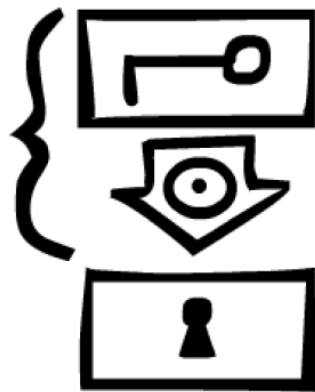


COPPER STONE SEA
presents



The Key Tax

**Prototyping Document:
Puzzle Section 2**

Introduction

This document was written for other team members to implement their work in the in-game puzzles.

The documentation describes the thought process behind each puzzle along with guidelines for implementation.

The document covers three puzzles:

Smile, or Else

Fire Exit

Stamping

The puzzles were iterated upon using the QA change list found here:

<https://docs.google.com/spreadsheets/d/1lzmbuqjpP27DfTTu2pMYsUoAOqu-pP16zk-SiEjvkl4/edit#gid=0>

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1. LEVEL ROADMAP

Roadmap Iteration 1 was decided upon in week 4 by the design team. It describes per puzzle room:

- Main 'based on' mechanic
- Number of steps
- Number of mechanics
- Number of meters

The latter three of those were our main difficulty dials. Another technique we used to increase difficulty later on was backtracking objects.

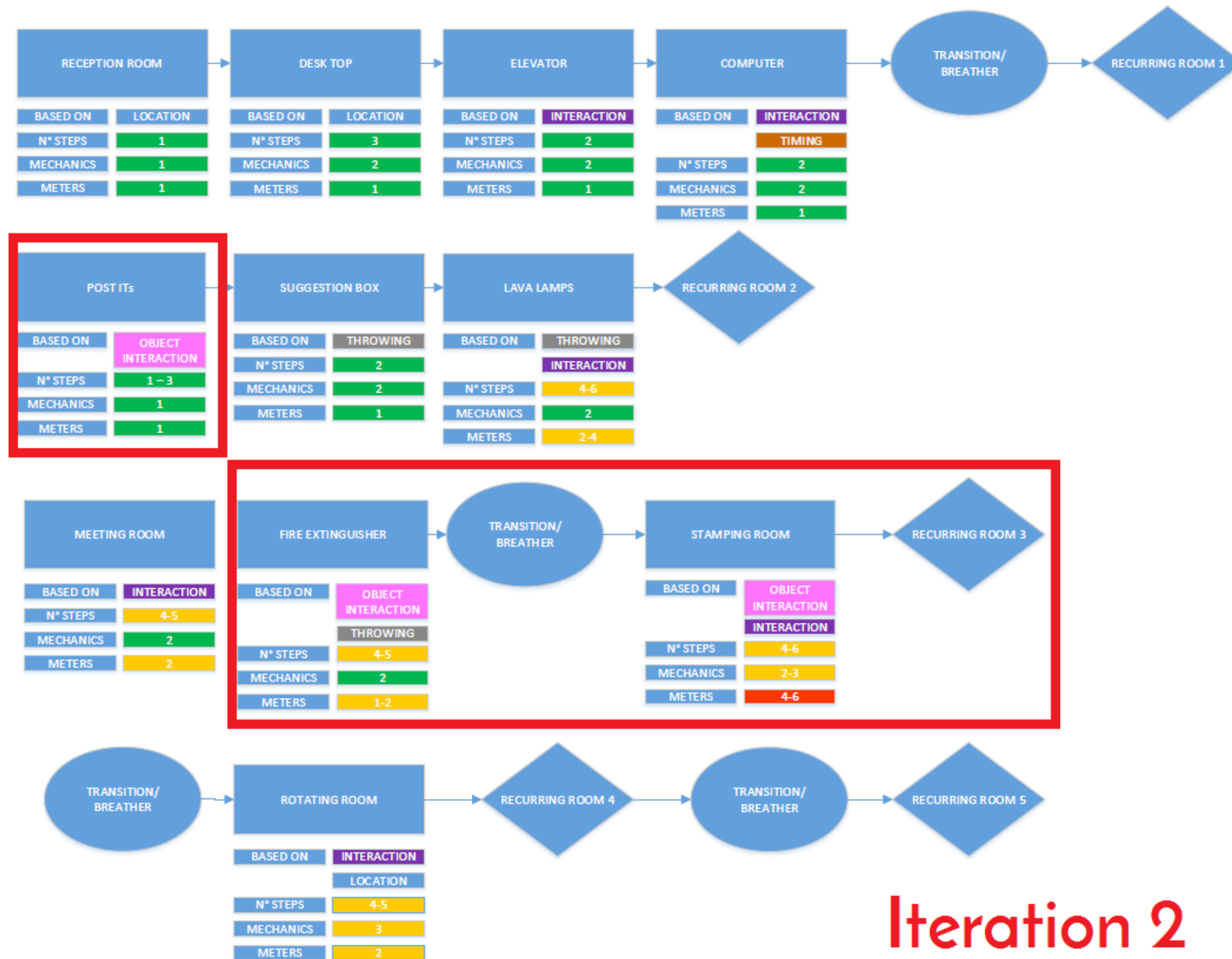
Our aim was to keep the initial puzzles very, very simple for two main reasons:

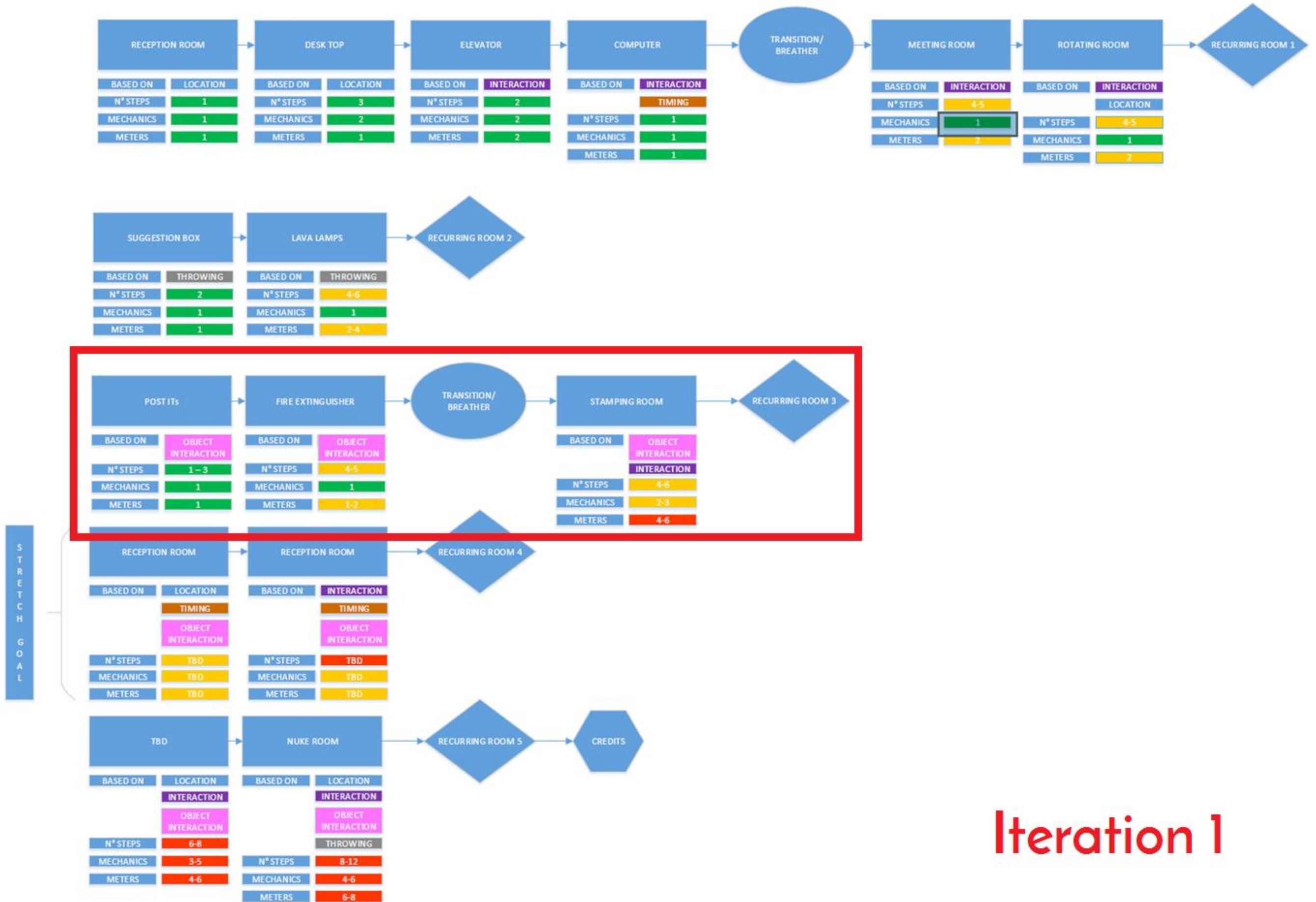
- The game is meant to be primarily enjoyed through the environmental gags, not through puzzle challenge.
- It is always easier to increase difficulty in a puzzle than it is to decrease difficulty.

The part of the roadmap that was my responsibility, of which the puzzles are described in this document, is highlighted in the red square.

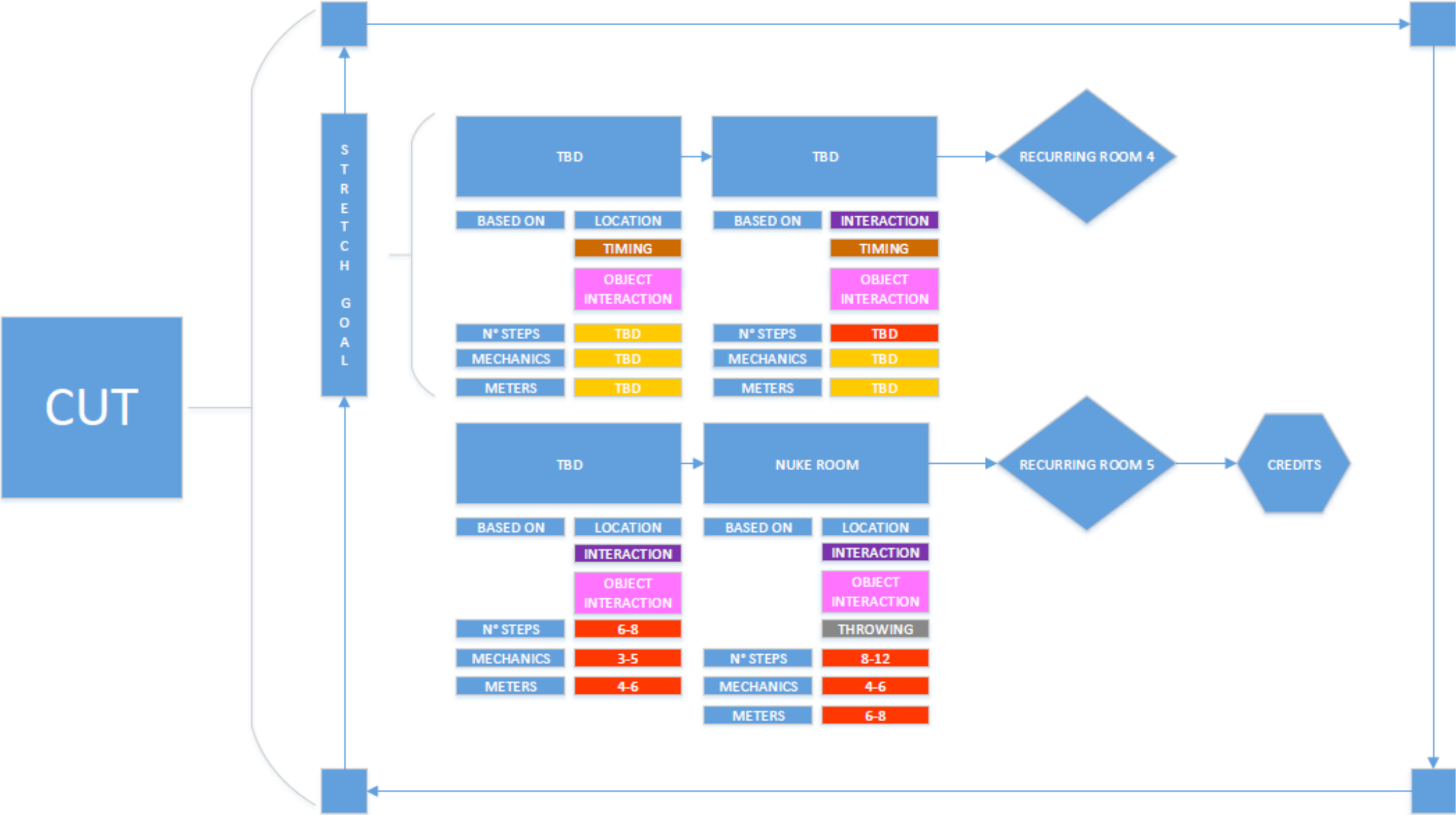
Roadmap Iteration 2 was made in week 6 after development of most levels, and is the roadmap as it was developed in the final build.

It includes increase in difficulty dials, and a section of the cut level items.





Iteration 1



2. BLOCKOUT



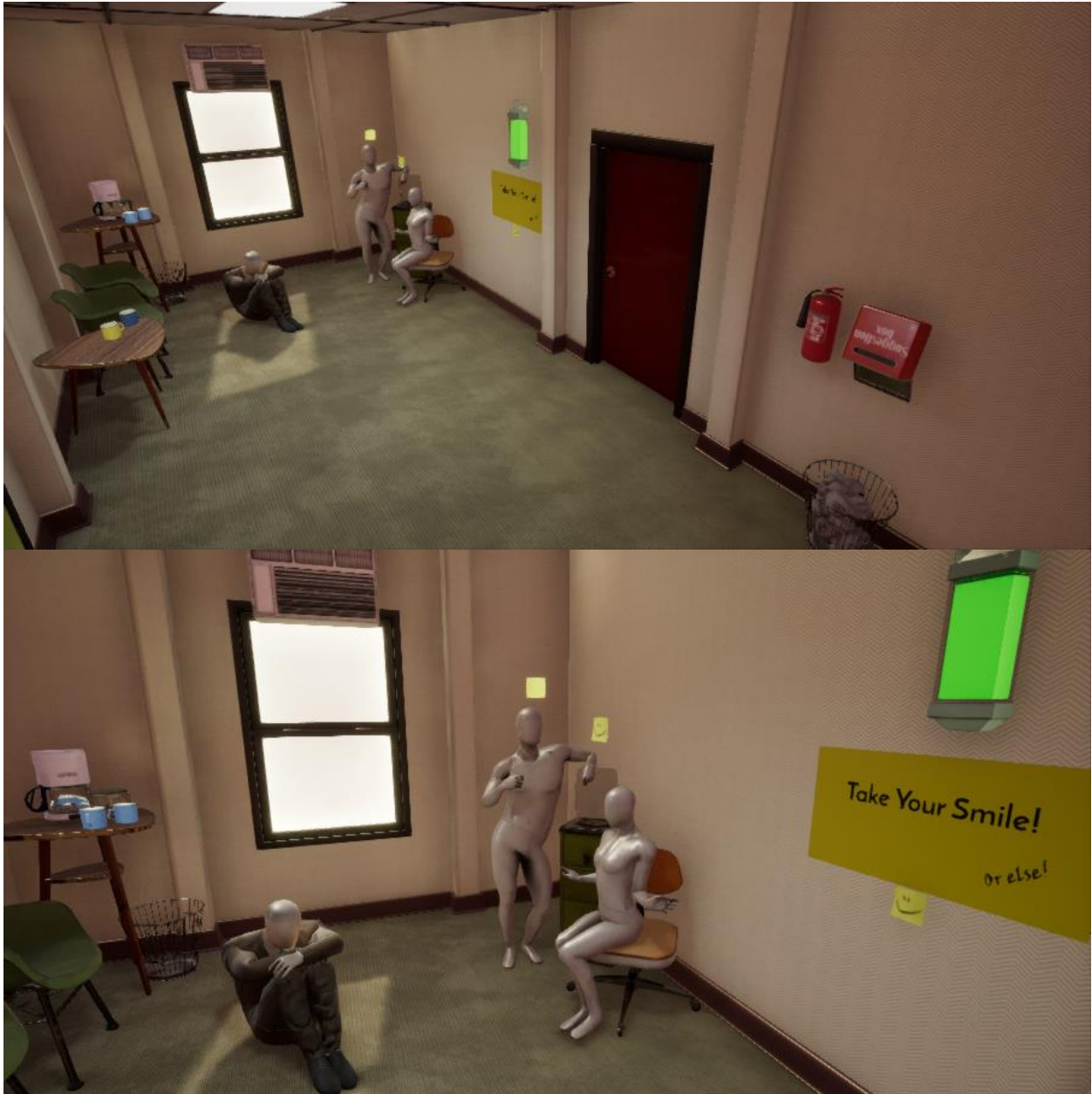
This block out of the initial layout of the level was approved by the Narrative Designer and Set Dresser to be continued into a fully-fledged level.

The block out contains the Smile, or Else puzzles (lower right), Fire Extinguisher puzzle (center corridor) and Stamping puzzle (top hall).

There was extra room leftover where the marking are for an extra Waiting Room puzzle, but this particular room was cut in the final build.

3. PUZZLE 10 – SMILE, OR ELSE

3.1 Iteration 2 (Final)



3.1.1 Iteration change list

This iteration saw the movement of this puzzle to much earlier in the game, as it's difficulty was very low compared to its position in the roadmap.

The iteration saw the same gameplay, but updated art assets. Also, the meter was moved from behind the sitting mannequin to above the Take Your Smile poster, so players saw it earlier in the puzzle sequence.

3.1.2 Design

This puzzle is meant to onboard the player to Object Usage (picking up a certain object and putting it in a certain place.) The player is also asked to make a connection between mannequin's poses and their environment.

The smile post-it's are satire on the trivial and cliched attempts to keep workers happy in a working environment.

Puzzle constraints:

1-3 Steps

1 Meter

1 Mechanic (Object Interaction)

The player should see the following signs in order:

- Closed Door
- Scenery (post-it's, happy mannequins, sad mannequin)
- Meter **above smiley poster**

The puzzle's objective is to stick a smiley post-it on the sad mannequin's face, after which the meter fills immediately.

3.1.3 Functionality

- BP_Smile should be collideable with an invisible hitbox
- Upon colliding with the anchor, the smile sticky note should be dropped by the player and stick on the **centre** of the anchor.
- The player should be able to remove BP_Smile from its anchor by interacting with it
- BP_Smile should, therefore, have physics enabled when being carried, and disabled when attached to an anchor.
- The objective meter should keep track of **multiple anchors**
- If an anchor has a BP_Smile attached, it should **fill the meter** for $100/(\text{amount of anchors})$ percent.
- Moving **ANY** BP_Smile closer to an anchor should gradually fill the meter.
- Filling the meter 100% opens the door.

3.1.4 Audio

- Sticking/removing the sticky note to a head should make a distinct sound.
- Taking the sticky note from the wall poster should make the same removing sound as if it were removed from a head.

3.2 Iteration 1



3.2.1 Design

This puzzle is meant to onboard the player to Object Usage (picking up a certain object and putting it in a certain place.) The player is also asked to make a connection between mannequin's poses and their environment.

The smile post-it's are satire on the trivial and cliched attempts to keep workers happy in a working environment.

Puzzle constraints:

1-3 Steps

1 Meter

1 Mechanic (Object Usage)

The player should see the following signs in order:

- Closed Door
- Scenery (post-it's, happy mannequins, sad mannequin)
- Meter **behind** sad mannequin

The puzzle's objective is to stick a smiley post-it on the sad mannequin's face, after which the meter fills immediately.

3.2.2 Functionality

- BP_Smile should be collideable with an invisible hitbox
- Upon colliding with the anchor, the smile sticky note should be dropped by the player and stick on the **centre** of the anchor.
- The player should be able to remove BP_Smile from its anchor by interacting with it
- BP_Smile should, therefore, have physics enabled when being carried, and disabled when attached to an anchor.
- The objective meter should keep track of **multiple anchors**
- If an anchor has a BP_Smile attached, it should **fill the meter** for 100/(amount of anchors) percent.
- Moving **ANY** BP_Smile closer to an anchor should gradually fill the meter.
- Filling the meter 100% opens the door.

3.2.3 Audio

- Sticking/removing the sticky note to a head should make a distinct sound.
- Taking the sticky note from the wall poster should make the same removing sound as if it were removed from a head.

4. PUZZLE 11 – FIRE EXIT

4.1 Iteration 2 (Final)



4.1.1 Iteration change list

This iteration saw the implementation of a final art pass, as well as a functional fire hydrant.

The main issue with this puzzle was that it felt like a checklist that required too little cognitive thinking from the player.

We added more steps to up amount of gags and enjoyability of the puzzle, and added an extra base mechanic that players need to apply and mentally connect two items that they see on screen further in the puzzle.

This is the Fire Exit sign that the player finds after extinguishing the second fire. They will need to throw the sign on top of the door to open the fire exit and expose fire no. 3.

4.1.2 Design

This puzzle is validation of the player's Object Usage skill, along with an introduction to sequencing. The player is also asked to make a connection between the fire and the earlier found fire hydrant.

Additionally, the player has to use the earlier learn Throwing mechanic

Puzzle constraints:

4-6 Steps

2-4 Meters

2 Mechanics (Object Interaction and Throwing)

The player should see the following signs in order:

- Fire exit with a meter next to it
- Fire hydrant
- Box (can be assumed as decorative)
- Worker down the hallway
- On-fire printer around the corner
- Door with meter next to the printer
- Turn around to see on-fire mannequin



4.1.3 Steps:

- Pick up fire hydrant
- Put out on-fire printer by moving the hydrant towards it
- Find on-fire box, extinguish
- Throw fire exit sign on top of door
- Extinguish fire exit fire
- Turn around, extinguish on-fire mannequin



4.1.4 Functionality

- BP_FireHydrant should destroy BP_Fire on collision (possibly after a little animation)
- Destroying a BP_Fire should fill the meter for a certain amount (in this case, 50%)
- Destroying a BP_Fire should spawn another one
- Filling the meter 100% opens the door.
- BP_FireSpawner should be used to spawn fires where necessary
- Once the Box fire is extinguished, it should spawn a BP_FireExitSign and destroy the Box.

4.1.5 Audio

- The fire should have audio. When the fire starts behind the player, the audio should hint them that there's one more fire.
- The fire in the fire exit should only play when the door is open. When the door closes, the sound should stop again.
- The extinguisher should have audio feedback when it is being used.
- The Fire Exit should muffled on-fire audio when it is closed.

4.2 Iteration 1



4.2.1 Design

This puzzle is validation of the player's Object Usage skill, along with an introduction to sequencing. The player is also asked to make a connection between the fire and the earlier found fire hydrant.

Puzzle constraints:

3-5 Steps

1-2 Meters

1 Mechanic (Object Usage)

The player should see the following signs in order:

- Fire exit with a fire hydrant
- Worker down the hallway
- On-fire printer around the corner
- Door with meter next to the printer (after puzzle step 2)
- Turn around to see on-fire mannequin

4.2.2 Steps:

- Pick up fire hydrant
- Put out on-fire printer by moving the hydrant towards it, meter fills halfway
- Turn around, put out on-fire mannequin



4.2.3 Functionality

- BP_FireHydrant should destroy BP_Fire on collision (possibly after a little animation)
- Destroying a BP_Fire should fill the meter for a certain amount (in this case, 50%)
- Destroying a BP_Fire should spawn another one
- Filling the meter 100% opens the door.

4.2.4 Audio

- The fire should have audio. When the fire starts behind the player, the audio should hint them that there's one more fire.
- The fire in the fire exit should only play when the door is open. When the door closes, the sound should stop again.
- The extinguisher should have audio feedback when it is being used.

5. PUZZLE 13 – STAMPING

5.1 Iteration 2



5.1.1 Iteration changelist

The sequencing of this puzzle changed dramatically.

The boss sign needs to be found and attached instead of removed to add backtracking difficulty to the puzzle. Multiple desks have been added with various numbered paper stacks, each desk with a slightly different problem for the player to onboard them into finding the correct papers for the correctly numbered desks.

The first desk has the correct paper already attached. The desk in front of him needs to have the paper moved into the correct position. The papers on the desks in front of them need to be swapped. The paper on the front most desk needs to be found in the corner of the room and replaced with the bear trap.

The head asset has been removed because the pivot point was offset and could not be changed.

The level had a set dressing/art pass and is preceded by a slight breather to reduce player cognitive load.



5.1.2 Design

This puzzle is meant to be a more intermediate / advanced version of Object Usage. The player will have to actively search for one of the needed components, as well as sequence the order of placing certain objects (the sequence starts off wrong).

Puzzle constraints:

5-7 Meters

4-6 Steps

3 Mechanics (Object Usage, Backtracking & Searching)

The player should see the following signs in order :

- Bin with 'Boss' nametag (preceding room)
- Big room of desks
- Row of desks with meters and numbers attached
- Stamping employees have green marker section
- The back employee has a correct stamping paper in its marker
- The next employee has stamping papers, but are misplaced
- The next employees have wrong numbers on their stamping papers
- After exploring room of desks, player should see a stack of papers hidden on one of the desks, along with a proximity meter.



5.1.3 Steps

- Place paper in correct marker A-104 (part of random sequence)
- Place paper in correct marker A-103 (part of random sequence)
- Place paper in correct marker A-102 (part of random sequence)
- Find paper A-101 (part of random sequence)
- Place paper in correct marker A-101 (part of random sequence)
- Find boss sign
- Place boss sign so mannequins start stamping and fill all meters



5.1.4 Functionality

- As long as the Boss Sign is in its anchor, the employee should be stamping.
- As long as the employee is stamping, items in their marker cannot be picked up
- As long as the employee is not stamping, items in their marker can be picked up
- When the stack of paper is in the anchor on the desk AND the employee is stamping, the meters on the desk should fill up

5.1.5 Audio

- The stamping employees should make stamping noises when activated

5.2 Iteration 1



5.2.1 Design

This puzzle is meant to be a more intermediate / advanced version of Object Usage. The player will have to actively search for one of the needed components, as well as sequence the order of placing certain objects (the sequence starts off wrong).

Puzzle constraints:

4-6 Meters

4-6 Steps

2 Mechanics (Object Usage & Interact)

The player should see the following signs in order :

- Big room of desks
- One desk with a stamping employee and a boss figure next to it.
- 1 meter is full, 1 meter is empty
- Stamping employee is stamping a mannequin head
- After exploring room of desks, player should see a stack of papers hidden on one of the desks, along with a proximity meter.



5.2.2 Steps

- Remove boss sign so employee stops stamping
- Remove head from desk
- Find stack of paper
- Place stack of paper on desk
- Replace boss sign

5.2.3 Functionality

- The Boss Sign should start in its anchor, filling the right-hand meter.
- As long as the Boss Sign is in its anchor, the employee should be stamping.
- As long as the employee is stamping, the head cannot be picked up.
- When the employee stops stamping, the head can be picked up.
- The head's anchor should be able to hold the stack of paper as well.
- The meter next to the stack of paper is a proximity meter tracking the player, and should fill up when the stack of papers is picked up.
- When the stack of paper is in the anchor on the desk AND the employee is stamping, the meter on the left should be filling up.

5.2.4 Audio

- The stamping employee should make 2 noises: 1 when he is stamping an incorrect item, 1 when he is stamping the correct one.

5.2.5 Feedback Summary

- Removing the boss sign step is confusing. "Why can I not move items during stamping"
- The redundant asset feels like a part of the puzzle that the player has to use somehow.
- Feedback from meters needs to be improved

6. END OF BLOCK REFLECTION

This block has been an educative learning opportunity in the field of puzzle design.

I have learned how players see various clues in an environment to start and solve a challenge.

We have spent an incredible amount of time rearranging and rebuilding levels, mostly related due to difficulty curve improvements.

I think that the way we treated our difficulty curve has been with enough care, but the process could be polished by improving our design instincts. It was smart to keep the puzzles extremely simple in the first iterations and elaborate on them as development continued, but it did feel redundant in some areas.

In the future I'd like to take similar approaches to puzzle design, improving the following:

- Slightly higher difficulty from the get-go
- Spend more time making the roadmap logical to prevent rearrangement
- Think about how puzzle sections can be made modular in a smoother way, so eventual rearrangement is painless
- Do quicker iterations by QA'ing puzzles sooner and more often.