



HOW TO DESIGN CARD GAMES

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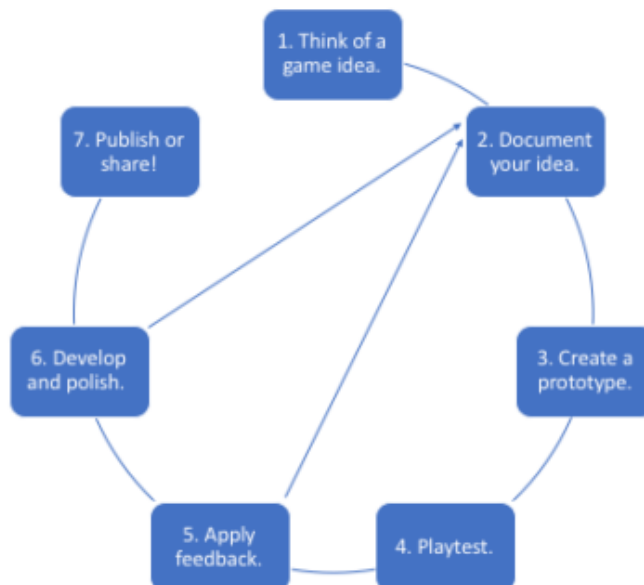
[Developing for Manufacturing](#)

Introduction

Designing a card game is messy. You will have what you think are good ideas that, when you play them, you find don't work that well. With that in mind, start with a simple game and add complexity over time, as you play.

Here are 7 steps to follow:

1. Think of a game idea.
2. Document the current state of your game idea.
3. Create a playable prototype.
4. Playtest.
5. Apply feedback. *Go back to step 2, as often as necessary.*
6. Develop and polish. *Go back to step 2, as often as necessary.*
7. Publish or share!



The key to agile development is to apply feedback and iterate. The breakthrough realization of the software industry was that people can't anticipate all user requirements in advance but need to discover needs through exposure to prototypes and feedback. The same process works well for game design.

“Small projects [...] are entire projects — and what I mean by that, even very small projects still incorporate the entire project development life cycle. The lessons learned in small projects are no less valuable than the lessons learned on large projects, but the failures hurt a lot less.” – Clint Herron, game designer

1 – Think of a Game Idea

Inspiration strikes, and you get an idea for a game. Or you are challenged to come up with a game idea for a design contest, a homework assignment, a Scouting exercise, or a design challenge in this book.

Where do ideas come from?

For good or ill, I conceive of games the way Hollywood pitches High Concept movies:

- “*Toy Story* with video game characters!” (How I would describe *Wreck-It Ralph*.)
- “*Star Wars: A New Hope* with new heroes learning from the original heroes!” (*Star Wars: The Force Awakens*.)
- “*Castaway* meets *Apollo 13*!” (*The Martian*.)

Thinking in terms of mashups might help you come up with ideas as well. “If you steal from one author [or game designer] it’s plagiarism; if you steal from many it’s research,” said the playwright Wilson Mizner. Don’t feel bad about starting from such a point. Your idea will change and diverge from this initial inspiration as you develop the game further. In fact, your playtesting and development will consist of original research that will make the final product your own.

Another way to proceed is to take an existing game and constrain it. What would *Monopoly* be like as only a card game? What might *Magic: The Gathering* look like with only 104 cards?

Constraints help fuel ideas. And, as you look to develop experience by designing games, constraints make everything easier.

And constraints are realistic. Professional developers often have design constraints. They are asked to come up with a sequel to an existing game. They are asked to come up with a board game about a movie, a comic-book character, or even about a video game. They are asked to use components that will fit under a specific budget, so the game can be priced at \$6, \$16, or \$60.

You will find that the hard part isn’t coming up with ideas: that’s a myth. Once you start looking for ideas for games, you’ll find them everywhere. You will quickly come up with more ideas than you develop. Keep a notebook handy to record your ideas as they come to you.

At this moment I have 36 ideas for games in my idea file (a list of games that I haven't produced prototypes of yet) and I have 12 prototypes that I haven't developed into finished games yet. Keep track of your ideas and you'll find you have plenty. The hard part will be sticking with an idea, and then seeing it through to completion! So pick an idea and move to step 2.

2 – Document the Current State of Your Game Idea

Some game designers skip this step and immediately create their prototype. I don't because I find that the act of writing down notes about the game often helps me come up with new takes on the idea. It's easier to write down notes than it is to start making cards.

You don't need to write the type of rules document that you would present to a player. You just need a short outline of the key parts of the game to help you organize your thoughts and explain the game to playtesters. It's also helpful to create a quick table or grid of the ideas for cards.

For instance, here's a grid of the cards in the first edition of Bruno Faidutti's *Citadels*, by cost in gold coins and by district color, with the quantity of that card in the deck in parentheses.

	1	2	3	4	5	6
Red	Watchtower (3x)	Prison (3x)	Battlefield (3x)		Fortress (2x)	
Yellow			Manor (5x)	Castle (4x)	Palace (3x)	
Green	Tavern (5x)	Market (4x) Trading Post (3x)	Docks (3x)	Harbor (3x)	Town Hall (2x)	
Blue	Temple (3x)	Church (3x)	Monastery (3x)		Cathedral (5x)	
Purple		Haunted City (1x)	Keep (2x)		Graveyard (1x) Laboratory (1x) Observatory (1x) Smithy (1x)	Dragon Gate (1x) Library (1x) Great Wall (1x) School of Magic (1x) University (1x),

Each purple building also has a special power, but many of those would probably be missing from a first draft and would be the subject of iterative development.

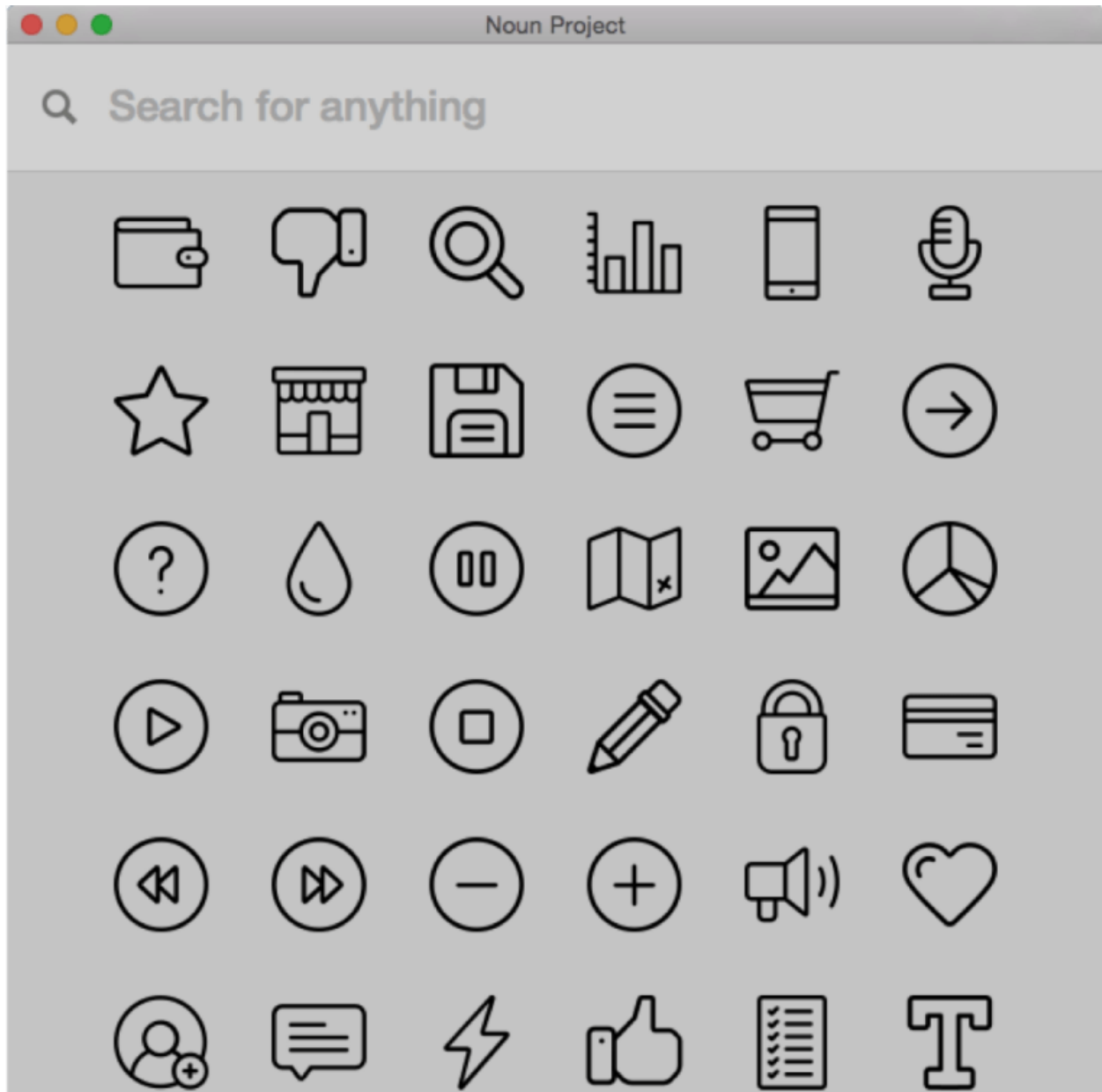
3 – Create a Playable Prototype

One mistake I've made is to spend a lot of time on the first prototype. I used to find great pictures from the Internet, carefully develop a graphic design of the cards, and even proofread and edit the text on the cards. Then set it all up on the computer, print out the cards, and play the game only to find out it was lousy!

Having spent all that time on graphic design, I ended up being reluctant to make the changes and to do the hard work of revision and iteration that is typically necessary to make a good game.

So don't stress yourself about making the game pretty!

Instead, use basic cards. I'll often just list the properties of a card on it. If I want some icons, I might make simple sketches. Like me, you can look at [The Noun Project](#) for quick ideas on how to make a simple drawing of an object.



Keep the card design simple for your playtests. If you've created a game worth playing, playtesters will be engaged even with simple graphics.

I still often end up spending too much time researching the inspiration of the card – the history of the Greek city of Olympia, railroad stock in the 1880s, the types of new planets being discovered – rather than spending time making sure the game is fun and playable.

So don't worry, yet, about making the game a more accurate portrayal of the time period or theme. Don't worry yet whether or not you have the right name for a card. You can do all that later.

Your goal at this step is simply to create a basic version of the game that you can use to make sure the game is fun to play and works the way you expected it to. Scribble on pieces of paper; write on index cards; even write on old playing cards.

Get your ideas down in a playable format, with the goal to move on to the next step as rapidly as possible!

4 – Playtest

Some games you can initially playtest just by yourself to make sure the basics are working as expected. However, it is always helpful to have someone to playtest with. But you need to make it clear to your playtester that you are not asking them to play a real game, and they should look at it more like an experiment. Often the best playtester is a good friend who is also designing games. That way you can return the favor and playtest their games.

Often much will need to be changed. In fact, don't be afraid to stop play and write on cards to change them and start the game over. (Another reason to use rough rather than pretty prototypes, so you don't mind writing all over them!) Remember, you are trying to see if the game works and is fun. You don't need to play it through. My son and I were playing a game and kept changing the rules to make them work better when at one point we decided to start the whole game over. That's fine!

If a solution is obvious to you and easy to implement, then by all means try it, but don't feel you need to solve the problem during the play test. That can be the wrong time to fix big problems. Instead, during the game concentrate on identifying problems: solutions can come later.

After you have gone through these steps a few times (see below), you will want to playtest without changing. And eventually you will want to give the game to others to play without you around, just as they would if they bought the game or printed it out from the Internet. (This is called *blind playtesting*.)

But before you get that far, be prepared to playtest the game a lot. If you don't want to play it lots, why would other people?! In fact, [Puzzling Pixel Games](#) requests that before

designers submit a game the game “must be playtested so much that you now hate the game (well, maybe not hate...).”

Playtest, playtest, playtest. Then use what you’ve learnt to make the game better.

5 – Apply Feedback

Sometimes you can make changes to a game during the game itself or between games. But other times you identify problems with the game without easy or obvious solutions. In those cases, you will need to think about the solutions to the problems you identified.

Ask playtesters what they liked about the game and what they didn’t like about the game. My favorite question (suggested by another designer) is, “What one thing would you change about the game to make it more enjoyable?”

Sometimes playtesters have good ideas. Sometimes, though, people leap to conclusions about a game based on a few plays. I’ve heard people say a game that was professionally published was “broken” after playing it once, when maybe they just misunderstood a rule or got a rare permutation of cards or events.

In science we would want lots of feedback to see if it was consistent over time. People, however, are used to jumping to conclusions and overgeneralizing. As you grow in experience you will start to develop a feel for the feedback that you should act upon versus the feedback that may not be as applicable as the players think.

Sometimes the feedback just won’t be relevant. If you have a vision or goal for the game, and some of the suggestions would have you abandon that goal, that’s feedback you should ignore. One playtester complained one of my games was “too mean” but the game was designed from the start as a [“take that” type of game](#). Changing that would alter the fundamental design philosophy of that particular game.

If, after reviewing the feedback, you have changes you want to make, then go back to step 2 – document your game idea – and follow the steps from there. Acting on and applying feedback is the principal driver of agile game development.

If you think the game is as good as you can make it, if you’ve “played it till you hate it”, you are ready to start developing the game!

6 – Develop and Polish

As you work on your game design, you will naturally refine it. You will come up with better ideas for card actions, better names for cards, and better ways of graphically representing some of the properties of the cards.

Once you have playtested the game and know that it works well, that is the time to write detailed rules and produce good-looking cards using graphic-design software.

You will still want to playtest the final text of your cards, and the rules, to make sure that they are clear to players and to eliminate any points of confusion.

Developing is often a time to take away complexity. You might realize that a common function is documented or performed slightly differently in two places. In such a case you should select the method that works best and make everything consistent. If you make major changes, then go back to step 2.

Finally, you have the game as good as you can make it, as attractive as you can make it, and as fun as you can make it. It's time to share the game or even publish it!

7 – Publish or Share

Now you can share the game with friends and the wider world. You can share the game with people by uploading the files to sharing services like Google Drive or Dropbox. You might want to publish it for free for people to download from popular websites like BoardGameGeek and Good Little Games. Or, if it is really good, you might want to publish it for sale from on-demand printing sites like DriveThruCards and The Game Crafter. Or maybe you think your game deserves professional printing, in which case you can run a Kickstarter to raise the money to publish the game.

And, of course, you can submit the game to game publishers to see if they are interested in publishing the game for sale.

All of this might sound like a lot of work but you will discover that game design is loads of fun with lots of room for creativity. Happy designing!

Design Challenges: Add House Rules to a Standard-Deck Card Game



If you've never designed a card game before, it can be easier to start by adding house rules to an existing game.

Here are [the top 10 card games](#) that Americans played in 2016 (excluding gambling and adult games):

1. Uno
2. Rummy
3. Spades
4. Solitaire
5. Go Fish
6. Euchre
7. Hearts
8. Pitch
9. Cribbage
10. Phase 10

Take a card game you like and make it better. It can be a game played with a standard deck of cards, or a game played with a dedicated deck of cards (for instance, *Uno*, *Skip-Bo*, or *Phase 10*). Here are some of the things that you can do:

- Remove some cards you don't like.
- Write a few of your own cards.
- Change some rules or even the victory conditions.
- Figure out how to make the game work with more players or solitaire.

If you don't have access to many card games, there are thousands of card games that you can play for free. Get a deck of traditional cards and a library book on card games. Some libraries also let you check out card games for use in the building. Or buy these great Dover books: *A Gamut of Games* and *Card Games Around the World* by Sid Sackson, *Board and Table Games from Many Civilizations* by R. C. Bell, *Games and Fun with Playing Cards* by Joseph Leeming, and *Favorite Board Games: You Can Make and Play* by Asterie Baker Provenzo and Eugene F. Provenzo, Jr.

You can also download many card games as free apps from Google Play or the Apple App Store. And the online site Yucata.de has many modern games that you can play for free against other users.

Looking for ideas for new rules? Make some actions for special cards. Here are some nicknames for cards in a traditional deck:

- **Black Widow** – The Queen of Spades (Q♠).
- **Court Cards** – The King, Queen, and Jack of any suit.
- **Deuce** – A card with the value of two, of any suit.
- **Face Cards** – Same as *Court Cards*.
- **Honors** – Ace, King, Queen, Jack, and Ten.
- **Knave** – Jack.
- **One-Eyed Jack** – The Jack of Spades (J♠) or the Jack of Hearts (J♥).
- **One-Eyed King** – The King of Diamonds (K♦).
- **One-Eyed Royal** – A *One-Eyed Jack* or a *One-Eyed King*.
- **Suicide King** – The King of Hearts (K♥).
- **Trey** – A card with the value of three, of any suit.

Different traditional card games often have certain rules involving named sets. Add some other named sets, or change around the winning value of certain sets. Some named sets for inspiration:

- **Doubleton** – 2 cards in the same suit (like a 2-card *flush*).
- **Flush** – 5 cards of the same suit.
- **Four of a Kind** – 4 cards of the same value (different suits when playing with one deck).
- **Five of a Kind** – 5 cards of the same value (different suits when playing with one deck and with wildcards).
- **Full House** – 3 of a kind, plus a *pair* of a different rank.
- **Long Suit** – 5 or more cards of the same suit.
- **Marriage** – King and Queen of the same suit.
- **Meld** – 3 cards with a value when scoring.
- **Pair** – 2 cards of the same rank.
- **Pinochle** – Jack of Diamonds and the Queen of Spades.
- **Roundhouse** – A *marriage* in every suit.
- **Royal Flush** – Ace, King, Queen, Jack, and Ten in the same suit.
- **Run** – 3 or more sequential cards in the same suit (e.g., 5, 6, 7 of Hearts, or 9, Ten, Jack of Clubs).
- **Straight** – 5 sequential cards of different suits.
- **Straight Flush** – 5 sequential cards all in the same suit.
- **Three of a Kind** – 3 cards of the same value (different suits when playing with one deck).

Many popular mainstream card games are just versions of traditional card games with a dedicated deck and some house rules:

- *Uno* is a version of *Crazy Eights*.
- *Skip-Bo* is a version of *Spite and Malice* (also known as *Cat and Mouse*).
- *Phase 10* is a version of *Liverpool Rummy*.
- *Balderdash* is a version of *Fictionary*.
- *O'No 99* is a version of *99*.

Still uncertain where to start? There are lots of varieties of Rummy out there, with many collections of house rules. Start with a grab bag of house rules collected from others, then organize those into your own game.

Example: 99 Game

One of the favorite games of Grace Mary Gilchrist, my great aunt, was 99. Each player had 3 lives (represented by 3 pennies apiece). Each hand involved dealing everyone 3 cards. A player would then play a card of their choice on the discard pile, announce the new running total, and draw a replacement card. For instance, the first card might be a 5. The next player might play a 7, making the total 12. The first player to go over 99 would lose the round and would surrender a life (a penny). The game would continue until all but the final player were eliminated. On an index card my great aunt had written the special values for certain ranks of cards:

- Ace: +1 or +11, as desired.
- (2, 5..8: Add that value.)
- 3: +3 – Skip the next player.
- 4: +0 – Reverse play.
- 9: =99 – The running total is set to 99, no matter what the prior total was.
- 10: +10 or -10, as desired.
- Jack, Queen, King = +10.

I taught my wife and son the card game 99. I remember my great aunt teaching me the rules 41 years ago, on a trip to AZ, but I can't remember the exact rules. There are [a lot of variants](#), but none seem quite the way I was taught. As best I recall: 4=pass, 9=reverse, 10=-10, J=+10, Q=+10, K=99, A=+1 or +11. Player elimination if you exceeded 99, with 3 lives (represented by pennies) and then an "honor" (last chance). I have such fond memories of playing this with my grandparents and two of my great aunts, all now passed, and it pains me that I can't remember the rules we used. A little bit of personal history lost.

(Note that some families play by slightly different rules for these cards and that there's a different card game also known as 99 that involves trick-taking.)

I always preferred 99 to *Uno* because it was quicker, built to a conclusion (had a story arc). It also has some interesting strategy to it. The game is often described as a good game for teaching children to add yet it is not great for that, as you can't add by 4 or 9 since those cards have special meanings.

So here are my house rules for 99:

- Ace: +1 or +11, as desired.
- 2..9: +2..9.
- 10: +10 or -10, as desired.
- Jack: +0 and skip the next player. (Mnemonic: “The Jack is a fool and skips.” A *mnemonic* is a memory aid.)
- Queen – +0 and reverse play. (Mnemonic: “The Queen changes her mind.”)
- King – The running total is set to 99, no matter what the prior total was. (Mnemonic: “The King is in a hurry”.)

Games that eliminate players aren't always fun, especially with big groups. So instead, if you lose, you take a penny. The last player with no pennies in front of them wins!

Popular Themes for Tabletop Games

The following are common themes for tabletop games, derived from [BoardGameGeek's](#) categories. *Pages* shows the number of pages of games with this theme (out of date now, but intended as a relative indicator of popularity).

Pgs	Theme	Game Examples		
50+	Economic	Terra Mystica	Caverna	Through the Ages
50+	Educational	1775: Rebellion	Freedom: The Underground Railroad	Evolution
50+	Fantasy	Terra Mystica	Caverna	Mage Knight
50+	Fighting	Mage Knight	Star Wars: Imperial Assault	Eclipse
50+	Movie / TV / Radio	Star Wars: Imperial Assault	Battlestar Galactica	Legendary Encounters
50+	Science Fiction	Twilight Imperium	Star Wars: Imperial Assault	Android: Netrunner
50+	Trivia	Wits & Wagers	Fauna	Timeline
50+	Wargame	Twilight Struggle	Twilight Imperium	Star Wars: Imperial Assault
43	Sports	Blood Bowl	PitchCar	Formula D
42	Animals	Caverna	Agricola	Dominant Species
41	World War II	Combat Commander: Europe	Memor '44	Advanced Squad Leader
39	Racing	RoboRally	PitchCar	Formula D
36	Humor	Dixit Quest	Dungeon Petz	Galaxy Trucker
28	Adventure	Mage Knight Board Game	Star Wars: Imperial Assault	War of the Ring
28	Word Game	Codenames	Paperback	Beyond Balderdash
24	Medieval	Dominion	The Castles of Burgundy	Caylus
23	Deduction	Codenames	Battlestar Galactica	The Resistance
19	Horror	Dead of Winter	Eldritch Horror	Legendary Encounters
18	Ancient	7 Wonders: Duel	Tzolk'n	Tigris & Euphrates
18	Exploration	Mage Knight	Robinson Crusoe	Descent
18	Nautical	Dominion: Seaside	Le Havre	Keyflower
17	Novel-based	War of the Ring	Robinson Crusoe	Eldritch Horror
15	Political	Twilight Struggle	Twilight Imperium	Battlestar Galactica
14	Travel	Ticket to Ride	The Voyages of Marco Polo	Orleans
13	Math	Sleeping Queens	Utopia Engine	Zeus on the Loose
13	Transportation	Brass	Ticket to Ride	Galaxy Trucker
12	Aviation/Flight	Star Wars: X-Wing Miniatures	The Manhattan Project	Airlines Europe
12	Modern Warfare	Twilight Struggle	Labyrinth: The War on Terror	Fire in the Lake

11	Comic Book	Legendary	Sentinels of the Multiverse	Marvel Dice Masters
10	City Building	Puerto Rico	Lords of Waterdeep	Le Havre
10	Trains	Ticket to Ride	Russian Railroads	Railways of the World
9	Murder / Mystery	Sherlock Holmes Consulting Detective	Letters from Whitechapel	Mysterium
9	Napoleonic	Commands & Colors: Napoleonics	Napoleon's Triumph	Manoeuvre
9	Pirates	Merchants & Marauders	Libertalia	Friday
9	Religious	Ora et Labora	Orleans	Here I Stand
9	Space Exploration	Twilight Imperium	Eclipse	Race for the Galaxy
8	American West	Lewis & Clark	Carson City	Shadows of Brimstone
8	Book	Warmachine	Infinity	Warhammer
8	Civilization	Terra Mystica	Twilight Imperium	Through the Ages
8	Mythology	Tzolk'in	Blood Rage	Five Tribes
8	Zombies	Dead of Winter	Earth Reborn	Zombicide
7	American Civil War	Freedom: The Underground Railroad	Battle Cry	For the People
7	Environmental	Pandemic Legacy	Dominant Species	Takenoko
7	Industry / Manufacturing	Power Grid	Brass	Le Havre
7	World War I	Paths of Glory	The Grizzled	Wings of War
6	Farming	Caverna	Puerto Rico	Agricola
6	Maze	Ricochet Robots	Dungeon Twister	Burgle Bros.
6	Music	Opera	Rock the Beat	Schrille Stille
6	Spies / Secret Agents	Codenames	Battlestar Galactica	Sherlock Holmes Consulting Detective
6	Video Game	Railways of the World	Age of Empires III	Sid Meier's Civilization
5	Renaissance	Keyflower	El Grande	Goa
4	Mafia	Ca\$h 'n Gun\$	Nothing Personal	Junta
4	Prehistoric	Dominant Species	Stone Age	Evolution
3	Age of Reason	A Few Acres of Snow	Maria	Saint Petersburg
3	American Revolutionary War	1775: Rebellion	Washington's War	We the People
3	Civil War (in general)	Sekigahara	Pax Porfiriana	Julius Caesar
3	Medical	Pandemic	Infection	Zombie State
2	American Indian Wars	A Few Acres of Snow	1775: Rebellion	Washington's War
2	Arabian	Five Tribes	Tales of the Arabian Nights	Yspahan
2	Pike and Shot	Virgin Queen	Hamburgum	Unhappy King Charles
2	Post-Napoleonic	Castles of Mad King Ludwig	Sherlock Holmes Consulting Detective	Letters from Whitechapel
2	Vietnam War	Fire in the Lake	Fields of Fire	Phantom Leader
1	Korean War	Fields of Fire	The Korean War	Korea: The Forgotten War

Design Challenge: Design a Card Game Using a Standard Deck



Here's another [card-game design challenge](#) and a case study for you:

Design a game that can be played with a regular deck of cards. You don't need to use all the cards in the deck. You can use each suit as a separate type of card, if you want to limit yourself to four types of cards. For instance, you could use the numbers to differentiate levels, so if hearts represent health, you can have 1 (Ace) through 10 (including face cards) represent how much health is involved, setting aside the Jack, Queen, and King of Hearts.

Example: Wizardly Duel

Rules

Premise

You are engaged in a duel of wizards. Can you cast the right combination of spells that will defeat your rivals?

Setup

Take a regular deck of cards and remove the jokers. Then sort all of the hearts (♥) into a pile. Deal each player 3 hearts face up in front of them, then set the remaining hearts aside. Shuffle the remaining deck of diamonds (♦), spades (♠), and clubs (♣). Deal each player 3 cards face down, representing 3 spells they have at their command.

Play

The last player to lose a game goes first.

On a player's turn, they may conduct one of the following attacks, saying the magic spell if they wish:

- "Arcuballista!" Play a spade (♠) magic-missile spell on any rival they select. The targeted rival must respond to the attack (see below).
- "Incensus!" Play a club (♣) fireball spell on any rival. The rival must respond (see below). The attacker may then repeat this step for each fireball spell they have in their hand that they wish to play. Note: An easy way to remember the difference between the power of the two cards is that a spade shape (♠) has 1 point on it (at the top) and a club shape (♣) has multiple points on it (top and sides).
- "Oblivioso!" Play a diamond (♦) counterspell, discarding a card chosen at random from their rival's hand.

The current player may then draw 1, 2 or 3 cards, so that they have 3 cards in their hand.

A targeted rival must respond to an attack. They must either play a diamond (♦) counterspell from their hand to ward off the attack ("*Diffugio!*"), or discard a heart (♥) healing spell from in front of them ("*Curatus!*"). If it is their last healing spell, they lose! Play continues until only 1 wizard remains standing.

Design Diary

Inspiration – “Bang! meets Suits”

The inspiration for Wizardly Duel was to have a better alternative to the classic card game of *War*. In *War*, you play a card from your deck and, if it is higher than your opponent’s card, capture their card and add it to your deck. This is a great way to teach *greater than*, *equal* or *less than*. It is a bad game, though, as you do not have any decisions to make. Just flip the top card and do the comparison. Plus the game takes forever, though I have fond memories of playing it with my dad when I was 8 years old. In fact, BoardGameGeek.com ranks *War* as the fifth worst game in history, ranking 15,697 games as better than it!

In contrast, one of our family’s favorite card games about battle is called *Bang!*, which is an award-winning card game designed by Emiliano Sciarra. You are a cowboy in a Wild West shootout with a specific goal (shoot the sheriff, save the sheriff, shoot the outlaws, be the last one standing, etc.). The core of the game involves playing a card called *Bang!* (from which the game gets its name) that represents a gunshot, then trying to fend off that gunshot with various other cards. *Wizardly Duel* was conceived as a version of *Bang!* played with a regular deck of cards and just 4 types of cards.

If you know the game of *Bang!*, then you may recognize that the healing spells are like the three bullets (cardboard cutouts) representing your cowboy’s life. The counterspell card is the *Missed!* card when played after being attacked, and the *Cat Balou* or *Mistress* card when played as an attack. The magic-missile card is the *Bang!* card unmodified by any effects; the *fireball* card is the *Bang!* card on repeat (typically through use of a *Volcanic*, when playing as *Willy the Kid*, or – sort of – when using the *Duel* card).

Now, were this a game being prepared for publication, it would be wrong to base it off *Bang!* so closely, and in fact *Bang!* has been cloned and [its publisher has sued the company cloning it](#). But we’re just using *Bang!* as an example for a home-brew game, and for better understanding game design. (If you don’t own *Bang!*, [check it out](#).)

When considering using another game as inspiration, I like to look at its list of cards. Bang! has these 80 cards (not counting roles and characters):

- 25 Bang! cards
- 12 Missed! cards
- 4 Cat Balou cards
- 3 Duel cards
- 8 weapons cards (5 types of weapons)
- 5 object cards (3 types)
- 7 healing cards
- 5 cards to draw more cards (3 types)
- 11 special-event cards (5 types)

The good news about this analysis was that a lot of the cards were attack cards, as they would be in Wizardly Duel. And there were almost twice as many Bang! cards as Missed cards, while Wizardly Duel has exactly twice as many damage spells as counterspells.

In *Bang!*, as in many card games, you draw cards to your hand, then decide what to play. I absolutely hate this mechanic, since it slows a game down. (In the language of game design, a *game mechanic* is a type or category of rules. More on this later.) The player has to read the cards, then decide what to do. Instead, I prefer to have a player draw their cards at the end of their turn. They can look at them and decide what to do while the other players are taking their turn. This makes the game go faster in actual elapsed time and be perceived as faster too, since the player now has something to do when it is not their turn.

Playtesting

The first version of the game my son and I kept all the hearts in the deck but dealt each player 3 heart cards to start their hand and then 4 other cards. Unfortunately, it meant the game would go on a long time. So halfway through the deck, we decided to change the rules. We removed the hearts, and the game went much faster. We started over. Sometimes, when playtesting, especially early in the design process, be willing to stop and change the rules and try again.

The second playtest, the first complete play-through until one of us won, we felt the game worked well but could be improved. At this stage, we kept the three heart cards in our hand. This made for a big hand, so we decided the three heart healing-spell cards would be played up in front of us instead. For a game with more than two players, it will make it easy to decide who is winning. We also decided to shrink the hand size to 3 cards.

The third playtest of the game we decided to mix it up and have the clubs allow you to draw cards, and be only way to draw cards. But I quickly ran into a problem. I didn't have any clubs! We stopped that playtest after a few rounds.

It still felt wrong not to have different powers for the two types of black cards, so I decided that clubs would be the only spell that you could play multiple times during an attack. The fourth playtest went great, with one problem. I had a hand of all diamond counterspells, which at that time could only be used in response to an attack. So, on the fly, we changed the rules so that you could play counterspells as your attack, seizing a card.

With the rules seeming almost final, the next step was to play the game some more and make sure that we still enjoyed it. My son started shouting spells from the *Harry Potter* books!

After that, we had to conduct what is called a *blind playtest*. In a blind playtest, you give someone the rules but don't teach them how to play. Then you listen to their feedback and find out what was unclear.

Here's how the game changed as we playtested it:

	1st version	2nd version	3rd version	4th version
Hearts (♥)	Healing spells in deck and hand	Healing spells removed from deck	Healing spells played face up during setup	
Diamonds (♦)	Counterspells when attacked			Counterspell attack takes a card, defends the same
Spades (♠)	Attack spell			
Clubs (♣)	Attack spell		Draw cards	Attack and repeat
Hand Size	7	3		

Now that's for a game with only four types of cards. Imagine how much experimentation and replay is needed for a more complicated game.

And that's why this blog is set up as it is, with simple design challenges to get you started on game design.

Common Card Areas and Actions



Card games typically have different areas in front of the players. These areas have a variety of names, depending on their purpose:

- **Arena** – A common area to which players play cards face up to a contest, such as a “battle” or “war” in the game of *War*.
- **Cascade** – A set of face-up cards built on one another, with the value and suit of each card in the cascade visible. (For instance, *Solitaire* builds 7 cascades, from highest to lowest.)
- **Cell** – A spot that can hold only one card.
- **Community Card** – A face-up card whose properties or value are shared by all players.
- **Discard Pile** – An area where cards are placed that have been used or can't be used. Typically played face up, though some games require them to be played face down. Also known as trash or waste. Some games cascade the discards, which can be drawn from.
- **Draw Pile** – The deck of cards to draw from, typically face down.
- **Foundation** – A face-up pile that cards are played to. For instance, in *Solitaire*, there is a foundation started by the Ace of each suit.

- **Grid** – A rectangle of cells. For instance, in *Concentration*, 4 rows of 13 face-down cards each (the entire deck, excluding Jokers).
- **Hand** – The cards dealt to a player, typically face down, and known only to the player, who can look at all of them.
- **Hole Card** – A card dealt to a player face down and not revealed to other players until the end of the hand.
- **Kitty** – Additional cards dealt face down to the center of the table.
- **Layout** – The cards played face up in front of a player and specific to that player. For instance, in *Solitaire*, the 7 *cascades*. Another word for layout is *tableau*.
- **Pot** – The amount of chips that can be won this round. Usually played to the center.
- **Stack** – A draw pile turned upside down, with the top card visible. Each time a card is taken the next card is revealed.
- **Stock** – A face-down draw pile available only to a particular player, as in *War* or *Simultaneous Solitaire*.
- **Upcard** – A card or group of cards dealt to an individual player face up.

Each area might represent a different part of the theme. Your game might have multiples of any one of these, with different names. For instance, a dungeon-exploring game might have a Room draw pile, a Monster draw pile, and a Treasure draw pile. A player might have a Left-handed Weapon cell and a Right-handed Weapon cell and an Armor cell. A player playing a Wizard might have a spell stock. And so on.

	Usable by All Players	Usable by Specific Player
Face-Down Group	<i>(Draw Piles)</i>	–
Face-Down Pile	<i>Draw Pile & Kitty</i>	<i>Stock & Hand</i>
Face-Down Card	<i>Grid</i>	<i>Hole Card</i>
Face-Up Group	<i>Arena & Community Cards</i>	<i>Layout</i>
Face-Up Pile	<i>Discard Pile & Foundation & Stack</i>	<i>Cascade</i>
Face-Up Card	<i>Cell</i>	<i>Upcard</i>
Other Components	<i>Pot</i>	–

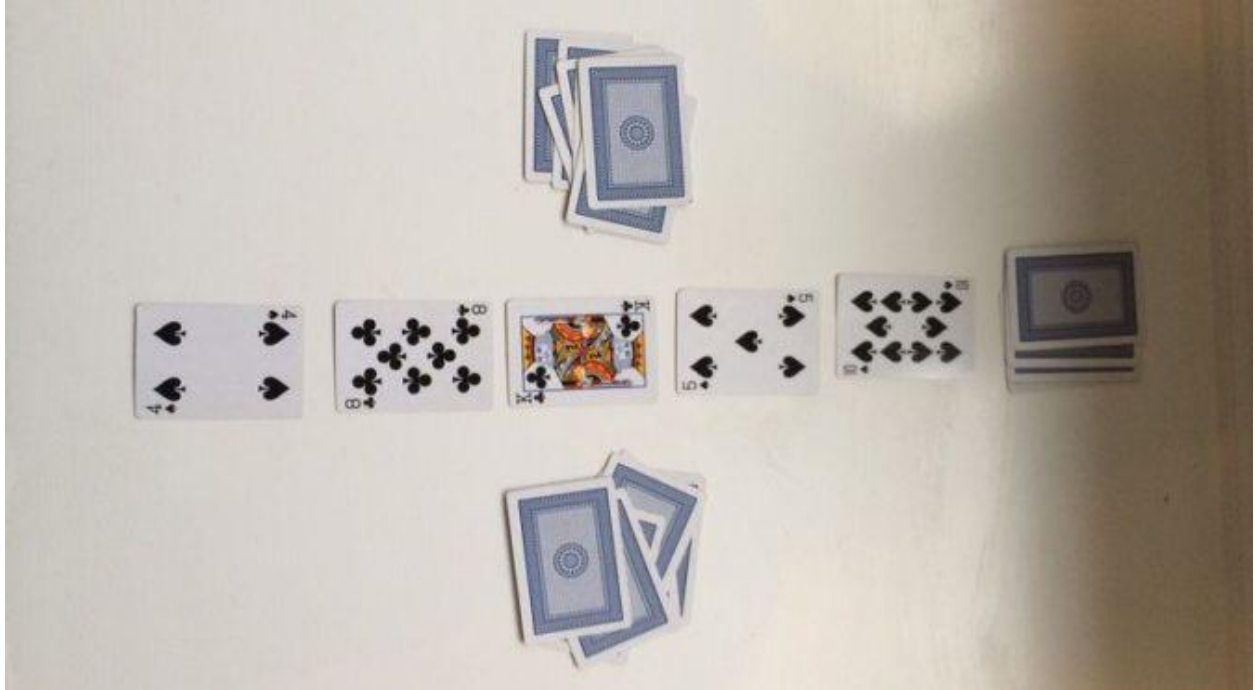
Many games have actions that involve moving cards between areas. Here are some common actions players can take:

- **Burn** – Discard the top card of a stack.
- **Cover** – Play a higher card of any suit.
- **Crawl** – Play a higher card of the same suit.
- **Deal** – Move cards from the draw pile to each player’s hand.
- **Discard** – Move a card from a player’s hand to a discard pile.
- **Draw** – Take a card from the draw pile and add it the player’s hand.
- **Go out** – Get rid of all the cards in a player’s hand in a game where that specifies an ending condition.
- **Hit** – To take another card from the dealer face up to a player’s layout.
- **Layoff** – To move cards from your hand to a rival’s layout.
- **Pass** – To not play a card on your turn but let the next player know they can go.
- **Show** – Turn a face-down card face up for all to see, then place it face down again.
- **Shuffle** – Mix the cards together multiple times to randomize the order. Often used when making a discard pile a new draw pile.
- **Stand** – To decide not to draw any more cards for the rest of the round.

Using these terms, and ways of thinking about card games, you can come up with specific actions for your own card game such as “Steal” (move a card in a rival’s layout to your hand), “Destroy” (move a card in a rival’s layout to the discard pile), “Damage” (move a card in a rival’s layout to their hole cards), and “Level” (move a card in a rival’s layout to their hand).

([Photo by Moroboshi](#), used by permission.)

Design Challenge: Standard Deck Adaptation of a Published Game (Rummy Duel)



Your design challenge is to take a published card game and adapt it to use only a traditional deck of cards.

If you ever end up stuck somewhere with only a regular deck of cards to play with, you'll be able to use that deck to play the game you invented!

Example: Rummy Duel

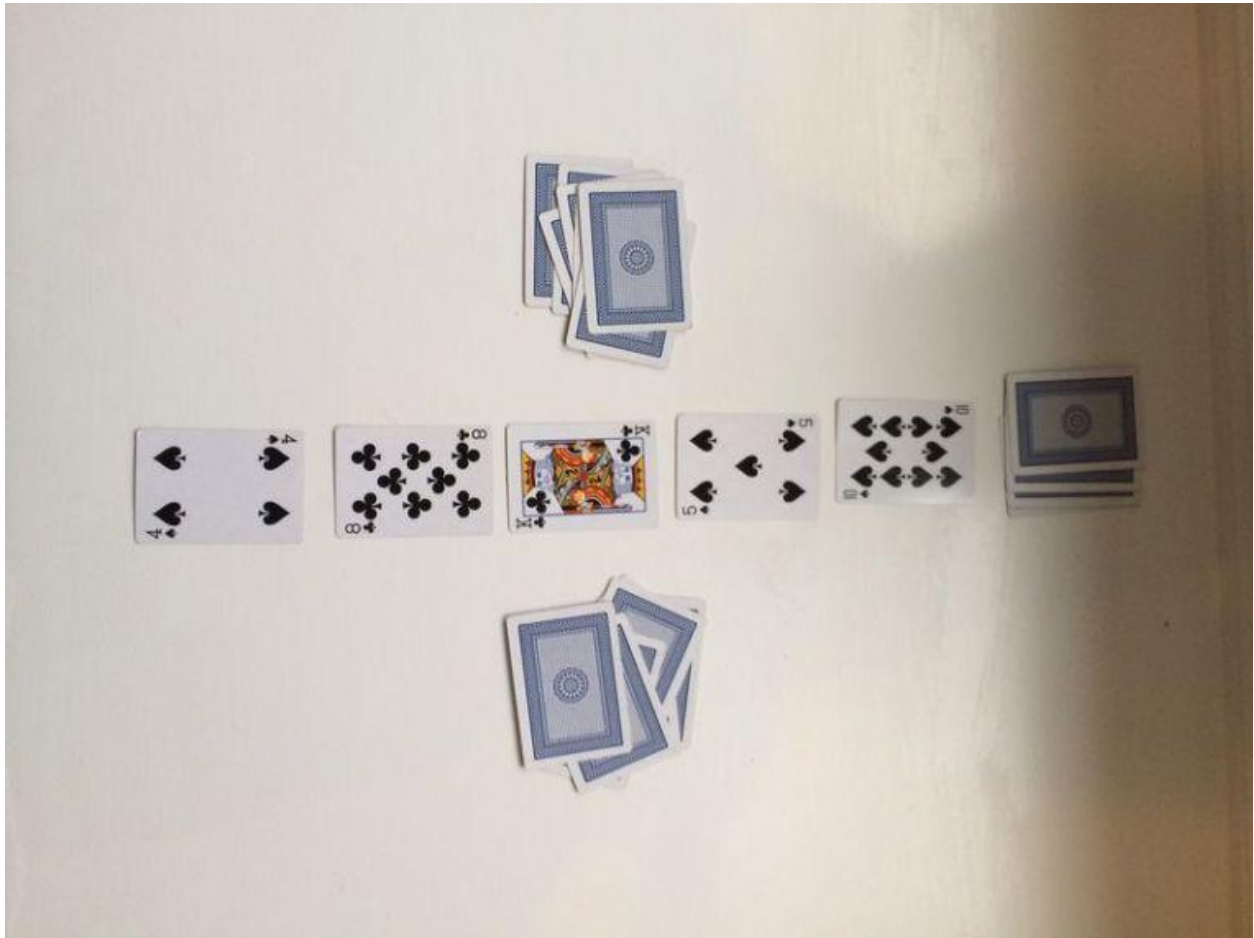
Rules

Premise

Rummy Duel is a fast-playing version of *Rummy* for just two players. It is adapted from the game *Schotten-Totten*, by Reiner Knizia, in which two players compete while assembling 9 separate hands of poker, trying to win 5 of the 9 hands anywhere or 3 adjacent ones, to win the game.

Setup

Deal 7 cards to each player. Deal 5 community cards lengthwise between you and your rival and end them with the draw pile, also arranged lengthwise. The loser of the last game goes first.



Play

A player starts by drawing a card of their choice. They can take it from the draw pile, or they can draw one of the community cards that has not had a claim staked to it (i.e., empty on both sides; see below). If they take a community card, they must immediately replace it with another card from their hand.

If the player can form any type of meld — a run (three cards in a row, of one suit or any mix of suits) or a set (three of a kind, all of the same suit) — then they may play that to their side of any community card to stake a claim to it. (Aces can start or end a run but can't go “round the corner”: ace, 2, 3 and king, queen, ace are valid runs, but king, ace, 2 isn't.) A meld, once placed, can't be moved to another community card. If the current player can't play a meld, they say “Pass” instead.

To win a community card, the player must have a higher value than the opponent: comparing the high card of a run (3 to ace), or the high card of set (2 to ace) – a set always

beats a run, even a run all of the same suit. So a 2, 3, 4 run beats an ace, 2, 3 run, and a set of kings beat a set of queens. In case of a tie, neither player wins the community card.

Play continues until:

- All 5 community cards have had a claim staked to them by one player (the player who didn't start gets one last turn), or
- The draw pile is empty, or
- A player's tally of won community cards now exceeds what a rival can win, in which case the winning player calls "Rummy" to declare their victory. (For instance, if the community cards are 2, 3, 4, 10, jack (11), and one player has won the 10 and the jack, the other player couldn't win if they won the remaining 3 community cards.)

Each player tallies the rank of each community card they won (aces are worth 14). The high score wins. The tie-breaker goes to the player with the fewest cards in hand.



Design Diary

Inspiration

Ironically, this was one of the hardest challenges for me to complete, as I typically like more thematic games. And I originally thought *Rummy* was a terrible game to start with, thinking that variants of it had been pretty much exhausted, before I realized it had so many possibilities that I proposed it as an idea for [the first challenge](#). Finally, I remembered Schotten-Totten and wondered what if it was 5 melds of rummy instead of 9 hands of poker?

Playtesting

My first rules were pretty barebones:

1. Deal 7 cards each.
2. Deal 7 community cards.
3. Can draw an uncontested community card and replace it from the draw deck.
4. First player with more points than rival can claim wins.
5. Score is sum of community cards can claim.
6. To claim a community card must have a higher value: high card of run (3 to 14), or high card of set (2 to 14) – set always beats run, even a run all of the same suit.

Given the width of 7 community cards arranged lengthwise, I reduced it to 5 cards upon initial play. It quickly became clear that players need to say “Pass” if they weren’t playing a meld. And once I realized the tally of the community cards I had won exceeded what my rival could claim, I called “Rummy” and won. The playtests also revealed a need to be more specific about the end cases.

On subsequent plays, I decided that drawing a face-up community card without discarding was too powerful and required the card to be replaced from the player’s hand.

While this challenge might seem simple, it’s meant to get you experienced iterating on game design without the need to create a prototype yet. So please give this challenge a try.

Guide to Prototyping Card Games



The secret of prototyping is to do the least amount of work you can to test the next iteration of your card game. If it's for the first play, simply write on a collection of index cards. Just worry about the broad strokes of the game play, not all the little details. Don't worry about naming specific cards or accurately simulating the theme. Or getting all the cards you plan to have. Just get a game that is fun to play.

Write with a pencil, not a pen. Your game should feel impermanent and easy to change. Because you are going to have to make changes—and you will want to make changes. Plan to erase and rewrite.

In fact, for your first play, don't even think of it as a prototype. Think of it as a proto-prototype. The roughest, fastest thing you can use to quickly test the core idea of your game. Bonus points if you can use decks of cards and game pieces cannibalized from other games.

If the prototype is for a subsequent play, feel free to write over the original cards. Mark them up. Keep it rough and ready, to reflect the fact that major parts may need changed.

In that same spirit, don't worry about what the name of the game will be. You're a long way from that. Just give it an arbitrary code name; it doesn't even have to refer to theme or mechanics. In fact, it is probably better if it doesn't.

- For instance, my game of world war, inspired by Risk, ended up being a game of alien invasion instead.
- And my game about the age of European exploration ended up being about the Intercolonial Wars instead.
- It is not unusual for a game to evolve changing either theme or mechanics, or occasionally both. My sports game was originally about sports superstitions before Jeff Voigt simplified it to focus primarily on the basics of football.

So a code name that refers to theme can end up not fitting. And a code name about mechanics can be wrong as well: a game I originally called "Nine" was supposed to be just a nine-card game but ended up as a board game with more cards.

If you need a bunch of names of cards, you can use the Greek alphabet, or numbers. "Spell #1", "Weapon #9", "Monster #3 – Goblin?" are all fine at this stage. The parameters of the cards are more important than the name: the card's properties and capabilities. For instance, in my game Wizard's Tower I originally had "Healing Potion – prevent warrior from dying", "Potion #2 – strike dragon", "Potion #3 – peek at top Monster card then return to its draw pile" and one of my favorites of all time "Potion #4 – improvise its ability!" I couldn't figure out what it should do and decided we'd make it up on the fly and see what happened! (See challenge #14 below for more on what these became.)

Use plain language about the action the respondent is to take. You can add titles and flavor later – for instance, "Offense must discard hand" is fine for the first version of a card in a football game. By the time the game is ready to be produced, the card might be titled "Headset Troubles."

It's a natural tendency to overproduce prototypes. You know what real card games look like, and you want yours to look like that. Avoiding overproduced prototypes is a lesson that I learnt the hard way. For my early games, I would try to design the entire game upfront, getting all the details right, finding clip art that I could use, making a beautiful prototype, naming every card, making sure its capabilities were evocative of the theme. Only to find out that the ideas I had for how the game would work were wrong.

And then I was overwhelmed about the idea of changing everything. Because it was all so overproduced.

So dive in and commit to iteration.

Goal	Prototyping Phase	Materials
Prove the kernel of your idea will make an enjoyable game.	Sketch	Writing in pencil on index cards or even slips of paper.
Refine the architecture of your game, the properties and ability of cards.	Framework	Think about the parameters and attributes of the cards, and create a working subset of the eventual game that demonstrates key properties.
Refine the inventory of cards	Periodic Table	Type up the cards in a spreadsheet, size the spreadsheet cells large, and print and cut.
Think about a layout that will make the game easy to learn.	Wireframes	Type up the cards in a presentation or graphics program or a dedicated system like Concept Studio, Paperize, or nanDeck. Use words or common symbols and emoticons.
Refine the graphic design.	Mockups	Find icons from The Noun Project, Game-Icons.net, and elsewhere. Use clip art to express theme.
Determine what confuses and frustrates players.	Blind Playtesting	Conduct usability testing of the rules and the cards. Rinse and repeat until the game is ready for publication.
Polish the graphic design.	Production Ready	Iterate until the game can be published as a free PDF that can easily be learned by players on their own.

Useful Materials

The most important asset to a game designer is a notepad. Think of it as a designer diary, recording your thoughts and inspirations. Log plays and track problems with your games, as well as your ideas for solutions to the problems you observe.

Pencil and paper work fine, or you can use an app on your smartphone. Many of the games in this book were designed in Google Docs and Google Sheets.

For playtesting ideas with standard decks, consider carrying around a miniature deck of cards. Similar in size to a larger pack of gum, you can easily carry it in your pocket or pocketbook.

For dedicated-deck card games, consider buying index cards – standard size or miniature. You can use miniature if your cards don't have a lot of properties or a lot of information on them. Alternatively, you can quickly prototype dedicated deck card games that use unusual combinations of ranks and suits by combining different decks. Buy a bunch of cheap decks with the same back so that you can create custom combos of card frequency – for instance, 3 decks will get you 12 cards of each rank.

If you like to sleeve your card games, sleeve a bunch of Magic commons (the most common cards from *Magic: The Gathering* booster packs) and sketch the cards for your prototype on paper and sleeve them.

I have some bead organizers from Michaels craft store that I use to store accessories. This originally started as me keeping useful pieces from games that were broken, damaged, or missing components. Then I started buying used games specifically to cannibalize, from garage sales and yard sales and thrift stores and dollar stores. Dice, bingo markers, tiddley winks, wooden cubes, meeples, and play money are all useful prototyping components. Then I began buying pieces from parts stores such as Rolco Games, Koplou Games, and The Game Crafter.

Things to buy if you find you are serious about game design: a printer or all-in-one device (a printer with a scanner and fax), cardstock (make sure it is not too thick for your printer), a paper cutter, and blank playing cards.

Online Resources

Most game publishers put copies of the rules of games on their sites for free. So you can read the rules for far more games than you can afford to buy. If you're interested in designing a game with a particular theme, you can use BoardGameGeek to find the highest rated games with that theme, then go to the publishers' websites and download the rules to read. Want to design a game about wizards? Lots of games out there can give you ideas for systems of magic and for spells. Can't afford a really expensive game? Download the rules from the game publisher's website to learn more about it.

For imagery, Game-icons.net has over 3,200 icons that you can use in your card games in exchange for providing credit to the illustrators.

Popular ones with random colors



The Noun Project has over a million icons; unlike the pictures on Game-icons.net, which are designed to work together in a similar visual style, the Noun Project's icons embody a wide variety of styles, meaning two icons don't always work well together.



There is free software that is useful, including Google Docs for writing notes and rules and Google Sheets for creating cards.

Some software is specifically for creating games:

- NanDECK is a powerful if esoteric scripting language for creating paper card games (requires Windows).
- Paperize.io is great for rapidly prototyping card games, though not as powerful for producing finished cards.
- Component Studio, subscription required, is the easiest way to prepare games for printing or selling through The Game Crafter. It can also be used to generate print-and-play PDFs.

Nor should we overlook the discussion groups of game designers, who will point you to even more online resources.

- BGDF – The Board Game Designers Forum hosts a collection of discussion groups, blogs, and contests.
- BoardGameGeek – The Board Game Design forums on BGG range from design discussions to graphic design to discussion of works in progress, playtest requests, and contests.
- Card & Board Game Designs Guild – A Facebook group run by James Mathe of Minion Games.

Playtesting Guide



The purpose of playtesting is to collect real-world experiences with your game that you can use to help you modify your game so that it better achieves your goals. Early on, you might playtest the game by yourself (solo playtesting or self-testing) to make certain that its basic framework works or to test individual parts of the game. Your friends and family members will want to play a more workable version of the game, though it is best to emphasize the goal is to learn about the game rather than win. Your target audience is approached through blind playtests, where they learn the game as your players will eventually in the real world – from the documentation and game components alone.

For a brand new idea, you want to test that the game actually works and is fun, and keep track of where ideas don't proceed as you expect. Try to schedule time to play it through 2 or 3 times, so you can see the game under different conditions.

Come up with a list of the goals you want to accomplish during a playtesting session. Perhaps you want to test certain conditions that arise when the game is over. Or you need to test just the combat system. In such cases, you do not have to play the entire game. For instance, for one game my son developed, one of our play-test sessions involved just testing different ideas for combat, which was just one part of the game. You might want to test different scenarios: the end game, rare events, edge cases, points that have confused earlier testers, etc. (Source: [LAFS Game Design 8 - Playtesting.](#))

Goals for playtesting, and who you should playtest with, often depend on where you are in the development of this particular game:

- Initial idea / zero draft – Quickly get a subset of the game to the table to verify that the mechanics work the way you intend, with a proto-prototype, as it were. Just play by yourself or with a fellow designer.
- First draft – Playtest with other designers or with good friends who won't mind playing a broken game to see if the game works.
- Subsequent drafts: Playtest it repeatedly with different groups to determine what needs to be refined. This is where you will spend most of your time.
- Balancing: Send it out for blind playtests and log feedback, to make sure cards aren't unbalanced. Play it with groups with the goal to try and break it.

Brandon Rollins defines blind playtesting as “When you give your game to other people with no instructions on how to play. You can choose to observe them while playing or elicit their feedback after the game has ended.”

If you are only planning on playing your games with friends, you may not need to do blind playtesting. Once the game is almost done, though, you can recruit playtesters over the Internet or give the game to acquaintances to play without you.

Steve Jackson says “good advice for any designer” is “playtest the dumb strategies.” For instance, in a game with a range of actions, what happens if a player takes the same action or two every turn? In the *Kobold Guide to Board Game Design*, the following strategy broke an earlier version of Dominion: “In the initial stage of the game, Dominion ended when any one of the three Victory stacks were depleted. So, the Duchy Rush strategy had a simple algorithm: buying nothing if you had 0 to 2 coins in your hand, buying a Silver if you had 3 or 4 coins in your hand, and buying a Duchy if you had 5 or more coins in your hand. That's it. This strategy totally ignored all of the Kingdom cards on the table.” The game was changed prior to publication to add end conditions and to tweak victory points to make this a suboptimal strategy.

Surviving Negative Feedback

Keep in mind when playing with people in person that it is human nature to tell people what you think they want to hear – your playtesters might give you pleasant platitudes. Make sure you emphasize the value of negative feedback and constructive criticism. If you can ask only one question, ask:

- What one thing would you change to make the game more enjoyable?

Other good questions:

- What confused you the most about the game?
- What, if anything, would you change about the game?
- What, if anything, would you make sure not to change?

As we've all learnt by now, people are much more caustic over the Internet. At one point, *Android: Netrunner* was the most highly rated card game on BoardGameGeek.com, with an average rating of 8.1 on a 1 to 10 scale. Here are a sampling of the comments of those who rated a 1 what is widely regarded as the best card game:

- "One more example of a game loaded up so heavily on theme that the gameplay totally suffered. I really, really don't know why this game has gathered as much popularity as it has."
- "This is one of the most absurdly luck based games I have ever played. Why design a game where if you don't draw the exact types of cards you need, you lose?"
- "Stupid 'game'. Stupid manual. Stay away from it."
- "It feels like there's way more stuff in the game than there needs to be. It might be fun if it were streamlined. But it's not, and it's not. The runner died on his first turn during one of the games I played."
- "The mechanics kill it for me... The overall dynamic means the game plays you... I don't think you should buy this game."
- "Run in the other direction! Now!"

Even one of the best card games doesn't appeal to everyone. Now, imagine the designers, Richard Garfield and Lukas Litzsinger, were playtesting the game and got those comments. They'd feel like the game was a failure, right?

Sometimes a game is not right for a playtester, or group of playtesters. That doesn't mean it is a bad game. My game *Civscape*, provided below, is a simple take-that card game about the rise and fall of city-states. When I playtested it with a group of game designers, they all hated it. They wanted something meaty and mathy and strategic, like most civilization games, while *Civscape* is meant as a fun filler before or after the main game of the evening. I was so discouraged I set the game aside for a year. Until I heard from another playtesting group that had friends who wanted to buy their own copies. Same game: completely opposite reaction.

Apply the feedback that matches your design goals. For instance, one of my friends who is a game designer has a simple family game, and she had two different actions: one where people draw 3 cards from Deck A and add 1 card to their hand, and one where people draw 2 cards from Deck B and add to their hand, then discard 1 card from their hand. My advice to her was to make this action consistent, regardless of deck; since that met her design goals, she did, standardizing on "add to hand, then discard".

So learn from feedback, but don't take it to heart. Not every player loves every game.

One last bit of advice, from Steve Jackson: "If your testers say it takes too long, what they really mean is they're not having enough fun."

How Much Playtesting Is Needed?

How many playtests are enough? Partly it depends on how quickly the game comes together. Partly it depends on game complexity: the more complicated the game, the longer it will take to playtest. Partly it depends on the intended audience: for friends and family, a few playtests are sufficient; for people to download free on the internet, at least 10; for publication, probably at least 50. And Tom Jolly would argue you need to play a game 100 times.

I was lucky in that my game *City Blocks*, published by Nestorgames and available to play for free on Yucata.de, came together in one afternoon of playtesting. But it was an extremely simple game. My game *Civscape Rivals* (included as the final example game in this book) took over 250 plays over 4 years before I felt it was ready for publication.

Very long games can be challenging to playtest. I once rented a table at a boardgame convention and playtested the same game dozens of times over 3 days with a hundred attendees. A well-regarded game designer from a major publisher, who has multiple games

in the BoardGameGeek Top 100, confessed that we were playtesting the game far more than they tested their titles.

Playtest, playtest, playtest!

As the [Asmadi game](#) featured in our cover image warns, not playtesting leaves its legacy.

Game Development: Developing for Gameplay, Theme, and Manufacturing

In many game companies, developers are different than designers. They will take a game designer's working game and adapt it for publication. These changes might be intended to:

- Improve gameplay
- To better fit the game company's customers
- To meet manufacturing constraints or goals.

Developing Gameplay

The developer will first continue to refine the game. Dale Yu – the game developer for *Dominion*, *Suburbia*, and *Castles of Mad King Ludwig* – relates how he played *Suburbia* solitaire hundreds of times to refine which tiles to include in the game.

- He changed the attributes of some of the tiles (i.e., their costs and abilities).
- He identified tiles that didn't work with the others.
- He examined sets of tiles (airports, schools, etc.) to determine how they worked together and if more were needed.
- He tested strategies that might break the game or always lead to victory.
- He changed the game ending conditions and tweaked the rules in other ways.
- He suggested improvements to the graphic design of the game.



If a game does not have a good story arc, the developer might work on creating a better beginning, middle, and end to the game.

Inconsistencies are another area where a game developer can make a difference. Sanding down the rough edges of a design, removing arbitrary differences in language and functionality.

The graphic design elements of a game help convey rules, components, and other important aspects of gameplay. These are items that can evolve through game development.

A final step is documenting the rules. Sometimes a game designer or game developer writes the rules, but these people are often too close to the game, and might be documenting it wrong – documenting earlier versions of the game play, or discussing the game in ways that are confusing to the new player. Some firms will hire independent writers specifically to write or edit the rules.

Developing the Theme

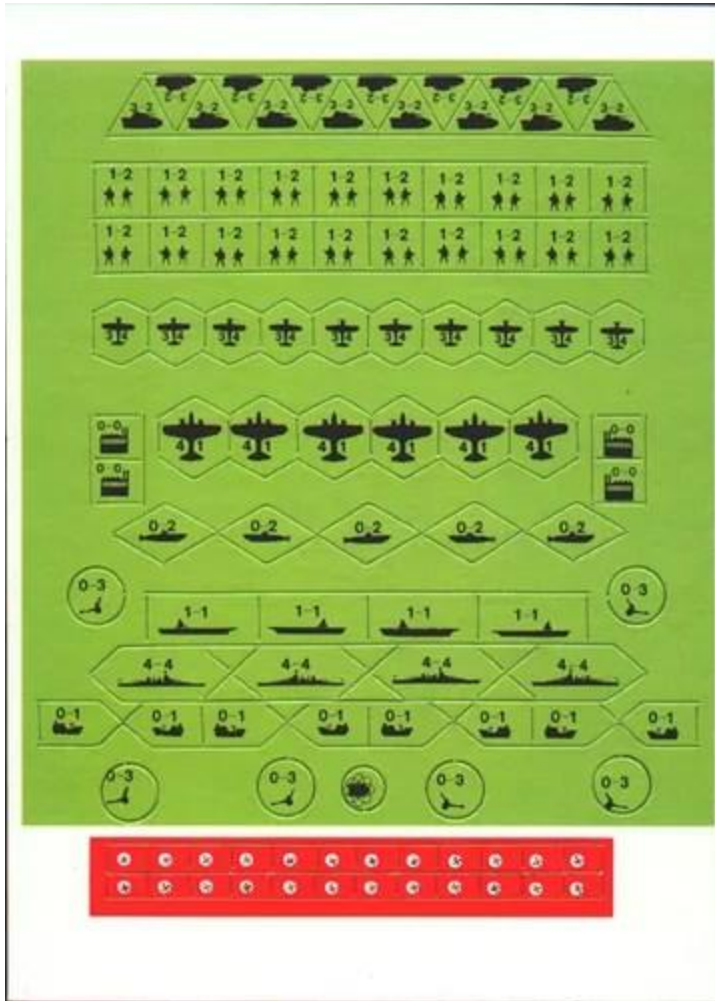
One of the jobs of the game developer is balancing theme vs. game play. Some gamers like richly thematic games and have a wide tolerance for unusual rules to better represent the theme. As the theme is refined, cards may need to be changed. Others may prefer a more streamlined and abstract approach.

For instance, the Reiner Knizia' Schotten Totten is about Scottish shepherders. It's a very abstract game – it can be played with a 6-suited deck of cards and 9 tiddlywinks or bingo markers. When GMT Games considered the game for publication, they rethemed it to better fit their customer base of wargamers. The cards were given military ranks and the game was renamed Battle Line. Because Americans prefer a mix of more luck than many European games, GMT had Knizia add a set of 9 cards that introduced a bit more variation.

Developing for Manufacturing

Often games will need to be redesigned around manufacturing costs. The game designer may have unrealistic expectations for how many plastic figures could be used, for instance. Some of these plastic figures might end up replaced with cardboard tokens or standardized meeples.

But the manufacturing costs can also be increased, depending on the market. For instance, the first version of *Axis & Allies*, by Nova Game Designs, used cardboard counters to represent tanks, infantry, anti-aircraft, battleships, and submarines, as was typical of most wargames of the time.



When Milton Bradley took on the game to prepare it for mass-market publication, they commissioned plastic molds and figures for these pieces instead. (Something that can cost \$10,000 per figure.)



After purchasing Milton Bradley, Hasbro re-launched the brand as a series of games and re-engineered them so that more of the figures were unique to their country, better

representing the unique equipment of the different combatants. (For instance, the German tank now looks different than the Russian tank or the American tank. In the original game, only the infantry – shown above – looked different.)

Historically, game developers were not credited in the rules, but that's changing, as people recognize the important work that developers do to transform designers' visions into highly replayable games.