

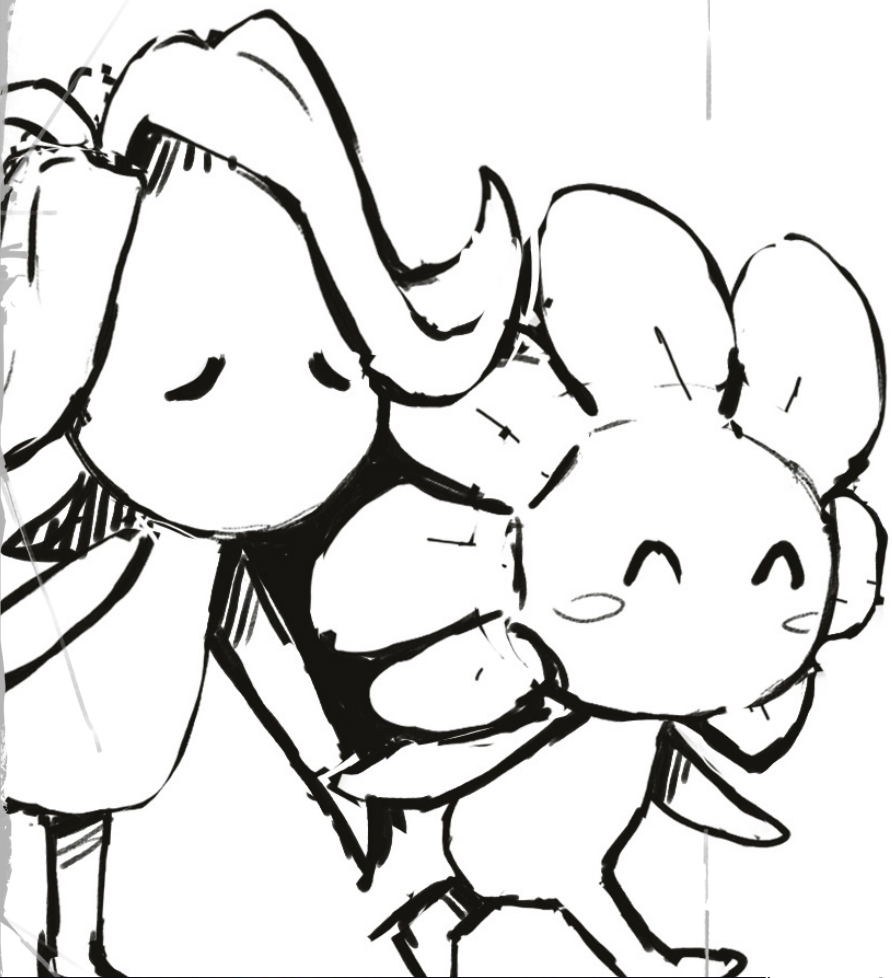


## production book

**Petal is a 2D co-op puzzle platformer following a pair of newly evolved plant beings, exploring an overgrown seed vault.**

**The pair must harmonise with each other and the environment to navigate this lost facility. Together they solve complex puzzles with systemic components and must assist each other in traversing the vault, with the ultimate goal of discovering a way out into the wider world.**





## hello!

Thank you for picking up our production book on Petal. Starting development in September of 2023, Petal has come a long way since its inception. Much time and care has gone into making our little floral game into the best it can be, so to showcase its growth we've put together this here book filled with interesting bits and bobs related to our production. Inside you'll find a plethora of concept art, commentary on design documents, scrapped and shelved ideas and more! We sincerely hope you enjoy taking a look, and have a great time playing our game.

– This Way Up



Meet Zuu & Par: Our adorable complementary duo freshly sprouted from the ground.

Although evolving slightly in their designs over time, Zuu & Par have been the most consistent feature found throughout Petal's development.

The pair's names were always the same and always intended to be foils to each other.

Their designs at every iteration possessed the same features and colour palettes that made them distinct but undeniably related to one another in some way.



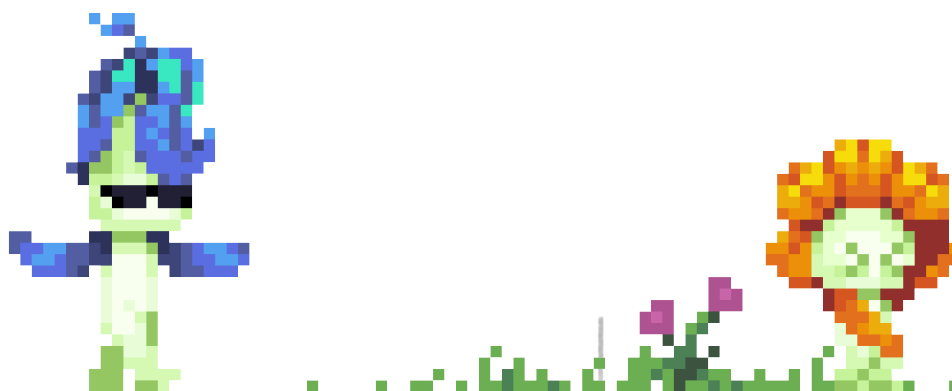
## fun fact...

The colours of Zuu & Par's petals, blue and orange, are a homage to the playable characters of Portal 2, a legend of the co-op puzzle scene.

The designs of Zuu & Par's petals are, as you'd expect, inspired by real-life examples of flower petals: Zuu's are based on sunflower petals and Par's are based on bluebells.

Zuu & Par's names came from the first syllables of the words Zucchini and Parsnip.

Billy Marsh hates this fact.





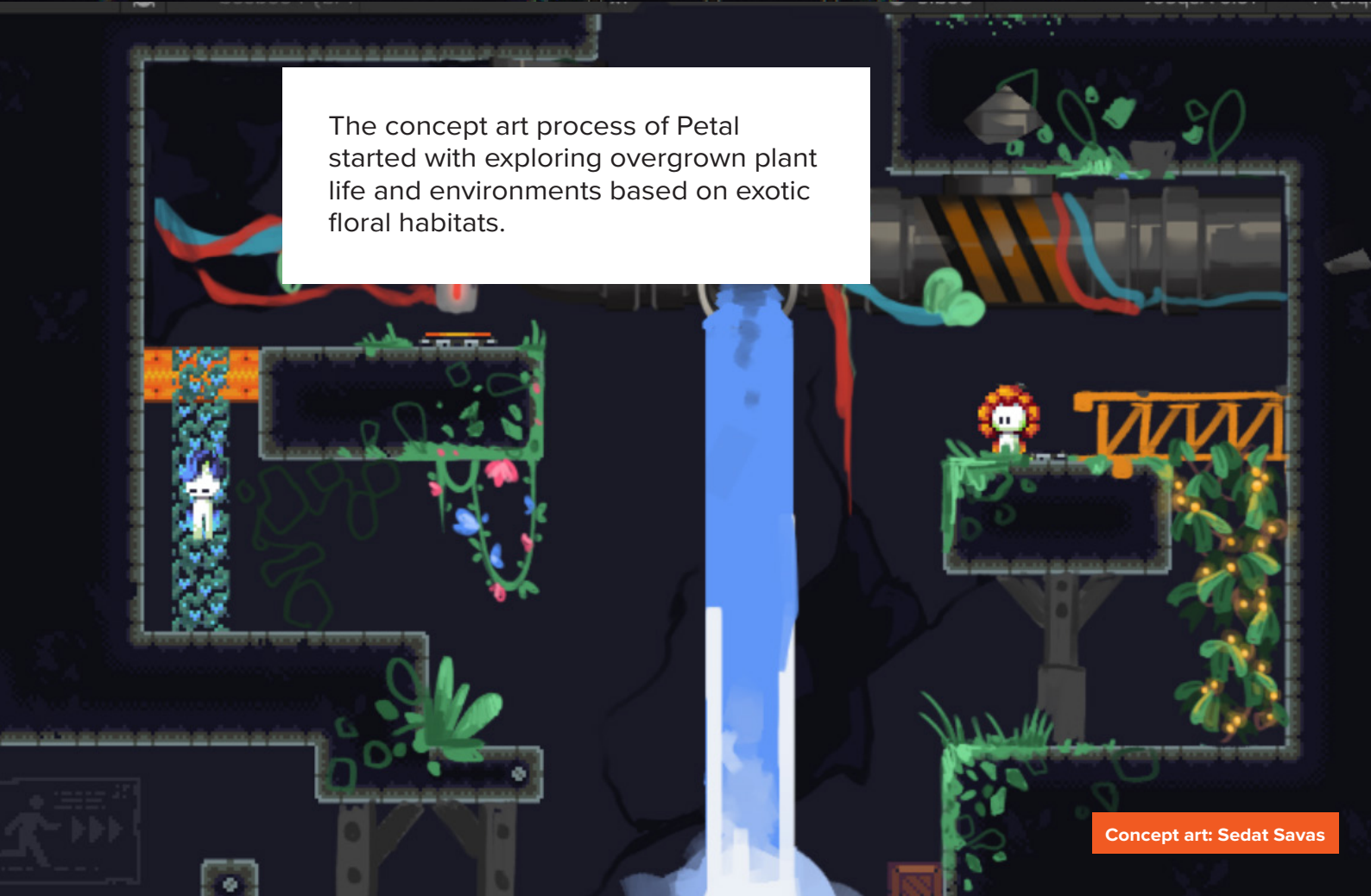
explore the seed vault  
**art & design**





Petal takes place in a mysterious post-apocalyptic seed vault.

Its visual language evokes curiosity, emphasizing the contrast between the organic and the mechanical.



The concept art process of Petal started with exploring overgrown plant life and environments based on exotic floral habitats.



Concept art: Sedat Savas

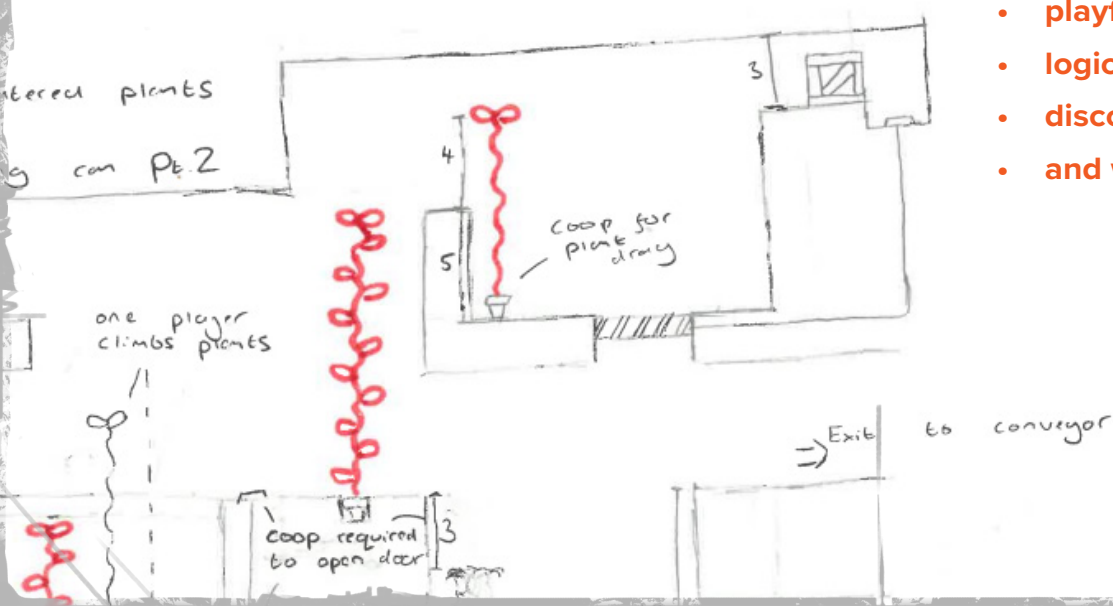
Petal begins in an alien environment; the characters emerge in a somewhat familiar, but very distorted part of this facility. Plants, vines, and flowers coming out of machines and broken mechanical structures create uncertainty.

As Zuu and Par progress through the zones of the facility, the greenery and exotic plant life welcome them.

The game's tone and atmosphere slowly become more understanding and warm.

Throughout all of this, all of the puzzles, items, and environmental features that the characters come across are meant to evoke:

- **mystery**
- **curiosity**
- **playfulness**
- **logic**
- **discovery**
- **and wonder.**



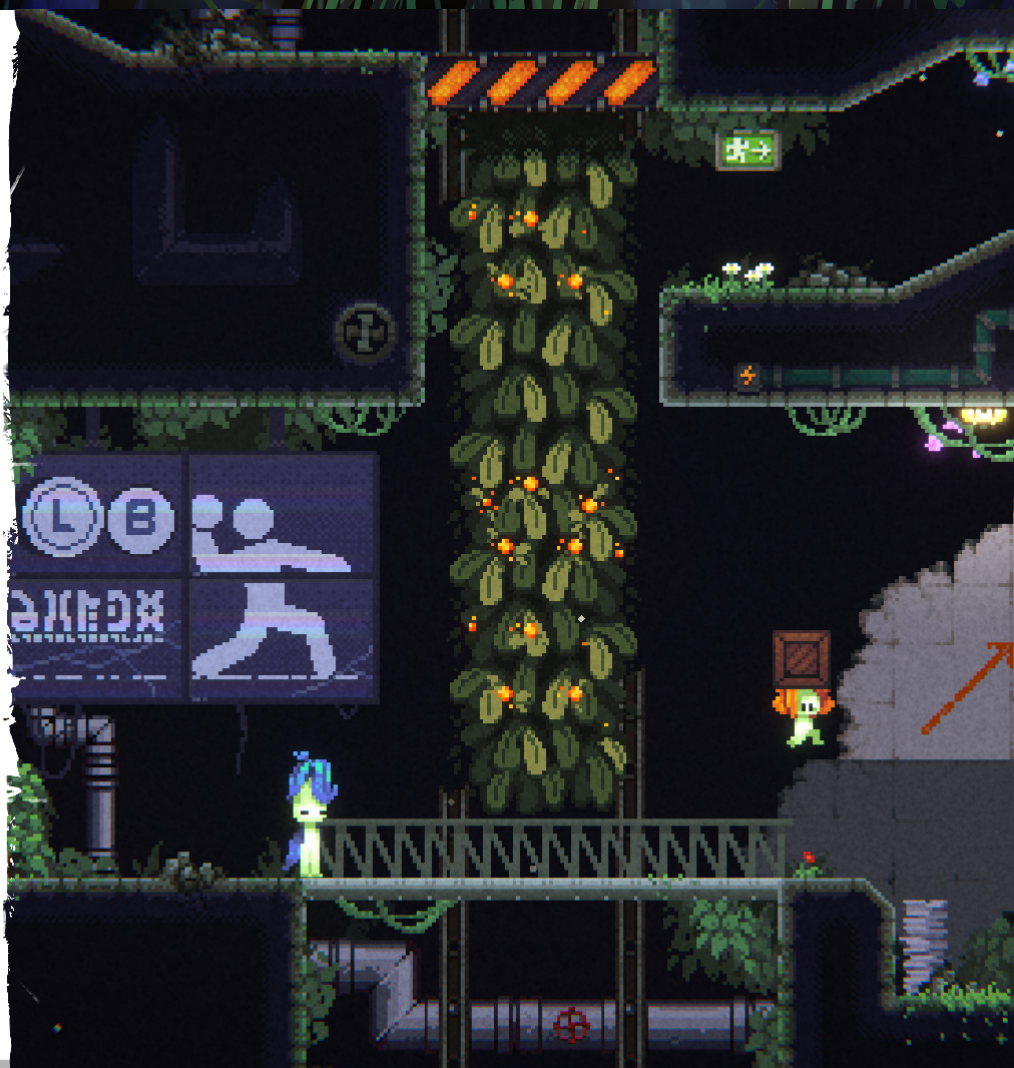




Concept art: Sedat Savas

Petal's colour and shape language is designed to especially emphasise the contrast between the mechanical and the organic, while also creating a sense of curiosity and mystery.

As the facility portions of the environment are cold and hard and push the industrial aspects of the setting, the overgrown elements of the scenes are fluid, in harmony, and covered with floral patterns.







While Petal's pixel art style is often fluid and organic, it's also often rigid and mechanical. The animations are complementary to this overarching visual direction.



Concept art: Sedat Savas



“Keeping a consistent art style among a team of artists is always a challenge, but one we tackled with passion and discussion!

To keep us on track, we as an art team developed three artistic pillars. Like Design Pillars, these were tools used to inform choices regarding the project’s development – in this instance artistic choices.”

### Pillar 1:

#### Evokes Curiosity

Being a puzzle game, it’s key that players are encouraged to explore ideas and discover interactions used for solving puzzles.

To achieve this, we nurture their curiosity through eye-catching interactable elements and set pieces within that spark player’s imagination.



### Pillar 2:

#### Environmental Narrative

Early in development, the team decided that we would avoid non-diegetic methods of storytelling like cutscenes and dialogue boxes.

Instead, Petal would convey its narrative through the design of its levels.

An example of this is, within the vault, abandoned overgrown work desks and collapsed catwalks to now inaccessible doorways give players a sense of the purpose and scale of the facility they explore.

### Pillar 3:

#### Mechanic ~ Organic

Harmony is rippled throughout the entirety of Petal, and this includes our art.

An example of this relationship is the industrial pipes of the facility providing water to the nature coating the vault.

This relationship was thoroughly considered when conceptualising the entirety of our environment

We want our puzzles and environments to showcase a flourishing diverse space of both machines and plant life working together – in harmony.





For Petal, we wanted to create several zones, each zone with its own unique theme. In total we have 7 zones planned but have focused on creating the first 2 in time for Expo.

Zone 0 acts as a tutorial zone for the player, teaching the most basic of mechanics in an environment designed to account for this.

As Zuu and Par wake up here and begin to find their way through this facility, they learn how to interact with the environment around them and establish their goal of ascending to the exit of the vault.

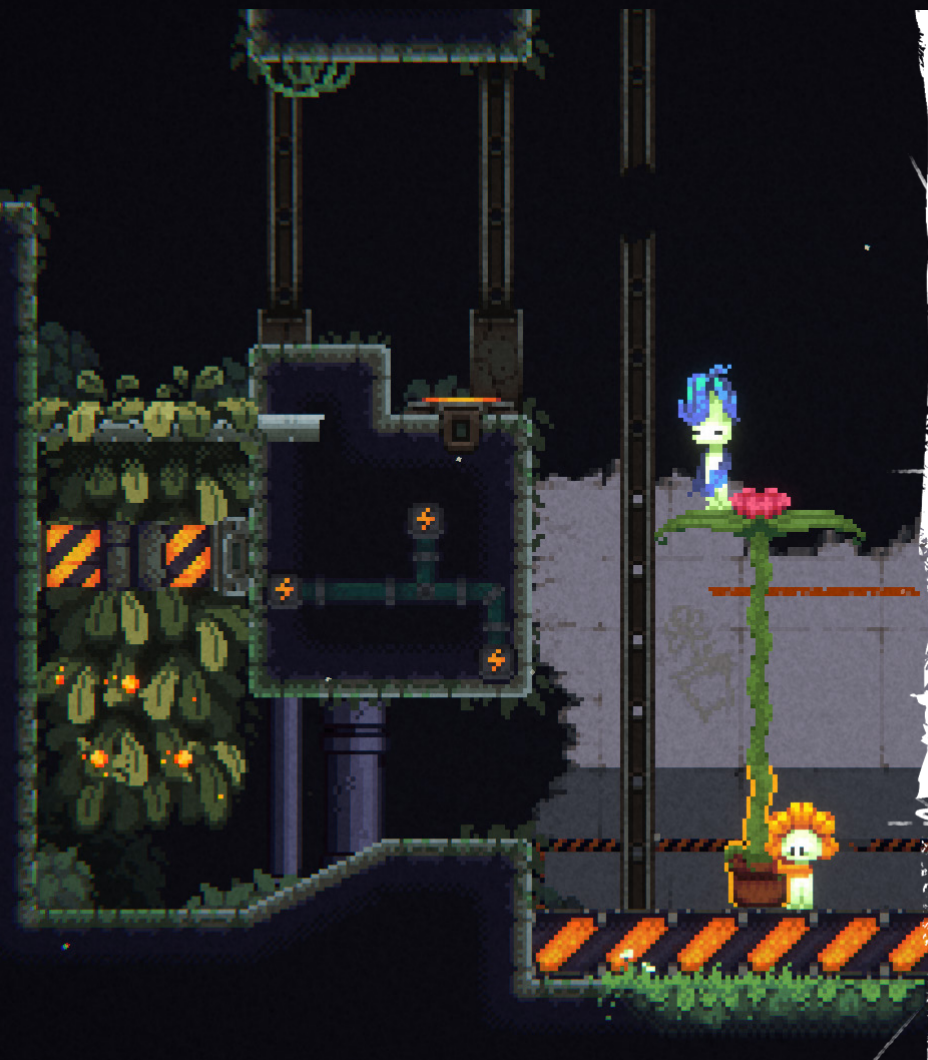


"It was always a goal to implement some Metroidvania-style layouts where players loop back around on themselves without even knowing, and find the way forward in a place they had already visited, but adapting that style of world design to accommodate two players rather than one has been especially challenging."



"I've really enjoyed working on Petal, I think working with everyone on the team has been a massive motivation for me.

I found it pretty easy to just geddon with everyone and peer development went so smoothly cause of that."



As the players progress into Zone 1, the environment around them begins to get more overgrown, as the facility blossoms into a lush, plant-filled landscape.

Here, Zuu and Par begin to discover more and more about the facility and some of the processes undertaken here.

The plants become objects Zuu and Par can utilise to navigate the facility and other items like watering cans are introduced and assist in the players' mission to clamber further up the facility.

Zuu and Par continue to harmonise throughout this zone until they eventually reach the way up and out.

This is where the demo for Petal ends at present - but we have a lot more planned!





"I was responsible for the creation of foley sounds in Petal. Early on we would have meetings to determine what Petal would sound like, where we decided to keep a more grounded and realistic approach to the soundscape. In fact, during audio production, some sounds would be rejected for sounding too 'arcadey'."



"To create these sounds, I would take a microphone and just record everyday objects.

I especially enjoyed one night where I recorded myself in the kitchen interacting with many different household items. Having more sounds in my library allowed me to create a diverse audio-scape.

I'm still rather new to audio and sound effects production and have learnt a lot during the development of Petal. I feel grateful that I was working with a team who were willing to literally offer me their ear."



organic / mechanic

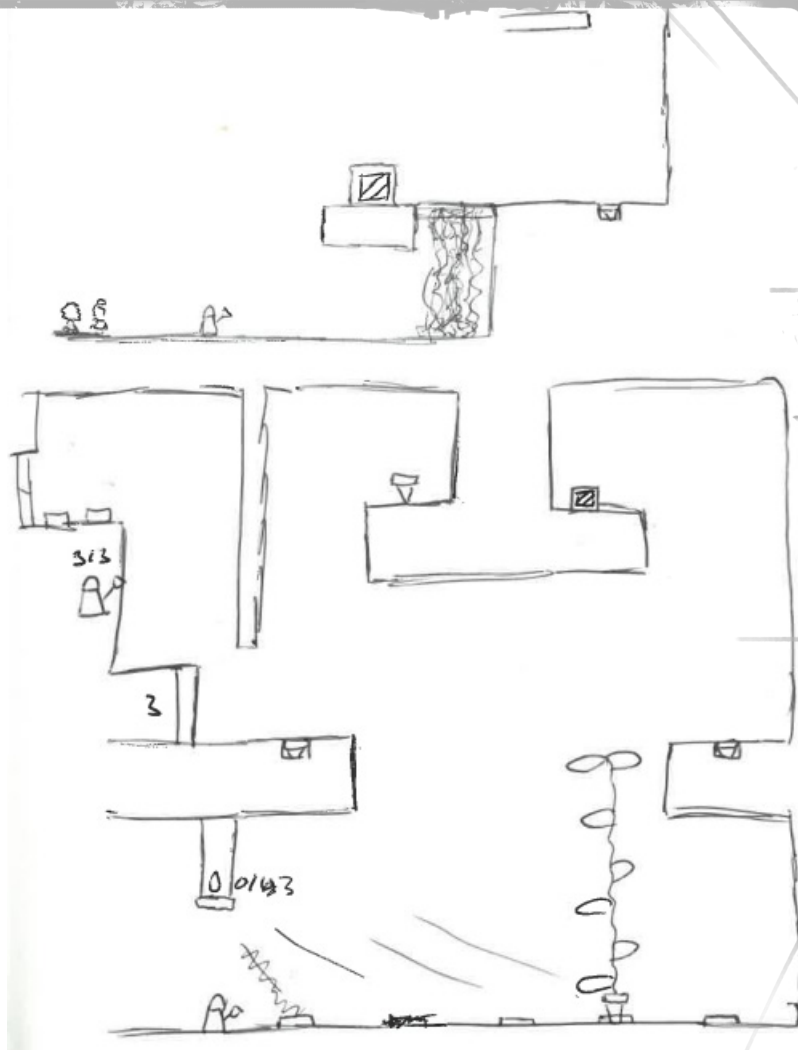
**feature breakdowns**



For the structure of Petal's levels, we thought it best to teach the players mechanics gradually by introducing them one by one; once the player learns all they need to know about one system, the next is brought into the mix.

After introducing multiple mechanics within the vault, we then present the player with a summative puzzle, combining all the mechanics taught prior to showcase how each might interact with each other, and test the players' knowledge.

It was important to us that we ground these introductions and puzzles within a coherent world, so we packed each into rooms that were decorated to give narrative context to the player while developing their mechanical understanding.



## player throw

One of the most popular features of Petal is the ability to throw! Folks loved it so much that we decided to lean into the fun and allow for players to pick-up and launch each-other.



The player can throw while jumping and while moving, this throw disregards aiming and defaults the throw to a middle point dependant on the players direction unless holding the left analogue stick upwards which make them throw directly upwards. This throw doesn't display a throw line to the player.

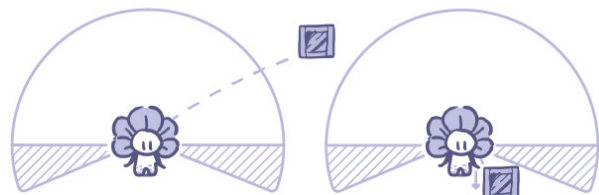
**B** Pressing 'B' picks up or puts down an object, the put down function only applies when the player is not moving.

The player can hold Left Trigger or the Left Bumper to enter aim mode, when Left Trigger or Left Bumper is released the player will exit aim mode.



When the player is aim mode they have access to an 180 degree aim cone, the player doesn't move while in aim mode.

When in aim mode the player uses the joystick to control the direction of the throw within the cone.



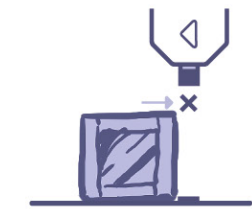
The blank area of the cone is the directions available for the player to throw to, the diagonal lines acts as a buffer zone so the player gets a bit of leeway between throwing and dropping. If the player is aiming outside of the aim cone and presses 'B' the item being held will simply drop.

To throw the item while in throw mode the player presses 'B' which will throw the item in the direction the player is aiming.

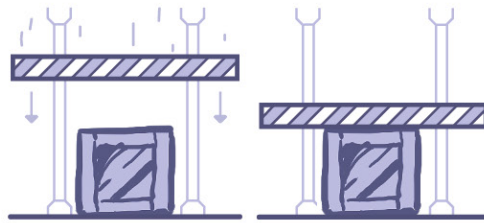


# boxes & crates

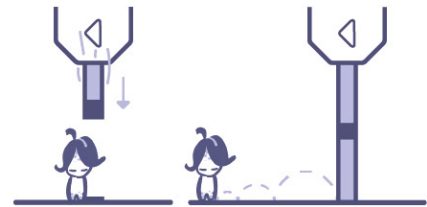
Once used to store a variety of items, crates have been reduced to a simpler function for Zuu and Par, now simply serving to help them progress out of the vault.



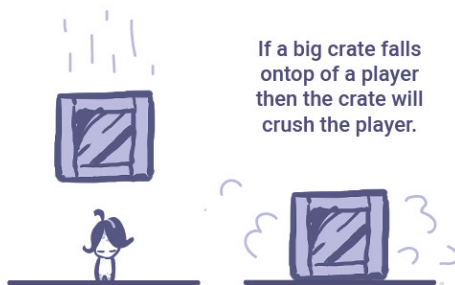
Big crates cannot be pushed through doors.



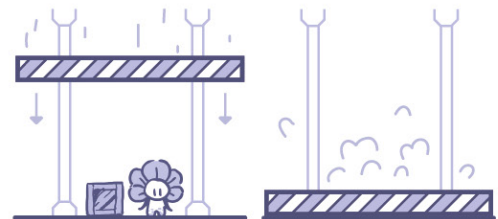
If a lift is descending onto a big crate the crate will block the lift from reaching the floor.



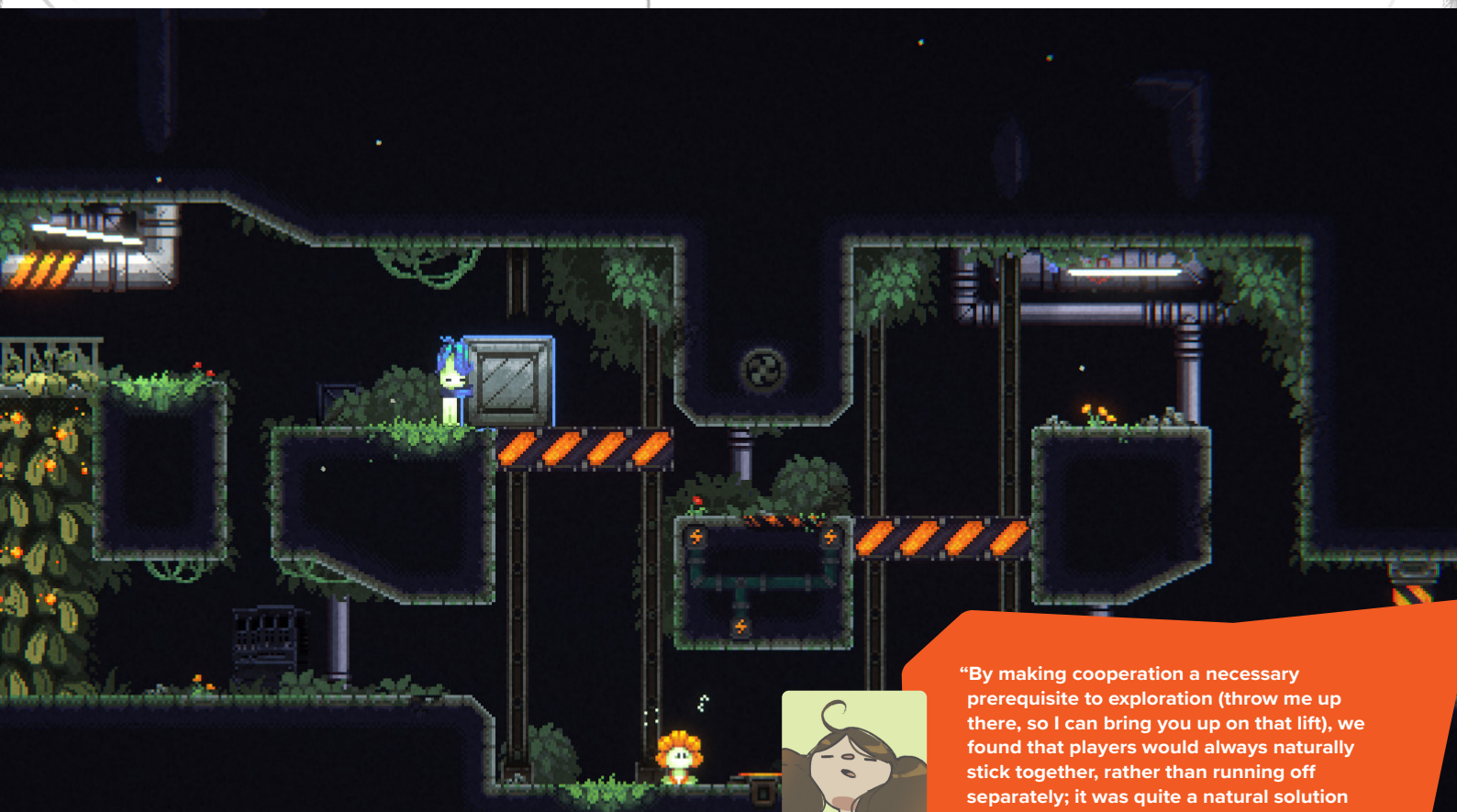
If the player or a small box is underneath a door when it shuts the door will bounce the player/small box back in a set direction determined via the door script.



If a big crate falls ontop of a player then the crate will crush the player.



If the player or a small box is underneath a lift while it's descending it will crush them and respawn them at thier respective checkpoints.

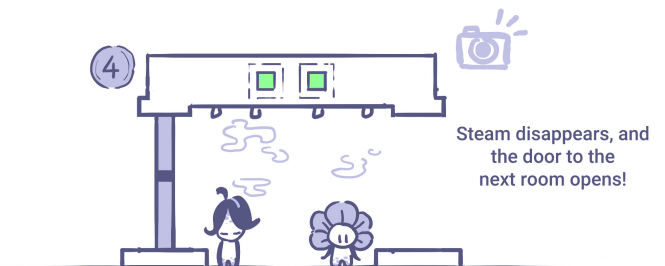
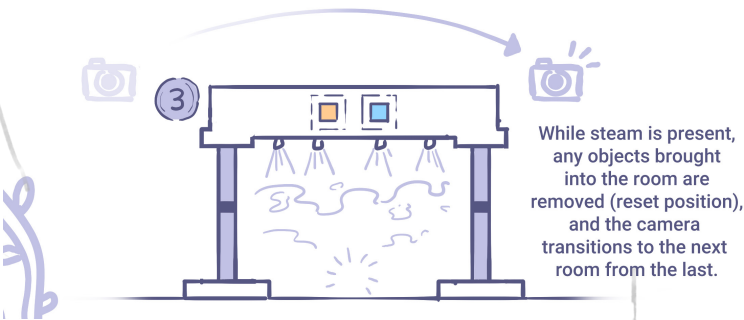
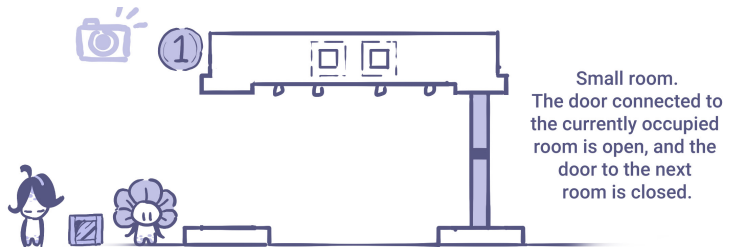


"By making cooperation a necessary prerequisite to exploration (throw me up there, so I can bring you up on that lift), we found that players would always naturally stick together, rather than running off separately; it was quite a natural solution that silently draws the two players closer to one another through gameplay, which is exactly what we're after.



# airlocks

The airlocks stopped plants and people from passing into different rooms without contamination or placing items where they shouldn't be. Now they only stop Zuu and Par from carrying through any unnecessary items into other rooms.



# respawning

When Zuu and Par have an accident they grow back at the nearest plant checkpoint which, activated when Zuu and Par walk past. Their blossom is released after the accident and finds its way back to the plant checkpoint last activated where Zuu and Par can safely regrow.

There will be a checkpoint for each puzzle, which will always be located directly after an airlock. Both players are needed within a checkpoints radius to activate it.

These checkpoints are diegetic which signals to the players the location of them.



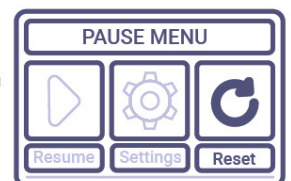
If a player gets crushed they will be respawned at the previously set checkpoint.



The player can push boxes into other players, if one player is caught between a wall and a box they can be crushed.

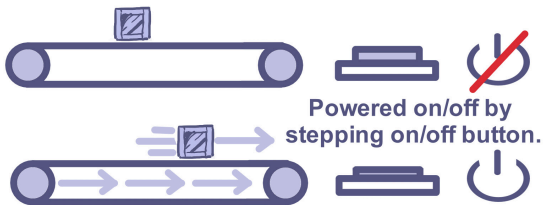
If the players enter a softlock situation, the player can enter the main menu and press a reset button, this will return all puzzle items and progression to how it was when the players entered the room.

This reset function will also return the players to the puzzles original checkpoint.

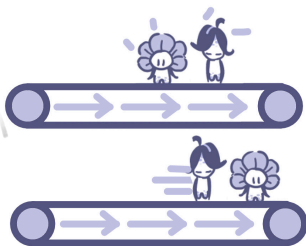
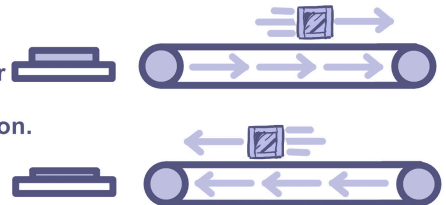


# conveyor belt

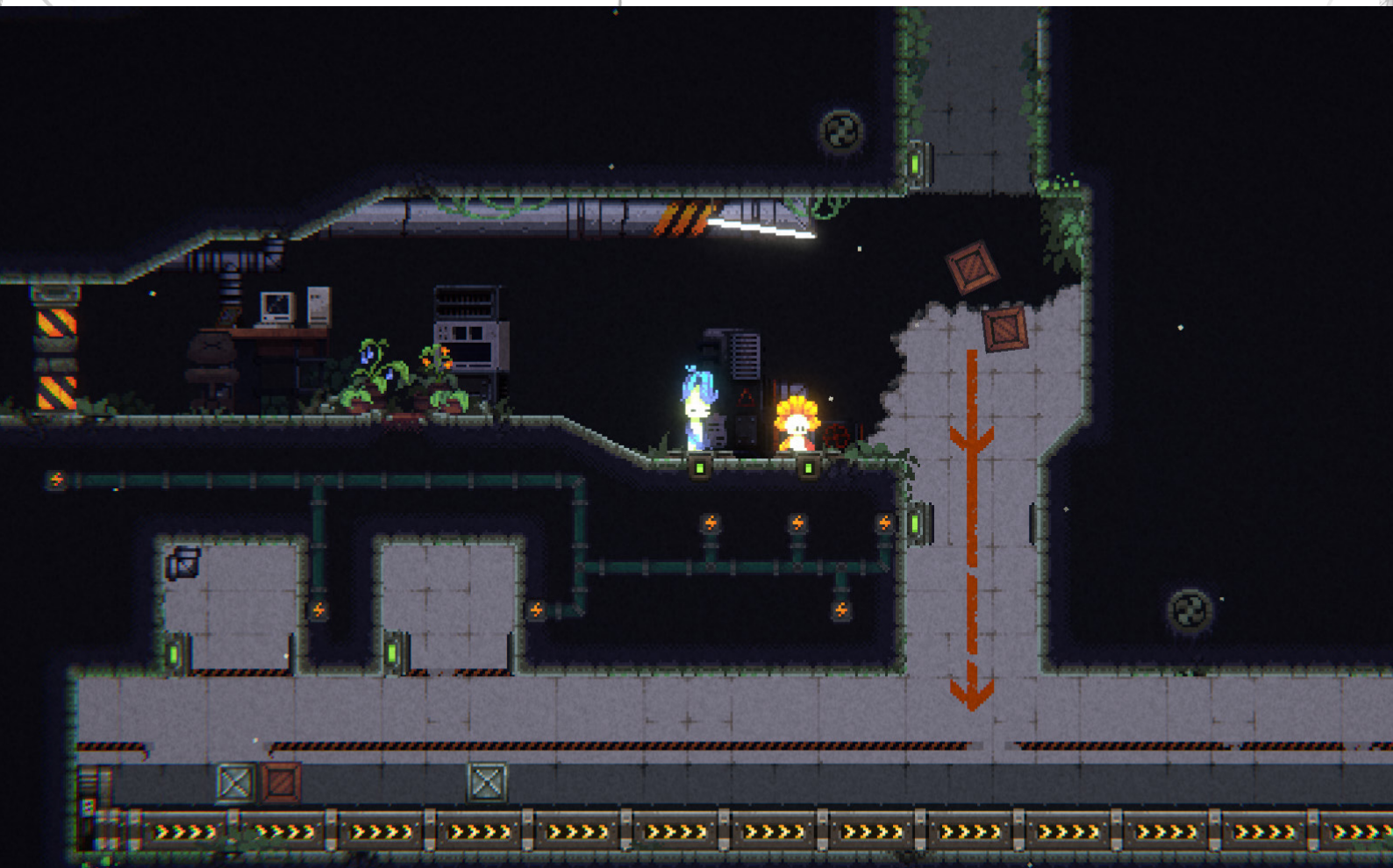
The conveyor belt is a fast new way of transporting both players and items around the vault. Previously used for transporting items around the vault Zuu and Par discover how these conveyors can be re-jigged to help them solve different puzzles and unlock new areas in the vault.



Direction of conveyor can be swapped by stepping on/off button. Seperate interaction from power button.



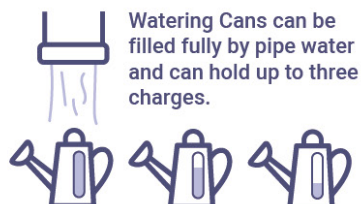
Conveyor speed and length should be adjustable in prefab. Default conveyor direction should be controllable in prefab. On/off and direction toggle should be seperate buttons.





# watering can

The watering can is a mechanic introduced in Petal when Zuu and Par enter an area previously dedicated to growing and developing plant life. With the newly mutated plant life emerging from the vault Zuu and Par discover they can utilise these old tools to help create new life, helping them progress further to the surface.



Watering Cans can be filled fully by pipe water and can hold up to three charges.

One charge is enough to grow a plant.



When the watering can is being held, holding the down direction on the left joystick will pour one charge of water. The hold gives the player time to cancel the pour if needed.

You can only pour once at a time, so to pour again the player must re-input holding down the left joystick.



The player can throw watering cans too, if there is any water inside the can when thrown this will splash on impact, this splash will water plants within its radius. The amount of water inside the can will affect the radius of the splash (e.g. the more water the bigger the radius).

"I really enjoyed working on the Watering-Can mechanic (even with its idiosyncrasies) because of its deceptive difficulty to implement as well as it being a new take on what I like to do within my programming repertoire."



ZACK  
PROGRAMMER



BILLY  
DESIGNER

The watering can is one of the more complex mechanics that we introduce to the players across the first couple zones - as such, the section of the game dedicated to teaching it ended up being one of the largest chunks we made. We gave this section of the level a 'greenhouse theme', full of growable plants, to suit the emphasis on the watering can during the puzzles.



To facilitate our grand ideas for Petal, we developed our Design Pillars. These helped us refine our concepts and keep cohesion between all mechanics of our projects.

### **Pillar 1:**

#### **Co-op**

Petal will heavily centre around two-player, cooperative play that requires players to work together to progress.

### **Pillar 2:**

#### **Harmony**

Key puzzle philosophies revolve around collaboration assisting the other player.

Plant and machine merge and share the game's environments peacefully, and the players can interact with all types of life.

Musical soundscape – different objects and actions in the environment each have an associated musical element. The players 'make music' together by working through puzzles and bringing about a harmonic combination of different sounds.

### **Pillar 3:**

#### **Discovery**

Petal takes place in a seed vault that, over the years, has been overrun with its old inventory - players may pay attention to the game's environments and characters to try and assess what happened to the world and facility.

Thematically Petal is about the journey between Zuu and Par as they attempt to ascend the facility.

Players will discover new areas and biomes as they progress through the game.

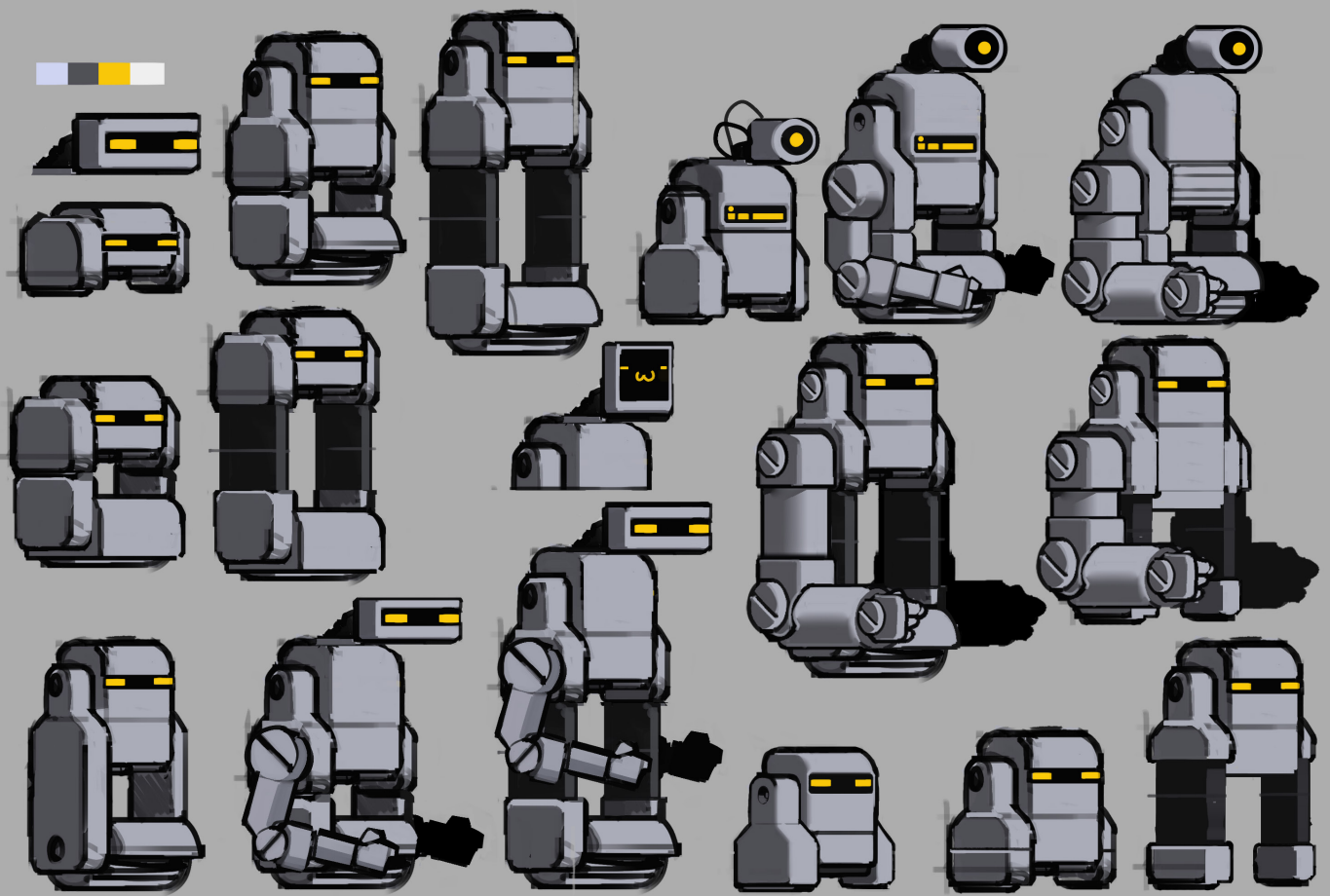






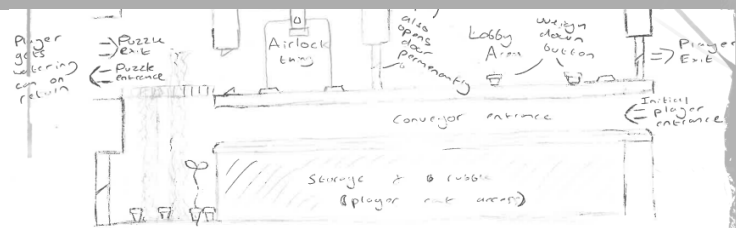
**lost to time**

**unused content**



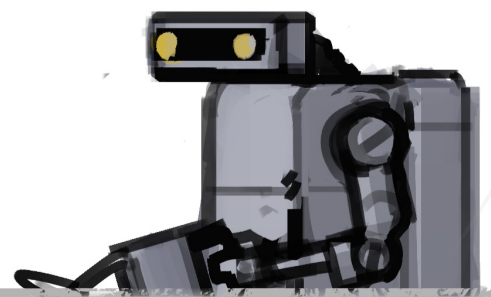
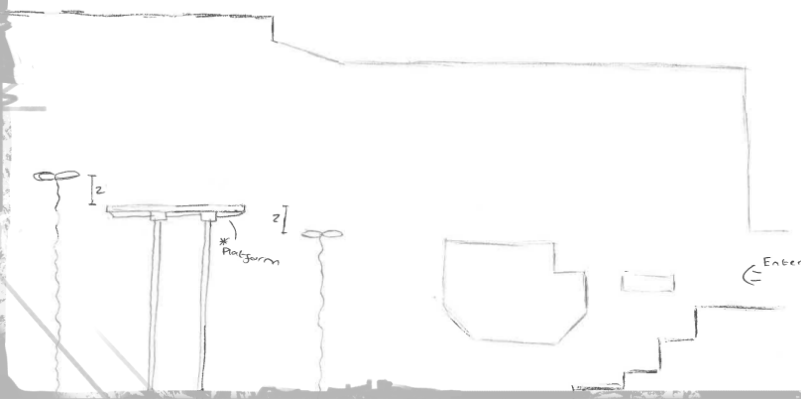
Machine Life was a particularly special part of the early production for many of us. With the aim to fill the world with life, machines made sense to serve as a relic of the time past and a little reminder to not only Zuu and Par, but the players' of what humankind had left behind.

We wanted the robots to be small form-factor and decided that the shape language lends itself well to a modular design where you can fit any parts to a base to come up with a new variation. This was charming and had a 'toy-like' feel to their design, similar to the Machines in Nier: Automata (2017).

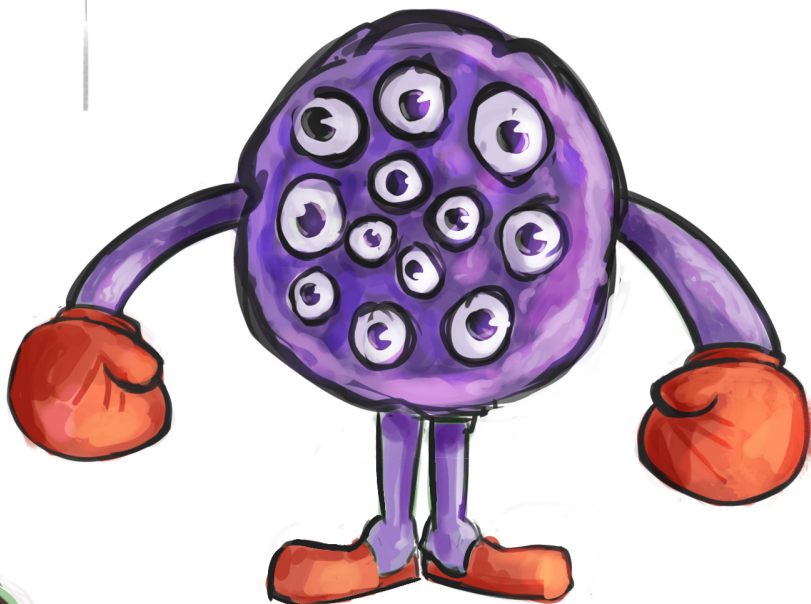


Inevitably needing to translate them into a pixel art scale means that consideration was necessary when they were being conceptualised. Ultimately because there wasn't a lot of room to illustrate their affordances, we opted for an approach where the robots consisted of primitive shapes, simple panelling and accented with the digital screens for the eyes.

They'll hopefully be joining Zuu and Par on their journey very soon!

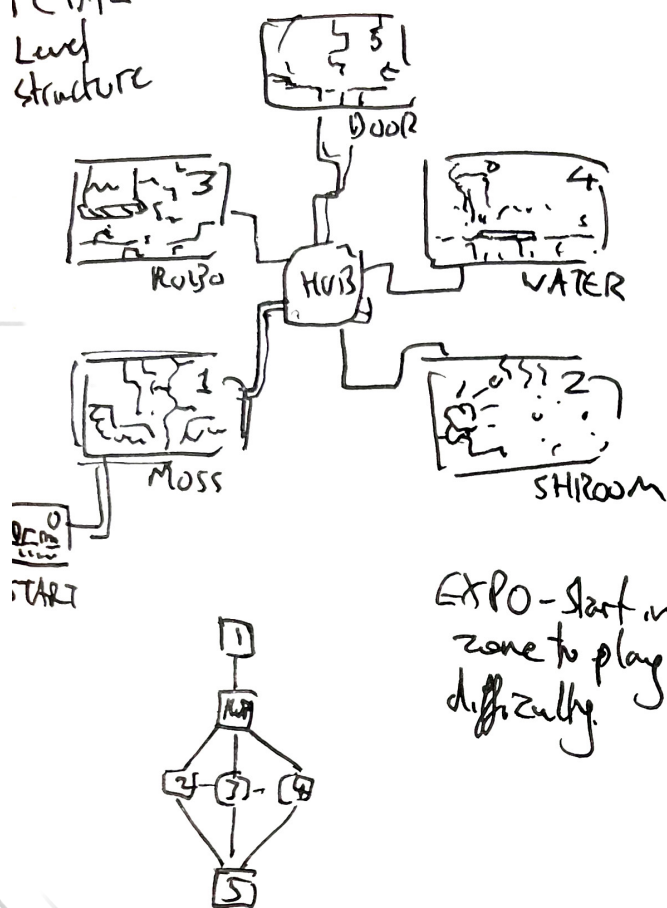






These character concepts were for fellow floral vault inhabitants. In the end, we scrapped this idea in favour of a quieter atmosphere in the facility.

PETAL  
Level  
Structure



MOSS - Grow and climb a large stalk to reach the hub.

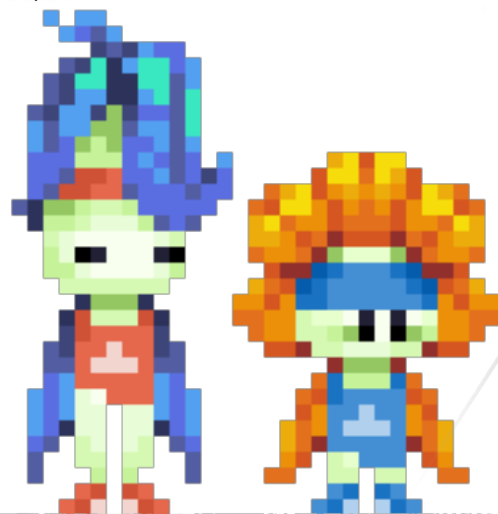
SHROOM - Turning on and off lamps, need to light everything but mushrooms react to light.

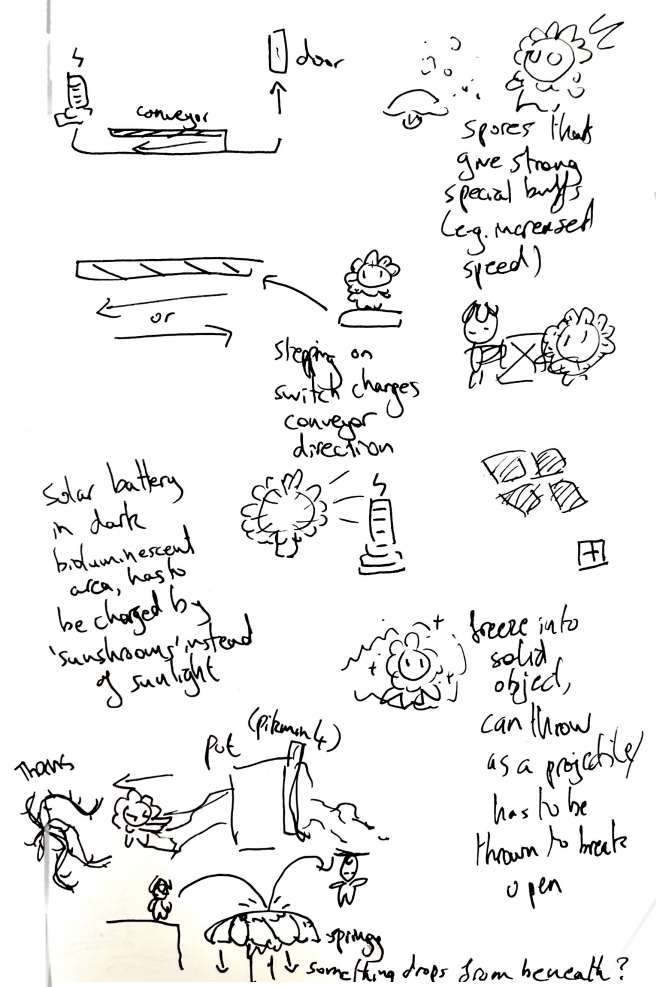
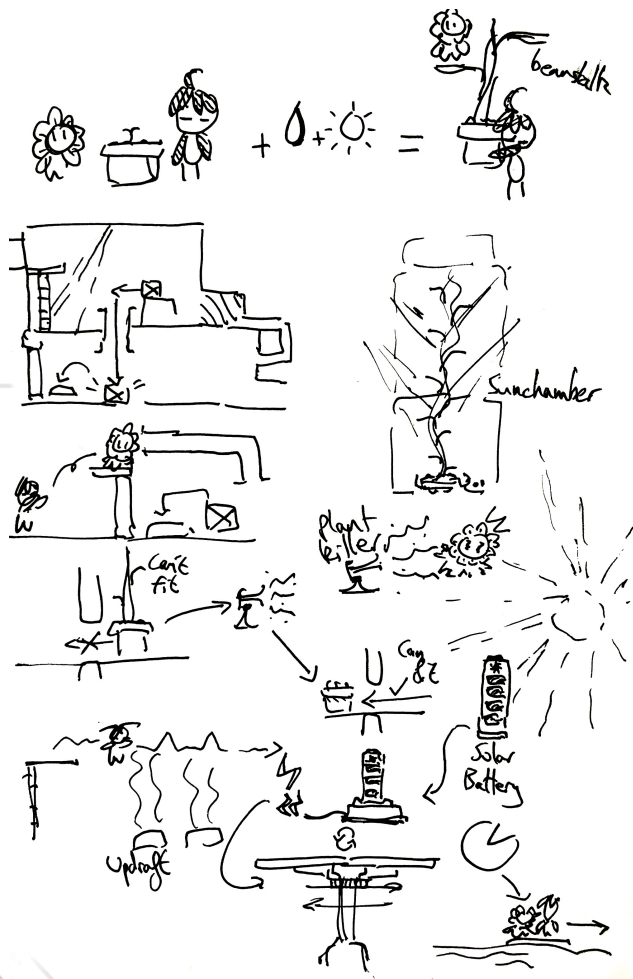
ROBO - Go to collect robot parts in any order

WATER - Manipulating water valves in any order, turn them all on to feed water into facility

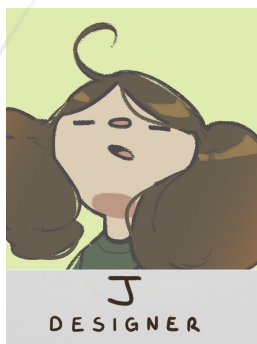
DOOR - Linear upward climb, combines all previous zone mechanics

EXPO - Start in hub and choose zone to play, marked by difficulty.









There are so many ideas we haven't gotten to yet that I'm really looking forward to in future.

One that stands out is a 'propeller plant' that Zuu and Par would use to glide through the air.

The idea stemmed from a bug, where players found a way to launch a potted plant up into the air and hover around with it.

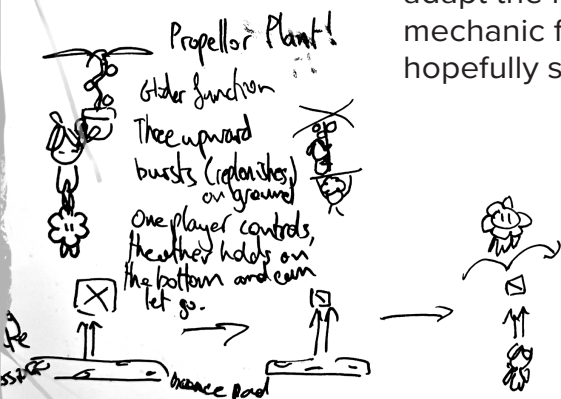
It was so fun that a few of us that were watching the playtest started wondering if we could adapt the idea into a full-on mechanic for the final game - hopefully someday we will!

The mushroom mechanic we have planned for the next major section of Petal has me very excited too.

Zuu and Par would take in spores from different mushrooms in the area that would give them unique abilities, such as being able to run really fast or pick up really heavy objects.

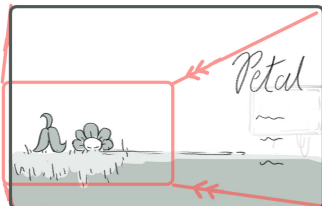
Personally, I've been pushing for mushrooms that cause weird transformations, like turning Zuu's head into a trampoline that Par could then bounce on, or things like that.

I'm pretty sure some people think that idea is ridiculous, but that's exactly why I like it!

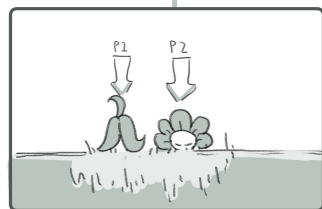


## Opening Cutscene Storyboard

Document by Josiah Hendy



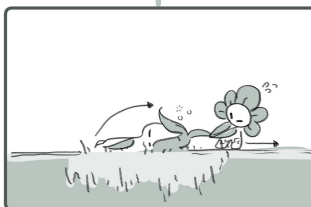
1. Starts on main menu, with Zuu and Par framed on the left, buried and seemingly inanimate. Upon clicking play, the camera moves to focus in on them.



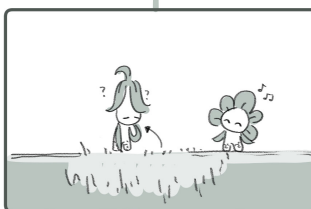
2. Players are presented with the option of which character they want to be. Once locked in, cutscene begins in proper



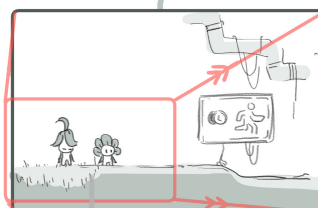
3. A few seconds pass, before Zuu starts fidgeting, then pops out of the ground. They shake off the soil and look around excitedly, before spotting Par buried next to them.



4. Zuu tugs on Par's leaves, dragging them out of the ground like a sleepy child out of bed.



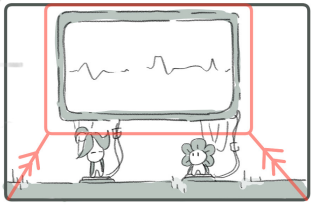
5. Par rises off the ground and gains their balance, then looks around with a doozy curiosity. Zuu is pleased to have found a friend so quickly.



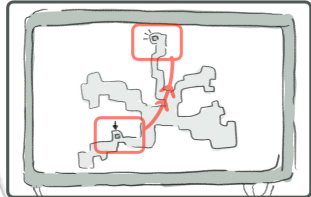
6. Both characters turn to face the right, as the camera zooms back out (further back than the main menu) to frame the way forward. A monitor activates, showing the move tutorial. Control is given to the players and the game begins in proper.

# 'Objective' Cutscene Storyboard

Document by Josiah Hendy

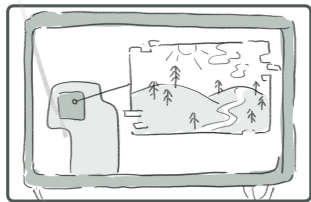


1. Zuu and Par enter a room with a large monitor and two buttons. If the players stand on the buttons, the cutscene begins. Zuu and Par look upward as the monitor above them turns on. Camera pans up and zooms in to frame the edges of the monitor screen.

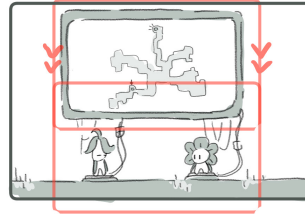


2. The monitor shows a zoomed-in image of the facility map, starting at the players' current locations. It quickly moves up, still zoomed in, until it reaches the highest point of the map (the exit), where an icon is pinging.

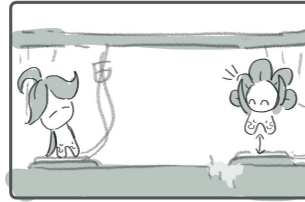
(The map layout shown is placeholder and will be informed by the actual in-engine level in the final game.)



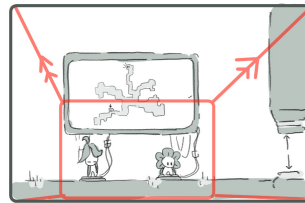
3. Once the monitor reaches the top icon, a window appears, showing images of the pre-apocalypse surface, and indicating that the way out of the facility is at the top of the map.



4. After showing the pre-apocalypse images, the map zooms all the way out to show the entire facility, as the camera pans down to Zuu and Par, who look away from the screen and glance at one another.



5. Zuu jumps up and down excitedly, pointing upward with their petals to imply they want to ascend the facility and see the outside world. Par leans back a little, seemingly exhausted by the mere thought of climbing all that way, but ultimately nods in agreement with Zuu that they should head there.



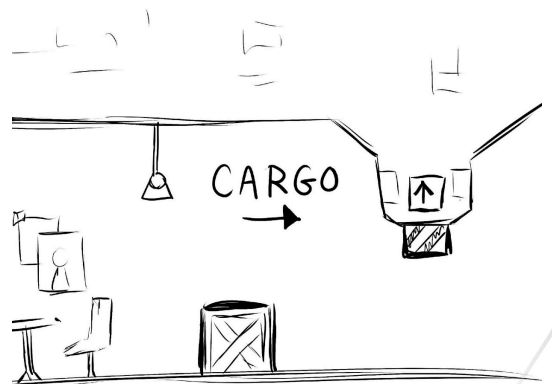
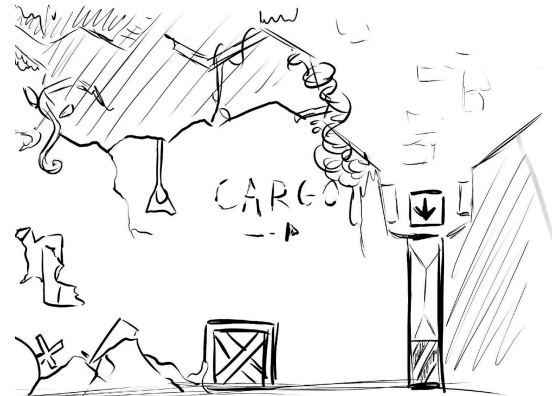
6. The two characters turn to face the right, as the camera zooms back out, framing a door on the right. The door unlocks to show the way forward, as the cutscene ends and control is returned to the players.



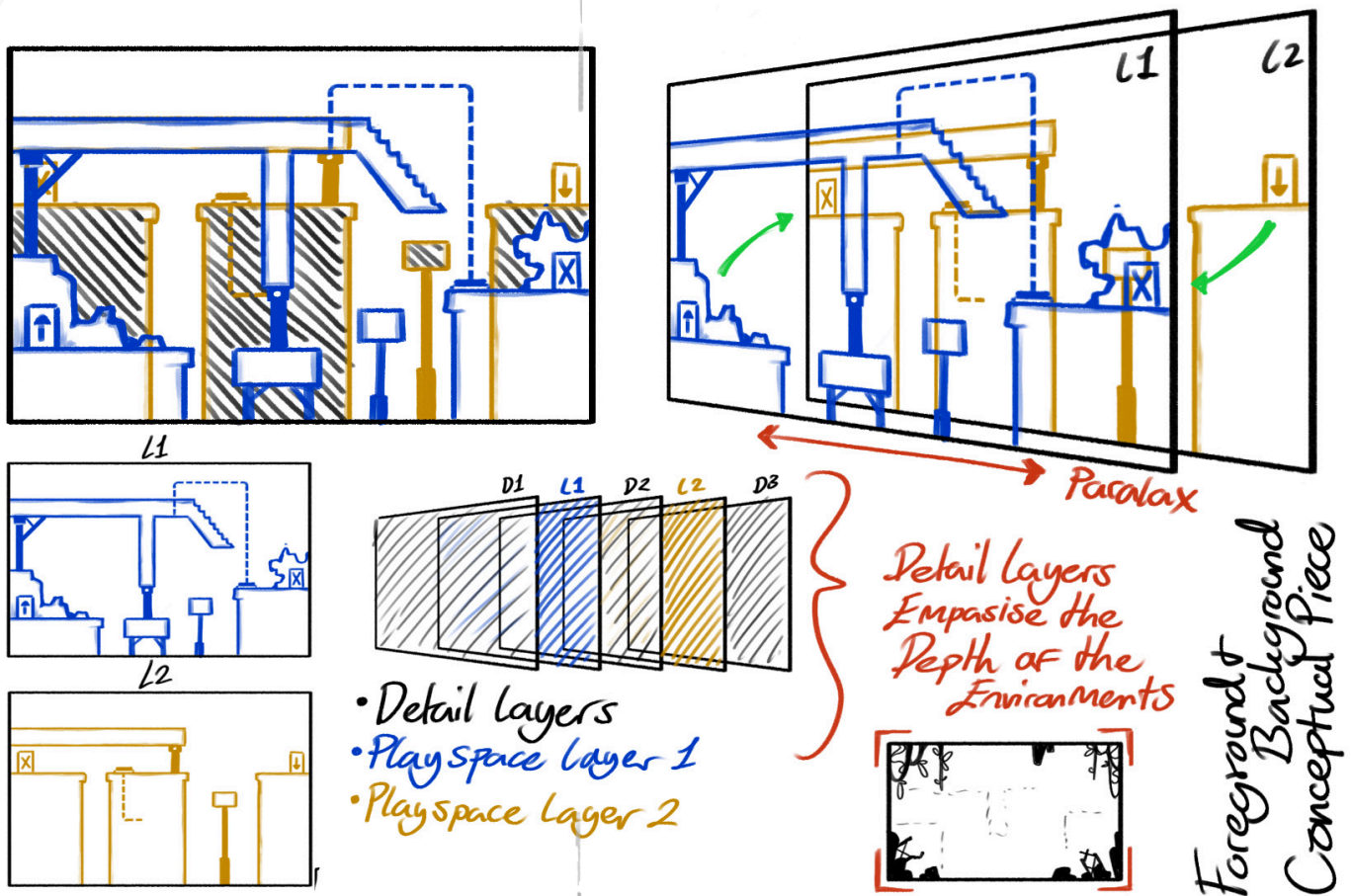
When I first pitched Petal to the team, the concept was very different!

One of the features we dropped very early was a time travel mechanic... through the use of "echo switches" Zuu & Par would travel back and forth between the past and present to make their way through levels.

A few ideas sprouted from this concept however ultimately the idea didn't stick with us as a team, but I'm still quite fond of it :)



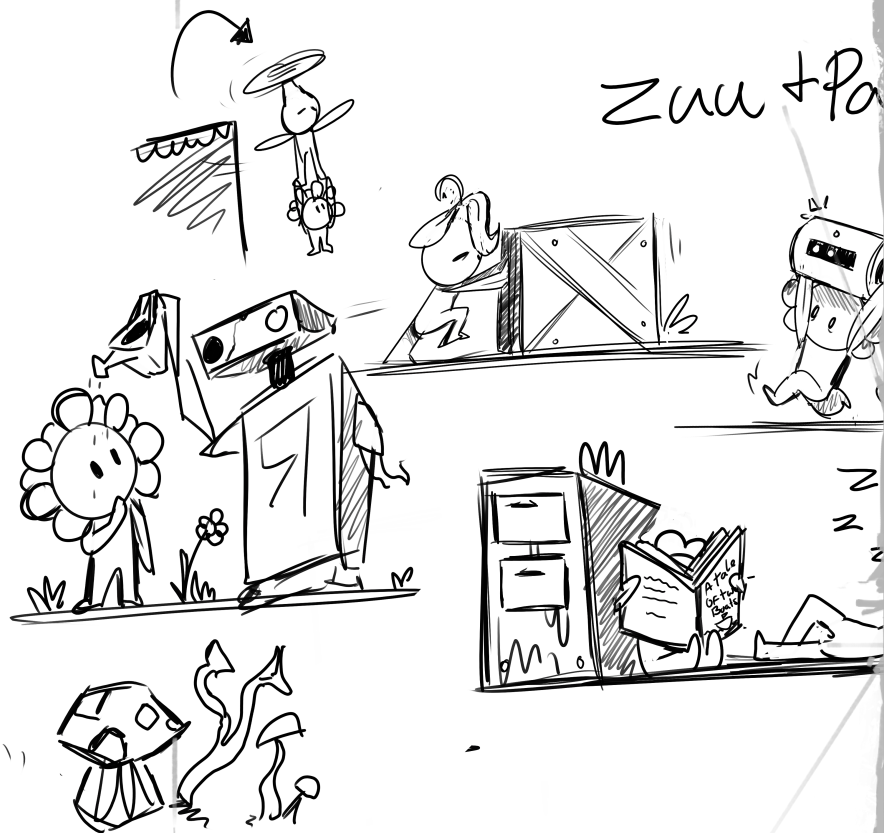




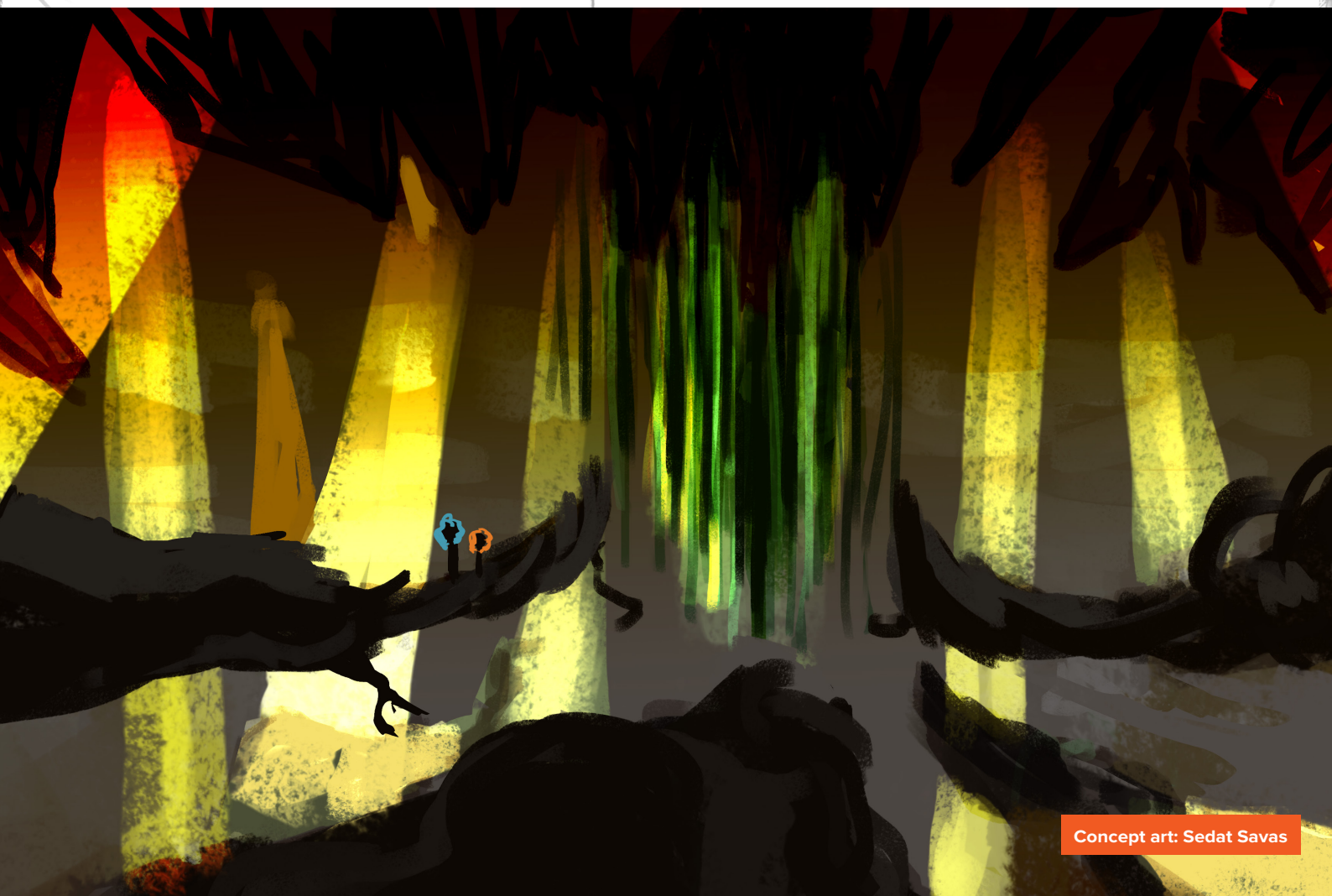
The foreground and background jumping feature was an idea we had for PETAL early on, the concept was that Zuu and Par could swap between two different layers within the seed vault.

One of the layers would be set in the background and one in the foreground and Zuu and Par would have specific points at which they could jump between them.

Initially we thought this feature would have been great to give puzzles an extra layer of complexity, but we'd ultimately decided that it would go against the harmonious theming of PETAL as it would fail to blend effectively with all the other planned mechanics and instead separate them.



**thank you  
for reading!**







The production of Petal has been a creatively satisfying experience, being able to bring this world to life among so many hard-working individuals meant that the visuals were ever-evolving, new things would always be present and no two days on Petal looked the same!

I'd always been in the vicinity of great feedback and encouragement from the art team, even if it was challenging, the team has been incredibly supportive and helped me to become a better artist.

Team Par, they're just like me fr.

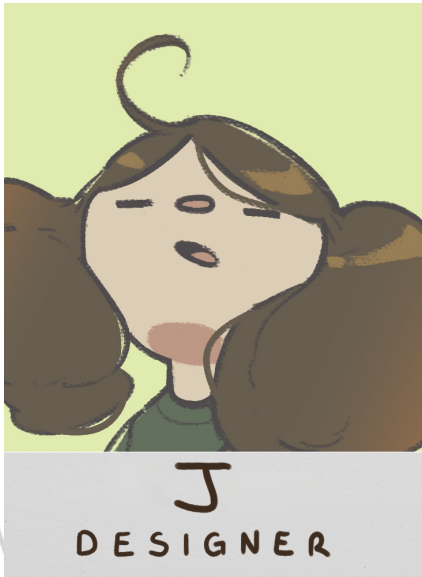
I cannot wait to start implementing the Machine Life I'd been heavily involved in creating. They have a very playful aesthetic and they'll be a delight to see in later releases of Petal.



During the production of Petal, I had fun designing and creating the complex systems and mechanics that drive Petal's gameplay.

I especially enjoyed the learning process, as I strongly believe that I have become a more competent developer through this experience.

I also enjoyed working with not just team members but true friends who were always there to support the project as well as one another.



Working on the level design of Petal has been a consistently engaging challenge that has kept reinventing itself throughout development.

It's all one great big balancing act between trying to make sure puzzles are clear and intuitive, while still making the environment believable as a continuous immersive space.

I had a really good time working on the music for Petal - the sound of the seed vault and its contents was an exciting thing to tackle.

I always wanted music to play a large role in establishing the world, and with how the theme of 'harmony' is so central to the identity of the game, a unique musical sound system felt like the perfect fit.

I'm on Team Par - they're my spirit animal. Spirit plant?



Whilst working on Petal, I found it paramount that I start to focus more on UI and gameplay elements which excite and provoke curiosity.

Therefore I set out with the goal of all my features being unique, even in a little way.

I am particularly proud of the UI, especially the outlines for both players and menus as this is the first time I have used shaders in such a way (along with its uniquely complex logic). The outline being something you see almost constantly is a big feat so I made sure that it wasn't too jarring to the eye (something I believe I did well).

To conclude, developing Petal has been nothing short of an amazing experience with wonderful people who all strive to produce the best possible work.





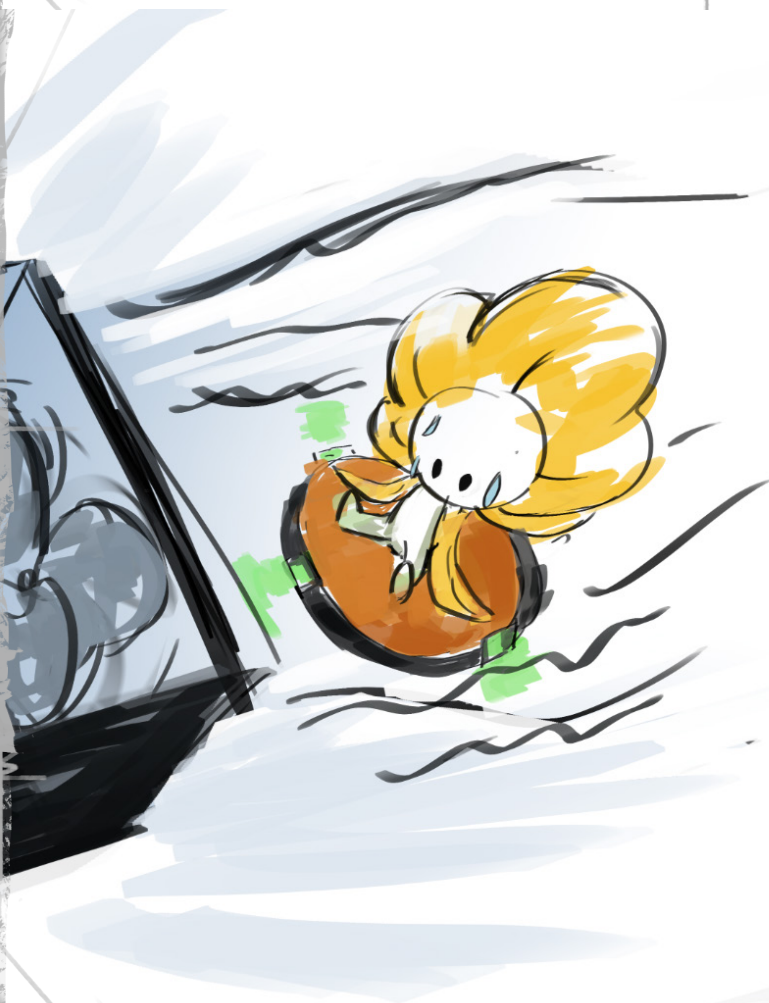
I've really enjoyed working on petal, I think working with everyone on the team has been a massive motivation for me.

I found it pretty easy to just geddon with everyone and peer development went so smoothly cause of that.

My favourite part of development was tackling the puzzles in the game, the process was really up to me and it helped me develop strategies and ideas that I found helpful when approaching design.

Especially working on the watering can zone, I loved figuring out how to get that area to loop and fold back into itself while also having a lot of individuality.

My favourite part of the development was probably playtesting it with people and seeing reactions to 'set pieces' of the game.



Thank you so much for taking the time to read our production book! We've all had a great time working on Petal together and look forward to pushing it even further in the future.

This project has brought us so close together as colleagues and as friends, and we're incredibly proud of what we've achieved as a team.

We fell in love with the world and characters of Petal very early on, and we sincerely hope you do too! Thank you once again for reading, NOW GO AND PLAY PETAL!

A special thanks to Will Martin for setting and designing everything inside this book, and to Stefanie Tischener for binding it. This would have been impossible without them!

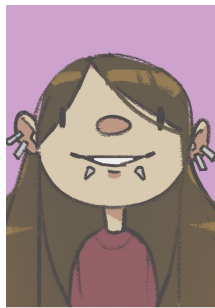
As well as Jeff Howard and Joseph Walton Rivers for all of their wisdom and guidance throughout development.

And finally, all of our families and pets.





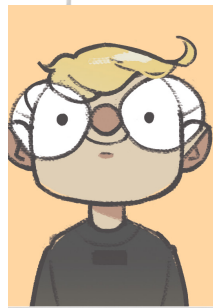
Photo: Will Martin



**ALICE**  
PROGRAMMER



**BILLY**  
DESIGNER



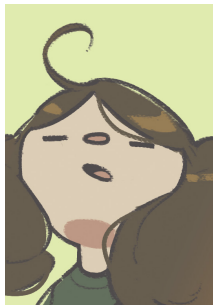
**CHARLIE**  
ARTIST



**ETHAN**  
ARTIST



**GARRIK**  
DESIGNER



**J**  
DESIGNER



**ROWLAND**  
DESIGNER



**RYAN**  
DESIGNER



**SEDAT**  
ARTIST



**STEF**  
PROGRAMMER



**ZACK**  
PROGRAMMER