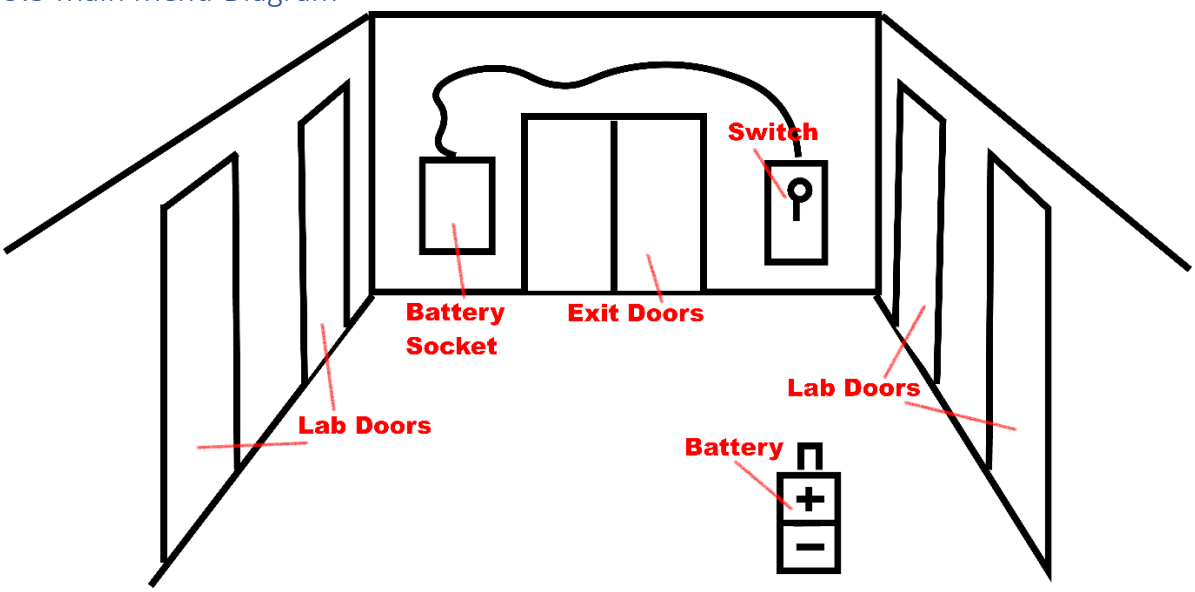
The next pop-up will lead to a control panel introducing the player to interacting with items mechanic. When interacting with the panel, the doors will open and lead to the lab rooms where the player needs to complete each puzzle.

Any lab that has been beaten remains if the player loses another minigame or dies.

5.2 Main Menu Mechanics

Mechanic Name	Details
Battery	The battery can be picked up and moved around in the room. It will go into the battery slot; when it does, the battery can't be moved anymore, and the control panel will turn on.
Control Panel	The control panel can be interacted with and will open the doors to the labs. But, unfortunately, once it interacts with, it can't be interacted with again.
4 Doors	Each door leads to a lab or level that the player needs to escape
4 Locks	Each lock needs to be unlocked to open the exit door.
Exit Door	When each lock is unlocked, the exit door will open, and the player can walk threw, beating the game

5.3 Main Menu Diagram



6.0 Electrical Minigame

6.1 Electrical Minigame Overview

This puzzle is a big match the wires game. The player must grab the wires and bring them to their respected sockets. There will be tools and obstacles that would help and challenge the level. In this game, the player has three lives and must avoid getting zapped by the wires. They get zapped by connecting the wrong slot and wires, making the wires touch or getting the wires wet.

This minigame has three levels, each introducing a mechanic that helps or gets in the way. Once a level is complete, a door opens and leads to the next one. Eventually, they reach the key and return to the main menu.

The educational information for the electrician field will be provided between levels and upon death.

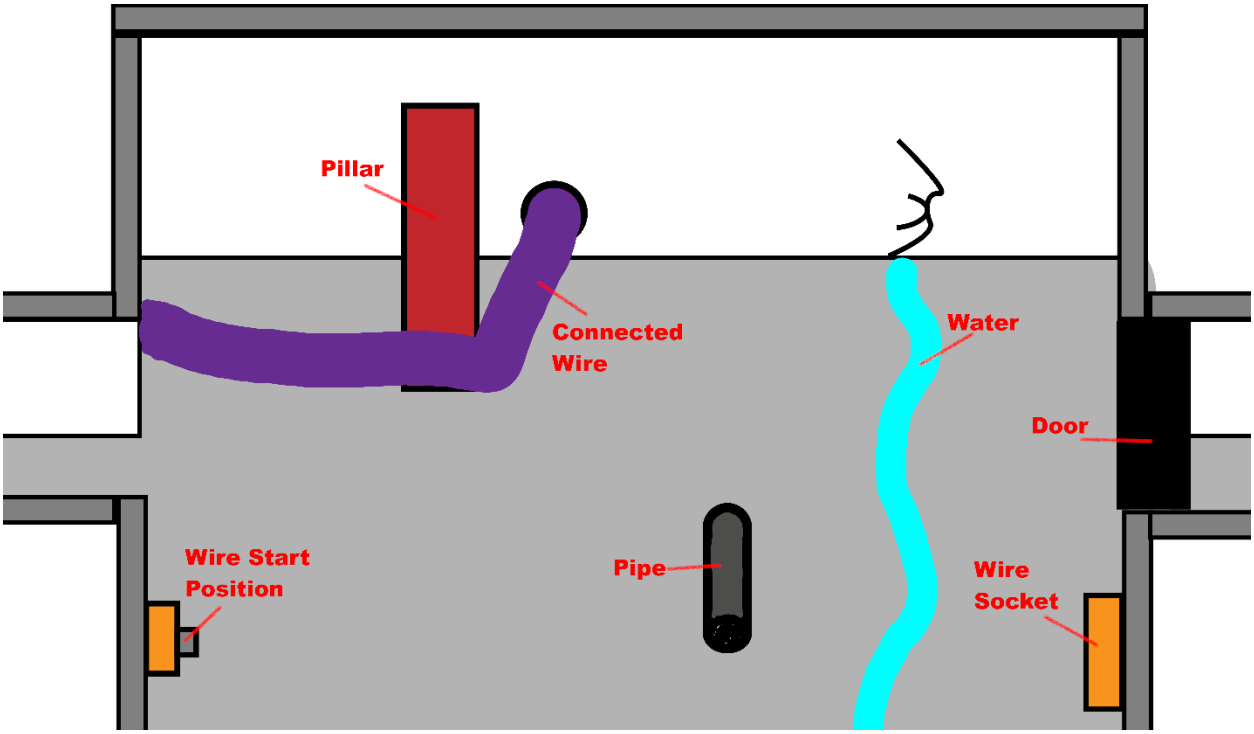
6.2 Electrical Minigame Mechanics

Mechanic Name	**Details**
Wires	Each level has multiple wires, each colour coded. The player grabs the wire and carries it around the room. The wire has unlimited extension and can only stretch in a straight line. If dropped, it will retract to the wall it started at. When connected, the player will not be able to move past the wire. If the wires touch, it will result in a shock costing a life.
Sockets	Sockets will connect and hold the wires in place. There will be the same number and colour of sockets to wires. Connecting the wrong wire to the wrong socket based on colour will result in a shock costing a life.
Pillars	Pillars in rooms allow players to bend the wires as they move around them.
Water	Water will cause the player to be zapped if they carry a wire over it. Resulting in costing a life.
Pipes	Pipes can be carried and placed anywhere on the ground. If placed correctly, they can be placed onto the water, allowing the player to carry the wire over the water safely.
Lives	The player has three lives in this minigame. The player loses lives if zapped. If the player loses all three lives, they are sent back to the main menu room.

6.3 Electrical Animations

- Getting Zapped
    - Sparks should appear around the character when the character is zapped, and the character should react to being zapped with a yelp expression.
- Dying
    - When all three lives are gone, the character will collapse to the ground and pass out.

6.4 Electrical Minigame Diagram



7.0 Welding Minigame

7.1 Welding Minigame Overview

In the welding minigame, the player must combine two pieces of metal to form a bridge. The player must adjust a massive wielding machine/ laser to fit the correct parameters. Each way to control a laser parameter is in the room and can be interacted with. The difficulty is they are spread out in the room, and the laser is dangerous to the player. In this game, the player has three lives and must avoid getting hit by the laser beam. Getting hit by the laser will cost them one of their lives per hit.

There are three levels of this minigame that grow in difficulty. Once the level is complete, the player can walk across the metal bridge and continue to the next one. Eventually, they reach the key and return to the main menu.

The educational information for the wielder field will be provided and interacting with objects, using mechanics and upon death.

7.2 Welding Minigame Mechanics

Mechanic Name	Details
Laser Beam	A ray of electric energy shoots from the laser. If this energy hits the player, they will lose a life.
Laser	The laser constantly moves back and forth between certain angles, causing the player to watch their movement and timing, trying not to get hit by the laser.

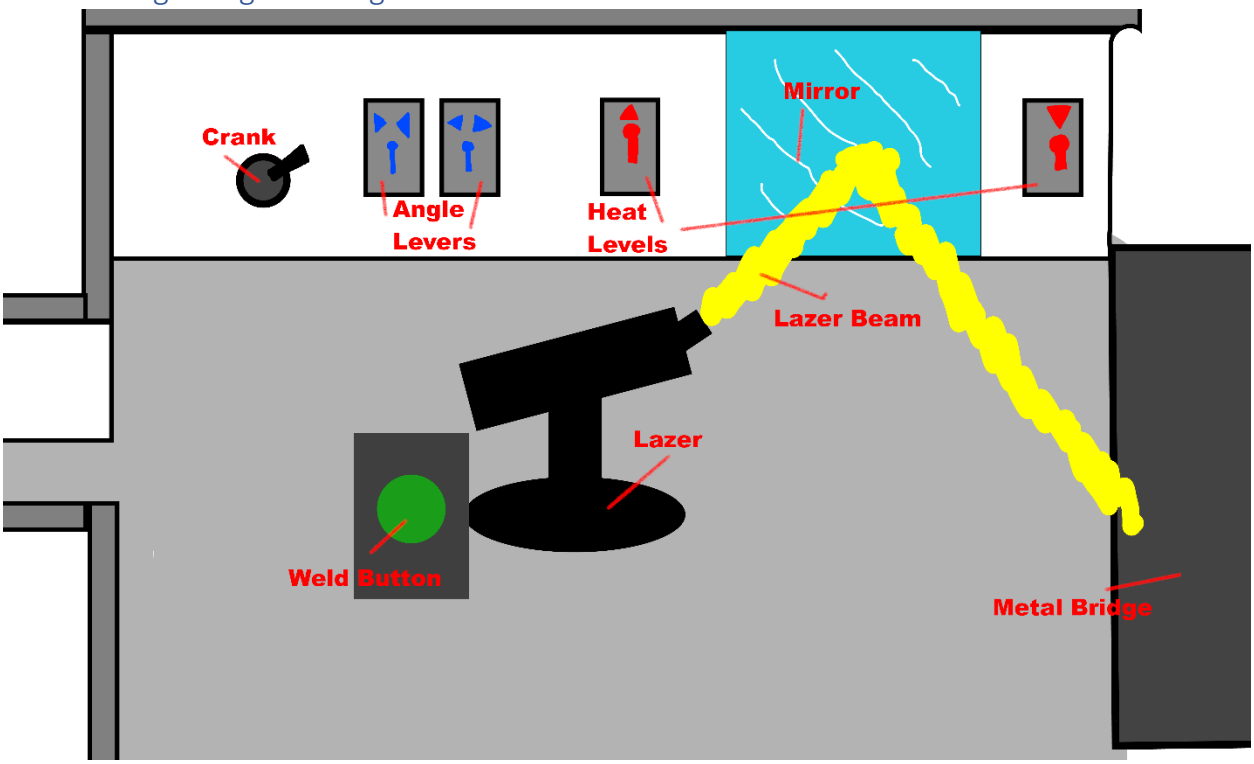
Heat Levers	There are two heat levers on each level; both are red and accompanied by a label on which one turns down and up the heat. The result would be the colour of the laser beam changing colours. Too hot is too bright also a white colour, to cool is more of a dark colour. So the correct answer for the puzzle will be when the colour is the most vibrant yellow.
Angle Levers	There are two angle levers on each level; both are the colour blue or the same as the laser if the colour changes. They are accompanied by a label of which one lowers and increases the angle of the laser. The correct angle of the laser will match the piece size that needs to be welded together.
Crank	A grey circular crank controls the position the laser is in. The correct position will be facing the piece the laser needs to wield; however, it will need to be temporarily moved at higher levels to access specific other levers. Interacting with the crank will make the player grab it and disable their movement while holding onto it. The A and D keys will control the position the laser is facing.
Mirror	The mirror appears on the walls of the rooms. If the laser beam hits a mirror, it will reflect at an appropriate angle. This gives difficulty to the levels. The laser beam should only reflect once per mirror, so it does not consistently bounce back and forth.
Weld Button	The Weld button, a big green button at the base of the laser, activates the laser to get close to the metal piece and try to wield the pieces together. If it succeeds, the bridge is made, and the laser turns off; if not, the laser goes back to its last position.
Lives	The player has three lives in this minigame. The player loses lives if hit by the laser. If the player loses all three lives, they are sent back to the main menu room.

7.3 Welding Animation

- Laser Beam
  - The beam of electric energy shots out like crackling electric energy in waves going in a straight line but being moved by the angle of the laser.
- Heat Levels
  - The colour of the electric energy will change with the heat levels. To hot becomes more bright/white, to cold darker/black. The correct colour is a vibrant yellow.
- Laser Rotation
  - The laser arm sways back and forth at a specific angle range.
- Laser Position
  - When the player uses the crank, the entire base of the laser and the laser itself rotates
- Levers
  - When players interact with the lever, they should pull it with one of their arms. Then, the lever will go down and return to its starting position.
- Crank
  - The player grabs onto the cranks, and when they are controlling it, the crank goes in a circular motion like the laser, depending on which way the player is turning it.
- Wielding
  - Clinking the green weld button will make the button go down and buck up. The laser then extends to the beam and welds the pieces together in the position and range the

laser was set to. Bright light will be shown at the tip of the laser as it wields the pieces together. If correct, a freshly welded line will appear; if not, the metal piece will fall, and a new one will take its place.

7.4 Welding Minigame Diagram



8.0 Plumbing Minigame

8.1 Plumbing Minigame Overview

In the plumbing minigame, the player must transport water from one side of the room to the other. To do this, the player must grab pipes scattered in the room and place them on the floor connecting the water source to the drain. The area will look like a dug-out floor into which pipes need to be installed. The limited water supply will act like a timer for the minigame. If the water runs out, the player loses that level. There are certain number and measurements of pipes around the room. Resulting in one or few correct options to the pipe puzzle per level. There are three levels for the plumbing minigame, each puzzle getting more problematic.

The educational information for the plumber field will be provided between levels and upon death.

When the player approaches one of the pipes in the room, they will be able to interact with it carrying it with them as they move around. Placing a pipe on the ground will set it into a designated location, locking it in place unless the player approaches and picks it up again. The puzzle area will be grided so that the player can place them anywhere in the grid but not entirely freely.

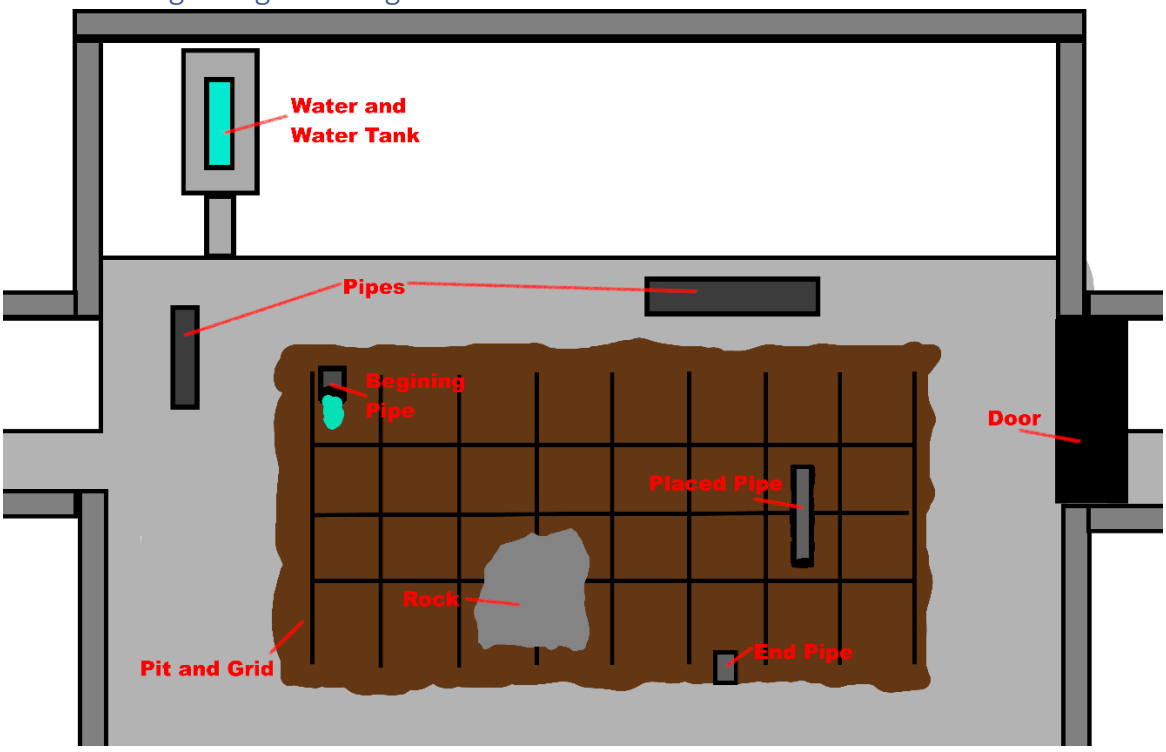
8.2 Plumbing Minigame Mechanics

Mechanic Name	Details
Pipes	Pipes are scattered in the room and can be picked up and moved. For example, being placed into the puzzle area, aka the pit. They can transfer water from one location to another.
Water	The water consistently flows into the pipes from a container a player can see. The water acts like a timer to show how much time the player has to beat the level.
Pit	The pit is the puzzle area. It has a light grid-like pattern showing where the pipes will be set. Any grid space taken up by a pipe can not be used to place another one.
Rocks	Rocks in the pit space cause the player to need to move around the rock and place the pipes around it.
Enter Pipe	This pipe is the pipe where the water begins to flow from.
Exit Pipes	This is the pipes that the water needs to go to beat the level.

8.3 Plumbing Animation

- Water
  - Water flowing threw the pipes exits out the other side to show the water is moving and the pipes are connected.
  - The water container should have a window to show how much water is left in the container. It will slowly go down as time goes by.
- Pit Jump/Fall
  - Entering and exiting the pit, the character should do a small jump entering and exiting the pit to show some depth to the level.

8.4 Plumbing Minigame Diagram



9.0 Carpentry Minigame

9.1 Carpentry Minigame Overview

In the carpentry minigame, the play is to walk across a wooden bridge. The issue is a lot of the boards are broken or loose. The player needs to find the best path to fix the boards along the way with the limited nails and screws they have. The player must choose their path and which nail or screw for each loose board.

The educational information will appear when the player selects a board, nail, screws, and what position to nail the boards.

Approaching a broken or loose board will allow the player to select and interact with it. First, the player's movement will be disabled and linked to choosing the position of the nail or screw, then the player selects which nail or screw to use from their limited pool of supplies. Finally, if the proper nails are used and in the appropriate order, the board will hold, and the player will be able to cross.

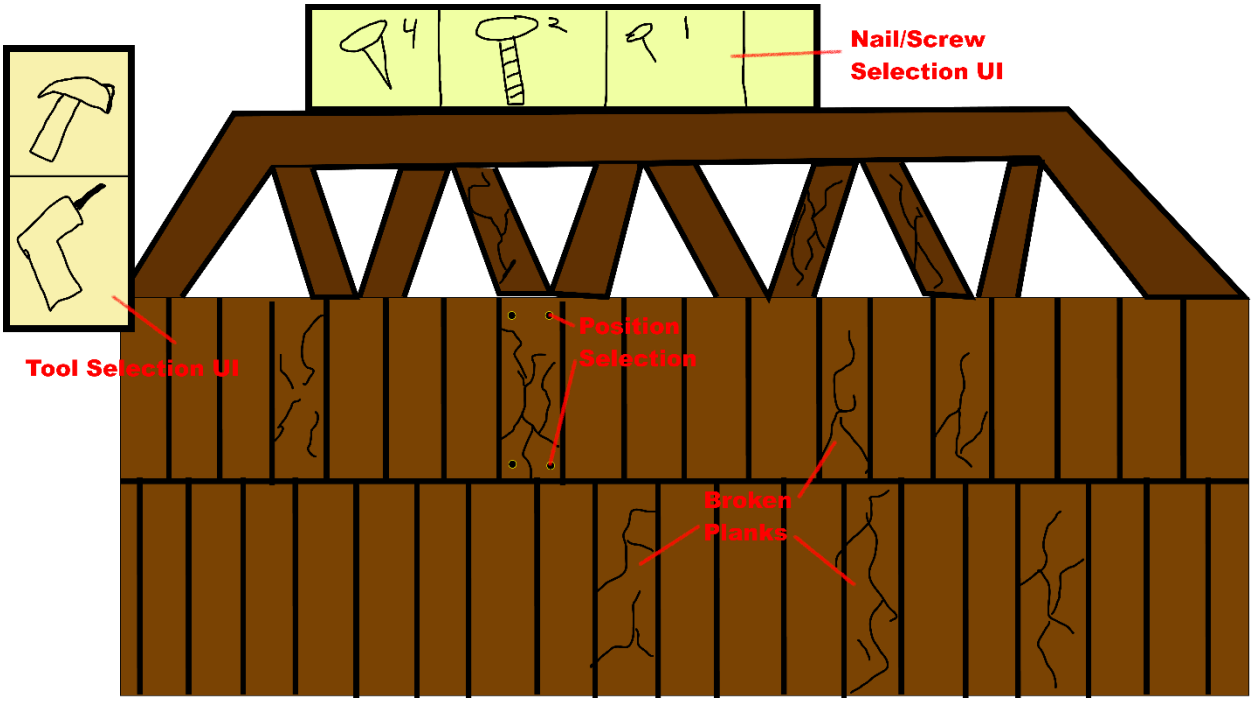
9.2 Carpentry Minigame Mechanics

Mechanic Name	**Details**
Nail/Screw Position	When approaching the board, there will be a certain number of spots available to select for nails or screws. The player will be able to control which one is currently selected there by using the movement keys.
Nail/Screw Selection	When a position is selected, the player can see the available nail and screw types and the amount they have left of each type. Choosing the screw or nail will put it into the last selected position. The player can choose the screw or nail with the movement keys.
Damaged Planks	Damaged planks appear on the bridge, clearly broken with cracks or another type of damage. Walking over one will cause the player to fall and start over.

9.3 Carpentry Animation

- Falling Animation
  - If a player walks over a loose or broken board, they will fall threw the bridge and have to start over.
- Nailing animation
  - When the player selects a nail or screw, the character should pull out a hammer or screwdriver and place them into the board.
    - We will need two versions of each for the floorboards and one for planks and pillars standing up.
- Spot Selection
  - When selecting one of the spots on the board, they should highlight one of the designated spots that are currently selected.
- Nail/Screw Selection
  - When selecting one of the nails or screws, the currently selected one should be highlighted

9.4 Carpentry Minigame Diagram



10.0 Audio

10.1 General Audio

- Calm relaxing background sound that plays throughout the game.
- Sound notification when the player beats a minigame
- The exit doors opening sound when all the keys are in
- The win screen audio sound. Should be happy, joyful and celebrating the player
- Lose sound when the player fails a level or dies.

10.2 Minigame Audio

- Electrical
    - Wires being connected and unconnected, a sound should play
    - The player gets zapped a bad electrical sound should play
- Welding
    - The laser beam should have a futuristic wave-like sound as it is active
    - The levers should make a sound as if a switch or lever was pulled and should be very machine like
    - When the player moves the laser with the crank, a sound like heavy machinery moving should be played. Gears or metal on metal sound.
    - A simple click button sound plays when the player clicks the weld button. Then the sounds of machines moving and welding as the animation is going.
- Plumbing
    - The sound of gentle water flowing should be consistent while the water is flowing.
    - The sound of pipes being dropped onto the ground when the player places a pipe

- Carpentry
    - The sound of hitting a nail into the wood, so the sound of a hammer
    - The sound of a drill when the player drills a screw into the wood