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# COOKIE RAID

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BRADLEY BUCHANAN - CROSSING DICE CANYON

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# BRAINSTORMING

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My blue-sky brainstorming list:

- **The Clock Event Track** – This is a system I’ve developed that I’m just waiting for the right game to plug it into. It uses 1d6 to stagger beneficial and detrimental effects in a way that tends to generate a good interest curve.
- **Dice pushing dice** – I thought about a board game where dice can push other dice based on their face value (Arimaa!). Anthony eventually did this.
- **Rolling pieces, then placing them strategically** – It seemed like an initial roll could make a placement game interesting, and then re-rolling at a key moment in the game would be exciting. Anthony did this too.
- **Cooperative or competitive game?** – My last assignment was cooperative. I think I want to go competitive this time. Yotam did cooperative.
- **Randomness in setup on a pure strategy game?** – I could always use an existing nonrandom game as my model and modify it to use dice.
- **Randomness in resource generation** – as in Catan? Where accounting for the probability curve is the strategy?
- **Randomness that gives opportunity to all players equally** – Suppose a random resource comes up, but any player could take it. This would help with balance.
- **Bidding on a randomly generated element** – The game Medici does this, as does Tikal in the bidding variant. What if you were bidding dice?
- **Can I distill Dominion into a tiny portable dice game?** – In fact, I did... see my other game, *Pyramids*.
- **Three dice** – This feels like the most comfortable number for anytime play. This would be a good design constraint.
- **How about tokens as resources** – Not to use these as money (as in poker) but as a way to change the gameplay. Emmanuel eventually did this.
- **Theme of Airports, Airlines, Airplanes** – This is planned scenario with lots of uncertain outcomes. It could make a very interesting dice game.
- **Theme of wild magic, things barely controlled** – This came out of reading the article on Magic. It suggests a game with *very* random outcomes, and a little strategy holding it all together.
- **Running from the crocodile!** – A bit of a board game. You have player pawns (as dice) on a linear track. Each turn players can run forward, picking up speed and tripping up other players. At the end of each round the crocodile speeds up, moving player pawns back by a set amount, and pawns

that fall off the end of the board are “eaten.” Last one standing wins!

- **Theme of firefighting** – Flames are very unpredictable. Maybe random rolls could simulate the spread of a fire? It would have to be different from *Fire and Dice*, where they roll for resources to fight the fire. I would like to try fixed resources for the players and a variable threat (like Pandemic).
- **Theme of mining** – The odds of striking rich are slim. Could have a more industry element, where gathering a steady stream of common resources was a valid strategy too.
- **Theme of prison** – What are the dynamics of a prison? How could dice simulate unruly prisoners and the uncertainties of the situation?
- **Theme of Lemonade Stand** – A simple commerce simulation, pay a certain amount for inventory of certain products, have a system to simulate consumer purchase trends.
- **Theme of Cooking** – you roll random ingredients and have to come up with something?
- **Theme of Valhalla** – What sort of norse quest with a lot of random elements could end in Valhalla?
- **Dice as HP** – This is actually pulled from *Island of D 2* which uses the cards in your hand as HP. Yotam ran with this idea.

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## INITIAL RULESET

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For two to four players.

**Parts:** For  $x$  players,  $3x+5$  D6s. Maybe cups or screens to hide dice.

**How to play:**

1. “Deal” every player three dice, and “deal” five dice to the side.
2. Every player makes a concealed roll of all three of their dice, then privately looks at the dice they have.
3. Roll a die from the pool to the center of the table. Announce the die: “Bid on 5!”
4. Players may take any number of dice from under their cup to try and win the center die. They hold these concealed until all bids are ready.
5. Players simultaneously open-roll their bid dice.
6. Whoever’s bid shows the most pips wins the center die. All dice are returned to their owners, retaining their new facing.
7. After five bids (when the pool is empty) players reveal their dice. Whoever has the most-of-a-kind (with higher values breaking ties) is the winner.

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## RULES ITERATIONS

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Below I have enumerated my playtesting process, with some interim reflections and revisions.

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### PLAYTEST #1

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February 1, 2012  
Myself (male, ETC), Rayya Brown-Wright (female, ETC),  
Emmanuel Eytan (male, ETC)

**Question:** Is this any good at all?

**Result:** We played three rounds. We had to decide tie-breaking rules:

1. On a bid, if two players have equal bids, they roll again to see who wins the die.
2. At the end, tied winners look at their next set, and on down. In case of an absolute tie, each rolls d6 to determine winner.

After those rounds, Emmanuel quickly discovered that a dominant strategy was to bid all of his dice every time – there was never a good enough reason to keep dice.

**Revision:** Limit bidding to three dice

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### PLAYTEST #2

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February 1, 2012  
Myself, Rayya Brown-Wright, Emmanuel Eytan,  
Evan Brown (male, ETC)

**Question:** Does a bid limit eliminate Emmanuel’s dominant strategy of bidding maximum every time?

**Result:** We played three games and discovered that this did not improve the game. Evan joined us on the third game. The maximum-bid strategy still seemed optimal, though less so because the game simply seemed more random at this point. This was not an adequate solution.

**Revision:** When bidding, use Risk scoring – compare each person’s highest die. In case of a tie, compare each person’s next highest die.

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### PLAYTEST #3

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February 1, 2012  
Myself, Rayya, Emmanuel, Evan

**Question:** Does the new bid evaluation rule eliminate the dominant strategy?

**Result:** Well, somewhat. It definitely made things more interesting. There still seems to be a significant advantage

to the high bidder though, who definitely gets more dice and therefore without any strategy has better odds in the end.

**Revision:** Defender’s advantage – in case of a tie, the person who bid fewer dice wins. (5, 4, 1) still beats (5, 1), but (5, 4) beats (5, 4, 1). We also tried a variant where (5,1) beats (5,4,1) – there was some debate of which of these seemed most natural. The latter gives significant advantage to single-rollers.

### PLAYTEST #4

February 1, 2012  
Myself, Rayya, Emmanuel, Evan

**Question:** Does the game feel balanced now? Is there any strategy?

**Result:** Two more games. Hard to tell yet, but it feels like the dominant strategy has been eliminated, and there are good odds for someone playing collector. However, finishing a game goes really quick (at this point, average game time with four players is down to 3 minutes or so) and so winning may not feel good enough. How would this work for a long-term game? We consider scoring.

**Revision:** Add scoring over multiple rounds. Best set of 6s gets all sixes, best set of 5s gets all fives, best set of 4s gets all 4s, and so on. Best overall winner (per previous rules) gets dice from any ties.

### PLAYTEST #5

February 1, 2012  
Myself, Rayya, Emmanuel, Evan

**Question:** Is the scoring too complicated? Do we get dramatically unbalanced scores?

**Result:** Played two scored games.

	Rayya	Emmanuel	Brad	Evan
1	5	2	56	0
2	10	54	5	0

This seems like it might be balanced over many rounds, but the group wants a tighter game. They are also concerned about scoring heavily favoring the overall winner of each round (lots of ties).

**Revision:** Reverse bid scoring – 1 is high, 6 is low. But at the end of the round you still count pips.

### PLAYTEST #6

February 1, 2012  
Myself, Rayya, Emmanuel, Evan

**Question:** Do scores come out more balanced with inverted bid scoring?

**Result:** Played one more game. Players found this confusing and bloated, and at endgame scores were still heavily balanced toward round winner. Group agreed that they liked the single game, but the scoring system was not fun.

My own major concerns at this point are that the game is too much like Liar’s Dice and Bunco, and that I won’t be able to theme it well because it’s very generic and Poker-like.

**Revision:** Removed scoring system for now, returned to rules for Playtest #4, re-evaluating core gameplay.

### PLAYTEST #7

February 1, 2012  
Myself, Anthony Hildebrand (male, ETC)

**Question:** How does the game play with two people? How can I describe the rules?

**Result:** I described the rules in this order: First, I explained the set-up. Three dice per player, five set aside. Second, I explained that the end-goal of the game is to have the largest set of-a-kind. Finally, I described the rules for a bid round. The rules description went well with Anthony, he didn’t have any additional questions.

Anthony’s reaction to the game was mildly positive. He suggested the addition of straights/runs, but upon further discussion we concurred that this does not alleviate the advantage of the lead player. A general theme in playtesting thus far has been that the player in the lead continues to hold a significant advantage, but has fewer interesting decisions to make than other players. If I have three of a kind, there’s never a reason to risk them. I’m tempted to suggest that more bid rounds would change this, but I’m reluctant to extend the game that way. An actual probability study may be my best ally at this juncture.

**No revision at this time.**

### PLAYTEST #8

February 2, 2012  
Myself, Yotam Haimberg (male, ETC)

**Question:** A new perspective. What are Yotam’s thoughts on the game?

**Result:** We played a round. Yotam’s feedback is generally positive, except he does not like the feel of hiding his dice under cups, or the trouble of sliding them around.

I explain my new idea for a scoring system to Yotam: Everybody gets one point for each die in a set of two or more. Round winner gets an additional five points. Yotam agreed that that sounds somewhat balanced, but he likes that the game requires no pen and paper. He also mentions the ‘shooting the moon’ mechanic of some trick-taking games, where if one person won all bids they would get a bonus.

We also discuss the value of dice in the center, and whether the decision to roll is interesting.

**Revision:** We stop using cups and hide our dice behind a hand (can still use cups for initial roll). Also, instead of presenting one die for bid at a time, we roll all five at once so players can see all the dice that will be distributed. Then, the winner gets to pick which die to take.

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## PLAYTEST #9

February 2, 2012  
Myself, Yotam

**Question:** Does it feel better hiding dice with hands? Does it feel more strategic with all winnable dice shown at once?

**Result:** Yes and yes. Yotam and I both felt better about just hiding dice with our hands, although we did find the cups beneficial for the initial roll and for the roll of the pool dice in the center. Once the game began, immediately seeing the distribution of the dice in the center caused me to reconsider each strategy. We both thought it just *felt* better to play that way.

This also gave me more of a bead on my opponent’s strategy. We had a game where I evaluated that Yotam had at least four fours, so I decided to break up my three fives which were no longer a winning hand. I still lost, but the moment had more gravitas than anything I’d experienced so far with the game, and was exactly the kind of trick-taking play I was hoping the game would generate.

Yotam points out that, in this variant, it matters whether the dice are identical or not. If you have a variety of colors, an astute player can more easily keep track of others’ hands and figure out what they’ve claimed. I like this element – I would sell the game with a variety of colors.

**No revision at this time.**

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## REFLECTION

What if we added a spades-like bidding system to the game, where people bid on how many of-a-kind they can

get, and they get more ten points for each die up to their bid, one for each beyond it, and they lose points if they don’t make their bid. You could have a regular bid (after their hand is rolled and the center is rolled), a blind bid (after their hand but before the pool), or a double blind (before either is rolled) with greater risk/reward involved for each.

With this variant, it might be worth it to have more dice in the winnable pool.

I don’t want to heavily theme this game – it feels like its target audience is mostly adults looking for a casual competitive game, less for social parties and more for a pub, an organized gaming event, or passing time at a smaller social occasion. So I would favor a light theme, something that’s not fantasy or sci-fi but also not too comical. The theme’s primary purpose here should be to provide names for the game elements that are easy to remember and use. What are things you compete to win? A mining metaphor might work – biddable dice are gems or nuggets?

So, things I need to test next: I should test the simple scoring system (play to 50, I think) per playtest #9, and I should test the bidding/scoring system above (play to 300 points, I think).

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## PLAYTEST #10

February 3, 2012  
Myself, Kaiyang Zhang (male, ETC, official playtest group)

**Question:** How does the new, simple scoring system work? Five points for winning the round, +1 point per die in a pair or above (singles are worth zero).

**Result:** Kai and I played to 50 points. His first instinct was that the 5-point bonus was too much, but as we played further he conceded that it seemed balanced. We both played as strategically as we knew how, but I had a very unlucky game.

	Kai	Brad
1	11	5
2	21	8
3	32	8
4	41	12
5	49	16
6	59	21

I had fun playing the game, though, and Kai thought it was great fun. He compared it to Texas Hold’em and said it kind of felt like a drinking game. He was in favor of the fast play. Then Kai suggested a *freaking brilliant* revision:

**Revision:** When the last die is won, the player who won it may either keep the face value or re-roll it to try for something better.

**Revision:** New rule: If nobody bets, the hand immediately ends and points are counted.

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## PLAYTEST #11

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February 3, 2012  
Myself, Kai

**Question:** Does the “lucky last die” rule have any effect, and/or make the game feel better? Does strategy beat randomness?

**Result:** Kai opted to play by a simple algorithm this time (which isn’t entirely random, it’s something of a strategy) where he would always roll his three lowest dice. We played to 50 again.

	Kai	Brad
1	4	10
2	10	18
3	21	20
4	23	29
5	34	34
6	39	43
7	39	53

Playing carefully, I held a slight advantage that won out in the end. This suggests that a simple strategy is sub-optimal, but extensive playtesting would be necessary to determine this. My instinct is that simple strategies would be even less effective in a larger group.

We had a hard time evaluating whether the “lucky last die” had much impact on the game balance, but it definitely improved the feel of the game, giving someone who’s behind an opportunity to come back. We discussed have the losing player get the last die roll, but agreed that whoever won the last die made more sense.

One round Kai broke his algorithm and we discovered a loophole in the rules – what happens if everybody bids no dice? We decided that the sensible thing to do would be to immediately stop the round and count up scores. After all, everybody is happy with what they have.

Kai suggested another bet-resolution rule where doubles would beat an individual die, but I vetoed it, feeling that it was too Poker-ish and returned too much advantage to players who always roll everything.

After playing I asked Kai whether he would put more dice in the center for more players. He felt very strongly that he would not, because the speed of the game was a major asset.

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## REFLECTION

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For now I am happy with the scoring. I prefer the simplicity to *Spades* bidding, so I think I will test this version more instead of trying out the bidding right away. Also, having point bidding and dice bidding in one game will make rules confusing.

Next major step is to attach a theme that serves the game, and to do a tissue-test with written rules, with no participation from me.

I thought about “Politik” as a title and theming the game as trying to win votes, but it doesn’t quite feel right and it’s too serious for this game. Settled on “Cookie Raid” for now. The metaphor breaks down, but the image of snatching cookies from a plate is fun, and I’ve suggested a plate to keep the winnable dice apart from the bid dice being rolled.

Other concerns: Individual victories (winning a bid) still feel pretty small. Maybe scoring 10 per matched die + 1 per single die will improve feel? How can the reveal at the end of the round be made more exciting? I should look up the dominant demographics for hearts, spades, and other parlor games.

How can I prevent cheating? People could change dice in their hand without anyone noticing.

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## REMOTE PLAYTESTING

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I wrote up an “official rules” as they are now and sent them to some friends at home (see “Cookie Raid v11.pdf”). We’ll see what feedback I get. Sent to five groups:

1. A 30s couple with two pre-schoolers. He loves word and party games, she dislikes games.
2. A 20s couple that loves all board games.
3. A friend in the Marines, a strategy gamer.
4. A 20s couple that doesn’t game much, but has church friends over each week. They may be able to test a larger group.
5. A couple with three kids (14, 11, 8?). He plays D&D and DDO, the kids love videogames. Probably my best “family” playtest group.

Nobody responded. *Note to self – playtest in person.*

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## PROBABILITY STUDY

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I was curious to crunch some numbers and try to figure out what the usefulness of rolling one, two and three dice

are. Evaluating the odds for an entire game is beyond the scope of what I want to study for now, but I did evaluate the expected values of different rolls.

I set up a simple numeric mapping for different rolls and then evaluated expected values with and without the defender's advantage, to see if it was having a real impact on the probability.

**The mapping:** According to my mapping for any given roll, the highest die is worth 100 per pip, the next die is worth 10 per pip and the lowest die is worth 1 per pip. So a roll of (5,3,1) simply evaluates as 531, while a roll of (4,2) evaluates as 420 or 427. When testing with defender's advantage, any missing dice are treated like they show seven pips; hence, (3,2) = 327 and beats (3,2,1) = 321. Without defender's advantage, missing dice are zero pips.

**The results:** Without a defender's advantage, here are the expected values (rounded)

1 die	350	
2 dice	473	+123
3 dice	533	+60

There's a huge advantage to rolling two dice over rolling one; 2d6 here becomes 20% better than 1d6+1, which is already a big advantage. 3d6 has a smaller advantage over 2d6. I don't like what I'm seeing here – the (apparently) linear increase in risk (the number of dice bid) does not provide a linear increase in expected value.

With the defender's advantage, the results are very different (rounded)

1 die	427	
2 dice	480	+53
3 dice	533	+53

This is much better. There is still an advantage to bidding an additional die, but it's much smaller, about half a pip. What's more, the increase is roughly linear (rounding hides the imperfection).

## PLAYTEST #12

February 6, 2012

Cintia Higashi (female, ETC, official playtest group),  
Vera Li (female, ETC, official playtest group)

**Question:** Are my written rules sufficiently clear? What questions do people have about them?

**Result:** I handed my written rules to Cintia and Vera along with 17 dice and some paper for scorekeeping. I asked them to play a two-player game.

This was an absolute failure. They read through the rules together, dividing up the dice as instructed. But before

they got as far as their first bid, they turned to me and said "Okay, explain it to us. We have no idea what we're doing." They joked that their English was not good enough to understand the rules.

It was interesting to notice that they started to play the game before they even finished reading the rules.

**Revisions:** None just yet. I think my rules need diagrams. I wonder if I can still keep them on one page?

## PLAYTEST #13

February 6, 2012

Cintia, Vera, Anthony, Myself

**Question:** How do my current rules feel with four players over multiple rounds?

**Result:** I explained the rules and we played five rounds, enough to realize that the game is slower with four people.

	Vera	Cintia	Brad	Anthony
1	3	3	3	8
2	12	5	6	13
3	16	9	14	17
4	18	17	16	21
5	21	21	19	30

After five rounds the group seemed to have had enough. Anthony suggested more dice in the center would make for higher scores and longer, more interesting rounds. The group suggested a fixed number of rounds instead of a target score. Nobody looked bored, but I wouldn't describe the mood as casual fun, either. People were focused and serious.

**Revisions:** We decided to try a round with eight dice in the center instead of five, on the premise that more dice would allow there to be more interesting decisions mid-round as the advantage flowed from one player to another.

## PLAYTEST #14

February 6, 2012

Cintia, Vera, Anthony, Myself

**Question:** Is the game more fun/engaging when more dice are distributed per round?

**Result:** Scores were slightly higher than before. Maybe not a significant difference, but over time it should make the 5-point bonus slightly less important.

	Vera	Cintia	Brad	Anthony
1	4	3	3	9

Naturally the round took a little longer, but all three

agreed that the game was more interesting this way, and more fun. Vera reported that she was more inclined to risk a good set when there were more dice in play, and Anthony took a similar risk to win the round.

It didn't seem to occur to anyone to cheat, but when I raised the question they agreed that it might be a problem. Anthony suggested playing open, and despite prior negative feedback we chose to try it.

After this play my group rated the game: Anthony 4, Cintia 4, Vera 4.5. Average score: 4.17

**Revisions:** Keep the 8-die pool, and play without concealing dice or bids.

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## PLAYTEST #15

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February 6, 2012  
Cintia, Vera, Anthony, Myself

**Question:** How does the game change if we play without hidden information?

**Result:** The game definitely changed. Here are our scores.

	Vera	Cintia	Brad	Anthony
1	3	9	0	8

The feel of the game was dramatically different. There was no need to watch who won and what people picked up because you could look at their hand any time. The more complete information made decisions about what to risk easier as well – you could see exactly what everyone else had. But there was less reason to risk, because you knew when you had a decent set and didn't want to lose it.

What surprised me was that the game seemed more light-hearted this way. There was definitely more laughing and smiling at the table as we played – maybe without the pressure to conceal your hand from your opponent, people loosened up. They *looked* like they were having more fun, but afterwards the general attitude was mixed. Anthony thought that hidden hands were more fun, while Cintia preferred the open hand game. Cintia adjusted her rating of the game to a 5, bringing my average to 4.5.

**Revisions:** Revert to concealed dice for now. This element may be determined by my target audience if I narrow that down. Market research?

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## REFLECTION

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Cintia wanted the game to play faster. She suggested a simple time limit on bids, a kind of "1 2 3 Go!" system to keep people from overanalyzing their options.

Anthony commented that the game felt like Poker to him (an idea that's been repeated in several playtests). He suggested a number of possible changes to optimize this comparison.

I could use d10s or d12s instead of d6s to make matched pairs more precious. Anthony's argument was that right now, people felt fairly safe bidding away a pair because their odds of getting another pair were fairly good. If larger dice were used then sets would be less common and the dynamic would change. I argued that the common availability of d6s and the fact that they are more familiar to an older audience worked in the game's favor. I also worried that the larger dice could throw off the roughly linear bid advantage I have worked out right now – I need to crunch more numbers on this.

Anthony suggested adding straights, and I'm starting to think they must be added simply because all players expect them. But nobody can suggest how straights should compare to sets for the end-of-round bonus, and I am still inclined to leave them out. We did try out a few dice combinations with straights and decided that dice should only be usable in one set at a time (no cribbage scoring).

The most interesting idea Anthony raised was that of applying a "flush" system to the game. We reduced the idea to having ten white and ten blue dice in play, and doubling the score of sets all in one color. This intrigues me because it adds more value to certain dice in the pool – when they have both mutable state (face value) and immutable state (color) it gives the winner another factor to consider in their decision without complicating the scoring too much. I think I should playtest this. But it will require rules about what colors players start each round with. I also worry that this will slow the game down, when much of my feedback has been to keep it fast and/or speed it up.

*Later.* It's occurred to me that two colors produces all kinds of balance problems, but three colors might work nicely. The rule is that each player starts each round with one die of each color. Of course, this forces the number of dice to be a multiple of three, and I think 21 is the closest I might come. Need to find more dice for testing.

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## FINAL RULESET

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### COOKIE RAID

A trick-taking dice game by Bradley C Buchanan.

For two to four players. Ages 8 and up.

Playtime: 15-25 minutes (five to eight 3-minute rounds).

### OBJECTIVE

The object of the game is to collect the most cookies.

Cookies are earned at the end of each round. The first player to 50 cookies is the winner!



## MATERIALS

You will need a number of six-sided dice, and paper and a writing utensil to keep score. A dice cup and a small plate can also be helpful.

For 2 players: 14 dice

For 3 players: 17 dice

For 4 players: 20 dice

## HOW TO PLAY

The game proceeds in rounds, and each round is made up of eight bids. The goal at the end of eight bids is to have the longest set of dice (pair, three-of-a-kind, four-of-a-kind, etc).

1. At the beginning of each round, distribute three dice to each player (their hand) and five to the center of the table (the plate). All dice should be randomly rolled at the beginning of the round. Players should conceal their hand.

2. Now the first bid begins. The goal of a bid is to win a die from the plate. Players take up to three dice from their hand to bid. Bids may be kept secret until everyone is ready.

3. All players simultaneously roll their bid dice for everyone to see. The player with the highest single die wins the bid, and may select one die from the center to add to her hand. See "Bids."

4. All players return their bid dice to their hand, keeping the new face values up.

5. Repeat steps 2-4 until there are no dice left on the plate.

6. The winner of the last plate die (the "lucky last") may choose to keep its value, or re-roll it.

7. All players reveal their hands, and scores are counted up. If nobody has 50 cookies, play another round! See "Scoring."

## BIDS

When comparing bids, dice are taken individually. First, compare each player's highest die. In case of a tie, compare the next highest die of each tied player, and finally compare players' lowest dice if you must.

(5,1,1) beats (4,4,4) (6,2) beats (5,3,2)

(5) beats (4,2,1) (6,2) beats (5)

Defender's Advantage: If John rolled fewer dice than Sue, and they are tied down to John's last die, then John wins the conflict.

(4,3) is better than (4,3,3) (4,3) is worse than (4,4,1)

(4,3) is worse than (4) (6) is the best bid

Absolute Ties: If John and Sue roll exactly the same, they both re-roll all of their bid dice (other players are out of the contest).

## SCORING

At the end of the round, players receive 1 cookie for each die in a pair or larger set. Single dice are worth nothing.

(6,6,5,5,2) is worth 5 cookies

In addition, one player gets 5 bonus cookies for the best set. In case of a tie subsequent sets are compared, and in an extreme case "high die" determines the winner.

Compare Sue (6,6,5,5,4,4,2) and John (2,2,2,2)

The five-cookie bonus goes John because of the four-of-a-kind, so Sue earns 6 cookies and John earns 9 cookies.

Comparing Sets: A longer set always beats a shorter set (four 1s beats three 6s). For sets of the same length, face value wins (four 3s beats four 1s).

Absolute Ties: If no winner can be determined, the tied players all get the 5 cookie bonus.

## MISCELLANY

If nobody bids: If, mid-round, every player bids nothing, the round is immediately over and scores are counted.

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## RETAIL PRICE

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I estimated the cost to produce this game by creating it at TheGameCrafter.com. Here are the parts:

- Twenty-one 12mm six-sided dice in three colors – red, green and blue.
- Two printed pages of instructions.
- A clear plastic tuck-box that will hold all parts.

The site gave me a total cost per unit of \$5.04, and a bulk cost for orders over 100 units of \$4.54 each. I could mark the game up to \$6.00 and make a profit on each unit online. The real question is, would anybody pay for 21 dice and a PDF? I'm not sure the apparent consumer value is very high for this product. Assuming premium packaging, I suspect you could still mass-produce this game for under \$8.00.

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## OTHER RELEVANT INFORMATION

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Although playtesting was successful I had trouble getting very excited about this game. It was mildly fun, but as a parlor game it didn't really capture my imagination. Therefore, I went on to spend more time on a second dice game as well.

If I were to try another iteration of this game, it would be a three-color game (7 dice of each color) played open-hand with double points for flush sets. The game seemed to generate more mirth when played open-hand, but lose some complexity. My hope is that the sets would reinforce the complexity and give me the best of both worlds.