



## Summer is a great time to enjoy Math Games and reverse the Math 'Summer-Slide'



Children enjoy a long summer vacation and play a lot of internet games on their own. Still they are on the lookout to **have fun playing games with other kids or adults.**

**Did you know kids lose on average 10 weeks of math knowledge over the summer?** Usually referred to as the '**Math Slide**'. There are many fun filled math summer camps that focus on math concepts using games and riddles instead of math facts. You can take action at home too: keep the patterns, shapes and numbers going to make sure kids love math. Enjoy playing board games, card games, dice, and domino games. Kids love to discuss their best strategies and to keep score, a math activity in itself.

Hands-on board games are a great way to introduce younger kids to patterns and numbers. You can adapt the games to make sure all kids can participate, consider starting with counting and sorting everyday objects. For best math learning, in general **do not emphasize speed** until all math facts are memorized and easily retrieved (automatized), better **ask what they think** and **share your strategies.**

Children **enjoy making their own playing cards** from note cards. Let them be creative with colored markers making **dot patterns, shapes, numbers, money notations etc.** use stickers etc. there are endless options, that all will add to the fun. You can use self made cards with dots or numbers or store bought playing cards in various ways to learn numbers, counting, and calculating while playing a game:

1. make stacks **counting backward** from a number;
2. stack cards with **one more and one less**, like with 'Blink';
3. turn cards and make **rows** that add up to **five, ten, another number** etc.
4. **guess a card** (dots, shapes, numbers, money) by asking yes/no questions
5. **add/subtr./multiply/divide** two consecutive cards to play war;
6. play '**go fish**' or '**spoons**' with your own cards
7. play **memory** (turn over the cards to find pairs - like equivalent fractions in pictures)
8. start a **pattern** with **colors, shapes, or numbers** and try to find the next card



When you go for the store bought games, here are some suggestions for card games and board games for visual perception and math.

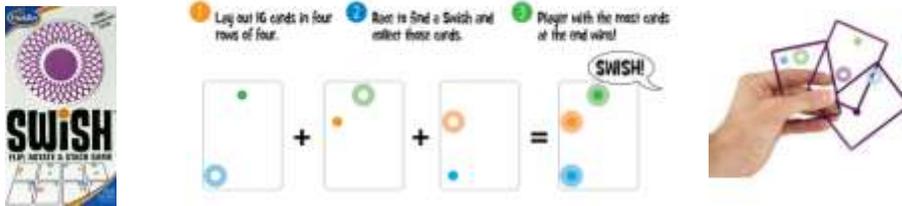
### ➤ **Visual perception, patterns and concentration**

**SET** is an award winning family game of **visual perception**, using patterns and shapes, no numbers. There is also Set Junior from age 3 by Marsha Falco at SET Enterprises. You're in for hours of brain training fun!



**IOTA** has cute cards in a small tin, great as travel game. Search and combine patterns, colors and shapes, for 2 - 4 players, from age 8. The kids sharpen their brain without realizing it. (from Gamewright)

**SWISH** has funny transparent cards and is about location: without realizing the kids understand slides, turns, and flips (translation, rotation, reflection) and combinations. For older elementary till adults.



❖ **Subitizing (recognizing a small quantity without counting), patterns and numbers**

**BLINK** has game suggestions and the cards can be used to play all sorts of games with younger kids, who do not read numbers yet, like 'one more' and 'one less'. A great way to practice number patterns to five.



**PHASE 10** is a card sorting game, the cards do not look 'cluttered' and can be used for other Math games too.



**RATUKI** has cards using different symbols to show 1 to 5, there are several sets with different colors. So they can be used for sorting by younger kids as well. The original rules say you need to make stacks (as many stacks simultaneously as there are players) with increasing numbers, using your own draw pile and 'junk' pile with at most 3 cards in your hands. Sounds easy, but the stacks are always changing: enjoy!

And obviously you can play all these games using a set of **UNO cards** too, be creative!

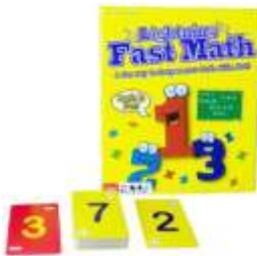
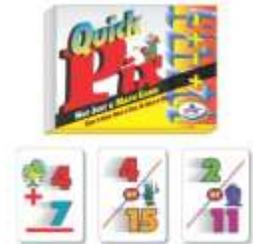
**EVEN STEVEN'S ODD MATH GAME** to learn the faces of the dice by subitizing instead of counting, during play with fast repeated rolling of the dice to get the combination on a game card. (by Smilemakers).



**DOMINOES** is an age old strategy game that children as young as 4 years of age can play by using pictures or colored dots. Think about learning the doubles in a and finding patterns in a visual way The regular game of dominoes can be challenging for adults too. There are numerous **domino games** for math too: **fraction domino, equivalency domino** etc., both as store bought games or downloadable from educational websites.

❖ **Math fact practice with a twist**

**QUICK PIX** is another award winning game, for age 7 and up. It focuses on **addition and subtraction till 20**. You need to find the right answer card for your question cards. You can play for speed, but better to go for correctness. **Also available for multiplication and division.** (by Aristoplay)



**LIGHTNING FAST MATH** for **addition, subtraction, multiplication, and division** to combine cards of the same color and operation; starting from age 5 and up for 3 - 5 players. For younger players hold off on the multiplication and division cards. Emphasize correctness over speed, let a player call 'add' or 'take away' first, then give time to work it out. (by Continuum Games)

**SMATH** is a family game for max. 4 players like Scrabble, but with numbers. You can choose using addition, subtraction, multiplication and division, for younger players stick to addition and subtraction. (by Pressman)

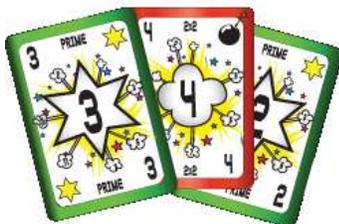


**MANCALA** for Kids comes in various types with child friendly counters

**MAKE 7** is a game with a standing frame to drop numbered disks in that add up to seven, kids love to see the disks drop through the round openings in the standing frame! (by Pressman)



**SHUT THE BOX GAME** is a strategy game adding the numbers on two dice



**PRIMEBOMB** became an instant hit with kids learning multiplication and division as well as prime factorization: use strategy to decide which combination of cards to keep in your hand to catch the next green prime number card with red composite number cards (till 50) and vice versa



## TEN FRAME TOWERS

Ten frames are widely used in math and chances are your KG-2<sup>nd</sup> grade children already know them. Since there are **no written numbers involved**, you can use this game with 4 and 5 year olds. The Ten Frame Towers game shows the ten bonds with stacking manipulatives. Also nice for younger kids to do sorting games, learning odd and even or **pressing number patterns in play-dough**.

### ❖ Learning place value



**SPEED PLACE VALUE**, by Educational Insights, please always emphasize correctness over speed



**PLACE VALUE DICE** To be used with many different games to compare, add and subtract big numbers rolled with a set of place value dice (teachers stores) Keeping score is practice too!

### ❖ War

**MATH WAR** There are many variations of this game: from addition and subtraction to multiplication and division war. You can use home made or any type regular playing cards or use these specially designed cards for multiplication or division.

Always **keep it fun**, try to resist the urge to use the cards as 'traditional flash cards'! That may send the wrong message that math is mainly about speed and rote memory. Do you know **random math facts speeds drills are associated with math anxiety from first grade**? We want our kids to like math, take the time to think about numbers and learn to reason: use a math fact they already know to find out about a related fact that is still (relatively) new to them. Playing cards can spark a conversation about how they arrived at the answer and how the opponent checked it. Don't forget to **praise the deep thinking!**



## ❖ Board games

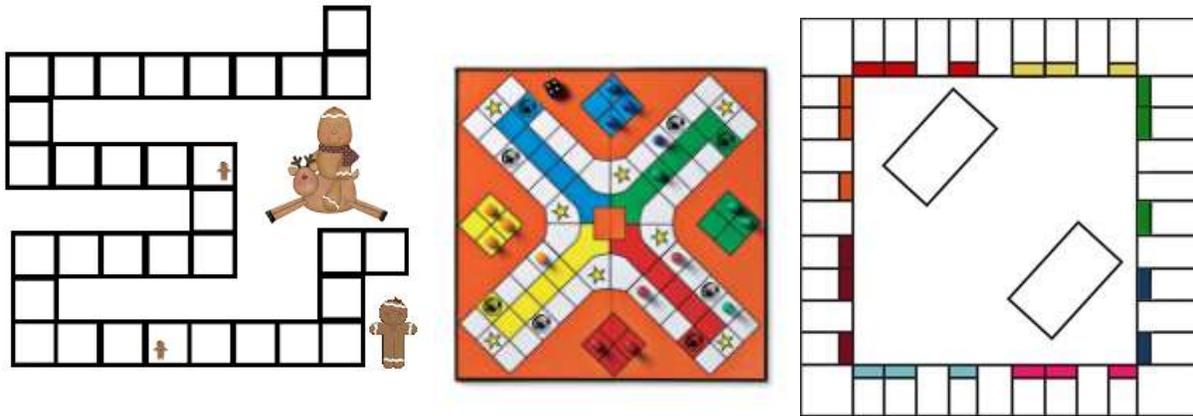
The very best games are the games you and your children design yourself! There are many free templates to download, making game cards involving numbers, money etc. is learning math too!

**MONOPOLY** comes in a great number of formats, related to sports clubs, cities, your family's experience or make your own game board (empty template at [www.printablee.com](http://www.printablee.com))

**CANDY LAND** many children will be enticed to play this well known board game

**LIFE** is another great family game that can spark conversations about managing money

Below is just a small selection of the large number of board games and you can find on the internet either ready to play or that you can personalize.



## CONTIG GAME AND CONTIG JUNIOR GAME

An addition strategy game for three dice, game board free download at [www.mathwire.com](http://www.mathwire.com), select Topics - Games - Number Sense Games - Contig. Try their **TRIBULATION GAME** too !

**Contig**

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	44	45	48	50	54	55
60	64	66	72	75	80	90	96
100	108	120	125	144	150	180	216

- Roll 3 dice and mark the sum of the 3 dice as the number squares.
- Each player rolls the 3 dice and uses operations addition, subtraction, multiplication, division and all three dice numbers to form a new number on the Contig board. Put an X on the number.
- Score 1 point for each marked square your new number touches.
- Play 8 rounds.
- Player with the highest score wins the game.

**CONTIG JR.**

0	1	2	3	4	5	6	7
8	9	10	11	12	13	14	15
16	17	18	0	1	2	3	4
5	6	7	8	9	10	11	12
13	14	15	16	17	18	0	1
2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17
18	0	1	2	3	4	5	6

**Objective:**  
 The player rolls 3 regular dice. The player may roll all 3 together, roll two of the dice and add/subtract the third, or roll one number and roll 2 dice.  
 The player marks that number with an X and scores 1 point for the mark.  
 Player 2 then tosses the 3 dice and uses the operations of addition and subtraction to make a new number. Player 2 marks that number with an X and scores 1 point.  
 Player 3 can roll a number that touches Player 1's number on the board. Player 3 scores an additional point.  
 The continue until unable to play for 30 seconds. The first X's on the board is that die and wins game. Player with the most points wins.  
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❖ **Fraction games**

To make your own pizza fractions, consider folding and cutting **colored cake doilies** or **origami paper**.



**PIZZA FRACTION FUN** games are available from several producers such as Learning Resources or Scholastic

- ❖ several games are possible like how many ways are there to make a whole pizza
- ❖ identify and match equivalent fractions
- ❖ using double sided pizza pieces can show addition of fractions

**FRACTION FORTRESS** stacking reveals the equivalent fractions (Junior Learning)



**FROG POND FRACTIONS GAME** the frog teaches the beginning concepts of fractions, the relationship of parts to wholes. Game promotes quick play and offers hands-on learning with squeezable, solid foam fraction pieces. People with multiple skill levels can play together and game adapts as skills progress, by Trend Croak.

**FREE-RANGE FRACTIONS GAME:** shows all possible fractions with 12 halve white and half brown eggs. First you select the proper denominator rings, than you show the numerator with the color of the eggs, answers are on the back of the cards, a winner from Educational Insights



**FRACTAZMIC** is one of our favorite fraction games to learn equivalent fractions in a visual way: make a whole egg carton with a dozen eggs, a full liter water bottle, and a whole inch using  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , and  $\frac{1}{16}$  inches. Can be played with original rules or you can make your own to accommodate younger kids.



**ALLOWANCE** is a fun way to use real life examples to practice calculating and planning with money.

**CONNECT FOUR** is a classic that many kids enjoy and that involves spatial thinking and strategy.



❖ **For the pro's**

**THE 24 GAME** by Suntex International is more complex and will appeal to older students and adults; it has several variations to make 24, the dots in the corner indicate level 1, 2, or 3, this is how many points you get when you can solve that card. Ages 11 and up.

- ❖ Original 24 game with whole numbers
- ❖ 24 game with fractions / decimals
- ❖ 24 game with double digits



There are many many other interesting math games, don't overlook the classic thinking games: **MASTERMIND, CHECKERS, AND CHESS** to name but a few



Happy math gaming!