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Complexity and Depth in Solitaire Card Games

Designing the Card Game Sinking

Bachelor's thesis
Bachelor of Culture and Arts: Game Design

2019

South-Eastern Finland
University of Applied Sciences

South-Eastern Finland University of Applied Sciences

Author (authors)	Degree	Time
Nicholas Leppanen	Bachelor of Culture and Arts	April 2019

Thesis title

Complexity and Depth in Solitaire Card Games
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53 pages
30 pages of appendices

Commissioned by

South Eastern Finland University of Applied Sciences

Supervisor

Marko Siitonen

Abstract

This thesis covers the development of the table-top card game Sinking and uses the information gathered from the development to research depth and complexity in the subgenre of solitaire card games. The peripheral objectives were to create both an engaging and non-repetitive gameplay experience by taking advantage of the game's complexity.

The primary method used to research and develop the product was different types of playtesting. This covered black box playtesting, self-testing, blind playtesting, and Kleenex testing. Most methods were used in partnership with outside playtesters to reduce bias in the gathered information. Other research methods were also used to ensure that the final product took advantage of developments in game design theory. These methods covered research into similar game systems and research gathered from theoretical game design sources.

This game project did end up demonstrating different aspects of game design related to solitaire card games and how complexity can be used to create engaging user experiences. While the final product was not developed to the full potential of the medium, as the game required another 4 to 6 months additional development time, the overall thesis can be considered a success as the project answered the research questions satisfactorily. In summary, that complexity can both add and enhance gameplay when used carefully so as to not overwhelm the player.

Keywords

game design, board game, game mechanics, design, playtesting

CONTENTS

LIST OF TERMS

Replayability	The potential for the game to be played again after its first completion.
Accessible	The quality of being easy to learn, teach, understand
Table-top games	Games played through physical media for example, card games, board games, role playing games, etc.
Mechanics	The individual rules by which a game is played.
Playtesting	The process used to test a game by playing it.
Playtester	Someone who takes part in playtesting.
Gameplay Loop	A set of repetitive actions done by the player
Tableau	In the context of games, the Tableau is an area that cards or tiles are played into to create the play area.
Hand of cards	The cards held by the player.
Player’s hand	The cards held by the player
Action economy	The amount of actions a player has within a certain period of time.

1 INTRODUCTION

When people think of a board game they picture a group of people sitting around a table with the game in between them. The game in this context is a system of rules and mechanics designed to facilitate social interaction between the players. While this image is accurate in most cases, this does not cover nearly the entire table-top spectrum of games. There are other ways and reasons that players use table-top games that are not connected to the social parts that most people identify them with. For example, the game Set is a game that provides very little social interaction but instead trains the player's mind using high-speed and complex set collection. (Cannei 1998.) The subgenre of single-player table-top games takes this mindset to its logical conclusion of removing the social aspect by removing the other players completely and instead focusing on player interaction with the game itself.

Oftentimes the topic of single-player table-top games is ignored completely in favour of multiplayer experiences. This leaves the entire subgenre unexplored, or at least to the same extant of other genres of table-top gaming. A truly unusual circumstance as the growth of video games has shown that single player experiences are wanted and enjoyed by many people.

This thesis covers the creation of the single-player table-top game Sinking and using it to research complexity and depth in relation to table-top gaming. The main research problem that this thesis will try to resolve is how much complexity is needed to create a feasible single-player experience without going overboard and creating a game that is too complex. Peripheral research problems include how to deal with repetitiveness in the game experiences and how best to engage a player without using any of the social mechanics that are typically employed in table-top games.

The first part of the thesis covers the creation process of the game itself and how the game evolved from its original concept into the final product. The focus for this part of the text is how the playtesting was accomplished and the rules changes that resulted from these tests. This part also covers the rules writing

process and how both the simplification of complexity and the way that rules are presented can change how accessible the final product eventually is. Connected to that is the presentation of the actual game elements and how that affects the way that players can navigate a complex game intuitively.

The thesis will then discuss the theory and research in further depth; specifically, the relationship between depth and complexity and how it can affect gameplay in general and it how affects single-player games. Other aspects related to game mechanics and dynamics will also be examined to see how they are affected by changes in the levels of complexity. These include the prevalence of repetition in single-player games and how to counteract that through the addition of variable complexity by adding expansions and rules variants to the game.

There is inherent risk in any creative project and this one is not exempt from this rule. The initial game concept can have some fatal flaw buried in it that will only be revealed after repeated playtests. There is also the risk that the final game will not function like intended once it reaches the blind playtesting stage in which the rules are finalized, and it will need to go back into development. In this case, there will likely not be enough time before the thesis finishes to rework the entire project.

2 INITIAL GAME CONCEPT

Sinking is a single-player card game based on the sinking of Atlantis and the rescue efforts used to save both its people and its culture. The game's theme and overall feel is inspired by the beginning scenes of Walt Disney Picture's movie, Atlantis: The Lost Empire. (2001.) Figure 1 shows the wave striking Atlantis and the overall feel that the game attempts to recreate. The game revolves around the player using their wits and puzzle-solving skills to place the people of the city into the correct places, so they can be eventually rescued and scored, while also requiring the player to rescue cultural portions of the city to ensure that the city of Atlantis continues at the bottom of the sea.

Figure 1. Screenshot of the wave hitting Atlantis (Walt Disney Pictures 2001)

The goal of the game has been to create both a deep and complex experience, while not overloading the player in minutiae and needless actions. To facilitate this, the initial game concept focused on the core systems to ensure that the core gameplay loop was simple and easy to understand, while also leaving it open enough that it allowed for more expansion onto it later to add the needed complexity.

The core system of the game revolves around the player drawing a limited number of cards from the deck and then choosing one or more of those cards to be played into the card tableau in front of them. The first visualization process for the game can be seen in Figure 2. This tableau represents the portions of the city that the player has managed to calm down and organize. This tableau is organized into several stacks of cards. These stacks are referred to as districts. Once enough cards are played the player then has the choice to rescue the district and sink it to the bottom of the sea to safety. This action, however, takes the entire player turn and forces the player to choose on a safety or pushing their luck further. Once the cards are rescued, they can no longer be used and are considered out of the game.

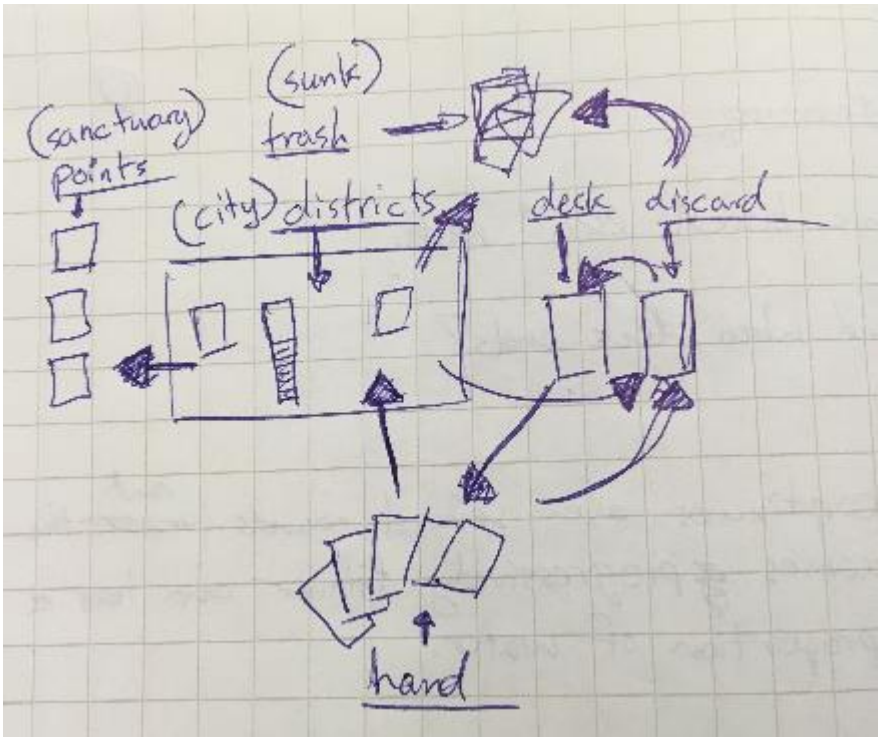


Figure 2. First visualization of Sinking

This core loop is given tension by the addition of wave cards into the main deck. When one of these cards are drawn the player is faced with a difficult choice of different negative consequences. The actual consequences have varied wildly through the different iterations of the game, but the most common have had the player discarding a certain amount of already played cards from the city back into the discard pile of the deck. The discard pile is then reshuffled into a new deck when the deck runs out of cards. The deck is only reshuffled twice before the game ends. This discard and reshuffle system has been important as it enables the game to have distinct phases built into the core system in such a way that players will not even notice.

Another key design choice has been to create a system that has ramping difficulty and tension throughout the game by implementing these different phases of gameplay through the reshuffling. In some iterations it has been more spelled out to the player that a new phase of difficulty has been entered with each reshuffle and in others it has been subtler. However, the common thread is that this system is used to make the wave cards a more present threat to the player.

This in turn creates the system of ramping difficulty that allows for the tension to be added that is necessary to create the proper narrative for a game about ever increasing destruction.

2.1 Advantages and disadvantages of single-player games

Single-player games have been around for a long time and have gone through many iterations. The most common and well known is the game Klondike, otherwise known as: American Patience, Klondike Solitaire, or simply as Solitaire which has been relatively recently popularized due to its digitalization during the 1980s and onwards (Hughes 2015). Figure 3 shows a popular version run by earlier Microsoft systems. This, along with several other digitalized versions of the game, has allowed Solitaire to become a household name.

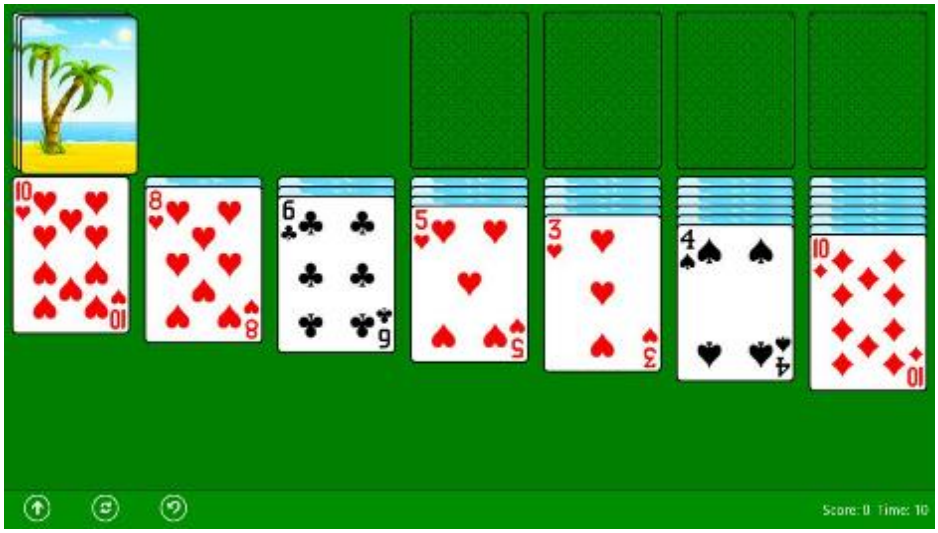


Figure 3. A digitalized version of Klondike Solitaire (Microsoft 1990)

However, both the terms solitaire games and patience games refer to a specific subgenre of table top games. So, while the term solitaire is used to reference the specific game, “Klondike”, it also refers to the entire subgenre of card games that are designed to be played by one player alone. For the remainder of this paper the term “solitaire game” specifically refers to the subgenre, while the term “Klondike Solitaire” refers to the classic game of Patience.

Single-player table-top games have many advantages and disadvantages to them. The first major point is both its main strength and weakness, the lack of other players. This can change the experience from the social environment that most players look for and expect in board games and turns it closer into something resembling a puzzle.

However, puzzles have the distinction that they always have one correct answer throughout their play and that they can be solved (Despain 2013, 44). Single-player games, and by extension, Sinking, avoid this by allowing multiple different ways to achieve their objectives. Games also have loss conditions, typically a way for the game to enter an unwinnable state, or a specific trigger that ends the game prematurely. This separates them from being considered a puzzle in that puzzles typically require a specific set of actions to be completed and have no end condition except for player patience or a specific number of attempts to complete it.

As has been established, the lack of other players does not make a table-top game into a puzzle. However, there are still other issues that a solitaire game can run into due to its single player nature. Most table-top games get their variety and replayability from the combination of the other players and the game's mechanics. Solitaire games though must be constructed to support that variety through simply its mechanics without any additional player input. In addition, it must provide a solid enough platform through the core of the game so that it can be easily built upon through expansions and rules variants to give those options that are required to give the game it the replayability it needs.

All of this is not to say that solitaire games do not work, simply that they must be built with slightly different goals in mind compared to other table-top games where the main goal is to provide a rules structure to a group of players. As it was stated before, the lack of players can also be used to one's advantage. If a player is in a situation where they need to wait for a period of time and do not have others around, for example while waiting in an airport, then having access to a game that both does not require electricity or other players can be a very helpful.

2.2 Research into other solitaire game systems

Nothing is created in isolation and Sinking is no exception to this rule. The game draws inspiration from both academic and practical sources. However, the largest contribution has come from established games that have mechanics or dynamics that Sinking wished to emulate. These can be not only games in the same subgenre of solitaire games that Sinking is in, but also from other games from other genres.

Onirim is the game with the biggest influence on Sinking as it most closely resembles the desired final game. (Torbey 2014.) It is one of the few complex solitaire games on the market that is relatively popular. The core of the game also revolves around drawing cards, playing them to the card tableau in front of the player, and discarding other cards. This gave a good base for Sinking to start out with as it allows a natural method for a game to progress without having to turn to wildly new mechanics that could potentially intimidate or confuse newer players. It also partially inspired the way that tension has been added to the game as it uses a similar mechanic for how nightmare cards are generated.

However, while many of the core systems of Onirim have heavily inspired the game, this is not to say that Sinking is a straight clone of it. Onirim's main mechanics make a game that is all about hand management and deck knowledge through the differences to how the player's hand is used. In Onirim the players only draw one card a turn, only rarely do they draw more than one. Then once a card has been played it essentially becomes inactive and does not provide any additional actions the player to use. This is essentially the opposite of how the hand is used in Sinking. In Sinking the hand is simply a decision space for the player as the cards do not provide many additional actions to the player while they are in hand and only really become active once they are played into the tableau. In addition, unlike in Onirim where the player can slowly build the hand of cards they want, the hand of cards that the player has in Sinking is always fluid and impermanent as at the end of every turn the player must discard all the cards that were not played that turn and then draw a new hand of cards.

2.3 Inspiration from other systems

This mechanic of the player discarding their entire hand once the turn is done and redrawing their hand comes from the popular game of Dominion. (Vaccarino 2008, 8.) Dominion is a deckbuilding game in that the player primarily is trying to manage what and how many cards are in their personal deck by removing cards and buying additional cards every turn. Now this could create situations where players can create the ultimate winning strategy simply and easily every turn. However, Dominion forces player choice by not allowing players to hoard their cards in their hand and thus building game ending combinations. Thus, every turn must be strategized and planned as every hand of cards is new. Sinking uses this same mechanic for both creating that feeling of new choices every turn and to force the game to move forward at a relatively fast pace. In addition, this forces the player into situations where, even though they have multiple different goals that they must plan around, they must choose what to prioritize that turn and risk that they will be able to achieve the other objectives at a later point.

The original concept took tension building mechanics not only from Onirim but also it adapted some of the mechanics from the games Pandemic (Leacock 2015) and Forbidden Island (Leacock 2010). Specifically, the mechanics of ramping tension and difficulty that made the game more difficult as the game went by. Both games have a deck of cards that represent locations on the board. These locations are drawn at the end of player turns to show some challenge that continues to ramp up throughout the game. In the case of Pandemic, the cards show the places that new diseases spring up or grow stronger. In Forbidden Island the deck shows which portions of the titular island are sinking each turn. In both cases the drawn locations are then discarded. There is then another event spread throughout the game where all previously discarded locations are shuffled and then placed on top of the location deck again. Notice that the cards are placed back on top of the deck so that the players then know which locations are most likely to show up next. Additionally, this created a potentially cascading catastrophe as locations could be hit multiple times and trigger worse things.

The mechanic of placing cards back on top of the deck to create additional tension was imported into the original game concept and then immediately adapted to a different form of having the entire deck reshuffled whenever it ran out. This, partnered with the fact that not all cards get shuffled back into the deck due to scoring or continuing to be out on the tableau, meant that the tsunami cards happened more frequently as the deck began to run out of cards. This creates the necessary tension with this one core mechanic.

A key aspect that has been considered is how using mechanics from other games can make the rules more accessible. This generally means that the more unusual a mechanic is the more difficult it is to teach to the average player. Thus, having mechanics adapted from other systems can allow a complex game to still be learned quickly and easily.

3 PLAYTESTING

Before playtesting begins the first goal is to ensure the designer knows what is going to be the core part of the game and that they remember it throughout playtesting. This is because, as said by Jeff Ernest, a good game is not about the rules. A good game is compelling, and rules are not compelling. (2011b.) Connected to this is another point that must be kept in mind during testing. Games should tell a story. The best games tell the story through the mechanics of the game, not just the background that is told through the writing around the game. (Tidball 2011.)

One way the core of the game can be analyzed and how it can be applied to the development process, is to figure out what the pillars of the game are. Game pillars can be thought of as distinct parts of the game that are attractive or interesting to people. Pillars can then provide a needed direction for the playtesting and overall development process. As stated before, game pillars should consider user actions and the dynamics of the game over art or thematic elements to ensure that these core tenets of the game do not overlap or directly copy existing games. While thematic and artistic elements should definitely be

considered at an early stage already, they should support and inspire the game, not dictate every portion of development. (Despain 2013, 86.)

Once the core of the game has been figured out and planned, the playtesting has another goal, playtesting to ensure that gameplay makes sense. Because no matter how much sense a game can make on paper, it very likely does not translate into a proper game. Thus, playtesting needs to start as early as possible and as often as possible to ensure that problems with the core game get found and solved. Table-top games have an advantage over their digital counterparts for the very simple reason that playtesting can often begin as soon as the first idea is thought of and can take place over the entire development process with little cost in either money or time.

Another important aspect of playtesting is to witness how the system works as a whole. As Tracy Fullerton states in her book Game Design Workshop (2018, 115), system elements do not work in isolation. This can be taken to mean that the best way to test out the elements in a system is to test them within the working system itself and not just as individual tests of each mechanic. During earlier periods of testing this often means designing the core gameplay loops (Despain 2013, 70) and testing for larger issues in game balance to make sure that the game does not feel repetitive or unfair (Rouse III 2005, 14).

Once the core game systems and gameplay loops have been fixed into a rough shape, the development period goes into its tuning and balancing stage. This is the time that extra features and complexity are added to the game. Often the longest period of development as every new feature or mechanic needs to be tested and tried with all the previous things that have been added. Feature creep, otherwise known as filling the game with too many features, is a surprising problem during this stage of development. It can become much too easy to simply try out one more feature or rule until the game becomes bogged down to the point that no one can play it. At this point it helps to keep in mind the pillars that were decided upon earlier and cut things that do not fit the design.

Related to this is the difference between creating a complex game and complex rules (Daviau 2011, 45). An overly complex rule asks the player to do many sub-actions for the sake of one mechanic in the game, oftentimes slowing down the game without adding anything. For example, if a game asks 4 cards to be drawn, roll a die, use the number rolled to move a pawn on a board, roll another die to find out its effects, and then that die roll x the previous die roll determine where the piece moves again, and the final place the piece lands determines how many cards to keep. In this example it can take a long time to find out what can even be done on a turn. In contrast, a simple rule would work better in most cases, even it ultimately is not exactly perfect for what the game needs. A complex game has many simple rules interacting with each other. To contrast with the example above, what if the player drew 4 cards, then simply moved the pawn a set amount of spaces on the board, and then the space gives an effect for their entire turn and tells how many cards they can keep. This is both faster and ultimately gives nearly the same end state to the player with much less headache.

During playtesting, each individual playtest was designed to test one or two specific functions of the game. This was to ensure that each playtest had a specific problem or goal in mind and did not overload each playtest with so many different testing parameters that the data would be ultimately useless. (Despain 2013, 72.)

3.1 Playtesting Techniques

Playtesting comes in many forms and each one serves a particular purpose or is designed to be used during a specific phase of a table-top game’s development. While sharing many similarities with video game playtesting, table-top games typically playtest for different issues and through slightly different processes. A large part of video game playtesting focuses on the software and ensuring that the game does not encounter glitches or other major software problems. Table-top games do not need to test for these sorts of problems for obvious reasons. During the development process of Sinking, the game went through several different variations of playtesting to ensure the quality of the final product.

There are many methods used to playtest games, however, not all are suitable for every situation. Generally, a game goes through a phase where the developers conduct self-tests (Fullerton 2008, 249) among themselves, before moving to playtesting on the public. While necessary, this is a relatively limited in scope and usefulness as it limits the developers to simply using group testing and open discussion (Fullerton 2008, 257). Once testing moves past this phase, proper playtesting can begin, and a more diverse set of tools can be used.

The main method that was used throughout the relatively short development period was individual playtests with either the designer them self or individuals drawn from a relatively small pool of available playtesters. Both the short development period and this small pool of playtesters affected the available playtesting methods as some require either a much larger group of people to draw from, or significantly more time to gather the data. However, that is not to say that the available methods were not enough to test Sinking. Self-testing, when the developer tests the game themselves as if they are player, was the method most used due to the necessity of the developer needing to see how the game functioned whenever a mechanic was changed. Typically, the playtesting, when not conducting self-tests, fell into one of two main methods; Black Box testing or a variant called the Kleenex test. (Despain 2013, 108.)

Black box testing was the most common method of playtesting done on this game. This is when the developer is observing the playtester but does not lead them nor disturb them while they play. They only explain the rules and answer rules-based questions if they are asked. This method is typically used to test player interaction with the game system and gather the most information about system problems. (Fullerton 2008, 264.) Kleenex testing is a variant on this. While the basic method is the same, the goals and usability are different. During a Kleenex test the developer is testing a player’s first impression of the game and how fast they can pick up the game. However, as the first impression can only be observed once per playtest, this means each playtester can only be used once for this test, hence the name Kleenex test.

There are three other types of playtesting described by Despain: White Box testing, Regression testing, and Load testing. However, these techniques were not used to the same extent as the Black Box method for various reasons. Load testing is specifically for testing how software works with changes to the system and thus not applicable to table-top games. White box testing is when a player is given a list of how things are supposed to run in the game and testing those things. This is generally used to test whether a specific piece of software runs without bugs when used as it is supposed to. Regression testing is then trying to see if fixes have broken the system in other ways. White box testing and Regression testing do not have as significant a role in table-top games as the fact that they lack software means that their main purpose is unused. (Despain 2013, 108.) However, they are used in some form during self-testing as the developer generally has an idea of how the game is supposed to run and can run through the game multiple times to test different iterations of game rules and see which ones work the best.

Throughout the testing process surveys were often used to gather the playtester's thoughts about the current iteration of the game and what they would change. These surveys were typically given in person so that a full discussion could be had with the playtester. These questions were compiled through both research (Fullerton 2008, 263; Patton 2017) and experience gathered from playtesting. Not all questions were used for every playtest as only the most useful information towards the current prototype and research question were necessary.

Once the game had entered a more concrete state, the playtesting methods expanded out further to include blind playtesting. Blind playtesting is different from earlier modes of playtesting and can only begin once the rules of the game are in a semi-complete state, as the main goal is to test how well a playtester can read and understand the rules of the game in its most autonomous state. In these playtests the developer can only hand off the game and observe without giving any input. This includes answering any questions the players have about the rules of the game. (Hicks 2017.)

As stated by Rouse III (2005, 493) “the only time you can properly balance a game is when a game is nearly done”. Thus, it is also during this phase of development that the game can begin to be properly tuned and balanced to ensure that the difficulty curve is correct for the target audience. (Despain 2013, 134.) Balancing is done to ensure that the game is felt to be fair by the players and can be described as how the complete game system functions to ensure that no portions of the game feel particularly overpowering or unbalanced. Tuning is one method of creating a balance within the game by changing or removing one variable within the whole to see how it impacts the entire system. Both tuning and balancing are then used in conjunction with the other methods mentioned above.

3.2 First playtests and results

Gameplay mechanics are difficult to demonstrate using traditional charts or sheets due to interconnectedness which is inherent to a system. During testing and throughout this paper a simplified version of the Machinations framework designed by Dormans is used to demonstrate the core mechanics of the game. (2012.) The key idea the system is organized around is the movement of resources and the interactions and communication of mechanics through the internal economy of a game (Adams & Dormans 2012, 82). A key is provided with each of the charts.

From the beginning the goal was to discover what the fun core of the game was and how to create a simple and easy to expand on gameplay loop. From there the gameplay loop would be tweaked and tested to create the ideal game balance between difficulty and easiness. In other words, to discover where the game’s “flow” would come from and how to balance for it. (Despain 2013, 80.) Flow could best be described as the state in between boredom and anxiety that provides the perfect level of challenge compared to a player’s skill level. This state allows a user to become completely focused on the task at hand and disconnect from the usual passage of time.

One of the key indicators used to analyse the gameplay was the amount of needless or dominant actions (Despain 2013, 176) that the player had to take.

This was to ensure that the game did not create a situation in that the player could only realistically take one action as that creates boredom and counteracts any attempts to create a strategic game. The first step used to analyse the action economy of the game was to create a chart of every possible simple action that the player could do inside the game. A simple action is used here in contrast to a complex action, in that a simple action is typically something that does not take a lot of effort on the player's part to understand or do, like drawing a card or discarding a card, while a complex action is an amalgam of 2 or more simple actions, for example, drawing 5 cards and discarding one.

The first phase of playtesting had multiple goals based around the core of the game. The first goal was balancing the number of cards in the deck between the citizen cards, city cards, and wave cards. Citizen cards in these first versions represented the victory condition. City cards were at this point simply filler cards and had no function. Waves are the antagonistic cards that create the penalties suffered by the player when they are drawn. The starting ratio of cards was 15 citizens, 20 city cards, and 7 wave cards. As even a slight change to the ratio of the cards creates a different game experience it is imperative to get the balance right. Connected to this was the rate that cards are drawn from the deck into the player's hand and then cycled back into the deck. At this beginning stage, the card drawing limit was set at 3. This limit on the amount of cards in hand was also based on Hicks Law (Nikolov 2017; Despain 2013, 146), which states that the more decisions a player has, the longer it takes for them to decide by a significant degree. This is important to ensure that the gameplay time does not become over 25-35 minutes which is the target gameplay time.

The next goal was to balance how the wave cards interact with the rest of the game. As this is the primary way that the game creates a reaction from the player in the core system, it was necessary to ensure that the penalty was severe enough to prompt planning for the player, while also not being so severe that the player cannot do anything about it. The initial plan was to use a system based on the board game Pandemic's (2015) system that has the player drawing cards from one deck to trigger penalties from another deck. This system quickly proved

to be ineffective due to mechanical differences between the systems. Namely, the fact that Pandemic uses a board of fixed locations that do not translate well into a game that primarily is focused on building and ultimately losing portions of a city throughout the game.

After the first playtests revealed that the Pandemic system did not work as intended, the system was modified to have wave cards slowly removed from the deck while also getting stronger to represent an ever growing threat. This was closer to the intended dynamics. The next goal with the wave cards, once a system was in place that ensured they were cycled correctly, was to design what exactly the wave cards did once they were drawn. At first the cards removed from the deck one district from the table. However, this system ended up being unbalanced as it created situations where the optimal strategy was to always remove only one card as removing more than that caused the deck to run out of cards too quickly in the rounds to follow. In addition, with the ratio of waves in the deck vs the other cards, players would draw wave card every second turn on average. With every further round compounding this problem until the player was left with very few options.

During the first few playtests different scoring methods were tested to see how they worked. Mainly to test how often a player would need to score cards and how many cards needed to be played to win on average. The main idea was based on a player using up his turn to score cards, thus forcing a constant decision at the beginning of every turn whether to activate actions on their turn or score points.

This first rules attempt highlighted some key areas that needed to be balanced. Namely, the card ratios needed to be higher, waves were often too severe or not severe enough, and two easily achieved dominant strategies had emerged which made strategizing oftentimes fruitless. These three main problems lead to multiple rounds of playtesting and prototyping different rules systems to examine which systems worked the most effectively.

The first attempt at scoring involved attempting to save a certain amount of the citizen cards. At first, the deck had 15 citizens compared to the 10 needed to be scored. This was to allow the player some flexibility and not create situations that losing just one citizen ends the game. In addition, the scoring method involved the player simply being able to score a stack of cards on their turn.

This scoring method did not work in the intended way. As the game had a built-in timer, the game ended when the deck ran out the third time, the game must have some cost from that in-game timer to ensure that gameplay continues at the correct pace and does not allow the player to simply score points every turn. Overall the different mechanics did not create enough tension or player choice.

Two changes were made to the scoring system to create more tension. The scoring action was changed into an action that required the whole turn, thus keeping the game moving forward and an additional player choice. In addition, the total amount of citizens was changed to 10, thus making every citizen have increased value to the player and more tension when it seemed possible that they could possibly lose a citizen to a wave.

Waves turned out to be the most difficult part to balance during these early playtests. As they were the main method of building tension and the main force that opposed the player’s efforts the balance was key to ensure that the experience was correct. The first time through the deck of cards the player would lose one card, then two cards on the second round, and finally 3 cards in the third round. Then each round the player would set one of the wave cards to the side to show the current strength of the wave, the current round, and to balance out the growing strength of the waves. However, when this system was tested it turned out to be too weak in the first rounds and then excessively strong in the last round. In addition, setting aside the cards oftentimes felt like an unwanted chore.

This then lead to a dedicated testing period for finding a smoother and more intuitive system for the wave mechanic. One question that needed to be answered was whether or not to have the cards affected by the wave discarded

or trashed. (Figure 4.) Trashing is a term used in the game Dominion (Vaccarino 2008, 7) that means to remove a card from the deck of cards completely, thus removing it from the core gameplay loop and from active play. Trashing is thus the more serious action as any cards that are trashed cannot be used during scoring. Discarding is almost always the less penalizing action as it not only allows a potential second chance to retrieve the lost card, but also provides a useful buffer of cards in the deck so that ultimately less wave cards are drawn.

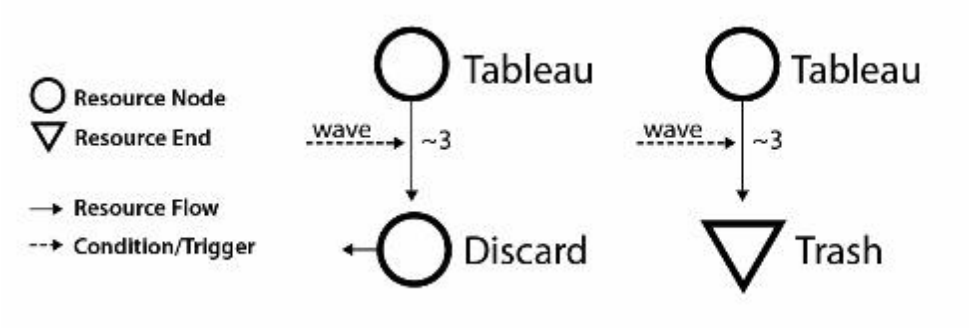


Figure 4. Different wave mechanics

After some playtesting, it was determined that with the current ratio of wave cards to other cards and the fact that trashing cards is too severe of a punishment during earlier rounds and was essentially the same as discarding the cards in the last round. Thus the decision was made to have the player discarding any lost cards as the standard.

Once that was decided that wave cards discard the affected cards, the next choice was to decide how the waves would designate which cards to discard. At first it was completely up to the player which cards where to be discarded. However, this did not create enough tension and there was a strange dynamic in how many cards would be necessary to discard to create a proper curve to the wave effects. For example, if a player had only three cards on the table due to scoring recently, losing even 1-2 cards can be painful, while on the other hand, if a player had to lose 3-4 cards then the oftentimes the waves would be clearing the cards faster than the player could play them. Another unfortunate dynamic occurred when a player would first score a district, leaving the city empty, then a wave would hit but had no effect as there was nothing to discard.

The solution was to have the waves affect the districts and not the individual cards themselves. Thus, when a player had only a few cards in the city they could simply lose a small stack of cards or even an individual card. However, when the player had multiple large districts and must lose one of those instead of simply a couple cards, the wave penalty was of similar severity. This meant that the penalty scaled with how well the player was doing in the game naturally without any additional rules. This also meant that the game avoided creating too many positive feedback loops. A positive feedback loop defined as positive outcomes feed back into more positive outcomes in an ever-increasing loop (Ernest, A 2002).

Once these core mechanics had been changed into a somewhat playable form, the gameplay mechanics and interactions began to resemble what can be seen in Figure 5. The game started with the *wave* cards and *other* cards being shuffled together to form the *deck*. This formed the starting point of the *core loop* of the game. The core loop is shown on the chart in blue. Continuing along the loop, the player then drew three cards into their *hand* to start their turn. At this time is the first decision point for the player, represented by a gate symbol. One of the three cards must be played to the *tableau.* In addition, if a wave card was drawn, the player must discard a district from the tableau, on average three cards, into the *discard* pile.

Once the card had been played to the tableau and all waves had been resolved, the player's turn ends and the remaining cards in *hand* go into the *discard* pile. The player then continued drawing and playing cards in this loop until the number of cards in the *deck* was 0. Once that happens, all cards in the discard pile were shuffled together and then made into a new deck. This action also added one to the current number of *rounds.* If the current number of rounds was equal to 3 then the player lost.

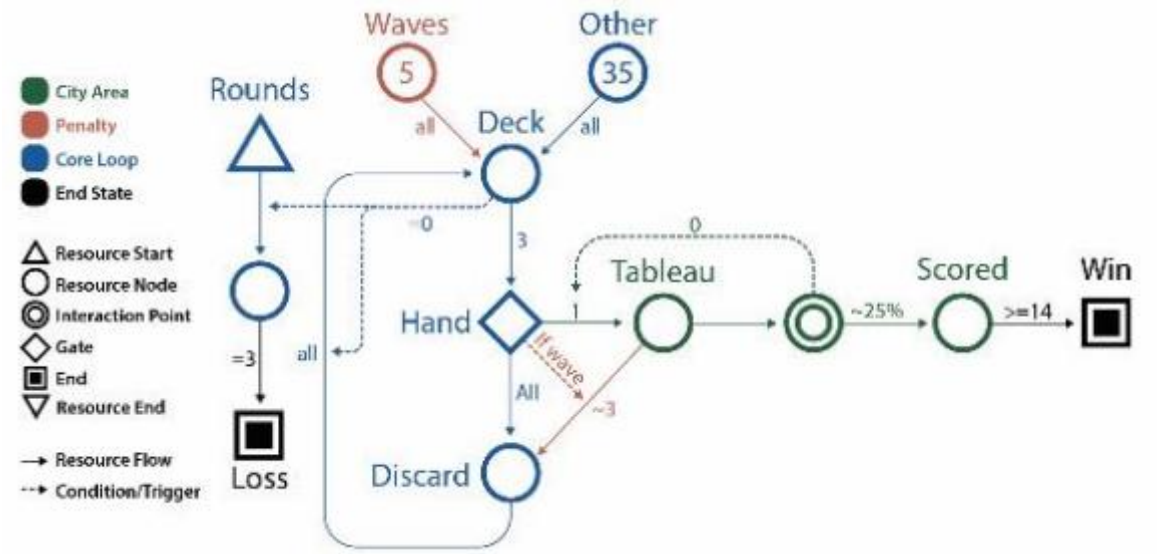


Figure 5. Core loop after first playtests.

While this core loop is moving the game forward, the player also had the scoring action available to them. This *interaction point* can be triggered by the player after they had drawn cards but before any cards had been played and allowed the player to move cards from the *tableau* into the *scored* area. However, this action sets the number of cards that can be played to zero that turn and meant that no new cards could be added to the *tableau* and all cards in hand would end up discarded. When a player used the scoring action, they chose one district in the tableau, which on average was about a quarter of the cards there as players generally made a large stack for scoring, and moved those cards to the scoring area. These cards were essentially out of the game for the rest of the game as they could no longer cycle through the core loop. Once the player had achieved the game's objectives, which generally meant about 14 cards or more were in the scoring area, the had player won, and the game ended.

As well as this system worked, there was one last prominent problem with the core game. The player had only essentially one or two dominant strategies that easily allowed the player to win the game, thus making the game repetitive and quickly uninteresting. The strategy generally employed when the waves discarded a single district was to create multiple small districts, sometimes of a single card, and simply discard those smaller districts when a wave arrived. This

strategy was designated as *spreading* (Figure 6) as the tableau was spread over a large area.

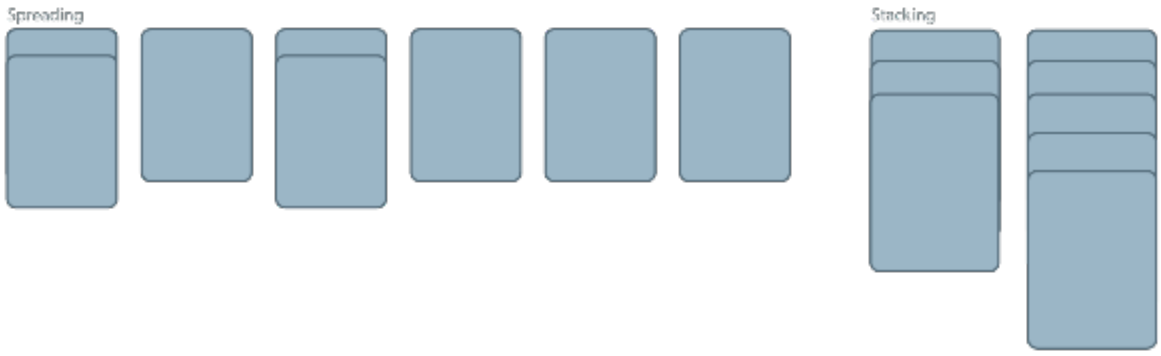


Figure 6. Spreading and Stacking

To counteract this the waves were changed to take one card from every district, thus making single card districts unattractive. However, this led to the opposite strategy of only having one, or perhaps two, large districts as very few cards would be lost. This strategy was designated as *stacking* (Figure 6), as the cards would be stacked into one district. After several tests back and forth it was determined that these problems would need to be solved in the next phase of playtesting.

3.3 Second Phase Playtesting

The next phase of playtesting began when the first actions were added to the game. These changed a select amount of the cards into action cards. The first 2 kinds of simple action cards were 5 *draw one more card from the deck* cards and 4 *play one more card from your hand* cards. These were used to test the strength of these particular basic action types. The first iteration of the action economy gave the player 1 action per turn and 8 cards that, when used, gave the player two more actions that turn. Theoretically that would have created dynamic of slowly growing the amount of actions that could be done during the game turn. However, what happened was that the actions cascaded and it became difficult to follow what exactly had been done on the turn already. This was then changed to using only the actions in 1 district. This allowed the player to create combos while

not overloading them with too many options when there were a lot of actions on the table.

Several of these early action card tests can be seen in Figure 7. The actions that modify the number of cards that go into the player's *Hand* from the *Deck*; and the actions that modify the number of cards that modify the number of cards that move from the player's *Hand* into the *Tableau* were considered the basic actions of the game that were first tested. Of these 2 action types there was a definite disparity in value. Drawing an extra card was always seen as a potentially risky action as it increased the chance that a wave card would be drawn while only moderately increasing the amount of player choice. This was nearly the opposite situation with the actions that gave the player an option to play an additional card into the *Tableau,* as that allowed the player to increase scoring options, defences, and potentially set up other actions.

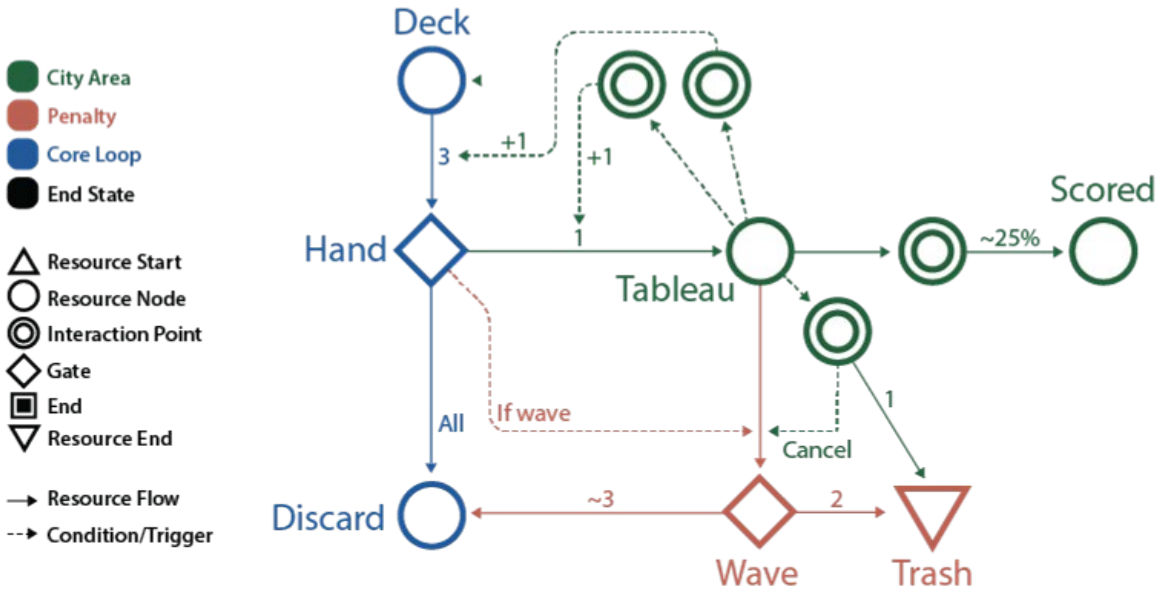


Figure 7. Early action card tests

To test this disparity in value, the number of each action card type in the deck was modified throughout several different playtesting iterations to increase and decrease the amount of card drawing actions and the amount of card playing actions (Despain 2013, 138). The reduction in the amount of play additional card actions slightly counteracted the ease in which the dominant strategy of "playing

your entire hand each turn” could be constructed. However, these changes did not significantly change the perceived value of each of these card types.

A new action type was then added. A reactive card that was designed to give the player options to fight against the wave. This can be seen in Figure 7 at the lower interaction point. This allowed one card to take the place of multiple others and then *cancel* the wave card’s effect. This new card began to counteract the value held by both the play additional card actions and the inherent value of the citizens. The first playtests had these defensive cards go back into the *discard* pile when used. However, this allowed the cards to be cycled too easily and no tension or decision was needed to discard the card as would always come back at some point. Thus, the decision was made to have these stronger defensive cards placed into the *trash* after use. This meant that the cards would not be cycled back through the deck and it meant that using one of those cards early on became a meaningful decision point.

However, with this new defensive option, the wave cards no longer felt as strong. As only around a third of wave cards now triggered their penalty, only losing one or two cards on average meant that the player would only lose maybe 5 cards throughout the entire game. This was when the player could choose whichever district they wanted to lose or if every district lost only lost 1 card each. The decision was to the then made to have the wave always target the largest district and to have those cards places into the trash pile. However, while this did make the waves significantly stronger, it was too much of an overreach and the waves became suppressive again. Finally, after some more tests, it was decided to have the waves only discard the cards, but still target the largest district. This allowed the player to lose progress, but not to potentially lose the game completely if a necessary victory card was trashed.

During this phase of playtesting it appeared that the most efficient strategy was to create one large district of citizens. This was because there was never any situation that you would want to have a citizen in the same district as an action and with the addition of the new defensive cards it had become easier to

construct these safe havens without fear of penalty. This was because the citizens were the sole victory condition and they were best scored in large groups at once. Connected to that, the citizen cards had no other function besides as a victory condition and did not affect the other actions in any significant way once they were on the table.
The problem was then recognized to be based on creating situations in which having a district with both actions and citizens in it was either the ideal situation or at least a viable option. The first idea was to create an additional victory condition that required that some combination of the citizens and other cards were needed to be scored to win. This did create situations in which the player deliberately scored different action cards with the citizens and created additional decision points as to which cards should be played where. However, in most cases the action cards were still played separately from the citizens.

This then led to another solution; the action cards could not be used unless they were paired with a citizen as well. This solution did work, as the player wanted to use their valuable play additional card actions and other actions while still wanting to score. It also solved an earlier problem that the citizens had had. The citizens had been essentially only useful for one part of the core loop and had felt very one dimensional. Allowing them to directly influence other cards allowed them to create situations in which the player needed to decide into which districts the citizen would be best played into.

3.4 Closed playtests

During this stage of the playtesting, the goal was to ensure that outside playtesters were able to test how accessible and fun the rules were. Additionally, test how long the game took to play, and how deep and complex the game was perceived to be. This was done with both the Black Box testing method and the Kleenex method, but the Kleenex method was not the focus of this phase as that mainly covers first impressions of the game and not the deeper experience.

The main impressions gathered after the first playtests were completed, was that the core of the game had potential, however, it often felt too random, simple, fast,

or difficult when played. This could be largely condensed to the fact that the players felt as if they had very little control over the game and that most of it came down to luck. Wave cards especially proved this point as players felt as if they could not predict when a wave was going to strike and that they struck too frequently, thus making long term planning difficult or nigh impossible. This was the perception of the game at least.

One aspect of the playtesters gameplay, independent of their perceptions of the game, was that there definitely was some skill involved in recognizing which cards should be played and when, and that players who played well often won the game while players who did not play well lost. This gave the interesting impression that while the players perceived the game as very luck driven with them having very little agency over the outcome of the game, the game itself had some hidden aspect to it that rewarded skilful play.

The wave cards were the main point of contention as when a wave hit the players felt least in control of their game. This was to be expected to some extant as this was designed to be the one negative portion of the game that was outside of a players direct control. Unlike say, playing a card into the wrong district or choosing the wrong card to play entirely. However, this was also felt to be not entirely fair by the players and, as stated by Rouse III, while players expect setbacks, they want fairness. In other words, they need to feel as if they have a chance at winning even if they are not quite skilled enough to actually do it yet. (2005, 14.)

To counteract this feeling of powerlessness that the players expressed, two changes were made to the core of the game. First, more cards were added to the deck so that the waves appeared less frequently, and players had more opportunity to play around them. The second change was to the wave cards and an overview can be seen in Figure 8. Drawing inspiration from how the nightmare cards work from the game Onirim (Torbey 2014), the waves were changed to provide the player with a choice. This choice was whether the player wanted the larger immediate penalty of removing 2 cards from the districts and placing them

into the *Trash*, or if the player wanted to remove their largest district and place those cards into the discard pile.

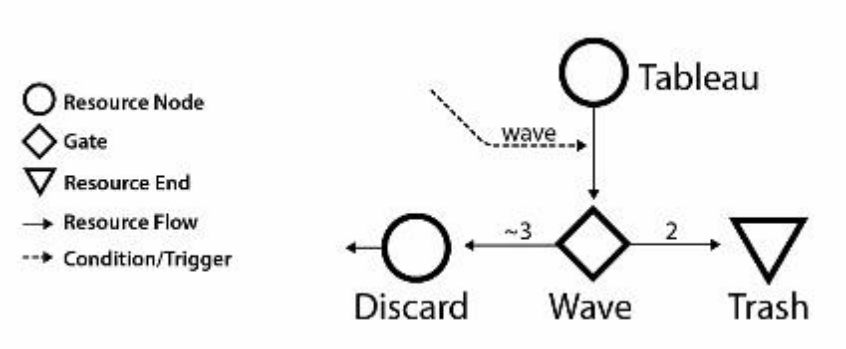


Figure 8. Changes to the wave cards

These changes gave the players options to both play around the waves by providing more time, and they provided more options when the wave hit. When these changes were tested the opinions of the playtesters ultimately showed that the changes did provide more feelings of control and fairness. This was especially true of the wave card changes because they gave the impression at least, that there was a correct choice to be made whenever a wave hit.

While the above changes were good, the game still had no way of providing players with additional information about the current state of the game if they wanted to find out the current state of the deck and interact with it more fluidly. To test how valuable looking into the deck of cards would be, a new rule was tested. The player could discard their hand of cards to view and rearrange the top 6 cards of the deck. This did not work. A new action card was designed that allowed the player to look at the top 6 cards of the deck.

This new action was ultimately more flexible and gave players the choice as to whether they wanted that information and how best to combine it with other action types. Figure 9 shows the state of the system of action cards at that time of development. As shown, the system had 5 primary interaction points that the player could use to influence different parts of the gameplay. This system worked to an extent, however, there vast differences in value for each of those actions meant that they were not taken advantage of in equal measure and often meant

that in almost all cases a player would realistically still only take advantage of a few of those actions during the game.

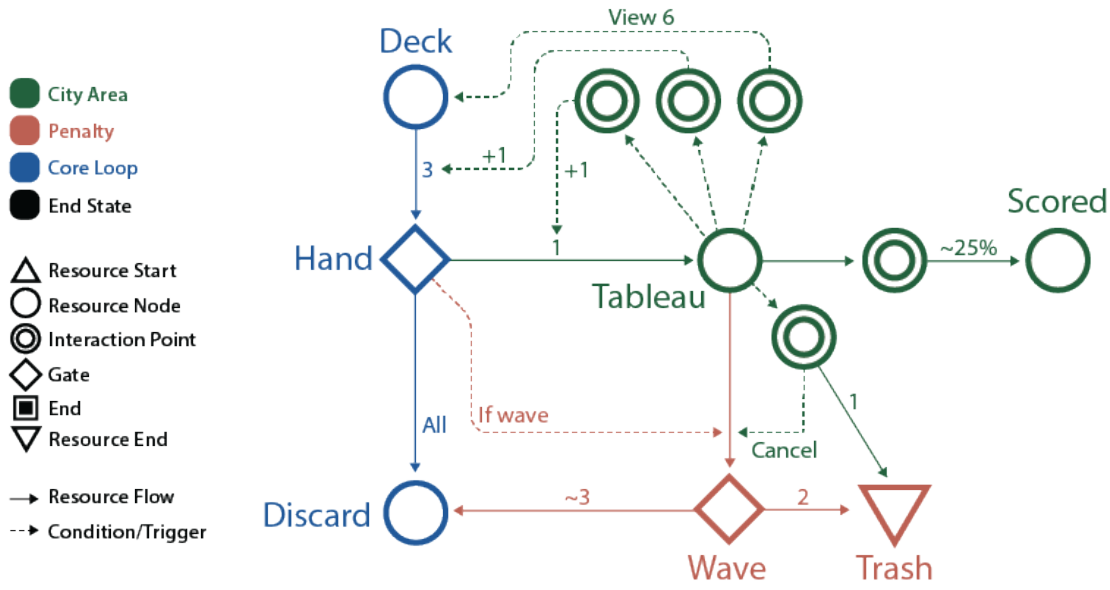


Figure 9. Later action tests

This was exacerbated by the fact that all these actions, besides the now modified defensive action, had the same cost to activate them. The next step was to change this cost to more closely follow these perceived values to the cards. Around half of the play additional card actions were changed to have a different activation cost. To use these new versions of the cards, the player would need to discard the activating action from the tableau. This ensured that players still had access to these powerful cards, but the value of the card was now closer to what the perceived cost was. This ended up changing player behaviour to expand into other action cards as well if they more suited the situation at hand.

With this change to the citizen and action card dynamics, several other smaller changes were then made while during this final phase of the closed playtesting period. Most of these changes had to do with balancing the different number of each action type in the deck before moving towards a more advanced prototype. However, as can be seen in Figure 10, there was one final change to the core system. This was to add both a starting set of districts for the player and an additional *loss* condition. In the beginning of the game 4 cards were placed from the *other* portion of the deck, this is marked to show that no wave cards are

placed there, and into the *tableau.* Additionally, if the player ever had 0 cards in the *tableau* the player immediately lost.

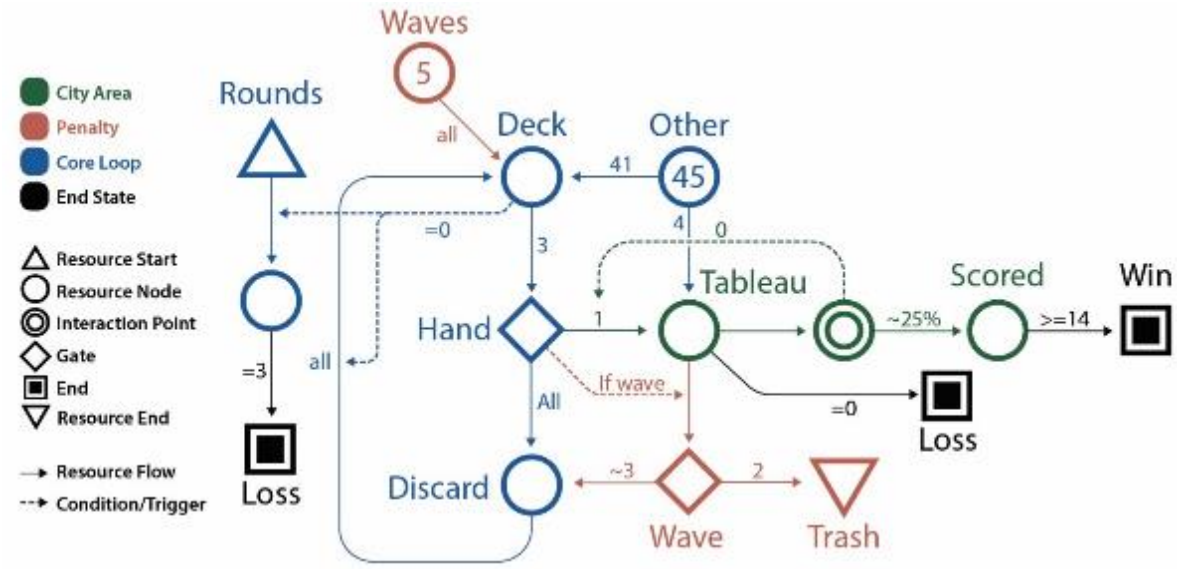


Figure 10. Core gameplay loops after balancing

These changes were to fix a problem that arose when players began to run low on cards in the tableau. Oftentimes, if the player had few cards in the tableau and was expecting a wave. Then they would simply score every card they could and leave the wave to hit an empty tableau. This strategy caused a lowering of tension and pacing that was undesirable.

A seemingly unconnected problem was the dynamics of the first few turns of the game. When the player started with an empty tableau, starting oftentimes felt both daunting and potentially nearly impossible if the waves were timed perfectly to destroy any progress the player had made thus far. Thus, having several starting districts solved that problem while also paired nicely with the new loss condition to ensure that the player did not lose on the first few turns through terrible luck.

3.5 Blind playtests and the beginnings of the beginner game

Blind playtesting, as stated earlier in this thesis, involves a complete version of the rules in their current state given to the playtesters to test autonomously. This phase was begun once the core rules of the game had been decided on and

enough extra actions had been added to test the gameplay experience. This was also the final state of playtesting that this thesis used as this was when complexity was added and tested the most thoroughly. This chapter mainly covers the gameplay that was changed during this phase of testing while the main bulk of the changes done to the rulebook and cards themselves are explained more thoroughly in chapter 4 of this thesis.

Throughout these playtests the playtesters often encountered difficulties in understanding the rules. This was expected and necessary to ensure that the final version of the rules was the clearest it could be. However, players occasionally demonstrated new strategies and tactics that gave new insight on card balance. One such instance was in the design of a newer card that allowed the player to both view 4 cards in the deck and discard one of those viewed cards. In and of itself not a game breaking action. However, when combined with the other strong actions, such as playing additional cards, it allowed the player to not only play whatever they wished on the current turn, to completely dictate what would happen in the next turn as well. To counteract this, the card was given the discard to play requirement, which still allowed the players to potentially outplay the wave cards when used but did not allow the card to completely overtake the game.

Another aspect of this blind playtesting period that was useful was to see what aspects of the game new players did not intuitively understand. These were then marked down to begin the construction of a beginner version of the game. The initial setup of the districts was identified as one way of making the early game easier. This could be accomplished by both giving the player an additional starting district and by providing a predesigned setup that was easier for a new player to understand. As can be seen in Figure 11, the easier setup gave the player guaranteed *citizens* and a *defensive card* to ensure a safe start.

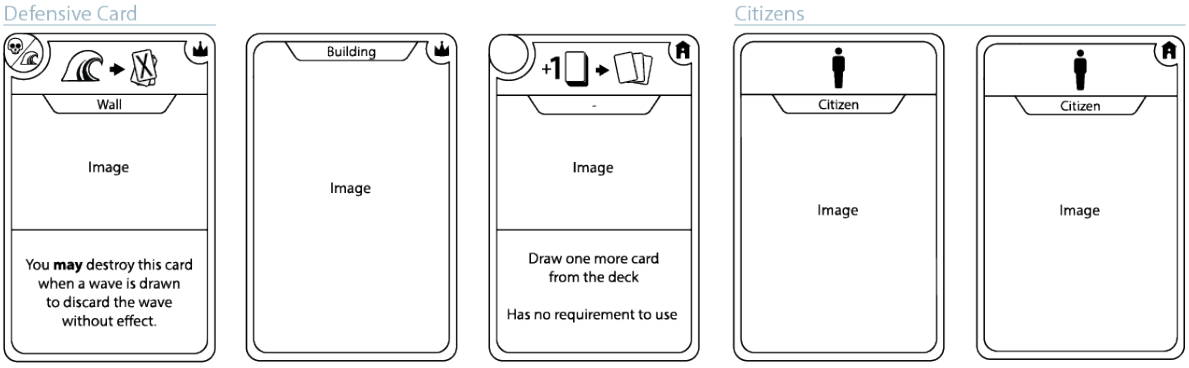


Figure 11. Example pre-setup districts for easy play

The new players would also find it difficult to grasp ways to combine the actions into combination pieces that would provide more value and what some of the more complicated actions even did. This led to the idea of either having the beginner game only allowing 1 action to be played per turn, or to not have the actions available at all and simply focus on saving the citizens and collecting sets. As can be seen in the completed product, the former idea was used to create the beginner game. However, to combat the amount of complexity that comes with so many action types, several of the more complex actions were simply removed from the deck at the start and one less wave was added to the deck to keep the balance in line with the reduced number of cards.

One thing that was observed was that players typically enjoyed making the sets of cards, even to their own detriment from a gameplay standpoint in some instances. However, as every citizen was already part of a set of cards, making most of the sets was much easier than the game was supposed to function. As a test, some of the sets had their citizens changed into blank citizens that did not belong to any particular set. This meant that each set had a different value to it as some were easy to match with the citizens already provided, while other were much more difficult and required the player to occasionally remove powerful cards from the tableau to complete the required set.

During the blind playtesting period multiple different variations of the action cards were added to the deck to test the player reactions and card balance. The typical player reaction towards the game was that it had potential, but it also lacked

enough variety in strategies to have them come back and try again. Oftentimes, players would give suggestions and ideas for how individual cards could be tweaked or how adding new types of cards could add variety into the game. This often led to new card actions being added or tested in the game.

4 WRITING THE RULES AND CARD DESIGNS

Before blind-playtesting could begin, the prototype needed to be refined to ensure that players could understand how the game worked without any input besides the rulebook and cards. As can be seen in Figure 12 and Figure 13, the earlier prototypes were relatively vague and did not provide enough information to the player to play the game without outside input.

Figure 12. The first prototype using playing cards and notes.

Both prototypes shown in Figures 12 and 13 were used during the early playtests and allowed for the developers and playtesters to rapidly change rules during and in between games without too much effort. Very little information was actually displayed on the cards, especially in the case shown by Figure 12 as they are just ordinary cards used to differentiate between different card types, and the rules were mostly explained verbally.

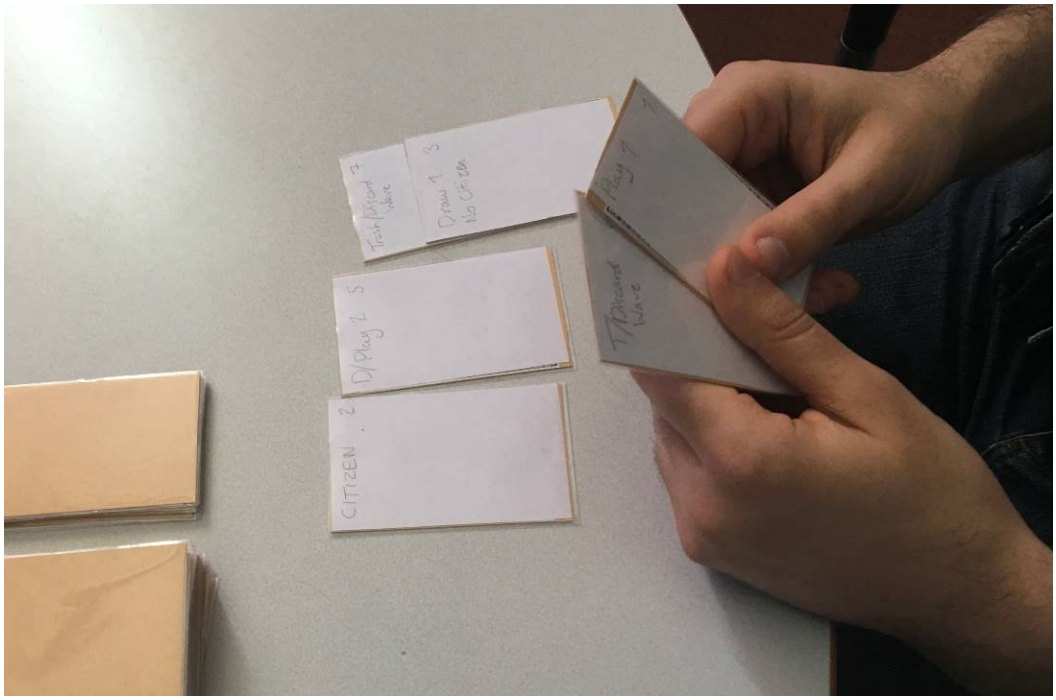


Figure 13. Prototype version 2 with paper in card sleeves.

The first card designs were developed to efficiently provide the information needed to play the game, without needing to add the additional assets that would need to be added to the finished card design. Some of the not designed assets included: flavor text at the bottom of the card, illustrations, names for the most generic cards, and color. An example of a finished card can be seen in Figure 14 with a breakdown of the different parts of the card.

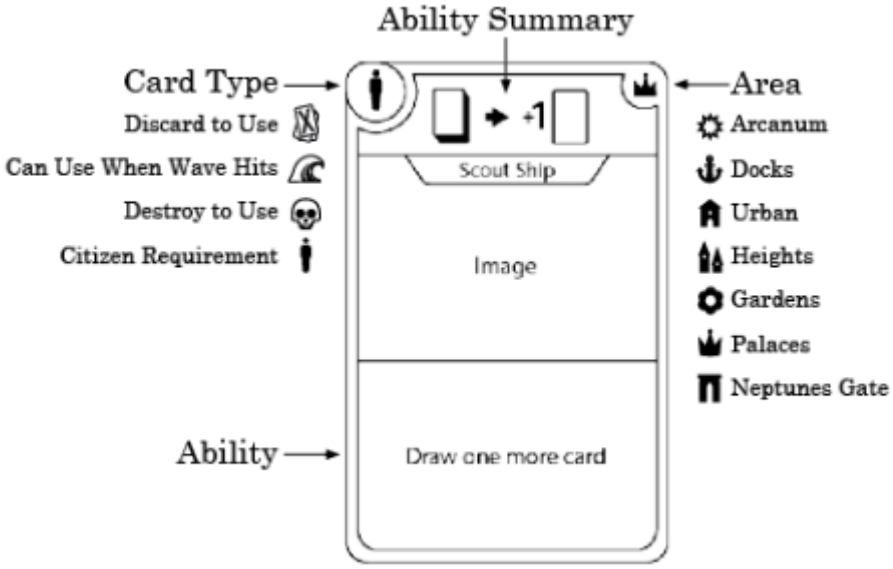


Figure 14. A diagram of a finished card.

The overall layout of the card was designed to have the necessary information summarized on the uppermost portion of the card so that players would be able to see what a card did even when another card as placed on top of it. This meant that either the card would need a summarized version of the text, or a combination of symbols to convey the needed mechanics. As most of the cards had different combinations of abilities, costs, and set type, it was simpler and clearer to design a system of icons and symbols to use for the different abilities while also providing an area that the card could have an expanded description.

4.1 Simplifying complexity and card layout breakdown

To ensure that new players could easily start playing the game, the game needed to have easily understood explanations to the card abilities in a location that was not difficult to find. However, the game also needed to make sure that once players had firmly grasped how the rules and cards worked that they did not need to read long lines of text every time they drew a new card to see how it worked. Thus, each card ability was split into two parts. The upper half that was composed of symbols for experienced players; and the lower half that gave a more thorough description of how the card functioned. While it was certainly possible to instead have a complete listing of each icon and their common combinations in the rulebook, it was more efficient to have that description on each card already.

In the upper portion of the card, there were 3 distinct areas that needed to convey different information. Figure 14, which can also be seen in the contents section of the rulebook in Appendix 2, explains each of those areas. In the top left-hand corner, the *Card Type* shows exactly what needed to be done to activate the action. For example, the *citizen requirement* symbol shows that this card needs to have at least one citizen in the same district to be activated. This corner in viewed first according to the visual rules of design in western media (Soegaard 2019) and is placed here to visually hint to the player that this part of the card needs to be done first before the next part can be done.

In the top center part of the card is shown both the *name* of the card, in this particular case a *Scout Ship*, and a summary of the action. This part is placed front and center to quickly show what this card can do when used. In the upper left corner of the card can be seen a symbol that show what other cards this card can be used with to complete a set. In Figure 14 and Appendix 2 this is stated to be the card's *Area*, however this was changed, as can be seen in Appendix 3, to be called a *Set Type* to reduce confusion. These symbols are both the smallest and generally the last placed looked at when scanning the card summary. This is because the card's set information, while important, is not necessary to understand how the card works in most circumstances. This layout was then used to design the complete list of all 51 one of the base game cards which can be found in Appendix 1.

As Sinking is an arguably complex game, the rulebook needed to be both easily understood by new players and helpful for when unusual interactions happened between card actions. To add this clarity, most rules either came with examples, diagrams, or images that emphasized how a rule worked. This can be seen in Figure 15, which shows an example of a card being destroyed and can also be found in Appendix 2 with its accompanying text "You must destroy this card to use it…".

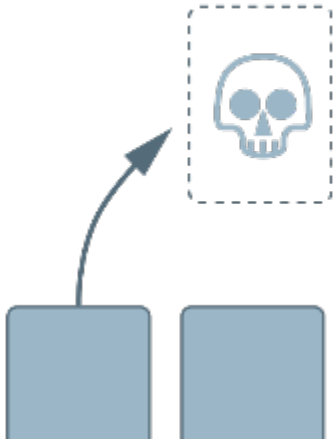


Figure 15. Example of rules clarification example.

This method of adding clarifying images was the most commonly used method of clarifying and simplifying the rules so that they could be more easily understood.

While the first draft of the rulebook did pair most rules explanations with these diagrams, it was not until the blind-playtesting began that it was observed how necessary it was to have these images with the rules. In addition, many of the diagrams in the first draft of the rules needed to be modified by various degrees to provide further clarification as it was determined that players first looked at the diagrams to see if they answered their questions before looking at the rules themselves.

4.2 First draft of the rulebook

The first draft of the rulebook, which can be found in Appendix 2, was designed with the cards in mind, and in retrospect, did not give as much explanation of exactly how the rules of the game worked. It began by establishing what the cards were and where they went into the gameplay space. This was done by first providing a list of the different major card types: Citizens, Waves, and City cards. An example City card, which was essentially an action card given a more flavorful name, was then broken down to show how the different portions fit together. Once the different card types were established the rulebook demonstrated how the game was set up to play.

Once the game start was established, the next section focused on how the game was played. The game's objectives were established first so that the player would have some context for how the rest of the rules worked. This order is the most common and reliable method to organize a board game rulebook. (Benoit 2016.) Afterwards, the gameplay was explained by breaking down the turn into 3 steps for the player to follow. First drawing cards, then actions that the player could do, then the turn ends with the player discarding their hand of cards.

The gameplay section also has a more thorough explanation of how the different card types work and when. This was placed so that when players had just finished reading the section on playing their cards, they would see an explanation of how those cards they just played work. This section also featured an example diagram for each different action card type, one of these can be seen in Figure 15 for how the destroyable cards functioned.

After the gameplay was explained the game states again how the game ends. This repetition is for two reasons. The main reason is so that the rulebook follows the logical order of how the game flows and players can easily find a more thorough explanation of the game end at the end of the book. The other reason was so that this important part of the game was refreshed in their minds after the long explanation of how the game worked.

4.3 How the rulebook was refined

Once the first playtesters used the rulebook the feedback was immediate. The rulebook required many more clarifications and reorganization as the game could not be understood from the rules alone. Every section of the rulebook was changed in some way and most were also reorganized to allow a smoother and more compact reading experience. As there were many smaller changes in wording as well between the multiple different editions, this chapter will only go the major changes to each section starting from the beginning of the rulebook. An updated version of the rules can be found in Appendix 3.

The first major change was adding an overview to the start of the book along with moving the objectives of the game to directly follow it. In addition, the objectives section was reworded to clarify how exactly players could lose the game. This change was done to ensure that players understood right from the beginning the main points of the game.

Directly after this introduction both the setup and contents sections were changed. Both were changed to be more condensed as neither section really needed its own page for a full explanation. In the case for the objectives section, the examples that had been earlier placed there to show what a set of cards meant were moved to the back of the book. This was because players frequently referenced those prominent diagrams when they wanted to see how districts would need to be built. This often led to players believing that they could only play cards into matching districts and unintentionally creating a much harder game. The setup diagram also had additional clarifications added to make it clear

to players what exactly each part of the setup was for and, most importantly, what exactly a district was. This last part was crucial as multiple players found it difficult to find out what a district referred to when mentioned in the rulebook.

The gameplay section of the rulebook received the most extensive overhaul as there were multiple places that players either got lost or misunderstood how the game turn was supposed to flow. One of the most impactful changes was adding a distinct list at the beginning of the section that summarized exactly how the turn order worked. This gave players a place to start from and a place to quickly see what happened in which order.

Throughout the rulebook the diagrams had been updated to both be clearer and to show more information. The simplest and most effective way this was done was by changing some of the abstract shapes that the original diagrams used and replaced them with examples using the actual card art. This can be clearly seen in the changes between Figure 16, which shows an example of scoring cards, and Figure 17, which shows the same example but also gives more context on where those cards are placed and shows the actual cards being saved.

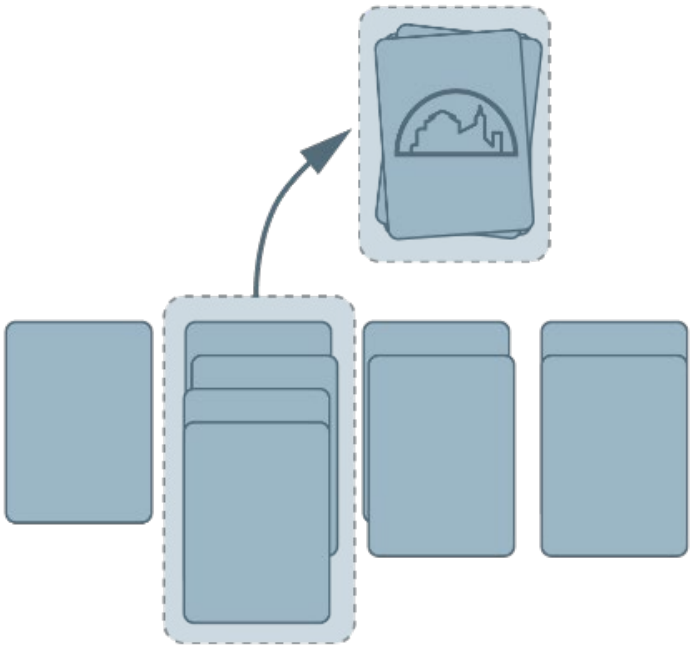


Figure 16. Early diagram demonstrating how to save a district.

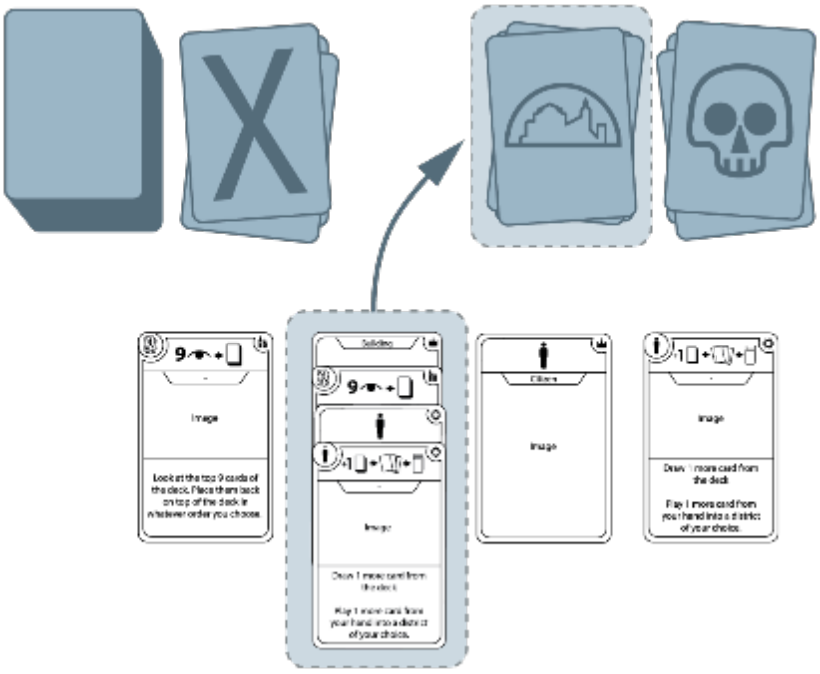
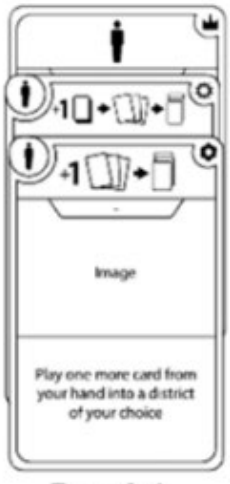


Figure 17. The improved diagram showing cards being saved.

One section of the original draft that had been unfortunately overlooked was how to use action cards. In the original first draft only 2 sentences were used to explain how to use action cards. This caused confusion in many of the playtesters as they had no way of knowing how this crucial game mechanic worked. This section was then expanded into a full page with 2 separate examples of how card activation worked. One of these new examples can be seen in Figure 18.



Example 1.

Before or after playing a card on your turn you may also activate one district of your choice. When you activate a district you may use any of the actions in that district that you are able to use.

Example 1.
In this District you have 2 action cards and 1 citizen. Both action cards have the requirement of having a citizen in the same district. As there is a citizen in the district, the actions can be used, but as there is only 1 Citizen only 1 of the actions can be used.

The player decides to to activate this district and then uses the first action to both draw 1 more card and then play an extra card.

Figure 18. Newly designed example demonstrating how action cards are used.

The last major changes were to shift both layout and coloring in the various examples to ensure that they were more noticeable. This change in layout can be seen in the expansion of the third part of the player's turn, the discard section. This was made to draw more attention to this part of the players turn as players often skipped over it in the first draft when that explanation was placed in between two other more noticeable parts of the text. Thus, by both moving it to the end of the page and adding a large example image, the section became more prominent. A change in colour was made in some of the examples when they referenced positive things a player could do. This can be seen in Figure 19.

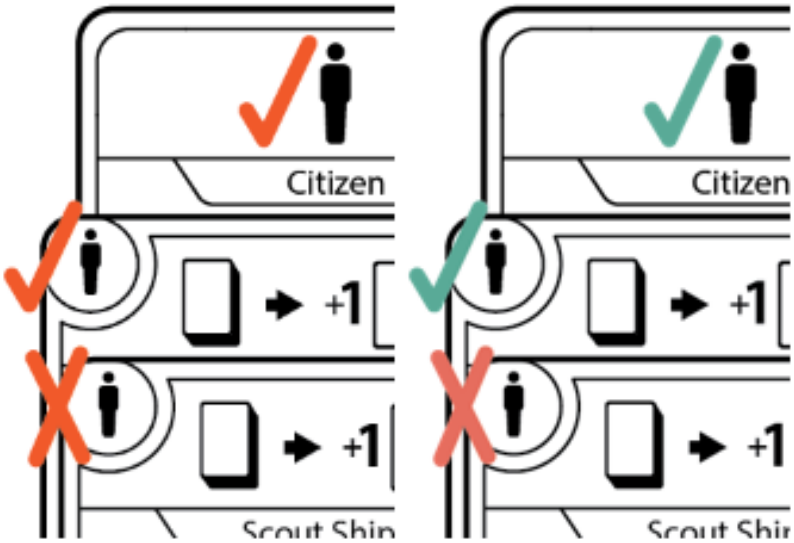


Figure 19. Colours were changed to increase clarity.

Figure 19 shows how some of the examples were changed to more clearly show that some cards were linked with other cards. In this particular example the check marks were changed to a more positive green colour while the negative X was kept as a redder colour to differentiate it. This added clarity allowed players to more easily read that the Citizen card and the action card were linked.

5 DESIGNING WITH DEPTH AND COMPLEXITY IN MIND

This thesis' main focus is to explore how depth and complexity can be used to build and enhance a single player game experience. However, it should be remembered that even though balancing and mechanic construction is important, it should all be towards the goal of creating the experience. This distinction should be clarified that the game itself is not the experience, but simply provides the means to that end. (Schell 2008, 10-11; Ernest 2011b.) This simply means that when designing the game not to get overly invested into how the rules and mechanics interact at the expense of how those mechanics create the gameplay experience.

A complex system can be defined as a system that has many mechanics and resources within it (Adams & Dormans 2012, 45-50). In relation to board games, that generally means that a complex system has multiple different types of resources that are used within the internal economy of the game. These are not just physical resources like cards an tokens, but can also include intangibles. An example of this could be the use of time within a system. (Adams & Dormans 2012, 59.)

Depth can be explained as a system that is easy to learn but hard to master. This can be built by creating systems that have fewer mechanisms. However, those mechanisms then connect to each other in many overlapping ways. That means system mastery is not just rote memorization of the mechanics, but also learning the best way to use those mechanics with each other. (Dunniway & Novak 2008, 184; Adams & Dormans 2012, 239.)

Depth and complexity are connected, but not entirely dependent on each other. What this means, is that while depth often requires a certain level of complexity to function, complexity does not inherently always create depth in gameplay. In fact, not much complexity needs to be added to a system to reach what can be called a complexity threshold. Tests done using cellular automata show that the threshold for complexity is quite low to create what can be called an emergent and surprisingly interconnected series of rules. (Adams & Dormans 2012, 50.)

5.1 Fun through the use of complexity

In most table-top games, the complex emergent behavior that most board games rely on to create an interesting experience depends on the interaction of different players (Adams & Dormans 2012, 259). Solitaire games cannot do that for obvious reasons. This means that solitaire games must rely more on the complexity built into the game's rules to create emergent gameplay experiences.

Fortunately, games have been expanding into more complex systems as the field advances. This means that players are often more prepared to understand and use complex systems. However, to mirror the positive aspects of this rush to complexity, more complex games are much more difficult for players to understand if they have not played similar games and systems already. (Trefry 2011, 53.) To work around this, games often add an easier setup or stripped down rules to create an easier learning curve for newer players. Additionally, games typically build the game around a certain theme to create a narrative for the players to follow instead of just dry rules. Both of these can be seen in the completed rulebook of Sinking (Appendix 4).

In a solitaire game system it can be difficult to not give the player complete information on the state of the game. However, if the player receives complete information the game becomes stale and is closer to a puzzle experience instead of a game. Thus, in Sinking there are portions of the game state that the player does not know. The card deck is the main example of this, as the order of the cards is in most cases not entirely known. This gives the game its tension and excitement. It can be most likened to the experience that gambling games give (Ernest 2011b).

5.2 Depth and replayability

When playing a game, players want to be challenged. This is especially important in single player games where player do not get the social interaction or the prestige that comes with winning multiplayer games. (Rouse III 2005, 2.)

However, games feel more or less difficult depending on the player playing the game. This compounds with the fact that players who have played the game before need more of a challenge to keep them interested.

To ensure that multiple play-throughs of the game are not only possible, but wanted, the game needed to ensure that there is some depth to the gameplay. This was done in Sinking by not only adding the variable difficulty levels that the mini expansions add and the tutorial mode (Appendix 4), but also by having the multiple different action types that players could use. With some gameplay experience, it can be recognized that some cards are simply more useful or can be combined with specific other cards to create powerful combinations. Another part of the game that rewards system mastery is the knowledge of what sets are easier to construct than others. For example, the *Gate* set of cards (Figure 20) typically has more cards that are removed from the game and that makes it more difficult to create sets from those cards. This rewards players that take the time to have learn system mastery of the core game.

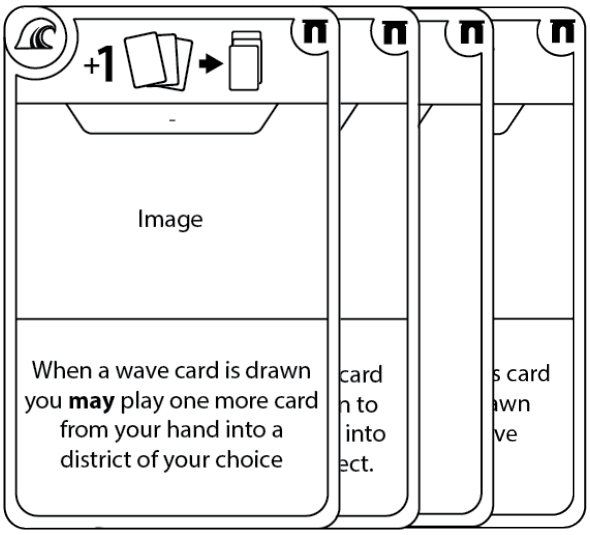


Figure 20. An example of some of the gate card set.

Lastly, when a game is balanced correctly then players should have many time during the game that they are offered gameplay choices. Not only that, but choices should be built to be meaningful to the player. If a choice is not a meaningful choice, then it shouldn't be considered a choice at all. The word

meaningful can be taken to mean both that the choice makes a significant difference to the game state and that the player understands what that choice means. (Fullerton 2008, 320.) Sinking as multiple places where the game could potentially add more meaningful choices, however, the game has not yet reached a state in which the action cards are balanced to provide that level of depth yet.

5.3 Adding complexity and combating repetitive gameplay

Once the game has been played multiple times, it should offer options to grow and increase in system mastery. However, unlike in multiplayer games where a part of system mastery means being able to win against other competent players, solitaire games have no bar for players to judge themselves against except on how quickly they can complete the game. This can easily lead to stagnation and repetition in the game. And once the game has become stagnant, players are less likely to enjoy the game as they know how exactly how to beat it every time. (Fullerton 2011, 334.)

To combat this, solitaire games can make each game start completely random. For example, Klondike Solitaire has all of the stacks of cards randomized each game start to provide a relatively new puzzle that needs to be solved (Hughes 2015). Another common way in more complex solitaire games is to have expansions and variant rulesets that can be added later to either change the experience or to increase the difficulty (Steenson 2011, 54). This can be seen in the game Onirim (Torbey 2014) which can come with up to 7 different expansions.

Sinking uses both of these methods to increase its complexity for experienced players. Each game start has the deck shuffled to ensure that players cannot know exactly how the game will run. In addition, for experienced players the game has two separate mini-expansions which can be added to change how two of the core mechanics function. For example, *The Storm is Rising* (Appendix 5) gives the player several new options that can used to change how the waves function in the base game. This allows for experienced players to increase the amount of tension that the base game provides by increasing the amount of

controlled randomness that is affecting the player. Meanwhile, the *Save the People* (Appendix 5) mini-expansion gives the player options to make Citizen card placement more difficult and dynamic.

6 CONCLUSION

This thesis began with the primary objective of creating a working solitaire card game and using that card game explore depth and complexity in the solitaire table-top game genre. The two peripheral research questions that this thesis attempted to answer were based around the overall gameplay experience. The first question asked how to engage the player without the typical social mechanics used in most table-top games. The second question asked how to best ensure that the game does not become too repetitive too quickly by employing the aforementioned complexity developed in the game.

The primary objective was completed, if not completely satisfactorily. This was demonstrated in the created game, Sinking, by players being able to correctly play the game without outside input while still having a relatively complex experience compared to other games in the same genre. This meant that while the gameplay was complex, it was not to the detriment of player clarity and eventually a complete experience could be designed. However, while this game did show complexity, it did not quite become what could be considered a finished product. By finished product it is meant that the game was not balanced to create a fully enjoyable experience yet and only delivered enough to create a functional game.

The other two objectives were more straightforward. Players were able to easily engage with the game once the rules were understood. This engagement was not high due to how the gameplay balance functioned, but the playtesters generally were able to demonstrate a noticeable level of engagement. This was demonstrated in their desire to attempt new strategies and combos when the game finished. That dynamic could potentially be grown upon to create a fully engaging gameplay experience.

Repetition was shown to be avoidable through the use of increased card complexity. However, it proved to be more difficult than expected to create a gameplay experience that did not have a dominant strategy that the player naturally gravitated to. This meant that while the game was not exactly the same every time, it felt the same to the player. This aspect of the gameplay could be expanded upon with a more thorough card balancing development period to create a more diverse pool of viable strategies. Furthermore, as demonstrated by the board game Onirim (Torbey 2014), it could be expanded with a larger pool of mini-expansions and variants that change the game.

Overall, this thesis can be considered a successful endeavor barring a few minor setbacks that could be improved with more development time. The game functions at the level needed to create a useful research experience and functions as a relatively fun game. However, likely anywhere from four to six more months of development time would be required to continue balancing the card dynamics to create an optimal experience. The game shows potential though, and if development continued, the game could be polished into a fully sellable and fun game.

REFERENCES

Adams, E. & Dormans, J. 2012. Game mechanics: advanced game design. Berkeley: New Riders Games.

Atlantis: the lost empire, 2001. [film] Directed by Gary Trousdale & Kirk Wise. USA: Walt Disney Pictures.

Benoit, B. 2016. How to teach someone a board game in 6 easy steps. Blog. Available at: http://passportgamestudios.com/3031-2/ [Accessed 1 April 2019].

Daviau, R., 2011. Designing intuitively. In: M. Selinker, ed. 2011. *The kobold guide to board game design.* Kirkland: Open design LCC. pp.42-52.

Despain, W. 2013. 100 Principles of game design. New Riders.

Dunniway, T. & Novak, J. 2008. Game development essentials gameplay mechanics. Clifton Park: Delmar.

Ernest, A. 2002. Designers notebook: positive feedback. WWW document. Available at: https://www.gamasutra.com/view/feature/131426/designers_notebook_positive_.php [Accessed March 27 2019].

Ernest, J., 2011a. Let's make it interesting. In: M. Selinker, ed. 2011. *The kobold guide to board game design.* Kirkland: Open design LCC. pp.66-67.

Ernest, J., 2011b. The game is not the rules. In: M. Selinker, ed. 2011. *The kobold guide to board game design.* Kirkland: Open design LCC. pp.2-6.

Fullerton, T. 2008. Game design workshop a playcentric approach to creating innovative games. 2nd edition. Burlington: Elsevier Inc.

Hicks, J. 2017. Blind playtesting. WWW Document. Available at: https://mavengames.co.uk/blind-playtesting/ [Accessed 20 March 2019].

Hughes, M. 2015. Celebrating 25 years of microsoft solitaire: the history, rules & a tournament. WWW Document. Available at: https://www.makeuseof.com/tag/celebrating-25-years-microsoft-solitaire-history-rules-tournament/ [Accessed 18 March 2019].

Leacock, M. 2010. Forbidden island adventure if you dare. [boardgame] Newton: Gamewright.

Leacock, M. 2015. Pandemic. [boardgame] Riguad: F2Z Entertainment Inc.

Nikolov, A. 2017. Design principle: Hick's Law—quick decision making. Blog. Available at: https://uxplanet.org/design-principles-hicks-law-quick-decision-making-3dcc1b1a0632 [Accessed 27 March 2019]

Patton, S. 2017. The definitive guide to playtest questions. WWW Document. Available at: https://www.schellgames.com/blog/the-definitive-guide-to-playtest-questions [Accessed 20 March 2019].

Rouse III, R. 2005. Game design theory and practice. 2nd Edition. Plano: Wordware Publishing Inc.

Schell, J. 2008. The art of game design a book of lenses. Burlington: Elsevier Inc.

Set Enterprises. 1998. Set the family game of visual perception. [boardgame] [Fountain Hills]: Cannei LLC.

Soegaard, M. 2019. Visual hierarchy: organizing content to follow natural eye movement patterns. WWW Document. Available at: https://www.interaction-design.org/literature/article/visual-hierarchy-organizing-content-to-follow-natural-eye-movement-patterns [Accessed 1 April 2019].

Steenson, L. 2011. Come in and stay awhile. In: M. Selinker, ed. 2011. *The kobold guide to board game design.* Kirkland: Open design LCC. pp.50-55.

Tidball, J., 2011. Pacing gameplay three act structure just like God and Aristotle intended. In: M. Selinker, ed. 2011. *The kobold guide to board game design.* Kirkland: Open design LCC. pp.13-22.

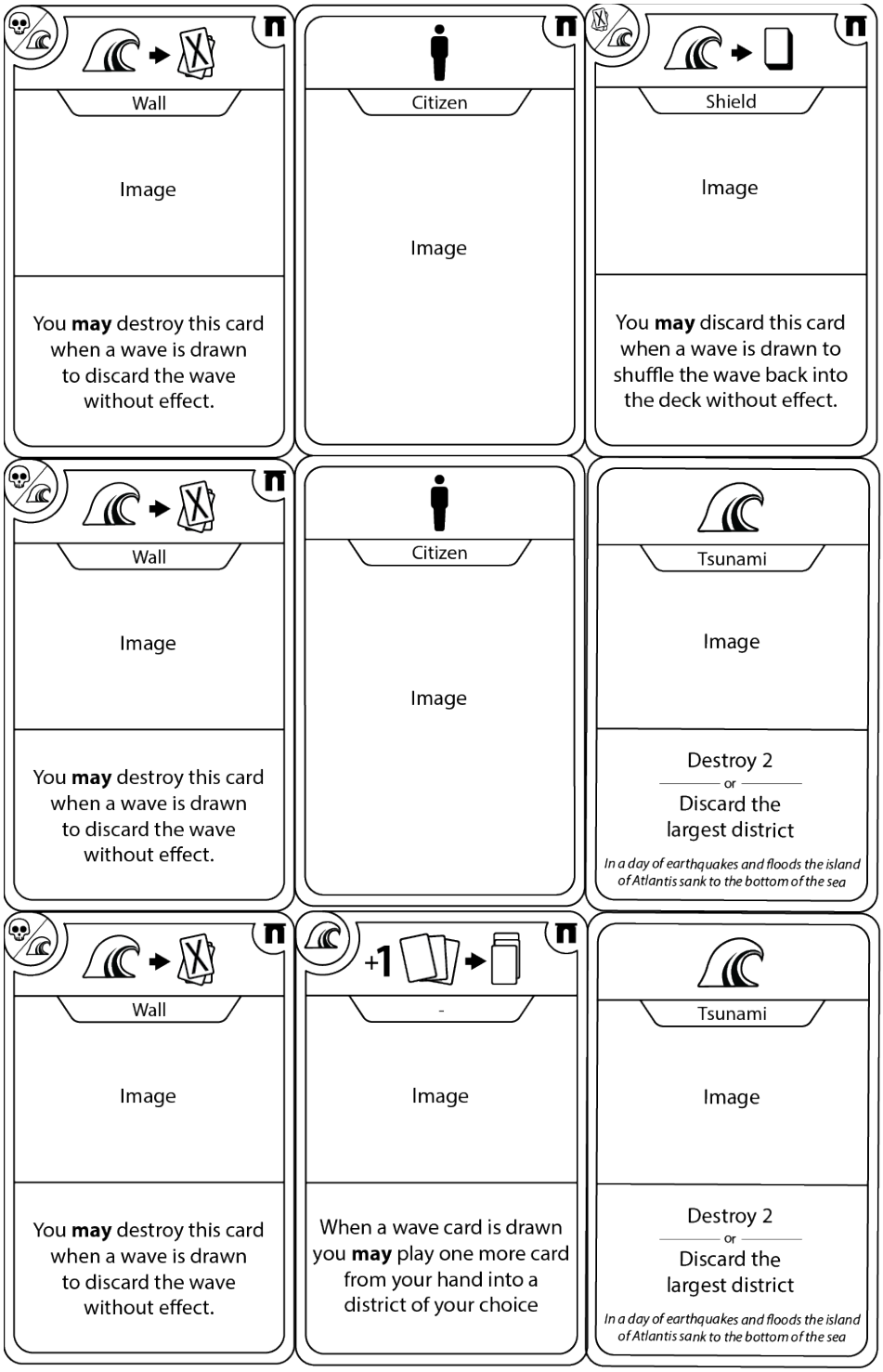
Torbey, S. 2014. Onirim the labyrinth of dreams. [boardgame] Riguad: F2Z Entertainment Inc.

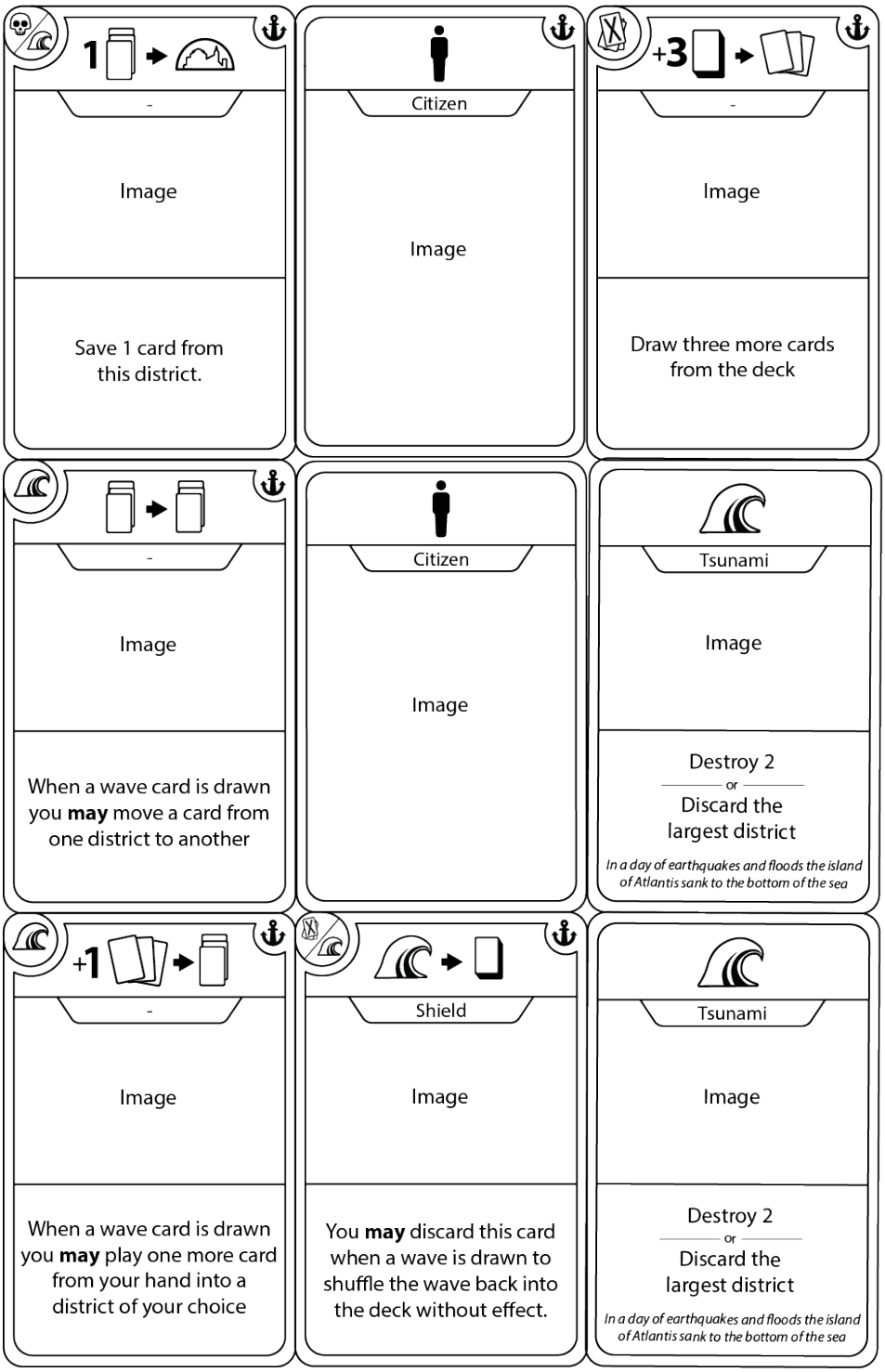
Trefry, G. 2010. Casual game design designing for the gamer in all of us. Burlington: Elsevier Inc.

Vaccarino, D. 2008. Dominion. [boardgame] [Rio Ranche]: Rio Grande Games.

LIST OF FIGURES

List of Core Game Cards




1
-
Image
Save 1 card from this district.
Citizen
Image
+3
-
Image
Draw three more cards from the deck
-
Image
When a wave card is drawn you **may** move a card from one district to another
Citizen
Image
Tsunami
Image
Destroy 2
or
Discard the largest district
In a day of earthquakes and floods the island of Atlantis sank to the bottom of the sea
+1
-
Image
When a wave card is drawn you **may** play one more card from your hand into a district of your choice
Shield
Image
You **may** discard this card when a wave is drawn to shuffle the wave back into the deck without effect.
Tsunami
Image
Destroy 2
or
Discard the largest district
In a day of earthquakes and floods the island of Atlantis sank to the bottom of the sea

Building

Image

Wall

Image

You **may** destroy this card when a wave is drawn to discard the wave without effect.

Citizen

Image

Building

Image

Citizen

Image

Tsunami

Image

Destroy 2

or

Discard the largest district

In a day of earthquakes and floods the island of Atlantis sank to the bottom of the sea

+1

-

Image

Draw one more card from the deck

Has no requirement to use

+1

-

Image

Draw one more card from the deck

Has no requirement to use

Tsunami

Image

Destroy 2

or

Discard the largest district

In a day of earthquakes and floods the island of Atlantis sank to the bottom of the sea

Building

Image

Citizen

Image

9

-

Image

Look at the top 9 cards of the deck. Place them back on top of the deck in whatever order you choose.

+1

-

Image

Play one more card from your hand into a district of your choice

+1

-

Image

Play one more card from your hand into a district of your choice

+2

-

Image

Draw two more cards from the deck

Citizen

Image

6

-

Image

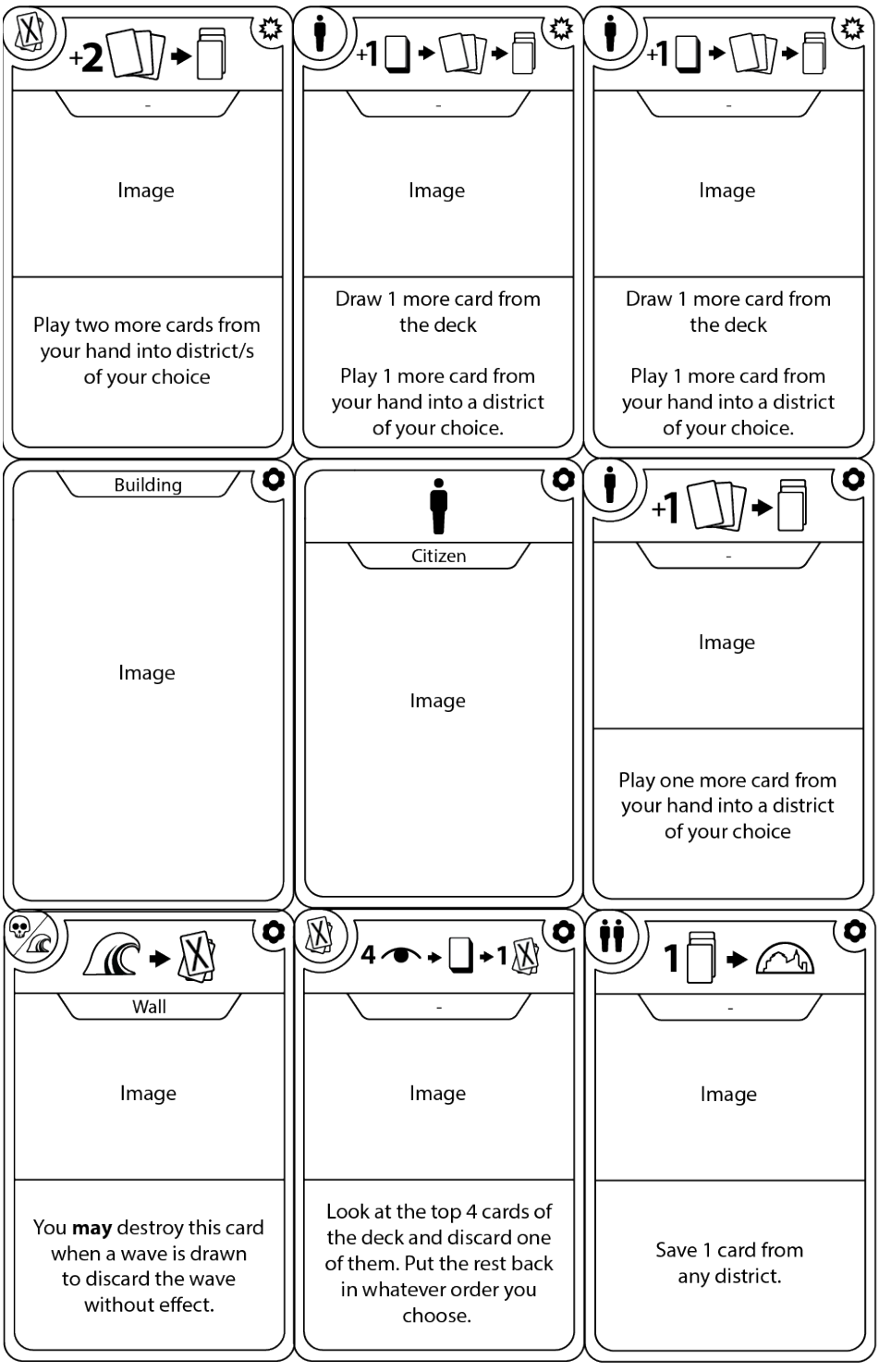
Look at the top 6 cards of the deck. Place them back on top of the deck in whatever order you choose.

6

-

Image

Look at the top 6 cards of the deck. Place them back on top of the deck in whatever order you choose.


+2
-
Image
Play two more cards from your hand into district/s of your choice
+1
-
Image
Draw 1 more card from the deck
Play 1 more card from your hand into a district of your choice.
+1
-
Image
Draw 1 more card from the deck
Play 1 more card from your hand into a district of your choice.
Building
Image
Citizen
Image
+1
-
Image
Play one more card from your hand into a district of your choice
Wall
Image
You may destroy this card when a wave is drawn to discard the wave without effect.
4
1
-
Image
Look at the top 4 cards of the deck and discard one of them. Put the rest back in whatever order you choose.
1
-
Image
Save 1 card from any district.

Building

Image

Wall

Image

You **may** destroy this card when a wave is drawn to discard the wave without effect.

+1

-

Image

When a wave card is drawn you **may** play one more card from your hand into a district of your choice

1

-

Image

Save 1 card from this district.

Citizen

Image

+2

-

Image

Play 2 more cards from your hand into a district of your choice

Game Turn

1. Draw 3 cards
   Waves

2a. Play 1 card & activate 1 district

—— or ——

2b. Save 1 district

3. Discard cards from hand

Discard this card from district

Destroy this card from district

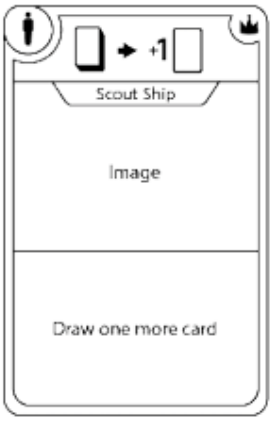
Citizen(s) in this district

Only when **wave** hits

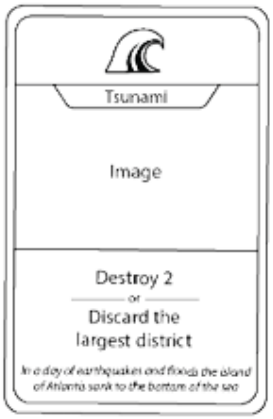
First Prototype Rulebook

Contents

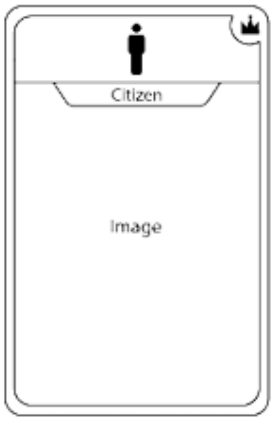
35 City Cards

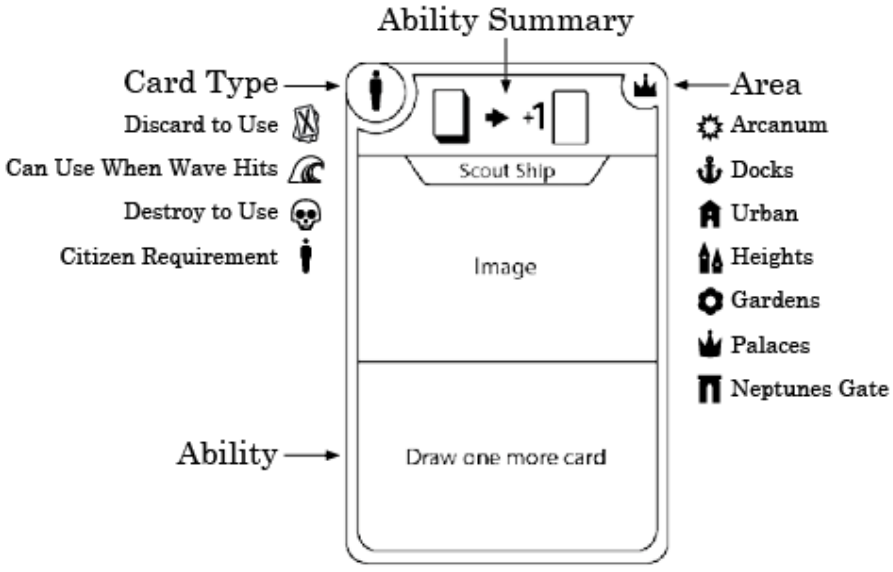


7 Wave Cards



10 Citizen Cards





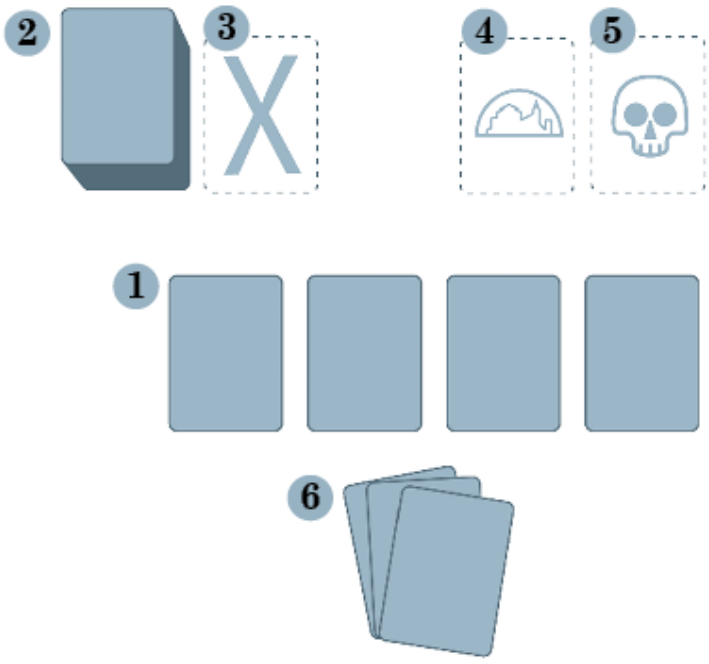
Full Game

Lorum Ipsum

Setup

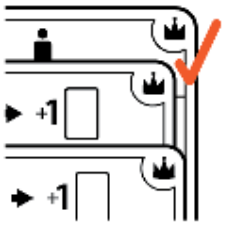
Mix together the 10 basic Citizen Cards with the 35 basic City Cards then draw 4 cards and then place faceup into the center of the table to make the starting city. 1 Then mix 5 of the basic Wave cards into the deck and place the deck somewhere within easy reach. 2

Then designate 3 areas on the table for the Discard Pile 3 , Saved Cards 4 , and Destroyed Cards. 5 Then draw 3 cards into your starting hand. 6

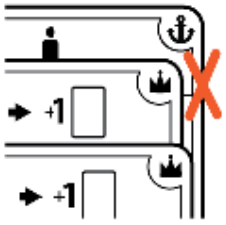


Objectives

To win the game the player must save all 10 citizens and 3 matching sets of cards. If the game ends before the required cards are saved, the player loses.



Matched Set



Not a Set

Gameplay

1. Draw Cards

At the start of the player's turn they draw 3 cards. If there are not enough cards in the deck to draw 3 cards, then draw the remaining cards in the deck, shuffle the discard pile into a new deck, and then draw until you have 3 cards in your hand.

If any of those drawn cards are wave cards, then the wave's effect takes place immediately. The basic wave cards have two different effects to choose from:

- Destroy 2 Cards. Choose 2 cards in the city and place them into the destroyed cards pile.
- Discard the Largest District. The district with the most cards in it is placed into the discard pile. If there are multiple districts tied for the most amount of cards then choose one of those to discard.

Once the wave's effects have been resolved, discard the wave and draw another card to replace it.

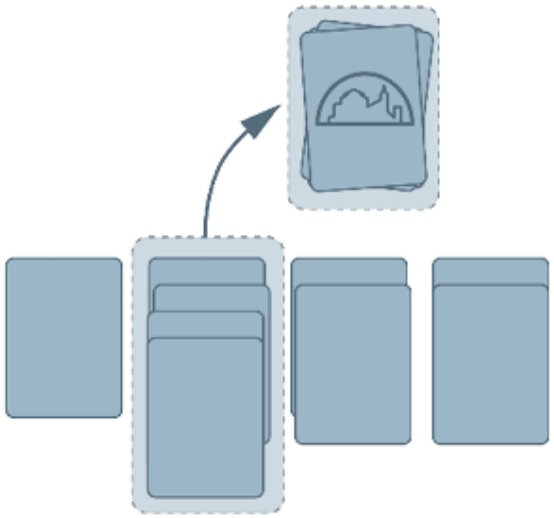
Repeat until you have no wave cards in hand.

2. Play 1 Card and Activate 1 District **OR** Score 1 District

After you have your hand of cards you must choose whether you want to play a card and do city actions or if you want to save one of your districts.

Save 1 District

To score a district you must discard your entire hand, you cannot play a card, and you cannot activate any districts this turn. You can then choose any one district and place all of the cards in that district into the saved cards pile.



Saving a District

Play 1 Card and Activate 1 District

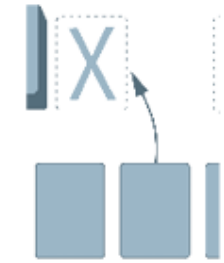
On your turn you must play one card from your hand into any one district of your choice. You can also activate one district to use any of the actions that are in that district.

Most actions can only be taken if the district is both activated and if the action requirements are met.

Card Types

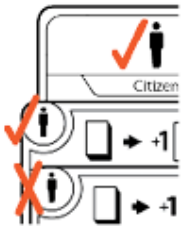
You must destroy the card to use it. Cards in the destroyed pile cannot be used.

You must discard the card to use it. Discarded cards are shuffled into a new deck when the deck runs out.



These cards can be used when a wave is drawn.

A citizen must be in this district to use the action. If you need a citizen for more than one card, then **you need a citizen for each action used.**



3. Discard Cards and Turn End

Once you have finished either saving a district or using cards you must discard any remaining cards in your hand. This ends your turn.

Game End

The game ends when the deck has been been emptied 3 times. When the player draws cards on the third time through the deck and their are no cards remaining, they draw whatever remains in the deck even if there is less than 3 cards. Once that turn is finished the game ends in a loss unless the player has won.

The game also ends immediately if the city ever has no cards in it.

Second Prototype Rulebook

Sinking

Overview

In Sinking (working title) you are trying to save as much of the culture and people of Atlantis before it sinks beneath the sea. Each turn you must decide whether you should find more people in the city or to rescue the people you already have found.

Fortunately, the city of Atlantis is still full of power and magic, if you can manage to harnass it. You must hurry though, the waves grow more frequent every moment you wait and it won't be long until Atlantis is lost forever.

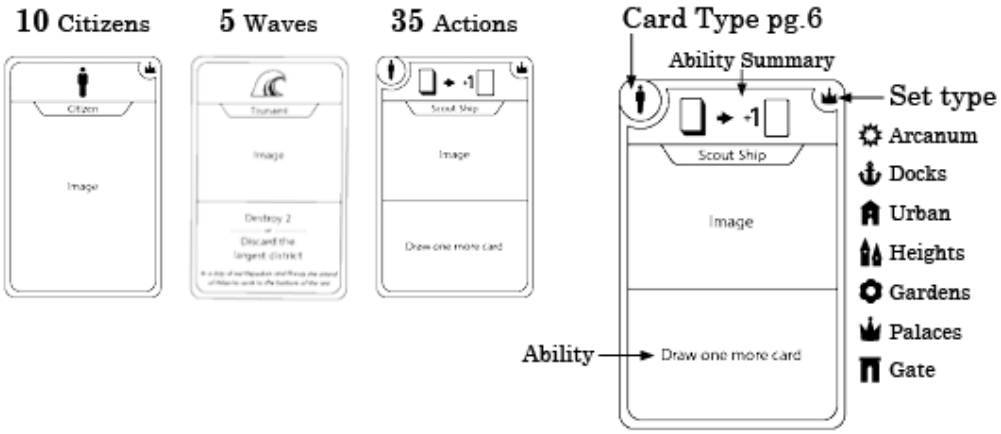
Objectives

To win the game the player must save all 10 citizens and 3 matching sets of 3 cards. Sets **do not need to be saved at the same time**, they only need to be sets of 3 in the saved cards pile. If the game ends before everything required is saved, the player loses.

The game can end in one of 3 ways:

- The deck of cards runs out 3 times
- There are no districts left
- A citizen is destroyed

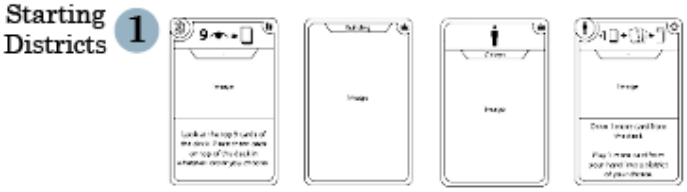
Contents



Setup

Mix together the 10 basic Citizen Cards with the 35 basic Action Cards then draw 4 cards and place them into the center of the table faceup to make the 4 starting districts. 1 Then mix 5 of the basic Wave cards into the deck and place the deck somewhere within easy reach. 2

Then decide 3 places for the Discard Pile 3 , Saved Cards 4 , and Destroyed Cards. 5



Gameplay

The game turn goes in this order:

1. Draw 3 cards
   - Wave card drawn
   - Wave action cards can be triggered
   - Wave penalty and discard wave card
   - Draw extra card
   - Repeat

2a. Play 1 card and activate 1 district

——— or ———

2b. Save 1 district

3. Discard remaining cards and end turn

1. Draw Cards

At the start of the player's turn they draw 3 cards. If there are not enough cards in the deck to draw 3 cards, then draw the remaining cards in the deck, shuffle the discard pile into a new deck, and then draw until you have 3 cards in your hand.

If any of those drawn cards are wave cards, then the wave's effect takes place immediately. The basic wave cards have two different effects to choose from:

- Destroy 2 Cards. Choose 2 cards in any of the districts and place them into the destroyed cards pile. You can only destroy cards from the city and not from other areas of the game.
- Discard the Largest District. The district with the most cards in it is placed into the discard pile. If there are multiple districts tied for the most amount of cards then choose one of those to discard.

Once the wave's effects have been resolved, discard the wave and **draw another card to replace it.**

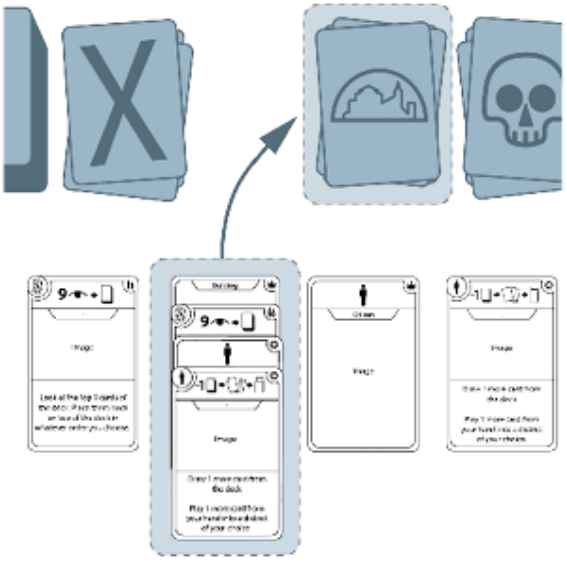
Repeat until you have no wave cards in hand.

2. Play 1 Card and Activate 1 District **OR** Score 1 District

After you have your hand of cards you must choose whether you want to play a card and do city actions or if you want to save one of your districts.

Save 1 District

To score a district you must discard your entire hand, you cannot play a card, and you cannot activate any districts this turn. You can then choose any one district and place all of the cards in that district into the saved cards pile.

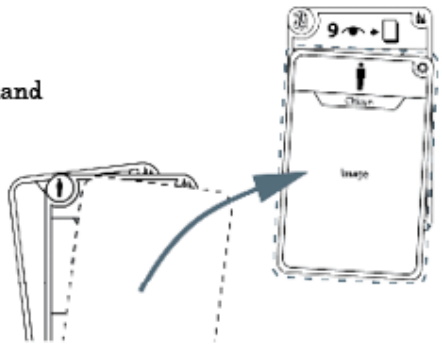


Saving a District

Play 1 Card and Activate 1 District

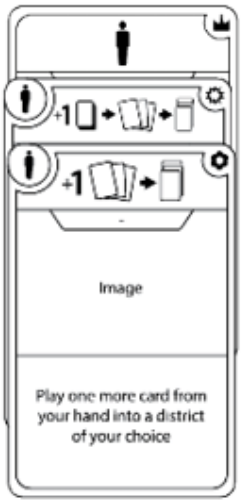
On your turn you must play one card from your hand into any one district of your choice.

There are no restrictions on which district a card can be played into. You may also start a new district by playing the card on its own. There is no limit on the amount of districts you can have.



Playing a Card

Activating a District



Example 1.

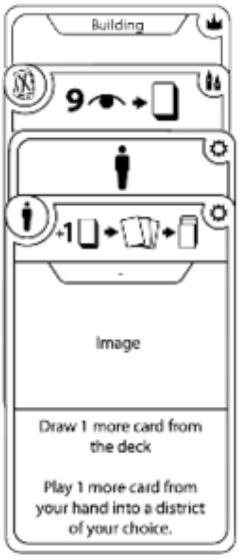
Before or after playing a card on your turn you may also activate one district of your choice. When you activate a district you may use any of the actions in that district that you are able to use.

Example 1.
In this District you have 2 action cards and 1 citizen. Both action cards have the requirement of having a citizen in the same district. As there is a citizen in the district, the actions can be used, but as there is only 1 Citizen only 1 of the actions can be used.

The player decides to to activate this district and then uses the first action to both draw 1 more card and then play an extra card.

Example 2.
This District has 3 different types of action cards. The uppermost card has no action attached to it. The next action requires that the card is discarded to use it, but doesn't need a citizen in this district. The action card at the bottom needs a citizen in the district to be used.

The player decides to to activate this district and uses all the actions in this district. They discard the action card and first view and rearrange the top 9 cards of the deck. They then draw a card and play an extra card.



Example 2.

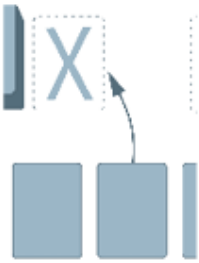
Activating Cards in Hand

If a card is in your hand you cannot use its action, until it is played into a district first.

Card Types

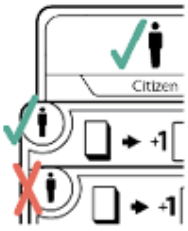
You must destroy the card to use it. Cards in the destroyed pile cannot be used.

You must discard the card to use it. Discarded cards are shuffled into a new deck when the deck runs out.



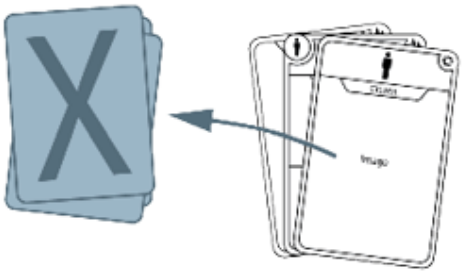
These cards can be used when a wave is drawn.

A citizen must be in this district to use the action. If you need a citizen for more than one card, then **you need a citizen for each action used.**



3. Discard Cards and Turn End

Once you have finished either saving a district or using cards you MUST discard any remaining cards in your hand. This ends your turn. Any used actions that remain in the districts become available to use again.

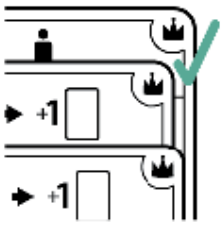


Game End

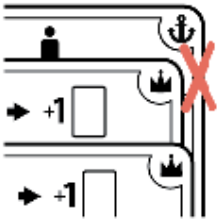
The game ends when the deck has been been emptied 3 times. When the player draws cards on the third time through the deck and there are no cards remaining, they draw whatever remains in the deck even if there is less than 3 cards.

There are 3 different ways the game can end immediately:

- If the player has saved all 10 citizens and 3 matching sets of 3 cards
- If there are no cards in any districts
- If a citizen is destroyed



Matched Set



Not a Set

Final Rulebook

Sinking

Overview

In Sinking (working title) you are trying to save as much of the culture and people of Atlantis before it sinks beneath the sea. Each turn you must decide whether you should find more people in the city or to rescue the people you already have found.

Fortunately, the city of Atlantis is still full of power and magic, if you can manage to harness it. You must hurry though, the waves grow more frequent every moment you wait and it won't be long until Atlantis is lost forever.

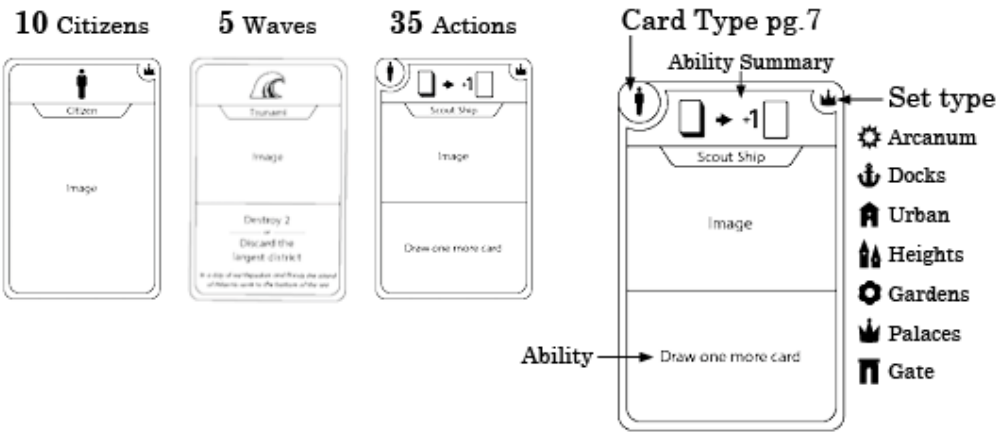
Objectives

To win the game the player must save all 10 citizens and 3 matching sets of 3 cards. Sets **do not need to be saved at the same time**, they only need to be sets of 3 in the saved cards pile. If the game ends before everything required is saved, the player loses.

The game can be lost in one of 3 ways:

- The deck of cards runs out 3 times
- There are no districts left
- A citizen is destroyed

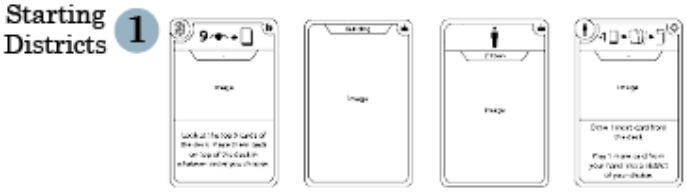
Contents



Setup

Mix together the 10 basic Citizen Cards with the 35 basic Action Cards then draw 4 cards and place them into the center of the table faceup to make the 4 starting districts. 1 Then mix 5 of the Tsunami cards into the deck and place the deck somewhere within easy reach. 2

Then decide 3 places for the Discard Pile 3 , Saved Cards 4 , and Destroyed Cards. 5



Tutorial Game

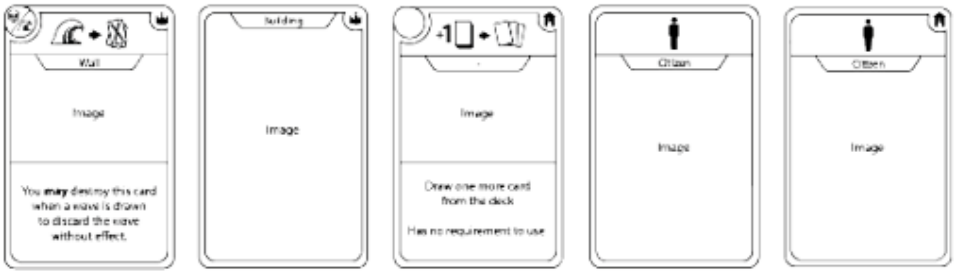
When you are learning how to play the game, it's recommended you play with the following changes:

1. New Objectives:

- **You must create 4 matched sets to win the game**. *You don't need to save any Citizens to win.*
- **The game only ends in a loss when the deck runs out the third time.** ***The game does not end*** *if there are no districts on the table nor if a citizen is destroyed.*

2. New Setup:

- **Only shuffle 4 of the Tsunami cards into the deck.**
- **Create this exact setup of 5 cards for the starting districts:**



Gameplay

The game turn goes in this order:

1. Draw 3 cards
   Resolve Wave Cards

2a. Play 1 card and activate 1 district

——————— or ———————

2b. Save 1 district

3. Discard remaining cards and end turn

1. Draw Cards

At the start of the player's turn they draw 3 cards. If there are not enough cards in the deck to draw 3 cards, then draw the remaining cards in the deck, shuffle the discard pile into a new deck, and then draw until you have 3 cards in your hand.

Wave cards

Any time wave cards are drawn, then the wave's effect takes place immediately. If multiple waves are drawn at the same time, resolve them one at a time in any order you choose. The basic wave cards have two different effects to choose from:

- Destroy 2 Cards. Choose 2 cards in any of the districts and place them into the destroyed cards pile. You can only destroy cards from the city and not from other areas of the game.
- Discard the Largest District. The district with the most cards in it is placed into the discard pile. If there are multiple districts tied for the most amount of cards then choose one of those to discard.

Once the wave's effects have been resolved, discard the wave and **draw another card to replace it.**

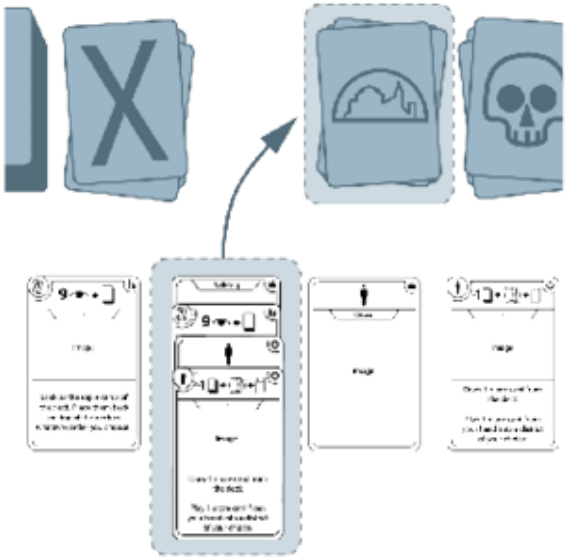
Repeat until you have no wave cards in hand.

2. Save 1 District **OR** Play 1 Card and Activate 1 District

After you have your hand of cards you must choose whether you want to play a card and do city actions or if you want to save one of your districts.

Save 1 District

To save a district you must discard your entire hand, you cannot play a card, and you cannot activate any districts this turn. You can then choose any one district and place all of the cards in that district into the saved cards pile.

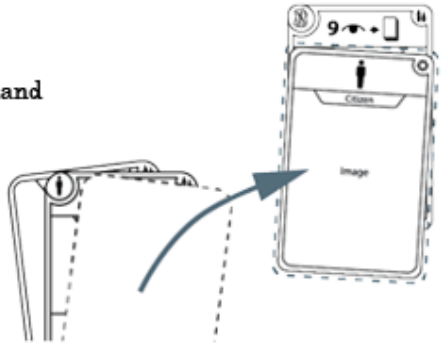


Saving a District

Play 1 Card and Activate 1 District

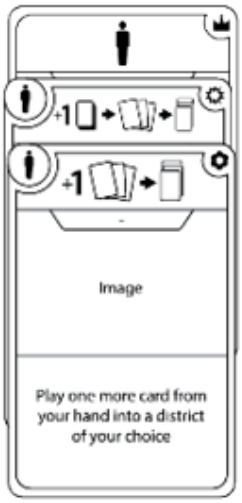
On your turn you must play one card from your hand into any one district of your choice.

There are no restrictions on which district a card can be played into. You may also start a new district by playing the card on its own. There is no limit on the amount of districts you can have.



Playing a Card

Activating a District



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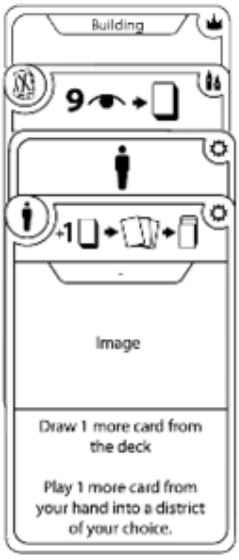

Example 2.

Activating Cards in Hand

If a card is in your hand you cannot use its action, until it is played into a district first.

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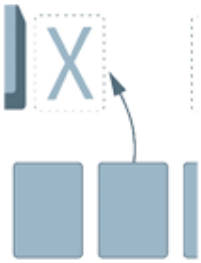
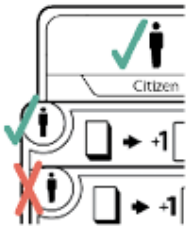


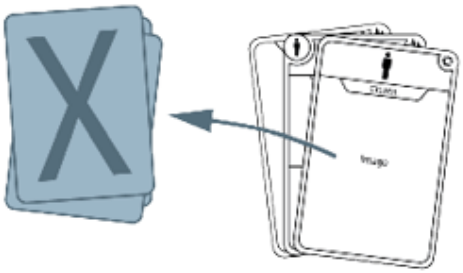
These cards can be used right after a wave card is drawn but before the wave's effect is done.

A citizen must be in this district to use the action. If you need a citizen for more than one card, then **you need a citizen for each action used.**



3. Discard Cards and Turn End

Once you have finished either saving a district or using cards you MUST discard any remaining cards in your hand. This ends your turn. Any used actions that remain in the districts become available to use again.



Game End

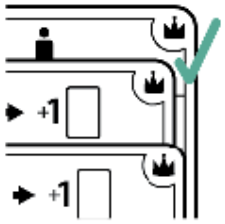
The game ends when the deck has been been emptied 3 times. When the player draws cards on the third time through the deck and there are no cards remaining, they draw whatever remains in the deck even if there is less than 3 cards.

There are 2 different ways the game can be **lost** immediately:

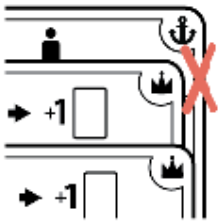
- If there are no cards in any districts
- If a citizen is destroyed

The game ends immediately and the game is **won**:

- If the player has saved all 10 citizens and 3 matching sets of 3 cards



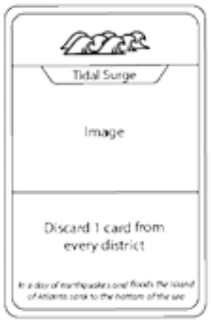
Matched Set



Not a Set

The Sea is Rising
expansion 1

This expansion provides 3 new wave types that can be used to change how the storm affects Atlantis. These can be used in any combination with the basic wave cards from the base game, but it is recommended that you start with replacing 2 of the basic waves with 2 cards from one of new types during setup. There are 2 cards for each new wave type. If multiple wave cards are drawn at once then you can choose in which order the waves affect you.



Tidal Surge

As the sea rises, Atlantis begins to flood throughout the city.

Tidal Surge forces the player to discard one card from every district. These can be any cards in those districts.

Receding Flood

When the waves recede on ly destruction is left in their wake

If a receding flood card hits then all citizens must be discarded from the districts. This only affects citizens in districts. It does not affect citizens anywhere else.

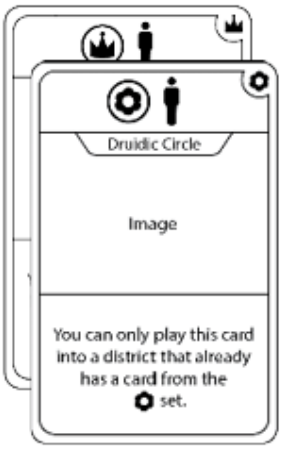
Destructive Wave

Lightning flashed and revealed the entire western side of the city to be gone in one destructive strike.

Destructive Wave forces the player to destroy 3 cards. The player can choose any cards, but these cards can only be taken from the districts.

Save the People
expansion 2

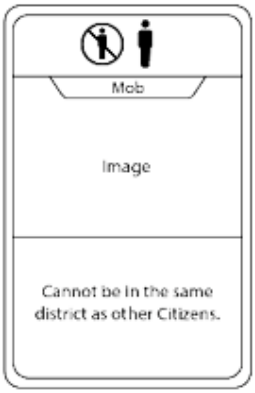
This expansion replaces some of the ordinary citizens with either roving mobs or picky nobility. You can replace any or all of the 5 neutral citizens with the citizens shown below. These new cards have a new symbol type that shows where these cards must be played. There are 2 different cards from the Nobility and 3 Mob cards.



Nobility

No matter how high the waves climbed the nobility refused to leave their palaces.

These cards must be played into a district that already has a card from a matching set. Once they have been played though, they can be moved to other districts using other actions.

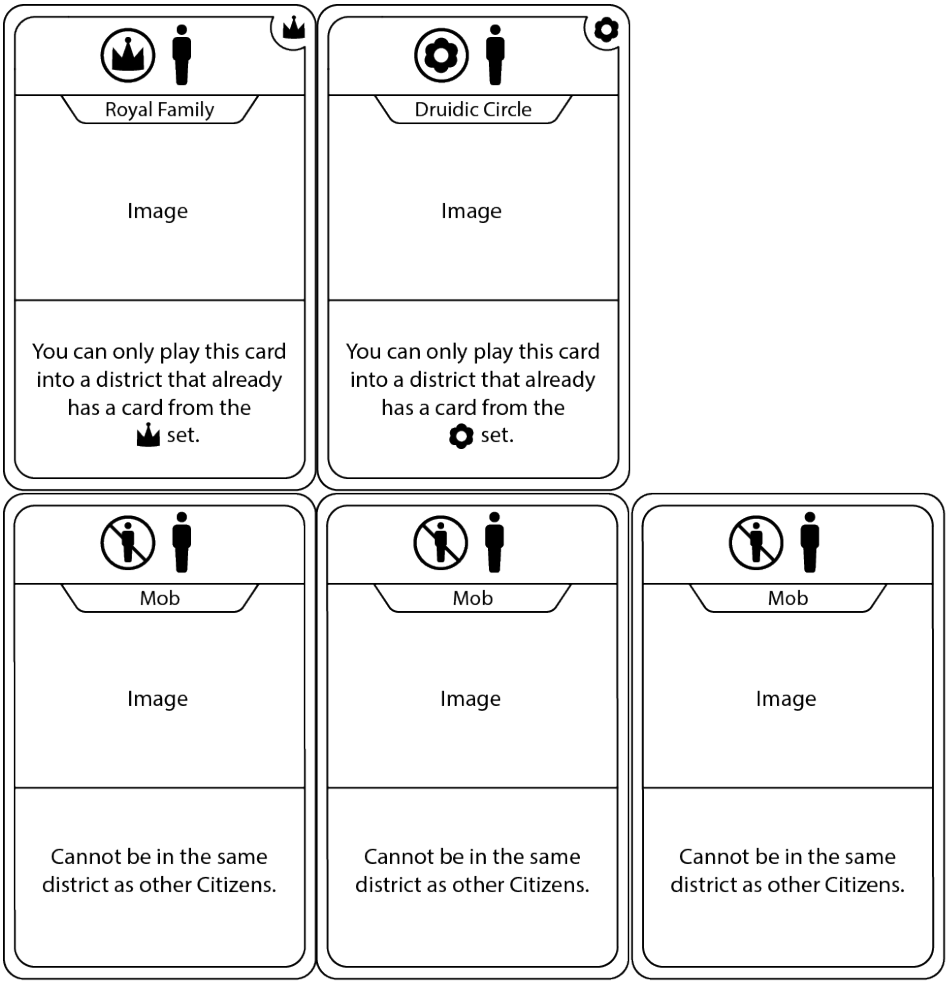


The Mob

Blood and rage ran down the streets as the people demanded safety behind the high walls.

Mob cards can never be in the same district as any other Citizen cards. This includes when the card is played or moved. Other Citizens cannot be placed into a district that contains a Mob.

Mini Expansions


Royal Family
Image
You can only play this card into a district that already has a card from the set.
Druidic Circle
Image
You can only play this card into a district that already has a card from the set.
Mob
Image
Cannot be in the same district as other Citizens.
Mob
Image
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