

The Xc Coin Mechanic

Copyright 2003 © Todd Starbuck

Version 3: 9 October, 2003

Xc is an alternative game mechanic that provides some options that traditional dice do not. Its features include simulating odd sided dice, simulating any number of sides, and the rolling of zeros. The c stands for Coin, and the X represents that any number can be before the c.

A Note on Rolling Coins

Coins do not 'roll' in the way that dice do. To ensure randomness it is recommended that the coins be shaken in a plastic cup or something that will give them room to bounce around. Then pouring the coins onto the table or other playing surface. Coins, like dice, will sometimes want to run free and hide under things. To keep them in line try rolling the coins into a box. After rolling, count the number of heads showing, and that is the result. Heads are worth one and tails are zeros. These coins are NOT d2's in the typical sense. They are more like d2-1. Note that unlike a die, coins can all roll to be tails giving a head count of zero! Keep that in mind if you use this mechanic. It will also help to keep coin pools low for less counting time. To make the coins more readable, consider using coins with visually distinct sides, perhaps by painting them.

Notation

This is a guide to reading and writing Xc rolls. 7c means roll seven coins. Then there is the +/-Y component, which is added to or subtracted from the count of heads. 8c+1 means roll eight coins and add one. 2(10c+1) mean roll ten coins and add one, twice. Standard dice rolls can look like 3d6+2d4. All you have is the number of coins and what to add or subtract (with the exception of escalation, see below).

Simulating Normal Dice

If you want to use coins like a traditional die, you have to make a minor adjustment. Take the number of the die you want to roll and subtract one, that will be the X, to prevent getting a zero result add one to the head count. For a d6, you would roll 5c+1, not 6c. The 6c would generate seven possible results from 0 to 6. A d6 has six results, 1 to 6. Without the +1 Xc can roll zeros, which will not jive well with game that do not allow for a roll of zero. Example: a d4 would be 3c+1. The first coin rolls tails, the other two coins roll heads, so the head count is 2, add the 1 and the result is 3. NOTICE: Coins used in this way will have the same AVERAGE result of its die counterpart, but it will not have the same DISTRIBUTION. Xc is heavily weighted toward the average result, whereas a die has an even chance of rolling any of its possibilities. Do not expect the results to be the same as your polyhedrons. Xc is good if you want to show a greater likelihood of an average performance, with extreme results being rare.

Simulate Odd Sided Dice

Dice are polyhedrons that have to have an even number of sides to roll properly and have proper randomness. The Xc mechanic can simulate a die with an odd number (with the notice above in mind). If you've ever wanted to roll at d37, here's your chance. In the case of a d5, you would roll 4c+1.

Rolling Zeros

Dice are typically number 1 through X, and so the lowest number they can roll is 1. If you roll YdX the lowest possible roll is going to be Y. With traditional dice if you wanted a potential result of 36, you'd go with 6d6, which would give a minimum of 6. In Xc you could get 0 to 36 by rolling 36c (which would be a pain). If you wanted a spread of 6 to 36, that would be 30c+6 or 6(6c). With Xc you can get a zero if all the coins come up tails. Each coin cuts the chance of getting a zero in half. Results of 0 might be a good way to express critical failure/fumbles or botches.

Option: Escalation

To simulate some special game effect, after the first roll, count the heads and remove the tails. Then roll the coins that were heads again. So if you start with 10 coins, and 5 come up heads, the running total is 5 heads. Roll those five again and add that to the total. You can repeat this until you get no more heads, or some agreed upon limit. Or it can be a one-time thing. But if you repeat until the stop rolling heads you can get some fairly high results with a bit of luck. 16 coins should roll 8 heads; those 8 should yield another 4, then 2 and then 1. The final total is 15, nearly the initial pool of coins. The chance of getting 15 heads out of 16 coins is so minute it is hardly worth calculating. It is possible that

The Xc Coin Mechanic

Copyright 2003 © Todd Starbuck

Version 3: 9 October, 2003

the player would never stop rolling, so perhaps the limit of rerolls could be set at half the initial pool, or 5 rerolls, or a number equal to the number of heads in the first roll. Whatever works best for your game is the best option. The dice equivalent to this would be rolling a d10 and getting a 5, then rolling the next lower die, a d4, which gets a 2, then a d2 (a coin with a 1 side and a 2 side) and getting a one. The notation for Escalation is EY, where Y is the number of rerolls. If the roll is open ended, you would write XcE. If two Escalations were permitted it would be expressed as XcE2. Lastly if rerolls were permitted until the pool maximum is reach, you would say XcEP.

Xc Probalistics

As stated above, the probabilities of Xc are not the same as dice. To calculate the average of a given roll, divide the number of coins by two. To determine the number of possible outcomes, calculate 2^X where X is the number of coins. So with 4c there are 16 possibilities. Note that a d4 has only four. You can prove this to your self if you can count in binary. Start at all zeroes and count up until you reach all ones. Below is an example of 3c.

Roll	Outcome	Heads
000	1	0
001	2	1
010	3	1
011	4	2
100	5	1
101	7	2
110	8	2
111	9	3

Heads	Odds	%
0	1/16	6.25
1	3/16	18.75
2	3/16	18.75
3	1/16	6.25

Note that 1 and 2 occur three times as often as 0 and 3. Pascal's Triangle will show the probalistics of other numbers of coins, researching that is up to you. What is important to state here is how heavily Xc is weighted to the average. If that works for your game, great, if not, find something else and publish it so others can use it.

Thanks

Thank yous are owed to James Ojaste, the RPGNet Forum posters and the RPG Crafters Forum for their help in making this.