

# Norsevar

## Game Design Document

**Developed By:**

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Version: 0.1.0

Disclaimer: This Game Design Document is a work in progress and does not define the final design of the game. Many sections in this document are likely to change.

# Document History

Version	Date	Summary	Author(s)
0.0.1	30.09.2021	Initial Draft	Alex Nogueira Paul Bichler Simmone Cassidy
0.0.2	09.10.2021	Added: <ul style="list-style-type: none"> <li>• Game Overview Section <ul style="list-style-type: none"> <li>◦ Elevator Pitch</li> <li>◦ Genre</li> <li>◦ Theme, Setting, Art Style</li> <li>◦ Inspirations</li> </ul> </li> <li>• Gameplay Section <ul style="list-style-type: none"> <li>◦ Core Gameplay Loops</li> <li>◦ Combat</li> </ul> </li> <li>• Paper Prototype Requirements</li> <li>• Snow Deformation</li> </ul>	Paul Bichler Alex Nogueira
0.0.3	10.10.2021	Added: <ul style="list-style-type: none"> <li>• Upgrades</li> </ul>	Paul Bichler
0.0.4	11.10.2021	Added: <ul style="list-style-type: none"> <li>• Movement for Prototype</li> </ul>	Dylan Martins
0.0.5	13.10.2021	Added: <ul style="list-style-type: none"> <li>• Enemy descriptions (Gullinbursti, serpent, wolf, Draugr)</li> </ul>	Paul Bichler
0.0.6	14.10.2021	Added: <ul style="list-style-type: none"> <li>• Hub NPC table</li> </ul>	Paul Bichler
0.0.7	16.10.2021	Added: <ul style="list-style-type: none"> <li>• Combat Loop</li> <li>• Player Resources</li> </ul> Modified: <ul style="list-style-type: none"> <li>• Level Design Loop</li> <li>• Dash/Roll Ability</li> </ul>	Paul Bichler
0.0.8	18.10.2021	Added:	Paul Bichler

		<ul style="list-style-type: none"> <li>World Design -&gt; The Hub</li> </ul>	
0.0.9	19.10.2021	Added: <ul style="list-style-type: none"> <li>World Design -&gt; The Run</li> <li>Narrative</li> </ul>	Paul Bichler Loïc Dornel
0.1.0	28.10.2021	Added: <ul style="list-style-type: none"> <li>Backstories</li> </ul>	Loïc Dornel

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# 1. Game Overview

## 1.1. Elevator Pitch / Short Description

Norsevar is a Norse mythology-themed roguelite dungeon crawler game with a Hack n' Slash combat system, in which the player plays as a Viking with a one-handed axe, fighting his way through randomly generated rooms filled with enemies. Each room has to be cleared before being able to proceed to the next.

After clearing a room, the player receives a random upgrade, which either increases his character stats (ex.: Attack damage, Health points, Armor, ...) or changes/enhances one of the abilities of the character (ex.: Dashing spawns an axe that spins around on the spot, dealing damage to enemies in its reach.). When the player dies, he respawns in his base, where he can buy permanent upgrades for his character and start the game again. After a set amount of rooms are cleared, a boss appears, which has to be defeated to move to the next layer. The game ends after the boss on the last layer is defeated.

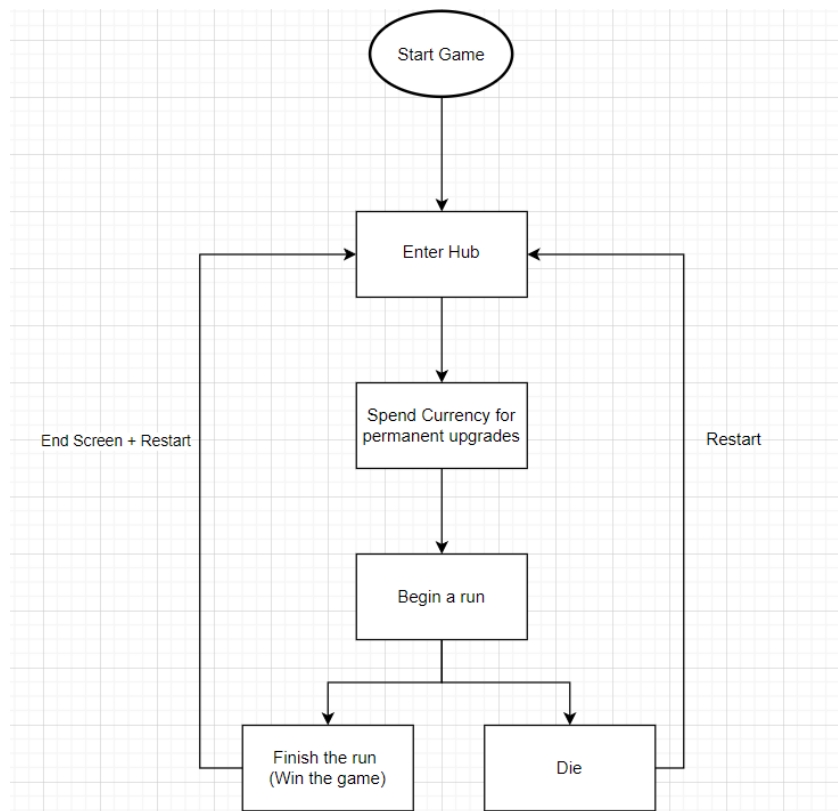
## 1.2. Genre

Hack and Slash Roguelite Dungeon Crawler.

### 1.2.1. What we understand under Roguelite

A Roguelite is a game in which the player dungeon crawls (referred to as “runs”) through procedurally generated levels which increase in difficulty. Roguelites feature perma-death, which means that the player has to restart his run if he dies. The game is started from a base (or “hub”), which offer permanent upgrades to the player, which have the aim to make future runs easier and help the player “crawl” further. Upgrades can be bought with currency obtained during runs. Roguelites are usually identified by their reversed difficulty curve since the game gets easier after the time (because the player gets stronger through permanent upgrades). The ultimate goal of a roguelite is to clear the last room in the run, which usually contains an end-boss.

Basic flowchart of a Roguelite game:



### 1.3. Theme

Norse Mythology

### 1.4. Setting

The game is set in the Norse worlds (Yggdrasil, Niflheim, Muspelheim, Asgard, Midgard, Jotunheim, Vanaheim, Alfheim, Svartalfheim and Helheim).

### 1.5. Art Style

Low-poly simple shaded.



## 1.6. Target Audience

The game is designed for young adults between 18 and 25 years. The game contains violence and possibly blood/gore and is therefore not suitable for under 18-year-olds. The game focuses on combat and is therefore targeted at people who like 3D combat games.

### 1.6.1. Identified Personas

TODO.

## 1.7. Inspirations

### 1.7.1. Combat and Enemies of Hades

Combat Video: [YouTube: The First 15 Minutes of Hades Gameplay](#)



Hades offers a fast-paced hack and slash combat system to its players, which constantly keeps them on their toes by throwing wave after wave of enemies at them.

The combat system in Hades is not very complex, with every weapon only offering 3-4 types of attacks (usually one for each main button on gamepads). However, each attack type has a clear purpose, whether it's crowd control (stun, slow, etc.) or attacking from a distance (ex: magic cast or bow). We want to keep our combat system as simple as it is

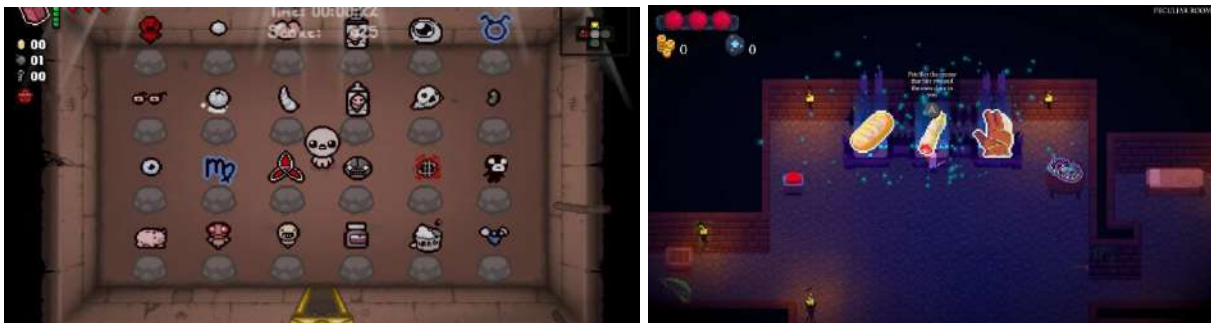
in Hades while offering them the right tools to defeat every type of enemy they might encounter.

Enemies in Hades are very simple, they usually only have a single attack, but they complement each other perfectly, which can create a real challenge depending on the enemies that are spawning. We strive to have the same synergy between the enemies in our game. We want to keep them simple, but still challenging in groups, so we can spawn larger groups without overwhelming the player.

### 1.7.2. Upgrades of Binding of Isaac and Mana Spark

Binding of Isaac Video: [▶ The binding of Isaac full length run \(No Commentary\)](#)

Mana Spark Video: [▶ Mana Spark Gameplay \(PC HD\)](#)



Binding of Isaac and Mana Spark's upgrade system offers a huge pool of different upgrades to the player, with each upgrade having a distinct appearance (and sometimes lore) in the game. What makes this system special is that the player does not have a choice which upgrade he gets. The upgrades are randomized and the player gets what he gets. However, Mana Spark offers a way to "reroll" upgrade drops, which is something we consider for our game as well.

### 1.7.3. Currency of Mana Spark

Mana Spark Video: [▶ Mana Spark Gameplay \(PC HD\)](#)



In Mana Spark, the player has 2 types of currency, Coins and runes. Coins can only be spent on items within a run and the player loses all his coins once he dies. Runes however are kept after the player dies and can be spent on permanent upgrades or items in the players base. Both currencies can drop from enemies when they are killed (although runes have a much lower drop rate than coins).

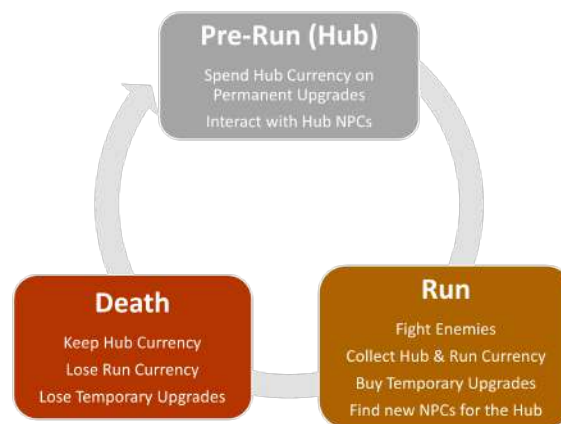
What makes the currency system in Mana Spark special, is that runes are not automatically stored once you get them, meaning that if you receive a rune and die right after, you will lose your rune. To keep the runes after you die, you have to reach a “Peculiar room”, which has a crate where you can store your runes. This system makes sure that the player doesn’t just “kill himself” once he has enough runes, because he always needs to reach the next checkpoint room, to be able to save the runes.

We strive to have a similar currency system in our game.

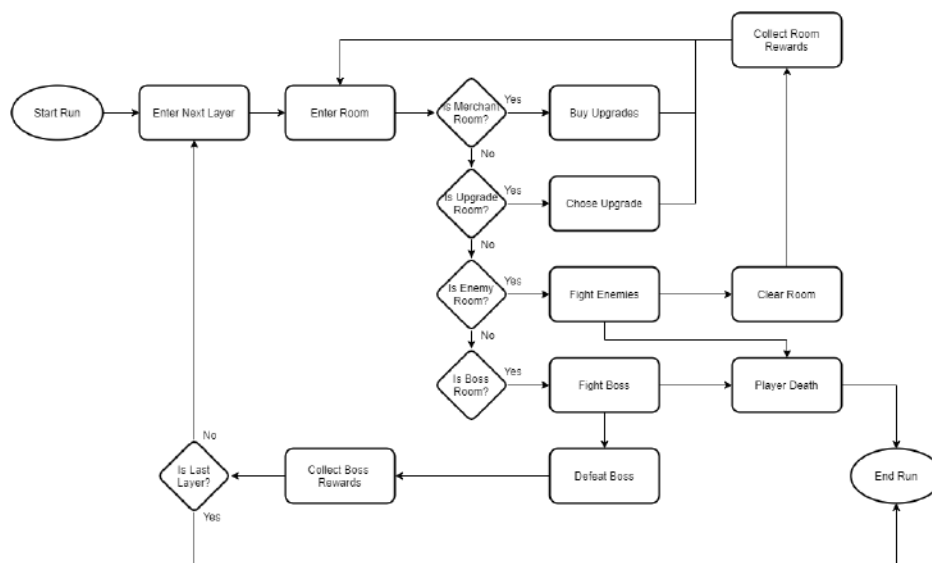
## 2. Gameplay

### 2.1. Game Loops

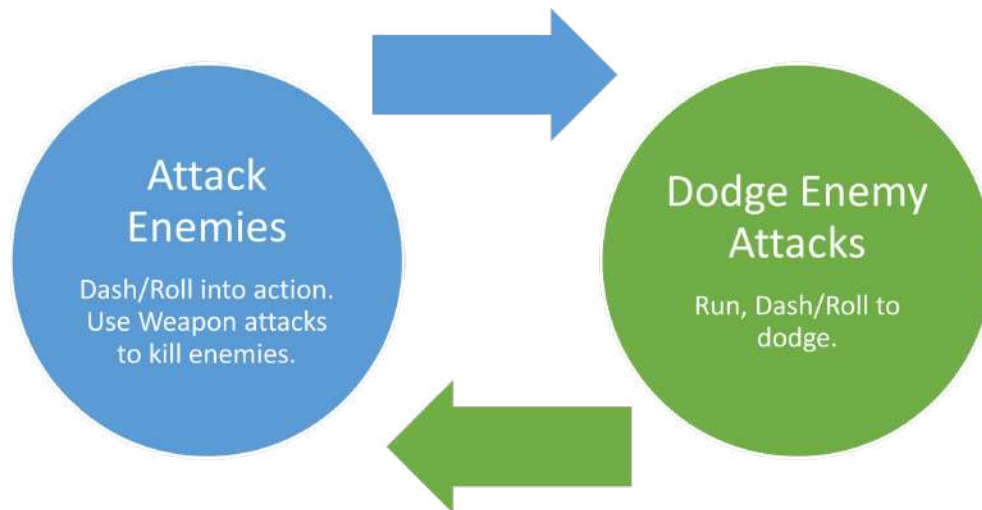
### 2.2. Overarching Loop



### 2.3. Level Design Loop (Run Loop)



## 2.4. Combat Loop (Core Gameplay)



## 2.5. Mechanics

### 2.5.1. Combat

#### 2.5.1.1. Playstyles / Weapons

The game will feature several weapons, but we will focus on one for now. Each weapon has 3-4 attack types.

##### One-Handed Axe

The main weapon we will focus on will be a one-handed axe. The following table explains the 3 attack types of the one-handed axe.

Attack	Type	Description	Advantages	Trade-Offs
Light Attack Combo	Melee	A string of 3-5 combo attacks, each hit dealing more damage than the last.	Very fast, no anticipation time, no recovery time	Low base damage

Axe Throw	Ranged	The player can charge his axe and throw it forwards which damages all the enemies in its path and slows them. The first hit deals the most damage, while the ones after that get weaker and weaker. The longer the player charges, the further the axe flies, the more damage it deals the higher the slow effect on the enemies lasts. While charging, the player's movement is slowed down heavily.	Crowd control due to slow effect on enemies. Ranged ability. Deals heavy damage (based on charge time)	The player is vulnerable during charging (due to slowed movement speed)
Ground Slam	Special	The player jumps up and slams his axe into the ground, which creates a shockwave around him and damages every enemy in a radius around him. In addition, the enemies within the radius are knocked back.	Crowd control due to knockback. Deals AOE damage.	Large anticipation and recovery time, during which the player is vulnerable.

### 2.5.1.2. Dash/Roll Ability

The player has a Dash or Roll ability that he can use as a defensive movement ability. This ability is not dependent on the player's weapon but can be modified or enhanced through certain Hub or Run upgrades. This ability is vital to the core gameplay loop, as it allows the player to dodge enemy attacks and quickly get in and out of combat.

An example of a similar dash ability can be found in the game Hades ( [YouTube Hades Walkthrough: Part 1 \(No Commentary\) \[Full Release\]](#) ).

## 2.5.2. Movement

The player can move in all directions (360 degrees). There's no jump since it's not needed in the game.

## 2.5.3. Upgrades

### 2.5.3.1. Run Upgrades (Temporary)

During runs, the player will receive upgrades that only last until the run is finished, meaning that the upgrades are not permanent. Run upgrades are very diverse, ranging from stat upgrades (ex: Damage up) to major ability changes (ex: dashing spawns a spinning axe that deals damage to enemies in the area). Upgrades are presented as items. For example, "Odin's spear" might give you a damage buff. However, upgrade effects are always explained to the player.

The following table shows some of the run upgrades that will be found in the game (these are just examples, for now, some of them might not be implemented):

Upgrade	Description
Odin's Spear	Increase the Base damage of the player by 20%
Svalin	The player gains a shield that deflects enemy damage by 50% of the player's max health. The shield recharges by 3% per second.
Jarnbjorn Axe	Spawns a spinning axe behind the player whenever he dashes. The axe deals damage in a radius and despawns after 3 seconds.
Double Dash	The player's dash ability has a second charge, which allows the player to dash twice in a row before the ability goes on cooldown.

### 2.5.3.2. Hub Upgrades (Permanent)

NPCs in the Hub offer permanent upgrades to the player in exchange for currency or other resources. There will be different types of permanent upgrades, which are explained in the following sections.

### Permanent Player Stat Upgrades

Stat upgrades improve a specific stat of the player. For example, a Damage upgrade will improve the base damage stat of the player, so his basic attacks will deal more damage to enemies. Each Stat upgrade will have 10 levels, so a stat can be upgraded multiple times. Each upgrade will cost more currency than the last.

The following table shows some of the stat upgrades that will be found in the game (these are just examples, for now, some of them might not be implemented):

Upgrade	Stat	Increase per Level	Description
Greater Vitality	Max health	+10%	Increases the maximum health of the player
Greater Regeneration	Out of combat health regeneration	+1% of Max Health per second	Increases the health regeneration amount when the player is out of combat
Greater Speed	Movement Speed	+2%	Increases the movement speed of the player by
Greater Damage	Base Damage	+5%	Increases the Base Damage of every attack of the player.
Greater Critical Chance	Critical Chance	+2%	Increases the chance of critical strikes
Pocket Thief	Coin Drop	+10%	Increases the number of coins an enemy drops when defeated (only affects run currency)
Greater Reflex	Dodge	+1%	Increases the chance to dodge incoming damage
Thick Skin	Armour	+1%	Decreases incoming damage



## Run Modification Upgrades

Run Modification upgrades are one time upgrades that change or add something to the run. For example, it might add a “health fountain” to the safe room, with which the player can refill some of his health once. Run Modifications can be bought from a specific NPC in the hub.

The following table shows some of the run upgrades that will be found in the game (these are just examples, for now, some of them might not be implemented and more will be added):

Upgrade	Description
Health Fountain	Adds a health fountain to the safe room, which heals 50% of the player’s max health.
Safe Room Merchant	Adds a merchant to the safe room, which sells upgrades
Upgrade Reroll	Gives the player the possibility to reroll the upgrades in the safe room in exchange for run currency. The price for each reroll increases exponentially.

## 2.6. Player Resources

### 2.6.1. Currency

#### 2.6.1.1. Coins

Coins are dropped from enemies or found in chests during a run and can only be spent on merchants found during the run. Once the run is over, the player loses all of his coins.

#### 2.6.1.2. Runes

Runes are used by the player to buy items and upgrades from NPCs found in the hub. Like coins, runes can be found during runs from enemies or chests, however, the currency is a lot rarer. Runes are kept between runs, so the player doesn’t lose them after a run.

### 2.6.1.3. Boss Currency (name will be changed)

Boss Currency is a very rare currency that only drops from bosses. It can be spent at a special NPC in the hub that sells powerful permanent upgrades. Like Runes, Boss Currency is not lost after a run.

## 2.7. Entities

### 2.7.1. Enemies

#### 2.7.1.1. Gullinbursti

The Gullinbursti is a boar-like creature that lives in the wild. It can be found in many different colours and sizes. Unlike a boar that can be found in Midgard, the Gullinbursti has not only horns coming out of his mouth, but also out of his cheeks and nose holes. The Gullinbursti is a naturally aggressive animal, not afraid to take on anyone who tries to mess with it.

The Gullinbursti is defined by the following:

- Does not attack normally like other enemies. Instead, it charges towards the player, dealing damage and knocking him back.
- If the player manages to dodge a charge, the Gullinbursti stops after he reaches a specific distance.
- After the Gullinbursti's charge, he is stunned for 2 seconds, before he can charge again. If he charges into a wall, he also loses health.
- Due to its size and stubborn nature, the Gullinbursti is immune to knockbacks.



### 2.7.1.2. Venomous Serpents

The game also features massive venomous serpents, children of Jörmungandr the world serpent, who roam the different Norse worlds. Serpents attack the player through powerful ranged venom attacks. They do this by spitting huge venom balls that fly to the player's position in an arc trajectory. If the player gets hit by a venom ball, he gets poisoned for a few seconds. If the venom ball misses the player and hits the ground, it leaves a venomous puddle behind, which poisons the player when he walks through. Snakes only attack from a range and only move if the player gets out of range or sight.

### 2.7.1.3. Draugr

Draugr is the basic enemy of the game. They are undead humanoid creatures that usually fight with a single-handed sword. Their combat style is defined by the following features:

- Draugrs have a single one-handed swing attack with a big anticipation time. The attack can be cancelled by the player by attacking during the anticipation (stun locking will be prevented through a stun lock meter). The attack can also be dodged if the player moves during the anticipation, as the attack direction gets locked in at that point.
- Draugr have a slow movement speed but their attack deals considerable damage.
- We plan to implement different types of Draugr, which might include:
  - Tanky Draugr  
The tanky Draugr fights with a sword AND a shield. He can use his shield to block player attacks. To damage this Draugr, the player needs to dash behind it to damage it. The tanky Draugr can also dash forward with his shield to stun the player. This attack needs to be charged first.
  - Very Strong Draugr  
This Draugr attacks with powerful ground slam attacks that deal a lot of damage and leave earthquakes on the ground (in small circular areas), which deal damage to the player if he walks over it.

#### 2.7.1.4. Wolf

The wolf is another quite common creature found in the nine worlds. They are many different types of wolves, but they all have something in common: They live in packs! Wolves can appear in packs of 2-6. Their combat behaviour is defined like this:

- Wolves appear in packs but have lower Health than other enemies.
- Wolves gain a “pack buff” when they are close together. This buff increases their damage and movement speed. Separate them to make them weaker.
- Wolves have a higher movement and attack speed than the player.
- There are different types of wolves, including:
  - Shadow wolf  
This type of wolf has an additional teleport ability. It can travel through the shadows to surprise its prey. It uses this ability to get closer to the player.
  - Earth wolf  
Similar to the Strong Draugrs, the earth wolf can pounce at the player, which leaves earthquakes behind and deals a considerable amount of damage.
  - Alpha wolf packs  
Alpha wolf packs are like normal wolf packs, except that one of the wolves is an alpha, that deals a lot more damage and has a lot more health than the other wolves. The alpha wolf loses this buff once all the normal wolves have been defeated.

#### 2.7.2. Interactable NPCs in the Hub

The Hub is separated into several different districts which all contain different types of NPCs. The following table shows the NPCs you can find and where you can find them.

(The Names of the NPCs will change once the Narrative is set)

Name	Type	Location	Description
Greeting NPC	Statistics	Valley of Fate	Greets the player and displays statistics about the last run. It also introduces the player to new NPCs. The NPC is essentially the player's guide.
Merchant NPCs	Vendor	Trade District	Merchant NPCs will sell useful

			items to the Player. This might include potions, upgrades, god items, trinkets, ... (Not sure if we really need them)
Mob Logger	Research	Research District	NPC that researches the enemies you've encountered so far in your runs. Will give you the possibility to research weaknesses of specific enemies, which will make the player deal more damage against them or gain more resistance against their attacks.
Research Table	Research	Research District	The research table allows the player to research more upgrades, which will then be available in runs or by other NPCs. Possible research: <ul style="list-style-type: none"> <li>• Duo upgrades (Upgrades with 2 effects).</li> <li>• Enchanter NPCs have more enchantments.</li> </ul>
Run Modifier NPC	Research	Research District	NPC allows the player to buy upgrades for the safe room, encountered during runs. (See: <a href="#">Run Modification Upgrades</a> )
Enchanter NPC	Upgrade	Dwarven District	Allows the player to enchant his weapon, which gives them a special effect. More enchantments can be researched.
Blacksmith NPC	Upgrade	Dwarven District	Allows you to change and upgrade your weapon(s) (through a simple level system). Upgraded weapons get an appearance boost, as well as a damage buff and attack modifications (for example: The axe will now return when thrown, dealing damage on its way back).

Upgrade NPC	Upgrade	Dwarven District	NPC allows the player to buy several upgrades on a skill tree.
Seer NPC	God affiliation	Temple	This NPC keeps track of your affiliation with the different gods and offers special upgrades for each god (like a tier system).
Seer NPC 2	God affiliation	Temple	This NPC explains the different gods to the player and general knowledge about norse mythology.
God Statues	God affiliation	Temple	The player can pray to these statues and receive a buff for his next run depending on the statue he prayed to.

### 2.7.3. Entity Interaction Matrix

TODO.

## 3. World

Norsevar is set in the cold regions of Scandinavia, during the winter times, which is why the first layer of the run (Midgard) and also the Hub will be covered in snow.

### 3.1. The Hub

The Hub is situated on Midgard, the land of the humans. Since the game plays in the winter, the hub will be placed in a snowy environment. The hub is separated into several different districts which all contain different types of NPCs. This is done to make the hub more intuitive to navigate. The following districts can be found in the Hub:

#### 3.1.1. Dwarven District

The Dwarven District is the home of the dwarfs that have sworn to help you on your quest. The area is filled with several dwarves going about their daily lives. Dwarfs are known for their craftsmanship, especially when it comes to blacksmithing, which is why the player will find all the **Upgrade and Weapon NPCs** here (See [Hub NPC list](#) for a complete NPC list). This is also reflected in the environment, which is very gloomy with lots of forges and machinery producing a red shimmer.



### 3.1.2. Trade District

The Trade District is filled with merchants trying to sell you various items that can help you in your future runs. The environment of this district should be very uplifting and lively, just like in a marketplace. In this district, the player will be able to find all the merchants in the game (See [Hub NPC list](#) for a complete NPC list).



A merchant room in Hades

### 3.1.3. Temple

The Temple is an area in the hub that is devoted to all the gods in Norse mythology. This area is filled with old relics and depictions of the Norse gods. It also contains altars for each god and is filled with seers. It is a place of worship for the people in the hub. In the temple, the player will find all the **god affiliation NPCs** (See [Hub NPC list](#) for a complete NPC list).



### 3.1.4. Research District (Might be changed to Mage District)

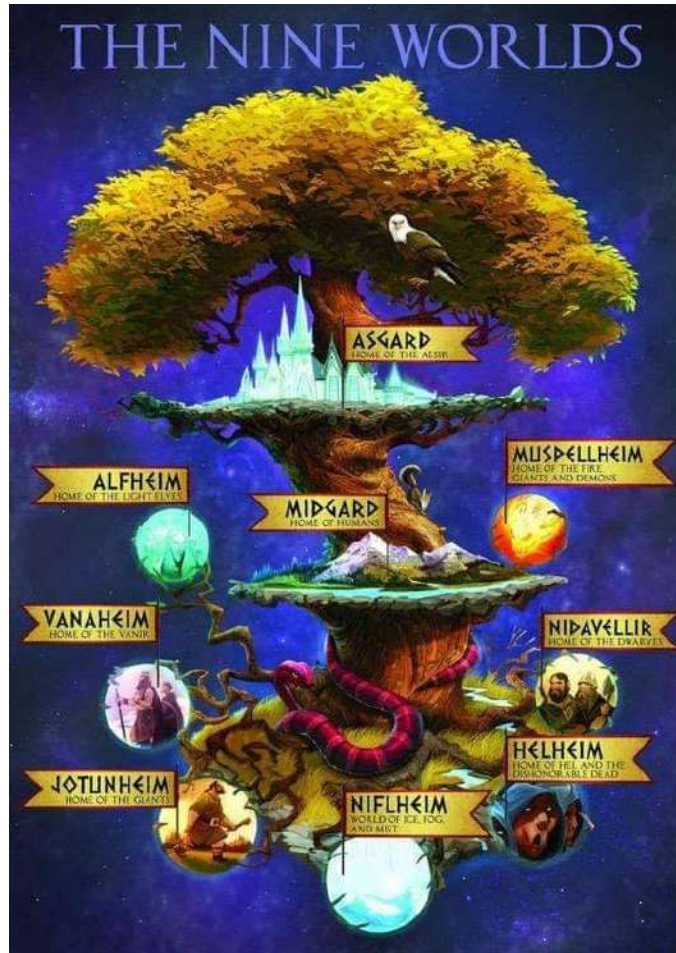
The research district is filled with all the thinkers you can find in the hub. The environment of this area is defined by all the crazy machinery made out of metal, with gears turning and rattling. In this area, the engineers and inventors of the hub reside to offer their services to the player. Here, the player will be able to find all **research related NPCs** (See [Hub NPC list](#) for a complete NPC list).

### 3.1.5. Valley of Fate

The Valley of Fate is a huge corridor that connects all the districts with each other. It is also the area in which the player starts his runs and where he spawns after his run is finished. Besides that the Valley of Fate contains the Pre-Run NPCs that let you adjust run settings (for example an NPC that lets you add modifiers to runs)

## 3.2. The Run

The general idea of the runs is that the player fights his way through several of the Norse worlds, in order to reach Asgard, the land of the gods, where the player finds Thor and returns his belt.



**The nine worlds of Norse mythology**

Each world poses different challenges to the player, including different enemies, different room types, different upgrades (the upgrade pool is increased), ... Each world also differs in artstyle and color palette.

Types of rooms encountered in a run include:

### 3.2.1. Enemy Room

Enemy rooms are the most common type of rooms. These rooms are simply filled with enemies that need to be killed by the player in order to advance. Depending on the layer, the enemies get stronger and more numerous.

### 3.2.2. Boss Room

A boss room is found at the end of each layer and contains a layer specific boss that needs to be defeated by the player to advance to the next layer.

### 3.2.3. Merchant Room

A merchant room appears once on every layer and allows the player to buy items at a merchant. The merchant offers several upgrades to the player in exchange for coins.

### 3.2.4. Upgrade Room

Like merchant rooms, upgrade rooms appear once per layer. This room offers 3 upgrades to the player, which the player can choose one of. The Upgrade room can also be enhanced in the hub, through permanent upgrades (see [Run Modification Upgrades](#)).

### 3.2.5. Challenge Room

Every enemy room has a chance to be a challenge room instead, where the player needs to “win” a challenge to get a random reward. There are several challenges that can be encountered, including:

- A mini boss that needs to be defeated
- A survival event, in which the player is surrounded by a huge amount of enemies and needs to survive for a specific amount of time. (after the timer runs out, the enemies despawn).
- A damage challenge, in which the player needs to kill as many enemies as possible within a specific time (the higher the kill count, the better the reward).
- A precision challenge, in which the player needs to dodge several AOE attacks. The attacks get faster and faster. The challenge is lost if the player gets hit by an attack.

## 4. Narrative

### 4.1. Story

Bo Einarsson, a Viking from the North, finds in the forest a finely ornate leather belt with metal and jewel decorations. When he reaches to grab it, a surge of energy flows through him in an instant, sending him flying through a tree, belt in hand. As he struggles back up, a giant figure clad in gold stands before him, sword in hand, his eyes as deep and dark as the night.

The figure introduces himself as Heimdall, the foreknowing God who keeps watch for invaders. In a deep, booming voice, he explains that Loki, the chaotic trickster God, tricked Thor into a drinking contest against some dwarves. To ensure his victory, the God of thunder took off Megingjörð, his magic belt. When the contest turned into a drunken brawl, Loki stole the belt and travelled to Midgard, realm of mankind, to hide it there. Heimdall then notes with a smirk that Thor would handsomely reward whoever brings him back his belt.

Now, Bo's sole goal is to find Thor and return Megingjörð to him. He puts the belt on, feeling once again the surge of power flowing through his entire body. He grabs his axe and, with Heimdall as his guide, heads off into the dark forest...

Once the first room is cleared, Bo notices that he feels stronger, which Heimdall confirms, as Megingjörð doubles its wearer's strength.

After the first death, Heimdall is surprised to note that Megingjörð allowed Bo to come back to life and suspects something is afoot, but neither of them can do anything for the time being, so they will have to carry on while keeping an eye out for anything odd.

By the end of the game, it is revealed that Loki wove strands of the immortal Baldr's head in the belt to ensure Bo could complete his quest. After an epic fight against Loki and Fenrir, Bo cuts the trickster's hands, returns Megingjörð and is accepted in Valhalla.

*Surely "Bo Einarsson" = "The lone warrior's son lives" could be mentioned somewhere*

## 4.2. Reference images (all made using Heroforge)



*Brokk, first son of Ivaldi*



*Eitri, second son of Ivaldi*



*Heimdall, the foreknowing God*



*Odin, the Allfather*



*Thor, God of thunder*



*Bo Einarsson, our protagonist*

## 4.3. Backstories

### Bo Einarsson (from Bo = Life, son of Einar)

#### *Early life*

Born from Einar (Lone warrior) and Eidunn (Happiness, Gift / Alert), Bo was raised in pure Viking tradition: raised by his mother and trained in combat with other children.

Bo grew up to become a warrior, proficient in many weapons, his preferred one being the bearded axe. His constant desire to improve brought him to forge and assemble himself a weapon like no other: Trygve (Trustworthy), which he crafted at age 16.

This axe is made from a hazel handle and an ornate head made out of wrought iron. Bo wrapped the handle in leather to ensure a firm grip when swinging the axe around. He also tied 15ft of rope through a small hole in the knob (the end of the handle that is opposite the head) and wrapped the extra length around his arm. By doing so, he can put his axe throwing abilities to good use without sacrificing his one weapon.

One day, at the age of 20, while he was out hunting and honing his reflexes, Bo's village was raided by a pack of wolves. Many were injured, some died, including his mother Eidunn. When Bo returned and learnt what happened, he became enraged and ran back into the forest, axe in hand, to avenge her. However, as he was already weakened and tired by two days and a night of hunting, Bo collapsed from fatigue as he caught up with the pack. Had his father not followed him, he would have been mauled to death. Einar dragged his son back to the camp, and once Bo had regained consciousness, his father scolded him for his brashness and recklessness. While he mostly got away unscathed, one of the wolves scratched him on the face, leaving a scar spanning across his left eye. The physical scar, however, was not as deep as the inner scar caused by the loss of his mother. Neither would ever fully heal, and both would shape Bo into a wiser, more tactical, yet more brutal warrior.

Einar, his father, perished two years later at the battle of Stamford Bridge, after facing the English troops by himself and killing 40 of them with nothing but his axe, before four cowards snuck beneath the bridge and stung him to death from below. Upon learning the news of his Einar's passing, Bo was sent over the edge. He grabbed Trygve, a flask of mead and left the village. After marching for several days on, he settled in a clearing near a river, built a small wooden hut and lived there for the next decade or so.

Living as a hermit, Bo became rougher. The loss of both his parents made him lose faith in the Viking way of life. He still had faith in the gods though, and seeing his parents again became his new reason to die a warrior's death and go to Valhalla.

### *Finding Megingjörð*

One day, as he was hunting a herd of elks, Bo (now aged 34) made a surprising find in the form of a leather belt decorated with many blued metal ornaments and a buckle that seemed to be made out of a precious-looking deep blue gemstone. Intrigued by his discovery, he cautiously grabbed the belt, expecting a trap to spring.

Instead, electricity ran through his body and a powerful wave of energy surged through his entire body, sending him flying backwards through a tree. As he struggled back up, he found himself in front of a massive figure clad in gold, sword in hand, his eyes as deeply dark as the night itself.

In a deep, booming voice, the figure introduced itself as Heimdall, the foreknowing God who keeps watch of intruders. He informed Bo that he is holding Megingjörð, Thor's magic belt, which was stolen by Loki, the God of Mischief. Heimdall then told Bo that he now had to travel to Asgard and return the God of Thunder his belt. To this, the lone warrior responded with a grunt.

"Not my problem." Bo muttered while heading back to his cabin.

Heimdall then noted that Thor would be extremely grateful towards whoever would return Megingjörð. Surely someone brave and honorable enough to undertake this epic journey would be worthy of entering Valhalla...

Upon hearing that last word, Bo stopped dead in his tracks. With a new flame in his eyes, he looked back at Heimdall with a grin.

"I'm nearing my end anyway." He snarkily growled, while putting the belt on.

### *During the game*

After his first combat, Bo remarks that he feels stronger, which is the magical function of Megingjörð. After his first fatal encounter, he is surprised to come back from the dead, which is *not* supposed to be caused by the belt, but seems to, to his and Heimdall's surprise. While the foreknowing God is concerned about the potential implications, Bo brushes them off, as immortality will help him in his quest.

While fighting his way to Asgard, Bo learns more about his quest. He discovers how Megingjörð made its way to some forest in Midgard as well as Loki's plan in its full extent. At first, he doesn't care about it, as his only goal is to enter Valhalla. However, as he progresses, he realises that Loki sent the wolves to his village and guided the Englishmen beneath the bridge, making the trickster God the reason behind his parents' passing. Now with a personal reason to confront him, Bo carries on with his quest with a purer heart. Once reaching the God of Mischief, Bo learns that Loki wove strands of hair



from Baldr, the immortal son of Odin, in Megingjörð's ornaments, allowing Bo to come back from the grave when killed. After defeating Loki in combat, Bo cut both of his hands<sup>1</sup> before giving Megingjörð back to Thor. When invited to Valhalla by the God of Thunder; however, Bo declined.

"I've lived a coward's life, full of hatred and denial. I do not deserve it." He retorted.

Thor told him that by overcoming his loss and sparing a beaten opponent, he proved his honor and earned the right to feast in Valhalla.

After reflecting on his journey and shedding a tear, Bo humbly accepted and entered Valhalla, bathed in its bright golden light.

## 5. Art

### 5.1. Art Style

The game features a low poly art style.

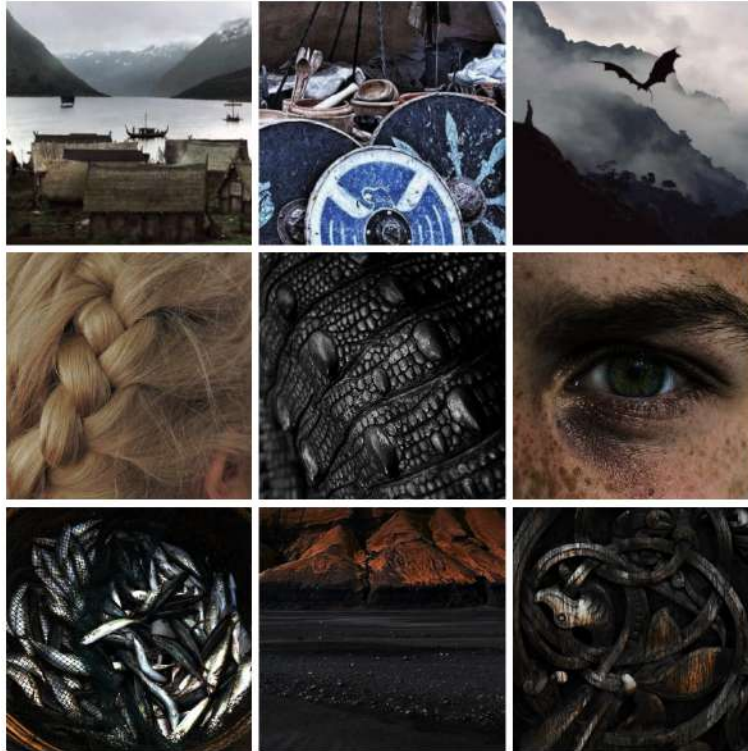


(Source: <https://assetstore.unity.com/packages/3d/environments/fantasy/polygon-vikings-low-poly-3d-art-by-synt-85664>)



## 5.2. World Design

### 5.2.1. Moodboard



### 5.2.2. Colour Palette



## 5.3. Visual Effects

### 5.3.1. Snow Effect Research

Notice: These are only Shader techniques for the **visual effect** of snow being compressed when a weight/force comes in contact with the snow. These are **neither** Snow **simulations** nor **effects of snow being kicked/whirled around** when a character is walking/attacking.

Interactive Snow techniques & resources:

Method 1 : [Unity Shader Graph - Snow Interactive Effect Tutorial](#)

This method uses noise displacement and a particle system effect which is only captured by a special Camera to render texture. The particle system is then placed on the relevant elements that interact with the snow and the displacement is lowered where the particle system is rendered.

Method 2: [Snowtracks Shader - Unity CG/C# Tutorial \[Part 1 - Tessellation Theory\]](#)

This method uses a tessellation shader to generate more detail on a plane (LOD's can be made very easily like this) and uses a separate MonoBehaviour script for physics queries which will write the displacement information to a texture, based on the query results.

Method 3: [Tracks in the Snow - Dynamic Snow in Unity - Part 1](#)

This method is IMO the most interesting one. It uses a second camera like the first one, but the depth information for carving out the snow is way more detailed because the second camera's depth buffer is used to determine how much of the snow should be missing. Moreover, this technique also uses tessellation for plane resolution.

I think the last technique is the best approach to these.

On top of that, I would incorporate the amount of snow into the Sound Design and change some values for a particle system based on the snow amount when characters walk in the snow.

I plan on using the already existing depth RenderTexture and query the relevant pixels to determine how much snow is left at a certain point.

The last technique can also be expanded to use a noise function to have a less uniform appearance.

Depending on the level size, the render texture would need to be very big, which will come with a performance impact and eat up some memory.

But, as we only need the texture to have one channel which is 8 bits, a 4k texture would use  $4096 * 4096 = 16.78$  MB, instead of the usual space which is 4x as much (r,g,b, a).

Looking a bit further into snow deformation techniques, I found a very helpful paper by Daniel Hanák, namely his Master's Thesis in visual centred computing, titled "Real-time Snow Deformation".

In his paper, he details the already existing implementations in triple-A games, and elaborates about the pros and cons of the different techniques, finally, he takes the technique used in Horizon Zero Dawn and improves on it.

His work has left me with a very helpful understanding of snow deformation effects, the underlying challenges, approaches and required understanding for achieving an effect that is similar to the quality that triple-A games present.

Paper and source code: <https://is.muni.cz/th/m2v6i/?fakulta=1441;obdobi=5305;lang=en>

## 6. Audio

### 6.1. Instruments

Instrument Type	Historical	Extra for effect / similar in sound etc.
<i>String</i>	<ul style="list-style-type: none"><li>• Lyre</li><li>• Tagelharpa</li></ul>	<ul style="list-style-type: none"><li>• Harp (Full-sized)</li><li>• Lute</li><li>• Gittern</li></ul>
<i>Woodwind</i>	<ul style="list-style-type: none"><li>• Panflute</li><li>• Cow horn</li><li>• Goat horn</li><li>• Bone flutes</li></ul>	<ul style="list-style-type: none"><li>• Tabor pipe</li><li>• Bladder pipe</li></ul>

<i>Percussion</i>	<ul style="list-style-type: none"> <li>• Animal skin drums</li> </ul>	<ul style="list-style-type: none"> <li>• Bodhran</li> <li>• Frame drum</li> <li>• Adufe</li> </ul>
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## 6.2. Sound Breakdown

<b>Battle</b>	<ul style="list-style-type: none"> <li>• Metal on wood</li> <li>• Metal on Metal</li> <li>• Wood on wood</li> <li>• Creaking wood</li> <li>• Scraping metal</li> <li>• General pain SFX (Shouts, grunts)</li> <li>• Contact SFX (Slices, hits etc, when struck with a weapon)</li> <li>• Enemy pain SFX + death sounds.</li> </ul>
<b>Ambient</b>	<ul style="list-style-type: none"> <li>• Calm, Slight and powerful winds</li> <li>• Running &amp; stagnant water</li> <li>• Footsteps for player + enemies</li> <li>• Animal/nature sounds (Trees swaying, grass rustling, bird calls, deer/wolves in distance)</li> <li>• Weapons clanging/armour rustling,</li> </ul>
<b>Menu &amp; NPC</b>	<ul style="list-style-type: none"> <li>• NPC 'voices' (Hums, Ha's and whatnot, maybe not actual voices and more like grunts)</li> <li>• Menu up, down, select and start sounds</li> <li>• General selection, item get and remove sounds</li> <li>• Pause menu theme / Main menu theme</li> </ul>
<b>Area Themes</b>	<ul style="list-style-type: none"> <li>• Hub</li> <li>• Easy, Medium and Hard battle themes (Slight variation in instruments for enemy variants?)</li> <li>• Boss themes (Maybe various sections for different stages)</li> <li>• Boss intro themes?</li> <li>• Variations on empty dungeon themes for cleared dungeons</li> <li>• Variations on new dungeon themes for dungeons not cleared and no battles</li> </ul>
<b>Extras</b>	<ul style="list-style-type: none"> <li>• Ending credits</li> <li>• Opening theme</li> </ul>

	<ul style="list-style-type: none"><li>• Secret boss music</li></ul>
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### 6.3. Overall sound design

With the overall sound design for the game, we intend to make the game have a variety and variation of soundtracks to indicate your state in the game through music.

This meaning when transitioning from no enemies to combat, the music would change to accommodate this, this also means that you would be immediately able to hear and react to the differences, knowing there is an enemy about to attack.

Due to the period of the Vikings and Norse Myths in general (793 AD - 1066 AD), We can expect a lot of medieval instruments to make an appearance and be the main carriers for the music. This means the main theme would be played with authentic, or as close to the authentic sound, instruments and would be accompanied by more modern instruments to keep the music interesting and more complex.

Reference: <https://youtu.be/2BPILaMT50k>

# 7. Paper Prototype

## Quick Rules:

- Turn based
- Movement Points
- One Attack on your turn
- Counter enemy attacks
- Boar -> Charge
- Snake -> Spit
- Wolf -> Pack
- Draugar -> Basic

## 7.1. Physical Requirements

Player Stat sheet:

Strength

Health

Speed

Critical Chance

Initiative

Evasion

Enemy Stat sheet:

Strength

Health

Speed

Critical Chance

Initiative

Inventory sheet

Counter sheet

### 7.1.1. Player

- Player stat sheet

- Player Upgrades sheets
- Player attack cooldown sheet

### 7.1.2. Rooms

- 2 normal rooms
- 1 treasure room
- 1 trap room
- 1 special room
- 1 boss room

### 7.1.3. Hub

- 4 NPC's
- Run launch area

### 7.1.4. NPC Cards

- 4 Friendly NPC's:
- Seer, Upgrader, Pathfinder, Builder

### 7.1.5. Enemy Cards

- 1 Boss enemy
- 8 Normal Enemies

### 7.1.6. Pawns

- Player Pawn
- 4-5 Enemy Pawns
- Boss Pawn

### 7.1.7. Upgrades

- 4-6 Upgrade cards

### 7.1.8. Sound

- Simple sound playing device

## 7.2. Design Requirements

### 7.2.1. Movement

Movement in the prototype is handled with actions. Moving, attack, dash are all actions.

#### In Combat

The player gets 5 action points during combat.

Costs:

- Moving → 1 action
- Dash → 3 actions
- Attacks → See Combat section

#### Out of Combat

The player can move freely. Interact with merchants, pick up upgrades and continue through the rooms. During this time he can also swap his abilities.

### 7.2.2. Combat

- Entity stats
- Entity attacks
- Attack cooldowns
- Status effects
- Movement

### Boss Combat - The Kraken

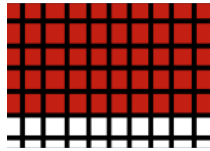
The kraken is a decently tanky boss, having 250Hp.

#### Basic Attack 1

- The boss uses a tentacle to punch down a row to attack a player. He will select a row in front of him and punch, hitting up to 5 grid spaces away.
- If the player is in the first row, +5 damage added, if in the last grid during the hit, only +1 damage.



- The punch does 20 damage on its own.



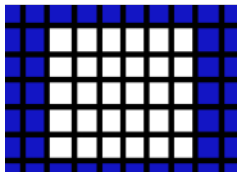
### Basic Attack 2

- The kraken attacks the front 2 rows up to 5 times in a row.
- This does 5 damage each time he hits.



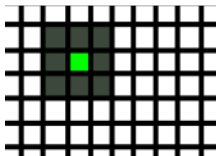
### Advanced Attack 1

- The kraken jumps in the water, causing a wave to hit all edges of the board.
- This does only 10 damage but will pull the player to the edge of the board he was closest to when the attack happens (Only if hit).



### Advanced Attack 2

- The kraken, filled with rage, flings rocks at the player, landing randomly around the area of the player.
- This attack repeats 6 times.
- (D10 for chance) if it lands on 9 or 0, the player gets hit for 5 damage.
- Green represents a player.



### Special

The player gets picked up by the kraken. The players must struggle to get out, using a coin flip, if heads, the player gets bitten. If tails, the player escapes without getting damaged. This attack does massive damage, up to 30 damage.

### 7.2.3. NPC

- NPC shops
- NPC Dialogue
- NPC encounter

### 7.2.4. Upgrades

- Upgrade effects
- Upgrade encounters

### 7.2.5. Generation

- Generation rules

### 7.2.6. Sound

- Hub music
- Fight music
- Looting music
- Boss music

### 7.2.7. Shops

- In-run shop
- Hub shop

### 7.2.8. Level

- 6 Different Level Layouts

### 7.2.9. Rooms

- 6 Different Room Enemy Layouts
- Room Size

- Room Elements (Interactables, Special Spawns etc.)