

Game Design & History

CW2: Retrofitting Existing Games: Creating A Game Design Document



Section 1: Title Page

Intended Platforms

PC

Target Age / Demographic of Players

The game aims to target those at the age of 13 and up, as it has puzzles that gradually get more complicated as the game goes on. The game also has scenes that depicts violence and shows elements that some viewers find disturbing such as blood. The ideal customers for this game are those looking for a unique game experience with puzzles elements, a game where you can take your time and enjoy the atmosphere, gameplay, and character dialogue.

Intended Pegi / ESRB Rating



This game will aim to have an age rating of 12+ Pegi Rating (Teen ESRB Rating). The game will make use of Violence and Dark Story Tones.

Section 2: Game Outline

Game Story Summery

You play as Chell, a silent protagonist who wakes up in a test chamber with a robotic voice speaking over an intercom, directing her to complete a series of tests for a company called Aperture Science. The robotic voice, who we later learn is called GLaDOS, then opens a portal for Chell to go through to start the tests.

The game centres around these portals, where the player must complete puzzles using them as a core mechanic. A few tests in, the player collects an item called the Portal Gun, which at this time is only able to shoot 1 portal, meaning that the player can now freely place 1 portal where they need, while a second portal is still locked to a certain place. As Chell progresses through the chambers, the tests gradually increase in difficulty, such as using momentum to clear giant pits in the floor. Eventually Chell finds the 2nd portal attachment, allowing her to shoot both portals anywhere in the test chamber, opening the door to more possibilities and puzzle solving.

As the tests go on, the difficulty increases, and so do the chances of harm, as some rooms begin to appear with hazardous liquids and turrets that shoot real bullets. The closer you get to finishing the tests, the more run-down the facility looks, with wall tiles falling off, backrooms visible, and steel plating rather than the clean white tiles of previous chambers. As Chell completes the final test chamber, GLaDOS reveals its intentions and tries to incinerate her, however Chell escapes and after navigating through backrooms and behind the scenes of the laboratory, she finds GLaDOS's room where it's revealed it's a gigantic robot with a consciousness, and after a dramatic battle using your skills you've learnt so far, Chell destroys GLaDOS and the facility, she blacks out. We get glimpses outside, of Chell trying to wake up, and in these shots, we see that she is being dragged by something back into the facility, it fades to black and the game ends.

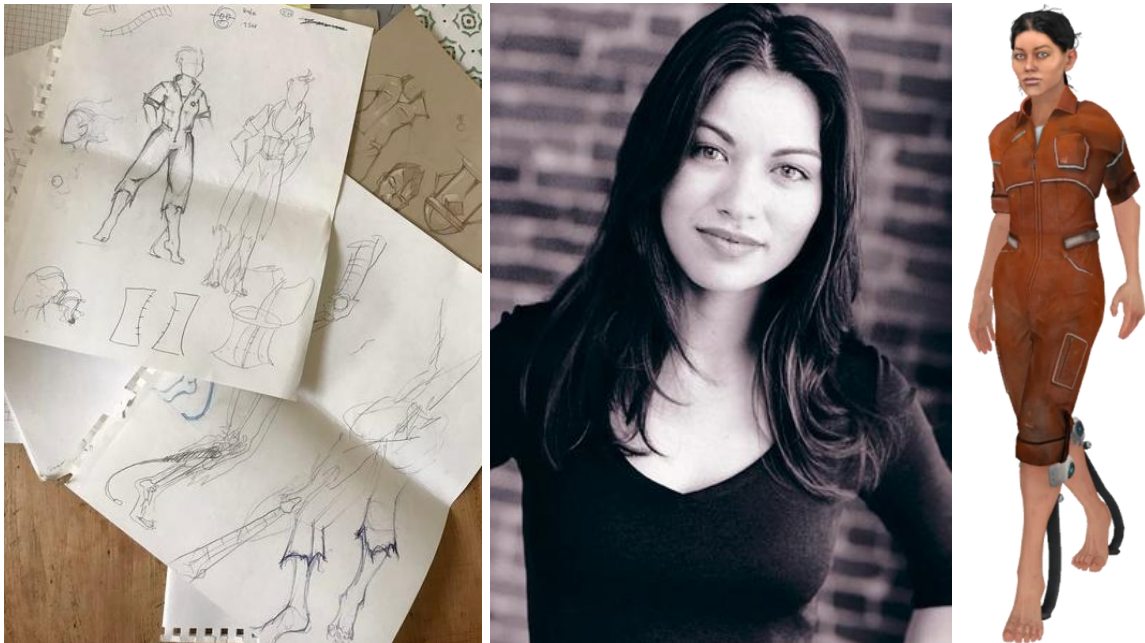
Game Flow

A first-person puzzle comedy game that finds a silent woman named Chell making her way through test chambers using Portals to aid her in navigating and ultimately escape the facility she is in, all the while she is being guided by a conscious robot named GLaDOS that has malicious intentions behind the scenes.

Section 3: Main Character(s) & Player Controls

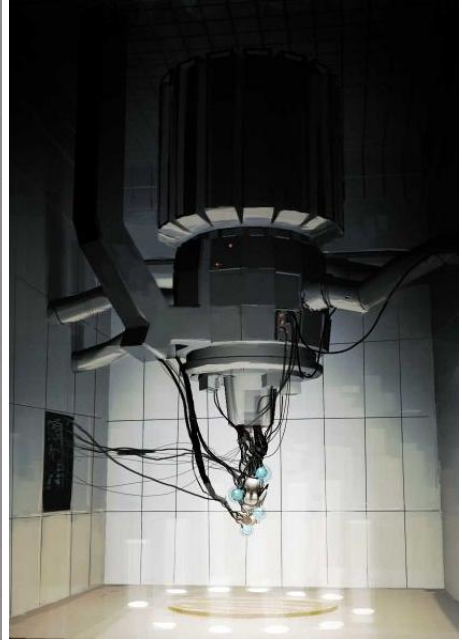
Character Appearance

Protagonist: Chell



We want the main character of the game to be a silent protagonist, similarly to our previous games, Half Life, as we believe it will be easier for the audience to project themselves onto the character. As for the design, we want her to be a young, athletic women, sporting an orange jumpsuit. This is so the audience can easily identify her as a test subject. As for her age, it won't be known for certain, however we will aim to make her look as though she is in her early twenties. This was chosen so that it would be more believable that she is able to physically tackle the tests. For her physical appearance, we have partnered with American Actor and film producer Alesia Glidewell, for motion capture work, as well as basing her appearance off.

Antagonist: GLaDOS



We want the antagonist of the game to be a non-human character, and will be audible throughout the whole game, acting as the only voice you will hear, contrasting with Chell as a silent protagonist. GLaDOS will exist as an artificial intelligence, overseeing the testing facility and communicating with the player only through voice and environmental interaction. This allows her personality to be conveyed through dialogue, tone, and control of the space rather than physical movement. For the design, GLaDOS will be a large, suspended robot, inhuman in form to emphasize her role as an omnipresent system, rather than a character the player can relate to. Her age will remain unknown, reinforcing the idea that she has existed far longer than any test subject. For her voice and personality, we have partnered with American voice actress Ellen McLain, whose calm yet unsettling delivery helps establish GLaDOS as both unpredictably threatening and yet comforting.

Character Dossier

Name: Chell

Gender: Female

Species: Human

Age: Early 20's

Faction: Aperture Science (Test Subject)

Known Associates: GLaDOS (Test Overseer)

Name: GLaDOS

Gender: Female (Voice)

Species: AI / Machine

Age: Unknown

Faction: Aperture Science (Central AI)

Known Associates: Chell (Test Subject)

Character's Backstory

Chell is a test subject who awakens alone within the Aperture Science Enrichment Centre, with no clear memory of how she arrived there or what has happened to the facility. Her backstory is intentionally vague, allowing players to project themselves onto her. Chell's personality is created through gameplay rather than dialogue. She is

observant, resilient, and determined, traits that will be communicated through the player's problem solving, rather than explicit characterization. This minimal backstory supports the gameplay, as her silence and lack of motives allow players to fully project themselves onto her actions and decisions. Chell's main ability is the use of the Aperture Science Handheld Portal Device, or more simply the Portal Gun, which, while not a weapon in the traditional sense, functions as her signature tool, enabling spatial manipulation, traversal in the environment, and creative problem solving that form the core mechanics of the game.

Character Controls / Player Controls



Section 4: Gameplay

Sequence of Play

The game will be structured as a linear, single player experience divided into a series of self-contained test chambers within the Aperture Science Enrichment Centre. Each chamber functions as a level, introducing new mechanics or raising the difficulty and complexity of previously levels. The sequence of play is guided by GLaDOS, who provides instructions, commentary, and narrative progression between and during tests, allowing the story to unfold through gameplay rather than cutscenes. As the player pushes onward, the game transitions from clean, controlled testing environments into behind-the-scenes industrial areas, creating a sense of progression and raising tension. Major set pieces include the player's escape from the testing track, traversal through maintenance corridors and incinerators, and eventually the final confrontation with GLaDOS, all of which break from the established testing format.

Unique Selling Points

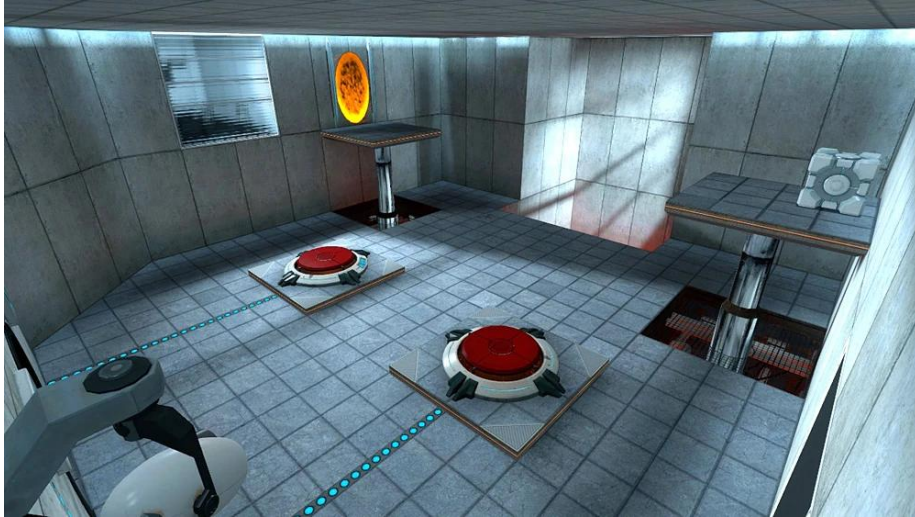
The main selling point of the game is the Portal mechanic, which allows players to control portals and use them to their advantage when traversing and completing puzzles. The story is another selling point as it is not clear why the main character is they're in the first place, so as you play, you learn alongside the protagonist what is really happening.

Platform Specific Features

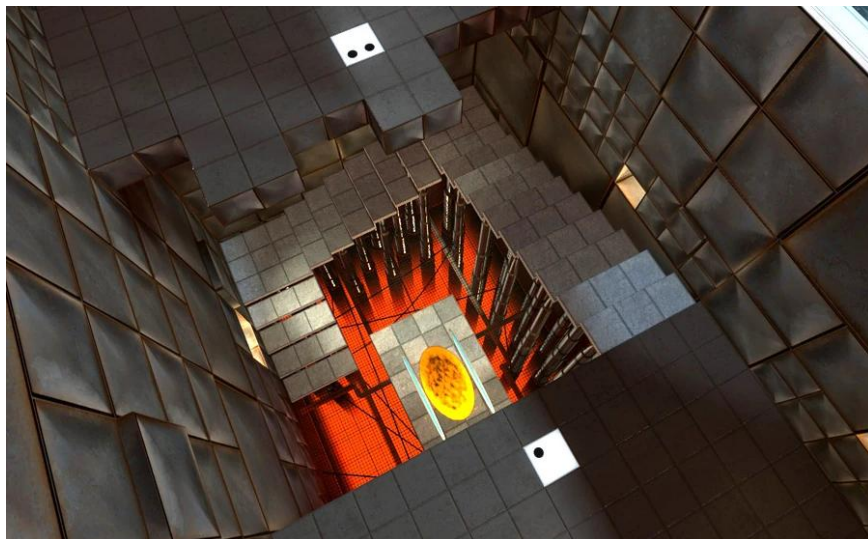
The game will not make use of any specific gameplay or content-based features, however due to the game being on pc you will be able to alter the graphics settings based on your hardware specifications, such as Portal Render Depth, which allows you to see through portals in real time.

Section 5: Game World

Game World



Towards the beginning of the game, players will be exploring test chambers that look like this, clean and professional. Objects found in these rooms include Weighted Companion Cubes, Heavy Duty Super-Colliding Super Buttons, and lifts. These earlier stages are simpler in design and puzzle complexity. The white panels placed on the walls, floor, and ceiling, represent where the player can place portals, whereas the black panels you cannot.



As the player progresses through the game, the puzzles will increase in complexity, and this is reflected in the level design. White portal compatible panels will start to become fewer, instead being replaced with black panels which cannot be interacted with. Other elements in these areas include larger scale, such as the player having to

use momentum to fling themselves higher and further across giant gaps. The facility will begin to look more run down the further you progress.



The final set of levels have the player traversing the grungy underside of the facility, navigating rusted gratings, operating pistons that can crush you, and gigantic tubes that you must venture inside of to get from place to place. There are little to no surfaces that can be used to place portals. One wrong step and it's a deadly situation.

Location Details

Name: Aperture Science

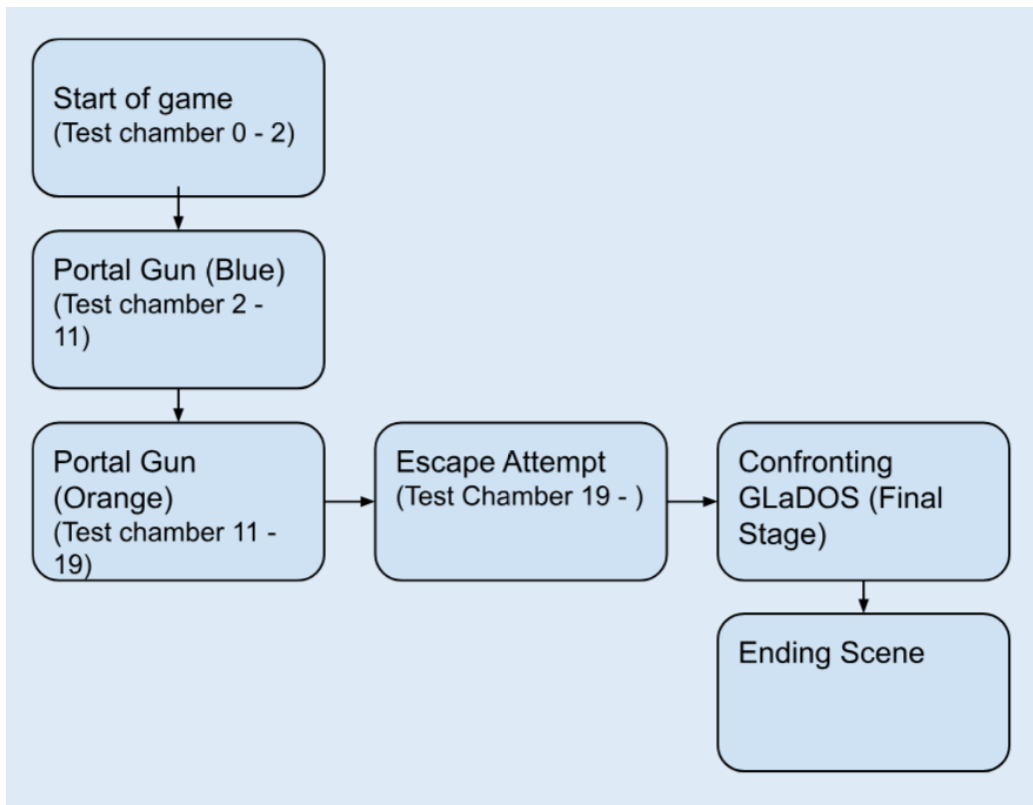
What Does It Look Like: A science laboratory, clinical (First half), run down (second half)

What Mood Is Being Invoked In This Location: Loneliness, paranoia, dread, isolation

What Kind Of Music Will Be Used For This Location: Atmospheric, eerie, quiet, synth

How Are The Locations Connected in The Game World: Via Elevators / Test Tubes.

Game Flow



Section 6: Game Experience

Game Experience

The game has an underlying sense of dread and isolation throughout, as you never see or hear another person, making GLaDOS your only source of interaction. Humour plays a central role, using irony, deadpan dialogue, and false promises to distract the player of the dark implications of the narrative. GLaDOS's voice is calm and sarcastic, which contrasts with the dangerous nature of the tests, this plants the seed in the players head that something is up. The balance of wit and unease gives the game a special tone that is memorable, unsettling, and engaging without relying on in your face horror or violence.

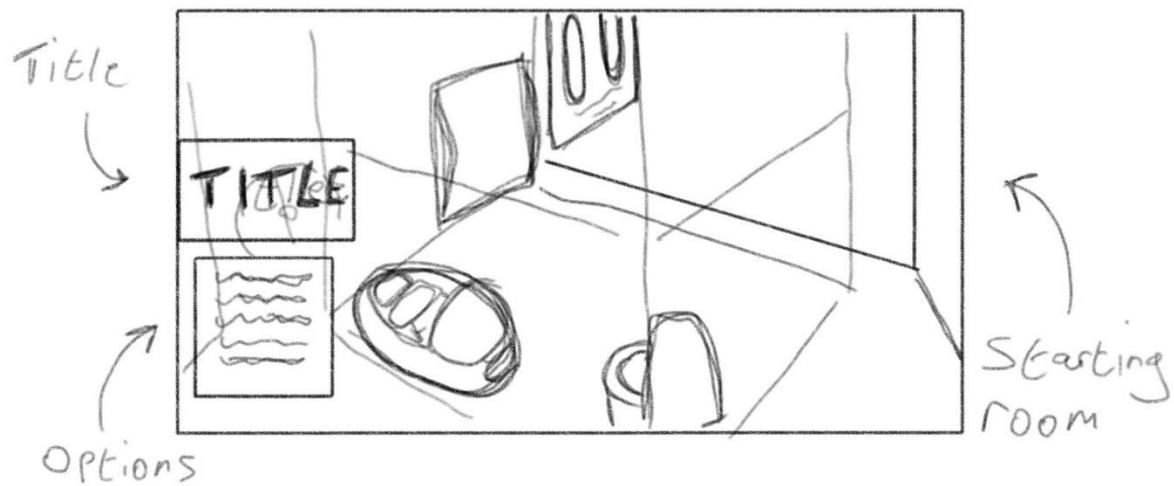
How Is The Feeling Going To Be Presented To The Player

The player will begin to feel uneasy as soon as they start the game, as you are held in a small, enclosed space with no context, all the while a robotic voice is talking to you. This feeling will grow as you progress as you don't find anyone, only more test chambers. The horror comes from being isolated, not knowing anything about your surroundings or your past.

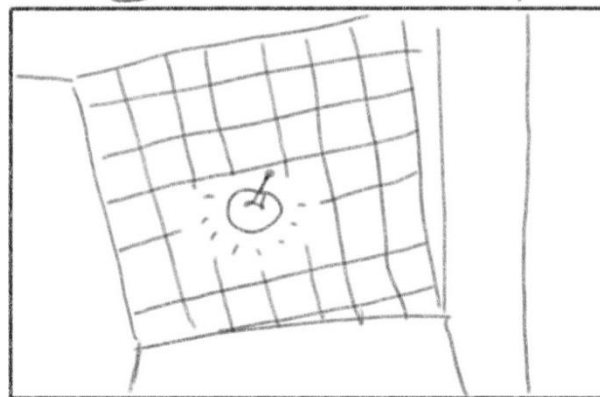
Are There Any Special Modes Or Interfaces For Gameplay

The game is a single-player only adventure and contains no extra modes such as multiplayer. The game uses a standard keyboard/mouse interface, but the portal mechanics themselves create a unique form of interaction. The Portal Gun is essentially a gameplay specific interface that allows the player to manipulate their surroundings in ways no other game mechanics do.

What Does The Player First See When They Start The Game



Player Wakes Up



Looking up at ceiling

What Emotions Are Meant To Be Invoked By The Game

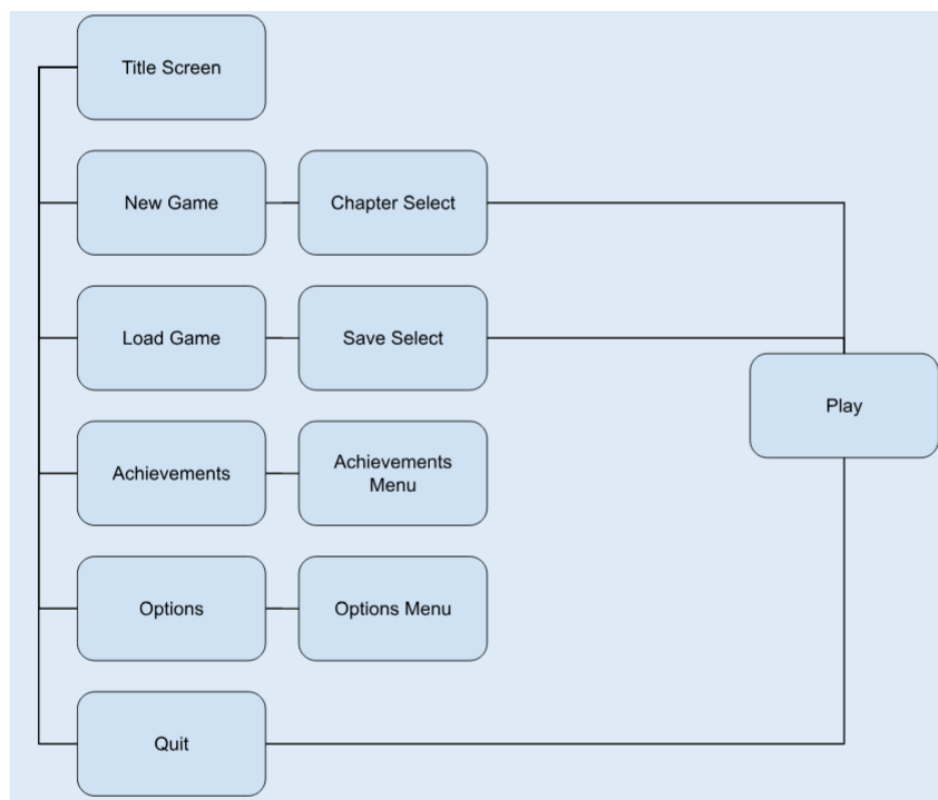
Portal is designed to create a range of emotions that shifts as the player progresses through the game. During the early test chambers, the player is meant to feel curiosity, and confront, but to some extent unease, supported by the clean visual design, simple puzzles, and GLaDOS's calm tone. As the tests become more complex, this shifts toward satisfaction, encouraging a sense of achievement through problem-solving

and experimentation. As the narrative gets darker and the player moves beyond the testing environments, feelings of unease, isolation, and tension are intentionally invoked, driven by environmental decay and increasingly unsettling dialogue. In the later sections, during the escape and final confrontation, the game aims to create urgency and empowerment, allowing the player to feel both threatened by the facility and confident in their mastery of the core mechanics.

How Are Music And Sound Going To Be Used

The music in the game will be quiet and atmospheric. This is to build upon the oppressive feeling of the game but also compliments the puzzle aspect as having a bombastic soundtrack would distract players. We want the music to feel melancholy, and cold, really emphasising the idea of isolation. The electronic synths and beeps in the soundtrack and sound effects compliment the robotic and mechanical surroundings. The sound effects will be sci fi sounding, such as the portals, we want them to sound alien. Other sound effects will be universal to understand, such as beeps for pressing buttons, and a ticking sound for a timer.

How Does The Player Navigate The Shell Menus / Screens Of The Game



Section 7: Gameplay Mechanics

Gameplay Mechanics

Mechanics

- **Portal Placement:** The core mechanic of the game, allowing the player to place two linked portals on compatible surfaces to navigate levels, redirect momentum, and solve puzzles.
- **Weighted Storage Cubes:** Objects used to activate floor buttons, block hazards, or assist with puzzle solutions, encouraging experimentation and thinking.
- **Floor Buttons and Switches:** Pressure-based or timed triggers that open doors, activate platforms, or disable hazards when interacted with.
- **Momentum Conservation:** A physics-based mechanic where falling into a portal translates vertical speed into horizontal movement, enabling long-distance traversal.
- **Moving Platforms:** Platforms that transport the player across gaps or hazardous areas, often requiring precise portal placement to access.

Hazards

- **High Energy Pellets:** Glowing projectiles emitted from dispensers that can kill the player on contact if not redirected correctly.
- **Turrets:** Automated defence systems that fire at the player when detected, acting as stationary hazards rather than wandering enemies.
- **Toxic Sludge:** Pools of hazardous liquid that instantly kill the player if fallen into.
- **Crusher Platforms:** Mechanical pistons that can crush the player, commonly used to add tension to otherwise static puzzles.

Power-Ups

- **Aperture Science Handheld Portal Device (Portal Gun):** Over the course of the game, the portal gun is upgraded from firing a single portal to being able to place two linked portals, significantly expanding gameplay possibilities.

Collectable Items

The game doesn't have traditional collectables, like coins or extra lives. However, included are hidden rooms, which provide some background lore and context to the game, these are optional and can be missed but will be appreciated by players who explore every nook and cranny.

Game Economy

The game has no economy or in-game currency.

Section 8: Enemies

List Of Enemies

- **GLaDOS** – The antagonist of the game, acting as the overseer of Aperture Science. While not encountered as a conventional enemy throughout most of the game, GLaDOS controls the environment, deploys hazards, and psychologically antagonises the player through dialogue and manipulation.
- **Turrets** – Automated defence units that fire upon the player when detected. Turrets function as stationary enemies, creating spatial challenges that must be overcome using portals, physics, or environmental interaction rather than direct combat.
- **Environmental Hazards as Hostile Systems** – Many dangers within the facility such as energy pellets, crushers, and toxic sludge, function hazards. They were deliberately positioned to oppose player progression and reinforce the feeling that the facility itself is hostile.

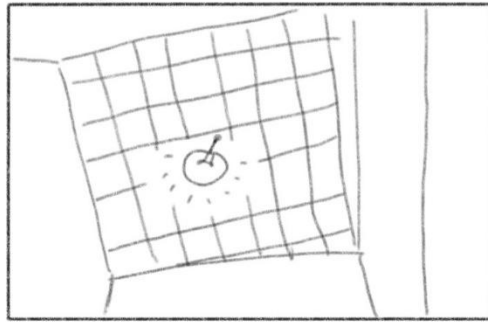
List Of Boss Characters

The sole boss character in the game and the central antagonist is GLaDOS. The final encounter with GLaDOS functions as a puzzle-based boss fight rather than a traditional combat scenario, requiring the player to apply the mechanics learned throughout the game, including portal placement, momentum, and environmental interaction. GLaDOS attacks indirectly by deploying hazards such as rockets, turrets, and neurotoxin. This encounter serves as both a mechanical test of player mastery and a narrative climax, resolving the conflict between the player and the facility that has controlled the game experience. It is featured at the very end of the game. The player defeats GLaDOS by redirecting the missiles that she fires via portals, hitting her instead, doing so will cause one of her morality cores to detach, from there you grab it and throw it into a nearby incinerator, causing her to break down and show more human emotions and some psychotic ones. For defeating GLaDOS the room the player is in begins to destroy itself, the player passes out and they go into the final scene before the credits, acting as a cliffhanger.

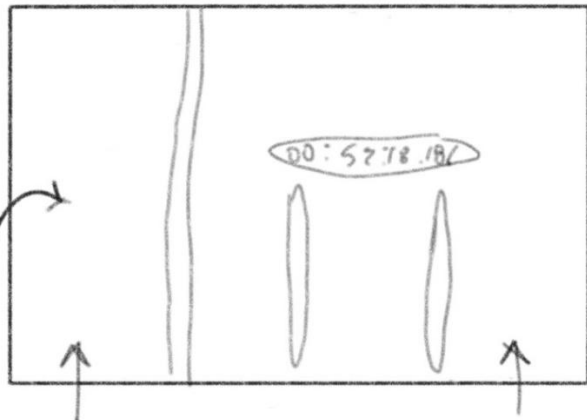
Section 9: Cutscenes

Cutscenes

Player Wakes Up



Looking up at ceiling



Opening cutscene – In-Game

Chell wakes up in a stasis bed, there are automatic doors on the capsule that open, she exits the bed and stands up. This plays at the very beginning of the game. It's purpose is to introduce the player to their environment.



GLaDOS Defeated – In-Game

Chell is outside, lying on the floor. Visible, in pieces is GLaDOS, there are fires dotted about. GLaDOS is destroyed. This plays at the end of the game, just after defeating the final boss. It's purpose is to show your victory and resilience.



The Cake Is A Lie – In-Game

A cake is seen in a dark room, the same cake GLaDOS promised earlier in the game would be our reward for completing the tests. In the background, some orb robots begin to light up and activate, soon after a robot arm drops from the ceiling and closes on the flame, putting it out and the scene goes dark. This plays at the end of the game, just after the cutscene with GLaDOS destroyed. Its purpose is to end on light-hearted note, but also to suggest that there is more.

Section 10: Bonus Materials

Bonus Materials

The game will include a selection of bonus materials and unlockables designed to encourage replayability without altering the core experience. Upon completing the main game, players gain access to **advanced test chambers and challenge maps**, which remix existing environments to test the player's skills of portal mechanics under stricter conditions, such as limited portal usage or time constraints.

Additional bonus content includes **developer commentary**, allowing players to revisit test chambers while listening to insights from the development team, offering educational value appreciation for the game's design choices. Players can also unlock **achievements** tied to completing specific challenges, performing actions, or finishing the game under certain conditions, further incising replay.