

RULES FOR MATHINO

Welcome to Mathino, the world's greatest math card game. Get ready to **ignite your passion for math!**

Mathino is easy to learn and played in a very simple manner. It makes math fun and challenges players to stretch their mathematical abilities.

Playable by 2, 3, 4, or 6 players

OBJECT OF THE GAME: Be the first player to get to 14 points

SCORING

Each deck dealt is worth 13 points as follows:

1 Point for **each of the 4 Aces** (1 cards)*

2 Points for the 2 of Stars point card*

1 Point for the 7 of Stars point card*

2 Points for the 11 of Stars point card*

4 Points for the player with the most cards captured (ties split the 4 points)

*Point cards are shown with gems on the side representing the points that card is worth and the numbers are golden colored.

STARTING PLAY (no calculators allowed but pencil & paper are)

1) The dealer shuffles the entire deck and deals 4 cards to each player and 4 face-up on the table. (These are the only 4 cards ever played to the table from the deck)

2) Players now begin taking their turns starting with the player to the left of the dealer. On your turn you must play a card to:

a) capture cards and build piles on the table by **matching** a value from your hand

b) **building** on other cards (explained below)

c) **discard** a card to the table if you can't do one of the above (or when there are no cards on the table).

3) After all players have played their 4 cards, the dealer deals 4 more cards to each player and they again play in the same order until the deck is fully played in this manner.

4) When the deck is fully played, points are counted and scored and the player to the left of the dealer shuffles and deals the next deck as described in step 1. Play continues in this manner until one player reaches 14 points (or another predetermined amount).

a) CAPTURING-Use any card in your hand to capture as many cards on the table that match your card value. If a card or build pile has a value of 5 and you have a 5 in your hand, you may use your 5 to pick up the cards in that stack. If there was also a build pile with a negative 5 value you could pick that up at the same time.

b) BUILDING ON TABLE CARDS-this is the core of Mathino. On your turn you want to make a plan to capture as many cards as possible. You do this by using math to get a card value on the table to a value you can capture. This may take multiple turns. For example, a 4 is on the table, and you have a 2 and an 8 in your hand. You can't capture the 4 on turn one because you don't have a 4. However, you could play the 2 on the 4 and announce "4 times 2, building 8's". On the next turn you could play the 8 and capture that stack. Note, you could not play the 8 on the 4 and announce "8 divided by 4, building 2's," because the card you play is the one that modifies the card on the table, not the other way around. Players can also just match an identical value from their hand to the table and leave it on that stack without picking it up because you may want to include a card in a build pile that you can't do anything else with. You are allowed to modify any value on any card or build stack on the table with one exception in the advanced rules called a POWER PLAY.

c) DISCARDING-On your turn if you have no cards in your hand that you know what to do with, or there are no cards on the table, just discard one of yours and lay it face up on the table.

Read Game Play Examples 1a and 2 Now

STACKING RULE

Players can stack identical values on the table before or after their card action on their turn. For example, if two piles of 8's were on the table (either individually or as a build pile), a player can stack these together as if they were one pile to consolidate piles and make for easier capturing. However, if one stack is negative and the other positive, they cannot be stacked, but could be captured in one move by one card of the common absolute value as described above.

BASIC GAME BUILD RULES

-Match your card to an identical value on the table without capturing

-Use **addition, subtraction, multiplication, and division** to change a value [ex. 9 on table, 3 played on it could create a 12 (by adding), 6 (by subtracting), 27 (by multiplying), or 3 (by dividing)].

(Only include multiplication/division if players have learned it)

-Values on build stacks can be **positive and negative** (ex. 2 on table, 6 subtracted from it creates a -4)

-Cards you play can be **positive or negative** (ex. Multiply by -3)

-Player can **capture as many cards and build piles** that match the absolute value of their card (read capturing to understand)

-Capturing cards with **gems** on them are **worth extra points**.

-Dealer must announce "last round" on the last dealing because the **last** player to make a **capture gets cards remaining** on the table at the end.

-**Math mistakes** void moves and they should be retaken. If they are discovered after another player goes, moves are not undone.

PENALTY RULE-VERY IMPORTANT

-Players **MUST** capture a build stack they start by the end of a 4 card round. Failure to capture it results in that player receiving -14 points. This prevents a player from stopping an opponent from capturing a stack they are building on when he/she can't capture it him/herself.

At this point you should play a game to better understand the mechanics of play. Then read on to the more advanced rules.

ADVANCED BUILD RULES TO ADD AS PLAYERS ARE READY

-Double digit multiplication products can have **digits summed** to keep values more playable. (ex. $9 * 11 = 99$; $9 + 9 = 18$; optionally repeat new value 18 into $1+8=9$). $1 * 10$ counts as well as it is a double digit answer and adds to 1 ($1+0$).

-A 2 or 3 card can be used for **Power Plays**. 2's square (number times itself) and square root a value, 3's cube (a number times itself 3 times. Ex. $5*5*5$) or cube root a value. When played on a card or stack, turn the card sideways signifying no other player can play on that build stack. It is locked for you to continue to build on and capture on another turn.

(Note: you cannot take the square root of a negative number and square roots and cube roots must be a whole number).

-Individual cards on the table can have their **values matched or added** before your move and then you can manipulate the total during that turn.

(Ex. A 6 and 9 are on the table. You may add them to a 15 and play a 5 on top of them card dividing to a 3) (Ex 2. Two 6's are on the table. You put one on top of the other matching them and say "matching" instead of adding and then play something on top of the 6 value). You may not add cards you don't use, and you may not add with build piles, but you can match with build piles. (Ex 3. You play a 2 in a Power Play and square a 3 to a 9. There is another build pile on the table with a 9 value. You may immediately place it on top of your Power Play stack of identical value and add those cards to your build pile stack.)

GAME PLAY EXAMPLE 1a

Daniel	3	7	4	11
Table	7	10		8
Savanna	7	4	9	5

Daniel deals and Savanna goes first.

Savanna move 1: She could capture the 7 card on the table with an easy match from her 7, but she wants more cards in her capture and there is a point card on the table (the 1) so she plays her 4 on the 1 and says "1+4, building 5's" thinking to capture the stack next turn with her 5..

Daniel move 1: In a basic game, Daniel can't think of a way to capture the point card so he puts his 7 on the table 7 and says "matching" and does not pick it up. He anticipates playing a -3 on the card next turn making a 4 out of the 7, and then capturing it with his 4 the following turn.

(Don't read 1b till you've played a basic game and then read through the advanced rules)

GAME PLAY EXAMPLE 1b (Advanced Rules)

If more advanced rules were in use, Daniel would see an opportunity to capture a better point card stack. After Savanna started by playing her 4 on the 1, Daniel would strategize to:

Turn 1) play his 11 on the 5 announcing "5 times 11 equals 55, sum of the digits 5+5 is 10."

Turn 2) Daniel would then play a -3 next turn on the 10 making it a 7 Turn 3) and capturing it with his 7 on the following turn.

Turn 4) Discard his remaining 11 to the table

GAME PLAY EXAMPLE 2-Leapfrogging Players

Daniel	7	5	8	
Table	5	4		
Savanna	4		9	2

It is Savanna's turn and she combines the 5 and 4 on the table since they are not built upon and creates a 9. She then plays her 9 on the 9 and says "9 divided by 9 is 1, building 1's." Daniel then plays his 7 on the 1 and says, "1 plus 7, building 8's". Savanna plays her 2 on the 8 and says "8 divided by 2, building 4's". Daniel doesn't see what he can do now so he discards his 5 to the table. Savanna then plays her 1 card and says "4 times 1, building 4's". Daniel discards his 8 and Savanna captures the 4 stack with her 4. They then deal 4 cards each for the next round.

GAME PLAY EXAMPLE 3 (Advanced Rules)

Daniel	2	3	12	7
Table			3	5
Savanna	2	8	9	5

Daniel sees two point cards on the table and wants them both. He could easily match his 7 to the table's 7 but that won't get him both cards. He starts to play mental gymnastics and, using the cards in his hand, tries multiplication and division. It doesn't work. He is just about to give up and grab the 7 when he sees that if he places his 3 on the 8 and says "the cube root of 8 is 2" he can then grab the whole pile on his next turn. Savanna isn't happy but she can't capture the 2 pile now because Daniel used a POWER CARD to change the build. Savanna plays her 8 on the 3 and says "3 minus 8, building negative 5's." On her next turn she can capture it and the other table 5 with the 5 from her hand, getting both stacks.

GAME PLAY EXAMPLE 4 (Advanced Rules)

Lets say you are dealt a 6, 5, 2, and 1. On the table there is a 12 and a 10. You see an opportunity to capture both of these cards in the following manner (assuming your opponent doesn't mess up your plans). You play your 6 on the 12 and announce "12 divided by 6, building 2's". On your next turn you play the 5 on the 10 stating "10 divided by 5 building 2's". You then place the two 2 stacks on top of each other into one stack of built 2's saying "matching." On your next turn you play a 1 and say "2 times 1, building 2's," and on your last turn capture the stack with your 2.

GAME PLAY EXAMPLE 5 (Advanced Rules)

On the table is an 8 and a 2. In your hand there is a 2, 12, and a 10. On your first turn you play your 2 on the 8 as a power play, turning the 2 card sideways and announce "8 squared is 64. 6+4 is 10, building 10's." This stack cannot be built upon by anyone else during this round. On your next turn you play your 12 on the 2 and announce "2 minus 12 is negative 10, building -10's." These positive and negative 10 stacks cannot be matched together as in example 4 because they are not identical. However, the players' single 10 card can capture both piles because capturing is done by absolute value. [Note: Negative numbers give players the opportunity to build in both directions and think about the number line as being more than just "up from zero." Math rules still apply so a negative 9 cannot have the square root taken on it, but a negative 8 could have the cube root taken on it for a value of negative 2.

FOR VERY YOUNG CHILDREN

If you have very young children who want to play but can't do addition yet, play with them just matching colors, shapes, or numbers to capture cards. This will help teach them pattern recognition and counting skills. It would also be helpful to play with cards face up so children can see everything that's going on.

TOURNAMENT RULES FOR CLUBS

Some schools have formed Mathino clubs and kids from different classes (or between schools) compete in Mathino tournaments.

If you'd like to have a tournament with a math club at school, just decide on the following items and get started:

- Valid rules for the skill level playing
- Number of players per game in elimination rounds (2, 3, or 4)
- Single or double elimination

- Time limits on turns
- Points to win regular rounds
- Points to win championship rounds

Quick Reference Tables for Players

Multiplication Table

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

Square and Cube Table

X	X Squared	Sum of Digits	X Cubed	Sum of Digits
1	1	1	1	1
2	4	4	8	8
3	9	9	27	9
4	16	7	64	10 or 1
5	25	7	125	8
6	36	9	216	9
7	49	13 or 4	343	10 or 1
8	64	10 or 1	512	8
9	81	9	729	18 or 9
10	100	1	1000	1
11	121	4	1331	8
12	144	9	1728	18 or 9

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Do you want to boost your child's IQ? Aside from playing Mathino, visit our website and get the free ebook "*Wonderkidz*" by Marsh Kaminsky. Marsh created Mathino during 25 years of educational research as a game to help children master mathematical relationships. For a FREE copy of "Wonderkidz", visit www.Mathino.com. You'll also find tutorials and additional strategies at the site.

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