

THE CRAFTERY

Serious Game Prototype

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Serious Game Prototype

Serious Game Title: THE CRAFTERY

Prototype can be played at this link using the password **EdTech**:
<https://rosie-rosebud.itch.io/the-craftery-prototype>

Serious Game Overview

Serious Game Concept

A student has decided to make a diorama of the solar system inside a cardboard box that they will paint to look like a starry universe. They write down their ideas in their notebook, doodle a few concepts on some scrap paper, and tell their teacher that they're ready to create something magical. They head out to the enormous bin of flattened cardboard boxes, collected throughout the year for this exact purpose.

They choose a box that they think is the perfect size and shape for their project.

They cut it up.

They glue it back together... in the shape of a box?

They glue some starry origami paper to the inside of the box, take a look at the teacher's example solar system, and create an exact replica, right down to the slightly oddly-coloured Mars, because we didn't have the right coloured clay in the classroom.

Taddah!

Look at my project! I worked hard on it! Look how creative I was!

We're concerned.

Anecdotal evidence, as well as an increasing amount of academic scholarship, shows increasing worry that young people's creative juices are drying up. Gone are the days where a bit of paper and some glue could become something fantastical without any extra guidance from someone else.

What's more, the paper and glue are often not there to begin with. With such increasing disparity in equity across schools, some students are given the opportunity to play with their creativity with heavily stocked makerspaces, art rooms, and more, whilst others are lucky if their teachers can afford a class set of pencils for the year. This means that many young people don't have the chance to learn what it means to be creative, or a safe place to try (and fail) in iterating their design ideas.

Enter THE CRAFTERY...

In a nutshell, THE CRAFTERY is designed to be a player's introduction to the design thinking process, with all its highs (Look at this great thing I designed!) and lows (*Oh jeez, turns out feathers are flammable after all*). Players will be faced with a number of design challenges and be given cards that represent the various resources they might find in a makerspace or similar environment. They will need to go through the design thinking process, speak with NPCs, and work to create the best design possible, all the while solving the mystery of what *really* happened in the Village...

Learning objectives

Let's talk about Bloom's, baby! THE CRAFTERY focuses on developing players' understanding of the design thinking process, lateral thinking skills, and overall creative thinking. The game aims to hit each aspect of Bloom's Taxonomy in different ways. Below are the three main learning objectives for this educational game, with links to Bloom's Taxonomy in bolded italics. Additional information on how the learning objectives interact with Bloom's as well as game and learning mechanics can all be found later in this document.

1. To understand how to apply the design thinking process in a variety of situations (***Remember, understand, apply***)
2. To be confident in iterating and prototyping creative solutions to a given problem (***Apply, analyse, evaluate, create***)
3. To be able to evaluate the suitability of a design for a specific purpose and understand where improvements can be made (***Analyse, evaluate, create***)

Target Audience

Within an educational context, THE CRAFTERY is largely aimed at students in upper primary and lower secondary classes - from approximately ages 9-13. It can be used as a standalone tool to introduce or augment existing maker education, or can be built into an existing maker curriculum to either begin a learning unit or develop student creativity.

This being said, certain aspects of gameplay may also appeal to any other player who enjoys games of a similar ilk... if you like solving problems, you might just like THE CRAFTERY!

Why a serious game?

- Testing creativity requires a **safe environment** - no one wants to put their heart and soul into designing something, only for it to fail in front of all their classmates. What's more, if someone doesn't know where to start, they may not wish to begin at all. THE CRAFTERY is a **low stakes environment of structured yet open** design challenges where players repeat the design thinking process enough times that it begins to be a natural series of steps that they go through each time they design - whether it's in the real world or the game one.

- Not everyone has equitable access to makerspaces or maker resources, particularly if we compare schools both within and across different countries. Simulating an environment in which resources are available to every player in the same way means that players all have **the same supplies** of cardboard, building blocks, craft materials, or whatever they need. Lack of resources is no longer a barrier to learning how to design and create effective solutions to the world's problems.
- It can be difficult to be **sustainable makers**, particularly when you're young. We can teach students things like cutting cardboard from the edges instead of cutting a circle from the middle and leaving the rest unusable (an unfortunately true story). But no matter how much we teach them, mistakes can be made. Equally, certain resources might be limited or difficult to find. The setting of THE CRAFTERY as a place where people forage for supplies and reuse what they already have, teaches players how to craft sustainably whilst giving space for experimentation. When they return to the real world, they have a firm foundation of sustainable, timely, and applicable maker and design skills that can be put into practice right away.
- Using a hot glue gun and a craft knife on the school bus isn't the best idea... Coming up with design solutions in a digital fashion? Possibly the next best thing. THE CRAFTERY **allows for active learning in any location**, online or offline, at school, at home, or halfway to the moon. And hey, maybe they'll work out how to live there in the process!

Game Mechanics and Learning Mechanics

Learning Mechanics

Planning, Discovery, and Experimentation

Players need to consider the resources they have available, the needs of the NPC, and the additional information given to them by other NPCs, in order to come up with a design solution. They will need to plan their use of resources so that they don't run out, similar to the real world where resources are not unlimited. With this being said, however, players should also experiment with different permutations or combinations of resources, as prototyping and testing are intrinsic parts of the design thinking process. Players will discover new aspects of the game as well as new resources and resource block types which they can then use

Incentive

Several mechanics are in place to incentivise players to continue playing the game. This is considered a learning mechanic in this concept as it helps students to continue working through the design thinking process, even when things get difficult.

Action/task

Learners are given a task to work on with an attainable outcome. These tasks, while potentially fantastical (such as designing a home for a pet dragon) are nonetheless realistic in their scope to ask players to reflect on the needs of an NPC and what can be designed for them.

Reflection and Discussion

Learners will discuss and reflect with peers as well as themselves and NPCs within the game. This will help them to improve their designs (part of the design thinking process) as well as reflect on how they can do better when each new quest is unlocked. When used in a classroom or other educational setting, students can also reflect and discuss with peers to understand different ways that designers can reach the same end point.

Simulation

Through simulating the process of design thinking, players learn how it is applied through a variety of situations. This is through the conversations with NPCs as well as through simulating new designs.

Tutorial/Modelling

Specific steps shown to explicitly teach the player how to do each step of the design thinking process. There will be a tutorial at the beginning of the game which will model the process as well (linked to a technical/mechanic tutorial).

Repetition - The basic gameplay will be repeated in order for students to repeat their journey through the design thinking process. Through this repetition, players will begin to memorise both the steps of this process as well as the real life application (e.g. what 'empathising with your client' might actually mean).

Game Mechanics

Core mechanic

Primary mechanics

Secondary mechanics

Crafting

Players craft a design solution to a quest. Crafting is done through a puzzle mechanism. Players must fit resource 'blocks' within a specifically shaped 'frame.' The more players interact with NPCs and the environment, the more frames and different shaped blocks they unlock. Certain blocks and frames snap together, others don't. The crafting mechanism relies heavily on experimentation to see which blocks fit and which don't, and a successful 'craft' will be one in which the frame shape and resource blocks best suit the quest requirements of the NPC client. More detail on this is found later in this document.

Quests / Actions / Tasks

When an NPC client arrives at the Craftery, they give the player a design 'quest' that needs to be completed in order to progress through the game. Only one quest can take place at any time. Quests require players to go through the design thinking process in order to deliver a final crafted solution. Each quest unlocks a new part of the backstory to THE CRAFTERY.

Behavioural momentum

The structure of THE CRAFTERY is such that there is a constant iterative design cycle running alongside an engaging plot. Both aspects run asynchronously; key plot points don't necessarily come at the end of each design cycle. This engenders behavioural momentum by ensuring

players want to continue with THE CRAFTERY. Of course, the more they continue, the more they learn. That's a win-win situation!

Nested dialogue

Players interact with NPCs throughout THE CRAFTERY. Each interaction has a number of nested options that will lead the player down a different design path. For example, one option may land them with further resources, whilst others give them frames or further backstory to the world of THE CRAFTERY. This also allows for replayability as players wish to unlock all dialogue options.

Resource management/Inventories

As with any good "walk around a village and speak to NPCs"-style game, resource management is an important aspect of THE CRAFTERY. Resource blocks can be gained through interactions with NPCs as well as foraging in the village, and are used in crafting solutions to each design quest. Resources are in the shape of blocks, and make up a key part of the crafting puzzles. Some resources are limited, which means players will need to manage their inventory carefully when designing solutions to each question requirement.

Interacting with NPCs

As players walk around the village, they can interact with any NPC they meet. Not all NPCs will progress every quest, but they can give additional resources or storyline/plot points. Interactions happen through walking up to NPC sprites and pressing the space key.

Movement

Movement in THE CRAFTERY is simple. Players control their 2D sprite using the arrow or WASD keys, or can turn on accessibility features to control through the mouse or a touch screen.

Bonuses

Players can sometimes receive bonuses in the form of resources blocks, frames, or additional knowledge through speaking with certain NPCs at certain points in the game.

Cutscenes/story

Short cutscenes take place at the beginning and end of the main storyline of the game to introduce the wider world of THE CRAFTERY as well as to summarise the game and wrap up main story beats at the end.

Game hints

Players can access game hints by clicking on the ? symbol on the game HUD. These hints are simple reminders of game controls as well as a reminder of which stage of the design thinking process a player is at and what they should be working towards.

Game journal

A simple game journal is provided which shows players the quest they are on, which NPCs they have spoken to, and what they have yet to achieve.

Progress bars

As part of the above game journal, players can also turn on progress bars which show them how far through the quest they are. This can support younger players to remember where they are in the design thinking process.

Rewards

Rewards are given at the end of each quest as well as part of some interactions with NPCs. These are in the form of additional resources as well as some bonus plot information. Client NPCs also

give a score at the end of each quest which is tracked in the player's journal. Different scores can result in different rewards.

Coherence between the Learning Mechanics and the Game Mechanics

This section of the game design document considers the coherence between learning and game mechanics in two ways:

1. By directly connecting the learning objectives to Bloom's Taxonomy and then considering how learning and game mechanics in turn can support these.
2. Through the use of a table modeled on the work of [Arnab et. al](#) in which game and learning mechanics are considered alongside their implementation and usage.

Overall, both methods show a clear coherence between learning and game mechanics, in particular showing that game mechanics are considered first and foremost for how they can support the learning mechanics and overall learning objectives, with little to no extraneous mechanics other than those that may encourage ongoing play, and thus development of a player's skills.

Bloom's Taxonomy	Learning Objectives	Learning Mechanics	Game Mechanics
Creating	To be able to iterate and prototype creative solutions to a given problem, within specified constraints.	Planning Experimentation Incentive Action/task	Interacting with NPCs Bonuses Inventories Behavioural momentum Crafting Movement
Evaluating	To be able to evaluate the suitability of a design for a specific purpose and analyse how designs can be improved.	Reflection Discussion Planning	Progress bars Nested dialogue Quests/actions/tasks Behavioural momentum

Analysing	To be able to iterate and prototype creative solutions to a given problem, within specified constraints . To be able to evaluate the suitability of a design for a specific purpose and analyse how designs can be improved .	Planning Discovery Discussion Experimentation Reflection	Resource management Game journal Nested dialogue Interacting with NPCs Quests/actions/tasks Game hints Cut scenes/story
Applying	To know understand the steps of the design thinking process and how to apply this in a variety of situations	Simulation Planning Experimentation Reflection	Quests/actions/tasks Nested dialogue Interacting with NPCs Discovery
Understanding	To know and understand the steps of the design thinking process and how to apply this in a variety of situations	Tutorial Action/task Repetition	Quests/actions/tasks Nested dialogue Interacting with NPCs Progress tree / progress bar Behavioural momentum Movement Cut scenes/story Game hints / journal
Retention	To know and understand the steps of the design thinking process and how to apply this in a variety of situations	Modelling Repetition Incentive Action/task Tutorial	Quests/actions/tasks Behavioural momentum Game hints

Game mechanic	Learning mechanic	Implementation	Usage
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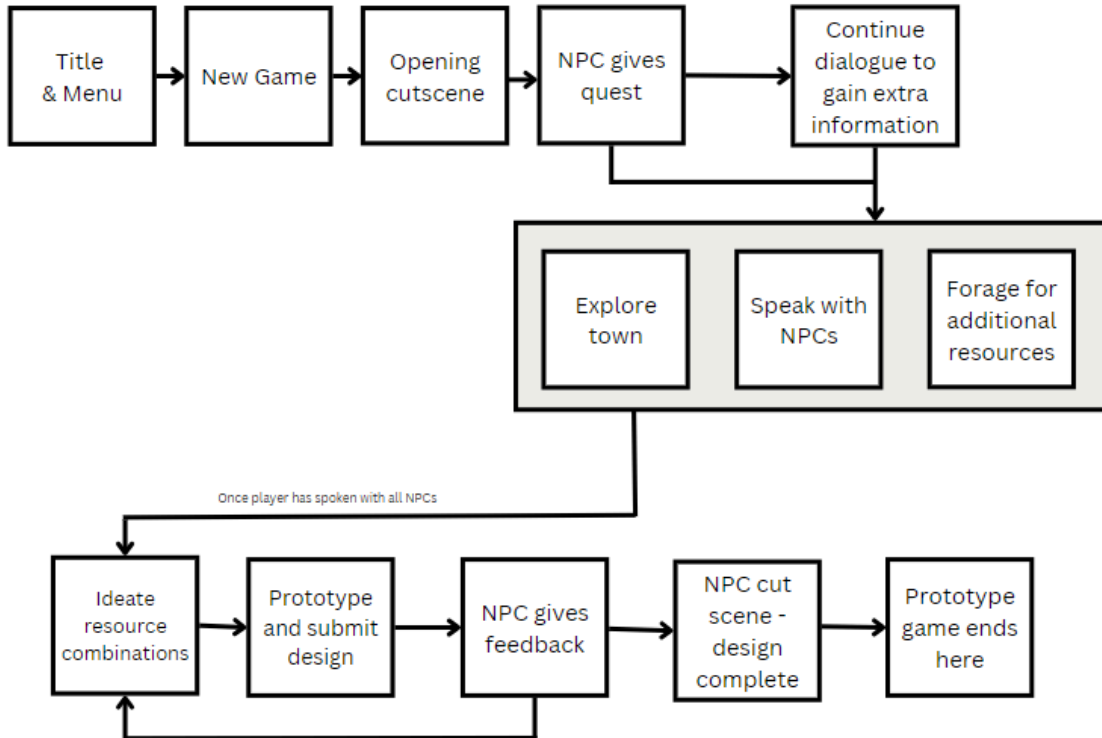
<p>Cut scenes / story</p>	<p>Tutorial Modeling Discovery Simulation</p>	<p>Cut scenes will take place at the beginning of each chapter/level.</p>	<p>To support players in understanding gameplay and to make the simulation clearer by giving a realistic story background.</p>
<p>Missions / quests</p>		<p>An NPC will enter the Craftery and give the player a quest that they need to complete.</p>	<p>To guide players through the design thinking process and challenge their creativity.</p>
<p>Nested dialogue</p>		<p>Nested dialogue will happen for the majority of interactions between the player and NPCs around the town.</p>	<p>To help players follow the main storyline in order to go through the design thinking process in order, and to give additional details, frames, and blocks to expand player creativity and ability in the game.</p>
<p>Crafting</p>	<p>Planning Experimentation</p>	<p>Players use resource blocks and frames to craft a solution to the NPC quest. They are given frames that are more specific to the quest as they speak with more NPCs.</p>	<p>Frames - show players that there can be multiple solutions to a design problem, though solutions become clearer when stakeholders are spoken with more. Blocks - players learn how different resources come from different places, and have to experiment with which ones fit which frame in order to create a design solution.</p>

<p>Resource management</p>		<p>Players will have a limited number of resource blocks from which they can build their design solutions. They can gain additional resources from NPCs or quest lines.</p>	<p>A limited number or variety of resources for each challenge will ensure players have to be creative and plan their designs, as well as experiment with design ideas. This will help players make clear links to the real world where resources are often limited.</p>
<p>Inventories</p>		<p>Inventories will show players which resource blocks they have available.</p>	<p>This will support planning and design as well as incentivise continued play (whereby players can gather further resource blocks).</p>
<p>Game hints</p>		<p>Hints will be available for quest lines, and hints can also be given by NPCs.</p>	<p>Supports players in how to improve, plus to give next steps to support ongoing momentum of the game.</p>
<p>Game journal</p>	<p>Tasks Reflection</p>	<p>A game journal will show which quests have been completed, which resources have been unlocked, and include the player skill chart.</p>	<p>tracks the knowledge you have in order to support you with completing tasks. The test isn't if you can remember the tasks, it's if you can remember the design thinking process, so this also reduces cognitive load.</p>

<p>Interacting with NPCs</p>	<p>Discovery Discussion Incentive</p>	<p>Players will be able to speak with each NPC. New dialogue will unlock with each quest.</p>	<p>Allows players to complete learning tasks and go through the steps of the design thinking process whilst maintaining behavioural momentum and interest.</p>
<p>Movement</p>		<p>Players will move around the village using a mouse or the arrow keys. This can be remapped to enable accessibility.</p>	<p>Moving around means players can access different parts of the map and therefore search for different resources and interact with a variety of NPCs - similar to the real world where resources and stakeholders might be in different places.</p>
<p>Progress bars</p>		<p>Progress bars show progress in completing quests as well as in the skill tree.</p>	<p>Helps players to keep track of progress through the design thinking process. The skill tree aspect means they can see their abilities in each phase of the design thinking process, linked to the feedback they get from clients.</p>
<p>Bonuses</p>		<p>Players get certain bonuses when they interact with certain NPCs. These bonuses could be additional resources, frames, or plot points.</p>	<p>Encourages further exploration of the map and game mechanics in order to develop more creative thinking and encourage ongoing</p>

			play in case a player can unlock bonuses.
Behavioural momentum		This will be developed and continued through ongoing developing plot points in the game as well as need to find additional resources and complete each skill progress bar.	Various mechanics will be employed in order to incentivise ongoing gameplay, in turn encouraging the repetition of key skills to further develop understanding of the design thinking process.

Screen Flow



Screen Descriptions

Screen	Purpose
Home	The title screen gives an introduction to the game, sets the scene, and places the player in the mindset to play. It is also a place to give credits for the game including the game engine and designer, as well as to adjust settings for the game.
Settings	In this game prototype, the example setting for adjusting is the ability for users to choose from a range of background music. In the full version of the game, other options will be available including text to speech and the ability to adjust the volume of SFX and BGM.
Credits	This screen, also available at the end of the game, shows where all visual and audio assets are from. All assets are used under CC3.0 or 00, and any assets not mentioned are made by Amelia King.
Intro Screen	This is where players set their username for the duration of the game before receiving a letter explaining that they are now the lead Crafter at the local Craftery.
Craftery Interior - Lounge	The interior of the Craftery is where conversations with the clients of the Craftery happen. In the prototype, this is where all interactions with the Witch take place. There is a dialogue bar at the bottom, and the top right of the screen eventually also includes the HUD to give access to the journal and inventory.
Craftery Interior - Design Bench	This is the location of both the IDEATE and PROTOTYPE screens. <ul style="list-style-type: none"> Ideate - where players click and drag different items onto each other to experiment with creating new items. Only once they have made all possible object combinations (i.e. filled their inventory) can they move onto the next stage of the design thinking process. This ensures ongoing thought and problem solving. Prototype - players now select three of the items (i.e. ideas) that they think would best suit their client, and place them on trays. The screen also includes instructions which give guidance on which three items might be best, and the HUD allows for players to check their journal for more information.
Willow Grove - Town	The town screen is where players can pick up basic items to add to their initial inventory, and also speak with townsfolk as a way to empathise and learn more about their client. As they speak with people, the EMPATHISE part of their journal fills with information. As they pick up or are given resources, their inventory also begins to fill.

In-game menu - Inventory	This gives the player an overview of which resources they have found or ideated and a brief description of each one.
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Look and Feel

The visual handbook of THE CRAFTERY takes its inspiration from a variety of sources, largely the more chilled-out side of the gaming world with titles such as Coffee Talk and Stardew Valley inspiring key elements of the game's UI. There is the option to toggle on/off a simple lo-fi soundtrack, similar to many games of this ilk, allowing for those who work better with background music to be inspired as they create.

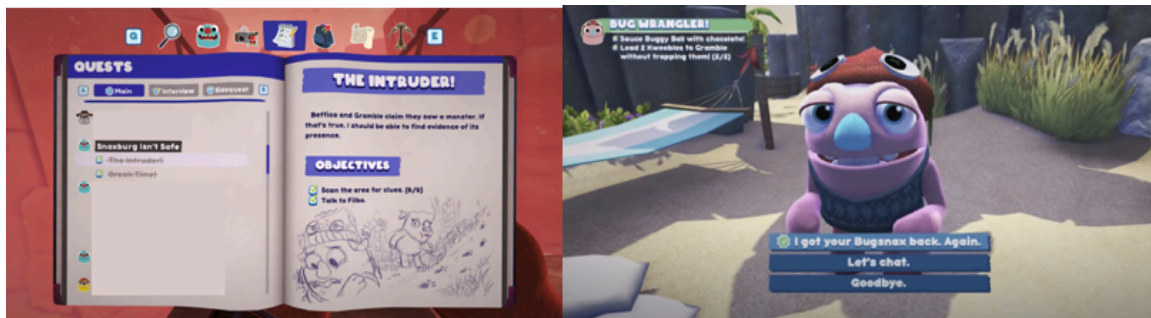
[Coffee Talk](#) is a key inspiration for THE CRAFTERY, with its pixel art and simple game mechanisms alongside a dialogue-heavy plot.



[Stardew Valley](#)'s gentle feeling and simple UI join with Coffee Talk in inspiring how the dialogue panels will look as well as the general art style of the game. The style of the village map as a whole is also a key inspiration, as is the ways in which skills are tracked.



The quirky humour and simple way of keeping track of branching dialogue in games such as [BugSnax](#) and the [Frog Detective](#) series have inspired me to keep a similar simplicity in THE CRAFTERY in order to prevent cognitive overload and support younger players to keep track of information.



Story, Setting and Character

Story and Narrative

Back story

You, the player character, have arrived in the village of Willow Grove after giving up your high-powered job in the nearby city. Growing up, you always enjoyed tinkering in your mum's old workshop, so when a job advert mysteriously dropped in your letterbox one day (surely it dropped in everyone else's, too... right?) you couldn't say no to the opportunity! You made your way to the Village and set up shop as the local crafter. Sure, the locals are a little odd, but at least there's never a dull moment.

Cut Scenes - brief overview of scenes that would appear in the final game (rather than the prototype)

1. Beginning of game: a letter drops through the player's letterbox and flutters to the ground like a letter from Hogwarts. The player picks it up and reads it. It invites them to apply for a job in the Village as the head of the Craftery. The scene jumps forward to the player opening the door to the Craftery. It looks dusty but workable.
2. After the Witch's mission: a brief scene of the Witch cuddling her pet dragon before putting it to bed in its new house. She leans back in her armchair and turns the TV on to a reality TV show. She sips from a steaming mug and smiles.
3. After the old man's mission: the old man is inside the shoe, pulling shoelaces out of a box that he has pulled from beneath his bed. He lovingly strokes each one before hanging them on the storage design the player made him. He hums happily.
4. After the mushroom mission: Mushroom Mushroom Man is in his new car wearing an old-fashioned hair wrap and sunglasses (think Thelma and Louise). He pulls up to another mushroom patch where an old, wrinkly mushroom gasps and waves at him excitedly.
5. After Paul & Paulette's mission: Paul and Paulette are at a dinner party. The other attendants can't be seen, but there are jovial voices and jazzy background music. They are wearing the clothing the player designed for them. They grin and raise the same glass in a toast to the camera.
6. At the end of the game: the player enters the Craftery. It is quiet and dark, similar to the first cut scene. After a moment's pause, the residents of the village jump out with confetti and a 'Thank you!' banner drops from the ceiling. The credits roll directly after this cut scene.

Game World


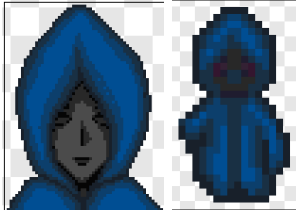
General look and feel of world




The game world in this initial version of THE CRAFTERY will be a single location pixel town. Similar to other slice-of-life pixel games, there will be paths and roads, bushes and forests, various buildings with both the exterior and interior accessible. As a simple top-down game, there's no need for complicated graphics as players will not zoom in to different locations. There's a vaguely mystical vibe to the village - sometimes a small creature might dart across the screen, or a bird that you definitely don't recognise might roost in a tree. Or, you know, a witch might make an appearance on her broomstick. All entirely normal things to see in the village. Overall, however, the village feels... gentle. Homely. A cross between something you might find in the English countryside, along with a little bit of fantasy and a weird sort of magic you can't quite put your finger on.

Additional detail can be found in the official Game Design Document.

Characters

Each character in the table below lives in the village. They come to the Craftery with a mission that the player must complete in order to progress in the game. Some additional information about them/their situation can be gathered through dialogue with other NPCs. Future iterations of the game may have additional NPCs scattered through the village, however in this beta offering the key characters are as follows:

	Name	Initial dialogue	Mission success requires	Extra information
	Player			
	The Witch	<i>I have a new pet and nowhere to store it.</i>	Flame-proof Sturdy Comfortable base	She is very kind and takes care of animals. The pet is a dragon.

	<p>The Old Man Who Lives In Your Shoe</p>	<p><i>I love to collect colourful shoelaces.</i></p>	<p>Hooks or other hanger Tall shelf Prevents tangling</p>	<p>Needs a lot of storage as the shoelaces are pouring out of the windows Has very high walls in the house Enjoys climbing up high</p>
	<p>Mushroom Mushroom Man</p>	<p><i>I want a new sports car.</i></p>	<p>Seat Room for luggage Weather-proof</p>	<p>Has no hands or feet Loves to visit his grandmother Can't get wet</p>
	<p>Paul & Paulette</p>	<p><i>We love wearing the same clothes!</i></p>	<p>Large Comfortable</p>	<p>Always do everything together Walk in sync - it's very weird Very fashionable They mean they literally want their feet in the same</p>

				pair of shoes at the same time
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Level design and Interface – Prototype Level 1

1. The Witch arrives at the Craftery. She greets the player. "I need a house for my new pet." Thus begins the **empathise** phase. A popup alerts the player to each new phase of the design thinking process, along with a brief instruction of what needs to be done in each phase.
2. The player can work through nested dialogue to get the following key pieces of information as part of the **define** phase:
 1. "It's a baby dragon. My sister gave it to me last week!"
 1. "I didn't know the egg was going to hatch. I thought it was just for decoration!"
3. The player begins to explore the village. They learn the following information from NPCs that can be used to develop their understanding of the Witch and her dragon's needs:
 1. The old man: ""I met a dragon, once. It loved a comfortable bed... almost as much as it loved sleeping on a pile of gold!"
 2. Paulette: "Have you ever slept on a bundle of feathers? The comfiest bed you ever felt... and fireproof, too, if rumours are to be believed!"
 3. Paul: "I saw the witch's dragon breathes fire. Living in a wooden house wouldn't be very good for it, I'm sure! Anyway, here's something that might help you..."
 4. Mushroom: "I hear that dragons are very self-obsessed. I wonder what kind of treasure it would like the most? Perhaps this gift will help you..."
4. Player **ideates** in their notebook by clicking and dragging basic objects (wood, stone, gold, magic, rope, feather) to see what combining them might do. There is a ? hint button to support if players are unsure of which combinations they haven't yet tried.
5. Player selects three objects that would best fit the needs of the Witch They confirm their **prototype** return to the Craftery.
6. They show the Witch what they have built. The Witch gives simple feedback such as "It should be bigger." This is the **test** phase.
7. The player can return to the **prototype** screen to improve their design.
8. Once the player is happy with their prototype, they conclude the level by handing the design over to the Witch. They are asked if they are sure this is the final design.
9. On clicking *yes*, time skips forward to another day in the Craftery. They receive a letter from the Witch saying how pleased she is with their work.

	<p>Home</p> <p>The home page of the game, the first page a player sees.</p>
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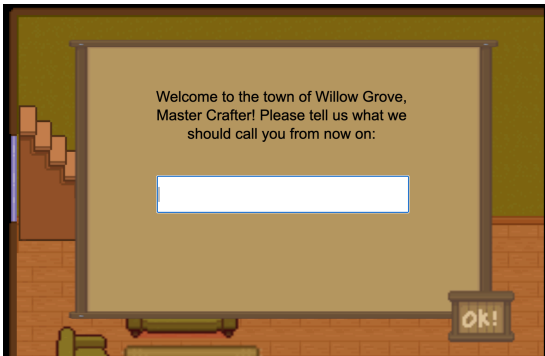
Credits

A list of assets used under CC3.0 and 0.0. Full details available on request.



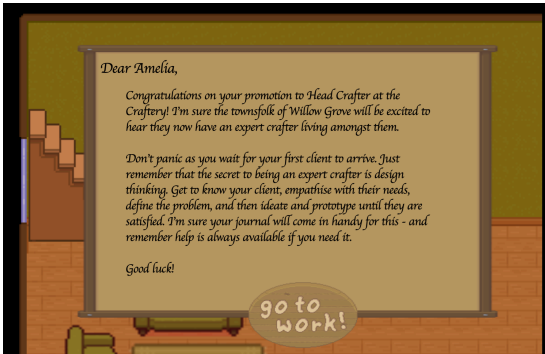
Settings - Music

A simple screen to select the background music for the game. More complex settings with a focus on accessibility for students will be available in final versions of the game.



Introduction

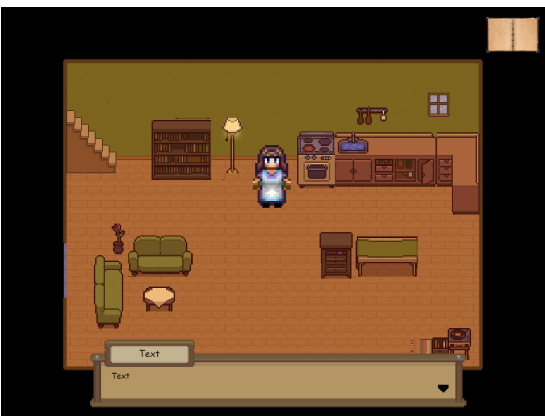
In this introductory screen, the player sets their username before reading a letter explaining what the game is about.





Opening Cut Scene

In the prototype game, this is simply to set the scene for the player who wakes up in the Craftery to the arrival of their first client, the Witch.



The Craftery – base visual with dialogue box

This is the Craftery, a base location and the 'home' for the character. Whilst in the full version of the game various aspects might be interactable, in the prototype they are simple sprites. In this screen, the player meets and converses with their clients as they arrive, one for each level of challenge. The journal on the top right of the screen opens the journal (see below for explanation). The dialogue box at the bottom appears when there is a dialogue scene with the name of the character speaking in the top box and the dialogue in the bottom box.



Willow Creek (Expanded View) and Willow Creek (Dialogue Prompt)

Willow Creek is the town setting for THE CRAFTERY. The full screen is shown on the first image, however it is not all seen on screen at once (as shown in the second image).

Sprites including plants and buildings are all decorative in this prototype of the game, however in the full version, each would have interiors for the player to interact with and learn more about their design client.

NPCs are scattered around the screen with a 'press X to speak' pop up when the player overlaps the NPC sprites. This will open dialogue that is then added to the player journal.

Glowing icons represent where players can find items that they can collect to build their final product (e.g. wood under trees).



Journal: Main Screen

The player journal is how they can track their journey through the design thinking process. The main screen gives them a brief overview of how the journal can be used.



Journal: Empathise (before speaking to characters and after speaking to characters)

The first stage of design thinking is **empathise**. In order to empathise with the client, players need to find out as much about them as they can. They do this by interviewing the client and the NPCs. As they interview everyone, the empathise page becomes more detailed so that they can start to understand the problems and potential solutions for their user.



Journal: Define (before and after speaking with characters)

This puts the information the user learns into a design problem statement. After speaking with the client initially, they will get a simple problem statement. After speaking with all of the NPCs, this is expanded with more detail so that the player knows exactly what their user needs.





Journal: Ideate

Clicking 'go to work!' takes user to the ideation screen.

Design thinking prompt reads “



Ideation Screen

Players take items from their collection. They drag and drop items on top of each other to form new combinations, such as 'feathers' and 'rock' creating 'uncomfortable bed.' Each combination is tracked for future reference.



Diary: Prototype

Clicking 'go to work!' takes user to the prototyping screen.

Design thinking prompt reads “



Prototype Screen

After ideation, where players come up with ideas, users can put together their ideas into a final product again through a drag and drop mechanism. Once they are satisfied with their creation, they can test it by returning to the Craftery.



Journal: Test

Clicking 'go to work' takes user to the Craftery where they can get feedback on their product from the client.



Test Cutscene

A short cutscene where the player delivers their invention to the client. There is a dialogue pop-up that either gives feedback on how to improve the invention or shows the client being happy with the final invention.



Final Letter

A letter from the client explaining how happy they are with the final product, leading the player to the final credits scene.

Appendix 1 - Crafting Recipes

	plank	stone	gold	magic	rope	feather
plank	box	hammer	trophy	invisible wood	rope ladder	bed
stone	hammer	fireproof boulder	dragon statue	floating stone	slingshot	bad bed
gold	trophy	dragon statue	golden armour	enchanted crown	necklace	feathery money (why did you do this?)
magic	invisible wood	floating stone	enchanted crown	explosion	snake	wings
rope	rope ladder	slingshot	necklace	snake	more rope	wall decoration
feather	bed	bad bed	feathery money (why did you do this?)	wings	wall decoration	cushion

Appendix 2 - Inventory Overview

id: 0,
description: "Empty Slot"
id: 1,
dispName: "Plank",
animName: "plank",
animFrame: 0,
description: "A plank of wood, conveniently cut to the right size."
id: 2,
dispName: "Stone",
animName: "stone",
animFrame: 0,
description: "Very hard, very fireproof. Not very comfortable."

id: 3,
dispName: "Gold",
animName: "gold",
animFrame: 0,
description: "Ooooh, shiny!"
id: 4,
dispName: "Magic",
animName: "magic",
animFrame: 0,
description: "A magic wand. Who knows what it might do?"
id: 5,
dispName: "Rope",
animName: "rope",
animFrame: 0,
description: "A versatile tool used for everything except your dinner."
id: 6,
dispName: "Feather",
animName: "feather",
animFrame: 0,
description: "Borrowed from one very grumpy chicken. Watch out!"
id: 7,
dispName: "Box",
animName: "box",

animFrame: 0,

description: "A perfectly formed wooden box. No glue or nails required!"

id: 8,

dispName: "Hammer",

animName: "hammer",

animFrame: 0,

description: "Good for hammering things."

id: 9,

dispName: "Trophy",

animName: "trophy",

animFrame: 0,

description: "Well done, you did it!"

id: 10,

dispName: "Invisible plank",

animName: "invisible plank",

animFrame: 0,

description: "A plank of wood, probably cut to the right size, but it's difficult to tell..."

id: 11,

dispName: "Rope ladder",

animName: "rope ladder",

animFrame: 0,

description: "Useful for accessing those hard-to-reach areas."

id: 12,

dispName: "Bed",
animName: "bed",
animFrame: 0,
description: "Lovely and comfy!"
id: 13,
dispName: "Fireproof boulder",
animName: "fireproof boulder",
animFrame: 0,
description: "If you thought boulders were fireproof before, wait until you see this one!"
id: 14,
dispName: "Dragon statue",
animName: "dragon statue",
animFrame: 0,
description: "Oh look, isn't it cute!"
id: 15,
dispName: "Floating stone",
animName: "floating stone",
animFrame: 0,
description: "This magical item doesn't just float on water!"
id: 16,
dispName: "Slingshot",
animName: "slingshot",
animFrame: 0,
description: "Great for knocking things down from a distance."

id: 17,

dispName: "Golden armour",

animName: "golden armour",

animFrame: 0,

description: "You'll be the envy of everyone out there!"

id: 18,

dispName: "Enchanted crown",

animName: "enchanted crown",

animFrame: 0,

description: "What will happen if you put this on? Maybe you should give it a go..."

id: 19,

dispName: "Feathery money",

animName: "feathery money",

animFrame: 0,

description: "Why would you even make this?"

id: 20,

dispName: "Explosion",

animName: "explosion",

animFrame: 0,

description: "Oops."

id: 21,

dispName: "Snake",

animName: "snake",

animFrame: 0,

description: "Hey look, a new friend!"

id: 22,

dispName: "Wing",

animName: "wing",

animFrame: 0,

description: "Be careful not to show Icarus this one..."

id: 23,

dispName: "Uncomfortable bed",

animName: "uncomfortable bed",

animFrame: 0,

description: "What did you think would happen if you tried to sleep on a rock?"

id: 24,

dispName: "More rope",

animName: "more rope",

animFrame: 0,

description: "Rope plus rope equals more rope. That's maths for you."

id: 25,

dispName: "Wall decoration",

animName: "wall decoration",

animFrame: 0,

description: "A lovely piece of art to hang on your wall."

id: 26,

dispName: "Cushion",

animName: "cushion",
animFrame: 0,
description: "Makes anything comfy!"

Appendix 3 - Witch Level Success Criteria

five stars	four stars	three stars	two stars	one star
fireproof boulder	fireproof boulder	boulder OR fireproof boulder	boulder	none of the above
dragon statue	dragon statue OR necklace OR trophy	necklace OR trophy OR crown	any decorative object	
cushion	cushion OR bed	cushion OR bed		

Appendix 4 - Asset List

All music and sound effects from Pixabay used under CC3.0

Creditable image assets as follows:

Svetlana Kushnariova

ana-chan@yandex.ru

<https://opengameart.org/content/24x32-characters-with-faces-big-pack>

Melissa Krautheim

<https://opengameart.org/content/epic-collection-book>

Janna/Lilius/Jannax CC0

<https://opengameart.org/content/home-objects>

<https://admurin.itch.io/> - Admurin

<https://opengameart.org/content/admurins-fishing-items>

Twiswis

<https://opengameart.org/content/white-wing-32x32>

Animated Snake by Calciumtrice, usable under Creative Commons Attribution 3.0 license.

<https://opengameart.org/content/animated-snake>

Den_yes

<https://opengameart.org/content/explosion-animation-1>

Bonsaiheldin

<https://opengameart.org/content/gold-treasure-icons-16x16>

"Dragon Icon Pack" by Molly "Cougarmint" Willits

<https://opengameart.org/content/dragon-icon-pack>

Created by Jordan Irwin (AntumDeluge)

<https://opengameart.org/content/rope-ladder>

Kuranyem

<https://opengameart.org/content/oga-world-unfinished-ogajam-assets>

@JoeCreates

<https://opengameart.org/content/roguelikerpg-items>

Bizmaster studios

<https://opengameart.org/content/rpg-crafting-material-icons>

Penzilla

<https://penzilla.itch.io/top-down-retro-interior>