PYRAMIDS

BRAD BUCHANAN – CROSSING DICE CANYON

PYRAMIDS

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CONTEXT

This dice game was developed for the "Dice Canyon" assignment in Jesse Schell's Game Design course, Spring 2012.

BRAINSTORMING

The general brainstorming process for this assignment is detailed in the document for my other game; see that document for details. The rest of this document details my process for developing this specific idea.

INITIAL DESIGN ITERATIONS

I've pondered several ideas about condensing the game of *Dominion* down to a dice game. There are a number of challenges – *Dominion* in its practically infinite variability seems ill-suited to be condensed to a few geometric faces. But I believe the essence of the experience can be captured, so here goes nothing.

DESIGN CONSTRAINTS

No Cards. I thought of several schemes wherein dice and cards were used together to simulate the game. But *Dominion* works with only cards, so it seems like a step backwards. Though one could argue that reducing Dominion from 500 cards to 50 would be an accomplishment, I'm going to hold to this constraint.

No Counters. I want to limit loose parts as much as possible. Part of the beauty of *Dominion* is that all state lives in the cards (before expansions anyway).

Three Dice. Three seems just right. Two is too common. Four or five are a little clumsy to carry in a pocket. I'd like to hold to three – and 3d6 at that, so they're cheap and easy to find in lots of colors.

WHAT IS DOMINION ABOUT?

Players start in a symmetrical scenario. As players make decisions, their paths diverge.

Randomness determines available options. Every turn, a semi-random element influenced by the player's past choices determines their possible actions on that turn.

Actions expand future options. Most moves in the game are designed to provide the player with more options on future turns.

The goal is to buy up a resource. The game ends when a certain resource is sold out. This resource is shared in *Dominion*, but it might not have to be that way.

Some options dilute others. As you add more of one kind of card to your deck, you draw other kinds less often. This might be the most difficult element to simulate.

FIRST THOUGHTS

How will we maintain state? *Dominion* is all about keeping a complex and unique state for each player. A deck of cards is very good at this. Dice are very bad at this. I am inclined to use a custom pad and pen to keep state, like *Yahtzee*. But what should that pad look like?

How will we generate semi-random options? Dice are our random element, but the player's state has to influence the options that come up. I think this implies a roll table that will be updated as the game goes on. It has to be updateable by writing alone (no cards or markers) so it will be a one-use scorecard.

What kind of table? I want the player to roll 3d6 and generate multiple options (like taking multiple cards into hand). A linear table (3-18) would produce a non-linear probability curve that might be interesting, but would not be what I'm looking for. Even if we allow the player to combine or split the dice they roll, that makes lower slots much more common and limits the player to one option per turn when using anything beyond a 12. We could roll 3d6 on a 1-6 table, but a deck of 6 cards does not provide many options. What roll table would produce the same number of options each turn, but allow more than six total options, and still allow some outcomes to be more common than others?

First answer: Three six-slot tables, three different colors of dice. Every turn you get a one "card" per table. This produces 216 possible outcomes each turn, and 36 of those outcomes change each time you make a purchase. It also introduces a new challenge, where "cards" in the same table will never come up in the same hand, but this may just be part of the strategy for this game.

How does the table change? At first I assumed that it would be blank (or have defaults) and people would write in what they bought. But this requires a lot of writing, and maybe some erasing if a game goes longer than 18 turns, and it requires a reference document for the different kinds of purchases. This seems like a poor solution.

Next I thought about using easy-to-remember icons for each slot. The needed reference material would be cut down significantly – with a little experience players wouldn't need anything except the pad. Icons would have to be pre-printed on the page, and selected or scratched out as necessary. It would feel a little like *Bingo*. And if I can set up a mechanic whereby a person can change their mind about a slot later in the game, then I could put over 100 possible purchases on one pad.

Let's set the default state up to be mostly copper and a handful of do-nothing points, arranged to guarantee at least one copper on the first roll. Noticed a problem already – the opening of *Dominion* is balanced because everybody gets 7 money between their first two turns. We can't guarantee that here. Instead of making the board start as all copper, let's let every player make a purchase costing up to 3 before the first roll.

Once a player buys points on a slot, I think that blacks out the rest of the slot. That will help create the timing game that's so dominant in *Dominion*.

How to balance? This is definitely going to require more playtesting than any other idea I've had so far. My first thought is that players should all be using identical boards, but that having different boards for different rounds would be fun. Maybe experienced players will want to mix-and-match different boards, but I'm sure some boards would have an advantage over others. Great opportunity for expansion sets though.

Which actions to include? Some adapt better than others. I hope that in playtesting new, unique-to-dice actions will come up.

A word about terminology: Because the dice are distinct, actions may refer to "this die" or "another die." "This die" is always the die for the table the action is in. "Another die" may be either of the two dice that did not select this action.

ACTIONS

Cellar: Re-roll one or both of the other dice. You may use another action.

Village: Roll this die again. You may use two more actions.

Woodcutter: $1 + an extra purchase.

Workshop: Buy something worth up to $3.

Militia: $1 + other players must roll 2 dice on their next turn.

Moat: When attacked, roll three dice. If you hit a moat, the attack fails.

Smithy: You may roll any two dice again (adding 2 "cards" to your hand).

Throne Room: Double another rolled action.

Council Room: Roll all three dice again (adding 3 "cards" to your hand). Others may roll an extra die on their next turn.

Festival: $2 + an extra purchase

Mine: Upgrade one money icon.

Tactician: Do nothing this turn, double-roll next turn.

Explorer: Roll 3. If you hit a province, upgrade two money icons. Otherwise, upgrade one.

DEVELOPMENT PROCESS

Development of this game required dramatic changes from iteration to iteration.

VERSION #1

This first version of the board mostly shuffles the abilities around and tries to squeeze in lots of the standard Dominion actions. See Appendix A: Version 1 for full board.

PLAYTEST #1

Yotam Haimberg (male, ETC) and myself
2012-02-05, Yotam's project room

Question: Is this playable? Does it replicate the good qualities of Dominion I identified?

Result: Generally a failure. I put together an initial game card with very basic instructions, and went to test with Yotam who has played *Dominion* before. Lots of questions came up during play about different actions. We had two sets of dice, so we played our turns simultaneously instead of taking turns. Finishing a game took us about 20 minutes.

The game does recreate those properties of Dominion I identified, but it's so hard to play that it's not very much fun. This is a problem! I need to change the game significantly.

I think I'm on to something here. We made a lot of decisions during the game, but they felt random because we spent much of the game searching for icons on the card, and probably buying the first useful one we saw. I should test with an ordered board next time.

Revisions: I need to redesign the game card to put icons in consistent, predictable places, so that players spend time choosing between them instead of searching for them. Yotam and I had a few ideas about how to do this.

First, we thought it would be interesting if the abilities were not spread evenly across the three dice, but instead each die specialized in a certain kind of bonus and came to represent that quality in the player's mind. For example, the white die could be all about money, the black die about cheap actions, and the blue die about expensive actions. This isn't a complete solution (I know this reduces the number of possible combinations) but it's a good idea that I want to integrate, and a good step toward organizing the icons.

Second, I'd like to group icons of similar cost on the same line, instead of putting a mix on each line. Yotam's comment about optimizing each line was true. Making this change would make the decision about what is optimal more difficult.

Third, I've decided to pivot the three sections of the board so that the 1-6 section is at the top or bottom instead of the side. I think this will be easier to play (dice placed on the board will not interfere with other rows) and, if started from the bottom, it creates an interesting wall-building paradigm that might spin off into a new theme. I need to give this a lot more thought.

Fourth, the rows (columns?) need to be at least 12mm, the width of a standard d6.

Fifth, more distinct icons or color icons would be helpful.

Sixth, forcing players to buy out a row in order would be worth a try, and could simplify the marking from 'highlight and cross out' to simply 'cross out'.

Seventh, I need to draw specific attention to the starting and ending icons in the board design; right now they look like any other icon, and it was confusing at first.

Eighth, I think the province buy system didn't feel right, and there wasn't enough player interaction. I want players to attack each other or something. Maybe players should mark off HP on each other's cards.

A Revelation

2012-02-09

It occurred to me last night that this didn't have to be a game about building a wall – it could be about building the pyramids.

Players are in charge on an Egyptian city, and they are each trying to build a pyramid for themselves. This sort of explains away the low interaction between players.

Egyptian-themed. Three dice, three resources: Wheat (or straw, or food), Clay (or stone), People (or slaves). Then for each die, each column of the table specializes in something (although the first column is always "reap one"):

1: Storehouses, which generate resources *every* turn, but are expensive to buy. Rolling a storehouse doubles its output this turn.
2: Reaping, which generates resources when rolled. Cheaper, easier to buy up.
3: More reaping?
4: ???
5: ???
6: ???

This can be a circular relationship where people things cost food, food things cost clay, and clay things cost people. You can no longer buy anywhere on the board – you must build up towards better outcomes. Maybe I should remove the one-buy limit?

Next, there's the pyramid – it's a set of tiles to color in, and whoever finishes the pyramid first is the winner! Pyramid blocks cost some of each resource to build (eg, 1 food + 1 clay + 1 slave). Foundation blocks cost less, the top block costs the most. You could also give each player a different wonder, with a different pattern – the great wall of China could be more blocks that cost less, the tower of Pisa might have fewer foundation blocks but more top blocks. The Taj Mahal? More to balance. Should get one wonder right first, then add others.

Finally, there should be a set of "discoveries" that players can gain. A discovery is a special bonus that can only be claimed by one player during the game – when they buy it they announce it to the group, and all other players must cross it off their list (sort of a shared tech tree, a la *Civilization*). I'm not sure yet what discoveries should cost. Maybe they should be on the board?

These discoveries could be things like a free purchase in a category, to an "exclusivity agreement" which would force all other players to black out a space on their board, to a "famine" which would make all players use two dice on their next turn. They should encapsulate the highest level of interactivity in the game.

The game card would be tall and skinny, maybe 3"x9". I picture the pyramid at the top, followed by the resource table, followed by the discoveries in a list. The game would be designed for two or more players. This size lets me fit about four 12mm boxes across the page, five if I use narrower margins. Less content to create and balance I guess.

Balance: I wonder how I could make the game go faster with more players? That might not be possible.

Three dice per player would make things faster – a "buy, then roll" rule would give players more time to think about their purchase.

To review so far – my idea that started with *Dominion* and *Yahtzee* is now pulling ideas from *Agricola*, *Civilization*, and the new *Civilization* board game. I've never actually played those last three – should remedy that soon.

VERSION #2

2012-02-09

This new board is redesigned with all of my latest ideas in mind. It uses a reduced set of actions/icons with three kinds of resources and more basic resource gathering. It orders all options in a logical manner and specializes certain abilities to certain dice in the hope that players will come to associate a die with certain outcomes. The new scoring system is outside the board at the top of the page, and a set of special abilities (called "discoveries") is at the bottom. The game has a new theme about building pyramids and while it's not perfect, at least it's not *Dominion* all over again.

See Appendix B: Version 2 for full board.

PLAYTEST #2

Yotam Haimberg (male, ETC) and Anthony Hildebrand (male, ETC)
2012-02-09, My project room

Question: Is the new board more playable? How long does the game last? Is it balanced (are items proportionally useful to their cost)? Is it any fun? Will there be much player interaction?

Result: To quote Anthony:

"You've captured all of the mechanics of Dominion*, and none of the fun!"*

Sigh.

First of all, Yotam immediately commented that the board was much more playable this time. He really liked the new layout. Anthony seemed to find it sufficiently usable too. So, the vertical design is a success. They also picked up on the theme without any prompting: "Oh, we're in Egypt."

The game took nearly 35 minutes to play in spite of picking up a pretty brisk pace toward the end. It began slow – both players quickly bought their first resources and by turn 4 Anthony had 2/2/2 and had to choose between starting his Pyramid and buying a storehouse. But after he went with the storehouse there were another six turns before they started getting three of a resource. Altogether the game lasted 30-35 turns per player.

Turns went slower than I expected for two reasons: First, there is a lot of counting involved in this game (something both players vocally commented on). One has to add up storehouses and rolled resources for each of the three resources, and for coin which has to be allocated (since it's a wildcard), and all this has to be held in the mind at once. The players remedied this by using additional dice to track their regular income for each resource. It sped up gameplay, but I didn't want it to be necessary.

The storehouses appear to be much too powerful. Players bought hardly anything but storehouses, and at the end of the game found they didn't need to because they had so much regular income that they could buy pyramid pieces every turn. My testers recommended that storehouses be purchased empty, but can be used to hold excess resources over until another turn – producing a delay now/benefit later mechanic much like *Dominion*'s tactician. While I like this idea, it would require counters or other parts which violates one of my goals for the game. I also feel like it would slow the game down even more, and I'd like to speed it up a bit instead.

There was a little confusion over whether prices were also item quantity. Yotam recommended that players black out prices on items they've bought to prevent confusion. Both players adopted this convention.

There was also some comment that purchase prices not including types was confusing. Yotam noted that types could be indicated by a single letter (W, B, S) and while I'd like to stick with icons this is a simple solution for now.

Wording needed to be cleaned up on several items:

- X2 should only be applicable to one die.
- Midnight Oil: <u>You</u> take an extra turn.
- Discount Days: Pyramid pieces cost one less <u>for all players</u>
- Contract Work: <u>You</u> gain a pyramid piece for free
- Flood!: Others lose a <u>slave</u>, their choice
- Clarify when "make an extra purchase" takes effect.
- Note that you must build from the edge of the board, and that the pyramid must be built bottom-up.
- Change pyramid piece costs to list all resources needed: "2W+2B+2S" instead of "2 of each"

I should swap the slave and brick grids so the calculation can move down the board, not up it.

Yotam wanted the discoveries to take effect at the beginning of the next turn so that he and Anthony could play simultaneously and speed up the game.

Both players adopted a similar strategy (they seemed to feel it was dominant) which made for a somewhat dull game. Anthony complained about the lack of interaction with the other player, but did comment that he wanted to play again and try a different strategy. It's hard to say if that would last. Both players saw little reason to buy out of the fifth column, because they could win the game without it.

In the end, Yotam won by one turn, by rolling a double-purchase, buying his second-to-last pyramid piece outright, then buying a discovery for a free pyramid piece.

Before leaving, Anthony suggested a brilliant idea. He set the boards side-by-side and flipped one upside-down, implying that the two players would share a board and be able to encroach on each other's territory. I love this concept. It makes the game more interactive and adversarial, it gives players a simple way to attack others (buy up their stuff), and it will fill the board. Players would need two colors of pencil or pen. It also helps solve the storehouse problem – I can just remove the storehouses and make players rely on the basic resources, which will be more interesting since you're directly competing for them. And of course, all the powerful stuff would be in the middle of the two sides. Anthony even suggested this works thematically, with two aristocrats competing over the Nile river basin.

Yotam then suggested the discoveries be selected pre-game by a draft process – that is, if there are five discovery tiles on the board, players veto discoveries until they're down to five.

I think I might do away with the first column on each side, and maybe do away with the coin too (it's always better than a single resource, so why not). Instead, I'm considering letting doubles grant players a "coin" to be applied as any resource. A triple is worth three coin (pair royal). Getting rid of the storehouses and reducing the role of coins will cut down on counting and remove the usefulness of extra dice for counting, so maybe the game will play faster this way. I'll just have to balance prices down to match.

Anthony suggested that everything in a column should be the same price, to further reduce analysis paralysis and cut back on the amount of information I had to cram onto the board. That may be over-simple, but I'll try it.

I may want to remove the single-buy limit too. Players often had more resources than they could spend, so the game could have gone much faster if they had no buy limit.

Afterwards I discussed this idea with Emmanuel and he made a keen observation – I need to make sure players cannot put each other in an unwinnable state. The game has to end sometime, hopefully in a timely and decisive manner.

Revisions: Where to begin? I'm going to design a two-player board, five columns wide. I will be removing the freebies column. I will fix prices by column, (1,2,3,2,1). Players will play with their own color from their side of the board. Playable discoveries will be decided by draft. I will remove the buy limit. I will clean up rules wording mentioned above and produce a more robust rules/glossary document for player reference. I will make the pyramid an actual pyramid shape. I will rebalance to the best of my ability. I will remove coin from the game and instead give one coin for doubles, three for triples. Redesign here I come!

FURTHER REFLECTION
2012-02-10

I spoke with Anthony again today, and he emphasized that he consistently had trouble remembering which resources bought what items. He ended up disassociating himself from the theme in order to keep things straight. He thought that really needed to be cleaned up. After talking through several ideas we decided that having dice in a thematically consistent color would help, as well as designing the board with a light colored background behind the items that indicated what color would purchase them.

We did throw around the idea of the sections being self-reinforcing, but this seemed to lose some interesting self-balancing in the game. We also considered associating resources with columns, but that would nearly reduce the game to a die-rolling race so it's a bad idea.

Anthony liked the idea of distributing coins on doubles. He also expressed a fondness for the established Egyptian theme.

With the new board, Anthony said he would prefer to play left-to-right.

As an alternative theme we considered making all the resources people – warriors, farmers, (or miners). This would help with theming the center column abilities, but would remove some of the Egyptian flavor. You could also use images of tools instead of people. This somewhat reduces the intuitive circular nature of the resource relationships, and it means my wildcard (coin) is no longer thematically consistent. But I do like the idea of fighting over a population.

REGARDING COIN

Per Jesse's post, the odds of rolling doubles or triples on three dice is about 44%. Therefore this is *very* likely to come up more than once per game, and will probably not unbalance the game too far in one player's favor when it occurs.
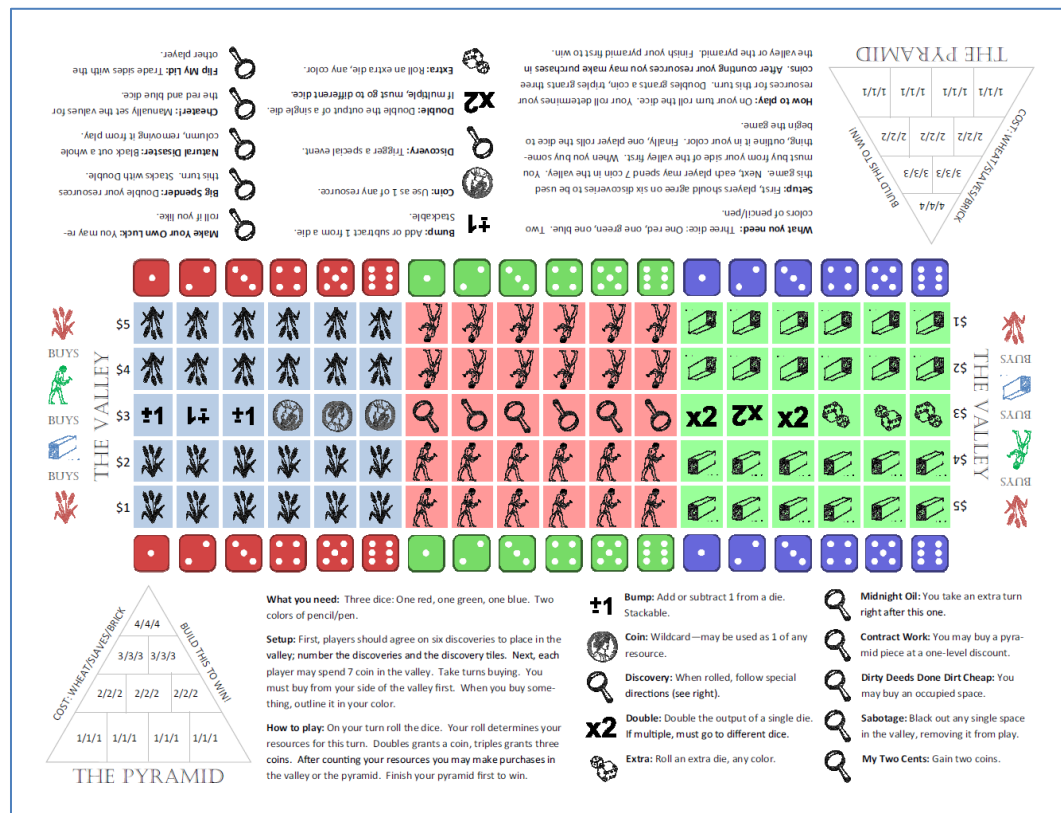
VERSION #3
2012-02-10

This board is designed for two players, made to set them in directly adversarial positions. I went with a full 8.5x11 sheet, which gave me room to put most of the rules on the board itself. I also rotated the board (based on a recommendation from Evan Brown) so that the board isn't left-handed or right-handed, and to minimize ambiguity about which parts of the board belong to each player.

While halfway through redesigning the board I was placing "discoveries" in the same rows as the discovery icons on the board. This led me to think about binding specific discoveries to specific spaces, and how that would actually add a layer of strategy to the game – you could see how close your opponent was to a specific discovery, and race for any discovery you both thought was overpowered. I kept this change when I rotated the board, although it requires players to place the discoveries when the game begins.

See Appendix C: Version 3 for the full board.

What you need: Three dice: One red, one green, one blue. Two colors of pencil/pen.

Setup: First, players should agree on six discoveries to place in the valley; number the discoveries and the discovery tiles. Next, each player may spend 7 coin in the valley. Take turns buying. You must buy from your side of the valley first. When you buy something, outline it in your color.

How to play: On your turn roll the dice. Your roll determines your resources for this turn. Doubles grants a coin, triples grants three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

±1 Bump: Add or subtract 1 from a die. Stackable.

Coin: Wildcard—may be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

x2 Double: Double the output of a single die. If multiple, must go to different dice.

Extra: Roll an extra die, any color.

Midnight Oil: You take an extra turn right after this one.

Contract Work: You may buy a pyramid piece at a one-level discount.

Dirty Deeds Done Dirt Cheap: You may buy an occupied space.

Sabotage: Black out any single space in the valley, removing it from play.

My Two Cents: Gain two coins.

PLAYTEST #3

2012-02-13

Evan Brown (male, ETC) and Josephine Tsay (female, ETC)/Romain Deciron (male, ETC)

My project room

Questions: Is the game easy enough to pick up? How long does the new version last? Is there too much anti-fun? Is it fun at all?

Results: Evan recommends an incentive for finishing the levels of the pyramid – we decide an extra coin per turn for finishing the first row of the pyramid would be good. It breaks the resource hole after finishing the first row. A similar tactic could break the second row. Also suggested improving the reward for doubles as a bonus for finishing a pyramid row.

I had to leave for Improv class mid-playtest. My playtesters were kind enough to continue the game and provide a report on the endgame to me when I returned. They said that the game stalled toward the end. It reached a point where the players had bought up most of the board, and it was impossible for one to win while the other was waiting for a lucky roll to finish the game. Mathematically, it was not possible to win the game without a certain special bonus, or a very lucky triples roll. We all agreed that the pyramid bonuses would probably help with this end-game lull as well.

I asked Evan whether he ever had any incentive to cross into his fourth or fifth rows (and infringe on Josephine's territory). He said that he never considered it because the cost was too high for a single extra resource. When I asked if he would be more inclined to do so should the cost decrease across the center line (1-2-3-2-1 instead of 1-2-3-4-5) he responded that yes, that would change his strategy somewhat. Evan also commented that generally he wanted to go back and try a different strategy.

I need to rigorously test for whether the game can be unwinnable! I need to make sure my players don't feel like they are stuck in an unwinnable situation. I should probably have a "resign" mechanic because it is possible for one player to force another into an unwinnable situation. Or could I introduce a comeback? Maybe players can steal on triples?

Apparently Romain took over for Josephine after a while to finish the game. He was bothered by the presence of the dollar signs beside the board. I should replace those with coins, especially if I'm going to a symmetrical (1-2-3-2-1) setup.

Evan wanted arrows in the hint guide about what buys what. I'll move things around and try to make it circular.

The players discovered interesting interactions among the different abilities on the board. For example, how many dice can one accumulate if the new die always comes up on "Extra Die?" If one uses "Bump" to change the value of a die to a column with "Bump," do they get another "Bump?" If they roll an extra die and "Make your own luck," can they re-roll the extra die as well? (Note: Change this to "restart your turn, if you wish"). Can you get bonus coins from doubles if it's from rolling an extra die?

Evan felt "Natural Disaster" (black out a whole column) was very overpowered, and that "Sabotage" (black out a single space) was also overpowered because it let him cut off his opponent's access to the good abilities in the middle. Maybe row 3 should be off-limits. Evan was rolling an extra die and using "Bump" to hit "Sabotage" as much as possible, and it worked really well for him – he backed Josephine/Romain into a real corner, and made the game unwinnable for them. Evan also felt like the abilities under brick were overpowered (extra die, double) compared to those under wheat (coin, bump) and suggested swapping coin and double to balance out the sections. I'm inclined to leave them, because while wheat has weaker abilities, it's also what you spend to get the strongest abilities under slaves.

Revisions: I will add bonuses for completing each level of the pyramid. I will rotate the colors on the board to make brick red, wheat green, and slaves blue. I will change the row prices to be symmetrical. I will use coin symbols instead of dollar signs. I will add arrows to the buy-order chart. I will replace "Natural Disaster" with a less overpowered ability. I will have more abilities that involve fine dice control.

PLAYTEST #4

2012-02-13
Yotam and myself
Yotam's project room

Questions: Do I enjoy the game? Do the new pyramid bonuses make the endgame less dull? Will players buy into the other player's territory more with lower prices?

Result: This was my first playtest in which I was a player since the awful version 1. I was immensely pleased with the feel of the game – up until my last five turns. Then it got frustrating, and almost boring, and all the fun got sucked out of it, even though I won.

The game has a very nice balance up until the endgame. There's a good give-and-take between players where one will show a definite lead in the pyramid, and the next few turns will give the other a decent lead in the valley. When the valley is all bought up though, the game grinds to… a grind. You're just rolling to see who gets lucky first. This is not fun.

Possible solutions – first, I want to change the pyramid bonuses. For this version they were:

+1 coin per turn for level 1
+3 coins one time for level 2
an additional +1 coin per turn for level 3

I would transform that to

+1 coin per turn for level 1
Doubles are worth 2 extra coins for level 2
Doubles are worth 3 extra coins for level 3

My hope is that this will produce more extreme changes in fortune in the endgame, and put the players' focus on their rolls, and cause one player to be fortunate enough to win first. Other solutions would include stopping the game as soon as the valley is bought up (unsatisfying, and what's the tie-breaker?), a kind of doom-clock that ticks when neither player purchases something (also unsatisfying, and more to remember) and my favorite, a storehouse mechanic/meter that allows a player to spend everything for a coin they can retrieve on a future turn. This would be limited use, and ideally would allow one player to end the game in a stalemate-ish situation.

Note to self – remember to mention in the directions that players must build step-by-step from their side of the valley.

Sabotage is still very powerful. It especially becomes powerful in the endgame, when there's not much else to do. It along with Dirty Deeds (stealing spaces) are powerful endgame abilities, and since one can cancel the other they inevitably tilt endgame power toward one player. I'm considering removing them, or at least flagging them as 'attack' abilities. Yotam suggested adding some randomness to Sabotage so the player doesn't have complete control over what they black out. I think it would still be too good.

Maybe my favorite quality about the game right now is that, until the endgame, players are almost guaranteed to have something to do/buy every turn. The game is packed with interesting decisions.

Note to self – put a "Name" line on the board so people can claim their game.

Yotam commented that the resource/purchase reference graphic was too small. It should be bigger.

Rules question – If a space is blacked out, can a person 'jump over' it and buy the space beyond it? Our temporary ruling was yes, this is allowed, and I feel this played well.

Rules question – When activating a "Double," does it double the coin spaces in the third row? Our temporary ruling was yes, and although I don't like that it's an exception it felt good in play.

Rules question – Must bump be applied before or after other bonuses? And if so, can you bump the die that rolled it in the first place? And are you required to bump, or can you opt not to? We ruled that bump was optional, and this seemed most consistent with the feel of the game – your rolls should never hurt you, only help you. Bump seems to need to take effect before other abilities, and I'm inclined to allow bumping the same die.

Rules question – When using midnight oil, can you carry resources from this turn into the next? Temporary ruling was no (per my original intent) but I should be more clear about this in the rules. I think it's fairly powerful already, so no.

Revisions: I will change the pyramid bonuses. I will add the storehouse meter to help the endgame. I will try to make the resource ring bigger. Add note in directions about building from your own side.

FINAL RULES

Pyramids
A game of ancient construction by Bradley C Buchanan.
For two players. Ages 12 and up.
Playtime: 30-45 minutes.

Objective
The object of the game is to be the first player to finish building your pyramid. Your pyramid is built with

resources gathered in the Nile Valley. The more land you purchase in the valley, the more resources you can gather, and the faster you will build your pyramid!

Materials

You will need three six-sided dice, one red, one green, and one blue. You will also need a copy of the board, and a different color of pen or pencil for each player. It is helpful, but not necessary, to have additional dice on hand. If red, green, and blue dice are unavailable, any three colors will work. Just make sure to label the board accordingly.

Setup

The first thing to do is number the *discoveries* in the valley on the game board. The number you give to a discovery will determine its effect during the game. Here are the possible discovery effects:

1. **Midnight Oil:** As soon as you finish this turn, take another one (no resources carry over between turns).
2. **Contract Work:** You may buy a pyramid piece at a one-level discount, e.g. a piece normally priced at 3/3/3 may be purchased for 2/2/2.
3. **Dirty Deeds Done Dirt Cheap:** You may purchase a space that is already owned by the other player, provided you meet all the normal purchase requirements.
4. **Sabotage:** You may "black out" any single space in the valley, permanently removing it from play.
5. **My Two Cents:** Gain two coins.
6. **Make Your Own Luck:** You may restart your turn (rolling three dice) if you like.
7. **Big Spender:** Double your resources this turn. Stacks with the standard Double effect.
8. **Boundless Wealth:** Roll two extra dice this turn, in any two colors.
9. **Cheater!**: Manually set the values for the red and green dice.
10. **A Reversal of Fortune:** You may rotate the board and trade sides with the other player.

Starting with the youngest player, players should take turns removing discoveries from the game until six remain. Then the numbers for those six should be written into the discovery spaces in the valley.

Note: For a more aggressive game, have players take turns selecting discoveries for the board instead of removing them. For a different experience, try adding more than one of a discovery.

Initial Purchases

At the beginning of the game each player gets to purchase seven coin worth of property in the valley. (Property value is determined by row, and is indicated at the far end of each row on the board.) Again starting with the youngest player, take turns making purchases until each player has purchased seven coin worth of property. When you purchase a property, outline it in your color.

When both players have made their initial purchases, the last player to make a purchase rolls first.

How to Play

On your turn, roll the three colored dice. Their result will tell you what resources you have to spend this turn. For each die, look at the corresponding column in the valley. If you have bought any property in that column you may gather resources from it (or in a few cases you may take a special action). Once you have determined what resources you gathered, you may spend those resources to purchase new property and/or build your pyramid.

Gathering Resources

There are four kinds of resources: Wheat, Slaves, Bricks and Coins.

- Wheat (generated by your green die) can buy Slaves.

- Slaves (generated by your blue die) can buy Bricks.
- Bricks (generated by your red die) can buy Wheat.
- Coins are a wildcard resource, and may be used in place of Wheat, Slaves or Bricks, anywhere in the game.

When you are counting resources, simply count the number of properties for that resource you have purchased in the selected column. That is your resource count for this turn.

If you rolled doubles (two of your dice match) you gain one coin this turn in addition to any resources gathered. If you rolled three-of-a-kind you gain three coins.

Buying Property
Once you know your resources, you may purchase property.

- Anything in the red area can be bought with Bricks and Coins.
- Anything in the green area can be bought with Wheat and Coins.
- Anything in the blue area can be bought with Slaves and Coins.

The price of a property varies by row. The nearest row costs one resource, the next costs two, and the middle row costs three. Prices decrease again as you approach your opponent's side.

When buying property, you must buy the property on your edge of the valley before buying a property above it in the second row; that is, floating purchases are not allowed. You have to build up from your edge.

Any resources you do not spend are lost at the end of your turn.

Building Your Pyramid
When you begin to get more resources on a turn, you will want to buy a piece of your pyramid. Pyramid pieces require Wheat and Slaves and Bricks to buy (Coins may be used in place of any resource). The lowest pieces on the pyramid (1/1/1) require one of each resource to buy. The top piece (4/4/4) requires four of each resource.

Pyramid Bonuses
When you finish an entire row of your pyramid, you gain a permanent bonus.

- Row 1: Gain 1 extra coin every turn.
- Row 2: When rolling doubles you get two extra coins instead of one. Three-of-a-kind will grant six coins instead of three.
- Row 3: When rolling doubles you get three extra coins instead of two. Three-of-a-kind will grant nine coins instead of six.

The Storehouse
If you gather resources but are unable or unwilling to buy anything (because you cannot afford it or there is nothing left to buy) you may lightly fill in a square in your Storehouse instead. On a future turn you may put an X through a filled box to add a coin to your resources. You may redeem multiple filled storehouse boxes in one turn. But be warned – you only get six for the entire game.

Special Properties
Some spaces on the board do not grant resources, but instead give you a special ability on your turn.

- **Bump:** This bonus takes effect before any others and before you gather resources. You may add or subtract 1 from any die, including the one that rolled Bump. This effect is stackable.

- **Discovery:** Take the special action corresponding to the assigned number (see Setup).
- **Double:** Double the output of a single die. If two are gained in one turn, this effect cannot be stacked on a single die.
- **Extra:** Pick a color (red, green, or blue) and roll an extra die of that color.

Game Over

The game ends when one player finishes buying all of their pyramid pieces. Congratulate them, frame the board and hang in on their wall!

RETAIL PRICE

When estimated on TheGameCrafter.com, the cost to produce this game (in a premium edition with six dice and three printed pages in a clear tuck-box) is $3.67 for an individual unit, or $3.30 in bulk (100+). I would probably retail the game for $5, which is a pretty healthy profit. Unfortunately, I'm not sure anyone will pay $5 for six dice and one printed board. If I could find a cheap way to print several boards in a pad it might be worth it to spring for a real box and bump up the price. But the print-and-play nature of the game is a real strength, and I'm not sure how to market that (or market around that, I suppose).

Similar games on Amazon.com:

- LCR (3 custom dice, poker chips, instructions, plastic tube): $3.95
- Go Nuts! Dice Game (9 dice, 1 scorepad, 1 pencil, instructions, in box): $5.77
- Jumping Frog Dice Game (5 custom dice, instructions, plastic tube): $6.22
- Think Fun Math Dice (3d6, 2d12, Lesson booklet, dice bag): $6.41
- Phase 10 (10 custom dice, scorepad, instructions, storage tin): $6.99
- Cosmic Wimpout (5 custom dice, instructions, plastic tube): $7.25
- Farkle (6 white d6, dice cup, scoring pad, in box): $7.89
- Yahtzee! (5 white d6, dice cup, scorecards, 10 chips, rules, in box): $11.75

OTHER RELEVANT INFO

I used some unpaid stock images from version 2 forward for rapid prototyping (all art in version 1 is my own). I'll be removing those before releasing the game on my website.

Average playtime at this point appears to be 40 minutes. I'd like to get that down to 20-25 (and I think it might be that way now, with slightly more experienced players) but the game is feeling really good right now.

Major avenues for further refinement are:

- **Balancing the discoveries:** I just haven't had enough time to test several combinations of discoveries and learn how they balance out. I'd also like to see more creative discoveries, that add more interesting decisions to the game. For the most part these are the first ten that I thought of.
- **Theme development:** The theme is still a bit tacked-on, and while my playtesters have responded well to the setting, I've had a hard time making all of my text match it. Terms like "discovery," "double," and "extra" are weak theme-wise, and should be replaced, not to mention the completely absurd discovery names I put in.
- **Board redesign:** Mechanically I'm very happy, but the whole sheet could use another redesign from scratch for clarity and usability. Putting the rules on there may be overkill now. It needs

new graphics, the color associations still aren't 100% clear, and the pyramid purchase prices are still confusing.

- **Interface:** Outlining boxes works well for a while, but can be hard to read when the board fills up. I found thicker lines or photo corners help, but maybe there's a better solution?

APPENDIX A: VERSION 1

First version of the game. Most abilities are directly based on *Dominion* cards.

Dominion Dice – Brad Buchanan

Board A Version 1 (2012-02-05)

	White	Black	Blue
1			
2			
3			
4			
5			
6			

Rules

1. Give every player an identical game card. Before the game begins, each player may purchase an item worth 3 coin or less.
2. On your turn, roll three dice, one of each color. For each die, look up your current item in the table.
3. You may take one action on your turn, if you rolled one. Then you may make one purchase.
4. The game ends when a player buys all the 6 point properties. Everyone counts their points – the highest count is the winner.

Items

This is coin. When you roll this, you can use it to make purchases.

This is property. When you roll this it does nothing, but the person with the most at game end wins.

The number in the lower-right-hand corner of an icon is its cost.

Actions

You may re-roll one or both of your other dice. You may take one more action this turn.

You may re-roll this die. You may take two more actions this turn.

Worth one coin, and you may make an extra purchase this turn.

You may roll two more dice (your choice of color) for a total of five this turn.

You may double another action you rolled this turn.

Worth two coin, and you may make an extra purchase this turn.

You may upgrade a first-column item to a second-column item for free.

Pick one color. Re-roll that color until you get coin.

You may skip this turn to take a double-turn next time; 2 rolls, 2 actions, 2 purchases.

Double any coin you rolled.

APPENDIX B: VERSION 2

This revised version re-oriented the board and reduced the number of icons.

Objective:
Be the first player to complete their pyramid. You may not buy a pyramid piece if you have not bought those underneath it.

Every Turn:

1. Roll three dice (Red, blue, green)
2. Take any actions (Change dice, add dice)
3. Add up your rolled resources – the effect is cumulative.
4. Make a purchase – Something in the city, or a pyramid piece which requires wheat, brick and slaves.

Reference

Gain one wheat	Gain one brick	Gain one slave
Wheat Storehouse: Grants one wheat every turn	Brick Storehouse: Grants one brick every turn	Slave Barracks: Grants one slave every turn (Storehouse)
Gain one coin – a wildcard resource	Coin Storehouse: Grants one coin every turn	Make an extra purchase this turn
Add or subtract one from a die (before resources)	Gain a discovery (before resources) - One Use	Roll an extra die (before resources)
Double resources from one die		

THE PYRAMID

5 of each		
4 of each		4 of each
3 of each	3 of each	3 of each
2 of each	2 of each	2 of each	2 of each

Buy with Brick

Buy with Slaves

Buy with Wheat

THE CITY

Fire! Others lose a storehouse, their choice		Exclusive Deal Others black a box, your choice	
Flood! Others lose a worker, their choice		Contract Work Gain a pyramid piece for free	
Famine! Others lose a wheat, their choice		Midnight Oil Take another turn	
Earthquake! Others lose a brick, their choice		Discount Days Pyramid pieces cost one less	

APPENDIX C: VERSION 3

This version is designed for two players on one board.

THE PYRAMID

COST: WHEAT/SLAVES/BRICK

		1/1/1	1/1/1
	2/2/2	2/2/2	
3/3/3	3/3/3		
4/4/4			

BUILD THIS TO WIN!

THE VALLEY

$1 $2 $3 $4 $5

BUYS BUYS BUYS

Make Your Own Luck: You may re-roll if you like.

Big Spender: Double your resources this turn. Stacks with Double.

Natural Disaster: Black out a whole column, removing it from play.

Cheater!: Manually set the values for the red and blue dice.

Flip My Lid: Trade sides with the other player.

±1 **Bump:** Add or subtract 1 from a die. Stackable.

Coin: Use as 1 of any resource.

Discovery: Trigger a special event.

x2 **Double:** Double the output of a single die. If multiple, must go to different dice.

Extra: Roll an extra die, any color.

What you need: Three dice: One red, one green, one blue. Two colors of pencil/pen.

Setup: First, players should agree on six discoveries to place in the valley; number the discoveries and the discovery tiles. Next, each player may buy from your side of the valley first. Take turns buying. You must buy from your side of the valley first. When you buy some-thing, outline it in your color.

How to play: On your turn roll the dice. Your roll determines your resources for this turn. Doubles grants a coin, triples grants three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

What you need: Three dice: One red, one green, one blue. Two colors of pencil/pen.

Setup: First, players should agree on six discoveries to be used this game. Next, each player may spend 7 coin in the valley. You must buy from your side of the valley first. When you buy some-thing, outline it in your color. Finally, one player rolls the dice to begin the game.

How to play: On your turn roll the dice. Your roll determines your resources for this turn. Doubles grants a coin, triples grants three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

±1 **Bump:** Add or subtract 1 from a die. Stackable.

Coin: Wildcard—may be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

x2 **Double:** Double the output of a single die. If multiple, must go to different dice.

Extra: Roll an extra die, any color.

Midnight Oil: You take an extra turn right after this one.

Contract Work: You may buy a pyramid piece at a one-level discount.

Dirty Deeds Done Dirt Cheap: You may buy an occupied space.

Sabotage: Black out any single space in the valley, removing it from play.

My Two Cents: Gain two coins.

THE PYRAMID

COST: WHEAT/SLAVES/BRICK

		2/2/2	1/1/1
	2/2/2	1/1/1	
3/3/3	1/1/1		
4/4/4			

BUILD THIS TO WIN!

THE VALLEY

$5 $4 $3 $2 $1

BUYS BUYS BUYS

APPENDIX D: VERSION 4

This version cleans up a few things, but the most significant change is the pyramid bonuses.

THE NILE VALLEY

You need: Three dice: Red, green, and blue. Two colors of pen.

Setup: Players should pick six discoveries to place in the valley; number the discovery spaces. Each player may spend 7 coin in the valley first. You must buy from your side of the valley first. When you buy something, outline it in your color.

How to play: On your turn roll the dice to determine your resources. Doubles gives a coin, triples gives three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

Bonus Three: +1 more coin every turn.
Bonus Two: +3 coins this turn only.
Bonus One: +1 coin every turn.
Victory!

THE PYRAMID

COST:

		4/4/4	
	3/3/3	3/3/3	
2/2/2	2/2/2	2/2/2	
1/1/1	1/1/1	1/1/1	1/1/1

±1 Bump: Add or subtract 1 from a die before counting resources. Stackable.

Coin: May be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

x2 Double: Double the output of a single die. Cannot be applied twice to one die.

Extra: Roll an extra die, any color.

6 — **Make Your Own Luck:** You may re-start your turn, if you like.

7 — **Big Spender:** Double your resources this turn. Stacks with Double.

8 — **Boundless Wealth:** Roll two extra dice this turn, any two colors.

9 — **Cheater!:** Manually set the values for the red and green dice.

10 — **A Reversal of Fortune:** You may trade sides with the other player.

THE NILE VALLEY

You need: Three dice: Red, green, and blue. Two colors of pen.

Setup: Players should pick six discoveries to place in the valley; number the discovery spaces. Each player may spend 7 coin in the valley first. You must buy from your side of the valley first. When you buy something, outline it in your color.

How to play: On your turn roll the dice to determine your resources. Doubles gives a coin, triples gives three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

Bonus Three: +1 more coin every turn.
Bonus Two: +3 coins this turn only.
Bonus One: +1 coin every turn.
Victory!

±1 Bump: Add or subtract 1 from a die before counting resources. Stackable.

Coin: May be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

x2 Double: Double the output of a single die. Cannot be applied twice to one die.

Extra: Roll an extra die, any color.

1 — **Midnight Oil:** You take an extra turn right after this one.

2 — **Contract Work:** You may buy a pyramid piece at a one-level discount.

3 — **Dirty Deeds Done Dirt Cheap:** You may buy an occupied space.

4 — **Sabotage:** Black out any single space in the valley, removing it from play.

5 — **My Two Cents:** Gain two coins.

THE PYRAMID

COST:

		4/4/4	
	3/3/3	3/3/3	
2/2/2	2/2/2	2/2/2	
1/1/1	1/1/1	1/1/1	1/1/1

APPENDIX E: VERSION 5

My final version (though there's still work to do):

THE NILE VALLEY

Make Your Own Luck: You may re-start your turn, if you like. (6)

Big Spender: Double your resources this turn. Stacks with Double. (7)

Boundless Wealth: Roll two extra dice this turn, any two colors. (8)

Cheater!: Manually set the values for the red and green dice. (9)

A Reveal of Fortune: You may trade sides with the other player. (10)

Bump: Add or subtract 1 from a die before counting resources. Stackable.

Coin: May be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

Double: Double the output of a single die. Cannot be applied twice to one die.

Extra: Roll an extra die, any color.

You need: Three dice: Red, green, and blue. Two colors of pen.

Setup: Players should pick six discoveries to place in the valley; number the discovery spaces. Each player may spend 7 coin in the valley. You must buy from your side of the valley first. When you buy something, outline it in your color.

How to play: On your turn roll the dice to determine your resources. Doubles gives a coin, triples gives three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

THE PYRAMID

NAME
COST:

			4/4/4
		3/3/3	3/3/3
	2/2/2	2/2/2	2/2/2
1/1/1	1/1/1	1/1/1	1/1/1

Victory!

Bonus One: +1 coin every turn.

Bonus Two: Doubles now pays two coins.

Bonus Three: Doubles now pays three coins.

STOREHOUSE TO FILL A BOX, BUY NOTHING

BLACK OUT A FILLED BOX TO GAIN 1 COIN

Bump: Add or subtract 1 from a die before counting resources. Stackable.

Coin: May be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

Double: Double the output of a single die. Cannot be applied twice to one die.

Extra: Roll an extra die, any color.

1 Midnight Oil: You take an extra turn right after this one.

2 Contract Work: You may buy a pyramid piece at a one-level discount.

3 Dirty Deeds Done Dirt Cheap: You may buy an occupied space.

4 Sabotage: Black out any single space in the valley, removing it from play.

5 My Two Cents: Gain two coins.

Bonus One: +1 coin every turn.

Bonus Two: Doubles now pays two coins.

Bonus Three: Doubles now pays three coins.

Victory!

THE PYRAMID

NAME
COST:

			4/4/4
		3/3/3	3/3/3
	2/2/2	2/2/2	2/2/2
1/1/1	1/1/1	1/1/1	1/1/1

THE NILE VALLEY

STOREHOUSE TO FILL A BOX, BUY NOTHING

BLACK OUT A FILLED BOX TO GAIN 1 COIN

APPENDIX F: PLAYTEST 1

Dominion Dice – Brad Buchanan

Brad

Board A Version 1 (2012-02-05)

Make 12mm t

	White	Black	Blue
1			
2			
3			
4			
5			
6			

39 pts
vs 26

Rules

1. Give every player an identical game card. Before the game begins, each player may purchase an item worth 3 coin or less.
2. On your turn, roll three dice, one of each color. For each die, look up your current item in the table.
3. You may take one action on your turn, if you rolled one. Then you may make one purchase.
4. The game ends when a player buys all the 6 point properties. Everyone counts their points – the highest count is the winner.

Hard to find actions
Feels single-player
Just optimizing each row?
Dice identical – bad
Make table bigger.

Items

①②③ This is coin. When you roll this, you can use it to make purchases.

1 3 6 This is property. When you roll this it does nothing, but the person with the most at game end wins.

The number in the lower-right-hand corner of an icon is its cost.

20 mins.

Actions

You may re-roll one or both of your other dice. You may take one more action this turn.	Worth two coin, and you may make an extra purchase this turn.
You may re-roll this die. You may take two more actions this turn.	You may upgrade a first-column item to a second-column item for free. *Can upgrade rolled coin.* *Can talk* *2nd Col otherwise no.*
Worth one coin, and you may make an extra purchase this turn.	Pick one color. Re-roll that color until you get coin.
You may roll two more dice (your choice of color) for a total of five this turn.	You may skip this turn to take a double-turn next time; 2 rolls, 2 actions, 2 purchases.
You may double another action you rolled this turn. *Odds of another action are low doesn't feel good.*	Double any coin you rolled. *Sad with no money!*

Dominion Dice – Brad Buchanan

Yotam

Board A Version 1 (2012-02-05)

	White	Black	Blue
1			
2			
3			
4			
5			
6			

Rules

1. Give every player an identical game card. Before the game begins, each player may purchase an item worth 3 coin or less.
2. On your turn, roll three dice, one of each color. For each die, look up your current item in the table.
3. You may take one action on your turn, if you rolled one. Then you may make one purchase.
4. The game ends when a player buys all the 6 point properties. Everyone counts their points – the highest count is the winner.

Items

This is coin. When you roll this, you can use it to make purchases.

2   2   3   [26]
1   3   6

This is property. When you roll this it does nothing, but the person with the most at game end wins.

The number in the lower-right-hand corner of an icon is its cost.

Actions

	You may re-roll one or both of your other dice. You may take one more action this turn.		Worth two coin, and you may make an extra purchase this turn.
	You may re-roll this die. You may take two more actions this turn.		You may upgrade a first-column item to a second-column item for free.
	Worth one coin, and you may make an extra purchase this turn.		Pick one color. Re-roll that color until you get coin.
	You may roll two more dice (your choice of color) for a total of five this turn.		You may skip this turn to take a double-turn next time; 2 rolls, 2 actions, 2 purchases.
	You may double another action you rolled this turn.		Double any coin you rolled.

APPENDIX G: PLAYTEST 2

Anthony

5 of each
4 of each | 4 of each
3 of each | 3 of each | 3 of each
2 of each | 2 of each | 2 of each | 2 of each

THE PYRAMID

Black — Buy with Brick
White — Buy with Slaves
Blue — Buy with Wheat

±1 ±1 ±1 ±1

x2 x2 x2

THE CITY

Yotam

5 of each
4 of each | 4 of each
3 of each | 3 of each | 3 of each
2 of each | 2 of each | 2 of each | 2 of each

THE PYRAMID

Black — Buy with Brick
White — Buy with Slaves
Blue — Buy with Wheat

±1 ±1 ±1 ±1

x2 x2 x2

THE CITY

Fire! Others lose a storehouse, their choice		**Exclusive Deal** Others black a box, your choice	
Flood! Others lose a worker, their choice		**Contract Work** Gain a pyramid piece for free	
Famine! Others lose a wheat, their choice		**Midnight Oil** Take another turn	
Earthquake! Others lose a brick, their choice		**Discount Days** Pyramid pieces cost one less	

Fire! Others lose a storehouse, their choice		**Exclusive Deal** Others black a box, your choice	
Flood! Others lose a worker, their choice		**Contract Work** Gain a pyramid piece for free	
Famine! Others lose a wheat, their choice		**Midnight Oil** Take another turn	
Earthquake! Others lose a brick, their choice		**Discount Days** Pyramid pieces cost one less	

APPENDIX H: PLAYTEST 3

THE VALLEY

BUYS · BUYS · BUYS

$1 $2 $3 $4 $5

x2 x2 x2

±1

Blue

Midnight Oil: You take an extra turn right after this one.

Contract Work: You may buy a pyramid piece at a one-level discount.

Dirty Deeds Done Dirt Cheap: You may buy an occupied space.

Sabotage: Black out any single space in the valley, removing it from play.

My Two Cents: Gain two coins.

Bump: Add or subtract 1 from a die. Stackable. **±1**

Coin: Wildcard—may be used as 1 of any resource.

Discovery: When rolled, follow special directions (see right).

Double: Double the output of a single die. If multiple, must go to different dice. **x2**

Extra: Roll an extra die, any color.

What you need: Three dice: One red, one green, one blue. Two colors of pencil/pen.

Setup: First, players should agree on six discoveries to place in the valley; number the discoveries and the discovery tiles. Next, each player may spend 7 coin in the valley. Take turns buying. You must buy from your side of the valley first. When you buy something, outline it in your color.

How to play: On your turn roll the dice. Your roll determines your resources for this turn. Doubles grants a coin, triples grants three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

White

Black

Notes

THE PYRAMID

COST: WHEAT/SLAVES/BRICK · BUILD THIS TO WIN!

	4/4/4	
3/3/3		3/3/3

| 2/2/2 | 2/2/2 | 2/2/2 |
| 1/1/1 | 1/1/1 | 1/1/1 | 1/1/1 |

Josephine / Romain

Swap ×2 Coin and ×2

What you need: Three dice: One red, one green, one blue. Two colors of pencil/pen.

Setup: First, players should agree on six discoveries to be used this game. Next, each player may spend 7 coin in the valley. You must buy from your side of the valley first. When you buy something, outline it in your color. Finally, one player rolls the dice to begin the game.

How to play: On your turn roll the dice. Your roll determines your resources for this turn. Doubles grants a coin, triples grants three coins. After counting your resources you may make purchases in the valley or the pyramid. Finish your pyramid first to win.

Bump: Add or subtract 1 from a die. Stackable. **±1**

Coin: Use as 1 of any resource.

Discovery: Trigger a special event.

Double: Double the output of a single die. If multiple, must go to different dice. **x2**

Extra: Roll an extra die, any color.

Make Your Own Luck: You may re-roll if you like.

Big Spender: Double your resources this turn. Stacks with Double.

Natural Disaster: Black out a whole column, removing it from play.

Cheater!: Manually set the value for the red and blue dice.

Flip My Lid: Trade sides with the other player.

THE VALLEY

$5 $4 $3 $2 $1

±1 ±1

BUYS · BUYS · BUYS

THE PYRAMID

COST: WHEAT/SLAVES/BRICK · BUILD THIS TO WIN!

	4/4/4	
3/3/3		3/3/3

| 2/2/2 | 2/2/2 | 2/2/2 |
| 1/1/1 | 1/1/1 | 1/1/1 | 1/1/1 |

Handwritten notes: "4 2 ?? win ?? AHH!! Do I need a win?"; "Does extra dice work for coins / doubles?"; "Is game winnable after...?"; "Dr. Needs Boosts of some sort."; "Start your turn over! (No lap bonus)"; "2B 2W 1S DONE"; "Egypt"; "If this is Egypt why do we use dollars?"