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3.0 Cheese Economy

3.1 Currencies & Resources

3.1.1 Non-cheese resources

Currency Name	Acquired by	Used by
Milk	Environment, Milk extractor	Cheese Factory
Scrap	Sale of cheese	Building mode, Research
Cheese	Cheese Production	Population, Research

3.1.2 Cheese resources

Cheese name	Rarity	Produced by
American Cheese	Own-Brand (common)	Simple Factory
Cheddar	Select (uncommon)	Simple Factory
Mozzarella	Select (uncommon)	Simple Factory
Brie	artisanal (rare)	Soft Cheese Factory (level 2 factory)
Gouda	artisanal (rare)	Soft Cheese Factory
Parmesan	gourmet (epic)	Specialty Cheese Factory (Level 3 Factory)
Blue Cheese	gourmet (epic)	Specialty Cheese Factory

3.2 Cheese Factory

The Player will be presented with 3 factories in-game, these factories are of 3 different types, Simple Factory, Soft Cheese Factory and the Specialty cheese factory. Each factory has a selection of cheeses that the player can unlock and choose for it to produce.

3.2.1 Factory construction and operation

3.2.1.1 Building the factory

Each factory costs a set amount of scrap to build.

Factory	Build cost
Simple Factory	200 scrap
Soft Cheese Factory	500 scrap
Specialty Cheese Factory	800 scrap

Additionally, for each factory placed, a population of (**no. of factories** * 20) must be reached for them to operate.

For instance, if the population is 80 mice, the player can build up to 4 factories (**4** * 20) to all run simultaneously. If the player builds a 5th factory, a message on the UI will notify the player that there is “not enough mice to operate this factory” and it will not function until the population reaches 100 mice or another factory is demolished, bringing the total back to 4.

This population requirement applies consistently to the number of **all** factory types combined, in the city.

3.2.1.2 Factory operations

A factory can only make one type of cheese at a time. But multiple of the same factory can be built and each individually selected to produce different applicable types, overall producing the complete set.

3.2.2 Cheese Production

3.2.2.1 Input and Output Resources

? What resources go in to produce each cheese?

Every cheese requires milk to be produced, and scrap to cover the operation costs.

The amount of milk and scrap required varies per cheese. Both are automatically deducted from their respective counters when the Factory is ready to begin production.

Cheese	Factory	Requirements per 1 cheese	Time to produce 1 cheese	Cost to produce 1 cheese
American Cheese	Simple Factory	2 milk	6 seconds	4 scrap
Cheddar	Simple Factory	3 milk	8 seconds	7 scrap
Mozzarella	Simple Factory	4 milk	10 seconds	15 scrap
Brie	Soft Cheese Factory	6 milk	15 seconds	25 scrap
Gouda	Soft Cheese Factory	8 milk	20 seconds	40 scrap
Parmesan	Speciality Cheese Factory	10 milk	25 seconds	50 scrap
Blue Cheese	Speciality Cheese Factory	12 milk	30 seconds	70 scrap

3.2.2.2 Process of producing cheese

 Gameplay wise, how is the cheese 'produced' ? Is there a timer?

The player builds one of the 3 cheese factories, selects it, and decides what cheese it will produce. The factory will check that enough Milk is available, and, when there is, it will deduct the required amount and begin a timer based on the cheese it is producing ([see above table](#)). When the timer is complete, +1 is added to the correct cheese counter. The process automatically repeats for as long as there is enough Milk.

3.2.2.3 Switching the selected cheese

Switching a factory to a different cheese type requires paying a high scrap cost and causes the building to shut down for 60 seconds before production resumes. This means that changing production lines is always a strategic choice rather than something the player does impulsively.

3.2.3 Cheese Factory Upgrades

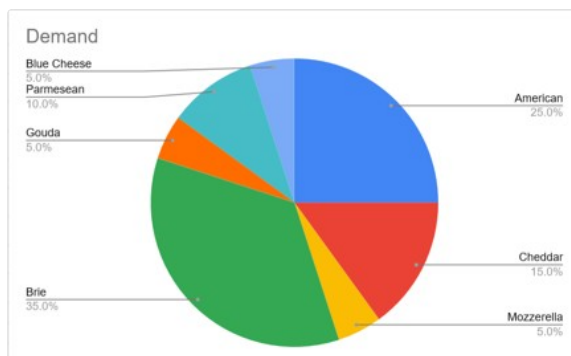
3.3 Commercial Building

3.3.1 Cheese popularity

Different cheeses rise and fall in popularity. Players must decide which factories to operate and cheeses to produce at any given moment based on these shifting trends. Since each factory type has different production times, output amounts, and economic values, choosing which cheeses to produce becomes a meaningful balancing act.

3.3.1.1 Popularity graph

Within a random timeframe from 5 - 10 minutes, the game rebalances the cheese popularity randomly, splitting the 7 types out of 100%. Each cheese will have a minimum of at least 5% and a maximum of 50%.



visual representation of cheese popularity

3.3.2 Sale of cheese

Commercial buildings facilitate the sale of cheese. Every 10 - 20 seconds, the building sells 1 cheese of each type per 10 mice in the population, per 5% of popularity. The formula will look like this:

$$(\text{population} / 10) * (\text{popularity} / 0.05)$$

For instance, if cheddar is at 20% popularity, and the population is 40 mice, 16 units of cheddar will be sold for their respective price in scrap.

$$(40 / 10) * (0.2 / 0.05)$$

The scrap will then go into the player's figurative "wallet".

3.3.2.1 Base price of cheese

Cheese	Base price	Profit after factory cost
American Cheese	10 scrap	6 scrap
Cheddar	15 scrap	8 scrap
Mozzarella	25 scrap	10 scrap
Brie	40 scrap	15 scrap
Gouda	60 scrap	20 scrap
Parmesan	85 scrap	35 scrap
Blue Cheese	120 scrap	50 scrap

3.4 Milk Tanks

3.4.1 Base Price and capacity for milk

Milk Tanks	Base price	Capacity
Simple Milk Tank	100 Scrap	20 Milk
Better Milk Tank	300 Scrap	50 Milk
Great Milk Tank	600 Scrap	100 Milk

3.5 Industrial Buildings

3.5.1 Industrial buildings pricing

Industrial Buildings	Base Price	Collection Time	Capacity
Milk Collector	30 Scrap	10 secs	1 Milk

7.0 3D Camera and Game modes

7.1 Player camera

7.1.1 Camera functionality

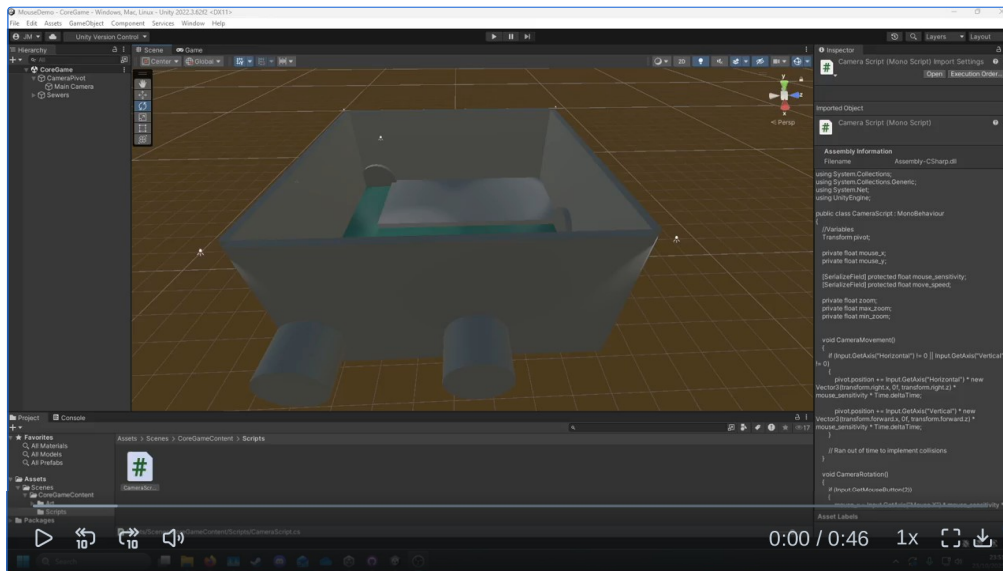
The camera uses a perspective view. The player can simultaneously move, rotate and zoom the camera within the below clamped ranges. Objects within 5 units of the camera (particularly when zoomed) will be culled, ideally with a transition between 8 - 5 units that fades them out as they get within range of culling (and the reverse as they move further away).

With rotation, the camera is clamped between -45 and 25 degrees. With zoom, the camera is restricted between 100% (default state) and 30%, using the distance between the ground and the camera's farthest position.

Rotation axis	Rotation (in degrees)
X	-45 to 25
Y	360
z	0 - No rotation allowed

Zoom level	Distance (forward Z)
100% (max)	12
80%	12
60%	16
40%	24
20%	32
0% (min)	40

 These values are subject to change during development. They are a rough guide only



Tech demo of camera

7.1.2 Camera controls

Function	Keyboard	Controller
Move	WASD	Left joystick
Rotate	Hold RMB + Mouse position	Right joystick
Zoom in	Scroll wheel up	Right Trigger
Zoom out	Scroll wheel down	Left Trigger

7.2 Build mode

7.2.1 Entering Build Mode

The player can enter build mode at any time from the main screen by clicking on a building from the build-menu UI, selecting the path tool, or by selecting the destroy tool.

Note from Joe

Need to add the visual changes between build mode and regular gameplay (i.e grid overlay)

7.2.2 Exiting Build Mode

The player can exit build mode by placing a building without holding SHIFT or by hitting the ESCAPE key. Placing paths does not exit build mode.

7.2.3 How does the player build

The player can build structures by entering build mode. If the player enters build mode by selecting a building structure, the building is spawned with a reduced opacity, blue highlight and follows the mouse cursor while snapping to the relevant tiles on the grid.

The player can rotate the building 15 degrees by pressing R.

In this scenario, if the player presses the left mouse button (LMB), the building structure is 'placed' on the grid cells it occupies (assuming the player is allowed to build the structure here). Its opacity is returned to 100% and the highlight is removed.

Build mode is automatically exited unless the player is holding down the SHIFT key when 'placing' the building structure, in which case, a new copy of the same building is spawned in the highlighted, low-opacity state like before. The player can continue to repeatedly build the same structure in different places, or switch structures from the UI without exiting build mode.

7.2.3.1 Building controls

Function	Keyboard	Controller
Move	Mouse position (variable)	Left Joystick
Rotate	R	R-Joystick in
Place	LMB	A-Button
Remain in build-mode	SHIFT (Hold while placing)	Y-Button (Toggle)
Exit build mode	ESC	B-Button

7.2.3.2 When can the player build

? When is the player allowed to build? What dictates if a grid cell is available?

Players will be able to place building objects within the set grid once the assigned key has been pressed, This will be shown visually with a grid on the area highlighted with the mouse position. The grid

itself will be available in any flat area as shown in the demonstration video above.

If in any scenario the Player decides they want to try and build on the water, walls or ceiling the grid will disappear from last area of play until the Player moves it back onto an area of play.

7.2.3.3 When can't the player build

? When is the player not allowed to build? What dictates if a grid cell is unavailable? How does the player know?

As mentioned above the Player will not be allowed to build in areas that appear to be out of reach or structurally impossible.

Scenarios can be as followed,

Trying to build a house structure or production facility on a steep incline (Wall).

Trying to place decoration objects into the sewer water or where buildings already exist.

Build mode automatically shows the grid to Players so they know where the buildings will go once, To avoid Player confusion the grid should be highlighted in a strong bold colour such as red to show the Player objects cannot be placed there.

Other colours could be incorporated to the grid in an green, amber, red system with each colour system representing a state of thinking for the Player.

Green- Placeable no issues with build system

Amber- Perhaps consideration for other environmental assets

Red- Will not be able to be placed in current place.

7.2.4 Building paths

If the player enters build mode via a path tool, a similar procedure is followed only with a singular path structure. When building paths, build mode is not exited even if the player is not holding the SHIFT key.

7.2.4.1 Building bridges

? How does the player build bridges?

Bridges are able to be built the same way as normal buildings, However their may be a slight change to how the building mode operates.

When the Player wants to build a bridge and upon entering build mode the Player can choose the two points in which they want the bridge to connect.

The bridge model will spawn with a reduced opacity and can be manipulated by the Player with the discussed control options.

7.3 Destroy mode

7.3.1 Entering Destroy mode

From the UI, the player can select a button that puts the player into a version of build mode that allows the player to click on an existing path or building to destroy it.

7.3.2 Exiting Destroy mode

The player can exit destroy mode by hitting the ESCAPE button.

7.3.3 How does the player destroy

The player can destroy structures they have placed by entering destroy mode from the UI. In destroy mode, when the player's cursor hovers over a path or building structure, it is given a yellow highlight. If the player presses the left mouse button (LMB) in this scenario, the highlighted structure is destroyed.

7.4 Regular mode

7.4.1 Functionality in regular mode

7.4.2 Main sewer layout

7.4.3 Sewer clearance and expansion

 This is a should-have feature and is not part of the core design.

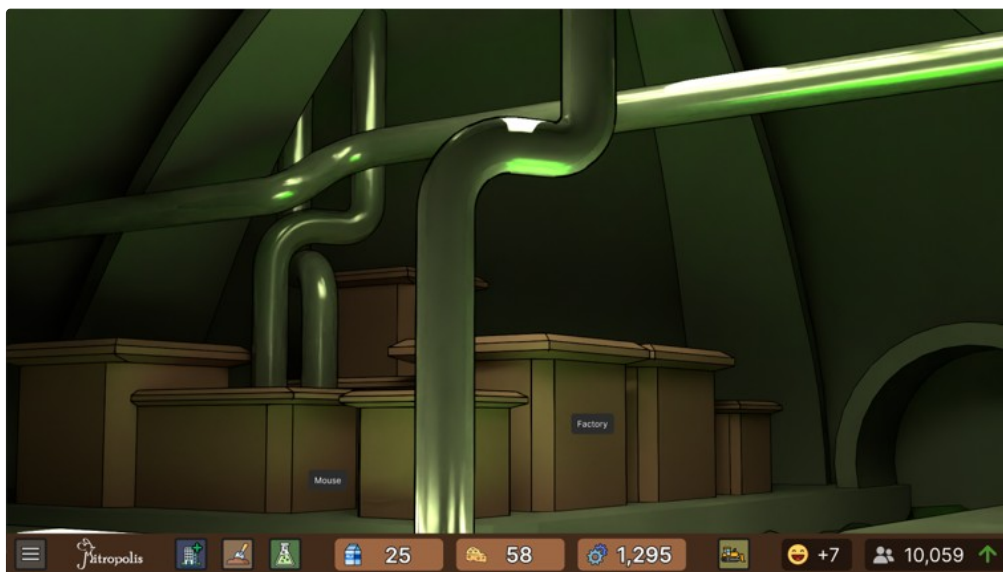
🎨 9.0 UI and Menu screens

9.1 Gameplay UI

9.1.1 Interface HUD



Version 1 - Concept By will



Version 2 - Concept by Joe McDonnell

9.1.2 Fonts and Typefaces

- ❓ Choose a font + typeface for various areas of the game. More than 1 can be used but must be done so cohesively (e.g. one for all buttons, one for all flavour text, one for all HUD text - this is not a guide, just an example).

 The logo is exempt from these font rules. The artists may choose whatever is appropriate

9.1.3 Pause menu



Version 1 - Concept by Will



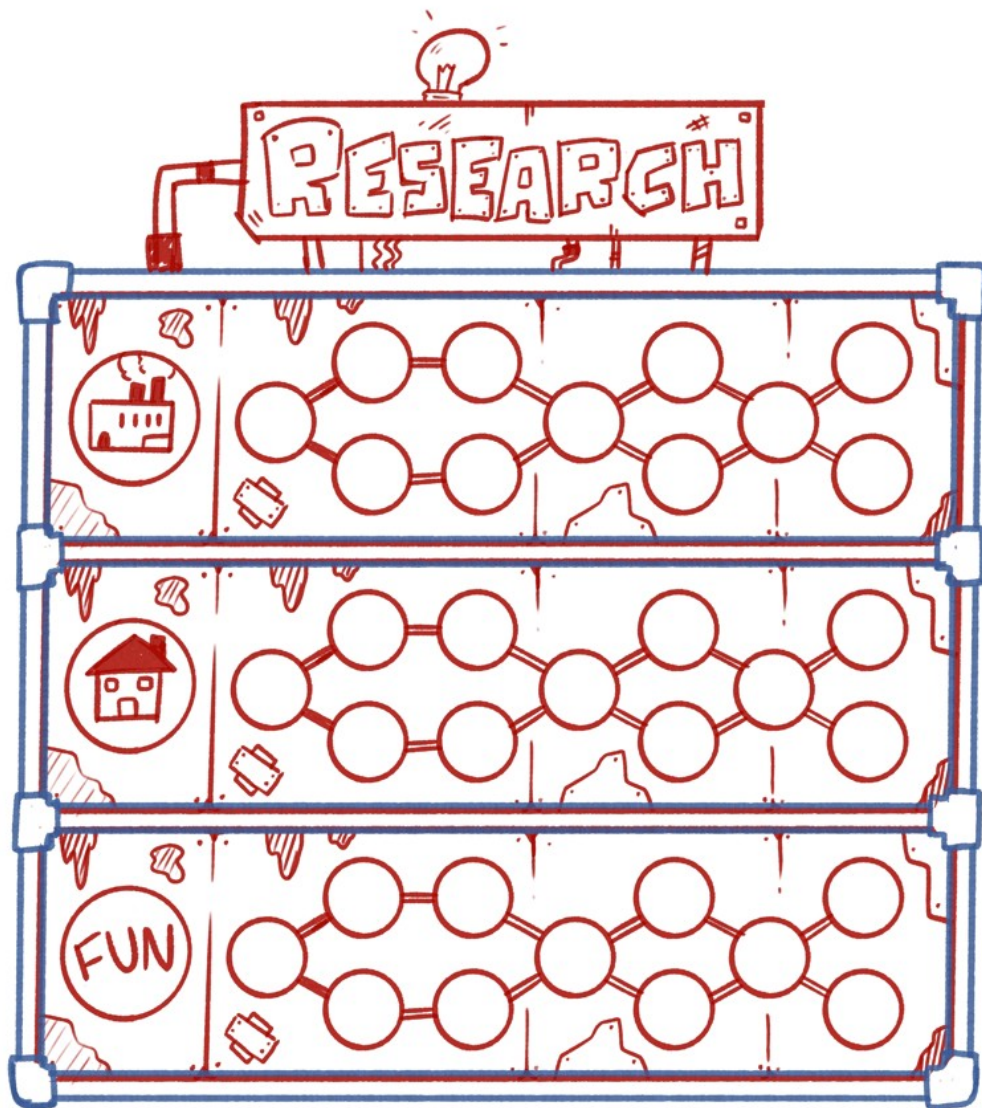
Version 1 alternate - Concept by Will



Version 2 - Concept by Joe McDonnell

[9.1.4 Research screen](#)

Tech trees in tycoon games are important because they give players a structured sense of long-term progression, turning short-term decisions into part of a larger strategic plan. By gating advanced tools, buildings, or efficiencies behind research choices, tech trees create meaningful trade-offs and encourage diverse playstyles. They also help pace the game, ensuring that new challenges, mechanics, and rewards unfold gradually to keep the experience engaging.



Concept by Lawrence



Version 1 - Concept by Joe McDonnell

9.1.5 Building Menu



Version 1 - Concept by Will



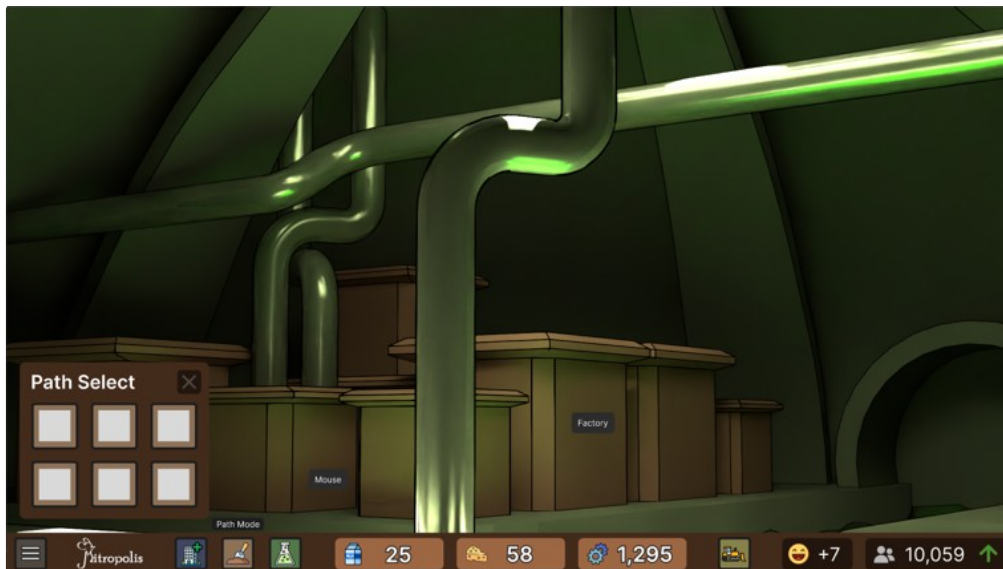
Version 2 - Concept by Joe McDonnell

9.1.6 Destruction Menu



Version 1 - Concept by Will

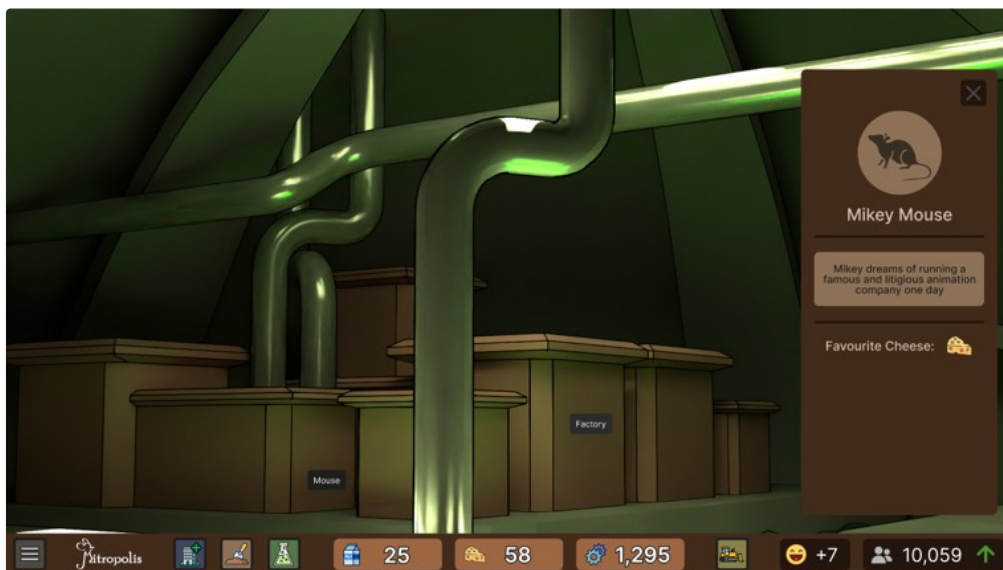
9.1.7 Path Tool Menu



Concept by Joe McDonnell

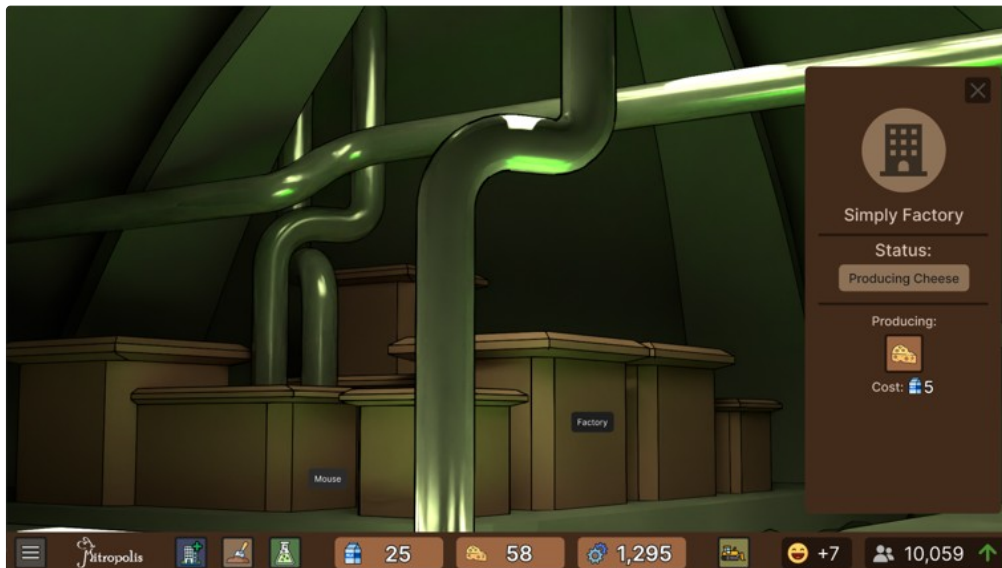
9.1.8 Inspect Panel

9.1.8.1 Inspecting Mice



Concept by Joe McDonnell

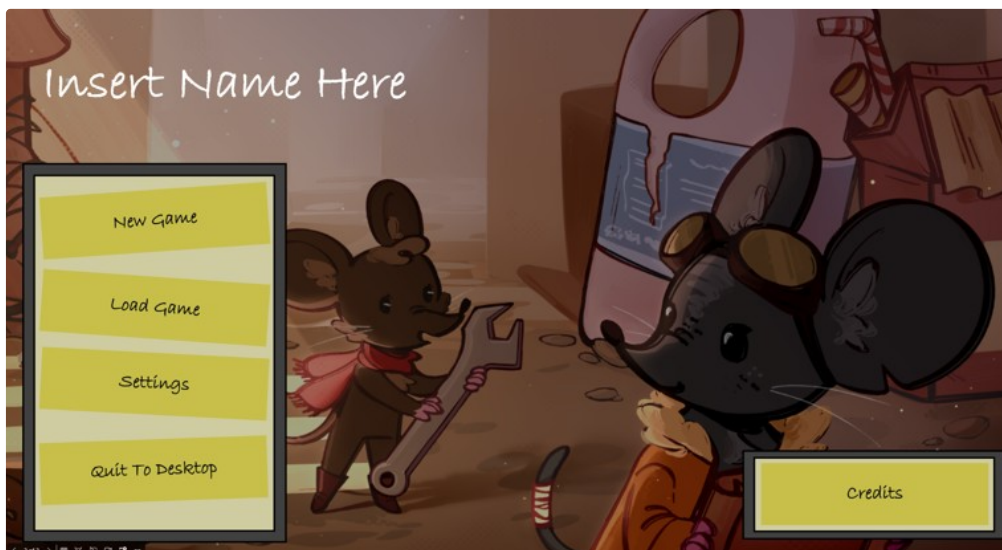
9.1.8.2 Inspecting building

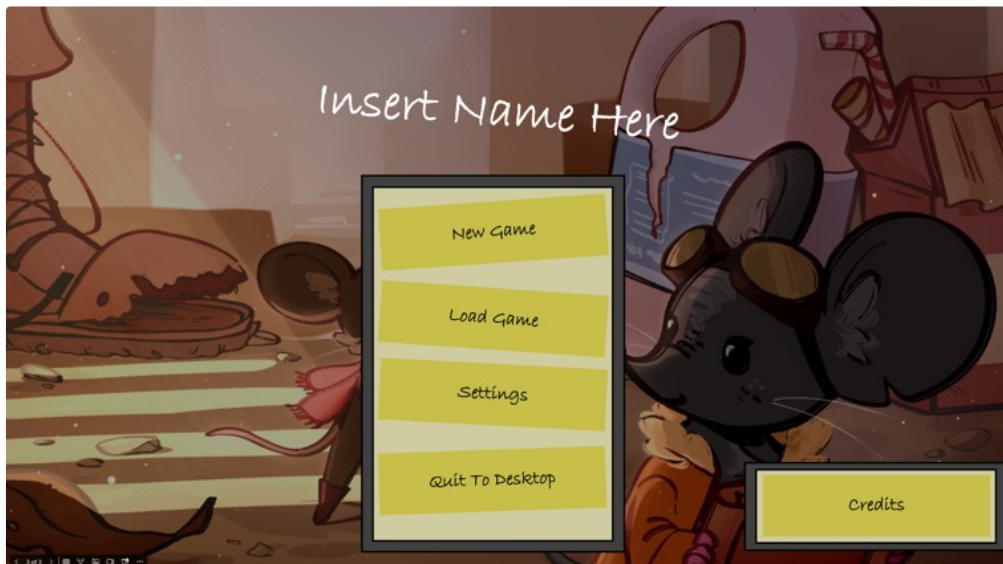


Concept by Joe McDonnell

9.2 Game Screens

9.2.1 Main menu layout





Concepts By William

9.2.2 Loading & Saving

9.3 Settings

9.3.1 General settings

9.3.2 Graphics settings

9.3.3 Audio settings

9.3.4 Accessibility settings

9.3.5 Keybindings

9.4 Splash screens

A splash screen is an important element of a game's presentation, providing an initial visual introduction that helps establish branding, tone, and create a polished first impression as the game loads, especially for the first time



Concept By Veronika

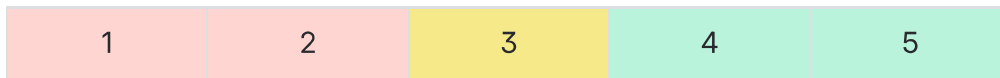
10.0 Buildings and Structures

10.1 Residential buildings

10.1.1 Function of residential buildings

Residential buildings house the mice in your city. Each one can house a certain number of residents which contribute to your overall population. They cost scrap to build and offer no direct return. To grow the city, the player must build a variety of these.

Each building has a quality rating that affects the morale of the mice living there.



10.1.2 Individual residential buildings

Each residential type has a different maximum capacity of residents, and a quality rating.

10.1.2.1 Mouse House



Concept art by Lawrence Wintle

Starting building for the player. Has the lowest capacity so visually should be smaller and take up less space. A cosy cottage-like approach seems appropriate, appearing to house only 1 family. The quality level is a 3 / 5

10.2.1.2 Tupperware Appartments



Concept art by Lawrence Wintle

A larger complex the player will unlock later in the game. The capacity is large, so the building should cover sizeable ground and appear to house multiple occupants. The quality is a 2 / 5

10.2 Industrial buildings - Milk

10.2.1 Function of Milk Collector

Milk collectors are a building that can be placed along the walls of the sewers and are used to extract the milk resource from the pipes. Milk is a 'raw' resource that can only be acquired in this way, and is used for the production of Cheese.

Each Milk collector has a certain amount of storage in which it can hold the extracted milk. When this limit is reached (and there is no where else for the milk to go), the collector stops working until milk is used or more storage is made available.

10.2.2 Individual Milk Collectors

 Add concept art here

There is only 1 type of Milk collector. In some capacity, it should involve either a tap that will be placed up against the pipe/wall, or a pipe-like element protruding from a building and the other end will be buried in the wall (to look like siphoning). Either way, a 'main' building should be present to represent general offices and milk storage.

10.2.3 Function of Milk Tank

The Milk Tank is a building that can be unlocked later into the game and provides additional storage of milk, as well as a buffer between the milk collectors and cheese factories.

10.2.4 Individual Milk Tanks

 Add concept art here

There is only 1 type of milk tank. It should likely contain some form of bottle or carton to represent containment of liquid. Using a design similar to a water tower or silo may be appropriate.

10.3 Industrial buildings - Cheese

10.3.1 Function of cheese factories

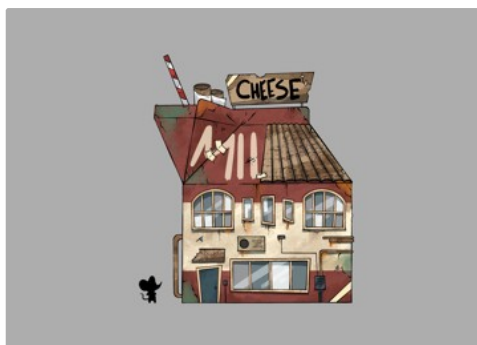
The cheese factories use milk to create cheese. There are 3 types of factories, each able to produce a different rarity of cheese. Each factory placed can only make 1 type of cheese at a time, of the players' choosing.

The production of cheese is automatic, for a more in-depth description, see

 [3.0 Cheese Economy](#) | [3.2.1.2 Process of producing cheese](#)

10.3.2 Individual cheese factories

10.3.2.1 Simple factory



Concept art by Lawrence Wintle

The simple factory is the one first available to the player. It can produce *own-brand* and *select* cheeses.

The building should be relatively small and more run-down than its later counterparts. If using a milk carton or bottle, it should use the red colour code for skimmed milk.

10.3.2.2 Soft cheese factory

 Add concept art
here

The Soft cheese factory is a mid-game factory that produces *artisanal* cheeses. It should be bigger than the Simple factory, but smaller than the later game Specialty factory. If using a milk carton or bottle, it should use the green colour code for semi-skimmed milk.

10.3.2.3 Specialty factory



Concept art by Lawrence Wintle

The Specialty factory is a late game building that allows the player to produce *gourmet* cheese. It should be the biggest of the three factories and the least tattered (but still worn). If using a milk carton or bottle in the design, it should use the blue colour code for full-fat milk.

10.4 Commercial buildings

10.4.1 Function of commercial buildings

The commercial building takes the cheese that has been produced from the factories, and sells it in exchange for Scrap, which is then given to the player automatically. For a more detailed description of the process, see: [🎮 3.0 Cheese Economy | 3.3 Commercial Building](#)

10.4.2 Individual commercial buildings



Concept art by Lawrence Wintle

There is only one commercial building which, within the aesthetic, should resemble a storefront of some kind.

10.5 Research buildings

10.5.1 Function of research buildings

Selecting the research building takes you to the research screen, where multiple tech trees for the other building types exist for the player to upgrade using cheese and scrap.

10.5.2 Individual research buildings



Concept art by Lawrence Wintle

The research building should utilise outdated technology that still represents innovation. The building should have a relatively rustic nature, with rigid, blocky designs that represent a priority of function over form.

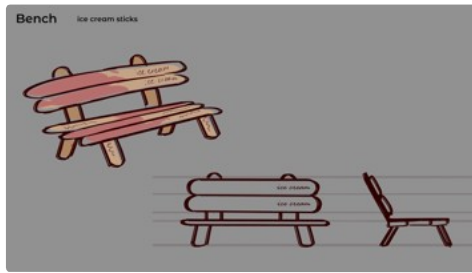
10.6 Decorations

10.6.1 Function of decorations

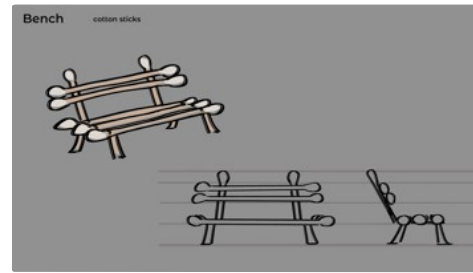
See: [🏠 5.0 Morale and Population](#) | [5.1.1.3 City aesthetics](#)

10.6.2 Individual decorations

10.6.2.1 Bench



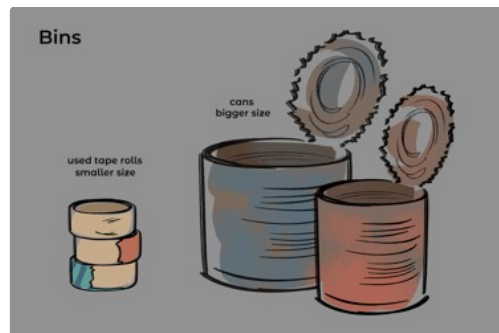
Concept art by Veronica Nosova



Concept art by Veronica Nosova

These will be tagged as: **Furniture**

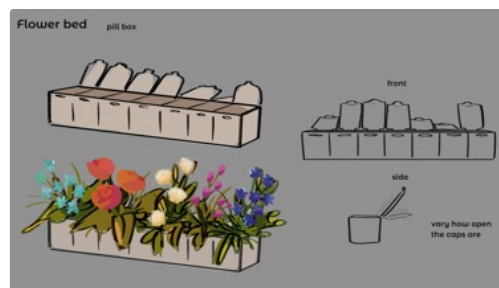
10.6.2.2 Bins



Concept art by Veronica Nosova

These will be tagged as: **Utility**

10.6.2.3 Flower bed



Concept art by Veronica Nosova

These will be tagged as: **Beauty**

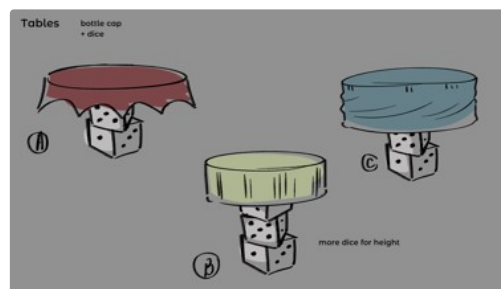
10.6.2.4 Lamppost



Concept art by Veronica Nosova

These will be tagged as: **Beauty**

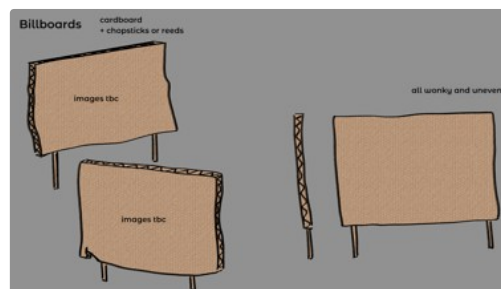
10.6.2.5 Tables



Concept art by Veronica Nosova

These will be tagged as: **Furniture**

10.6.2.6 Billboards



Concept art by Veronika Nosova

These will be tagged as: **Utility**

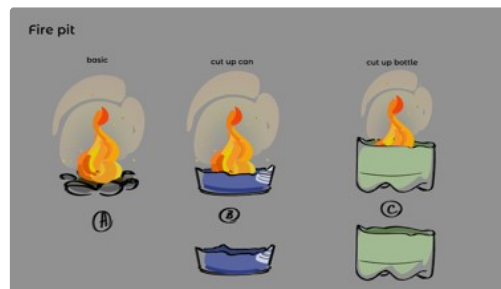
10.6.2.7 Trees



Concept art by Veronika Nosova

These will be tagged as: **Beauty**

10.6.2.8 Fire pit



Concept art by Veronika Nosova

These will be tagged as: **Utility**

10.7 Expeditions

 This is a should-have feature and is not part of the core design.

10.7.1 The Dockyard

10.7.2 Expedition outcomes