



SUMMER

Math Guide

2ND GRADE

BUILD FLUENCY

Quick activities to try at home to build fluency skills from a foundation of conceptual understanding

ENGAGE IN PROBLEM SOLVING

Real world math examples to support problem solving skills

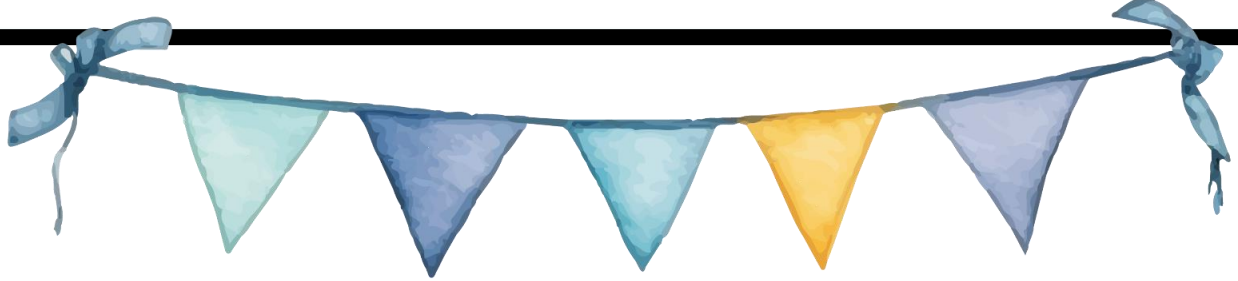
MAINTAIN SKILLS & PREVENT THE SUMMER SLIDE

Critical focus areas to prevent the summer slide and help children maintain their math skills

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SUMMER

Math Guide



This is the guide you've been waiting for!

Finally, a way to support your child with math over the summer without spending a fortune on materials, private tutoring or other resources.

The Math Coach Connection Summer Math Guide was designed to help caregivers support their children with the core content areas of math over the summer, with activities that integrate into your daily routine!

This guide includes information about grade-level math expectations from 2nd grade, as well as the upcoming content covered in 3rd grade math. It includes a page for each core focus area for the grade level as well as a bonus fluency page, goal setting page and additional resource page (with links to helpful podcast episodes)! A total of 12 concise, high-impact pages! Each page has ways to integrate math practice into your daily routine over the summer. The 2nd Grade Summer Math Guide includes a page for each of the following categories: Fluency Focus (addition/subtraction within 20) , addition within 100, subtraction within 100, base ten numbers & place value practice, addition within 1,000, subtraction within 1,000, measurement and data and geometry.

Every page includes:

- Math Skills Activities: Easy, no-prep ways to help your child practice 2nd grade math skills at home.
- Math Talk Moments: conversation starters to get your child talking about (and understanding) math
- Math Models: visual models of math concepts that 2nd graders use for problem solving
- Math At Mealtime: ways to seamlessly integrate math into cooking, baking or prepping a meal. Since this is already a part of the daily routine, it is a natural place to integrate real-world, hands-on mathematics.
- Math 'Did You Know' Facts: important tips and information about 2nd grade math skills
- Family Read Aloud & Game Ideas: a curated list of high-quality math books and games related to each focus area. These lists were designed specifically for second graders and their families.

Check out the following pages for more information on how to use the Summer Math Guide.

HOW TO USE

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Make Math Meaningful Over The Summer

This guide was created to make it easier for families to support their children with maintaining math skills over the summer. Practicing math skills over the summer is critical for preventing the summer slide. Integrating math practice into the daily routine, as well as spending some focused time on math practice will help set your child up for success as they start next school year. Time and resources are often a barrier to being able to practice math at home which is why the activities included in this guide are:

- **Integrated into everyday activities**, so they don't take much additional time and can often be done on the road, during mealtime or throughout the daily routine. This also helps children understand that math is part of the real world. These real-world examples make math more meaningful and build conceptual understanding.
- **Low cost:** The materials needed for all activities are materials you likely have around your home, or can be purchased at a low price, or borrowed. For example, playing cards, a dice, paper, pencil, various food items. *Most of the books included in the 'read aloud' section are available at local libraries.*
- **Low Prep, High Impact:** The conversation starters, activities, books and games listed in this guide are **high-interest** activities that will engage your child in meaningful math practice, while not taking much advanced time for you to prepare.

A Few Notes

- This guide is **not intended to replace summer school programs**. It is meant to supplement summer school and/or provide a guide for families to support children who are not in summer school math programs.
- This guide covers the **core content of Second Grade**. However, it does not cover all skills. It focuses heavily on addition and subtraction fluency and strategies.
- The activities in this guide are suggestions. You do not need to complete every activity and you can modify activities as needed to provide more support or make them more challenging.

Sample Schedule

Every child is different, and everyone's summer break is different. That's why the activities in this guide can be modified and the schedule can be adjusted to meet the needs of your child. You can also choose to focus more on just the areas in which your child needs the most support. You can shorten the schedule or extend it as needed. If it is helpful, use this sample schedule to plan your summer math practice.

Week 1

**Fluency Focus
(Addition/
Subtraction
within 20)**

Week 2

**Addition
(within 100)**
Spiral back to use
facts within 20

Week 3

**Subtraction
(within 100)**
Spiral back to use
facts within 20

Week 4

**Base Ten &
Place Value**

Week 5

**Addition
(within 1,000)**
Use addition within 100
and place value
understanding

Week 6

**Subtraction
(Within 1,000)**
Use subtraction within 100
and place value

Week 7

**Measurement
& Data**
Use addition and
subtraction skills to
support problem solving

Week 8

Geometry
Spiral back for
additional fluency
practice

HOW TO USE

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Quick Skills Check

- ❑ *In this section, you will see a brief checklist of skills related to the math concept listed at the top of the page. This does not cover all grade level skills but focuses on core skills to support understanding and fluency. This is helpful to check in with your child's current level of understanding.*

Math Talk Moments

Some conversation starters for engaging your child in math talk.

This section includes short conversation starters to engage your child in conversations about math. These are helpful for building mental math skills and thinking about math in the real world. The questions are designed to be modified as needed, or to be used more than once but with different numbers/topics.

Activities to Build MATH SKILLS

- ❑ *This section includes brief activities that you can do with your child to help them build understanding and fluency skills within the topic area. Some activities require materials, but most materials are ones that you can easily find at home (or can be borrowed or purchased at a low cost).*
- ❑ *Helpful materials to have on hand are*
 - ❑ *A dice*
 - ❑ *A deck of cards*
 - ❑ *Pencil and paper*
- ❑ *These activities are easily modified to provide more of a challenge or to provide more support. You can keep track of the activities you try on the checklist to hold your child accountable for math practice.*
- ❑ *These activities can be done independently, or one-on-one with a parent/teacher/supporter. They are family friendly and can be done with the whole family too.*

Math Models

This section will show visual models that are frequently used within the focus area. These are not all the grade level strategies that children learn, but provide a helpful visual so you know more about the strategies they might be using for problem solving.

Math at Mealtime

Mealtime is a perfect time to integrate math into the conversation. It also has many great examples of real-world math application. This section includes easy ways to integrate math skills into snack time, cooking, baking, planning and eating a meal.

Did You Know?

This section includes important information for families to know regarding the specific skills and strategies for the focus area. It shows how this grade-level math fits into the progression of K-5 math.

Family Read Aloud Books & Games

In this section you will find a list of books and/or games that support the skills needed for the mathematical focus area. These high-quality books and games integrate perfectly into family game night or read aloud time and help children apply their math skills to real-world situations and games.

GOAL SETTING

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Set Yourself Up For Success!

Use the space below to set some goals for the summer. Whether your goals are gaining new understanding of difficult math concepts, building fluency with your math facts, maintaining your math skills or anything in between, this goal setting sheet can help hold you accountable. Write down 3 goals you have for yourself this summer and then 3 things you can do to help you be successful. Set yourself up for success by trying your best!

My Summer MATH GOALS

1

2

3

Steps to SUCCESS

1

2

3



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HERE'S AN OVERVIEW OF WHAT 2ND GRADERS LEARNED IN MATH THIS YEAR

Operations & Algebraic Thinking ^{2nd}

Fluently add and subtract within 20

- Add and subtract within 100 to solve one and two-step problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions
- **Fluently add and subtract within 20 using mental strategies.** *By the end of 2nd grade, know from memory all sums of two one-digit numbers. Note: some states require fluency within 30*
- Determine whether a group of objects (up to 20) has an odd or even number of members
- Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and 5 columns

Numbers & Operations in Base Ten ^{2nd}

Fluently add and subtract within 100

- Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones
- Count within 1,000; skip-count by 5s, 10s and 100s
- Read and write numbers to 1,000, using number names and expanded form
- Compare two three-digit numbers based on meanings of digits
- **Fluently add and subtract within 100 using strategies based on place value and properties of operations**
- Add and subtract within 1,000 using concrete models, drawings, strategies based on place value, properties of operations and the relationship between addition and subtraction
Relate a visual strategy to a written method
- Mentally add 10 or 100 to a given number 100-900
- Mentally subtract 10 or 100 from a given number 100-900
- Explain why addition and subtraction strategies work

Measurement & Data ^{2nd}

Use linear measurement tools to measure objects and collect data

- Measure the length of an object by selecting appropriate tools to use such as rulers, yard sticks, measuring tapes etc.
- Measure the length of an object twice using different measurement units
- Estimate lengths using inches, feet, centimeters and meters
- Measure to determine how much longer one object is than another
- Use addition and subtraction within 100 to solve word problems involving lengths in the same units
- Represent whole numbers as lengths from 0 on a number line
- Tell and write time from analog and digital clocks to the nearest five minutes using a.m. and p.m.
- Solve word problems involving dollar bills, quarters, dimes, nickels and pennies and use dollar and cent signs appropriately
- Generate measurement data and draw a picture graph or bar graph to represent the data

Geometry ^{2nd}

Identify and partition shapes

- Recognize and draw shapes with specific attributes
- Identify triangles, quadrilaterals, pentagons, hexagons and cubes
- Partition a rectangle into rows and columns
- Partition rectangles and circles into two, three or four equal shares and use fraction language to describe the shares



SUMMER

Math Guide

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HERE'S WHERE 2ND GRADERS ARE HEADED IN THEIR
LEARNING NEXT YEAR IN 3RD GRADE

Operations & Algebraic Thinking ^{3rd}

Fluently multiply and divide within 100

- Solve story problems with multiplication and division within 100
- Use relationship between multiplication and division to **fluently multiply and divide within 100**
- Find the unknown number in a multiplication or division equation (within 100)
- Use properties of operations to multiply and divide
- Solve two-step story problems using addition, subtraction, multiplication and/or division

Numbers & Operations in Base Ten ^{3rd}

Fluently add and subtract within 1,000

- Round whole numbers to the nearest 10 or 100
- Use strategies and algorithms based on place value, to **fluently add and subtract within 1,000**
- Multiply one-digit whole numbers by multiples of 10 (in the range of 10-90)

Numbers & Operations Fractions ^{3rd}

Understand & compare fractions with the same numerator or same denominator

- Understand the meaning of the numerator and the meaning of the denominator in a fraction
- Use models to represent fractional parts of a whole
- Represent fractions on a number line
- Recognize and generate equivalent fractions
- Express whole numbers as fractions and recognize the fraction that is equivalent to a whole number
- Compare two fractions with the same numerator or same denominator

Measurement & Data ^{3rd}

Relate area of rectangles to the operations of multiplication and division

- Recognize that plane figures have an area (and understand concept of area)
- Measure area by counting unit squares
- Find area of rectangles by multiplying side lengths
- Solve real-world problems involving area of rectangles and perimeters of polygons
- Use area models to represent the distributive property
- Recognize area as additive and find the area of larger figures by decomposing the into non-overlapping rectangles
- Tell and write time to the nearest minute and solve problems related to time
- Generate measurement data by measuring lengths
- Draw a pictograph and a bar graph to represent data
- Measure and estimate mass and liquid volume

Geometry ^{3rd}

Categorize shapes based on attributes

- Determine if a figure is a polygon
- Partition shapes into parts with equal areas (represent each part as a unit fraction)
- Recognize shapes that belong in a category (ex: quadrilaterals) and shapes that do not

FLUENCY FOCUS

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Quick Skills Check

- I can fluently add within 20
- I can fluently subtract within 20
- I have memorized all sums of two one-digit numbers
- I can fluently add within 100
- I can fluently subtract within 100

What Does FLUENCY Mean

Being able to solve a problem both **quickly and accurately**. Children who are fluent in a particular skill, can think **flexibly** about how to solve the problem. Fluency **does not mean memorization**. Although fluency often leads to memorization of math facts. *In second grade, children are expected to memorize sums of two one-digit numbers.*

Activities to Build FLUENCY

- Use 'think' problems (or anchor facts) to help you solve larger problems
- Try solving a problem two ways. Use this to check your work to make sure your answer was the same both times. Decide which way was the most efficient/fastest.
- Play a fluency game: any game that requires you to solve a problem with accuracy, quickly. An example is 'Roll and Say': Roll two dice, and the two numbers rolled become the addends. (Or for larger one-digit numbers, play 'draw and say' and use two playing cards—no face cards) Try to use mental math to find the sum of those two numbers. *For an extension, within 100, the first two numbers you roll or draw become the digits in a two-digit number. Then draw one or two more cards to create the second addend. You can play against someone and the first person to say the sum gets a point.*
- Practice solving a set of problems mentally. Visualize how to solve the problem in your head to build mental math skills
- Focus on making ten (or multiples of ten). Try to break apart one addend so you can get to the nearest ten. For example: in $7 + 9$, add $7 + 3$ then 6 more (breaking the 9 apart into 3 and 6). This extends to two-digit numbers for example $27 + 9$, add $27 + 3$, then $30 + 6$.
- Also, focus on doubles such as $6 + 6$, $7 + 7$, $8 + 8$, $9 + 9$ and so on.
- Share your thinking aloud by talking to a family member or teacher about your strategy
- Make fact families: Knowing that $8 + 9 = 17$ can help a child know that $17 - 8 = 9$.

$$6 + 8$$

Think: (6 + 4) add 4 more

The goal of a 'think' problem is to use a smaller problem that a child knows (or has memorized) to support them in solving larger problems. In this case, if they know how to make ten by adding $6 + 4 = 10$, they can start with that and then add 4 more (breaking the 8 apart into $4 + 4$). They could also start with any other smaller problem that they know fluently.

Did You Know?

Fluency cards & flash cards don't have to be boring! You can 'build a road' with fluency cards, or play 'clear the table' or 'memory.' For more ideas: listen to Episode 16 of The Dog Ate My Homework Podcast.

Also, fluency within 20 looks different from fluency within 100. Fluency within 20 is more mental math and quick recall of facts whereas fluency within 100 is quick efficient strategy usage to solve the problem accurately and may require a written strategy.

Track Your Progress

Make a chart of 'math facts I know' and 'math facts I'm working on' to keep track of your progress. Update your chart regularly to keep track of your growth!

ADDITION

WITHIN
100

2ND
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Quick Skills Check

- I can add within 100 to solve one and two-step problems
- I can determine whether a group of objects (up to 20) has an odd or even number of members
- I can fluently add within 100 using strategies based on place value and properties of operations

Math Talk Moments

Some conversation starters for engaging your child in math talk.

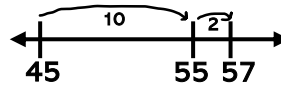
- How could you solve $34 + 9$? What are some ways you could think about that problem mentally?
- If I drove 18 total miles yesterday and 23 total miles today, about how many miles did I drive?
- What are some examples of addition that we see in the real world? Let's pay attention today to some examples. *Ex: adding total money at the store, total steps in a day, points scored during an entire season of a sport, people at the park or ball game etc.*
- Can you explain to me a smaller problem that you could use to solve $68 + 6$?

Activities to Build ADDITION SKILLS

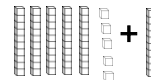
- Practice ways to make ten. Start at a number (Ex: 34) and say what number you would need to add to it to get to the next ten. " $34 + 6$ is 40." This supports efficient problem solving when breaking apart one addend.
- Incorporate math into mealtime. Find examples of addition problems while cooking, baking or serving a meal.
- Play 'Group Sum.' All players roll 2 dice (or one dice twice) and use those numbers to make the largest addend possible. Ex: If you roll 4 and 6, make the number 64. Add the two largest addends together (if playing with more than 2 people). Practice commutative property by adding them in either order. Draw a visual model to prove your thinking.
- Use hands-on manipulatives and visual models whenever possible for problem solving.
- Play games with fact fluency cards to build addition fluency and mental math skills within 20.
- Make a nametag for yourself and your child with a difficult addition fact on it. For example: $8 + 9$. Then for the rest of the day you and your child call each other by 'name' and the name is the sum. *In this case, Mrs. 17.*

Addition Models

Number Line



Base Ten Model



$$45 + 12$$

Place Value Addition

Break Apart One Addend

$$\begin{array}{r} 12 \\ 10 + 2 \\ \hline 45 + 10 = 55 \\ 55 + 2 = 57 \end{array}$$

$$\begin{array}{r} 45 \\ + 12 \\ \hline 57 \end{array}$$

Math at Mealtime

- Count the blueberries (or Cheerios etc.). Do you have an odd or even number of blueberries? How do you know?
- Make a fruit salad. Use a different number of each fruit (ranging from 12 – 50). Add two fruit totals at a time together to find out how much total fruit you have (ex: 38 blueberries + 23 pineapple slices)

Did You Know?

In second grade, children learn to add within 100 and within 1,000. Building fluency and confidence within 20 and then 100 is critical for success in addition within 1,000. Using a variety of strategies to determine the most efficient is a great way to do this.

Family Read Aloud Books & Games

- *When I Am Bigger* by Maria Dek
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *Odd and Even Socks* by Melanie Chrismer
- *Skyjo Game* by Magilano
- *Shut The Box* fluency game

SUBTRACTION WITHIN 100

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Quick Skills Check

- I can subtract within 100 to solve one and two-step problems
- I can determine whether a group of objects (up to 20) has an odd or even number of members
- I can fluently subtract within 100 using strategies based on place value and properties of operations

Math Talk Moments

Some conversation starters for engaging your child in math talk.

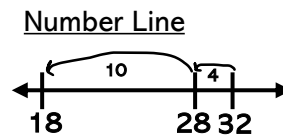
- Would you rather solve the problem $40 - 38$ or $38 - 16$? Why? Discuss various strategies such as adding up from 38 to 40 or how regrouping would be used depending on which strategy you use.
- I spent \$68 on fruits and vegetables this week and \$53 last week. How much more money did I spend this week than last week?
- There were 43 people at the baseball game (or soccer game/dance recital etc.) last night, and 15 people left early. How many people were left at the end? Modify numbers as needed within 100.
- Which subtraction strategy do you feel the most confident in/Which strategy do you like the best? Why?

Activities to Build SUBTRACTION SKILLS

- Practice using addition to help support subtraction. Choose two problems (one that lends itself to adding up and one that lends itself to subtracting back). For example: $62 - 58$ and $45 - 21$. Have your child help you solve both problems using an 'add up' strategy and a 'subtract back' strategy and determine which was more efficient for each problem. Notice, that for $62-58$ it is much more efficient to just add up 4 more, than to use regrouping to subtract back.
- Incorporate math into mealtime. Find examples of subtraction problems while cooking, baking or serving a meal.
- Play 'What's The Difference': Both players draw two cards from a deck (with no face cards) and use those as the digits of a 2-digit number. Find the difference between the two numbers you made. Compare your solution strategies. An extension would be to add up all the differences at the end of the game, or have one player create a one-digit number for less challenging subtraction.
- Use hands-on manipulatives and visual models whenever possible for problem solving. Use base ten blocks (or a quick picture) whenever regrouping/renaming is involved to check your work.
- Play games with fact fluency cards to build subtraction fluency and mental math skills within 20.
- When putting away the laundry, have your child help you determine if there are an odd or even number of socks.

Subtraction Models

Use Addition To Find Difference

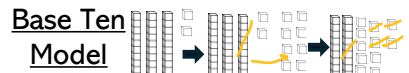


$$32 - 14$$

$$14 + 6 = 20$$

$$20 + 12 = 32$$

$$6 + 12 = 18$$



Place Value Subtraction

$$\begin{array}{r} 32 \\ - 14 \\ \hline 18 \end{array}$$

Math at Mealtime

- Give your child a different amount of an item (pretzels, crackers, berries etc.) than yourself. 'How many more pretzels did you get than me? How do you know?'
- Keep track of 'what's left' in a container. Start by counting out the total number of crackers in a sleeve, or berries in a container (choose a food that you would eat more than one of at a time). Each time you eat that food, subtract the amount you ate from the total. Keep track on a chart.

Did You Know?

Building confidence renaming/regrouping one ten for ten ones is an important skill for second graders to practice so they can apply it to larger problems. Using base ten models to build conceptual understanding prevent mistakes in understanding with larger numbers.

Family Read Aloud Books & Games

- **The Action of Subtraction** by Brian P. Cleary
- **Even Steven and Odd Todd** by Kathryn Cristaldi
- **The Clumsy Thief Game** by Melon Rind (numbers within 100)
- **Number Park Addition and Subtraction Game** by Wonder It (smaller numbers)

BASE TEN & PLACE VALUE

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Quick Skills Check

- I understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones
- I can count within 1,000; skip-count by 5s, 10s and 100s
- I can read and write numbers to 1,000, using number names and expanded form
- I can compare two three-digit numbers based on meanings of digits

Math Talk Moments

Some conversation starters for engaging your child in math talk.

- Let's talk about the ages of everyone in our family. I am ___ years old, you are ___ years old (and name the rest of the family). In my age, which number is in the tens place? The oldest person to ever live was 122 years old. What does the 1 represent in that number? What is different between the two 2s in that number?
- We spent \$162 on groceries this week and \$129 last week (or pick another 3-digit number). Which week did we spend more? Which number is in the tens place? The hundreds place? The ones place?
- Think about the number 3, 30 and 300. What makes those three numbers different?
- Skip count alternating back and forth by 5s, 10s and 100s to 1,000.

Activities to Build

PLACE VALUE UNDERSTANDING

- Practice renaming a number. Choose a three-digit number to make using base ten blocks (a homemade base ten model with graham crackers, pretzel rods and Cheerios works great too). For example: 147 would have 1 hundred, 4 tens and 7 ones. Then make the same number but use only tens and ones, so 14 tens and 7 ones. Then make the same number using only hundreds and ones, so 1 hundred and 47 ones. Talk about how the value of the number remains the same and use the model to build understanding.
- Incorporate math into mealtime. Find examples of place value problems while cooking, baking or serving a meal.
- Play 'Biggest Number.' All players roll 3 dice (or one dice three times) and use those as the 3 digits to make the largest number possible. Ex: If you roll a 4, 2 and 6, then the largest number would be 624. *Emphasize that you are putting the numbers into each of the hundreds, tens and ones digits, so now the 6 isn't just 6, it represents 600.* Then the next player rolls to make their number. Each player should write their number, model it using base ten blocks (or a quick picture) and write it in expanded form. Then the players compare their numbers and the player with the largest number gets a point. *You can also play with a deck of cards (no tens or face cards) for digits 7-9.*

Addition Models

Place Value Chart 236 Base Ten Block Model

Hundreds	Tens	Ones
2	3	6

Base Ten Blocks Quick Picture

Math at Mealtime

- Make base ten s'mores! Use graham crackers to represent hundreds, chocolate pieces to represent tens and marshmallows to represent ones. Choose a few three-digit numbers to model. Then enjoy the treat!
- Look at the nutrition labels on various foods. Look for 3-digit numbers (ex: milligrams of sodium). Talk about what the digits in each number mean. Compare the numbers.

Did You Know?

In second grade, children need a lot of practice with hand-on base ten models to build conceptual understanding. Learning the foundation of the base-ten number system is important for addition and subtraction in more advanced math. If you don't have base ten blocks, you can draw a quick picture instead.

Family Read Aloud Books & Games

- **Sir Cumference and the Roundabout Battle** by Cindy Neuschwander
- **A Million Dots** by Andrew Clements *focus on the smaller numbers*
- **Racko Game** by *Winning Moves Games*

ADDITION

WITHIN
1,000

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Quick Skills Check

- I can add within 1,000 using concrete models, drawings, strategies based on place value, properties of operations and the relationship between addition and subtraction.
- I can mentally add 10 or 100 to a given number 100-900
- I can relate a strategy to a written method and explain why it works

Math Talk Moments

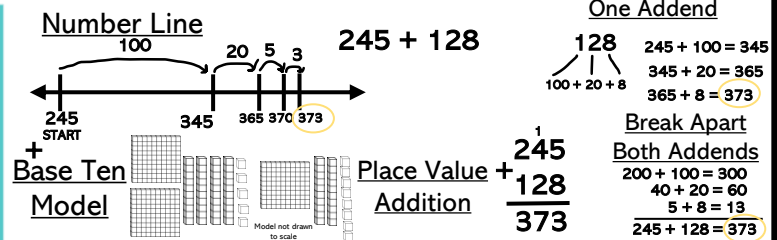
Some conversation starters for engaging your child in math talk.

- What is different about adding $283 + 145$ and adding $83 + 45$?
- What strategies can you use to check your work when solving an addition problem?
- On our family road trip, we spent \$184 on gas and \$123 on road trip snacks and food. How much did we spend all together on our road trip? *Modify with a real family situation and three-digit numbers.*
- Which problem is more challenging for you to solve $184 + 158$ or $184 + 213$? Why? What strategy could you use to help you solve that problem?

Activities to Build ADDITION SKILLS

- Use grid/graph paper or draw a place value chart to organize your work when adding three-digit numbers. Make sure to line up the hundreds digit in each number, the tens and the ones.
- Incorporate math into mealtime. Find examples of addition problems while cooking, baking or serving a meal.
- Play 'Hundred or Ten Chance.' All players roll 3 dice (or one dice three times) in order to make the largest number Ex: If you roll a 1, 5 and 4, make the number 541. Then flip a coin. If it lands on heads, you add 100 to your number, if it lands on tails, you add 10 to your number. Continue playing with your new number. The first person to reach 1,000 (or beyond) wins. *For example, 541 and you flip heads, now you're at 641. If you flip tails next, you're at 651 etc.*
- Use hands-on manipulatives and visual models whenever possible for problem solving.
- Look for examples of addition in the real world in various different situations (ex: part-part whole or add too), or make story problems based on real-world situations. For example, 192 people attended the fair on Friday and 236 people attended the fair on Saturday. How many total people attended the fair? You could also make this more challenging by saying '236 more people attended the fair on Saturday than on Friday. How many total people attended the fair.' You can look up real attendance for games/concerts/fairs, or other real-world situations for context.

Addition Models



Math at Mealtime

- Look for a two- or three-digit number on a nutrition label on food (ex: mg of sodium, calories etc.). Mentally find 10 more than that number and 100 more than that number. Explain your thinking.
- Make a base-ten s'mores snack to practice adding two numbers together. Model each number using graham crackers for hundreds, chocolate pieces for tens and marshmallows for ones. Use this model to practice regrouping/renaming as needed while adding the numbers together.

Did You Know?

A solid understanding of place value is the foundation for successful addition of large numbers. At the second-grade level, children are not expected to use the 'standard algorithm' for adding three-digit numbers. Using visual models and strategies is a great foundation to build on next year in third grade.

Family Read Aloud Books & Games

- **Sir Cumference and the Roundabout Battle** by Cindy Neuschwander
- **A Million Dots** by Sven Völker
- **Monopoly Junior** *keep track of total money on separate sheet of paper*
- **Math Dice Game** by *Think Fun*

SUBTRACTION WITHIN 1,000

2ND GRADE

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Quick Skills Check

- I can subtract within 1,000 using concrete models, drawings, strategies based on place value, properties of operations and the relationship between addition and subtraction.
- I can mentally add 10 or 100 to a given number 100-900
- I can relate a strategy to a written method and explain why it works

Math Talk Moments

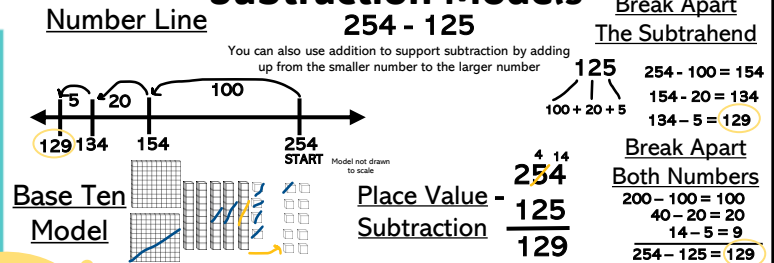
Some conversation starters for engaging your child in math talk.

- Which problem would be more challenging for you to solve. $999-124$ or $1,000-124$. Why? *You can repeat this with other numbers that require regrouping or no regrouping.* What tools can you use to help you solve that problem?
- How can you use addition to help you solve a challenging subtraction problem?
- About how much taller do you think a giraffe is than you? *Ask questions to estimate the difference between various animal heights, lengths and weights. Then look up the real answer to calculate.*

Activities to Build SUBTRACTION SKILLS

- Make a place value chart to keep track of the hundreds, tens and ones while subtracting. You can also use grid or graph paper to keep your work organized.
- Incorporate math into mealtime. Find examples of subtraction problems while cooking, baking or serving a meal.
- Play 'Zero Race': All players start at 1,000. Each player rolls 3 dice, to create the largest 3-digit number they can. The player subtracts that number from 1,000. This process continues, subtracting each number from the remaining difference and keeping track of each player's new number as you race to zero. The first person to get closest to zero wins. As you get closer to zero, you can switch to using 2 dice for a 2-digit number, or just one dice to try to get exactly to zero.
- Use hands-on manipulatives (base-ten blocks or homemade base-ten block models, or a quick picture) whenever possible for modeling subtraction.
- Subtraction in the real world: look for examples of subtraction in the real world. Ex: subtract the money spent throughout the week, from the total weekly budget. Or calculate miles remaining on a road trip, or estimate minutes left in the day or class. Look at different situations such as comparison (find the difference), part-part-whole and take away (find what's left).

Subtraction Models



Math at Mealtime

- Set a grocery budget for the week and try to stick to it while shopping. Every time you spend money, work together to subtract that from the budget (round to the nearest whole number).
- Calculate the amount of milk remaining in the carton, or cereal in the box.
- Look for a two- or three-digit number on a nutrition label on food (ex: mg of sodium, calories etc.). Mentally find 10 less than that number and 100 less than that number. Explain your thinking.
- Use the s'mores base ten model to solve subtraction problems within 1,000.

Did You Know?

In second grade, renaming one hundred as ten tens and one ten as ten ones is a complicated concept. If children jump to using the algorithm before they build the conceptual understanding of this idea, it often leads to confusion and errors that could have been avoided. Focusing on visual models at this age is key.

Family Read Aloud Books & Games

- **Shark Swimathon** by Stuart J. Murphy
- **How Many Jellybeans** by Andrea Menotti (*find the difference between each set of jellybeans*)
- **Real World Math: Unexpected Events Game** by *Teacher Created Resources*

MEASUREMENT & DATA

2ND GRADE

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Quick Skills Check

- I can estimate and measure the length of an object by selecting appropriate tools to use such as rulers, yard sticks, measuring tapes etc. using two different units.
- I can use addition and subtraction within 100 to solve word problems involving lengths in the same units
- I can represent whole numbers as lengths from 0 on a number line
- I can tell and write time from analog and digital clocks to the nearest five minutes using a.m. and p.m.
- I can solve word problems involving dollar bills, quarters, dimes, nickels and pennies and use dollar and cent signs appropriately

Math Talk Moments

Some conversation starters for engaging your child in math talk.

- About how much taller do you think I am than you? What measurement units would be best to use when measuring our height? What tool could we use to actually measure the difference?
- Which measurement unit is the longest, an inch, a foot or a yard? Can you think of an object that is approximately an inch long? A foot long? A yard long? (or tall)?
- Look at the clock on my phone/the wall. What time is it? Is it a.m. or p.m.? How do you know?

Activities to Build MEASUREMENT SKILLS

- Make a daily schedule of a regular day in your house. Use an analog clock model and a digital clock model to write the time that each event should happen. Record the actual time that it happens next to the schedule.
- Incorporate math into mealtime. Find examples of measurement while cooking, baking or in the kitchen.
- Do a clock scavenger hunt: Throughout the day, look for clocks (At home, at the store, at school etc.) Make a chart of where you saw the clock and what time it said.
- Play 'Ways to Make a Dollar': Using real (or fake) coins, try to see how many different combinations you can think of together to make a dollar. Try it at the same time as your child and then compare your combinations. Ex: four quarters or two quarters, 3 dimes, two nickels and ten pennies etc. *You can also play the reverse where you give your child a set number of coins and they have to find the total value.*
- Play 'Coin Grab': Put a variety of coins in a bag or hat. Close your eyes and grab a handful of coins. Sort them and find the value.
- Play 'Measurement Race': Roll two dice (or one dice twice) and use that to make a two-digit number. For example, a 4 and 5 could be 45 or 54. Then with a ruler or measuring tape, race around the house or classroom and try to find something that is exactly that many inches (or centimeters) long or tall. The first person to find something that measures that length correctly wins a point. *You can measure part of something and that counts for the measurement. You can also use a deck of cards (no tens or face cards) for larger numbers.*

Measurement Models

Clocks



5:00

Money



Quarter Dime Nickel Penny
\$0.25 \$0.10 \$0.05 \$0.01

Math at Mealtime

- Record the start and end time on the oven/kitchen clock for when you cook or bake a recipe
- Measure the length of a small pretzel stick, a large pretzel rod and a celery stalk (or any other foods that are similar to a linear model). Put the lengths in order from shortest to longest. Try measuring them in both inches and in centimeters.
- At the grocery store, buy an item with coins. Have your child help you determine how much the item will cost and what coins are appropriate. Try to use the fewest number of coins possible to equal the total.

Did You Know?

In second grade, children do not use decimal notation to represent money, but they are expected to use the \$ and cents sign appropriately. However, giving 2nd graders exposure to the word decimal is helpful (for example \$1 is \$1.00 which means one whole dollar and no cents. Or 0.25 is less than one dollar) and it provides a foundation for when they learn about decimals in fourth and fifth grade.

Family Read Aloud Books & Games

- **The Loch Ness Monster Loves to Measure!** by Therese M. Shea
- **How Long or How Wide: A Measuring Guide** by Brian P. Cleary
- **Giraffe Math** by Stephen Swinburne
- **Money Bags: A Crazy Coin Counting Game** by Learning Resources

GEOMETRY

2ND
GRADE

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Quick Skills Check

- I can recognize and draw shapes with specific attributes
- I can identify triangles, quadrilaterals, pentagons, hexagons and cubes
- I can partition a rectangle into rows and columns
- I can partition rectangles and circles into two, three or four equal shares and use fraction language to describe the shares.

Math Talk Moments

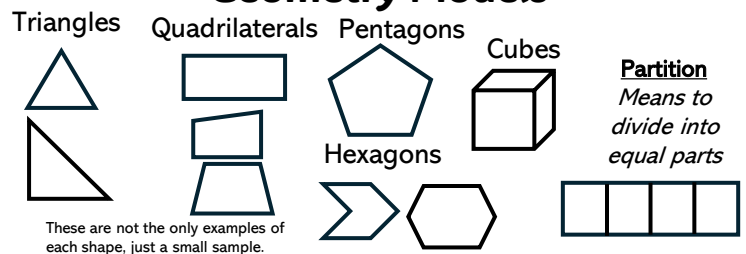
Some conversation starters for engaging your child in math talk.

- Look at signs on the road while driving (safely) or while parked. What shape is that sign? How many sides does it have? What is the name for a shape with that many sides.
- How many different quadrilaterals can you find in the dining room? What makes these quadrilaterals the same? What makes them different? How do you know they are quadrilaterals?
- If I wanted to share a chocolate bar evenly between 4 people, how could we divide the chocolate bar? What fraction/part of the whole chocolate bar would one person get?

Activities to Build GEOMETRY UNDERSTANDING

- Use post-it notes as an example of a quadrilateral that can be partitioned. Draw a line to cut it in half. Try cutting it in half a different way. See how many different ways you can partition it into fourths. Talk about real-world settings where you would need to partition something into four equal shares.
- Incorporate math into mealtime. Find examples of geometry problems while cooking, baking or serving a meal.
- Play 'Scavenger Hunt': Go on a scavenger hunt around your house, classroom, yard, favorite store etc. Look for various shapes such as triangles quadrilaterals, pentagons, hexagons and cubes. Take pictures and make a Google Doc or other online document with the categories and pictures. Add to this doc throughout the day, week, month etc. Discuss what is the same and different about each shape—for example if you see a square sticker and a rectangular poster, discuss that they are both quadrilaterals but one has equal sides and one does not.
- Play 'Shape Draw': spend some time drawing together with your child. Name a shape, like hexagon and at the same time on your own paper draw a hexagon too. Try it again with another shape. Emphasize that not all hexagons look the same (*like the pictures in the Geometry models on this page*). A hexagon is a six-sided polygon, so as long as it meets that criteria then it is a hexagon. You can extend this by playing 'Name My Shape' where each of you draws a shape and the other has to name the shape that the other person drew, using geometry vocabulary.

Geometry Models



Math at Mealtime

- Food shapes: Eat a snack or meal with a variety of food shapes (ex: square bread, circular apple slice, rectangular graham cracker etc.) Discuss the shapes and how you could categorize them. Try to name the shapes as accurately as possible (Ex: graham cracker is a rectangle, but the smaller parts are squares, both are quadrilaterals)
- Use a food like a chocolate bar, cake in a rectangular pan, egg casserole etc. Cut it in half and discuss the value of each part using fraction language (each part is one half of the whole). Then cut the half in half to make fourths and use math vocabulary to describe it.

Did You Know?

Second grade geometry is the foundation for third grade fractions. Using 'equal shares' language and discussing what it means to partition a whole into equal parts is key to a strong foundation for fractions.

Family Read Aloud Books & Games

- A Trapezoid is Not A Dinosaur by Suzanne Morris
- The Greedy Triangle by Marilyn Burns
- Which One Doesn't Belong? by Christopher Danielson
- Drop It A family game

ADDITIONAL RESOURCES

2ND GRADE

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The Dog

Ate My

Homework

PODCAST GUIDE

The Dog Ate My Homework Podcast was designed to empower caregivers to support their children with math at home. It includes grade-level specific math information, tips, games and ideas to try! Check out these helpful episodes!

- Episode 1: *Supporting Your Child's Growth Mindset in Math*
- Episode 2: *Homework Routines: Setting Your Child Up For Success on Math Homework*
- Episode 4: *What is this 'New Math' Anyway?*
- Episode 5: *What it Means for Your Child to 'Show Their Work' and Why It's Important*
- Episode 6: *Quick Homework Troubleshooting Tips*
- Episode 13: *Second Grade Addition: Unlocking the Base Ten Number System*
- Episode 14: *Second Grade Subtraction: Supporting Solution Strategies with Large Numbers*

Available on Spotify, Apple Podcasts, and more!

For more information, visit

www.mathcoachconnection.com/podcast

Helpful podcast downloads available on my website

