WHAT YOU NEED (IN MATH)

YOU ASKED, I LISTENED!

THANK YOU FOR PARTICIPATING IN MY PD'S SO FAR!

After completing the slide shows and submitting your google forms, I have come across questions, comments, and a need for follow-up in various areas of math. These slides will serve to address some of those needs. Each slide has a different topic that maybe you or a friend was wondering about. Relax and enjoy as you explore topics of interest to you and others. I hope you find something you can begin using with your students!

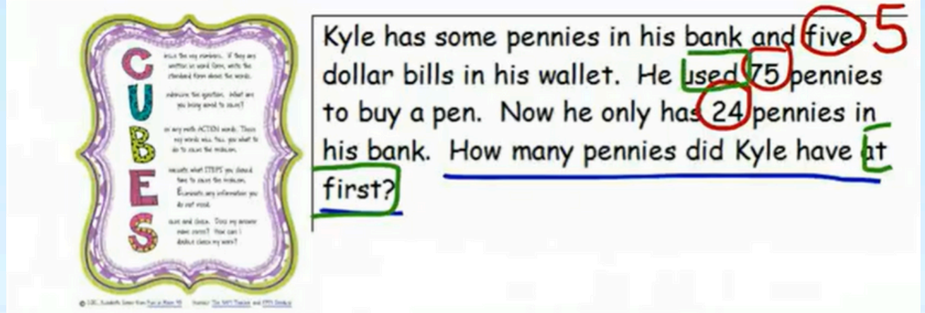


Why Students Struggle with Word Problems (And How to Help Them!)

CLICK ABOVE TO READ

Here are some tips for solving story problems:

- Read carefully: Read the problem slowly and out loud to understand what it's asking.
- Identify keywords: Look for keywords that indicate the operation to perform, such as "sum" or "total".
- Break it down: Break the problem into parts and list the given and unknown facts.
- Draw a picture: Visualizing the problem can help, especially if there are more words than numbers.
- Translate into an equation: Use the given information to create an equation. This is often the most difficult part.
- Solve and check: Solve the equation and check your answer.



CUBES Word Problem Strategy

WATCH

Problem solving tool

C Circle the numbers

U Underline the question

B Box the important words

E Eliminate the unnecessary

S Solve and show working out

HOW TO READ AND SOLVE STORY PROBLEMS

READING COMPREHENSION IS CRUCIAL IN MATH: EVEN IF A STUDENT KNOWS THE MATH CONCEPTS, DIFFICULTY READING THE PROBLEM CAN PREVENT THEM FROM APPLYING THEIR KNOWLEDGE.

If a student can't read a math problem, it likely means they are struggling with the language used in the problem, which could be due to a reading disability like dyslexia, or simply a lack of familiarity with the necessary math vocabulary; this can significantly hinder their ability to solve the problem, even if they understand the underlying math concept; in such cases, the student should seek support from their teacher to break down the problem into simpler terms, use visual aids, or receive accommodations like having the problem read aloud to them.

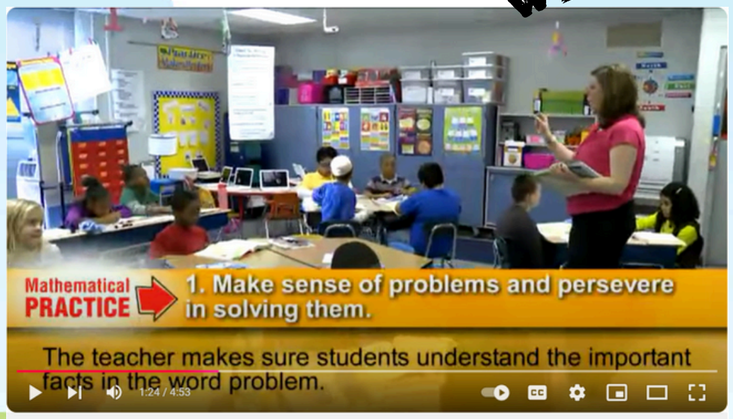
How to help a student struggling to read math problems:

- Read the problem aloud: Teachers or aides can read the problem to the student, highlighting key information.
- Visual aids and manipulatives: Using diagrams, pictures, or physical objects to represent the problem can be helpful.
- Break down complex language: Explain unfamiliar terms and concepts in simpler words.
- Highlight key information: Underline or circle important numbers and details in the problem.
- Provide alternative formats: Consider offering problems in simplified language, or with visual representations instead of text.

Read word problems slowly and carefully several times so that all students comprehend. If possible, break up the problem into smaller segments. Allow students to act out the word problems to better comprehend what they are being asked to solve. Provide manipulatives to help students visualize the problem.

The THREE READS protocol includes reading a math scenario three times with a different goal each time. The FIRST READ is to understand the context. The SECOND READ is to understand the mathematics. The THIRD READ is to generate a plan for solving the problem.

WATCH



Watchable by nrwcs.org.

How to Teach Students to Make Sense of Mathematical Word Problem

THE 3 READ SONG



Watchable by nrwcs.org.

🎵The 3 Read Song (for Math Word Problems)🎵

CRAFTING EQUATIONS FOR STORY PROBLEMS

- HAVE STUDENTS READ THE PROBLEM. THEN ASK WHAT THEY THINK THE MOST IMPORTANT CHUNKS OF INFORMATION ARE TO REPRESENT IN A DRAWING.
- GIVE STUDENTS TIME TO DRAW. THEN HAVE THEM WORK WITH A PARTNER TO CRITIQUE ONE ANOTHER'S WORK.
- HAVE STUDENTS SOLVE THE PROBLEM INDEPENDENTLY. THEN HAVE THEM WORK WITH THEIR PARTNER TO CHECK THEIR SOLUTIONS.
- DEBRIEF BY SELECTING DIFFERENT STUDENTS' WORK TO SHARE AND DISCUSS AS A CLASS.
- AS STUDENTS SHARE THEIR SOLUTIONS, MODEL HOW TO WRITE THE EQUATION FROM THE INFORMATION STATED.

1. Identify the variable which is the missing information.

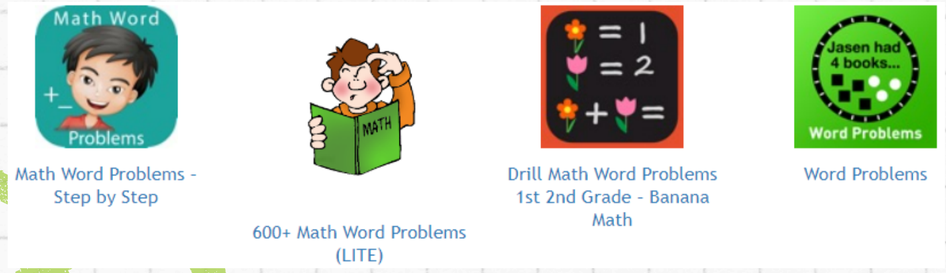
2. Identify what operation is happening to the variable.

3. Write an equation using symbols.

4. Solve and label.

APPS FOR STORY PROBLEMS

Several apps can help students practice and solve math story problems, including "WordMath," "Photomath," "Math Word Problems," "Solve Math Word Problem Solver," and "AbiTalk Classroom Math App," which allow students to scan problems, get step-by-step solutions, and practice different types of word problems across various math concepts.



These are just some examples I found. I would need to talk to the tech department to look further into this.

READING A CLOCK

HOW TO TEACH TELLING TIME ON AN ANALOG CLOCK

READ

Here are some ways to teach children to tell time:

Use visual aids: Use a clock with movable hands or a timer with numbers to show how time passes. You can also use a sundial to help children understand the concept of time.

Teach time vocabulary: Introduce words like "morning," "afternoon," "evening," "night," "day," "tomorrow," "yesterday," "after," and "before".

Connect time to everyday activities: Use everyday activities like meal times or bedtimes to help children understand that time is related to specific events.

Use games and songs: Make learning about time more engaging with games and songs that include time-related lyrics.

Start with the basics: Begin by teaching the time with simple words and phrases, like "o'clock" or "half past"

Read books: Books can help teach children the concept of time.

Play with a clock puzzle: A clock puzzle can help children visualize time, read the clock, and tell time.





Analog Clocks for Kids | How To Tell Time

READING A CLOCK

Show them the two different hands and explain that one represents hours and the other minutes (to help them tell them apart, you could explain that since 'hours' is the shorter word, it has the shorter hand). Then, show them the numbers or lines on the clock and say that each represents an hour. Repeat with the minute hand.



SKIP COUNTING

HOW TO DO IT:

Use a number chart and color-code the numbers for each skip counting sequence. For example, highlight the numbers used in skip counting by 2s in one color, by 5s in another, and by 10s in a third color. This visual differentiation helps children see the patterns more clearly.

SKIP COUNTING

SKIP COUNTING CAN BE HARD TO LEARN BECAUSE IT REQUIRES STUDENTS TO THINK ABOUT THE ANSWER INSTEAD OF RECITING IT. HOWEVER, SKIP COUNTING IS AN IMPORTANT SKILL THAT HELPS STUDENTS DEVELOP NUMBER SENSE, SEE PATTERNS IN NUMBERS, AND BUILD A FOUNDATION FOR LEARNING MULTIPLICATION FACTS.

THEY MAY BE HAVING TROUBLE MEMORIZING THE SKIP COUNTING SEQUENCES AND THE ONLY WAY TO INCREASE OUR CAPACITY TO KNOW FROM MEMORY (INSTEAD OF JUST MEMORIZING) IS TO BUILD LOTS OF CONNECTIONS...WHICH GUESS WHAT, THAT TAKES ME BACK TO HELPING KIDS SEE HOW SKIP COUNTING IS LIKE ADDITION ONLY WE ARE ADDING ON THE SAME AMOUNT ...

START WITH THE BASICS: BEGIN BY COUNTING BY ONES AND TENS, THEN MOVE ON TO 2S AND 5S.

USE A 120 CHART: A 120 CHART CAN HELP STUDENTS SEE THE COUNTING PATTERN BEYOND 100.

PRACTICE WITH GROUPS OF TEN: USE CONNECTING CUBES OR TEN FRAMES TO HELP STUDENTS PRACTICE MAKING GROUPS OF TEN.

ENCOURAGE STUDENTS TO RECOGNIZE PATTERNS: SKIP COUNTING ALWAYS FOLLOWS A PATTERN, NO MATTER WHAT NUMBER YOU START WITH.

USE SONGS AND CHANTS: SONGS AND CHANTS CAN MAKE PRACTICING SKIP COUNTING MORE ENGAGING.

ASK QUESTIONS: ASK YOUR CHILD QUESTIONS LIKE "SKIP COUNT BY 5'S" OR "SKIP COUNT TO 100 BY 20'S".

SKIP COUNTING

SKIP COUNTING IS AN IMPORTANT MATHEMATICAL CONCEPT THAT HELPS KIDS UNDERSTAND NUMBER SEQUENCES, EVEN AND ODD NUMBERS, AND PREPARES THEM FOR MORE ADVANCED OPERATIONS LIKE MULTIPLICATION AND DIVISION. CHILDREN USUALLY START LEARNING TO SKIP COUNT AROUND THE AGE OF 6.

USE MANIPULATIVES: HAVE KIDS PHYSICALLY SKIP COUNT BY USING OBJECTS LIKE COUNTING BLOCKS OR BEADS.

PLAY GAMES: HAVE KIDS ROLL DICE TO DECIDE WHAT NUMBER TO SKIP COUNT BY.

SING SONGS: SING SONGS THAT HELP KIDS MEMORIZE THE PATTERN OF COUNTING BY A CERTAIN NUMBER.

MAKE CRAFTS: CREATE A WALL CHART OR NECKLACE WITH BEADS TO COUNT BY.

HOPCOTCH: CREATE A HOPSCOTCH GRID WITH NUMBERS AND HAVE KIDS HOP ON EACH NUMBER WHILE SAYING IT OUT LOUD.

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT, SED DO EIUSMOD TEMPOR INCIDIDUNT UT LABORE ET DOLORE MAGNA ALIQUA. UT ENIM AD MINIM VENIAM

MULTIPLICATION FACTS

WHY ARE MULTIPLICATION FACTS HARD TO LEARN?

Multiplication facts can be difficult to learn because they require memorizing a large number of individual facts, which can be challenging for the brain to store and retrieve quickly, especially when many facts are similar, leading to interference and confusion; additionally, some students might not fully grasp the concept of multiplication as repeated addition, making it harder to connect meaning to the facts they are trying to memorize.

KEY REASONS WHY MULTIPLICATION FACTS CAN BE HARD TO LEARN:

Memory overload: The sheer number of multiplication facts (especially when including all numbers from 1 to 12) can be overwhelming for young learners to memorize effectively.

Interference between similar facts: Many multiplication facts sound similar, like "6 x 7" and "7 x 6," which can lead to confusion when trying to recall the correct answer.

Lack of conceptual understanding: If a student doesn't fully understand the concept of multiplication as repeated addition, they may struggle to see the logic behind the facts and rely solely on memorization.

Difficulty with certain numbers: Multiplying by numbers like 6, 7, 8, and 9 can be particularly challenging due to the larger number of jumps needed when skip-counting.

Ineffective learning strategies: Rote memorization without using strategies like patterns, relationships between facts, or visual aids can make learning multiplication facts less efficient.

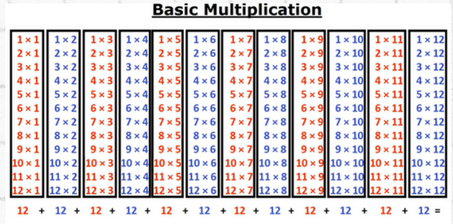
HOW TO MAKE LEARNING MULTIPLICATION FACTS EASIER:

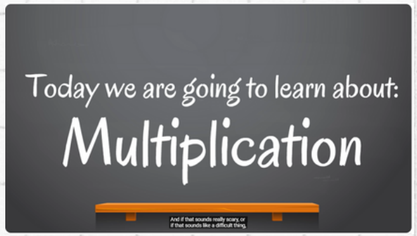
FOCUS ON UNDERSTANDING:
EXPLAIN THE CONCEPT OF MULTIPLICATION AS REPEATED ADDITION AND USE CONCRETE MANIPULATIVES TO VISUALIZE THE PROCESS.

IDENTIFY PATTERNS AND RELATIONSHIPS:
TEACH STUDENTS TO RECOGNIZE PATTERNS LIKE COMMUTATIVE PROPERTY (E.G., 2 X 3 = 3 X 2) TO REDUCE THE NUMBER OF FACTS THEY NEED TO MEMORIZE.

PRACTICE WITH VARIED STRATEGIES:
USE DIFFERENT METHODS LIKE SKIP-COUNTING, NUMBER LINES, ARRAYS, AND MULTIPLICATION CHARTS TO REINFORCE UNDERSTANDING.

WHY ARE SOME MULTIPLICATION FACTS HARDER TO MASTER?
STUDENTS DON'T UNDERSTAND THE COMMUTATIVE PROPERTY OF MULTIPLICATION. THEY DON'T SEE 6 X 4 AND 4 X 6 AS BEING EQUIVALENT. WHILE THEY CAN ANSWER 4 X 6, THE ANSWER TO 6 X 4 ELUDES THEM. ... STUDENTS DON'T KNOW ANY MULTIPLICATION STRATEGIES TO HELP THEM.





REGULAR SPACED REPETITION:
PRACTICE MULTIPLICATION FACTS CONSISTENTLY OVER TIME WITH SPACED REPETITION TECHNIQUES TO STRENGTHEN MEMORY RETENTION.

MAKE IT ENGAGING:
USE GAMES, SONGS, AND INTERACTIVE ACTIVITIES TO MAKE LEARNING MULTIPLICATION FACTS FUN AND MOTIVATING.

STEP 1: BREAK UP THE FACTS INTO MANAGEABLE CHUNKS.
STEP 2: MAKE THE FACTS CONCRETE WITH A SIMPLE VISUAL.
STEP 3: TEACH YOUR CHILD TO USE EASIER FACTS AS STEPPING STONES TO THE HARDER FACTS.
STEP 4: PRACTICE EACH TIMES TABLE ON ITS OWN UNTIL IT'S MASTERED.

NUMERICAL PATTERNS AND MISSING NUMBERS

HERE ARE SOME WAYS TO TEACH NUMERICAL PATTERNS AND MISSING NUMBERS:

Start with concrete examples
Use manipulatives like blocks to show how a pattern grows by adding identical units.

Create your own patterns
Have students create a number sequence starting at a given number, and then explain how their pattern works.

Use tools
Provide tools like number lines, hundreds boards, or counters to help students who aren't confident with operations.

Focus on justification
Teach students to justify pattern rules, which helps them understand how patterns change or stay the same.

Avoid numbers at first
For young children, start by teaching them mathematical vocabulary like first, second, third, and so on.

Look for patterns in the environment
Ask students to find patterns in the day's activities, like the songs they sing, the books they read, and the games they play.

Highlight different types of patterns
Activities should highlight patterns that are visual, kinesthetic, and auditory.

Use triangles
Draw a triangle with three numbers, add two of them, and write the sum at the top. Then, ask students to find the missing number by subtracting one of the bottom numbers from the sum.

Find the common difference
In an arithmetic sequence, find the common difference between each pair of consecutive terms. Then, add the common difference to the number before the first missing number.

TEACHING ONE MORE OR ONE LESS

HERE ARE SOME WAYS TO TEACH ONE MORE OR ONE LESS

Number hunts
Give your child a number and ask them to find one more or one less around the house. You can use magnets or write numbers on pieces of paper.

Building blocks
Roll a dice and build a tower with that number of blocks, then add one or take one away.

Number squares
Give your child a number and ask them to find one more and one less on a number square.

Dice
Roll two dice and ask your child to explain the numbers using more and less. For example, if they get 5 and 3, they can say that 5 is greater than 3.

Number staircase mats
Model building a staircase, and then provide number staircase templates for your child to use.

Number tracks
Use number tracks to help your child count forwards and backwards.

Acting out stories
Have your child act out stories to explore the concepts of one more and one less.

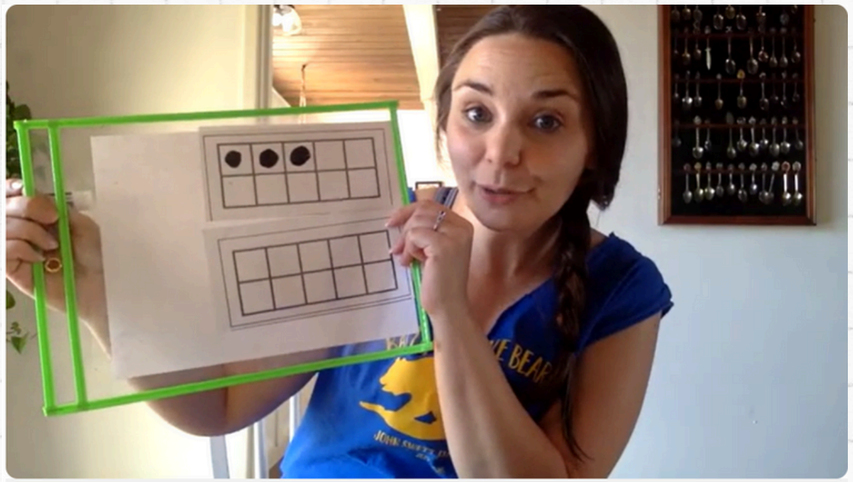
Manipulatives
Have your child use manipulatives to explore the concepts of one more and one less.

Drawing pictures
Have your child draw pictures to explore the concepts of one more and one less.

Children may have more difficulty identifying "one less than" than "one more than". This is because they may have less experience with the idea of "less than".

TEACHING TWO MORE OR TWO LESS

HERE ARE SOME WAYS TO TEACH TWO MORE OR TWO LESS



2 more, 2 less

Create sets: Have children create sets of numbers that are "two more" or "two less" than another number. For example, 6 is two more than 4 and two less than 8. Stickers can be a useful tool for this activity.

Use a dice: Give children a dice and have them pick a number, then calculate two more and two less than that number.

Use visual cues: Create anchor charts with vocabulary words for easy reference.

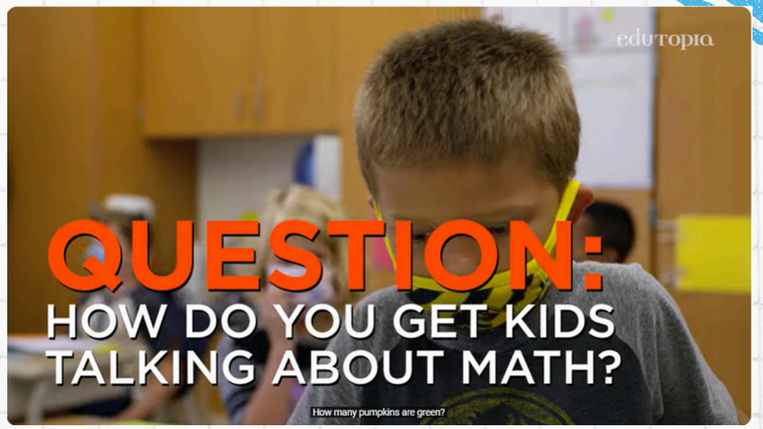
Repeat activities: Repetition can help children learn.

Use objects or containers: Compare objects or containers to determine which has more or fewer items.

Use playing cards: Have students flip over one card each from a deck without the Jacks, Kings, Queens, and Aces.

Use dominoes: Have students flip over a domino to see who has the greatest number.

ENRICHMENT FOR OUR HIGH ACHIEVERS



HELPFUL RESOURCES:

Rethinking Math Enrichment Activities

6 Math Enrichment Activities to Keep Math Skills Sharp

Math Enrichment (Grade Specific)

AT HOME ACTIVITIES FOR FAMILIES

Math At Home

Thought-provoking math activities, games, and practice pages.

Choose your grade level!



12 WAYS TO DO MATH AT HOME

Math is all around us. Everyday activities and family adventures provide many rich opportunity to engage in mathematical thinking with your child.

Here are just some of the ways you can do math at home all year long!

1 COUNT EVERYTHING
Count out loud as you go through the day with your child. Count the stairs as you climb up or down; count the knives and forks as you get them out or put them away; count the steps as you dance. For older children, practice skip-counting.

2 PLAY WITH SHAPES
Pick a shape to look for wherever you and your child go for the whole day. Find that shape, wherever it is. Some days, look for a flat shape, such as triangles, rectangles, squares, circles; other days look for a shape that is not flat, such as cylinders, spheres and pyramids.

3 COMPARE
Notice what is the same and different about various objects. From a group of similar objects, which one doesn't belong, and why? Which object is tallest, heaviest, longest, etc? How much taller, heavier, longer...?

4 GAME ON
Play card or board games that involve counting or looking for patterns. Use dice or playing cards to make a game out of practicing math facts.

5 KEEP TRACK
Track or graph scores or stats for a favorite sports team. Keep track of the time the sun rises and sets, the phases of the moon, or the weather. Use the data to look for patterns and make predictions.

6 TAKE A NATURE WALK
Math and Nature are very close friends. Go for a walk in the forest or by the water, or in a park or your backyard. Even as you walk your kids to school you will see patterns in nature. Help your child notice numbers, shapes, and sizes.

7 MIX IT UP
Have your child measure ingredients for a recipe you are making. To practice fractions, halve, double or triple a favorite summertime recipe...then enjoy the delicious results!

8 COLLECT AND SORT
Children love to collect and gather items, especially at the park, beach, forest or even in the backyard. Encourage children to sort their items by size, color, shape or texture.

9 HIT THE ROAD
Have your children make predictions about what they think they'll see on the road, such as animals or colors of a car, and keep points for sightings. Choose a "number of the hour" and find ways to combine numbers they see on passing license plates or even road signs to reach that number. Estimate travel time or distance between exits using road signs.

10 ESTIMATE
Estimation is one way to increase a child's number sense. Ask your child to make an estimate. Then count or measure to compare the actual number to the estimate. Helping your child learn to make appropriate predictions will help her see how numbers are used in everyday life.

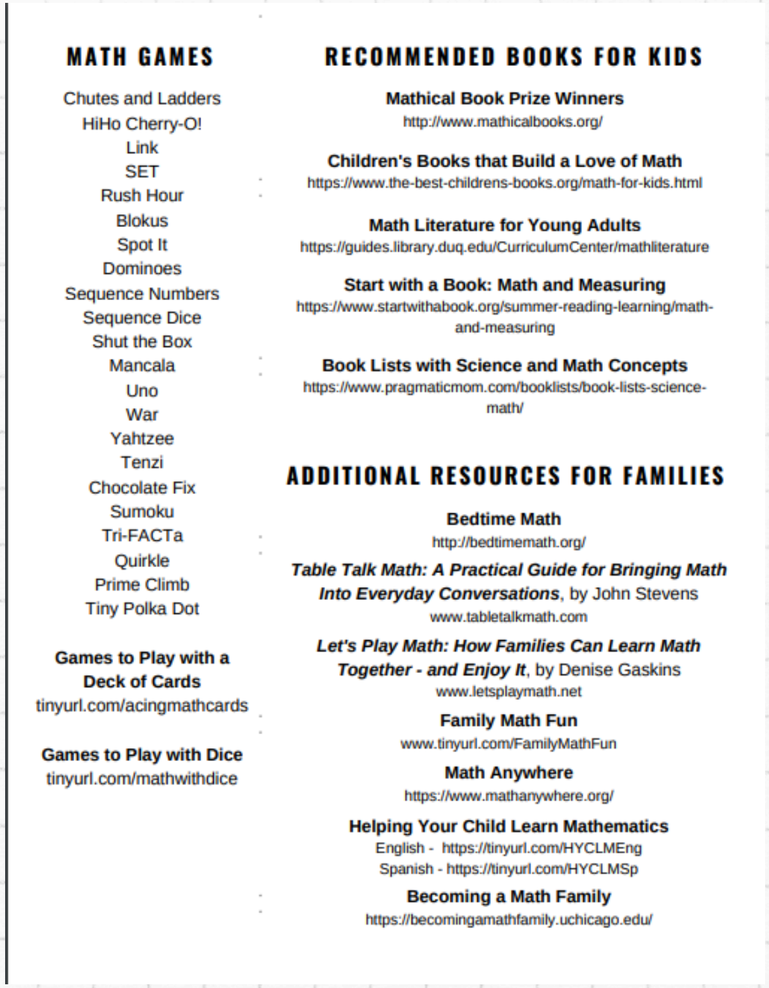
11 EVERYDAY ERRANDS
Ask your child to count the change at the grocery store, figure out the best bargains or estimate the total cost while you are shopping.

12 READ A BOOK
There are many children's books that have math-related content and themes. Math becomes more interesting when a child can make a math connection in a story. When children are reading or listening to a book, they learn to recognize that math is used all around them.

TURN ANY ACTIVITY INTO A MATH EXPERIENCE

Many activities can be turned into a math experience for your kids just by asking some intriguing questions. Questions like these help make math more accessible and applicable to the world around us.

What do you notice about ...? **What changed when we did that?** **How can we ...?**
What do you think will happen if ...? **Why did that happen?** **Can you think about it a different way?**



MATH GAMES

Chutes and Ladders
HiHo Cherry-O!
Link
SET
Rush Hour
Blokus
Spot It
Dominoes
Sequence Numbers
Sequence Dice
Shut the Box
Mancala
Uno
War
Yahtzee
Tenzi
Chocolate Fix
Sumoku
Tri-FACTa
Quirkle
Prime Climb
Tiny Polka Dot

Games to Play with a Deck of Cards
tinyurl.com/acingmathcards

Games to Play with Dice
tinyurl.com/mathwithdice

RECOMMENDED BOOKS FOR KIDS

Mathical Book Prize Winners
http://www.mathicalbooks.org/

Children's Books that Build a Love of Math
https://www.the-best-childrens-books.org/math-for-kids.html

Math Literature for Young Adults
https://guides.library.duq.edu/CurriculumCenter/mathliterature

Start with a Book: Math and Measuring
https://www.startwithabook.org/summer-reading-learning/math-and-measuring

Book Lists with Science and Math Concepts
https://www.pragmaticmom.com/booklists/book-lists-science-math/

ADDITIONAL RESOURCES FOR FAMILIES

Bedtime Math
http://bedtimemath.org/

Table Talk Math: A Practical Guide for Bringing Math Into Everyday Conversations, by John Stevens
www.tabletalkmath.com

Let's Play Math: How Families Can Learn Math Together - and Enjoy It, by Denise Gaskins
www.letsplaymath.net

Family Math Fun
www.tinyurl.com/FamilyMathFun

Math Anywhere
https://www.mathanywhere.org/

Helping Your Child Learn Mathematics
English - https://tinyurl.com/HYCLMEng
Spanish - https://tinyurl.com/HYCLMSp

Becoming a Math Family
https://becomingamathfamily.uchicago.edu/

HOW TO USE MATH AT HOME?

PLAY CARD OR BOARD GAMES THAT INVOLVE COUNTING OR LOOKING FOR PATTERNS. USE DICE OR PLAYING CARDS TO MAKE A GAME OUT OF PRACTICING MATH FACTS. TRACK OR GRAPH SCORES OR STATS FOR A FAVORITE SPORTS TEAM. KEEP TRACK OF THE TIME THE SUN RISES AND SETS, THE PHASES OF THE MOON, OR THE WEATHER.

25 Fun Math Games For Kids To Do At Home For Free!

6 Fun Math Games to Try at Home

THANK YOU VERY MUCH

I hope you found some answers to some of your questions, some information about your wonderings, or some new ideas that you can begin using with your students.

Please complete the Google Form and submit a claim form for one hour.