FLIPPIN' MATH'S FAVORITE GAMES V.1

Compiled by

Tammy Reeves

A Collection of Games for Math Grades K-8

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TABLE OF CONTENTS

Visit flippinmath.com to acquire the full version, including Place Value Hold-em, Guess my Number, Multiply Bullseye, And three variations of “The Story of X”.

If you’re a game creator or librarian, please email me at tmr@flippinmath.com, as I’m building a free game gallery and would love to feature gamers & appreciators of mathy goodness.

CHAPTER 01

PLACE VALUE

The concept of place value, specifically in our typical Base 10 number system is a fundamental building block of math education. Decimals, rounding, scientific notation, percentages . . . the applications of place value are abundant. The more confidently a student can interpret and work with the place value of numbers is (as my piano teacher used to say of playing scales,) “money in the bank!”

Being flexible with numbers as they are composed of hundreds, tens, and ones opens wide the students’ possibilities for solving problems, either on paper or mentally. It also prepares them for ‘decomposing’ polynomial expressions later when they hit Algebra in high school.

“Math Mind Reader” Cards

Objective: To spark interest in math by ‘guessing’ the observer’s number.

Materials: Magic Math Mind cards

To begin:
Choose a participant, an “audience member”. Ask them to think of a number between 1 and 63.

Have them look at the cards and sort the cards into the stack that does have the number, and those that do not.

The trick is to take the pile of cards that contains their number and simply add the upper-left number from each card. The sum of these values will be the number that was chosen**.**

These cards are available abundantly, but this particular set was offered by “Diary of a Grumpy Teacher” blog as a freebie back in 2014. http://diaryofagrumpyteacher.blogspot.com/2014/04/freebie-friday-magic-number-cards.html Check ‘em out!

1	3	5	7	9	11	13	15
17	19	21	23	25	27	29	31
33	35	37	39	41	43	45	47
49	51	53	55	57	59	61	63

2	3	6	7	10	11	14	15
18	19	22	23	26	27	30	31
34	35	38	39	42	43	46	47
50	51	54	55	58	59	62	63

4	5	6	7	12	13	14	15
20	21	22	23	28	29	30	31
36	37	38	39	44	45	46	47
52	53	54	55	60	61	62	63

8	9	10	11	12	13	14	15
24	25	26	27	28	29	30	31
40	41	42	43	44	45	46	47
56	57	58	59	60	61	62	63

16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

Place Value Hold-em (3 Digit)

Objective: Create a number closest to the target number by strategically selecting cards for each of the place value positions.

Materials: Playing Card, standard deck – Aces - 9 only, (A=1)
Game board, one per player, in dry erase pouch. Dry erase markers

To begin:
Teacher draws 3 cards and arranges them to determine a target number to try to match. Students note the target on their gameboard.

Teacher deals out 5 cards per student. They may only keep a total of 3, so they discard 2.
At that point, they can choose 1 card to replace. They discard that card, then are given a replacement card from the deck. When done, they choose the 3 digit number closest to the target number, write it in the table, calculate error, and add it to the running score.

Players refresh the game board after each hand, but keep the running tally.

Flippin' Math Original! Game Debut!!

TARGET #: _____

You'll be dealt 5 cards. Create a 3-digit number that is closest to the target number and discard the other two cards.

You may choose one card to replace. Discard it and draw from the deck. Re-evaluate the 3-digit number to see if it is still the closest. Place those cards on your desk, so everyone can see it.

Write your number into the table below, then calculate how far your number is away from the target number. Winner is the player with the least cumulative error at the end of the game.

SCORE:

Round:	Three Digit Number	Distance from Target #	Running Total
1			
2			
3			
4			
5			

CHAPTER 02

OPERATIONS

Once we know the enormous power of numbers and using them to represent large and small numbers, elementary math class asks us to make the numbers interact. It may no longer be the case that “you won’t always have a calculator on you”, now that most of us carry cell phones in our pockets. The importance of fluent numeracy and understanding basic addition and multiplication facts can’t be replaced.

As students progress to ‘higher math’, the last thing they need is to slow themselves down by double checking that 7+5=12. Let’s face it – flashcards are boring. These games attempt to make the important repeated exposure to these facts into a fun way for the family to spend an evening together.

Forehead Math

Objective: Players will determine the value of their unknown number, given the sum, difference, or product of their own unknown number and the number of the other player.

Materials: Standard deck of cards. A-10. (A=1)

To begin:
Each player draws a card from the deck without looking and places it against their forehead, facing out. Each player knows that the opponent's card is, but not their own.

Teacher or facilitator says, "Together, your _____ is _____", such as "together, your sum is 13. Players calculate what their own number is. First to correctly guess their own card wins the round.

For scoring, you can either divide the class into two teams, and the winner from each round gives a point to their team, OR, if evenly matched, one player could stay in the game until beaten, with other players working to take their spot. To play at home, take turns being the person to be the facilitator so everyone has a chance to play.

The world may never know who was the first to play Forehead Math, or where I saw it for the first time, but it's been a favorite for years!

Dice Duel

Objective: To capture the most “coins” by rolling a number higher than your opponent.

Materials:
Four 6-sided dice
Variation: use 10-sided, or decade-dice for one or both dice
Different color pebbles or counters

To begin:
Each player begins with a bag of colored pebbles (or counters)
Both players roll two dice and multiply the two. The higher number gets to capture the difference between the two player’s rolls.
For instance: Player one rolls 2x4. Player two rolls 3x5. Player two wins, and captures (15-8)=7 stones.

Write the stones on paper if there is a shortage of counters.
Game is over when one person has collected all of their opponent’s counters, or until their winnings reach a specific target number.

FARKLE!

Objective: Objective: To use strategy and probability reasoning, be the first to accrue a total of 10,000 points by adding the sum of each roll, cumulatively.

Materials: 5 standard 6-sided dice; pencils & paper for keeping score

To begin: Everyone rolls, highest goes first. Each person is in charge of keeping score, for the math practice benefit. Write everyone's name on the score page, leaving space to calculate and keep track of points in the column beneath their name.

Each player, in turn, rolls all 5 dice. To get on the board, each player must earn at least 500 points. A player's turn continues so long as their consecutive rolls continue to score points. If a player rolls and does not earn points, that's a "Farkle!" and the player loses any points they potentially accumulated during that turn.

Points are earned for 1s, 5s, groups of 3 or 5 of a kind (all rolled at the same time) and for straights (1-5 or 2-6).

1 = 100
5 = 50
3 of a kind = 100 x value on dice ((3 "1"s = 1000))
5 of a kind = 1000 x valule on dice ((5 "1"s = 10,000))
Straight = 1500

For instance, if a first roll is 1, 5, 6, 3, and 3, this is currently worth 150 points. The player must leave at least one of the scoring dice there but may roll the other dice to try to get more points. Perhaps he sets the 1 aside and rolls the other four dice again. On his second roll, he gets a 1, 1, 5, and 3. Beginning the second roll, he had acquired and 'pocketed' 100 points. He now adds 250 additional points. (Yes, he now has three 1s, but they weren't rolled at a single time, so it doesn't get the 3-of-a-kind bonus.) Now, with an accumulated 350 points on the line, the partner, if they haven't yet earned 500 points in the game, he must roll the 2 once more. If he scores, he adds the points to the potential score and can roll all 5 of them again.

The player's turn ends when they either Farkle, or if they call stop. When the turn is over, the score (if not Farkled) is added to the cumulative total.

When someone reaches 10,000 points, each player has one final round to try to beat that score.

**This game takes me back! I have no idea where it comes from originally. Years ago, I had friends with whom I'd play dice games. Lots. This one's for you, Amanda & Chris!*

Number Hive

Objectives: Practice basic multiplication facts while strategically trying for (and preventing other players from getting) 4 in a row.

Materials: Game board hex grid and 2-factor multiplying mat.
Two-colored counters as markers (at least 30 should be enough) (works for 2 players) OR Colored pebbles (in up to 4 colors, one set per player)
Playing cards – one set of (1-10 + Jack & Queen) per player

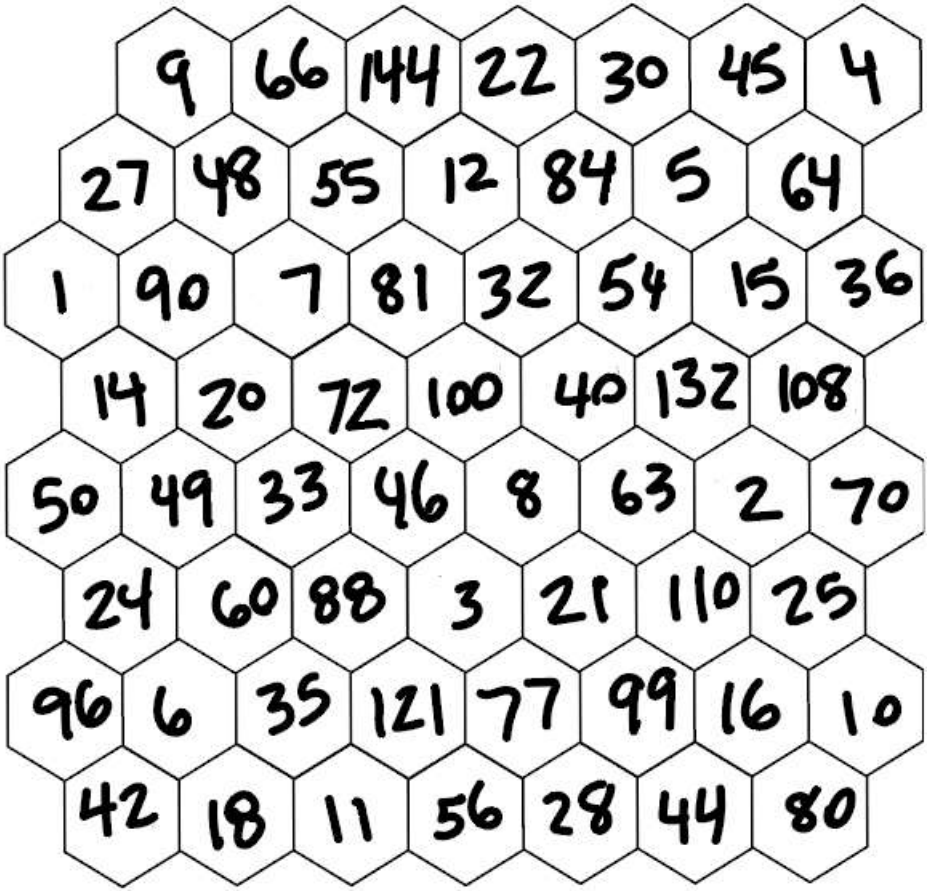
To begin:
Place the multiplying mat between the players.
Each player lies their cards out on either side of the game board. A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q. ((A = 1, J = 11, Q = 12))

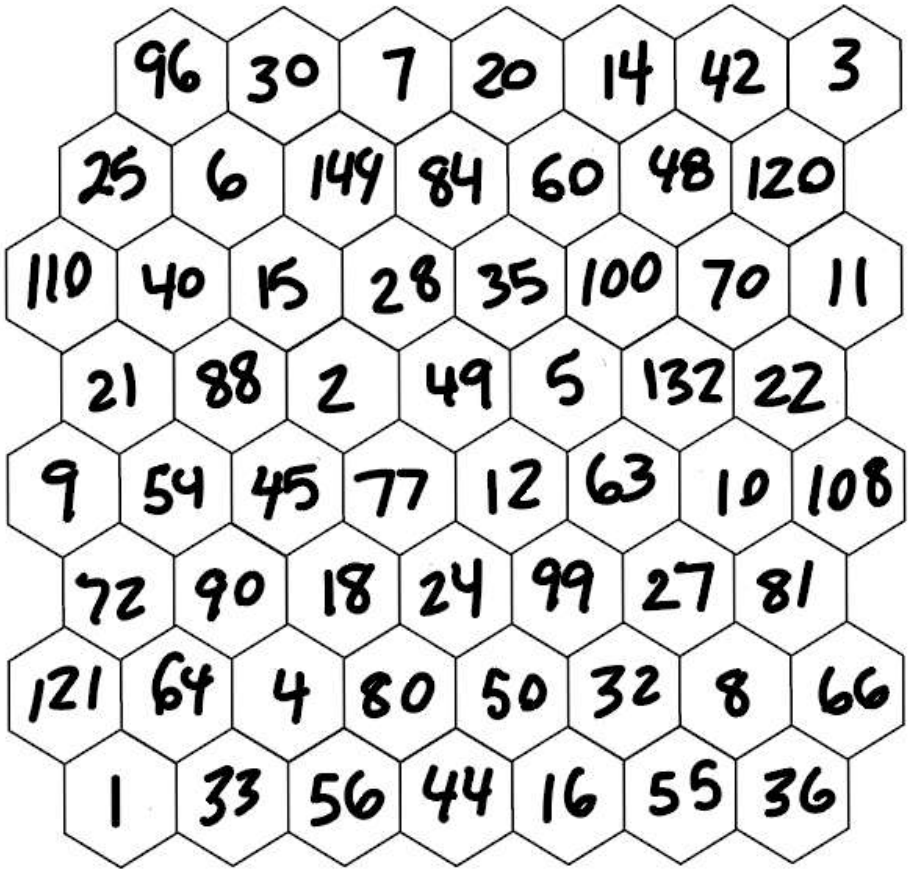
Place a game board where it is convenient for all players.Each player places a 1 down in one of the boxes. Decide who goes first (i.e. youngest goes first on initial hand, then winner begins on subsequent rounds, etc, choose your own method for deciding). Also choose who is represented by each color marker.

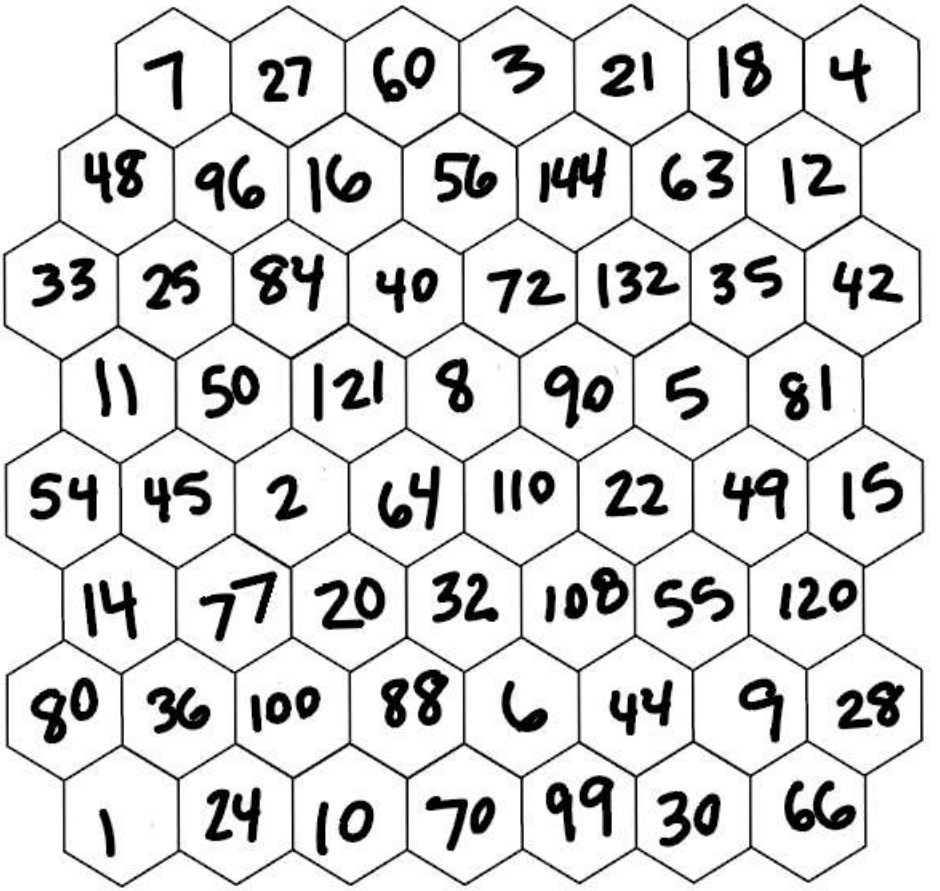
No one takes the territory of 1x1, but the first player can pick any card from their deck and play it in either spot. For instance, they may change one of the 1s to a 7. They multiply 1x7, and place their color marker on the 7 space. (Be sure the card returns to the deck that is missing it, to avoid confusion.) The next player may choose any card, replacing either the 1 or the 7. By replacing the 1 with a 5, the player could claim “35”.

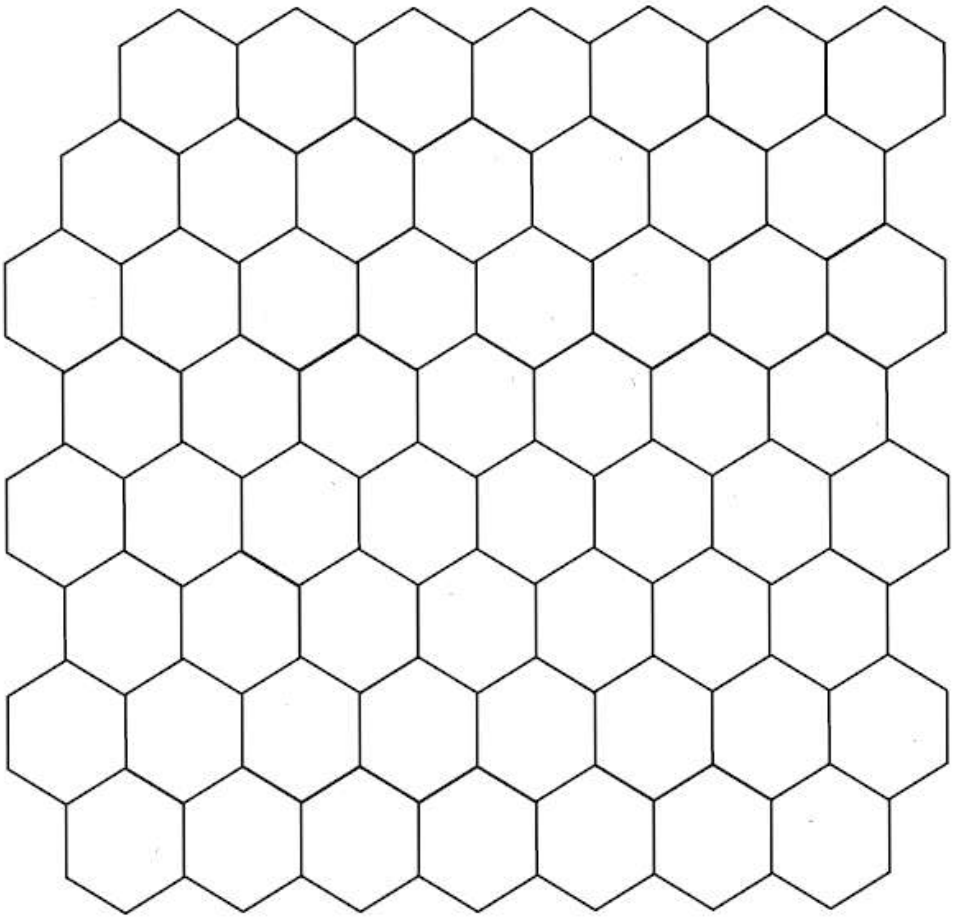
Winner is the first player to capture 4 in a row, vertically, horizontally, or diagonally.

This game is adapted from a mobile app game by the same name.


9 66 144 22 30 45 4
27 48 55 12 84 5 64
1 90 7 81 32 54 15 36
14 20 72 100 40 132 108
50 49 33 46 8 63 2 70
24 60 88 3 21 110 25
96 6 35 121 77 99 16 10
42 18 11 56 28 44 80


96 30 7 20 14 42 3
25 6 144 84 60 48 120
110 40 15 28 35 100 70 11
21 88 2 49 5 132 22
9 54 45 77 12 63 10 108
72 90 18 24 99 27 81
121 64 4 80 50 32 8 66
1 33 56 44 16 55 36

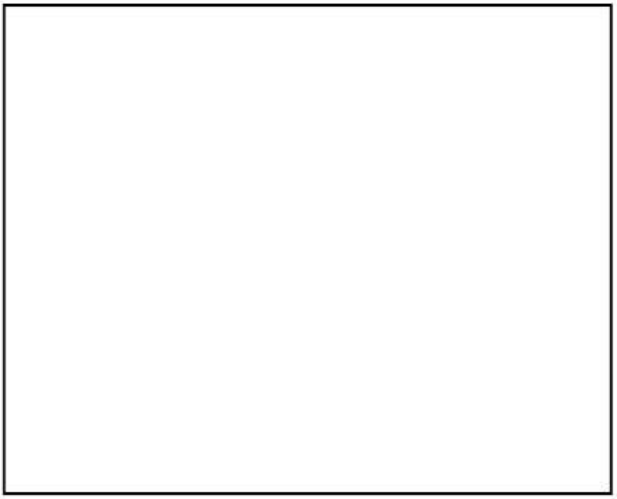

7 27 60 3 21 18 4
48 96 16 56 144 63 12
33 25 84 40 72 132 35 42
11 50 121 8 90 5 81
54 45 2 64 110 22 49 15
14 77 20 32 108 55 120
80 36 100 88 6 44 9 28
1 24 10 70 99 30 66

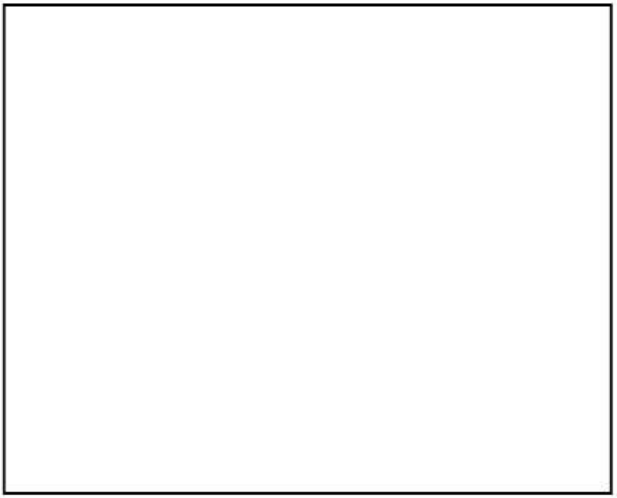


To create your own, write in the following numbers, randomly:

1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,18,
20,21,22,24,25,27,28,30,32,33,35,36,
40,42,44,45,48,49,50,54,55,56,
60,63,64,66,70,72,77,80,81,84,88,90,96,99,
100,108,110,120,121,132,144

Number Hive Multiplication Mat





Thinking Bingo

Objective: To fill 4-in a row (or other criteria) by crossing off true statements about the numbers rolled.

Materials: 2 or 3 six-sided dice depending on which version you are playing.
• One BINGO card for each player/team of two.

How to play: The teacher rolls the dice and each round teams can cross off ONE statement of their choice, which is applicable to that dice roll.

Short version - Players win if they are the first to connect 4 in a row.
Medium version - Players win by creating two paths of 4 in a row.
Long version - The player with the most squares crossed out after 16 rounds is the winner.

These two boards are available for free download at Andrew's site, www.thinksquare.com.au , by signing up for a free membership. Or upgrade, and have access to several more content bingo boards!

Thinking BINGO - Number

For this version, roll two six-sided dice. The order of the two numbers rolled is not important. Record the results of each round as well the square you marked off on your BINGO grid.

Sum is a square number	Difference ≥ 4	Sum is a prime number	Sum <6
Sum is a multiple of 5	Product <10	Highest dice rolled is no more than 3	Sum is even
Product is even	Sum = 7	Difference = 2	Product >15
No dice is less than 3	Difference is odd	Sum ≥10	Product =12

	Dice 1	Dice 2	BINGO selection A-P
Round 1			
Round 2			
Round 3			
Round 4			
Round 5			
Round 6			
Round 7			
Round 8			

	Dice 1	Dice 2	BINGO selection A-P
Round 9			
Round 10			
Round 11			
Round 12			
Round 13			
Round 14			
Round 15			
Round 16			

Thinking BINGO - Statistics

Each round roll **three** six-sided dice. Use the table below to record the rolls each round (preferably in ascending order) as well the square you marked off on your BINGO grid.

MODE =6	MEDIAN =1	MEAN =2	RANGE =5
RANGE =3	MEAN =4	MODE =1	MEDIAN =6
MEAN =5	RANGE =4	MEDIAN =3	MODE =2
MEDIAN =4	MODE =5	RANGE =1	MEAN =3

	Dice 1	Dice 2	Dice 3	BINGO selection A-P
Round 1				
Round 2				
Round 3				
Round 4				
Round 5				
Round 6				
Round 7				
Round 8				

	Dice 1	Dice 2	Dice 3	BINGO selection A-P
Round 9				
Round 10				
Round 11				
Round 12				
Round 13				
Round 14				
Round 15				
Round 16				

The player with the smallest cumulative error after 5 rounds wins.

Chapter 03

PREALGEBRA

In this ever-moving universe, it is very rare that only one thing is happening at any given moment. In any given math problem, especially the not-so-tidy math problems that life eventually presents us, there are a lot of things going on. Being able to isolate a variable in algebra involves recognizing what operations have occurred that prevent it from being alone.

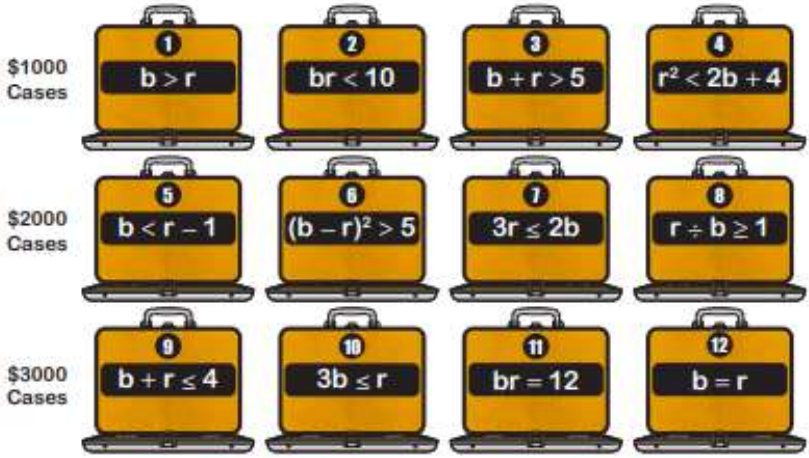
Games involving the order of operations, reasoning with expressions and inequalities, even setting up and solving equations can be turned into games with dice and cards. It's a risk-free, safe place to 'make the mistakes' and get practice with the strategies that will make math so much easier!

The next game was found online, though I can't seem to find it again to give proper credit! If you know/are the creator of "Just in Ca$e", please reach out and I'll credit your work!

Just in Ca$e


In pairs or as a class, roll a blue die (b) and a red die (r). Each player then selects one unused suitcase that has an inequality or equation which the dice roll satisfies, and claims the prize money for their chosen case. If the dice do not satisfy any of a player's remaining cases, they miss a prize that round. There is a $3000 bonus for each row or column that is completed. Repeat this process 12 times.

Before commencing, each player chooses one case to duplicate, thereby allowing that equation to be used twice. Use the 12 original cases in 12 rounds and collect $45 000 for a perfect score. The extra case is there just in case the dice rolls don't go your way, however, using case 13 will limit your score to a maximum of $41 000.



Record the dice rolls, case chosen and prize money won for each round in the table below.

RND				Prize Money
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Row/Col. Bonuses				
Total Prize Money				

'Just in case'

Fill in case 13 with your selected inequality or equation. Its $ value matches the case copied.

Game 1

Game 2

RND	11			Prize Money
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Row/Col. Bonuses				
Total Prize Money				

ABOUT THE AUTHOR

Flippin' Math was originally created in 2017, as a way to connect with the community and create positive experiences with math. The author and creator of Flippin' Math is Tammy Reeves.

After several years teaching music, Reeves became fascinated with math education. For a year, she taught 1000+ elementary kids, using manipulatives, cards, dice, and even song to pique the students' interest and practice skills. For nearly a decade, she taught in public high schools around the Metro Atlanta area, teaching special education as well as some gifted classes.

Games are relevant at every age, for every skill level. Many of Reeve's personal favorites are here – all found for free online, with the exception of Number Hive, which is a fantastic free mobile app available on your phones! I adapted it to be played in person using cards, colored pebbles or game tokens, and the game board.

I also included Thinking Bingo from my amazing content creator and friend, Andrew in Australia. Visit him at thinksquare.com.au for amazing online math games as well! Happy gaming!

My Mission:

It truly is my mission to bring the good math to the masses. I'm a fun-lover at heart, and let's face it. . . much like the students I teach, if it's not fun, I'm not incredibly interested. From the sounds of it from parent-teacher night conversation, math hasn't historically been fun for a lot of the parents and students in the schools today.

In the past few years, I've created a free online math resource library at www.flippinmath.com, pointing teachers and learners alike where to find good resources for free online, but that doesn't make it FUN, just helps make teachers' lives a little easier.

I now hope to also begin giving classes in schools and homeschool families to showcase and enjoy these and more games with the community. Please reach out for more information! tmr@flippinmath.com.

Math's been given a bad rap for years. It's my mission to 'flip the script' on kids (and family's) perception of math. I truly hope these games become a part of your family's routine, one that brings far more joy than stress or anxiety.