



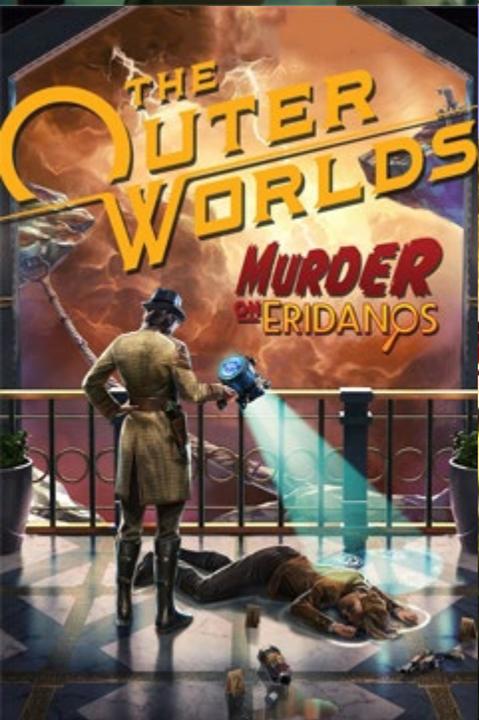
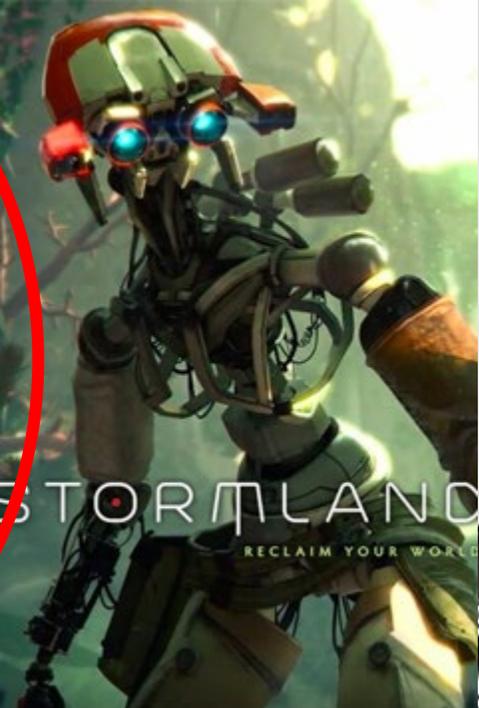
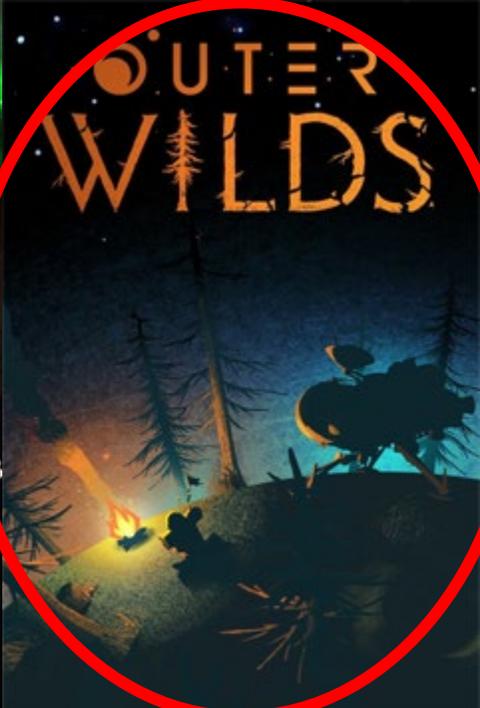
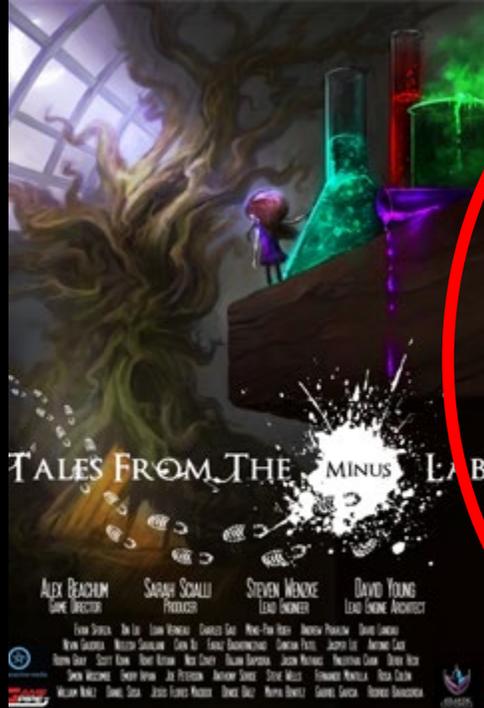
# Sparking Curiosity-Driven Exploration Through Narrative in *Outer Wilds*

Kelsey Beachum  
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Obsidian Entertainment

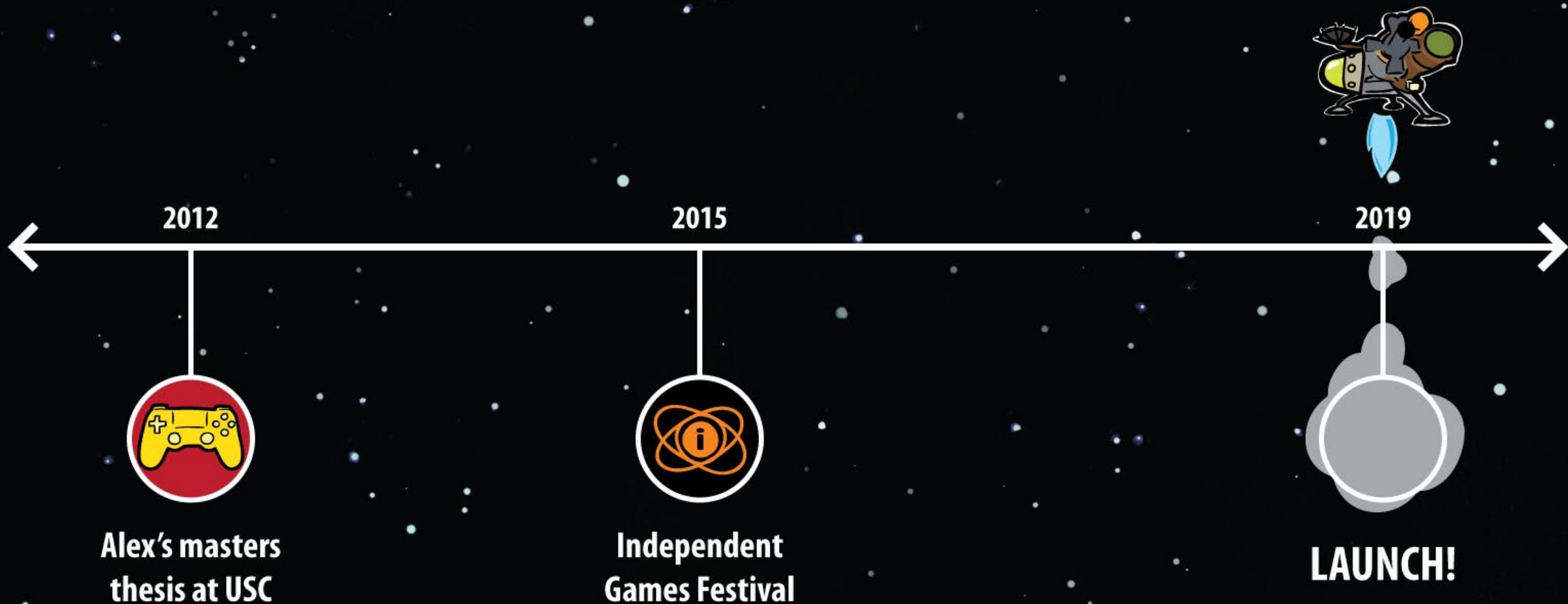
# Hello! I'm Kelsey.

- Writer / narrative designer
- Started my games career as a contractor for Mobius Digital
- Currently at Obsidian Entertainment
- My thoughts are my own!
  - Please don't steal my them.





# How did this happen?



# What's this talk about?

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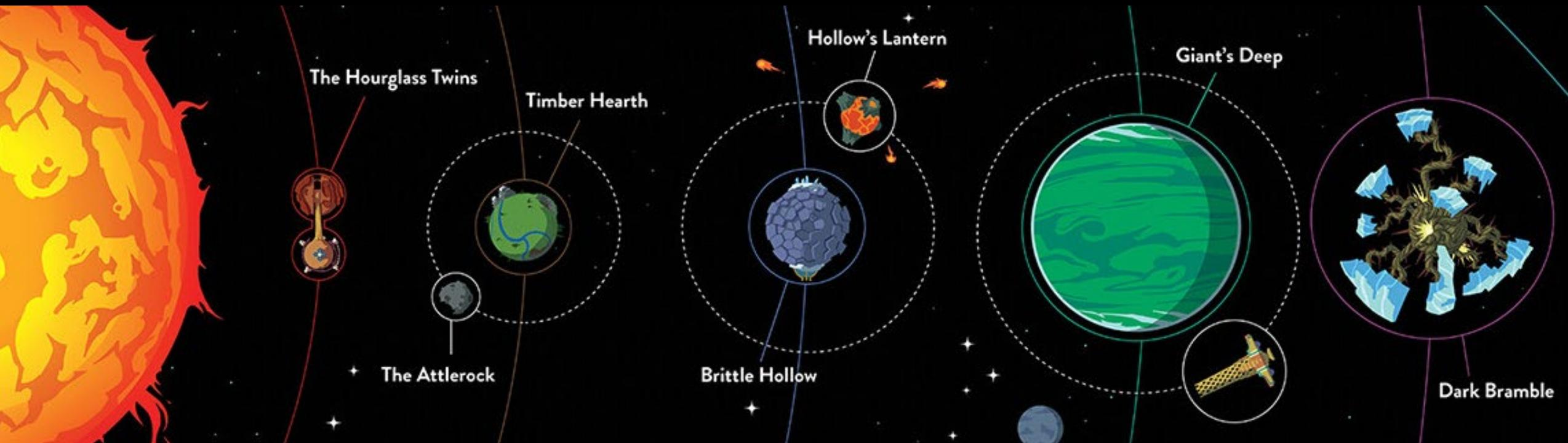
- Breaking down narrative's role in supporting *Outer Wilds*' unique design goals...
- ...with examples of what worked for us and why.
- We're gonna have fun!
- But first...

**THIS TALK CONTAINS SPOILERS.**

**(I'm very sorry.)**

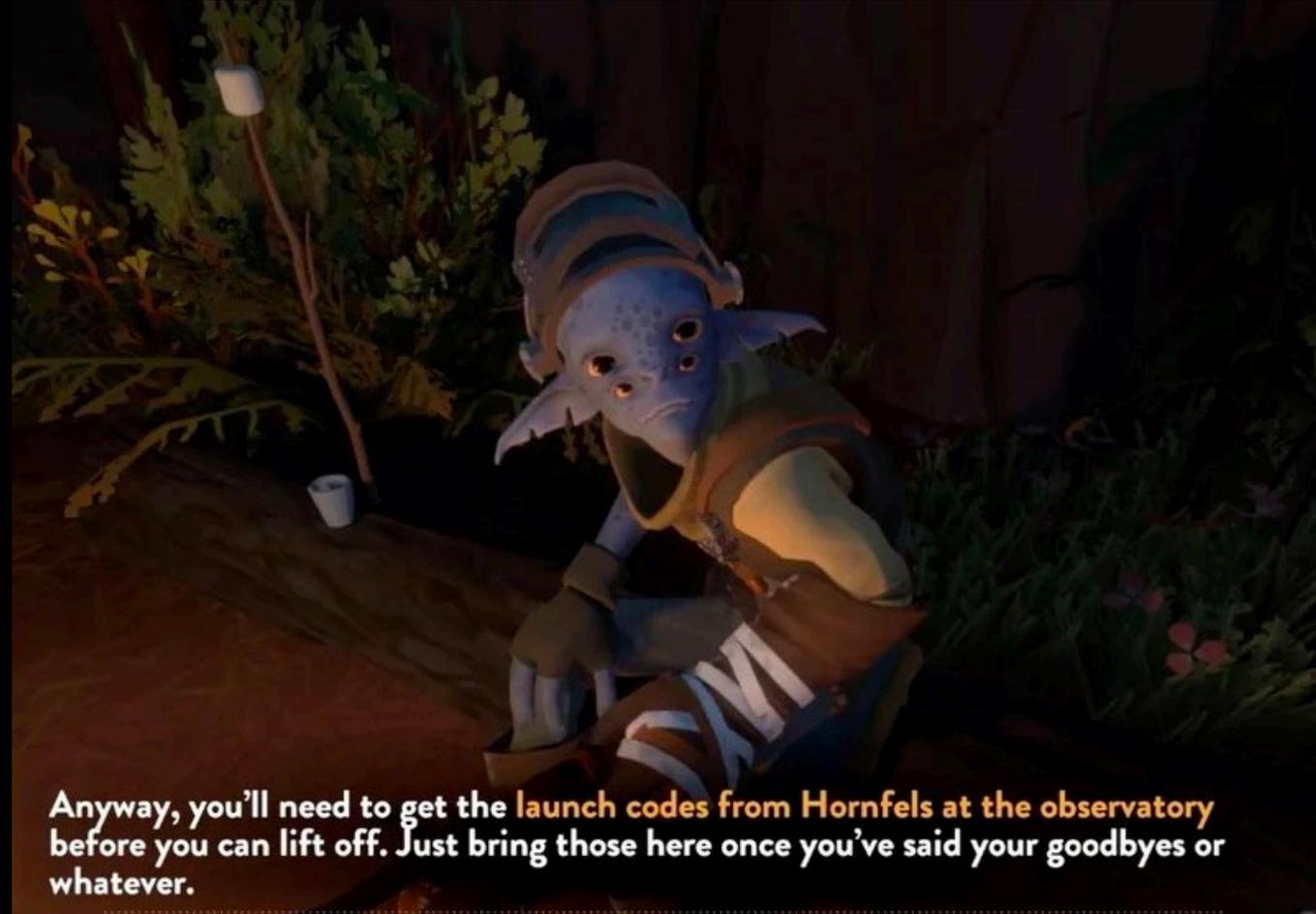
# What is *Outer Wilds*?

- Open-world space exploration game (adventure/narrative mystery)
- “Alien NASA meets backpacking in space”
- Set in a dynamic solar system caught in a time loop



# What is *Outer Wilds*?

- You are an alien (a Hearthian) on the planet Timber Hearth
- You're the newest recruit of Outer Wilds Ventures, your planet's space program
- It is launch day — your first solo mission!
- After you get the launch codes from ground control, you're sent out into space



# What is *Outer Wilds*?

- You experience how the solar system changes over the loop
- You discover ruins and writing left behind by ancient aliens (the Nomai) and piece together the solar system's mysteries
- After 22 minutes, the sun explodes and kills the player, resetting the solar system and returning the player to the beginning of the loop



# What is *Outer Wilds*?

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At its simplest, *Outer Wilds* is a game about finding answers to questions about the world around you.

# MAJOR DESIGN GOALS

# Thesis goals

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“Outer Wilds is a space exploration game designed to inspire and reward player curiosity.”

— Alex Beachum’s thesis paper  
for his M.A. in game design

GOAL: Create a game that rewards **curiosity-driven exploration**.

# Defining curiosity-driven exploration

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## **Curiosity-driven exploration —**

“Any situation in which someone chooses to explore her environment (real or virtual) with the primary objective of expanding her knowledge of understanding of it”

— Alex’s thesis paper again

“The player taking action to try to answer questions they have about the world around them”

— Me, a scrub without a masters in game design

# Defining curiosity-driven exploration

- Starts with a question...
  - What's there? What is it? What is it like up close?
- ...that drives the player toward discovering an answer



Real world	<i>Outer Wilds</i>
Climbing a mountain to see the view from the top	Journeying to the moon's north pole for the best vantage point
Digging up ancient artifacts and ruins to understand how a culture lived	Searching out ancient alien text to learn what they were doing in this solar system
Smashing particles together in a giant accelerator to figure out how the universe is put together	Messing with powerful technology to determine what it does and why

# Curiosity as *Outer Wilds*' driving force

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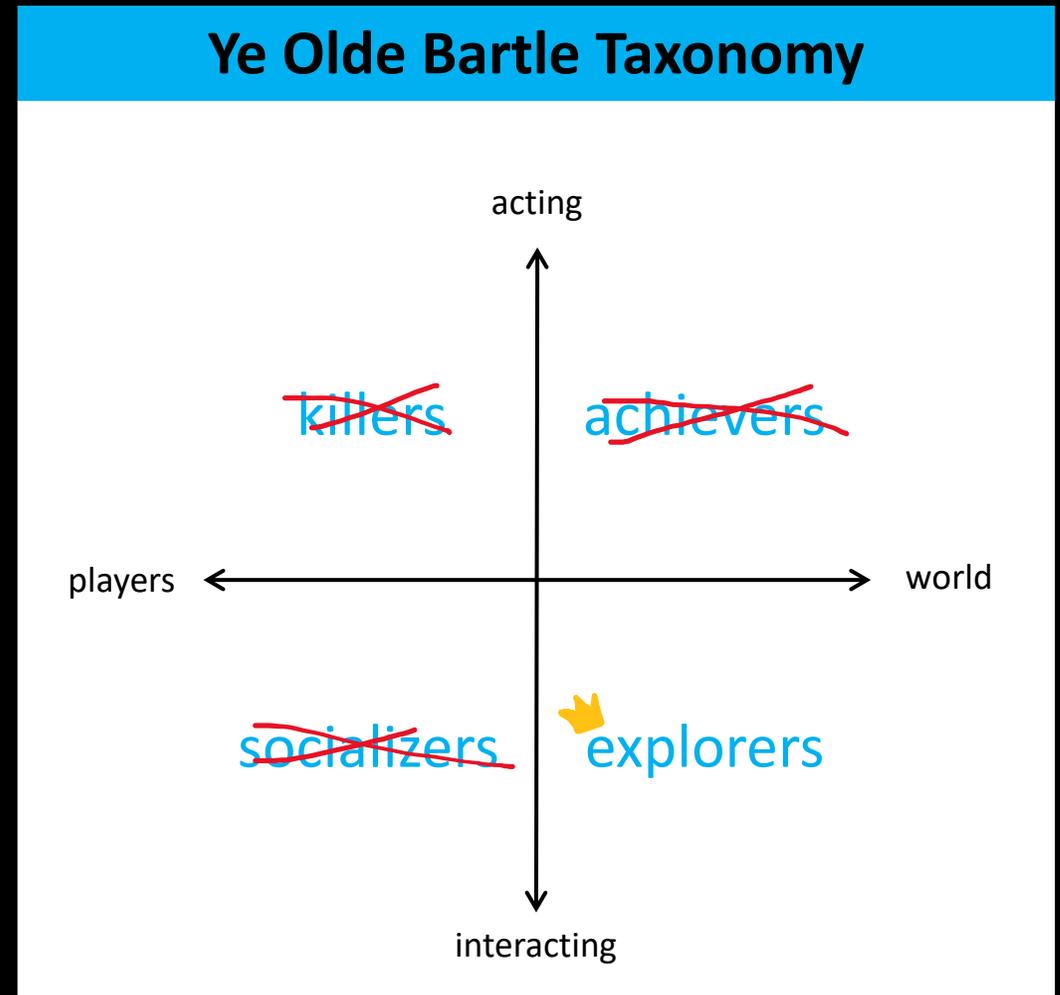
- Curiosity is *Outer Wilds*' **sole** driving force
  - No missions, assigned objectives, or other prescriptive guidelines
- Knowledge is the only gameplay reward
  - We can't lean on the other usual feedback loops
    - (Better hope your players REALLY like knowledge!)
  - It's also how you progress in the game

# Curiosity as *Outer Wilds*' driving force

Rewards in <i>Outer Wilds</i>	Rewards NOT in <i>Outer Wilds</i>
<ul style="list-style-type: none"><li>• Knowledge</li></ul>	<ul style="list-style-type: none"><li>• Experience points</li><li>• New abilities or gameplay mechanics</li><li>• New items</li><li>• Upgrades</li><li>• Vanity/customization options</li><li>• New play areas unlocked</li><li>• Improved or changed relationships with NPCs</li><li>• Scores, rankings, or leader boards</li><li>• Collectibles</li></ul>

# Curiosity as *Outer Wilds*' driving force

- We knew going in this approach would alienate certain player types
- ...And that's okay!
  - Giving it all we had for a specific type of player let us create a great experience for them



# Curiosity as *Outer Wilds*' driving force

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“Okay cool, but what does that actually look like?”

- you, presumably

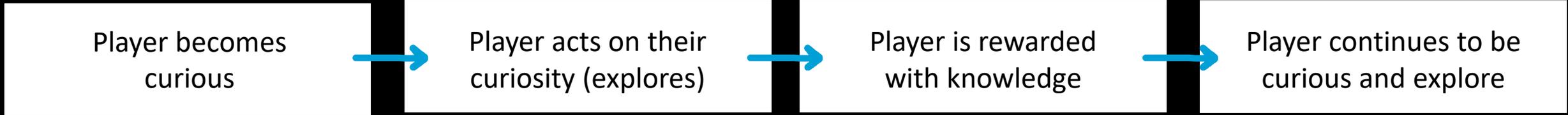
# Gameplay loop

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## Inspire curiosity



## Reward exploration

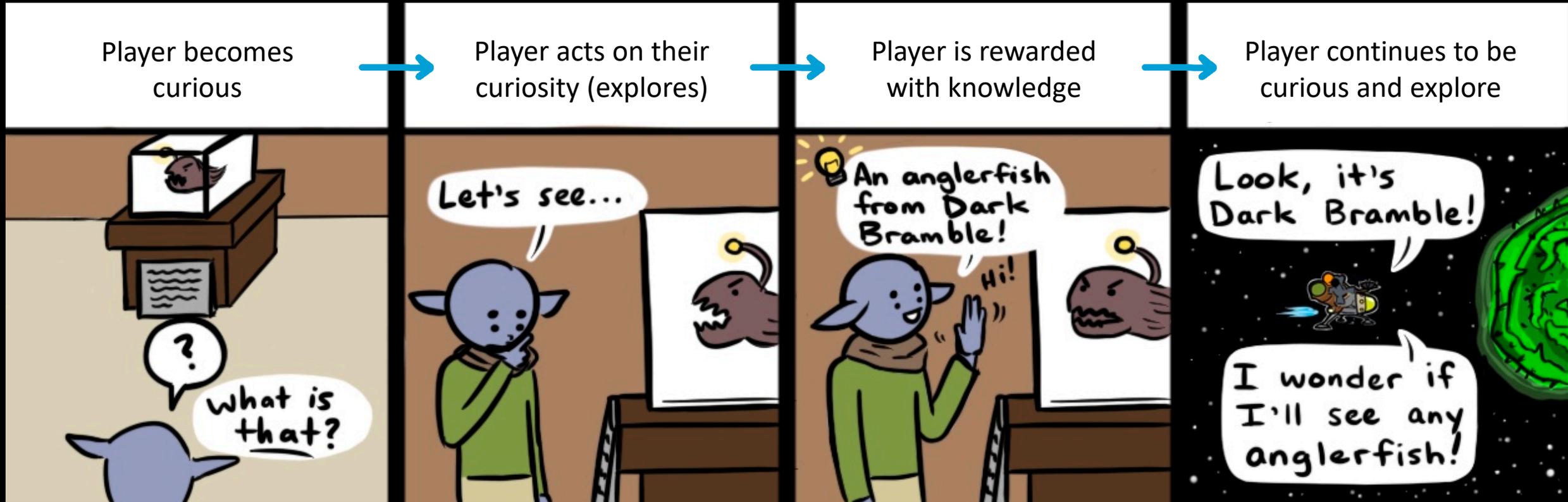


# Gameplay loop

## Inspire curiosity



## Reward exploration



ASTRONAVE 44m



O<sub>2</sub> COMB

Rodar  (Mantener presionado) + 

Ajustar velocidad  (Mantener presionado)

GRAVEDAD  
0.0x



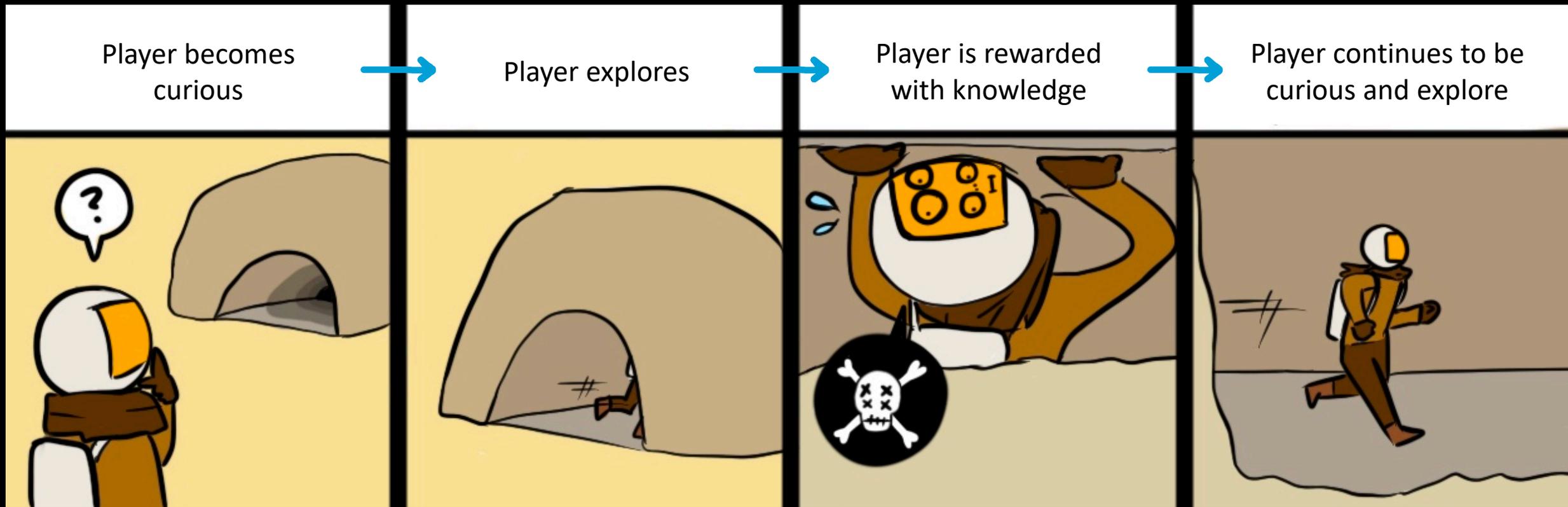
(Yes, you will see anglerfish in Dark Bramble)

# Gameplay loop

## Inspire curiosity



## Reward exploration



# How does this affect narrative?

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Our main overall design goals determined our **story type and structure** as well as our **narrative design goals**.

A maximally nonlinear gameplay experience that inspires curiosity in the player,

→ mystery; complex enough to motivate player for the full duration of the game; gets player invested in the world and what is happening to it

enables them to freely explore in search of answers,

→ no gating; nothing is off-limits; story isn't too hard to keep track of

and rewards them for doing so.

→ mysteries pay off with satisfying answers; overall story itself is rewarding and a driving force for player progression

# How does this affect narrative?

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*Outer Wilds'* specific narrative design choices ultimately fall under one of three broad goals:

- Inspire curiosity
- Facilitate exploration
- Reward exploration

**NARRATIVE DESIGN GOAL:**  
Inspire Curiosity

# How do we make the player curious?

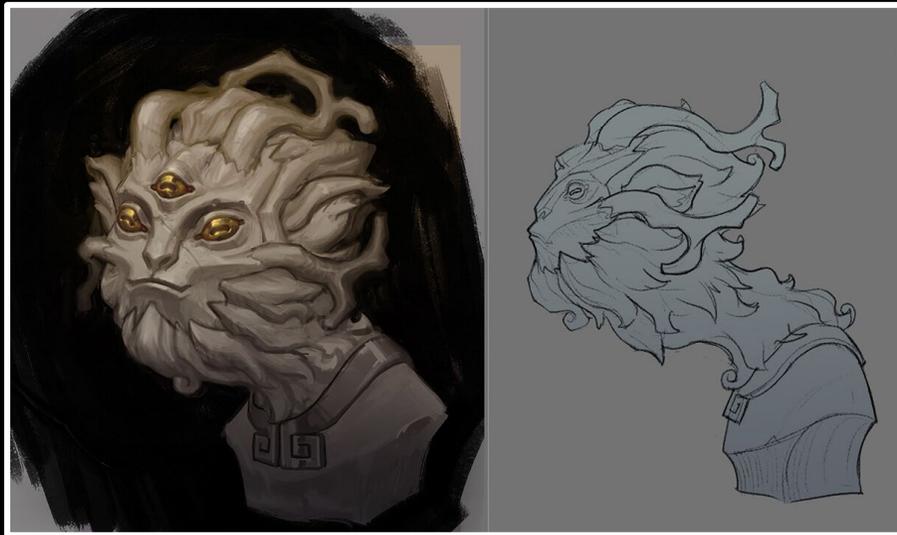
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- Write a really good story!
  - Thank you for watching my GDC talk

# How do we make the player curious?

- *Outer Wilds*' story is a sprawling mystery
  - ...made up of a ton of little mysteries
    - But we'll get to that later.
- There's the mystery of what's happening in the solar system...
- ...and the mystery of the Nomai.

Mysteries such as, "AAAAAAAH, WHY IS THE SUN EXPLODING?!"



~~How do we make the player curious?~~

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How do we get the player to ask questions?

What specific questions do we want the player to ask?

- These are what guides the player's journey

# Initial major questions

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What is the Eye of the universe (and how can it be older than the universe itself?)

What happened to the Nomai?

Why are we in a time loop?

What is happening to the universe (and why)?

# Initial major questions

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What is the Eye of the universe (and how can it be older than the universe itself?)

→ Nomai ruins related to the Eye (on moon near starting point – found early and easily)

What happened to the Nomai?

→ Probe launch/explosion seen in the sky when the loop starts

Why are we in a time loop?

→ Nomai statue in museum activating and syncing with the player's memory

What is happening to the universe (and why)?

→ The sun going supernova at the end of the loop

# Motivating players to ask questions

- Big, exciting, interesting events that we SHOW rather than TELL
  - Dynamically changing planets
  - Large, noticeable alien ruins
  - Again, the sun literally explodes
    - I cannot stress this enough



# POP QUIZ

Which of these is the more exciting player experience?

A.

Hey, there are cyclones on Giant's Deep. So, you know... that's pretty cool.

B.



# Motivating players to ask questions

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- It's these physical processes and locations that grab the player's attention and lead them to investigate
  - E.g., a player sees the cyclones on Giant's Deep and is compelled to explore there, drawing them in to the story of what happened on that planet
- Some of that story is told through found text, but text generally doesn't deliver our biggest initial hooks
- ...and when it DOES deliver a hook, it can only do so when the player chooses to interact with it.

# Pushing vs. pulling information

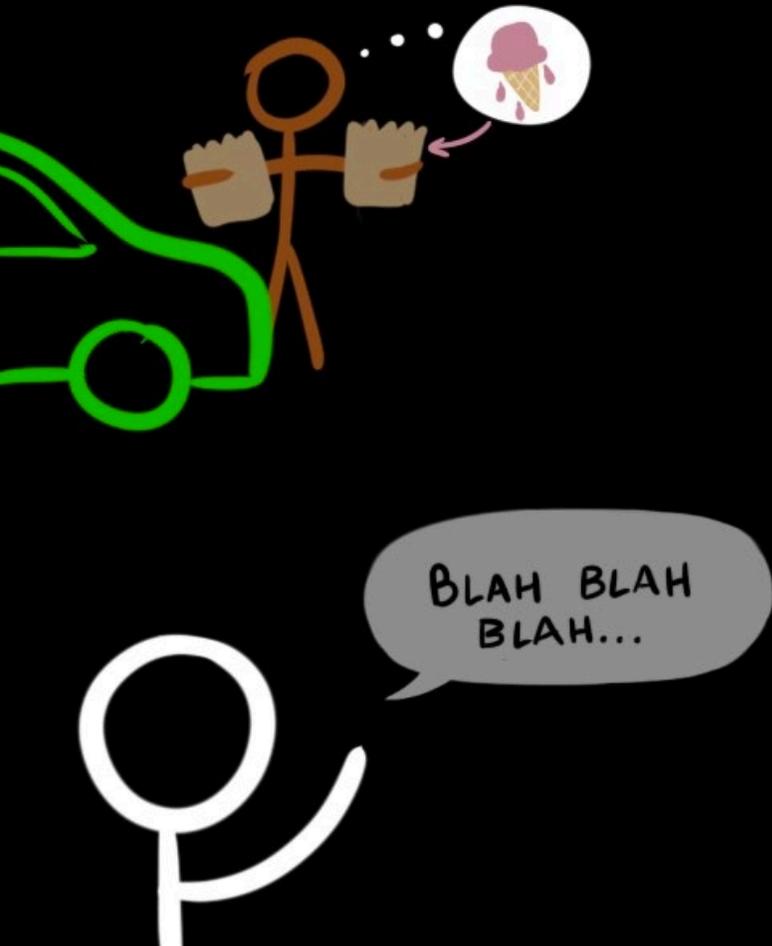
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Push:



# Pushing vs. pulling information

Push:



Pull:



# Pushing vs. pulling information

---

- There is a TON of information in *Outer Wilds*
  - (The gameplay loop is based on acquiring knowledge, after all!)
- To avoid overwhelming the player, we minimized the frequency and quantity of information the player was **forced** to receive through text
  - Limited to very start and very end of game

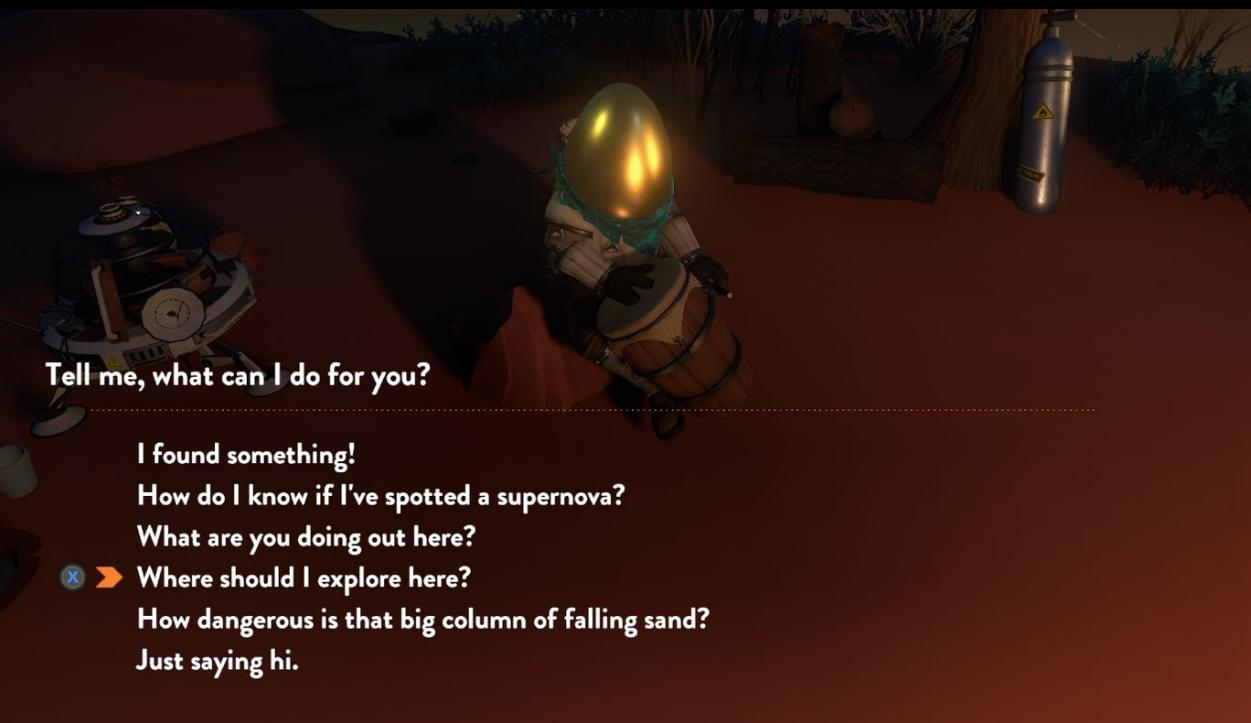
# Pushing vs. pulling information

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- Instead, we make that info available, signal its availability, and let the player decide when to access it
    - Pacing is determined by player actions
    - Key info is infinitely re-visitible thanks to time loop
      - Yes, even with Gabbro
    - Where to find what types of information is codified through narrative delivery
- Examples:
- Nomai found text is always about the Nomai and always provides clues to unraveling the solar system's mysteries — meaning **found text is always relevant/important**
  - Unvisited Nomai text is visually different than text the player has already read
  - Found text about specific mystery threads is largely grouped by physical location

# Pushing vs. pulling information

- Travellers (fellow astronauts) have parallel menus for players who want more information about where to explore





- "I'm going to learn more about the Nomai." → Reminded to use the translator tool
- "I'll meet up with the other travellers." → Informed of the other travellers' locations
- "I want to go somewhere no one's gone before." → Directed to either the Interloper or to Dark Bramble
- "I think I'll start with something small." → Directed to Timber Hearth's moon, the Attlerock
- "I don't know." → Directed to Timber Hearth's moon, the Attlerock
- "I'm gonna wing it!" → Reminded to use the translator tool



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- "I'm gonna wing it!" → Reminded to use the translator tool

(The moon is gentle and kind.)



# Pushing vs. pulling information

---

- Average time from game start to players investigating Nomai text ranges from 30 minutes to 2-3 hours
- We don't force players to care about the story — story can wait until the player is good and ready

# Getting the player invested

- There's a lot of found text in *Outer Wilds*, and we needed players to read it
  - Piecing together clues within found text is how you progress in the game, so it should be fun!



# Getting the player invested

- The Nomai
  - Super-curious, highly advanced science nerds
  - Lived in this solar system before the Hearthians existed
  - Vanished centuries ago, leaving only ruins and writing behind
- The challenge
  - Their story is told in the past, meaning we never see them
  - The player can't impact the past or change what happened to the Nomai
  - ...And yet, the player still needs to care about them



# Getting the player <sup>emotionally</sup> invested

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- The Nomai voice
  - You would not believe how much time I spent iterating on this
  - “We” vs. “I”
    - Goal: not sympathetic, but empathetic
  - Unique from the Hearthian voice
    - ...Without feeling stilted or overly formal
  - Use of humor

# Getting the player <sup>emotionally</sup> invested

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- Characters and why they matter
  - Humanizing them makes them more relatable and interesting
    - The Nomai needed to be folks the player wants to spend time with
  - It's easier to connect to individuals than a big group
  - Individuals give us greater variance in voice, content, etc.
  - Characters get us invested – we want to see what happens to them!

# Found text in *Outer Wilds*

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- Another major way we persuade players to take an interest in the Nomai's story is the way the player learns it
- **The translator tool:** gameplay and narrative design working together
  - “What if you could physically interact with the text”?

— Alex and Loan, my favorite design menaces

Equip Scout Launcher 

Equip Signalscope 

Flashlight  (Press)

View Map 



FUEL 100.0 %

O<sub>2</sub>

A circular HUD element with two semi-circular gauges. The top gauge is labeled 'FUEL' and shows a value of '100.0 %'. The bottom gauge is labeled 'O<sub>2</sub>' and shows a value of '100.0 %'. A white silhouette of a person is centered in the background of the gauges.



A circular HUD element with a grid pattern, showing a small orange and blue icon in the center, likely representing a radar or map view.

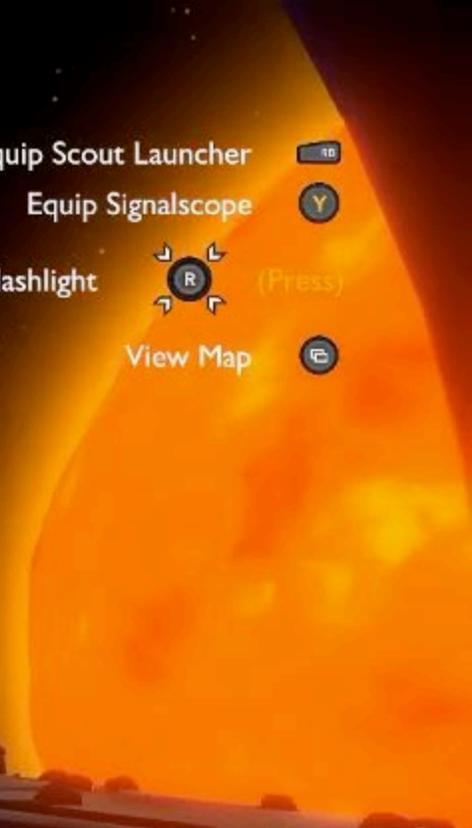
GRAVITY  
0.8x



A circular HUD element with a starburst pattern, likely representing a compass or directional indicator.

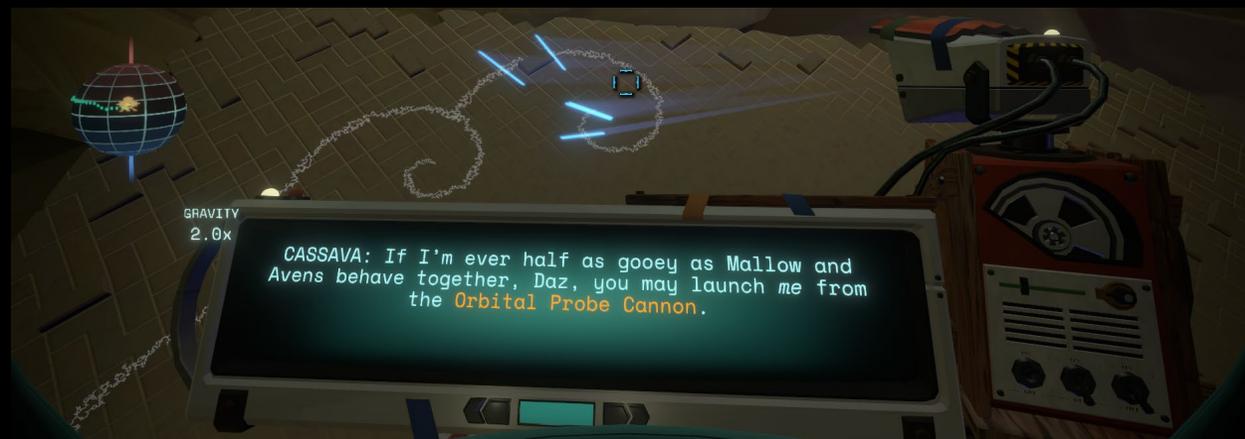


Two glowing blue structures with intricate patterns, possibly representing ancient ruins or alien technology. One structure has a circular emblem with a square and a circle inside. The other has a more complex, multi-lobed design.



# Found text in *Outer Wilds*

- Nomai text exists physically in the world
- Translator tool allows the player to engage with the text in a unique way, turning text delivery into a game mechanic
- Language is structured nonlinearly
- Typically, the longest branch contains the most important info
- Branch endings (or, occasionally, beginnings) frequently contain an actionable clue



# Found text in *Outer Wilds*

1. RAMIE: Note: This door will need to remain closed for some *time!* Pye and I are running an experiment based on the extraordinary findings from the White Hole Station.
2. PYE: Ramie and I will be running this experiment until one of us (specifically, me) can prove the other wrong, so although it's inconvenient, the lab currently can only be accessed from the path from the Sunless City.
3. RAMIE: Inviting sand inside would disrupt our setup and could have enormous consequences. (We realize this is an intriguing prospect, but the door must remain closed nonetheless!)
4. RAMIE: An update: The High Energy Lab is now being used to design the Ash Twin Project! If you're here to help (or even just to observe), be sure to use the Sunless City path to the lab.

1	—	2	—	3
4				

**NARRATIVE DESIGN GOAL:  
Facilitate Exploration**

# Writing found text

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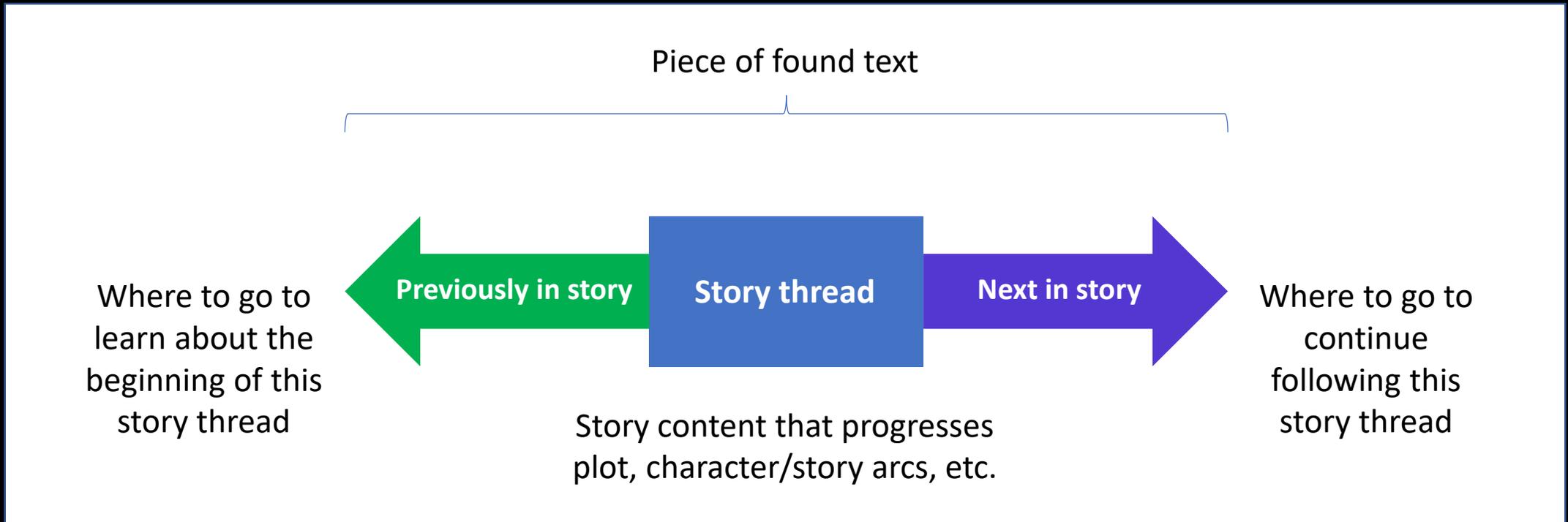
- I wrote *Outer Wilds*' in-game text to fulfill highly specific design needs and support nonlinear narrative progression
- Every piece of found text:
  1. communicates a clue,
  2. sets up a piece of world lore, or
  3. builds on themes and characterization,...usually all three at once.

All except 1-3 instances of Nomai text does this

That's right, we made a game where text is incredibly important

DEAL WITH IT.

# Anatomy of a clue



1 — 2 — 3
4



1. RAMIE: Note: This door will need to remain closed for some *time*! Pye and I are running an experiment based on the extraordinary findings from the White Hole Station.
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1 — 2 — 3
4



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1 — 2 — 3
4



# Story thread

1. RAMIE: Note: This door will need to remain closed for some *time*! **Pye and I are running an experiment** based on the extraordinary findings from the White Hole Station.
2. PYE: **Ramie and I will be running this experiment until one of us (specifically, me) can prove the other wrong**, so although it's inconvenient, the lab currently can only be accessed from the path from the Sunless City.
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1 — 2 — 3
4



# Previously

1. RAMIE: Note: This door will need to remain closed for some *time*! Pye and I are running an experiment based on the **extraordinary findings from the White Hole Station**.
2. PYE: Ramie and I will be running this experiment until one of us (specifically, me) can prove the other wrong, so although it's inconvenient, the lab currently can only be accessed from the path from the Sunless City.
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4. RAMIE: An update: The High Energy Lab is now being used to design the Ash Twin Project! If you're here to help (or even just to observe), be sure to use the Sunless City path to the lab.

1 — 2 — 3
4



Next

1. RAMIE: Note: This door will need to remain closed for some *time*! Pye and I are running an experiment based on the extraordinary findings from the White Hole Station.
2. PYE: Ramie and I will be running this experiment until one of us (specifically, me) can prove the other wrong, so although it's inconvenient, **the lab currently can only be accessed from the path from the Sunless City.**
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4. RAMIE: An update: The High Energy Lab is now being used to design the Ash Twin Project! If you're here to help (or even just to observe), be sure to **use the Sunless City path to the lab.**

# Tracking progression

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- Progression in *Outer Wilds* is challenging, but not impossible
  - (That last example notwithstanding)
- **We rely A LOT on inference** — the player has to gather the available information, and then think about how it fits together
  - We're not big believers in spelling it out for players
  - Again, the player **MUST** be able to do this to progress
- Keeping track of what they've learned should not be the challenging part of the game

# Tracking progression

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- This is where the ship computer comes in
  - Entries are only what we're 100% certain the player knows from reading that piece of found text
  - NO leaps of logic, no inferences, etc.

# Nonlinear story structure

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- You've probably heard of the "string of pearls" technique
- That approach doesn't work for *Outer Wilds*
- We had to assume the player knows any amount and combination of information at any time
  - Zero gating = no funnel points
  - It wouldn't be practical to account for every possible path through the Nomai found text and then tailor story accordingly
    - Just thinking about how many variables this doing that would require makes me throw up in my mouth a little

MINIMUM:

Player knows only what they'd HAVE to have encountered on the critical path to get into space



Loooooooooot of space in between here

MAXIMUM:

Player has seen literally everything except the end of the game

# Nonlinear story structure

---

- This is why breaking mysteries and stories into smaller arcs was so important
  - Small arcs — especially more self-contained ones, like those localized to specific areas — that could build on each other regardless of order encountered was crucial to a reliably satisfying nonlinear experience

# Nonlinear story structure

## How the Nomai arrived in the solar system

- It's all arcs all the way down!

- This is why breaking mysteries and stories into smaller arcs was so important
  - Small arcs — especially more self-contained ones, like those localized to specific areas — that could build on each other regardless of order encountered was crucial to a reliably satisfying nonlinear experience

### First Nomai settlers arc

- Eventually reunite, begin search for Eye

### Vessel's arrival arc

- Vessel's warp into Dark Bramble was accidental
- Nomai were in pursuit of a signal from the Eye

### Escape pod 1 arc

- Crashed on Brittle Hollow
- Temporary settlement
- Relocation under planet's crust

### Escape pod 2 arc

- Crashed on Hourglass Twins
- Too hot on surface
- Ventured into caves, built city

### Escape pod 3 arc

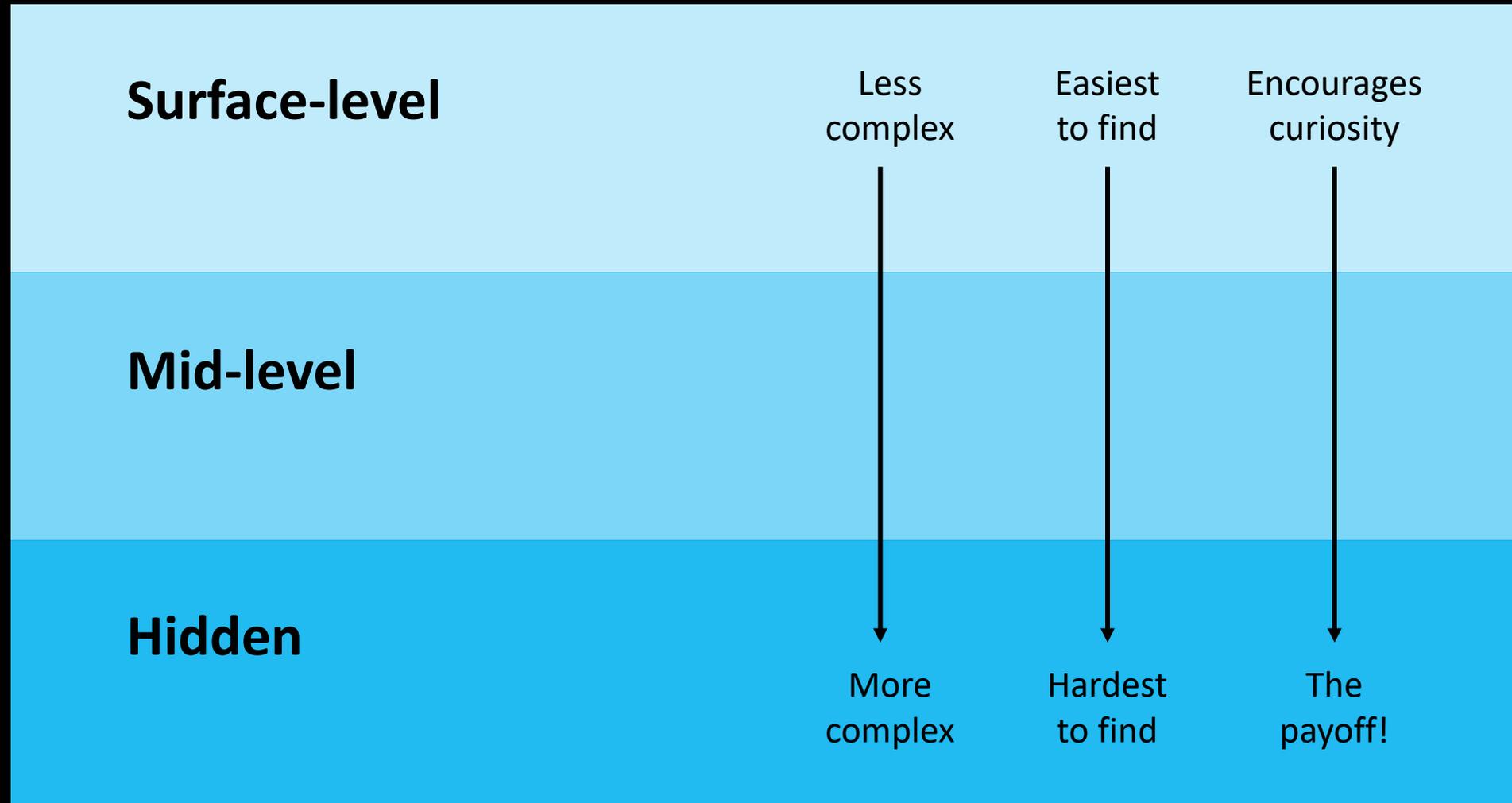
- Crashed in Dark Bramble
- Quickly became lost
- No survivors

# Nonlinear story structure

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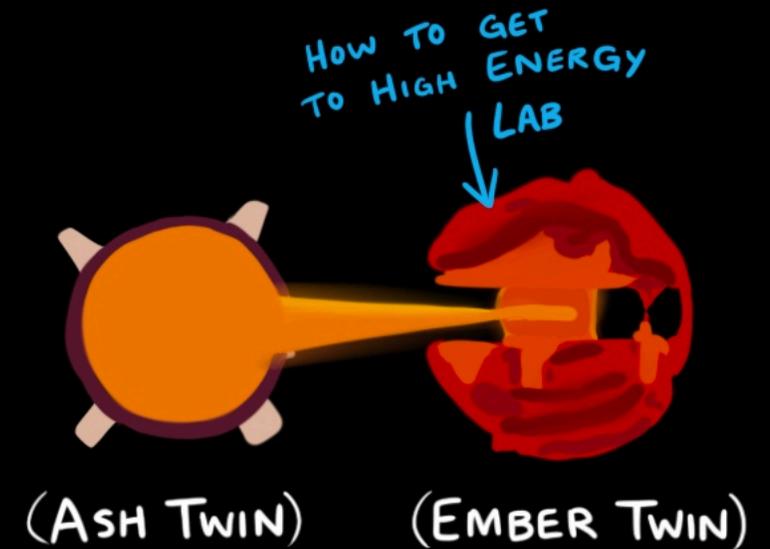
Still, there are some paths through OW that produce a more satisfying experience than others. So how do we design for that?

# Three levels of content



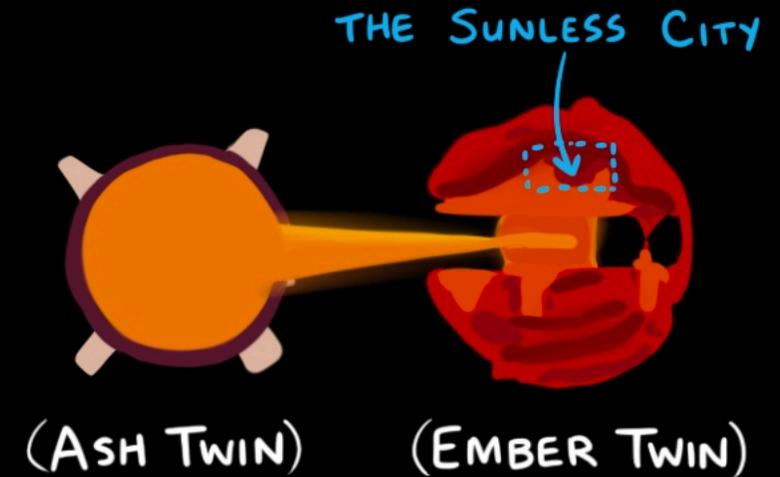
# Surface-level text

- Easiest to encounter
- Often literally on the surface of planets, moons, etc.
- Good mystery “entry points”
- Goal: make the player curious, give them an initial thread to pursue



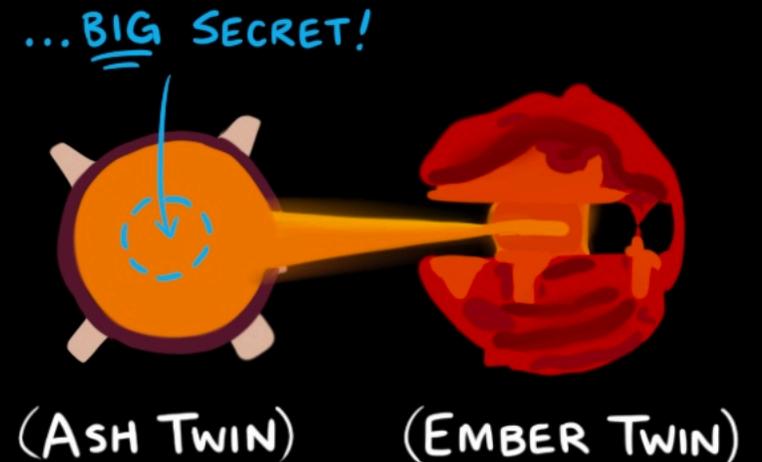
# Mid-level text

- Usually found by following clues
- Possible to find accidentally
  - Especially for players who explore more thoroughly
  - Okay if this happens
- Continues to develop or explain a particular mystery or story thread
- Goal: further a story thread, tell player where to learn more



# Hidden text

- Need to follow clues to get to this point
- Extremely unlikely to find by accident
- Often a difficult-to-reach location
  - Places a player is unlikely to find without following clues
  - Places a player needs specific info to get to
- Reveals valuable information about the game's mysteries
  - Answers to mysteries are always at this level



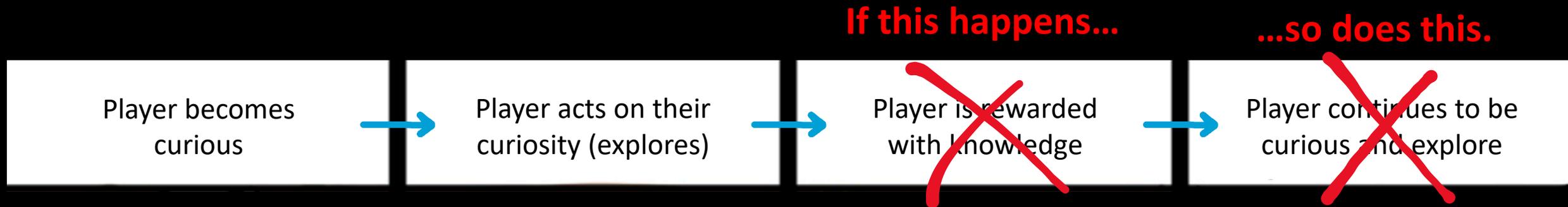
# Couldn't a first-time player technically beat the game in a single time loop?

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- Yep!
  - That is theoretically not impossible
- It's just extremely unlikely
  - There is a tremendous amount of design in place to ensure it doesn't
  - We did test for this sort of thing, you know
    - What is this, amateur hour?
  - The player would probably need to have some amount of advance knowledge about the game, even if just for context

**NARRATIVE DESIGN GOAL:  
Reward Exploration**

# Importance of rewarding curiosity



- Again, the only reward for exploration in this game is knowledge about the world
- And if players started feeling their efforts are wasted, or they're getting unsatisfying rewards, the gameplay loop breaks down

# Using story to reward exploration

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- Inclusion of smaller arcs — the bigger mysteries/questions take a lot of time to answer, all the way up to literally the entire game
- Mixing in lighthearted/sillier/“smaller” stories with the massively devastating ones
  - See also: the Nomai’s cultural attitudes reinforce the idea of “failure” as progression
- Emotional hooks and payoffs
  - While the player reward for discovering found text is always new information, I also did everything I could to create emotional payoffs within the story

**I'M ABOUT TO SPOIL THE ENDING**

**GET OUT OF HERE IF YOU HAVEN'T PLAYED IT YET!**

**SERIOUSLY: *LEAVE.***

**YOU CAN COME BACK AND FINISH WATCHING THIS TALK LATER,  
BUT YOU CAN NEVER UNSPOIL THE GAME FOR YOURSELF.**

# Nomai text becomes increasingly relevant to the player

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- We are telling multiple stories in *Outer Wilds*:
  - The Nomai's story
  - The player's story
  - The story of the universe
- These three stories are profoundly related to one another, and this becomes apparent as the player progresses through the game

# Nomai text becomes increasingly relevant to the player

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- We are telling one sprawling, epic story in *Outer Wilds*:
  - The Nomai's story — occurs in the past
    - Nomai time loop device finally works once the sun dies, giving player the time they need to complete their journey
  - The player's story — occurs in the present
    - Mimics the Nomai's original journey and builds off their work, failures, and triumphs to ultimately complete the journey on everyone's behalf
  - The story of a dying universe — begins in the past, continues into the present
- The player is undertaking the same journey the Nomai did so many years ago...
- And this time, they're **finishing** it.

# Takeaways

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- It can be amazing when story and gameplay are closely integrated, and I want to see us take advantage of that.
  - We're such a unique medium! No other storytelling format can do this.
- We couldn't have pulled this off without clear design goals.
  - They allowed us to do some really cool shit with storytelling and create an unusually cohesive experience
  - Indie is in such a good place to be able to do this!!
    - Not a shot at AAA — it's just really hard to pull this off on a larger scale (at least from what I've seen)
  - We were in a good place to remain flexible and iterate constantly.

# Takeaways

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- Pulling vs. pushing
  - We had a lot of success with applying this to narrative design/storytelling
  - Don't TELL me why I care; MAKE me care!
- It's surprisingly okay for the player to not always and immediately know what they are doing.
  - Even if we were sweating this in during development at times. (It was a risk!)
  - There is a whole community of OW fans who have proven this
  - Players aren't dumb! They'll figure it out, especially if they're having a good time figuring it out.

# Takeaways

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- The games industry is still relatively young — we are still in our infancy as a unique storytelling medium!
  - TO THE FUTURE!!

THE END.



# Thank you!

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Thanks for watching this talk!

I have some people to thank.

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