

Lidow

Game Folio

Level design: Xionycio Li

Developer: Ang Li

Art: Yongkai Huang

ABSTRACT

It is easy to overlook natural or physical phenomena such as shadow and light, due to how commonplace these properties are in our daily life. The purpose behind our project is to explore shadow and light in a way that expands our relatively rigid thinking and integrate a more sophisticated perspective into our game mechanics. Games such as 'In My Shadow' (Alcon Interactive Group, 2021) and 'Shadow Land' (David Serrat, 2019), which uses fixed and adjustable light sources to influence shadows respectively, served as initial inspirations for our project.

What sets us apart, however, is that we view the relationship of light and shadow to be one of cooperation, rather than the overused theme of opposition, found in classics such as 'Final Fantasy XIV: Shadowbringers' (SQUARE ENIX, 2019) and 'Ultraman' (Tsuburaya Productions Co. Ltd, 1966).

Jenkins referred to spaces and environments in games as a narrative tool which game designers can use to evoke specific emotions from players (Game Design as Narrative Architecture, 2004). Our environment is reminiscent of an unfamiliar alien nature or territory, which utilises eerie and dark, gigantic spaces to create a perturbed feeling between players, allowing them to easily forge a sense of cohesion and cooperation.

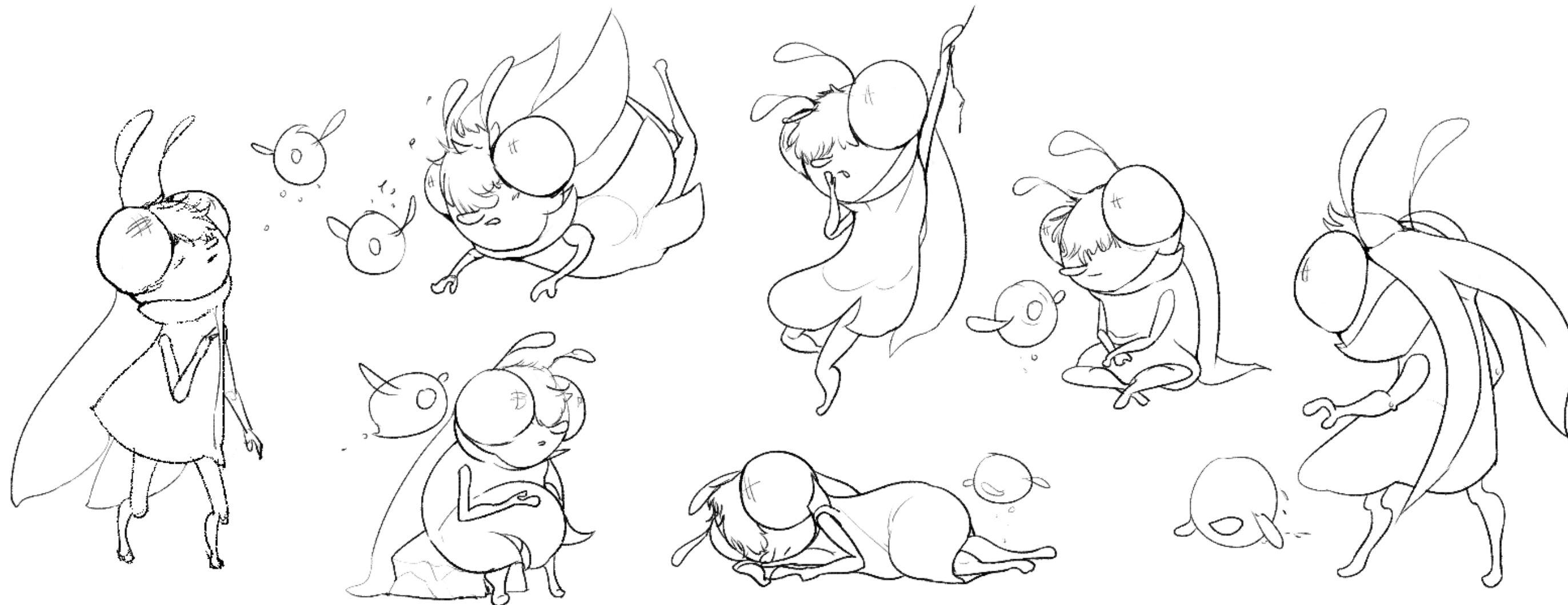


Art Design

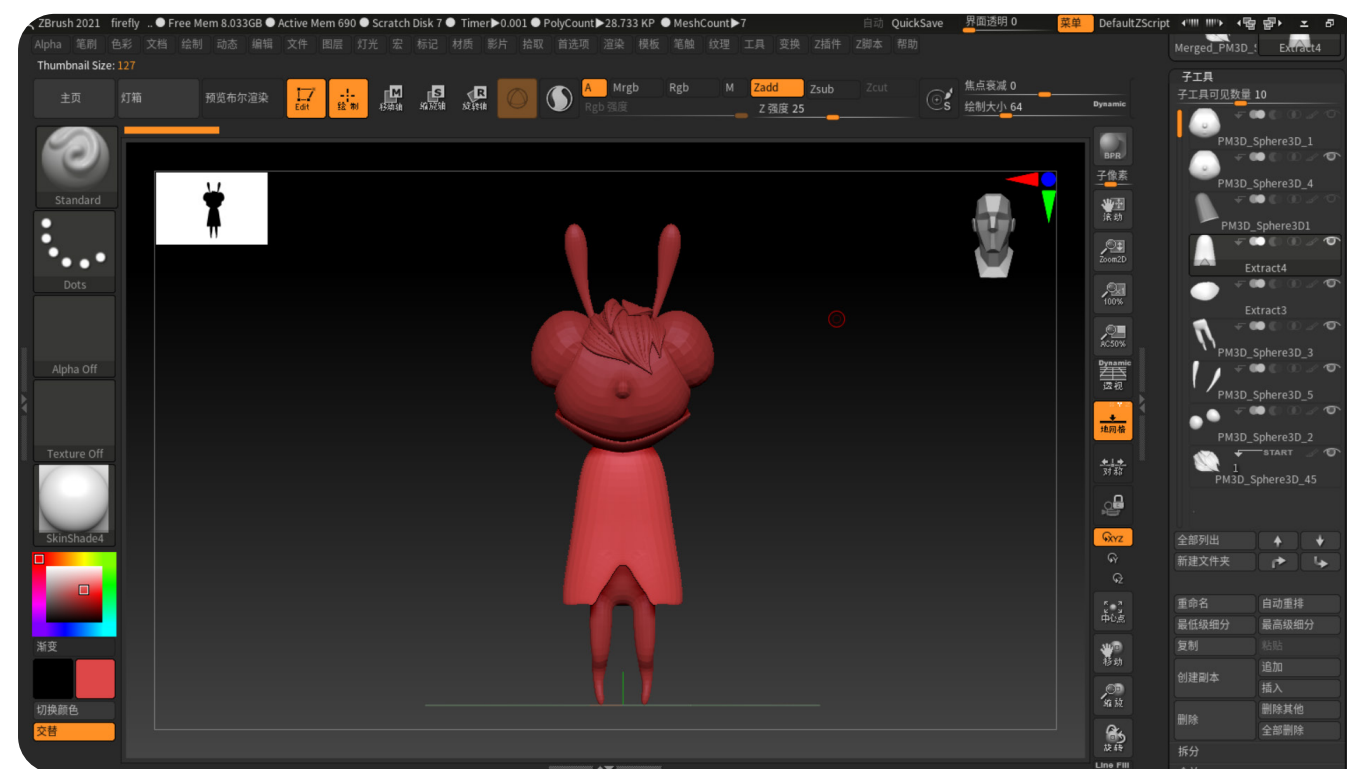
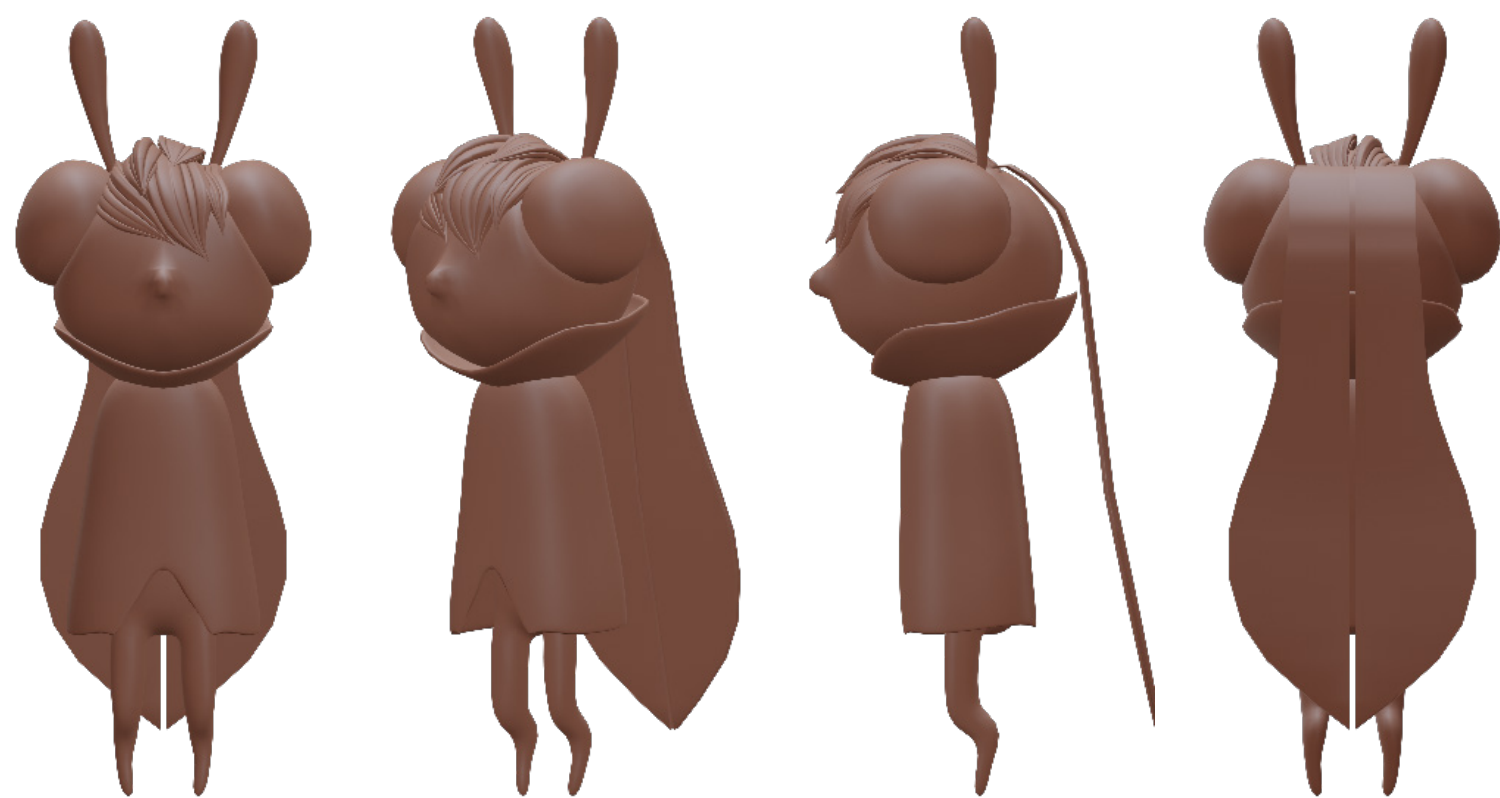


Character design

Character dynamic sketch



Character sculpture

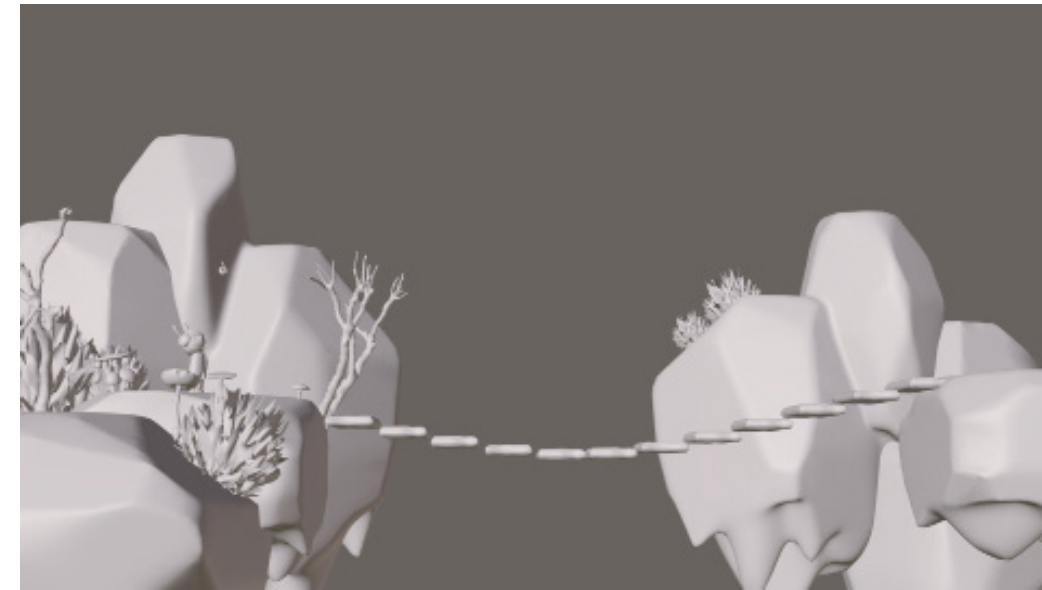


Base concept

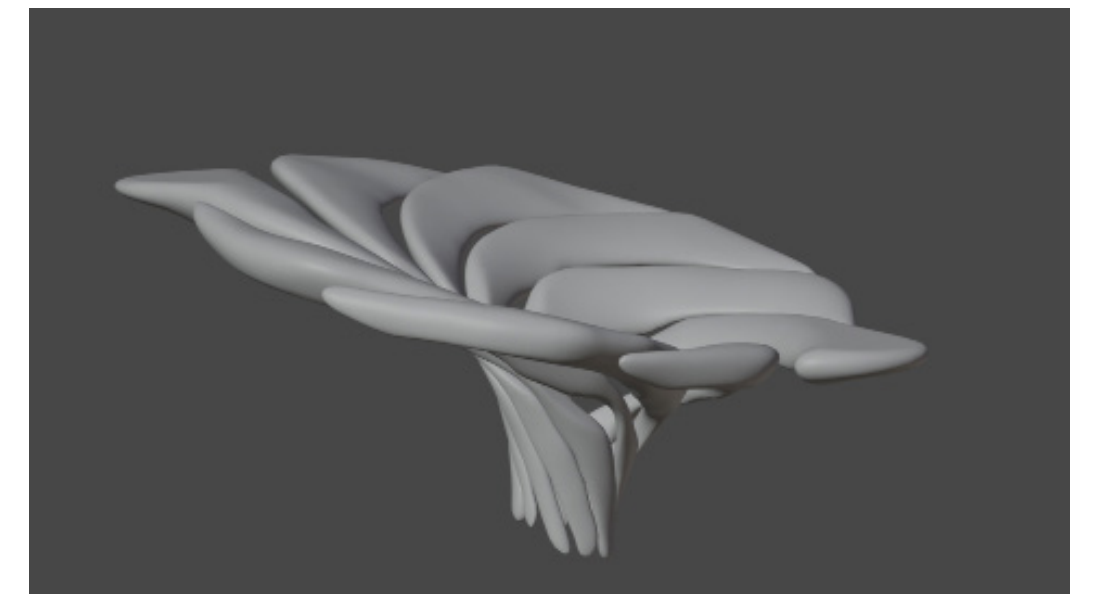
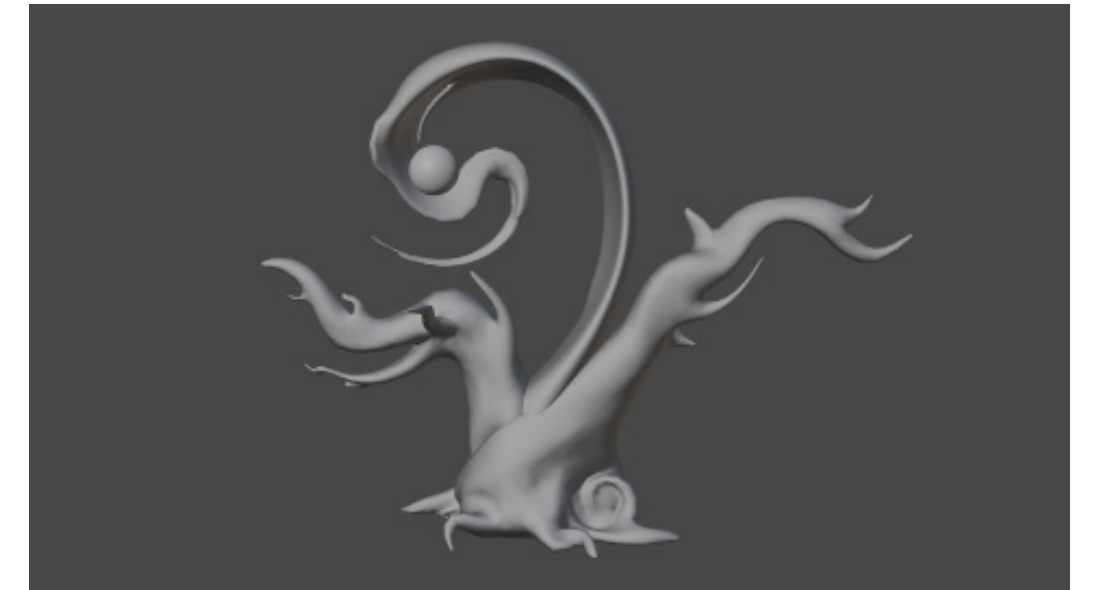
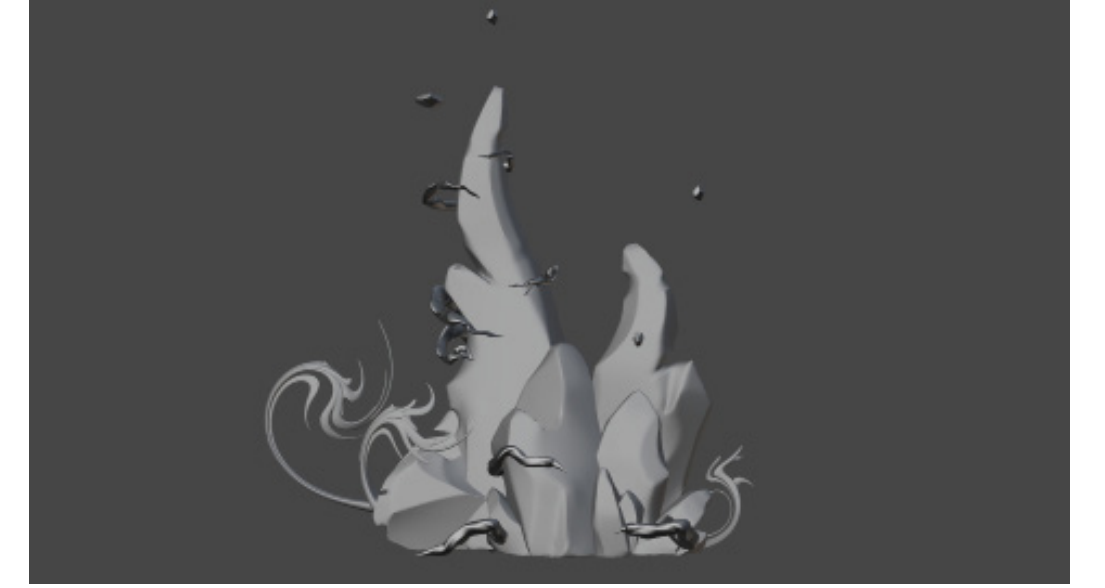


*Environment
Design*

Environment art & modeling

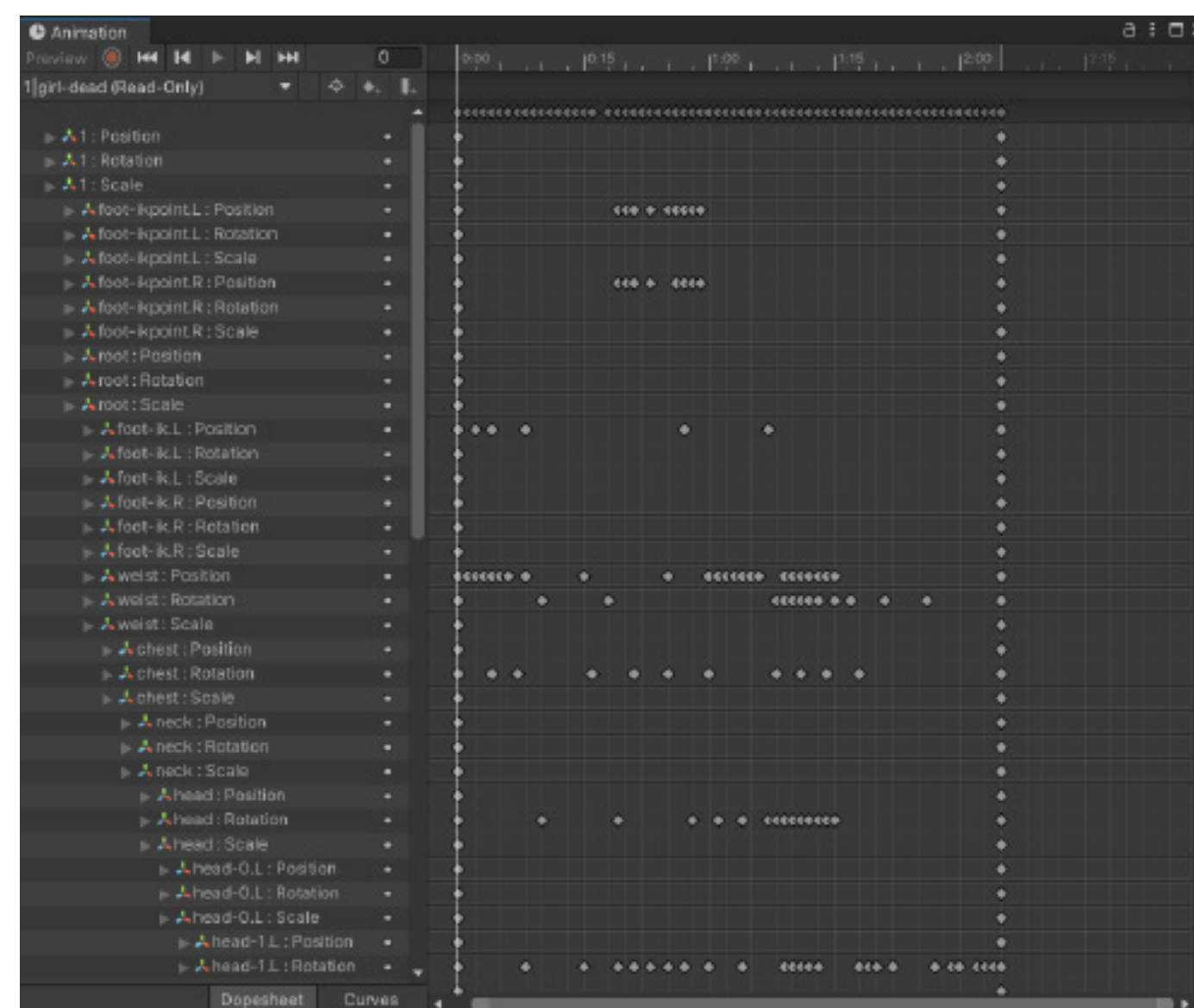
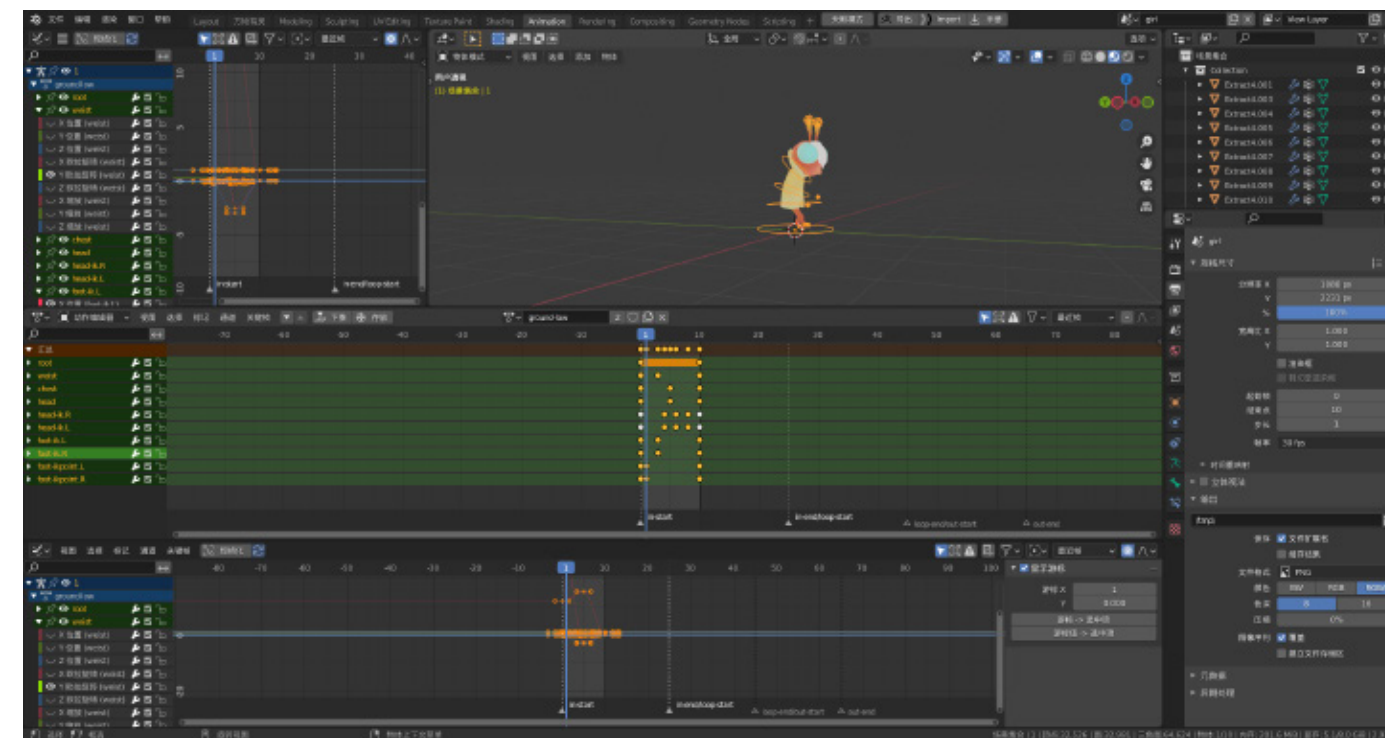
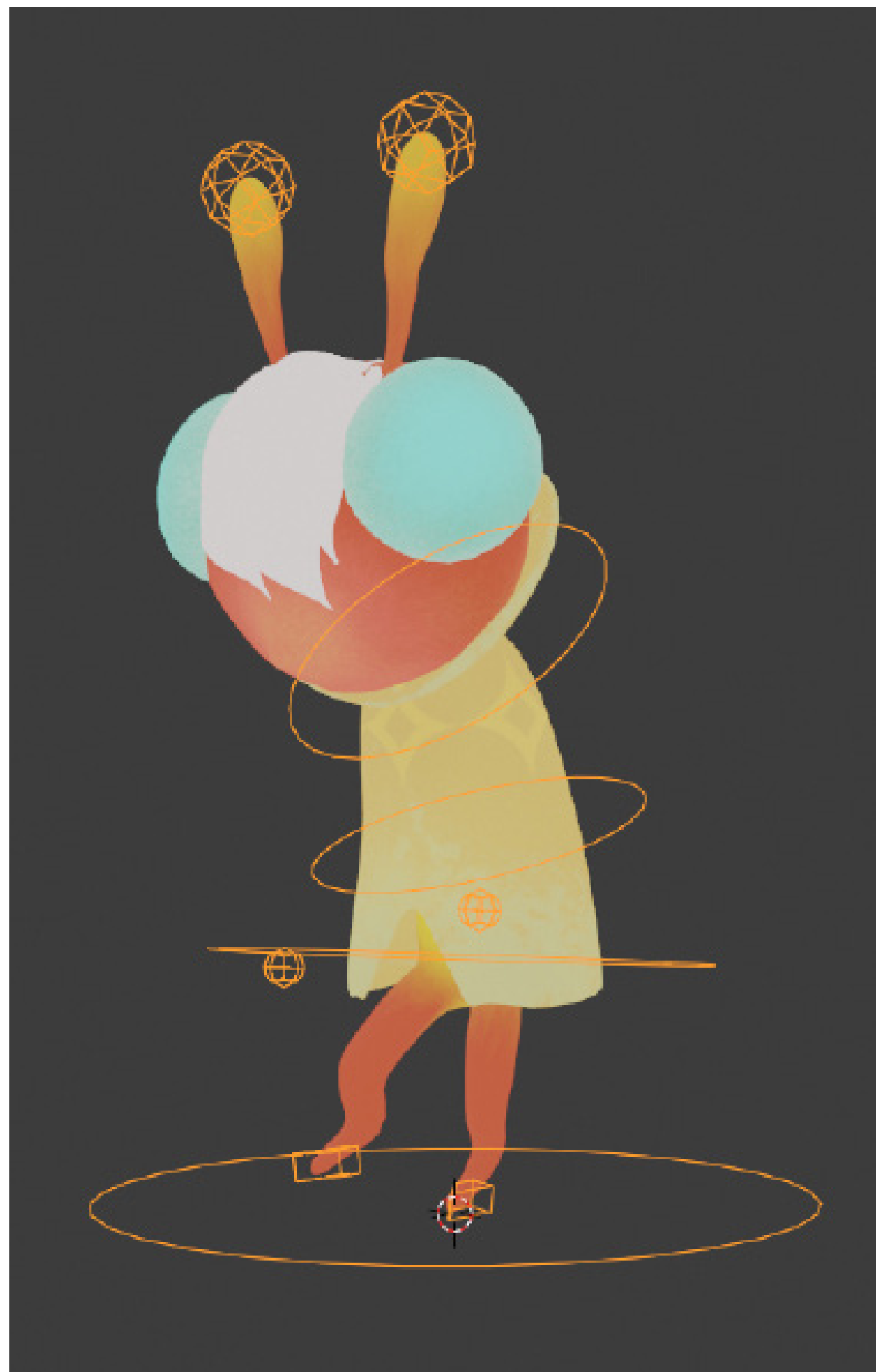


Rocks & plants' art & modeling



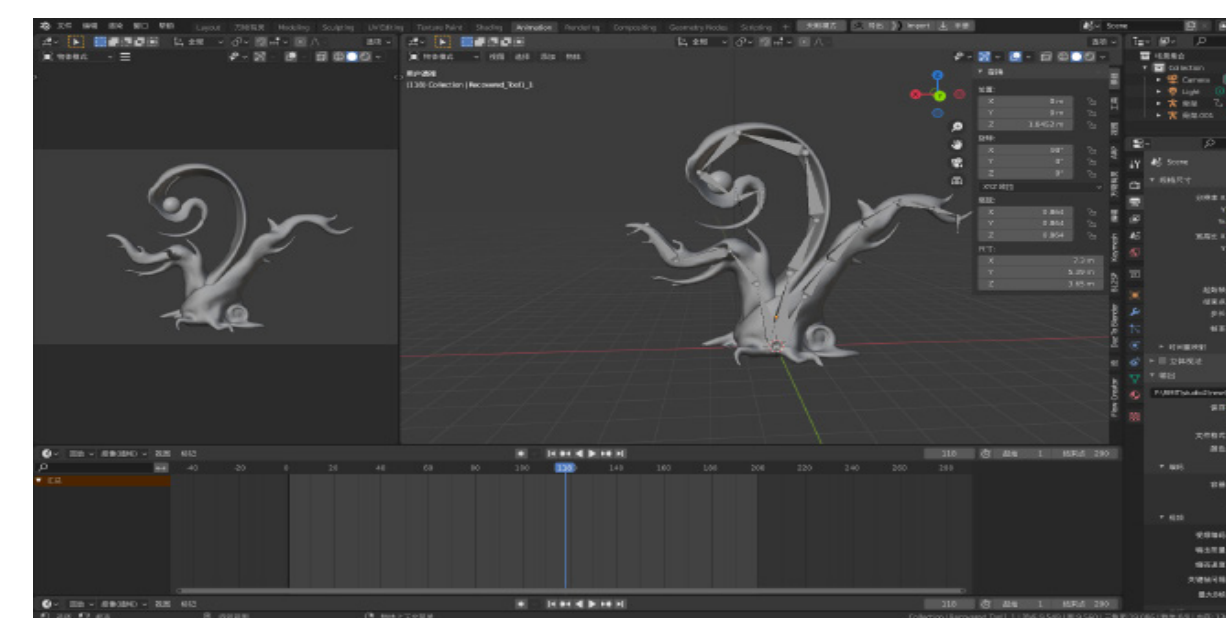
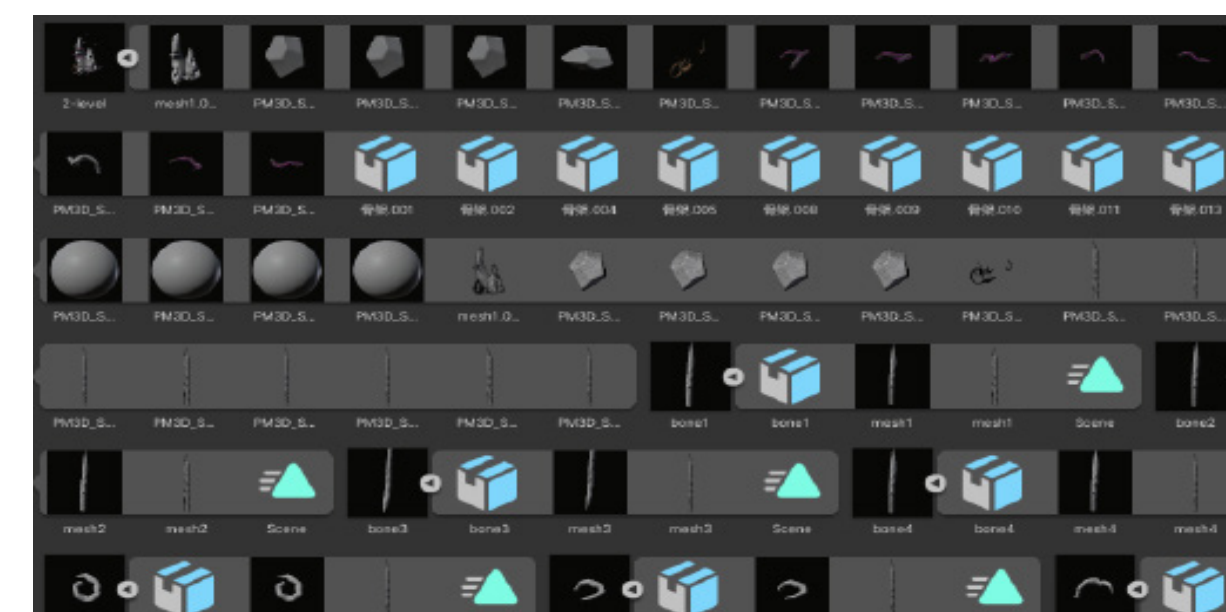
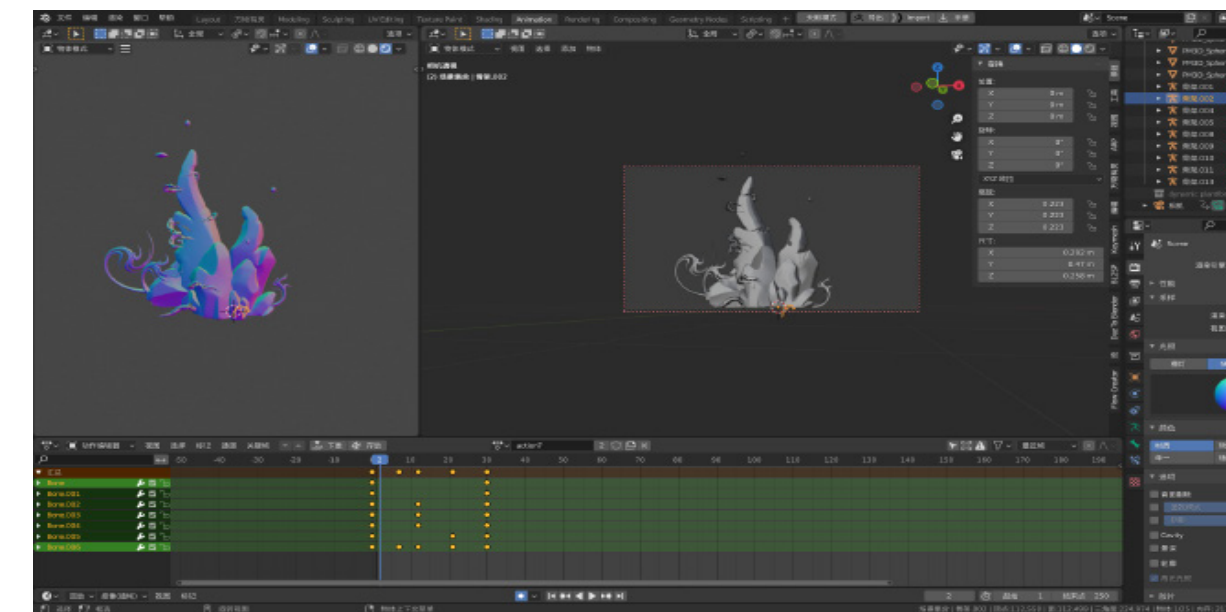
Animation works

Character animation



Corresponding to the action mechanism of the role, we made normal animation, running, walking, jumping, death and so on. It is worth mentioning that we differentiated different jumping amplitude to correspond to different falling height. I also did some iterations on the fly-light animation and finally finished the current version.

Level mechanic animation



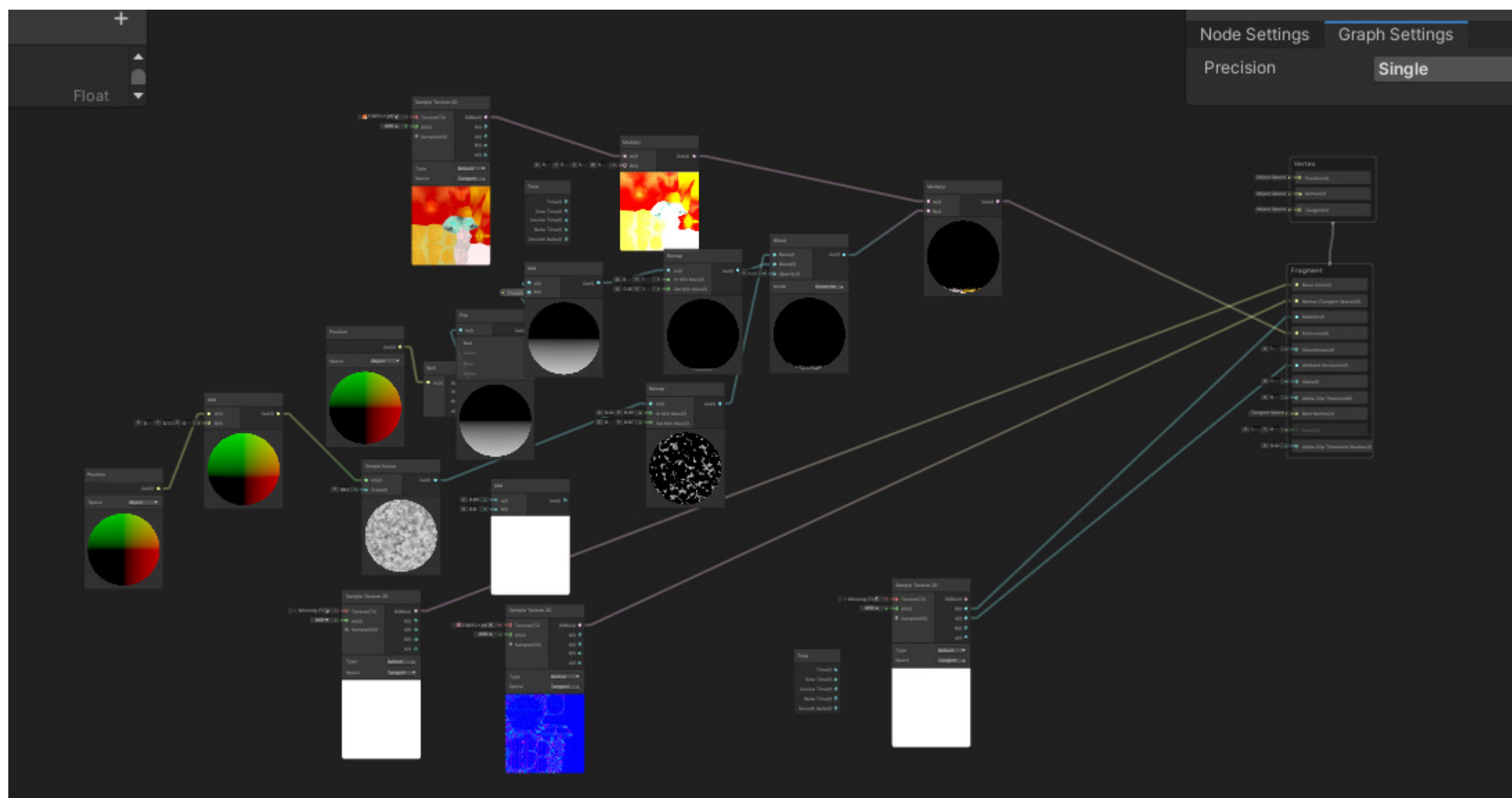
For the level mechanics animation is mainly divided into two parts, tentacle Mountain part and dandelion part. Tentacles mountain the tentacles of the animation is part of the level design, players need to use the light transmission mechanism to change the status of tentacles in the scene, eventually help players through the toll-gate, because set is refractive tentacles, so need to show they are afraid of animation more natural light, at the same time not too fast that players will be left out. Part of the dandelion animation is relatively simple, similar to the principle of tentacles.

Shader & References

Character shader animation & node



The character's material needs to serve the mechanics to change the coverage of the dark parts, so the material needs some animation and code. Therefore, the shader Graphic function of Unity is used to complete the purpose of changing the dark material through node values.



References

In the process of character design, I iterated many versions. Even in the first version of character design, MY direction was only to make the characters excellent but ignored the interesting characters. Matt reminded us of this, so I quickly iterated on a new character design which is the Firefly girl you see on the left.



In the role of reference and related fields, is one of the earliest reference we have small nightmare design, the role of leading role of yellow raincoat certainly brought deep impression to many players, so there is no doubt that this is a successful design, the little girl's weak and impressive yellow raincoat in stark contrast to the dark background story, make the whole story of terror.

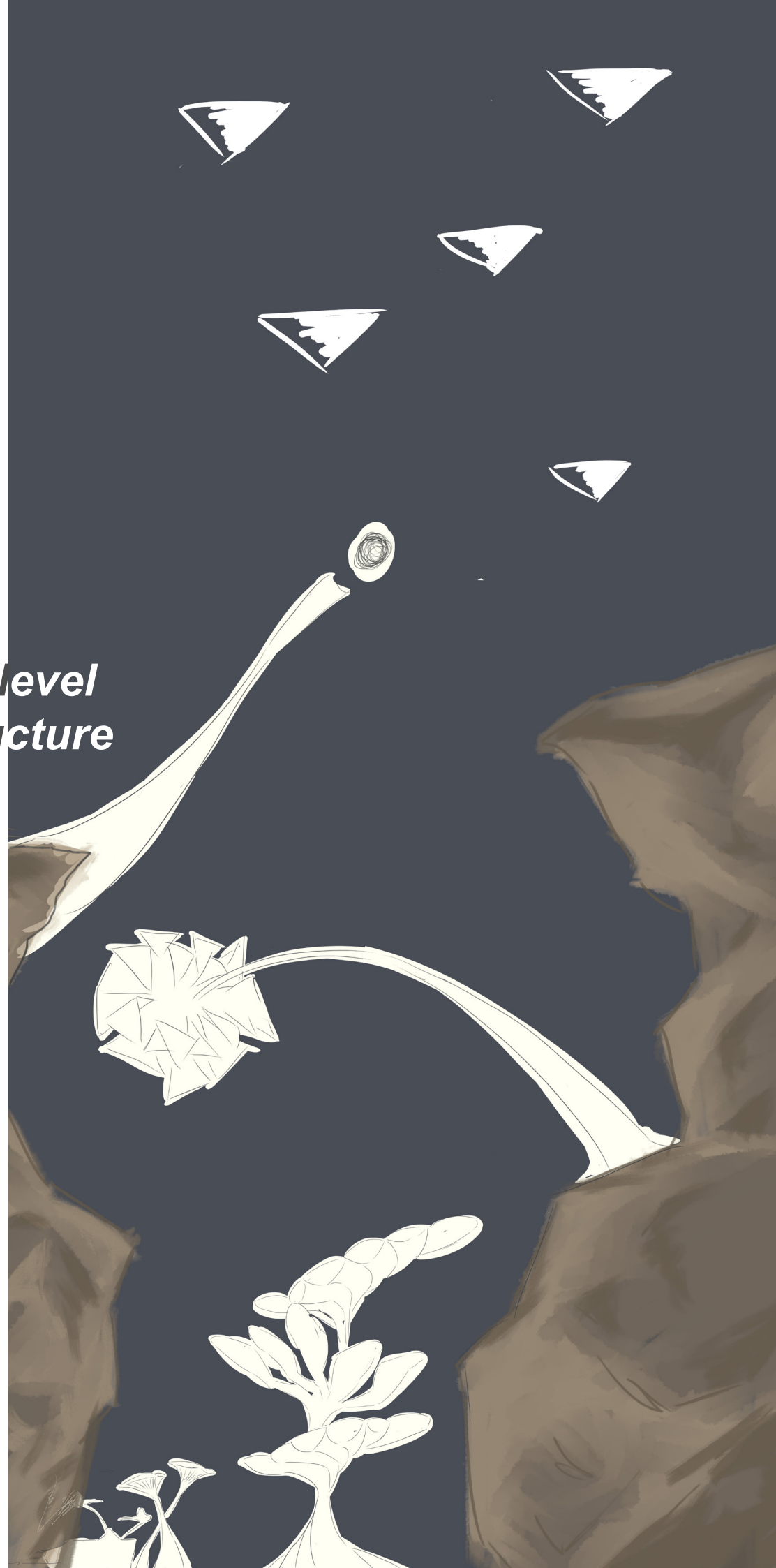
So when designing a character, it's not just about looking good, it's about matching the design to the game.



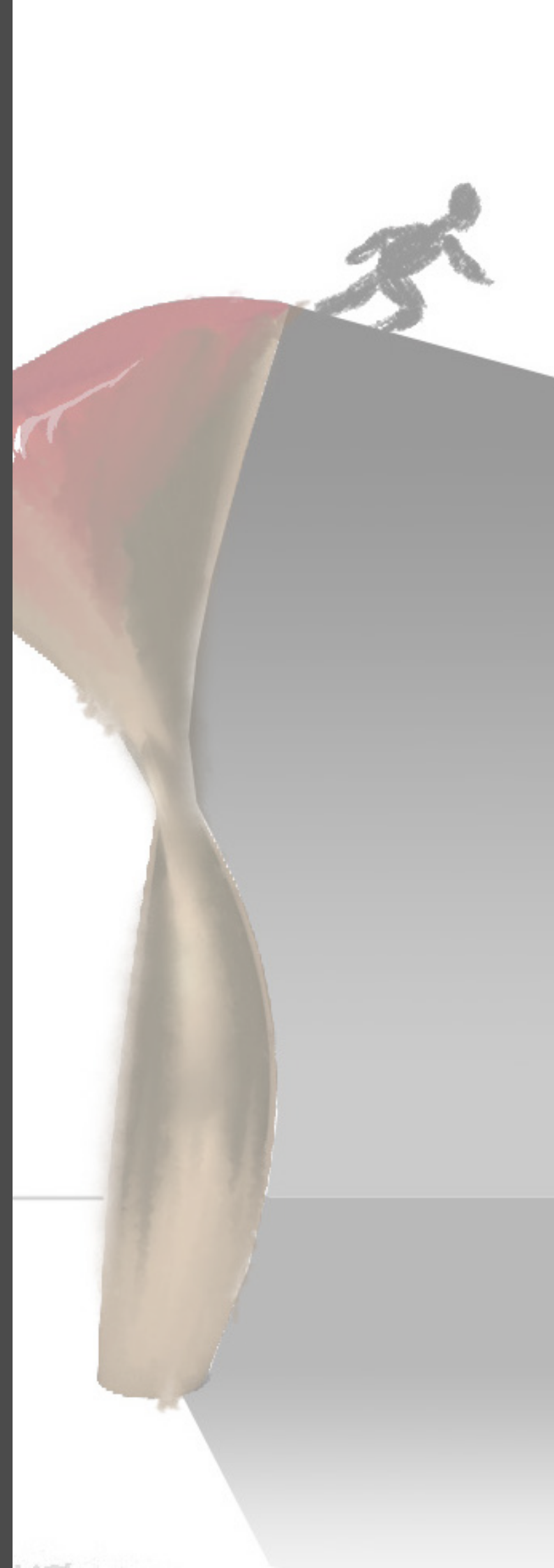
Level Design

Overall level structure

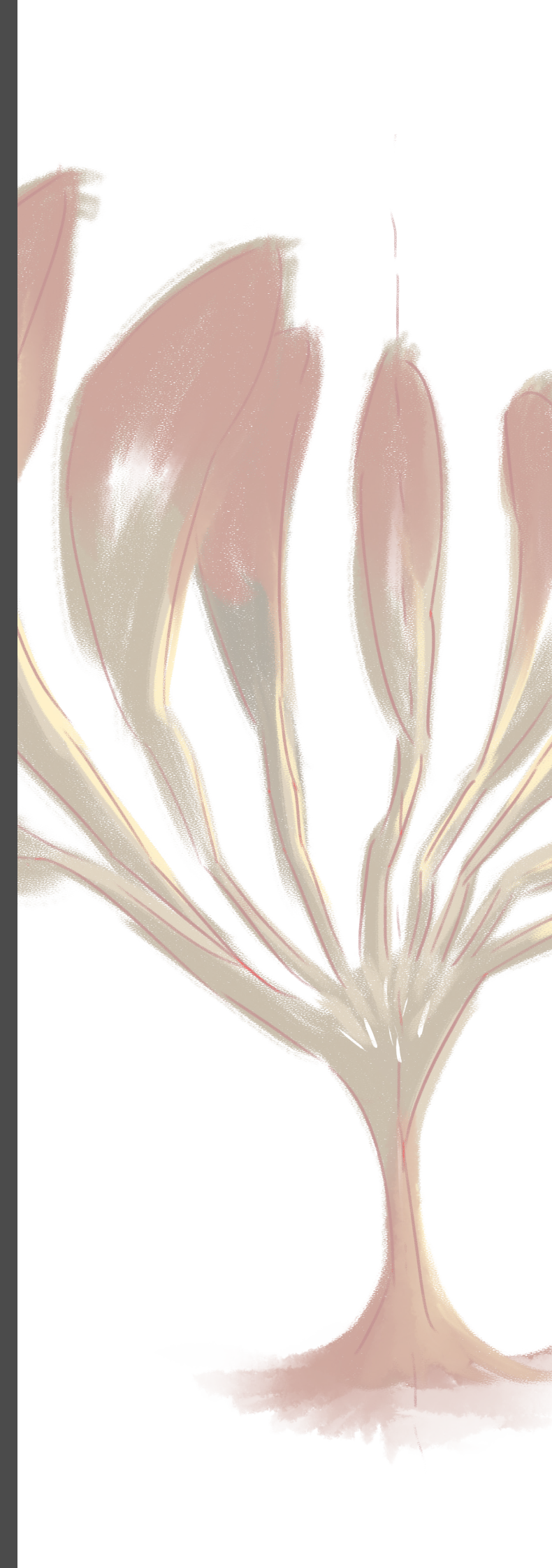
The intention of designing each level is to explore one more direction the last level.



LEVEL INTENTION

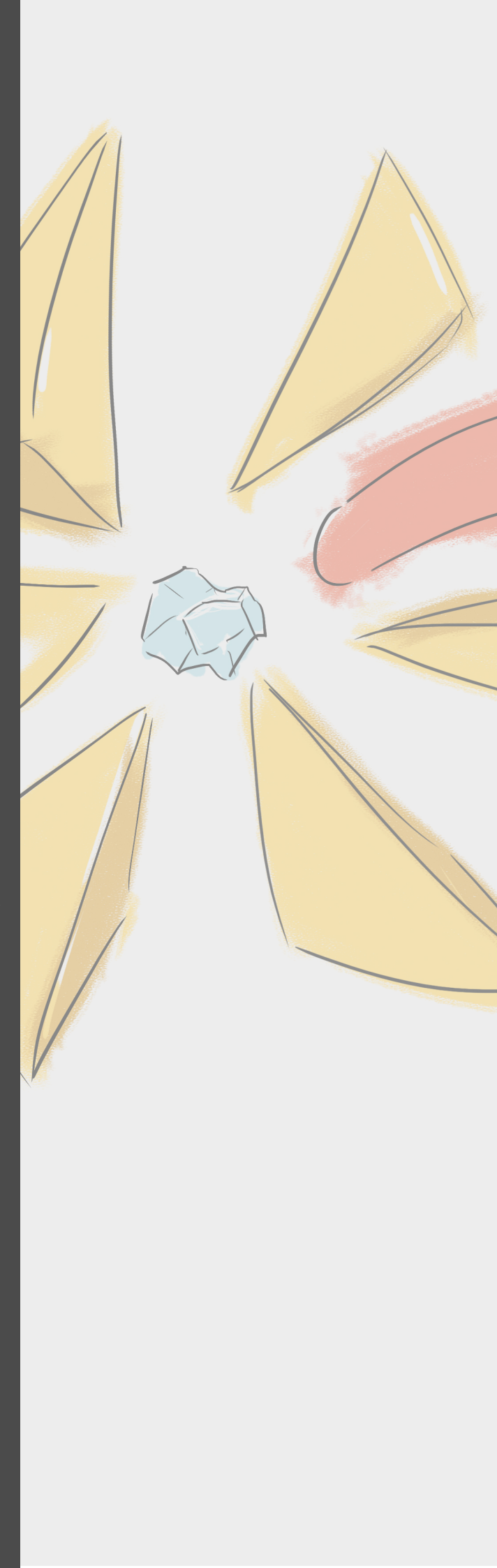


BASIC MECHANICS TESTING



BASIC MECHANICS TESTING

BALANCE THE RESPONSIBILITY OF BOTH PLAYERS



BASIC MECHANICS TESTING

BALANCE THE RESPONSIBILITY OF BOTH PLAYERS

ENHANCE THE FEELING OF HELPING OTHER Player

ADDING CONNECTIONS BETWEEN LEVELS

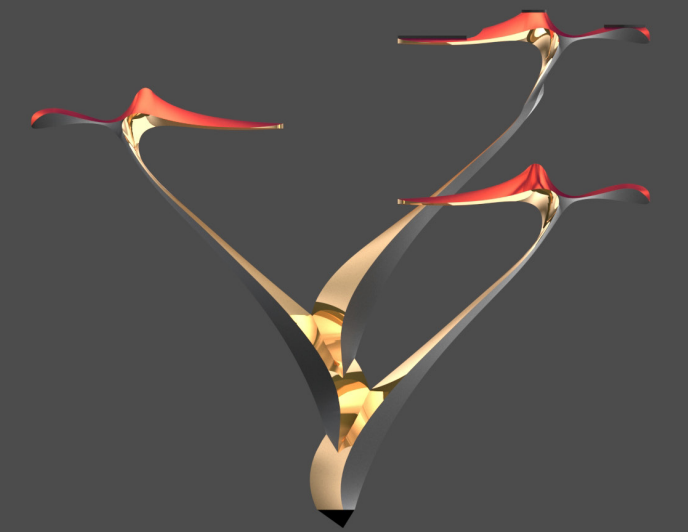
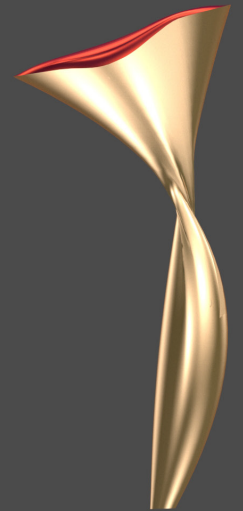
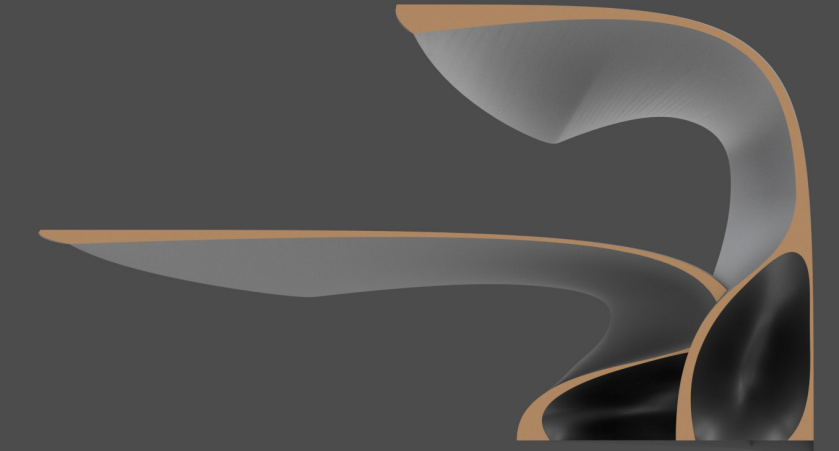
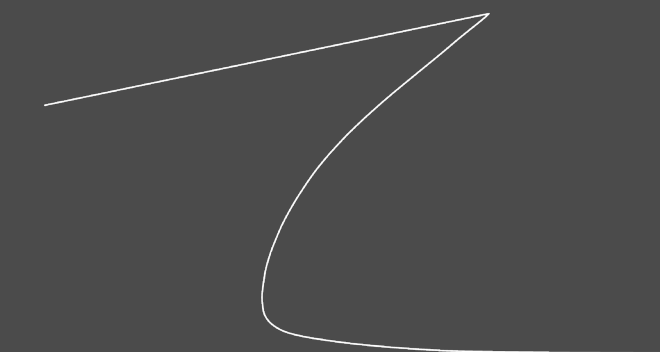
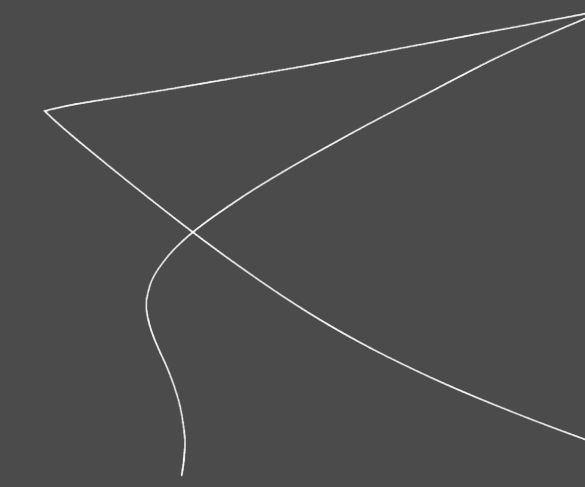
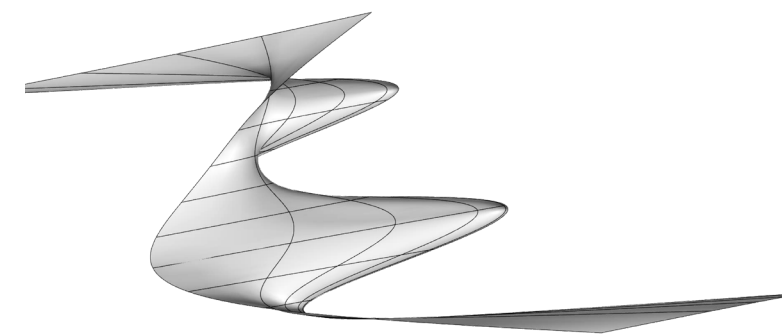
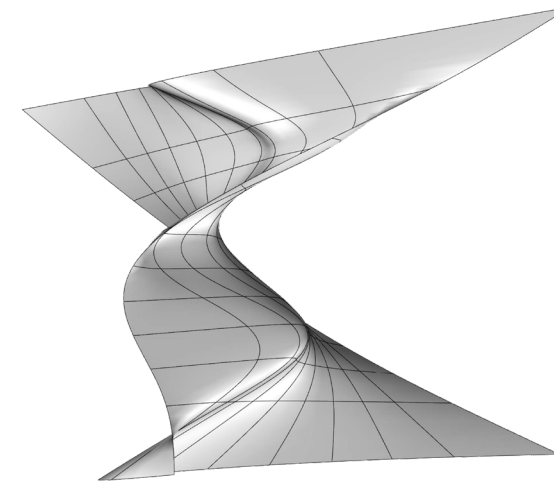
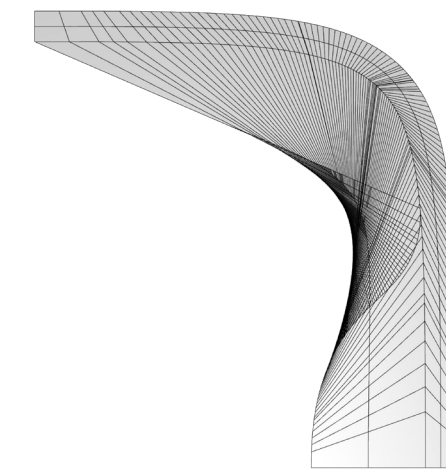
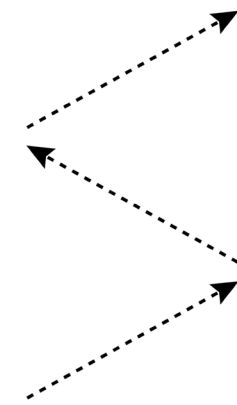
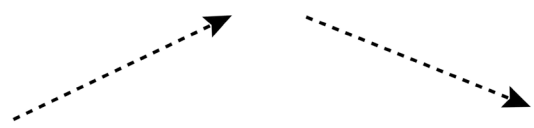
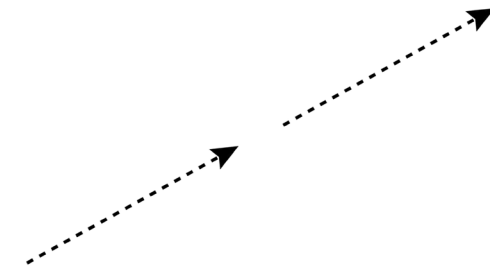
Level design process



For the group of levels, the intention is to clearly show the main mechanics of this game at this stage, as a guide or tutorial for players, not something that is really complex.

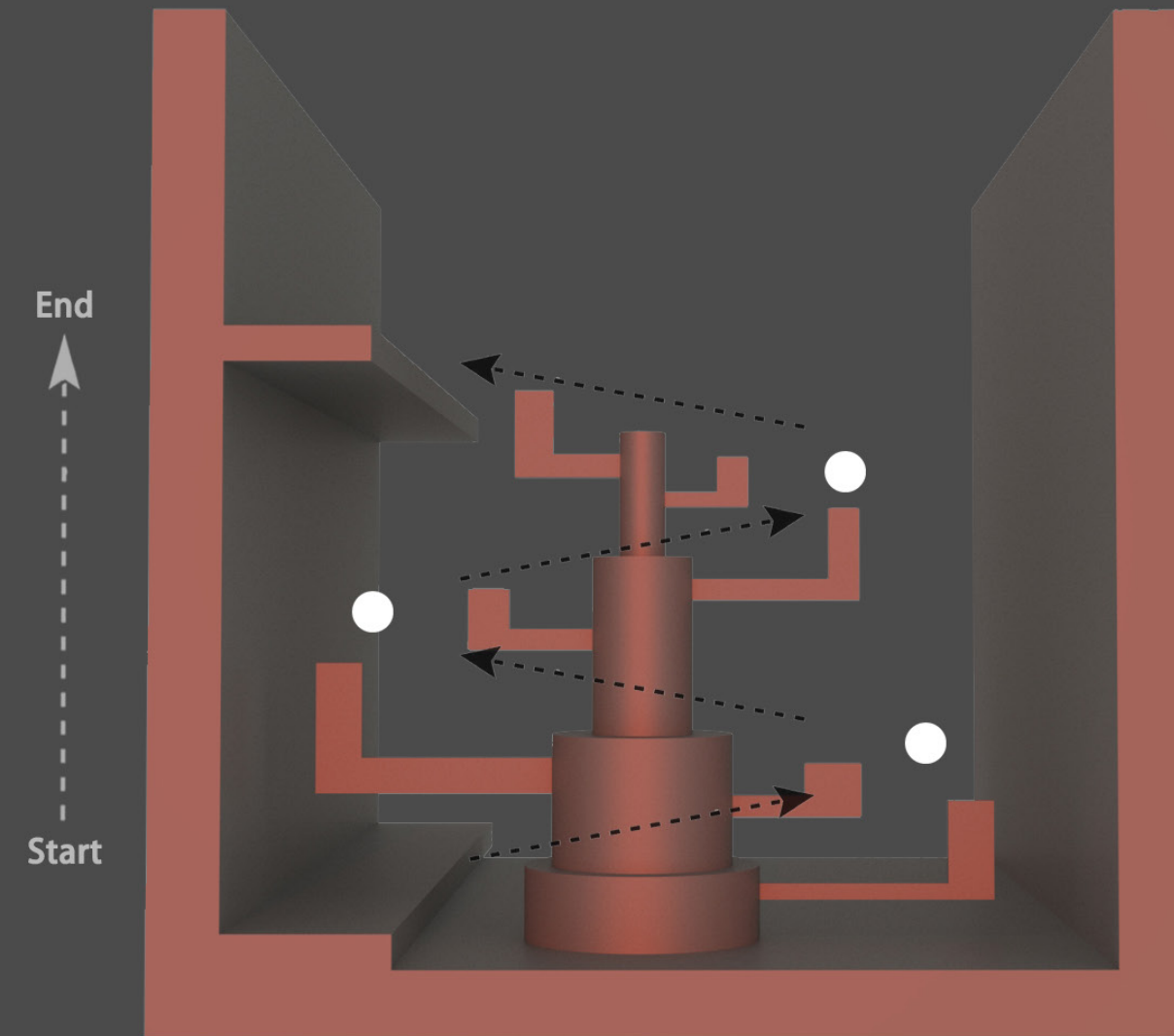
The main mechanics is that the player who controls the light source can adjust the position and the angle of the light source to change other shadow's shapes so that the other player can reach some place that he can not reach before. I decided to design three small levels for the first prototype.

I give the software some basic parameters based on those references I found, and it generates some really mess up outcomes. I abstract shapes from them and use them as the foundation to create those level objects.





Light Source



Building The Shadow Bridges

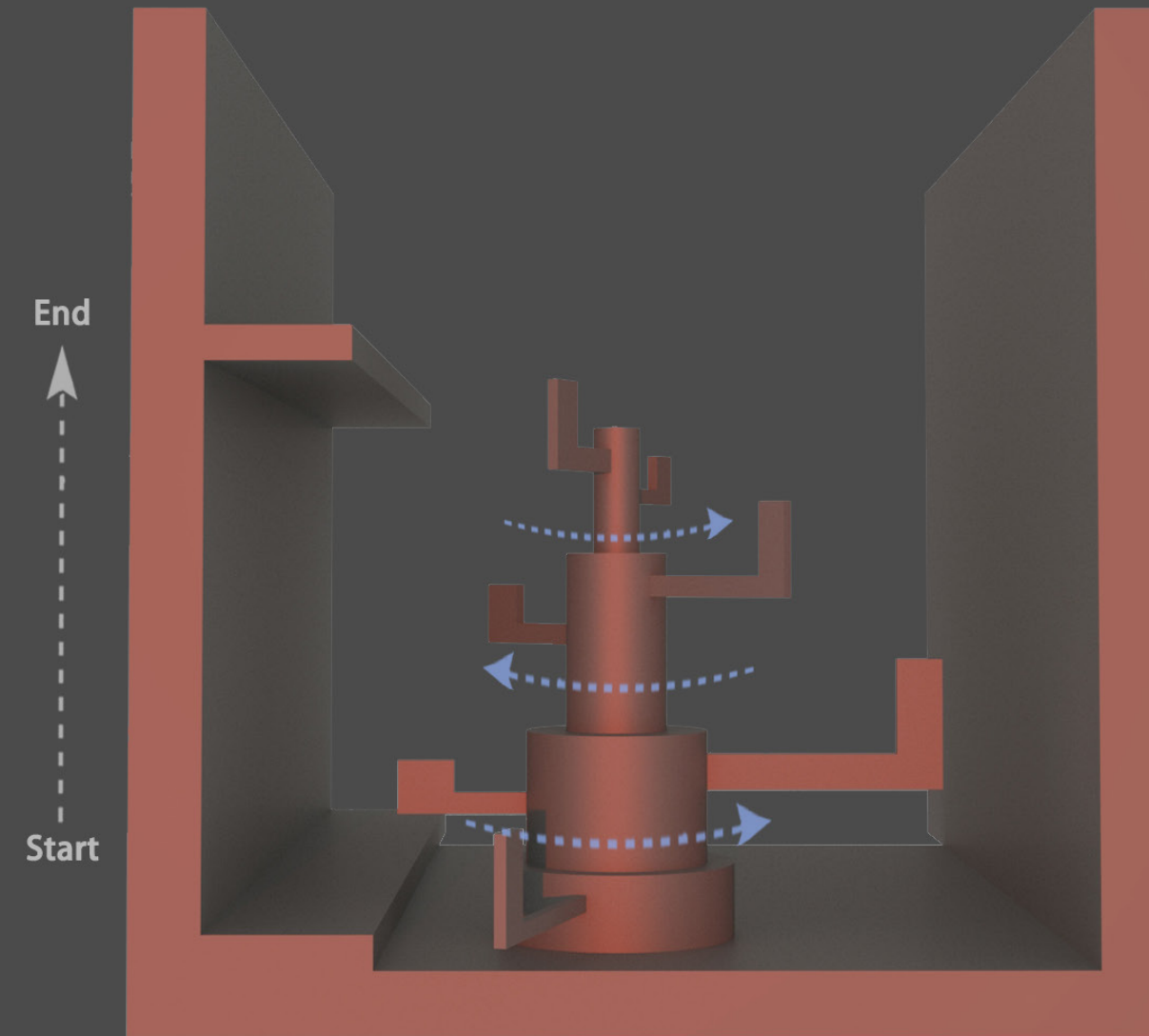
Ability:

Building shadow bridges for the character

Move freely



Character



Interact With Environment To Adjust The Platform's Position

Ability:

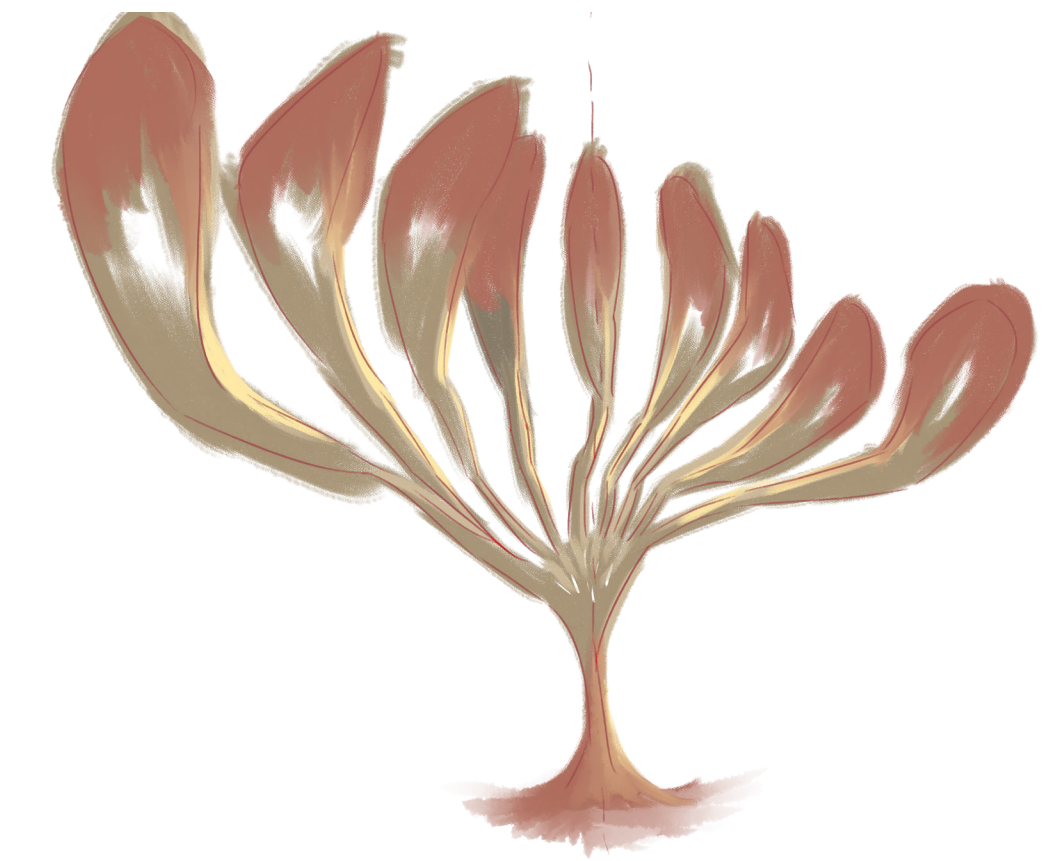
Absorb shadow from other objects

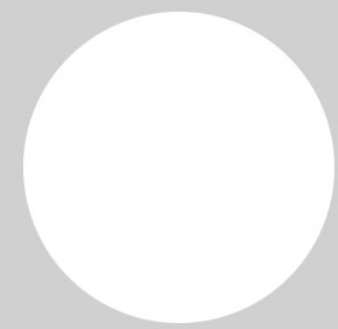
Interact with environment

The intention of this level is to balance the responsibility of both players because the previous levels basic can b solved by the light source player, the character is just following the lead, it can be boring for the character player. This level is trying to deal with this problem.

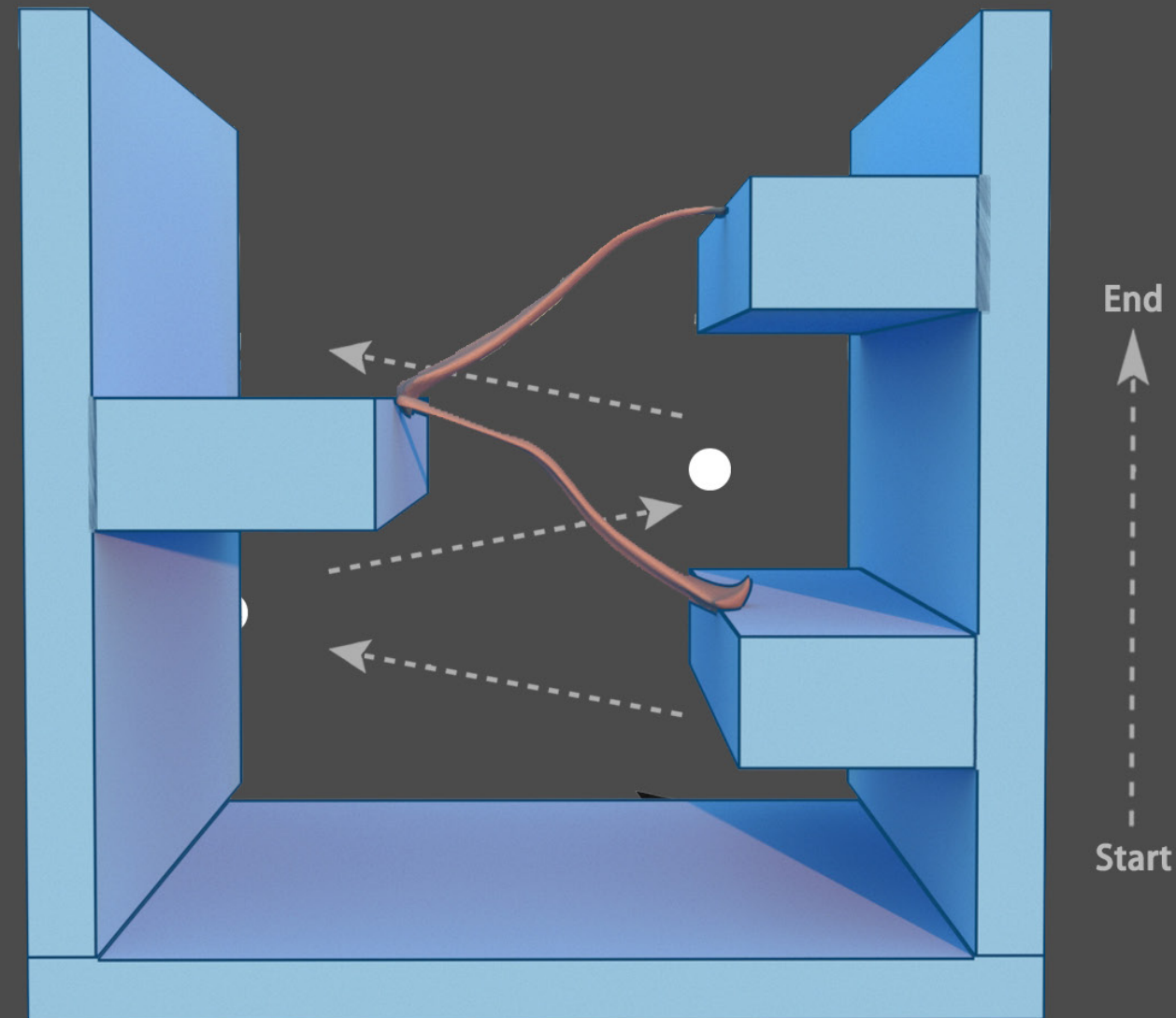
The task of the light source player is still, building the shadow bridges so that the character player can walk on them, but the difference is, those platforms are not in the right position, it is the character's task to adjust the position of those platforms. The puzzle can not be solved by one player, and this is what we expecting.

The next step is to design the actual level object. Instead of just follow the tree trunk shape, I turn it into a tentacle-looking object but using the same logic, those tentacles will rotate in a way and become a platform, trying to make the object more interesting.





Light Source



Building The Shadow Bridges

Ability:

Building shadow bridges for the character

Move freely

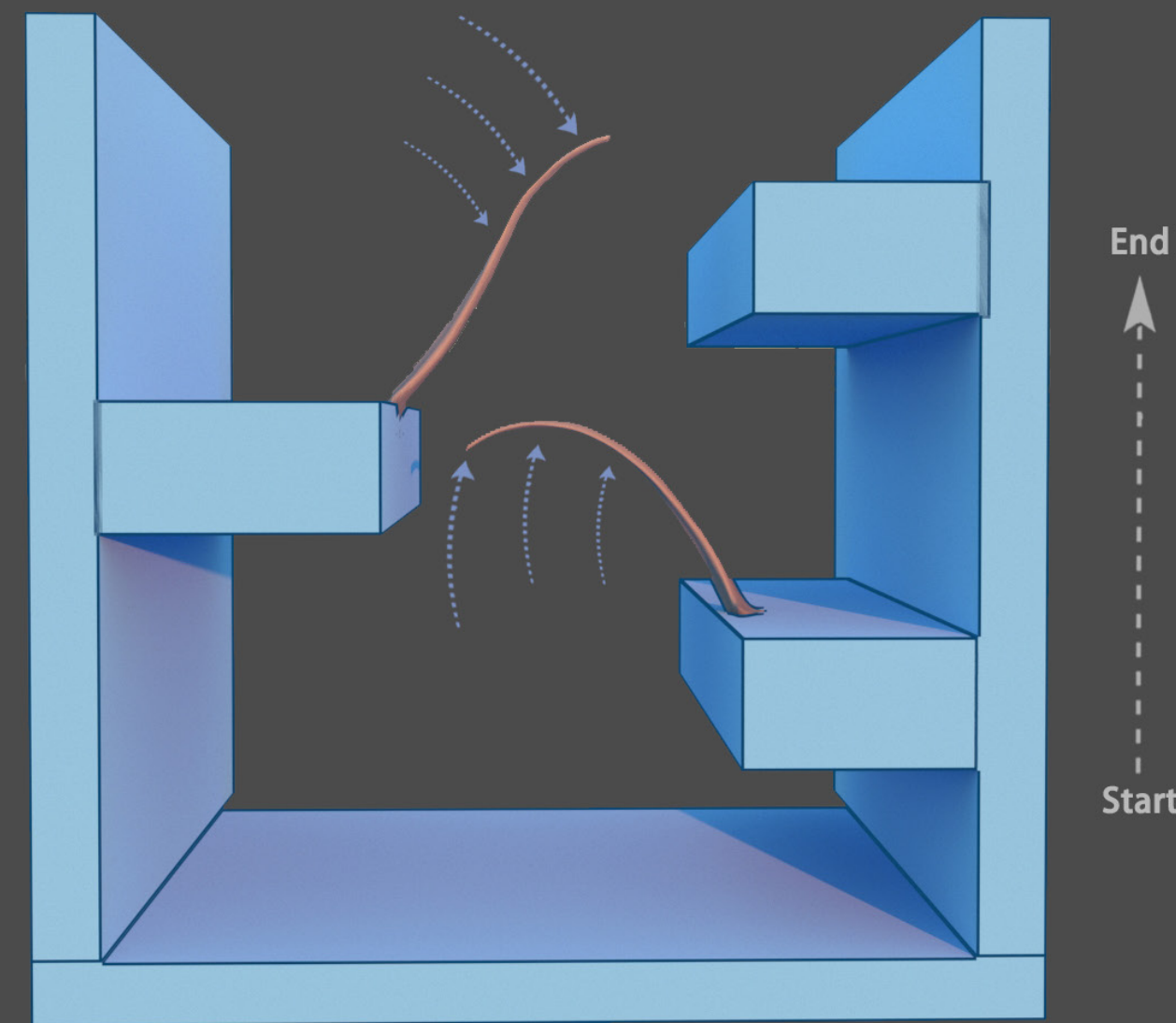


Character

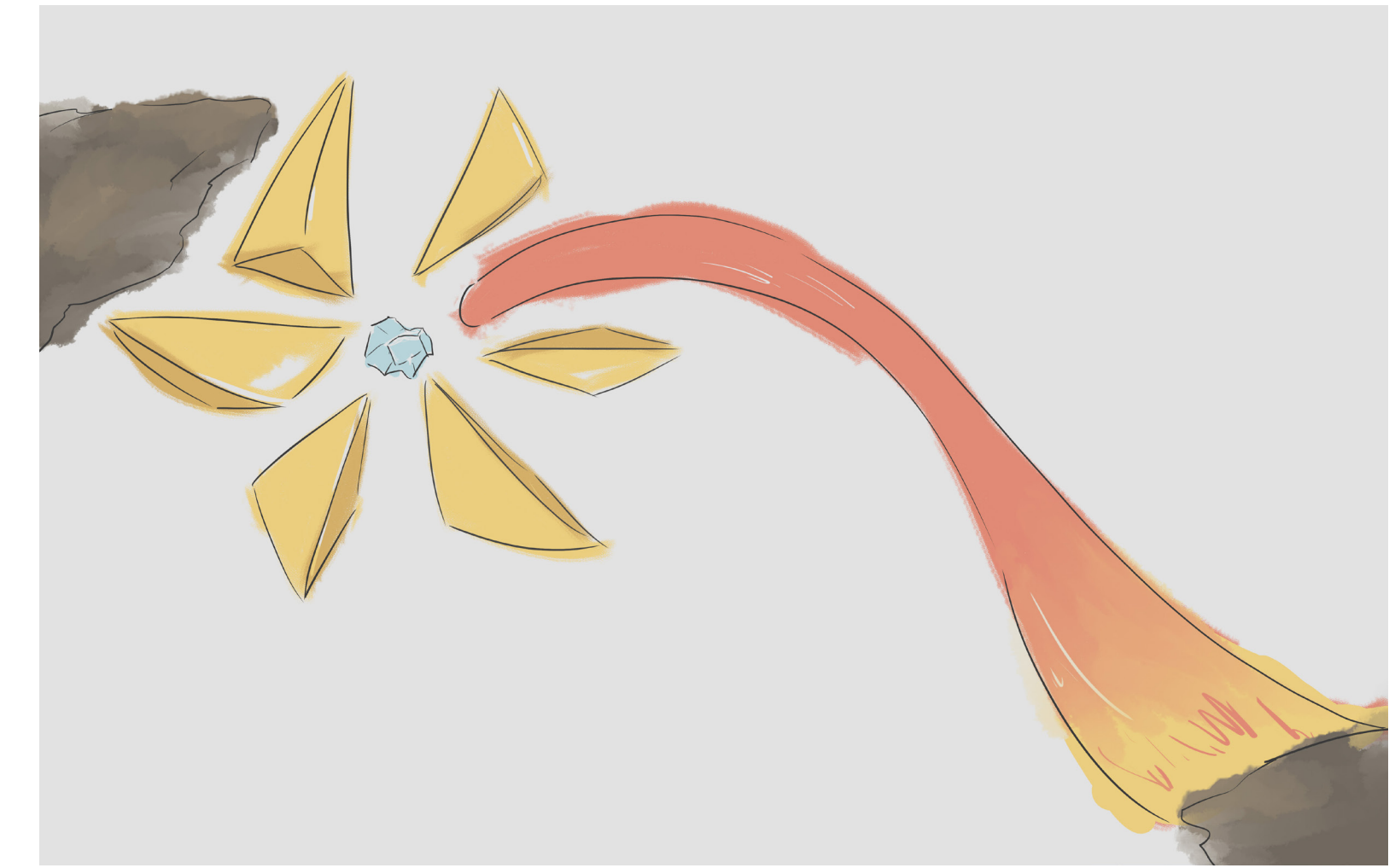
Ability:

Absorb shadow from other objects

Interact with environment



Interact With Environment To Adjust The Platform's Postion



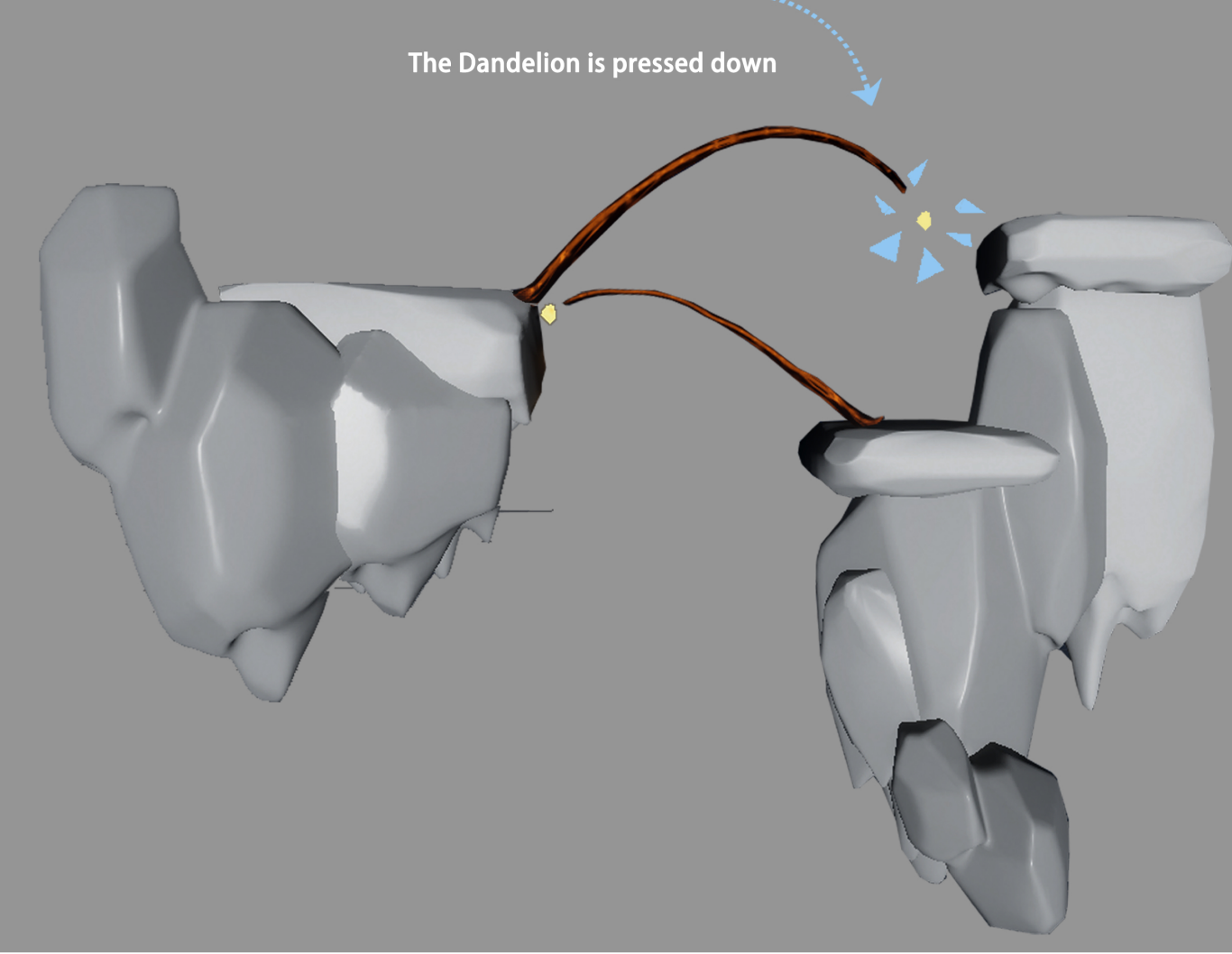
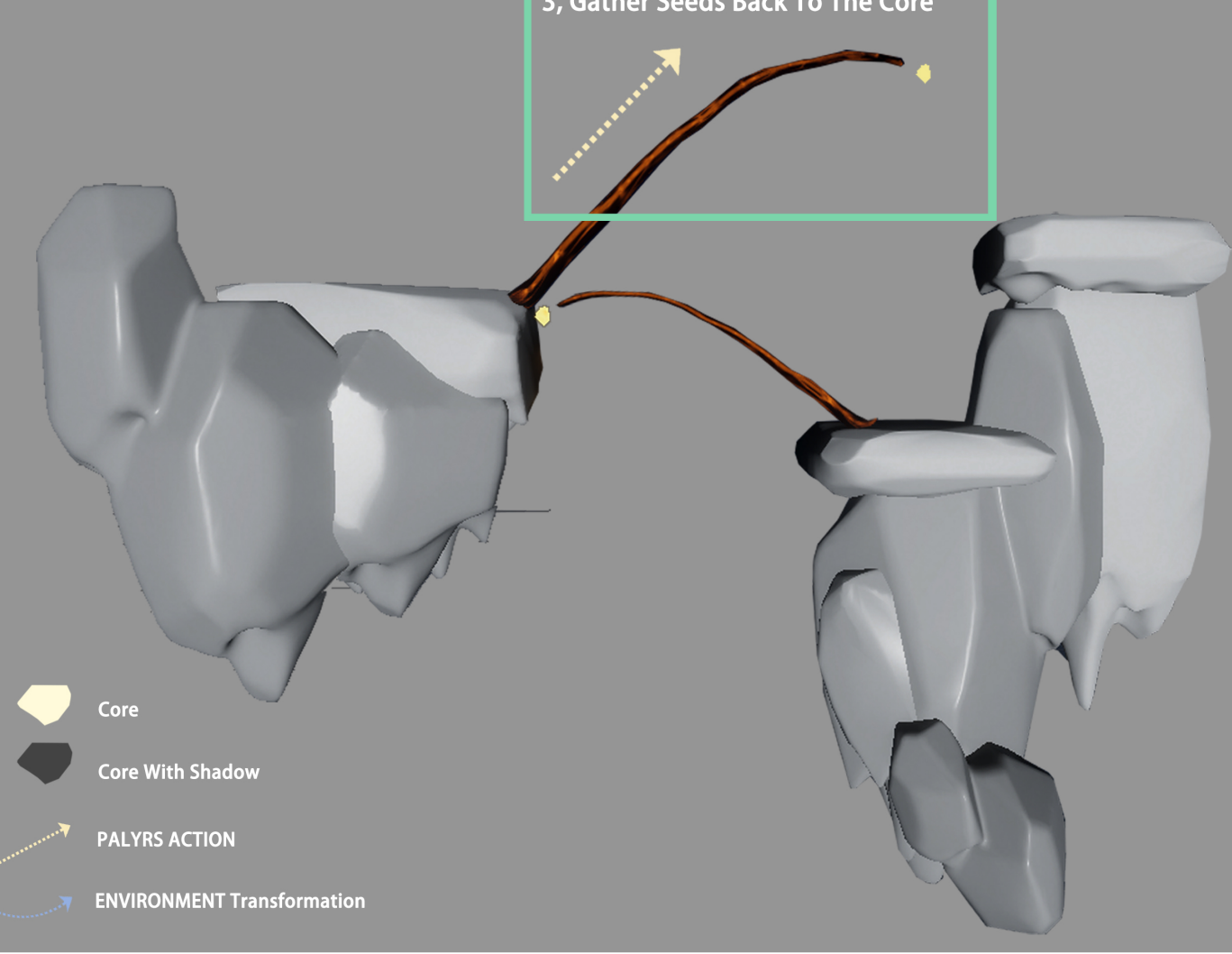
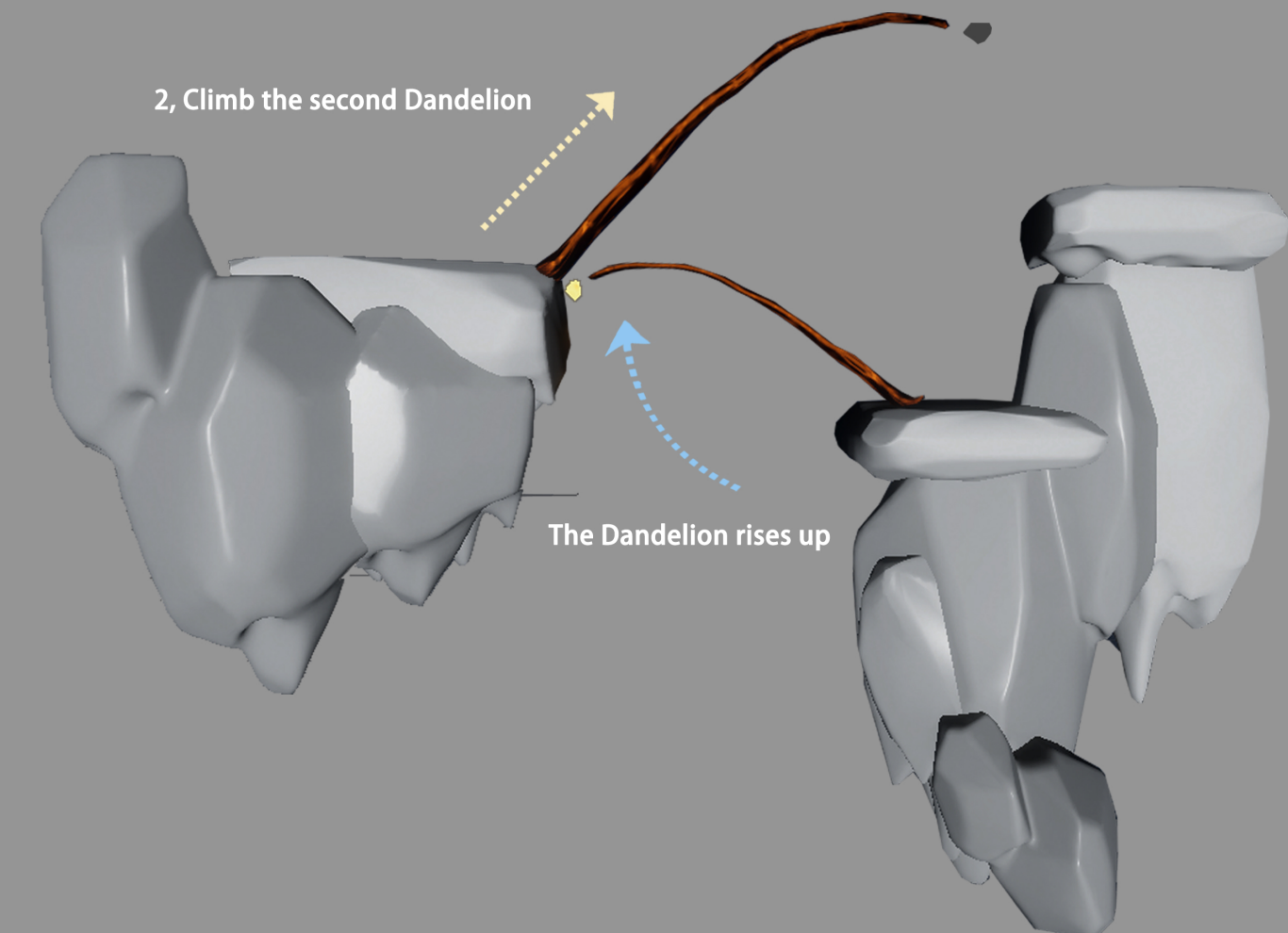
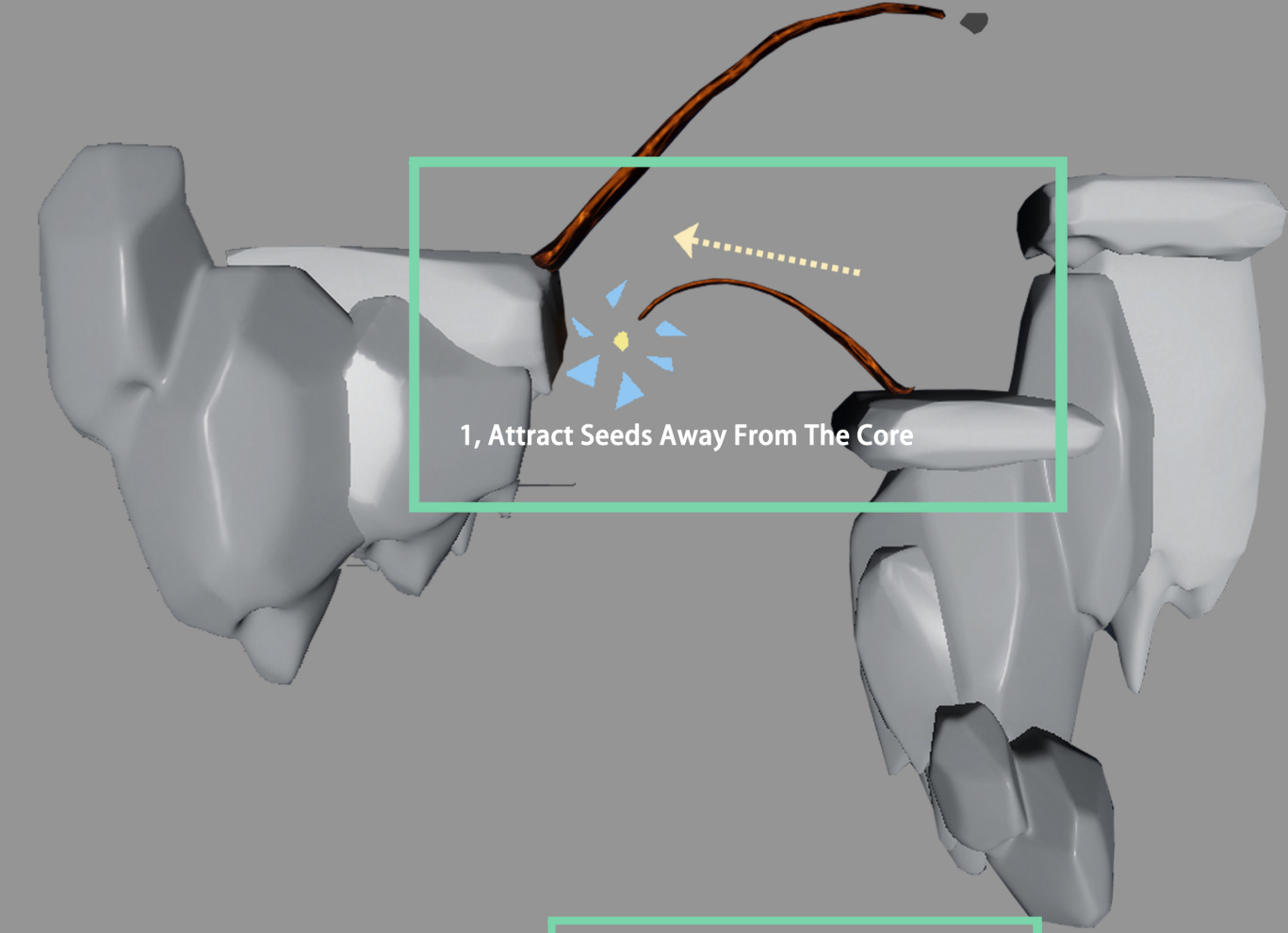
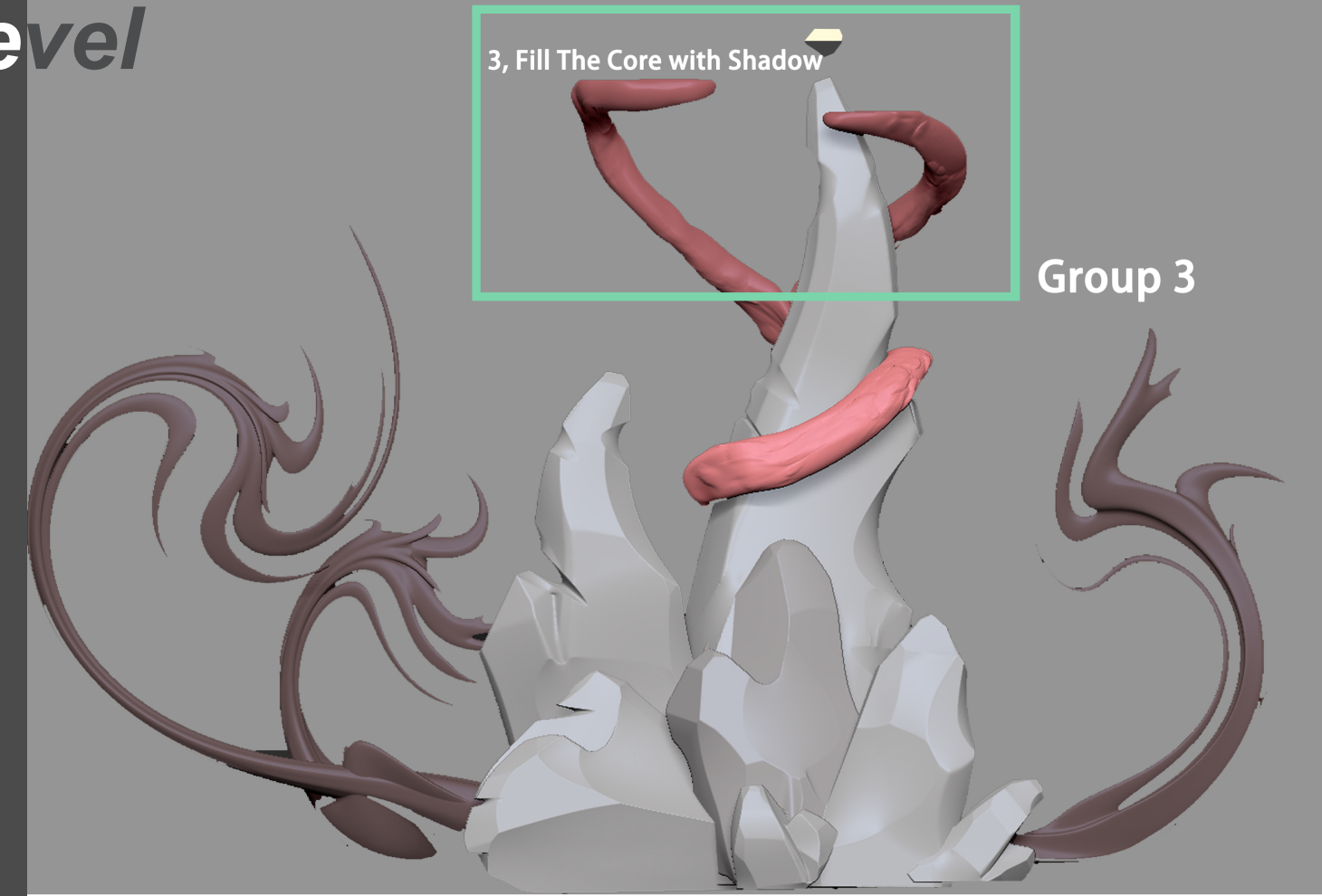
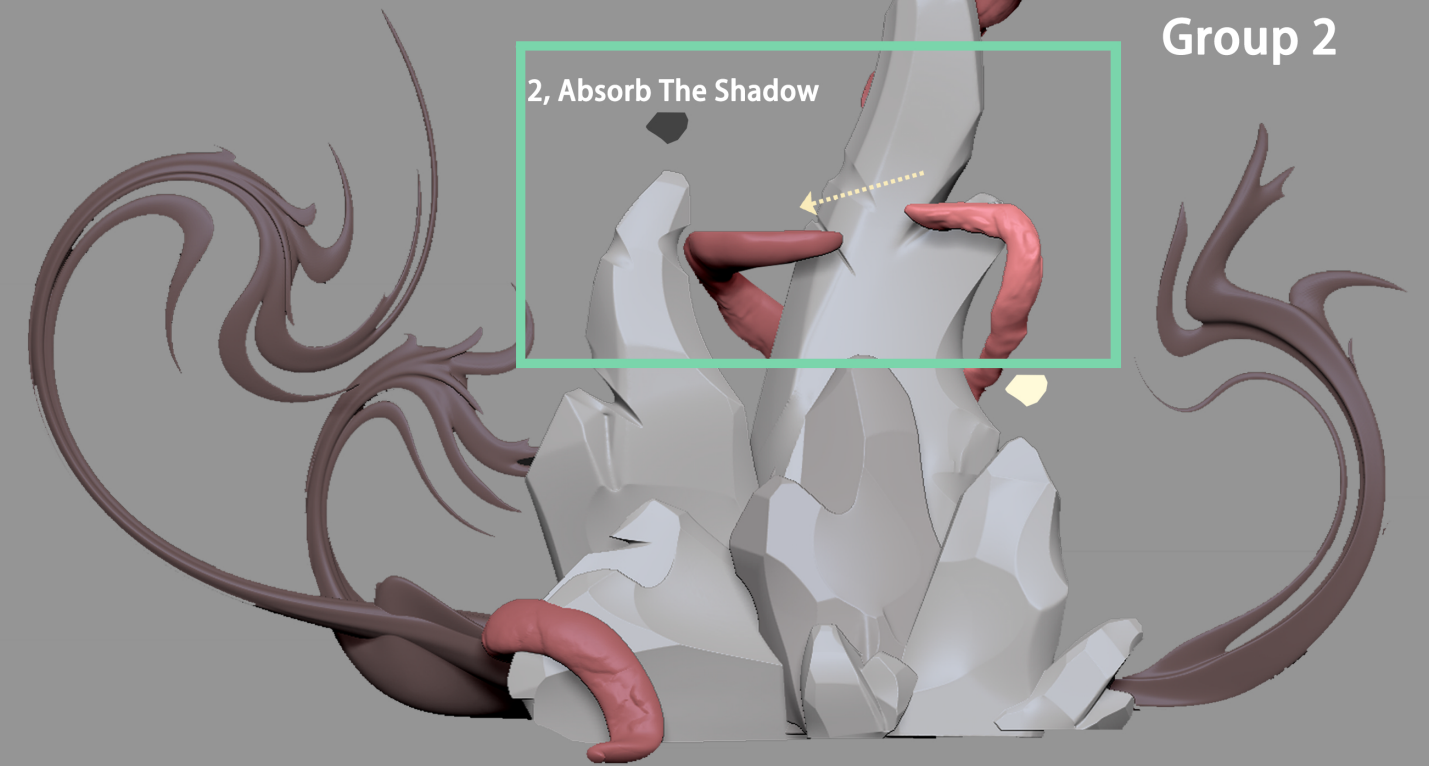
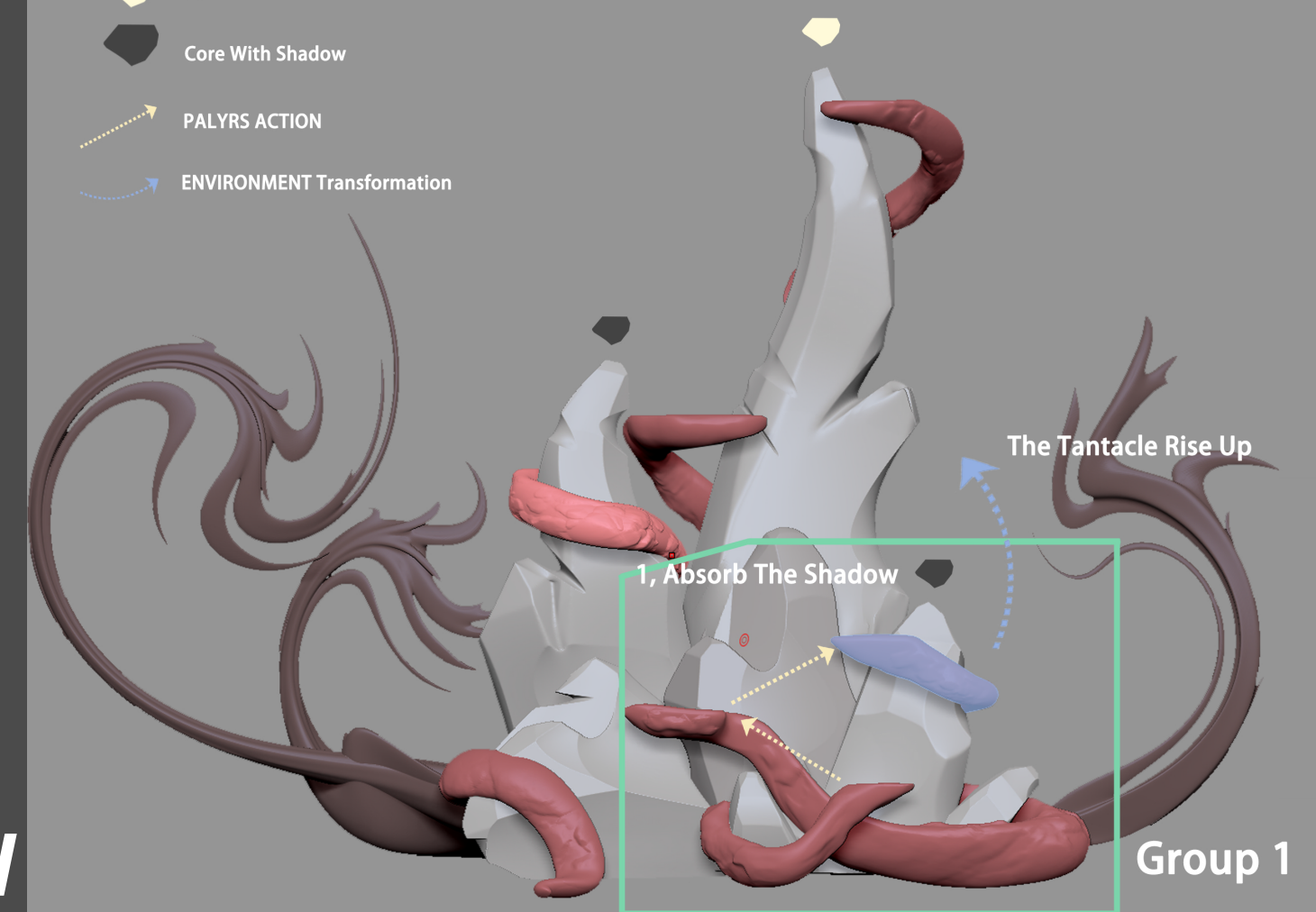
The intention of this level is to set some troubles for the light source player so that the character needs to help the other player deal with the trouble.

This level was inspired by dandelion. Dandelion has seeds that can float, the level object has its seeds as well, but the difference is that those seeds are attracted by light, and this is why they gathered around the core of the dandelion at the beginning. Once the light source player gets closer to the core, those seeds will keep chasing it, and ban its ability which means the light source can not release light anymore. The light source can still move any fly, but it is been 'turn off' because those seeds cover it up.

The task of the character is to adjust the light intensity of those cores to attract seeds back and to 'turn on the light source. Those seeds can change the environment and make them become a pathway so that characters can walk on them and reach the next place.

Actual Level

- Core
- Core With Shadow
- PALYRS ACTION
- ENVIRONMENT Transformation



- Core
- Core With Shadow
- PALYRS ACTION
- ENVIRONMENT Transformation

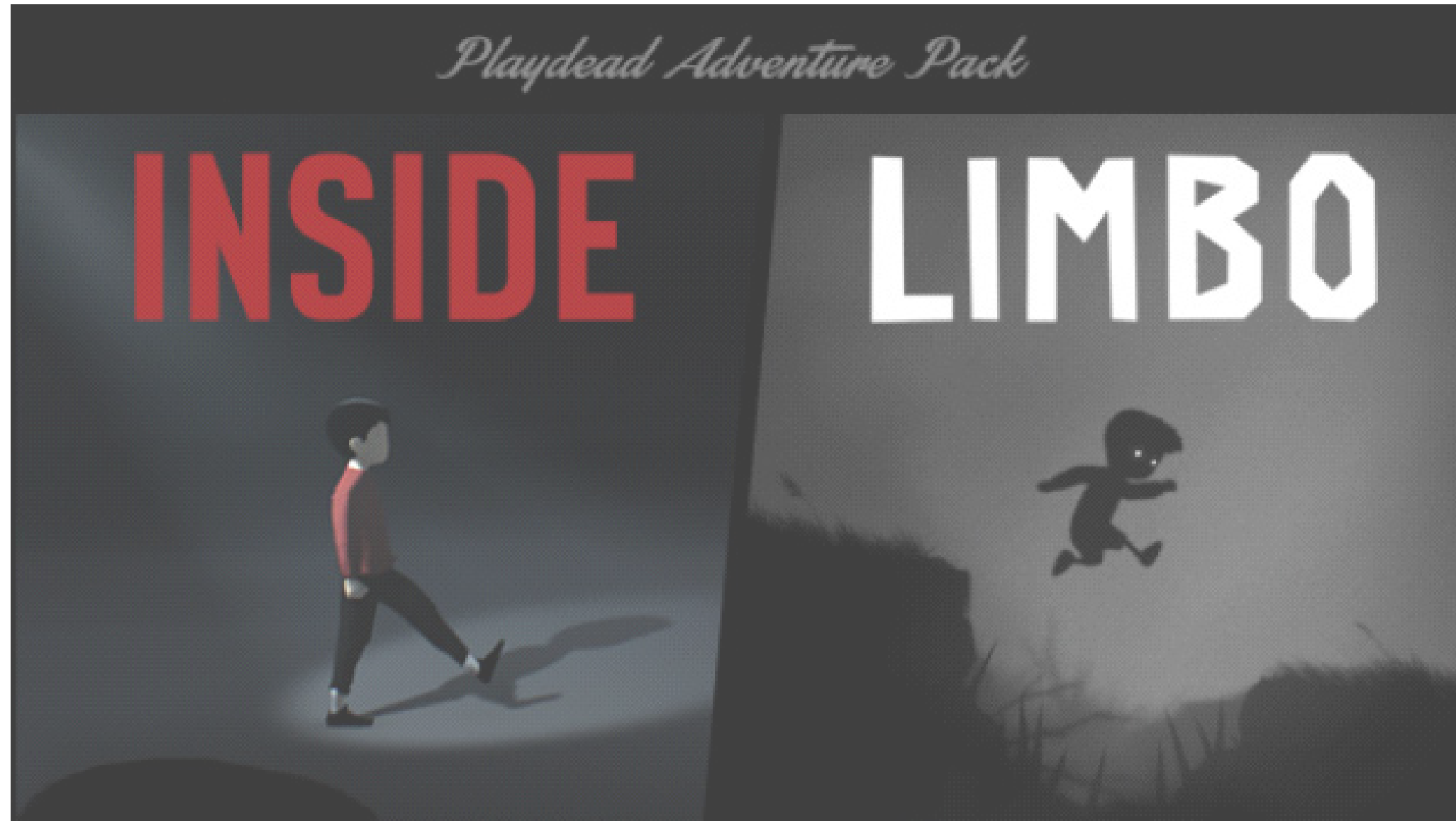


Figure 1: LIMBO AND INSIDE by Playdead Studios, 2010,2016, Video Games

I checked some works, those works inspired me in both level design and environment design.

'LIMBO' and 'INSIDE' are two video games that were developed by Playdead studios (2006) in 2010 and 2016. Both are puzzle games.

Both games have very unique art styles, and art styles are also one of the most famous aspects of these two games are known.

They inspired me that providing relatively blank spaces is really appropriate for our concept because those spaces can clearly show the shadow changes. The atmospheres which are relatively dark are appropriate for our game as well. Although at this stage, the level still needs more details, even it is finished, there still will be blank spaces in every level.

'SEMBLANCE' is a puzzle platform game developed by studio 'Nyamakop' in 2018.

It has unique mechanics which is the player can change the level and environment structure to solve the puzzle, which is kind of similar to our concept as well, especially our game also has a key mechanic as the core.

The logic that design the level based on the core mechanics and show the potential of the mechanic inspired me when I making the first three-level, they are simple but can show what our game is about to play.

I searched a group of concept designs to use as references when I design the environment elements in our game.

Because I was trying to make elements related to the real natural environment, but also has its own unique characteristics (also reflect on Matt's suggestion), 'Alien Environment' is the kind of feeling that I am looking for.

These beautiful concept designs provide rough ideas for me about how the weird environment might look like, it helped me to generate those messy-looking objects later.



Figure 2&3: SEMBLANCE by Nyamakop, 2018, Video Game



Figure 4: Plants asset design by Aurelien Fournier, 2015, Concept Art

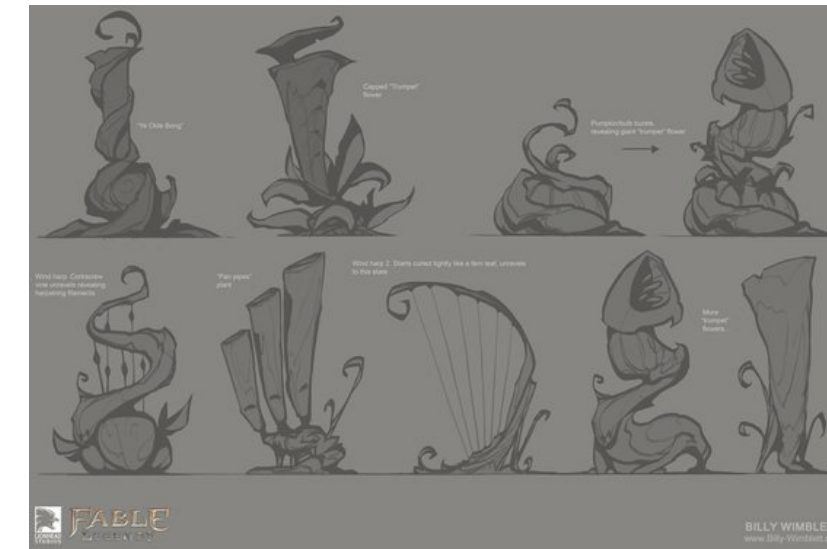


Figure 5: FABLE LEGENDS: Musical Plants by Billy Wimblett, 2015, Concept Art

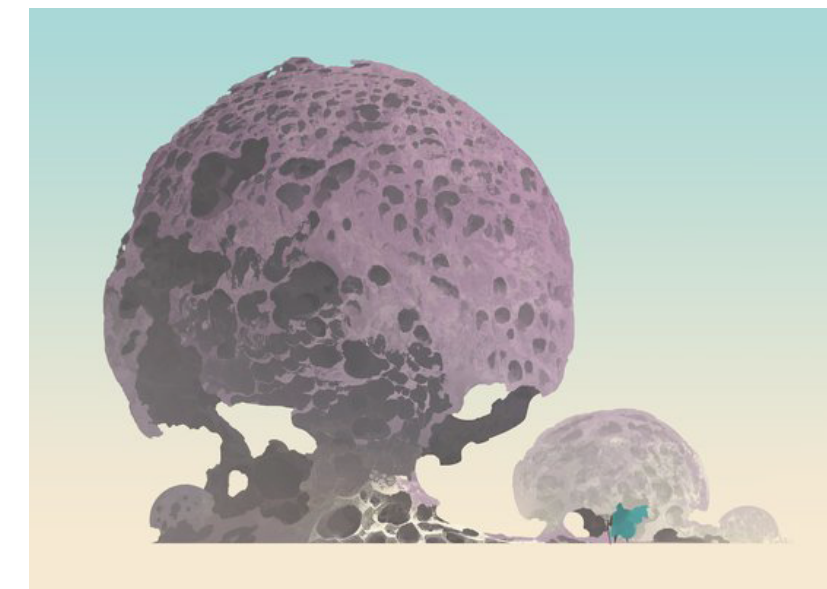


Figure 6: Beehive Rock by YU YIMING, 2017, Concept Art

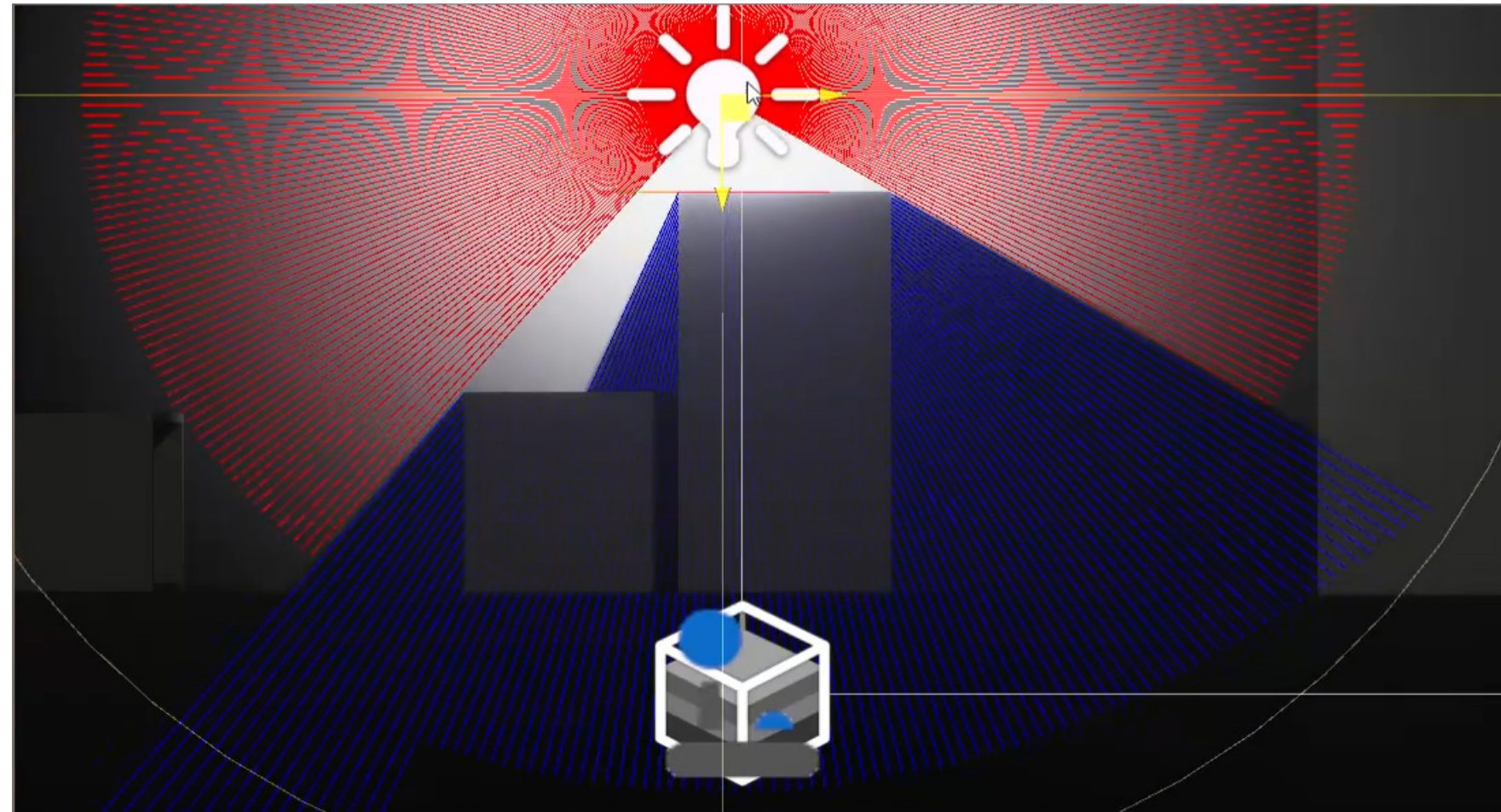


Figure 7: Inc Coral Desert Wandering 1 by Neil Blevins, 2014, Concept Art

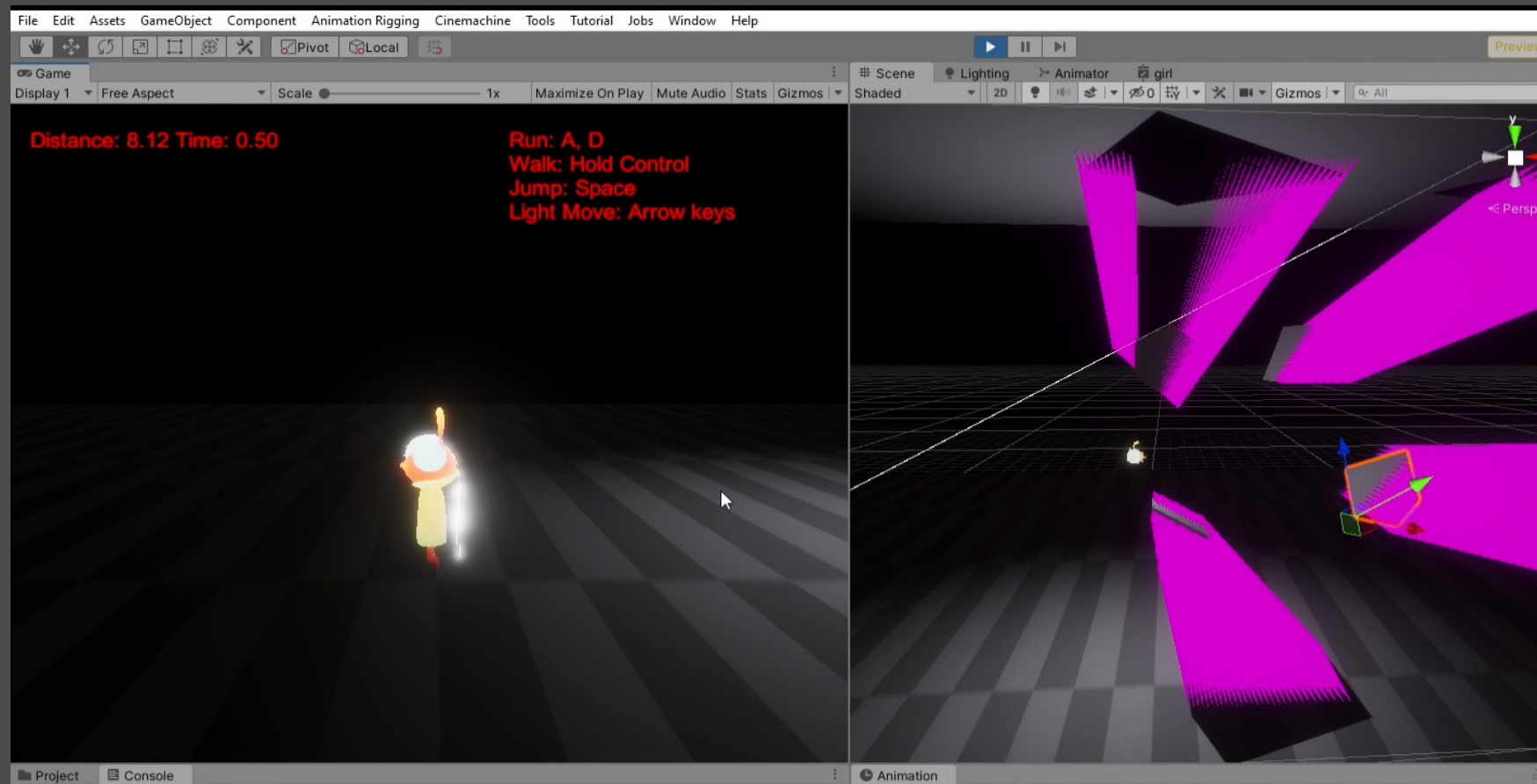
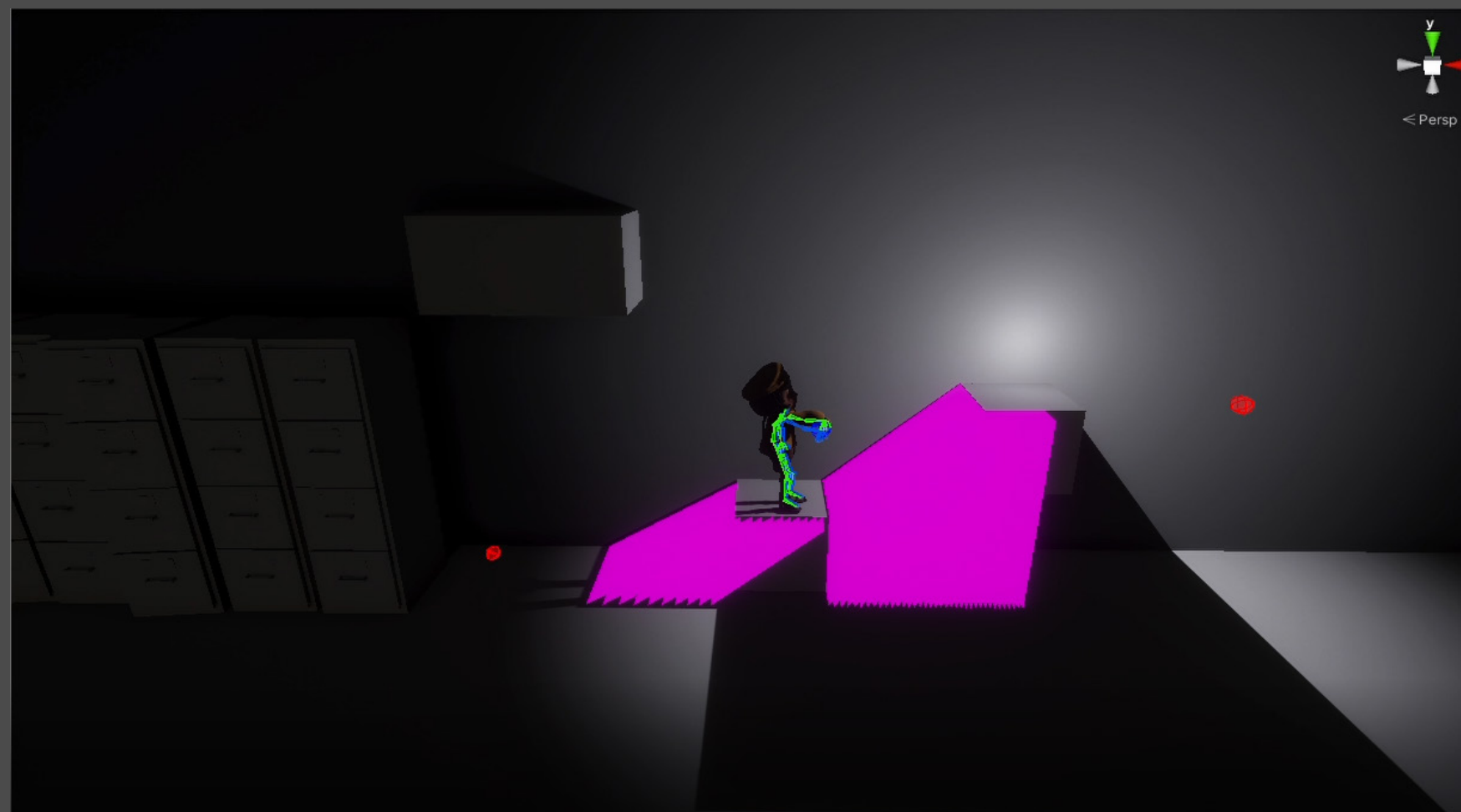
Game Mechanics Development

Collision of Shadow

To generate collision for shadow is the most important but also most difficult mechanic to implement. The main issue during development of this mechanic is how to track shape of shadow since Unity does not support this function. At the beginning, I was trying to make a collider with a same shape as shadow and change its shape dynamically with the shadow, but I failed and realized that it might be impossible. So, I have explored a new idea to achieve it through raycast. Basically, there are 360 raycasts shoot from a same light resource which form as a round shape. Once a raycast is hitting with an obstacle, there must be an area with shadow behind obstacle. By generating collider along every raycasts which hit with obstacle, I am able to assign collision for shadow depending on its shape dynamically.



Principle of generating collision for shadow



Early test version of the function



Player character walks on shadow

Absorb & Release Shadow

This mechanic is set up for player to change brightness of stones and core of dandelions in the level. There are vines in the level to block paths. They are resisting with light but active in dark. Through lighting up or putting off light on these stones, vines nearby are going to move close or run out from stones. Player will be able to pass through level after moving these vines. This mechanic also leads to death of player. The maximum amount of shadow which can be kept on player is 2 and player character will die if more than 2 is absorbed by player.



Player character absorbs shadow



Player character absorbs shadow



Player character releases shadow

Transparent wall

Because of the mechanic of shadow, it always requires a wall behind player to display shadow. It limits a lot for our designing of background. So, I have tried to make it transparent. But to set up the wall to be transparent directly from settings in engine will make it lose shadow. To solve the issue, I have developed a material through shader graph which is transparent but also able to display shadow on it.



Before & After assign transparent wall

Particle For Absorb & Release Shadow

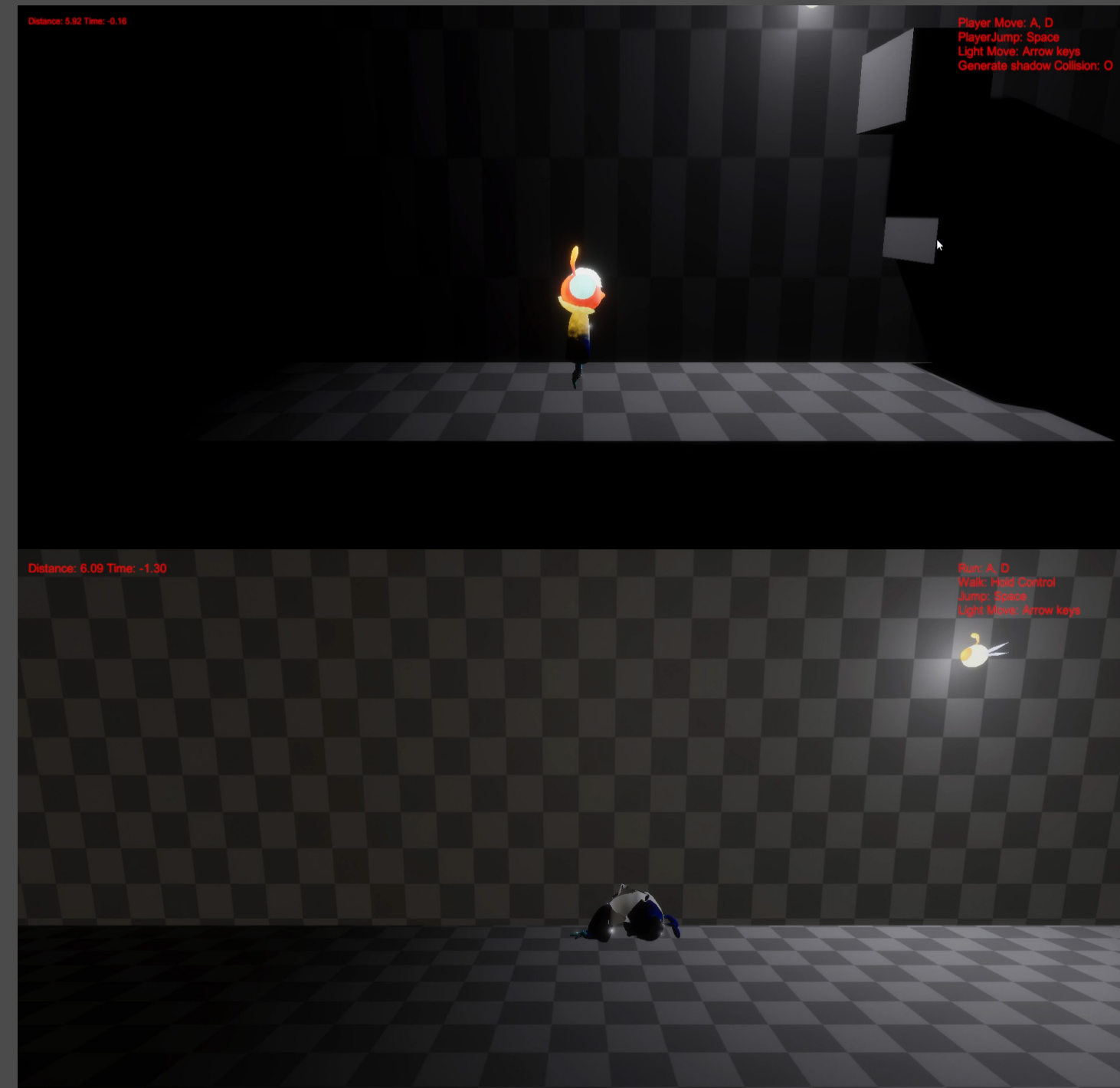
During my production, there are also some products that haven't complete or needed to developed further. For example, I have produced a material for objects to present the progresses of been covered by shadow and disperse shadow. This material has been done by Shader graph and controlled by a script. I had a particle which has been made through VFX graph to support the visual effect during absorbing and releasing shadow but there is an issue of tracking player's position. So, I have kept the material but have to give up the particle temporary.



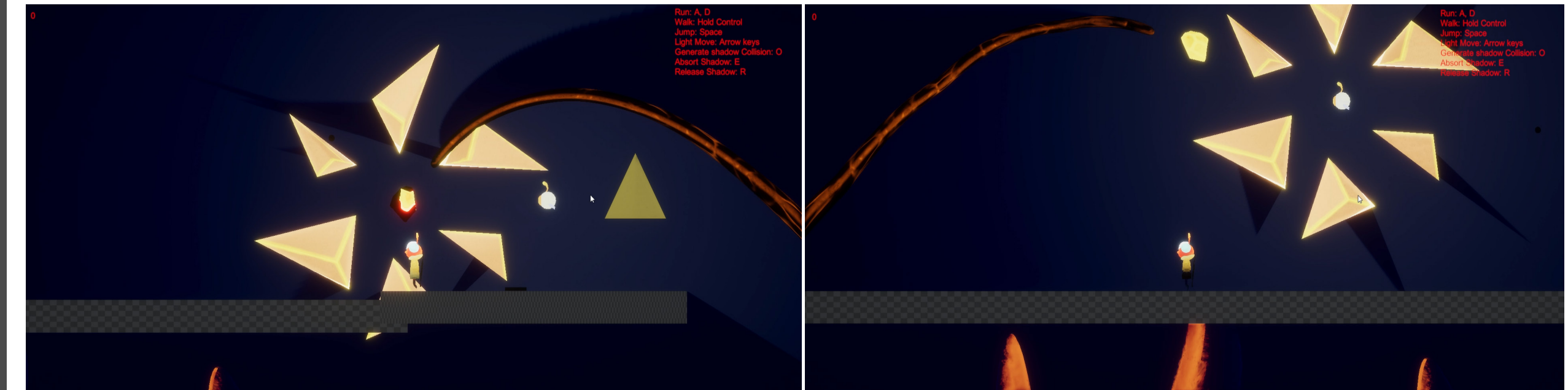
Material & Particle for shadow cover

Dandelion & Skill Block

The dandelion has six components float around a core which is able to be covered by shadow. The ability of absorbing and releasing shadow on player will be used as a trigger to active and inactive the light on the core of dandelion. Once the core of a dandelion is covered by shadow or removing shadow, The bending degree of dandelion is changing to make this dandelion become a bridge for player to pass. Another mechanic of these components is to block ability of generating collision for shadow for firefly character when it is around by components.



Material of shadow on player character



Dandelion & components

Animation Control

Player character

Humanoid character:

Walk & Run

Jump & Land (Blend tree) Automatically play animation based on vertical velocity

Die

Firefly character

Float & Fly

Vines

Stretch & Back

For models and animations, I have used productions from my group members. I have made clips and programmed for scripts to control animations. There is a humanoid character with walk, run, jump and die animation, a firefly character with float and fly animation, couple of vines with stretching and back animation. An iteration of jumping animation on humanoid character has been done through unity blend tree. The animation will be played not based on order of frame but based on vertical velocity which make my character be able to adjust actions dynamically in the air depending on different situations.



Shadowland, David Serrat, 2019, Video Game

Shadowland

Shadowland is a 2D platform game which is built based on interaction with shadows. The player is playing as a shadow to handle puzzle through control and change shape of shadows. This game has provided me a lot of inspirations about how can mechanics be set up around shadows. Although it is a 2D game which was developed by a totally different principle, it still became an important related work for me to build up my own mechanics.

In My Shadow

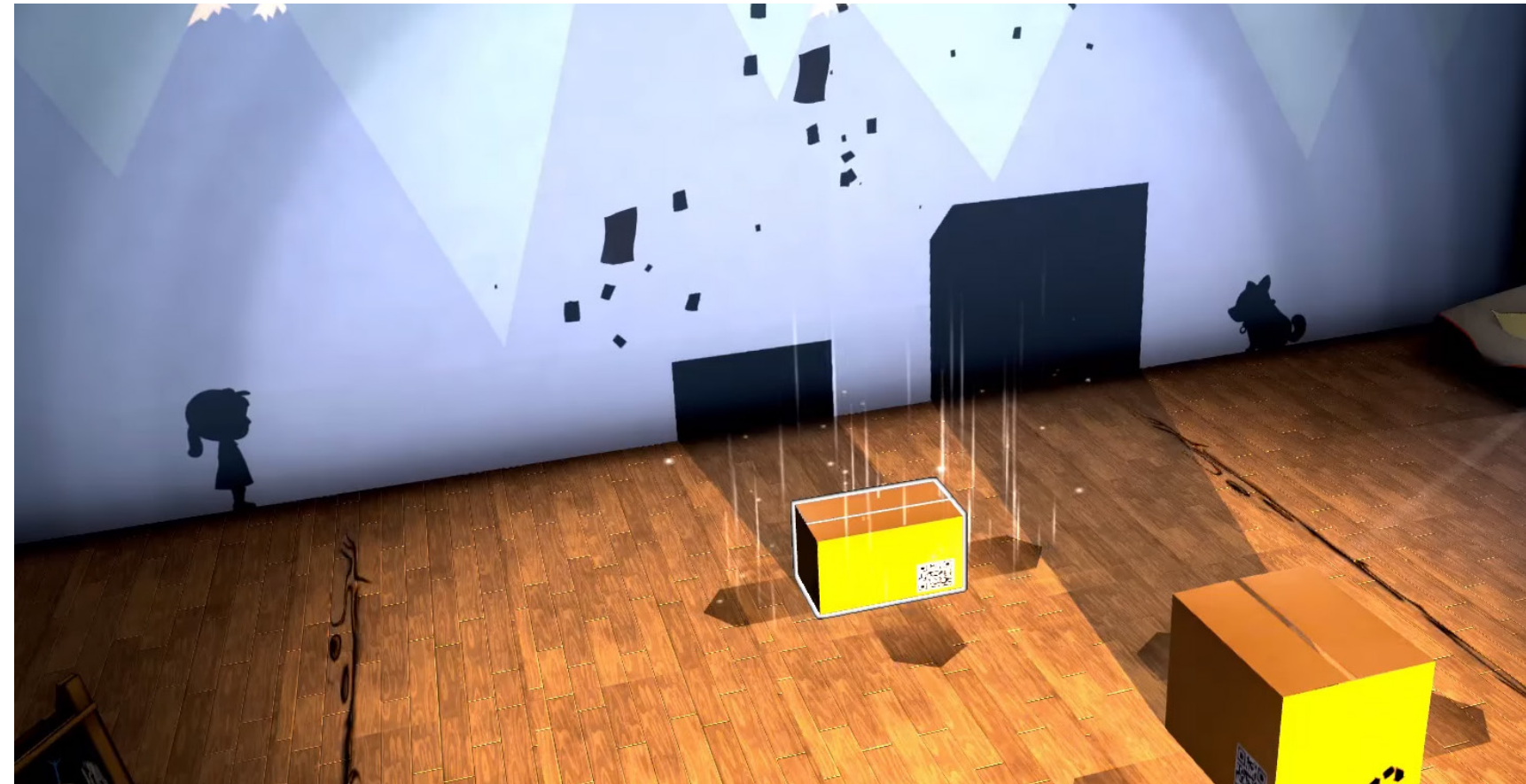
In my shadow is a 3D game that assigns collision for shadow and apply player character to walk on it. This game is changing the location of object to change shape of its shadow while in my game the light is able to move but objects are stable. The difference of this principle made our gameplay different from this game and more distorted shape of shadow probably make our project even more difficult. But the mechanics and puzzle design in this game are attracting me to look for inspirations.

Contrast

Contrast is a 3D platform puzzle game with impressed visual effect on shadow. The player is switching the character between 3D world and 2D world as a shadow to move. The mechanics would not help too much for me to develop my own project but the visual effect of light and shadow could be a good example to help me improve my visual effect in our project.

Echochrome 2

Echochrome 2 is a 3D puzzle game which is using the relationship between light and shadows as its core mechanic. The player is using controller as a light source and changing angle of light to manipulate the shadow of object and help player character to find a path to move. The puzzle design in this game is the main part which I am looking at and it would provide me some ideas to develop my own puzzle.



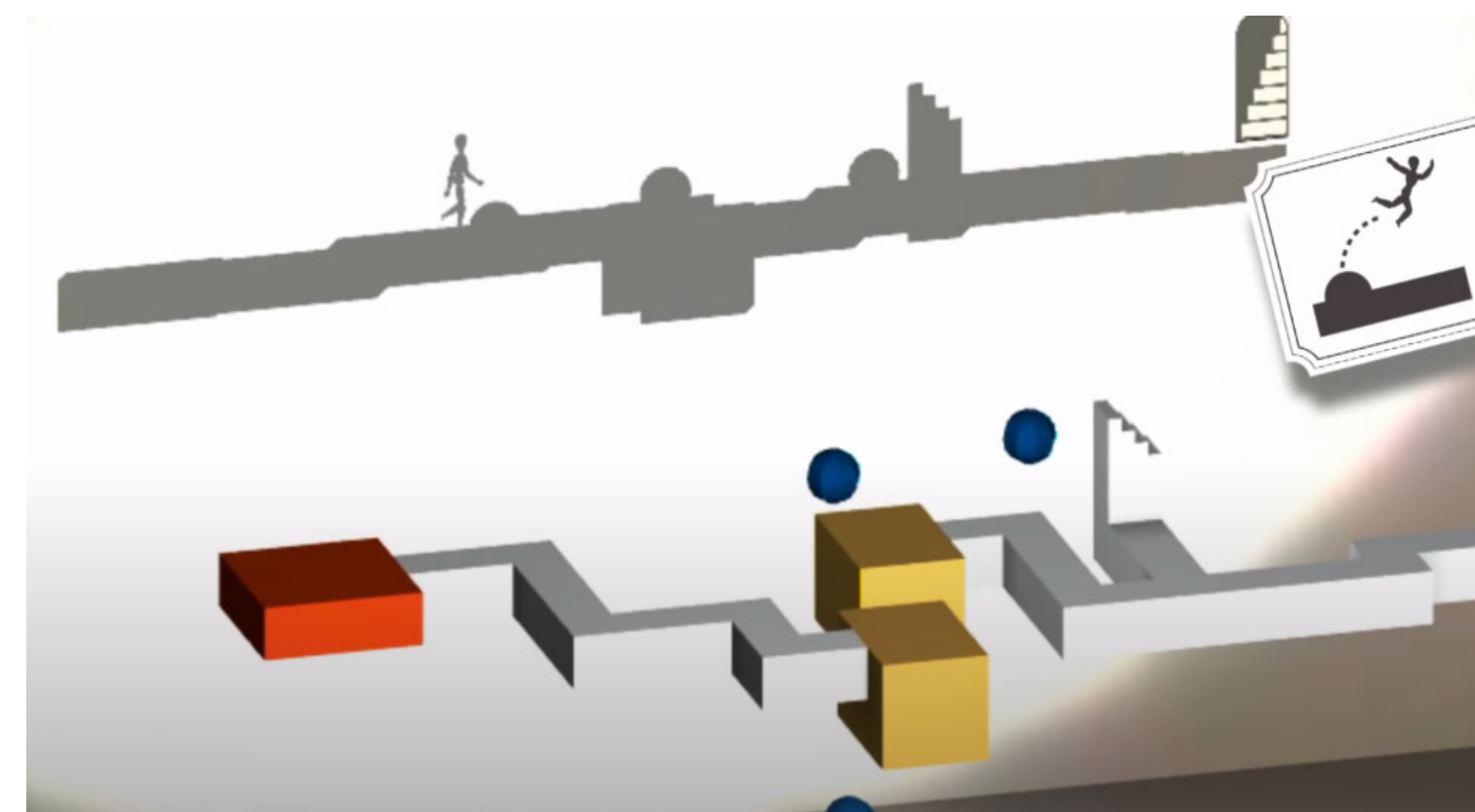
In My Shadow, Japan Studio, 2010, Video Game



In My Shadow, Japan Studio, 2010, Video Game



Contrast, Compulsion, 2013, Video Game



Echochrome 2, Japan Studio, 2010, Video Game

Reference

1, Aurelien Fournier, 2015, Plants asset design, Concept Art. viewed 6 August 2021,

<<https://orelfworld.tumblr.com/post/118961517761/plants-asset-design>>

2, Billy Wimblett, 2015, FABLE LEGENDS: Musical Plants, Concept Art. ArtStation, viewed 7 August 2021,

<<https://www.artstation.com/artwork/WPyGG>>

3, Yiming Yu, 2017, Beehive Rock, Concept Art. ArtStation, viewed 7 August 2021,

<<https://www.artstation.com/artwork/3YP1g>>

4, Neil Blevins, 2014, Inc Coral Desert Wandering 1, Concept Art. ArtStation, viewed 7 August 2021,

<<https://www.artstation.com/artwork/inc-coral-desert-wandering-1>>

5. Sophia Aubrey Drake, 25 May, 2021, Shadow based puzzle-platformer In My Shadow wins The Digital Big Indie Pitch (Mobile Edition) #7, Retrieved 12 October, 2021 from <https://www.pocketgamer.biz/asia/news/76595/shadow-based-puzzle-platformer-in-my-shadow-wins-the-digital-big-indie-pitch-mobile-edition-7/>

6. UGuruz, 25 March, 2020, Realistic Glass Material in Unity HDRP, Retrieved 5 October, 2021 from <https://www.youtube.com/watch?v=XTnobfLSTV0>

7. Brackeys, 28 May, 2018, Basics of Shader Graph - Unity Tutorial, Retrieved 17 October, 2021 from <https://www.youtube.com/watch?v=Ar9eln4z6XE>

8. PabloMakes, 31 January, 2021, Dissolve effect in Shader Graph, Retrieved 10 October, 2021 from <https://www.youtube.com/watch?v=iTISwQ4b-uM>

9. Nicolle Lamerichs, 26, February, 2016, [Game Theory] How We Should Interpret the Platform Game Contrast, Retrieved 11 October, 2021 from <https://nicollelamerichs.com/2016/02/26/untangling-the-platform-game-contrast-is/>

10. Jason Cipriand, 21 December, 2010, 'ECHOCHROME 2' REVIEW - TURN THE LIGHTS ON, viewed 10 August,

2021,

<<http://www.mtv.com/news/2462374/echochrome-2-review-turn-the-lightson/>>

11. Little Nightmares (Little Nightmare Full version is ported to NS platform and will be released on May 18)

<https://ln.bn-ent.net/>

Abstract:

4, Alcon Interactive Group, 2021, In my shadow, Video Game. Steam, viewed 8 August 2021,

<https://store.steampowered.com/app/1406200/In_My_Shadow/>

5, David Serrat, 2019, Shadowland, Video Game. Steam, viewed 8 August 2021,

<<https://store.steampowered.com/app/1091180/Shadowland/>>

4, SQUARE ENIX, 2019, Final Fantasy XIV: Shadowbringers, Video Game, viewed 9 August 2021,

<https://store.na.square-enix-games.com/en_US/product/527395/final-fantasy-xiv-shadowbringers-standard-edition-pc-download>

5, Jenkins, H 2004, 'Game Design as Narrative Architecture', Electronic book review, Viewed 18 October 2021

<<https://electronicbookreview.com/essay/game-design-as-narrative-architecture/>>

Sound Track:

4, 'Organic Magic Poof Buff Hit (2)' from Soundsnap

https://www.soundsnap.com/fantasy_game_organic_magic_poof_buff_hit_wav

4, 'thin pieces held together and stressed to create cracking or breaking sounds 5' from Soundsnap

https://www.soundsnap.com/debris_dead_plywood_mvs_crackle_5_wav

4, 'Barefoot feet setting down on concrete, one foot, far perspective' from Soundsnap

https://www.soundsnap.com/008_foley_footsteps_concrete_barefoot_set_down_one_foot_special_distance_wav

4, 'Creature's Goodies, Enchanted World, Retrieved 19' by Edward Simoni

<https://assetstore.unity.com/packages/audio/music/orchestral/enchanted-world-197452>

Trailer

Youtube: <https://youtu.be/jr3-AvFoVHY>

MAGI: <http://www.magistudio.net/work/agi-studio-2-folio-2-lidow-game-video>

Gameplay Video Link

Youtube: <https://youtu.be/jr3-AvFoVHY>

MAGI: <http://magistudio.net/work/agi-studio-2-folio-2-gameplay-demo>