

How can I support my child with learning math? Parent Guide: Grades 4-5 Math

Goal: You will learn strategies to support your child with learning math.

Three main take homes:

- I) Understand what your child knows and go from there.
- II) Use questioning to help clarify and deepen your child's thinking.
- III) Provide your child with additional math experiences.

I. Understand what your child knows and go from there.

Work on math problems with your child and then refer to **Attachment A: Development of Children's Strategies of Basic Facts** to determine how your child understands the problem and then work with her from there.

II. Now that you understand what she knows, use questioning to help clarify and deepen your child's thinking.

Scenario 1: She doesn't have a strategy to solve the problem yet.

See **Attachment B: Helping Tips** to learn a process that will help you facilitate a conversation to help her access and solve the problem.

Scenario 2: She has shown to you that she understands a specific strategy.

See **Attachment B: Helping Tips** to learn a process that will help you facilitate a conversation to help her clarify and deepen her understanding.

(NOTE: At school, your child will be exposed to a variety of strategies through classroom discussions. Each child is developmentally at different levels and will use the different strategies when they are developmentally ready. In other words, your child may not yet be ready to try a particular strategy herself.)

For additional resources, see **Attachment C: Helping your Child with Homework.**

III. Understand the math that your child is working on in class.

1) What will my child be learning this school year?

Washington State has established performance expectations (standards) for students K-12, which describe what the students should know and be able to do. A brief summary is shown in **Attachment D** and a more detailed summary is included in **Attachment E**. A complete set can be found at www.k12.wa.us/CurriculumInstruct/Mathematics/default.aspx.

2) Today we will be discussing how students develop a variety of strategies to solve problems. An *algorithm* is a well-defined procedure to achieve a certain objective. **Attachment F: Common Algorithms** shows a variety of computational methods that your child may use when solving a problem. Our goal is to expose our students to a variety of algorithms to build conceptual understanding of the standard algorithms.

- 4th: Fluently and accurately multiply up to a three-digit number by one- and two-digit numbers using the standard multiplication algorithm.
- 5th: Fluently and accurately divide up to a four-digit number by one- or two-digit divisors using the standard long-division algorithm.

3) A common routine that students work on regularly are “**fact triangles**” which is a routine that helps children learn their number facts with speed and accuracy. Fact triangles are based on sets of related facts called “fact families” which helps students memorize facts more effectively than flash cards.

- 4th: Quickly recall multiplication (and related division) facts through 10x10.
- 5th: Review of math facts through 10x10



4) Find out what unit your child is working on in class by reading your child's clan newsletters and by looking at her homework. You can use the strategies presented in **Attachment B: Helping Tips** to support her.

5) See **Attachment G: Do Anytime Activities** for grades 4 and 5, which includes activities that you can do throughout the year.

It can also be accessed at:

https://www.mheonline.com/parent_connection_em/tips_activities

IV. Provide her with additional math experiences.

Playing games with your child is an important way for your child to learn math.

1) For card games, see **Attachment H: Games**

2) For on-line games, see **Attachment I: Getting Started Using Everyday Math on-line.** (Your child's teacher will provide you will your child's username and password).

- EDM on-line math games: Baseball Multiplication, Beat the Computer, Credits/Debits Game, Factor Bingo, Factor Captor, Frac-Tac-Toe, Hidden Treasures, High-Number Toss, Landmark Shark, Multiplication Wrestling, Name That Number, Top It

3) Some board games that involve mathematical thinking include:

- Counting, Adding, and Subtracting: Chutes and Ladders, Hi Ho Cheery O, Trouble, Sorry, Uno
- Attributes, Patterns, and Geometry: Crazy Eights (card game), Guess Who?, Guess Where?, jigsaw puzzles, tangrams
- Strategy and Spacial Perception: checkers, chess, Clue Jr, Jenga, mancala, memory (matching face down pictures or numbers)

(Note: Math and Stuff has a great selection of games. Mention Pathfinder and our school gets credit)

DEVELOPMENT OF CHILDREN'S STRATEGIES FOR BASIC FACTS

ATTACHMENT A

PROBLEM	DIRECT MODELING	COUNTING	DERIVED FACTS	RECALL
5 + 7 = ? Join Result Unknown	Makes a set of 5 counters and a set of 7 counters. Pushes the two sets together and counts all the counters.	Counts "5 [pause], 6, 7, 8, 9, 10, 11, 12," extending a finger with each count. "The answer is 12" [The counting sequence may also begin with the larger number]	"Take 1 from the 7 and give it to the 5. That makes 6 + 6, and that's 12."	5 plus 7 is 12.
12 - 5 = ? Separate Result Unknown	Makes a set of 12 counters and removes 5 of them. Then counts the remaining counters.	Counts back "12, 11, 10, 9, 8 [pause], 7. It's 7." Uses fingers to keep track of the numbers of steps in the counting sequence.	"12 take away 2 is 10, and take away 3 more is 7."	12 take away 5 is 7.
4 + ? = 11 Join Change Unknown	Makes a set of 4 counters. Makes a second set of counters, counting "5, 6, 7, 8, 9, 10, 11," until there is a total of 11 counters. Counts the 7 counters in the second set.	Counts "4 [pause], 5, 6, 7, 8, 9, 10, 11," extending a finger with each count. Counts the 7 extended fingers. "It's 7."	"4 + 6 is 10 and 1 more is 11. So it's 7."	4 and 7 make 11.
5 x 7 = ?	Makes 7 groups of 5 counters and counts them all.	5, 10, 15, 20, 25, 30, 35	5 times 5 is 25 and 10 more is 35.	5 times 7 is 35.
56 ÷ 8 = ?	Counts out 56 counters. Pulls out groups of 8 until 7 groups are made.	8, 16, 24, 32, 40, 48, 56	8 times 8 is 64. 8 less is 56. So that's 7.	8 x 7 is 56.

CHILDREN'S STRATEGIES FOR MULTI-DIGIT COMPUTATION

ATTACHMENT A

PROBLEM	DIRECT MODELING		COUNTING		EFFICIENT ALGORITHMS
	BY 1s	BY 10s	BY 1s	BY 10s	
25 + 17 = ?	Makes a set of 25 by ones and a set of 17 by ones and counts them all	Makes a set of 25 and a set of 17 by using tens and ones and counts them all	Starts with 25, counts on by 1s, keeping track of how many are added on until the total is reached e.g., 25, 26, 27, 28, 29, 30, 31...42	Starts with 25, counts on by 10s. e.g., 25, 35, 36, 37...42	<u>Combining tens/ones</u> : 20 and 10 is 30, 5 and 7 is 12. 30 and 12 is 42 <u>Incremental</u> : 25 + 10 = 35 and 7 more is 42 <u>Compensating</u> : 25 and 20 is 45, less 3 is 42. <u>Maintaining equivalence</u> : 25 + 17 = 22 + 20
47-28 = ?	Makes a set of 47 by ones and then takes away 28 by ones.	Makes a set of 47 by using tens and ones and then takes away 28.	Counts back from 47 by ones or counts on from 28 until get to 47	Counts back from 47 by tens or counts on from 28 by tens	<u>Tens/ones</u> : 40 take away 20 is 20. 8 take away 7 is -1. 20 take away 1 is 19 <u>Incremental</u> : 47 take away 20 is 27. 27 take away 8 is 19. <u>Compensating</u> : 47 take away 30 is 17 plus two is 19. <u>Constant difference</u> : 47 - 28 = 50 - 31 = 19
12 x 15 = ?	Makes a set of 12 by ones and repeats that 15 times. Counts everything up.	Makes a set of 12 by using tens and 1s and repeats that 15 times. Counts everything up.	SKIP COUNTS 12, 24, 36, 48.....180 or adds 12, 15 times and figures out various ways of adding the list up.		<u>Partial products, 10s/1s</u> : 12 times 10 is 120. 12 times 5 is 60. 120 and 60 is 180. <u>Compensating</u> : 12 x 20 = 240; 240 - (12 x 5) = 180 <u>Doubling and halving</u> : 15 x 6 = 90. Double that to get 180
120 ÷ 15	Makes a set of 120 by ones. Pulls out groups of 15 and counts how many groups are pulled out and how many are left over.	Makes a set of 120 by using 10s and ones. Pulls out groups of 15 and counts how many groups are pulled out and how many are left.	SKIP COUNTS 15, 30, 45, 60, 75, 90, 105, 120 or adds up 15 until get close to or to 120.		<u>Partial quotients</u> : 15 goes into 105, 7 times and 15 more is 120. That's 8. <u>Multiplying Up</u> : 15 times 4 is 60. 60 times 2 is 120. That's 8. <u>Maintaining equivalence</u> : 120 ÷ 15 = 40 ÷ 5 = 8

ATTACHMENT B

Helping Tips

I) To help your child think about a problem, use a K-W-H (Know-What-How) strategy.

- 1) “What do you **know**?”
- 2) “**W**hat are you trying to find out?”
- 3) “**H**ow can you solve it?” (Make sure you give them time to think and process their ideas)

A) She doesn't know what to do yet. *(Note: Please avoid teaching your child the strategy that you know. Be assured she will be exposed to a variety of strategies during in-class discussions).*

1) Question:

- “Have you solved similar problems that would help?”
- “What terms do you understand or not understand?”
- “Can you make a drawing to show what you know?”
- “Can you describe a strategy we could try?”

2) Make it concrete: draw a picture OR use manipulatives (e.g., beans, pennies = 1, dimes = 10) and begin counting OR use a number line or 100's grid OR

3) Give her a simpler problem

4) Return to the original problem and apply the same strategy. Go through the problem with your child, have her explain it back to you, step by step. If she can't explain all of it, go through it again together, and have her explain it again.

B) She solves a problem correctly or incorrectly and you want to clarify and deepen her thinking.

- “How did you solve it?”
- “Help me understand this part...”
- “How does the math in this problem relate to other problems you have seen?”
- “Can you explain/show why this is true?”
- “How can you convince me your answer makes sense?”
- “Does your answer seem reasonable? Why or why not?”
- “That's great that you can solve it like that, I'm wondering if you can think of a another way to solve it?”
- What if you had started with...rather than...?

Helping Your Child With Homework

In helping your child learn, one goal is to assist them in figuring out as much as they can for themselves. Good questions and good listening will help make sense of mathematics, build self-confidence, and encourage mathematical thinking and communication. Here are some questions you can use to guide your child's thinking:

Getting Started

- What do you need to find out?
- What do you need to know?
- What terms do you understand or not understand?
- Have you solved similar problems that would help? Let's look at your notebook.

Working on the Problem

- How can you organize the information?
- Do you see any patterns or relationships that will help solve this?
- Can you describe a strategy you can use to solve this?
- Can you make a drawing to explain your thinking?
- What would happen if. . . ?

Reflecting On a Solution

- Has the question been answered?
- How do you know your solution is reasonable?
- How can you convince me your answer makes sense?
- What mathematical skills and ideas did you use to solve the problem?
- What did you try that did not work?

Clarifying and Extending Thinking

- Help me understand this part. . .
- Can you explain it in a different way?
- Is there another possibility or strategy that would work?
- How is this connected to other ideas that you have learned?

Helping Your Child Become Organized

Find a Study Place If possible, arrange for a quiet area. Have available materials such as graph paper, notebook paper, a ruler with both metric and standard units, a calculator (graphing for 7th–12th grade), and a dictionary.

Develop a System Help your child develop a system for writing down assignments and keeping track of progress. Check to make sure your child does so consistently.

Develop Note Taking Skills Help your child develop a system for taking meaningful notes. Frequently, note taking is taught during class, so it may just be a matter of seeing if your child is properly taking notes.

Organize Your Notebook Many children need assistance in organizing and maintaining a notebook. Routinely check to see if your child is correctly following the program's guidelines for keeping notebooks.

Foster Time Management Skills Encourage and expect your child to get work done on time, to stay caught up, to get help in a timely manner, and to correct errors in work. You may want to help your child go over incorrect or incomplete work and talk about how the work could be improved.

Master the Needed Skills It is generally expected that middle school students know whole number addition, subtraction, multiplication, and division. If your child is not proficient with these basic skills, help them master the needed skills.

Find Study Buddies Encourage your child to identify study buddies or another student they can call to work with on assignments, get clarification, or find out about makeup work.

Doing More Math at Home

Two important goals for all students are that they learn to value mathematics and become confident in their ability to do mathematics. Parents can help them develop a "can do" disposition toward math, by nurturing their curiosity and providing support and encouragement.

Point Out Real-World Mathematics Mathematics is everywhere, yet many children don't see it. Point out and reinforce mathematics skills at home. For example:

- Talk about how you use math at work or home.
- Involve your child in tasks that require computing, measuring, estimating, building, problem solving, and reasoning.
- Look for activities that require your child to use their mathematical skills such as building scale models, cooking, planning trips, and playing logic games.

Have Your Child Explain What They Learned Invite your child to explain what was learned in class. It gives them an opportunity to clarify their thinking, to practice new skills, and to communicate mathematically.

Look for Games Using games and activities is another way of teaching and/or reinforcing mathematics skills and thinking.

Look for Articles Many articles have data that might interest your child (e.g., sports statistics, data on teenage smoking, facts about natural disasters). Share them and talk about what the numbers mean.

Share Strategies Have your child share their strategies for problem solving, mental computation, and estimation. Share your strategies with them.

Look for Software If your child has access to a computer, look for software that reinforces and teaches mathematical concepts.

ATTACHMENT D

Washington State has established performance expectations (standards) for students K-12, which describe what the students should know and be able to do. A brief summary is shown below and a more detailed summary is included in **Attachment E**. A complete set can be found at www.k12.wa.us/CurriculumInstruct/Mathematics/default.aspx.

By the end of 4th Grade

Number Sense: Learn basic multiplication facts and efficient procedures for multiplying two- and three-digit numbers. Explore the relationship between multiplication and division by learning division and multiplication facts in the same fact family. Use multiplication facts and procedures, mental math, and estimation to solve problems. Solidify and extend understanding of fractions (including mixed numbers) to include decimals and the relationships between fractions and decimals. Work with common factors and common multiples.

Geometry: Find the area of a rectangle. Select appropriate units, tools, and strategies, including formulas, and use them to solve problems involving perimeter and area. Connect area to multiplication concepts. Use coordinate grids to connect numbers to basic ideas in algebra and geometry.

Data: Use whole numbers and fractions to describe sets of data and find simple probabilities.

Measurement: Use multiplication and division to do basic measurement conversions.

Processes: Solve problems that extend their understanding of core mathematical concepts—such as multiplication of multi-digit numbers, area, probability, and the relationship between fractions and decimals—while making strategic decisions that bring reasonable solutions. Use pictures, symbols, or mathematical language to explain the reasoning behind decisions and solutions. Make generalizations about processes used and apply generalizations to similar problem situations.

By the end of 5th Grade

Number Sense: Extend understanding of common factors and common multiples to prime numbers. Extend knowledge about adding and subtracting whole numbers to learning procedures for adding and subtracting fractions and decimals; apply these procedures, along with mental math and estimation, to problem solving. Learn efficient ways to divide whole numbers. Apply division to solve problems, using estimation and mental math skills to decide whether results are reasonable.

Geometry: Formalize and extend understanding of triangles and quadrilaterals. Classify different types of triangles and quadrilaterals and develop formulas for their areas. Explore symmetry of these figures and solve a variety of problems in geometric contexts.

Algebra: Use variables to write simple algebraic expressions describing patterns or solutions to problems. Use knowledge of number and operations to evaluate simple algebraic expressions and to solve simple equations. Make tables and graphs from linear equations.

Data: Extend and reinforce use of numbers, operations, and graphing to describe and compare data sets for increasingly complex situations encountered in other school subjects and in daily life.

Processes: Solve problems that extend understanding of core mathematical concepts—such as division of multi-digit numbers, perimeter, area, addition and subtraction of fractions and decimals, and use of variables in expressions and equations—while making strategic decisions leading to reasonable solutions. Use pictures, symbols, or mathematical language to explain the reasoning behind decisions and solutions. Make generalizations about processes used and apply generalizations to similar problem situations.

ATTACHMENT E

4 th GRADE MATH STANDARDS					
List of Performance expectation	Core Content #1: Multi-Digit Multiplication	Core Content #2: Fractions, Decimals, and Mixed Numbers	Core Content #3: Concept of Area	Core Content #4: Additional Key Content	Core Processes #5: Reasoning, Problem Solving, and Communication
A	Use the standard algorithm to multiply a two-digit number by a two-digit number and the related division facts.	Represent and read a fraction hundredths with place value models. Partition the values and the number line.	Determine the perimeter of a polygon with whole units.	Recognize an angle measured by a circle arc and represent it equal to the sum of two angles sharing a common vertex and other symbols.	Determine the least and greatest values for a problem given a set of information.
B	Identify factors and multiples of a number.	Read, write, compare, and order decimals through hundredths.	Determine the approximate area of a figure using square units.	Solve single- and multi-step problems involving familiar unit conversions, including time, within either the U.S. customary or metric system.	Identify information that is given in a problem and decide whether it is necessary or unnecessary to the solution of the problem.
C	Represent multiplication of a two-digit number by a two-digit number with place value models.	Convert a mixed number to a fraction and vice versa and visually represent the number.	Determine the approximate area of a figure using square units.	Recognize and draw a line, a ray, and an angle.	Identify the information that is needed to solve a problem.
D	Multiply by 10, 100, and 1,000.	Convert a decimal to a fraction and vice versa and visually represent the number.	Determine the areas of figures that can be broken down into rectangles.	Graph and identify points in the first quadrant of the coordinate plane using ordered pairs.	Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.
E	Classify the values represented by digits in a number.	Compare and order decimals and fractions of a whole and visually represent the number on a number line.	Determine the perimeter of a polygon with whole units.	Determine the mean, mode, and range of a set of data.	Select and use one or more operations to solve a problem and explain why that strategy works.
F	Fluently and accurately multiply up to a three-digit number by one- and two-digit numbers using the standard multiplication algorithm.	Write a fraction equivalent to a given fraction.	Solve single- and multi-step word problems involving perimeters and areas of rectangles and verify the solutions.	Describe and compare the likelihood of events.	Represent a problem situation using words, numbers, pictures, physical objects, or symbols.
G	Use the standard algorithm to multiply a two-digit number by a two-digit number and the related division facts.	Compare and order fractions and decimals.		Determine a single probability from a model of that situation.	Explain why a particular solution, strategy or procedure was used to solve a problem.
H	Estimate products to approximate solutions to problems and determine reasonableness of answers.	Round fractions and decimals to the nearest whole number.		Display the results of probability experiments and interpret the results.	Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.
I	Solve single- and multi-step word problems involving multiplication of a two-digit number by a two-digit number.	Solve single- and multi-step word problems involving division of whole numbers and fractions of a whole number.			Summarize math work, illustrate, draw conclusions, and explain reasoning.
J	Solve single- and multi-step word problems involving division and verify the solutions.				Make and test conjectures based on data (or information) collected from explorations and experiments.

5TH GRADE MATH STANDARDS

Set of Performance Expectations	Core Content #1: Multi-Digit Division	Core Content #2: Addition & Subtraction of Fractions and Decimals	Core Content #3: Triangles and Quadrilaterals	Core Content #4: Representations of Algebraic Relationships	Core Content #5: Additional Key Content	Core Processes #6: Reasoning, Problem Solving, and Communication
A	Determine multi-digit quotients using appropriate strategies to find the quotient.	Represent addition and subtraction of fractions and mixed numbers with unlike denominators by converting to like denominators to find the sum or difference.	Identify quadrilaterals.	Identify and describe the relationship between the number of sides of a polygon and the number of interior angles.	Use number lines to represent addition and subtraction.	Explain the process(es) for solving a problem.
B	Determine quotients for multiples of 10 and 100 by applying knowledge of place value and properties of operations.	Represent addition and subtraction of decimals using place value models and connect the representation to the related equation.	Identify, sketch, and measure acute, right, and obtuse angles.	Write a rule to describe the relationship between two sets of data that are linearly related.	Determine and interpret the mean of a small data set of whole numbers.	Identify information that is given in a problem and decide whether it is essential or extraneous to the solution of the problem.
C	Use the area model to multiply multi-digit numbers.	Use the area model to multiply multi-digit numbers.	Identify, sketch, and measure the perimeter and area of rectangles, squares, and trapezoids.	Write algebraic equations that represent the relationship between two sets of data that are linearly related.	Use data to describe the center and spread of a data set.	Explain the process(es) for solving a problem.
D	Estimate quotients to approximate solutions and determine reasonableness of answers in problems involving up to two-digit divisors.	Determine the greatest common factor and the least common multiple of two or more whole numbers.	Determine the formula for the area of a parallelogram by relating it to the area of a rectangle.	Graph ordered pairs in the coordinate plane for two sets of data related by a linear rule and draw the line they determine.		Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.
E	Use the area model to multiply multi-digit numbers.	Use the area model to multiply multi-digit numbers.	Determine the perimeter and area of triangles and parallelograms.			Select and use the most appropriate strategy for solving a problem.
F	Solve single- and multi-step word problems involving multi-digit division and verify the solutions.	Fluently and accurately add and subtract decimals.	Determine the perimeters and areas of triangles and parallelograms.			Represent a problem situation using words, numbers, pictures, manipulatives, or symbols.
G		Use the area model to multiply multi-digit numbers.	Draw triangles and rectangles and measure their perimeter and area.			Explain the process(es) for solving a problem.
H		Solve single- and multi-step word problems involving addition and subtraction of whole numbers, fractions (including mixed numbers), and decimals, and verify the solutions.	Determine the number and location of lines of symmetry in triangles and quadrilaterals.			Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.
I			Use the area model to multiply multi-digit numbers.			Summarize the process(es) for solving a problem.
J						Make and test conjectures based on data (or information) collected from explorations and experiments.

ATTACHMENT F

Algorithms: Grades 4/5

Partial Products (3 digits x 1 digit)

Multiply each digit in the bottom factor by each digit in the top factor. Then add all of the partial products to find the total product.

Example 1

			100s	10s	1s	
			2	4	5	partial
						product
	x					
Multiply 8 × 200		1	6	0	0	
Multiply 8 × 40			3	6	0	
Multiply 8 × 5				4	5	
Add the partial products		2,	2	0	5	product

Partial Products (3 digits x 2 digits)

Multiply each digit in the bottom factor by each digit in the top factor. Then add all of the partial products to find the total product.

Example



			100s	10s	1s	
			7	5	2	partial
						product
	x					
Multiply 40 × 700		2	8	0	0	
Multiply 40 × 50			2	0	0	
Multiply 40 × 2				8	0	
Multiply 6 × 700			4	2	0	
Multiply 6 × 50				3	0	
Multiply 6 × 2				1	2	
Add the partial products		3	4,	5	9	2

Partial Products (2 digits x 2 digits)

Multiply each digit in the bottom factor by each digit in the top factor. Then add all of the partial products to find the total product.

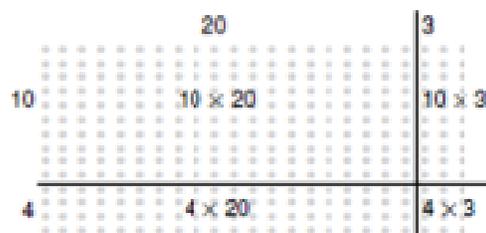
Example 1

			10s	1s	
			5	6	partial
					product
	x				
Multiply 80 × 50		4	0	0	
Multiply 80 × 6			4	8	
Multiply 2 × 50			1	0	
Multiply 2 × 6				1	2
Add the partial products		4,	5	9	2

Array (Area model)

Rectangular arrays can be used to demonstrate visually how the partial products algorithm works.

Example: 14×23



$$\begin{aligned}
 14 \times 23 &= (10 + 4) \times (20 + 3) \\
 &= (10 \times 20) + (10 \times 3) + (4 \times 20) + (4 \times 3) \\
 &= 200 + 30 + 80 + 12 \\
 &= 322
 \end{aligned}$$

US Traditional

First, multiply the ones digit in the bottom factor by the ones digit in the top factor. Record any regrouping at the top in the next place-value column. Then, multiply each of the remaining digits in the bottom factor by each of the remaining digits in the top factor, moving from right to left. Finally, if you have partial products, add them to find the total product.

Example



Multiply 5 ones by 4 ones. (20 ones)		34
Rename 20 ones as 2 tens and 0 ones.	>	15
Record the 0 ones in the ones column.		0
Record the 2 tens at the top of the tens column.		
Multiply 5 ones by 3 tens. (15 tens)		34
Add 2 tens. (15 tens + 2 tens = 17 tens)	>	15
Record the 17 tens.		170
Multiply 1 ten by 4 ones (40) and 1 ten by 3 tens (300).		34
Record 340.	>	15
		170
Add the partial products to find the final product.		- 340
		510

Division Algorithms

Partial Quotients Division (1 digit divisor)

To find the number of 6s in 354, first find all the partial quotients. Record them in a column to the right of the problem. Then add the partial quotients to find the final quotient or answer.

Example

$$\begin{array}{r} \text{(dividend)} \\ 354 \div 6 \end{array}$$

Ask: How many [6s] are in 354? (at least 50)

The first partial quotient is 50.

$$50 \times 6 = 300$$

Subtract 300 from 354.

$$\begin{array}{r} 6 \overline{)354} \\ \underline{300} \\ 54 \\ \underline{54} \\ 0 \\ \underline{0} \\ 59 \end{array}$$

Ask: How many [6s] are in 54? (9)

The second partial quotient is 9.

$$9 \times 6 = 54$$

Subtract 54 from 54.

The difference is 0, so there is no remainder.

Add the partial quotients. The answer is 59.

$$354 \div 6 = 59$$

Partial Quotients Division (2 digit divisor)

To find the number of 27s in 621, first find all the partial quotients. Record them in a column to the right of the problem. Then add the partial quotients to find the final quotient or answer.

Example

$$\begin{array}{r} \text{(dividend)} \\ 621 \div 27 \end{array}$$

Ask: How many [27s] are in 621? (at least 20)

The first partial quotient is 20.

$$20 \times 27 = 540$$

Subtract 540 from 621.

$$\begin{array}{r} 27 \overline{)621} \\ \underline{540} \\ 81 \\ \underline{81} \\ 0 \\ \underline{0} \\ 23 \end{array}$$

Ask: How many [27s] are in 81? (3)

The second partial quotient is 3.

$$3 \times 27 = 81$$

Subtract 81 from 81.

The difference is 0, so there is no remainder.

Add the partial quotients. The answer is 23.

$$621 \div 27 = 23$$

Long Division

Estimate to find the first digit of the quotient. Write that digit correctly above the dividend and multiply it by the divisor. Write the product below in the dividend. Find the difference and bring down the next number in the dividend. Repeat the procedure until you have used all the digits in the dividend.

Think: How many 7s are in 38? (5)

Write 5 in the quotient, above the 8.

Multiply 5×7 . (35)

Subtract 35 from 38. (3)

Bring down the 4 from the dividend. (to make 34)

$$3,843 \div 7$$

$$\begin{array}{r} 549 \\ 7 \overline{)3,843} \\ \underline{35} \\ 34 \\ \underline{28} \\ 63 \\ \underline{63} \\ 0 \end{array}$$

Think: How many 7s are in 34? (4)

Write 4 next to 5 in the quotient.

Multiply 4×7 . (28)

Subtract 28 from 34. (6)

Bring down the 3 from the dividend. (to make 63)

Think: How many 7s are in 63? (9)

Write 9 next to 4 in the quotient.

Multiply 9×7 . (63)

Subtract 63 from 63. (0)

$$3,843 \div 7 = 549$$

Multiply to Divide

To find the number of 6s in 354, use multiplication math facts you are familiar with. Then add the partial products to find the answer.

Example: $354 \div 6$

$$6 \times 50 = 300$$

$$6 \times 9 = 54$$

$$\square 354$$

There are 59 sixes in 354, so

$$354 \div 6 = 59$$

Do-Anytime Activities for Grade 4



These activities are easy and fun to do with your child at home, and they will reinforce the skills and concepts your child is learning in school.

Unit 1	<ul style="list-style-type: none"> ◆ Help your child identify real-world examples of right angles (the corner of a book) and parallel lines (railroad tracks). ◆ Have your child compile a shapes scrapbook or create a collage of labeled shapes. Images can be taken from newspapers, magazines, and photographs.
Unit 2	<ul style="list-style-type: none"> ◆ Help your child look up the population and land area of the state and city in which you live, and compare these facts with those of other states and cities.
Unit 3	<ul style="list-style-type: none"> ◆ Make up number sentences with correct and incorrect answers. Ask your child to put next to the sentence a “T” if the answer is correct and an “F” if the answer is incorrect. For example, try $5 * 6 = 35$ (F); $6 * 2 + 4 = 16$ (T); $4 * (2 + 5) = 13$ (F). ◆ Continue practicing multiplication and division facts by using Fact Triangles and fact families or by playing games from the <i>Student Reference Book</i>.
Unit 4	<ul style="list-style-type: none"> ◆ Gather money from piggy banks or wallets. Ask your child to show you two different amounts, such as \$1.33 and \$4.20. Practice adding or subtracting the amounts. Your child can use a calculator to check the answers.
Unit 5	<ul style="list-style-type: none"> ◆ Have your child write numbers through the millions and billions and practice reading them. Then select two and ask your child to tell which one is the greater number. ◆ Practice extended facts with your child. Start with $3 * 30$, $3 * 300$, and then try $3 * 3,000$. Have your child make up extended facts for you to calculate.
Unit 6	<ul style="list-style-type: none"> ◆ Hide an object in a room of your house, and give your child directions for finding it. Your child can move only according to your directions, and the directions can be given only in fractions or degrees. For example, say “Make a $\frac{1}{4}$-turn and walk $3\frac{1}{2}$ steps. Now, turn 180° and walk 4 steps.” Switch roles and have your child hide an object and give you directions to find it. ◆ Make a game of identifying and classifying angles: acute (less than 90°), obtuse (between 90° and 180°), right (90°), straight (180°), and reflex (between 180° and 360°) in everyday things (buildings, bridges, ramps, furniture).

Unit 7	<ul style="list-style-type: none"> ◆ Encourage your child to recognize how probability is used in everyday situations, such as weather reports. Have your child make a list of things that could <i>never happen</i>, things that <i>might happen</i>, and things that are <i>sure to happen</i>.
Unit 8	<ul style="list-style-type: none"> ◆ Have your child measure the perimeters of rooms in your house or of household objects. Then have him or her find the areas of the objects. ◆ Help your child draw a scale map of your city, town, neighborhood, or have your child do a scale drawing of the floor plan of your home.
Unit 9	<ul style="list-style-type: none"> ◆ Have your child look for everyday uses of fractions and percents. Look in games, grocery stores, cookbooks, measuring cups, and newspapers. When finding fractions, decimals, or percents, ask your child to change them from one form to another. For example, if you see “$\frac{1}{4}$ off”, ask your child to tell what percent is equal to $\frac{1}{4}$ (25%). ◆ Write whole numbers and decimals for your child to read, such as 650.02 (<i>six hundred fifty and two-hundredths</i>). Ask your child to identify the digits in the various places in the numbers—hundreds place, tens place, ones place, tenths place, and so on.
Unit 10	<ul style="list-style-type: none"> ◆ Have your child look for repeating borders or frieze patterns (a design made of shapes that are in a line or lined up) on buildings, rugs, and floors. Your child may want to sketch the friezes or draw original patterns. ◆ Use sidewalk chalk to make a number line with positive and negative numbers. Have your child solve addition and subtraction problems by walking on the number line. For example: to solve $-2 + 6$, your child would start on -2 and walk to the right six numbers to find the sum. Switch roles. For an inside activity, use paper, pencil, and fingers.
Unit 11	<ul style="list-style-type: none"> ◆ Have your child find the volume of various rectangular prisms around your house, such as shoe boxes and fish tanks.
Unit 12	<ul style="list-style-type: none"> ◆ During trips in the car, let your child know how far you will be traveling and the approximate speed you’ll be moving at. Ask your child to estimate about how long it will take to get to your destination. ◆ When grocery shopping, ask your child to help you find the “best buy” by comparing the cost per unit (ounce, gram, each) of different package sizes. For example, compare the cost of a family-size box of cereal with the cost of a regular-size box.

Do-Anytime Activities for Grade 5



These activities are easy and fun to do with your child at home, and they will reinforce the skills and concepts your child is learning in school.

Unit 1	<ul style="list-style-type: none"> ◆ Ask your child to name as many factors as possible for a given number such as 24 (1, 24, 6, 4, 12, 2, 8, 3). To make sure the factors are correct, your child can multiply them with a calculator.
Unit 2	<ul style="list-style-type: none"> ◆ Practice extending multiplication facts. Write each set of problems so that you child may recognize a pattern. Set A: $6 * 10$ $6 * 100$ $6 * 1,000$; Set B: $5 * 10$ $5 * 100$ $5 * 1,000$ ◆ When your child adds or subtracts multi-digit numbers, talk about the strategy that works best for him or her. Try not to impose the strategy that works best for you! Here are some problems to try: $467 + 343$; $761 + 79$; $894 - 444$; $842 - 59$.
Unit 3	<ul style="list-style-type: none"> ◆ To learn more about population data and its uses, visit the Web site for the U.S. Bureau of the Census at www.census.gov. Have your child write three interesting pieces of information that he or she learned. ◆ Draw various angles: acute (less than 90°), obtuse (between 90° and 180°), and right (90°). Ask your child to estimate each angle measurement and then use a protractor to find the actual measurement. Compare the results. Switch roles, letting your child draw angles for you to estimate and measure.
Unit 4	<ul style="list-style-type: none"> ◆ Find a map of your state and ask your child to use the scale to find the distance from a particular city to another city.
Unit 5	<ul style="list-style-type: none"> ◆ Identify percents used in stores, newspapers, and magazines. Help your child find the sale price of an item that is discounted by a percent. For example, a \$40 shirt discounted by 25% will cost \$30. ◆ Practice writing numbers as a fraction and then as a decimal. Try one-fourth ($\frac{1}{4}$, 0.25), three-tenths ($\frac{3}{10}$, 0.3) and so on.
Unit 6	<ul style="list-style-type: none"> ◆ Have your child practice adding fractional parts of a hour with a digital clock. Ask questions, such as “What time will it be an hour and a half from now? What was the time a quarter of an hour ago?” ◆ Practice adding and subtracting fractions with the same denominator.

Unit 7	<ul style="list-style-type: none"> ◆ Create a number sentence that includes at least three numbers, several different operations, and parentheses. Have your child solve the number sentence. Then change the problem by placing the parentheses around different numbers. Ask your child to solve the new problem and explain how it changed according to the order of operations, for example, $(6 * 5) - 3 = 27$ and $6 * (5 - 3) = 12$. ◆ Think of two numbers with exponents such as 2^5 and 3^3. Ask your child to determine which number is greater. If you like, check your child's answer on a calculator. Switch roles.
Unit 8	<ul style="list-style-type: none"> ◆ Use a deck of cards to practice comparing fractions. Use only the number cards 2 through 9. Each player is dealt two cards and creates a fraction using one card as the numerator and one card as the denominator. The player with the greater fraction takes all four cards. ◆ When at a store, reinforce percents by pointing out discounts and asking your child to figure out the sale price. If, for example, a sign shows "40% off", select an item, round the price to the nearest dollar, and help your child calculate the savings.
Unit 9	<ul style="list-style-type: none"> ◆ Have your child draw a picture using rectangles, parallelograms, and triangles. Once completed, work together to find the area of each shape, and write it inside each shape. Ask your child, "What do you notice about the size of the area and the size of the shape?"
Unit 10	<ul style="list-style-type: none"> ◆ Draw several circles and ask your child to find the radius, diameter, and circumference of each. Cut them out and make a design. ◆ Practice evaluating simple algebraic expressions by asking your child, "If y is equal to 4 what is ... $y + y$, $3 + y$, $y * 2$ and so on.
Unit 11	<ul style="list-style-type: none"> ◆ Find two real world 3-dimensional shapes and guess which will have the greatest and the least volumes. Then find the volume of each one and check to see if your guess was correct.
Unit 12	<ul style="list-style-type: none"> ◆ Reinforce ratios with a deck of cards. Ask your child, "What is the ratio of 3s to the whole deck?" (4 to 52 or 1 to 13); "Jacks to Aces and Queens?" (4 to 8 or 1 to 2); "Hearts to the whole deck?" (14 to 52 or 7 to 26). ◆ In a parking lot, select a row or section and count the number of cars parked in that section. Ask how many of those cars in that section are red. Have your child determine the ratio of red cars to the number of cars parked in that section.

ATTACHMENT H

4th and 5th Grade Games

Materials: deck of cards (numbers 1-10)

Players: 2-4

Skill: multiplication and division facts

Multiplication Top It

1. The rules are the same as for Addition Top It, except that players find the product of the numbers instead of the sum.
2. The player with the largest product takes all the cards. Answers can be checked with a multiplication table or calculator.

Variation: Uses only the number cards 1-9. Each player turns over 3 cards, forms a 2-digit number, then multiplies the 2-digit number by the remaining number.

Division Top It

1. Use only the number cards 1-9. Each player turns over 3 cards and uses them to generate a division problem as follows:
 - Choose 2 cards to form the dividend.
 - Use the remaining card as the divisor.
 - Divide and drop any remainder.
2. The player with the largest quotient takes all the cards.

Advanced Version: Use only the number cards 1-9. Each player turns over 4 cards, chooses 3 of them to form a 3-digit number, then divides the 3-digit number by the remaining number. Players should carefully consider how they form their 3-digit numbers. For example, $462/5$ is greater than $256/4$.

ATTACHMENT I

Everyday Math Online Access Directions

Dear Families,

We are excited to announce that your family is now able to access the Everyday Math online tools from any computer that has an Internet connection. We hope that you will find both the Online Games and the Interactive Student Reference Book useful for supporting your child at home. (Note: You will need to download “Shockwave” onto your computer in order to play the games. This is a free program.)

Here is how it works:

- 1) Open Internet Explorer or another web browser and go to <http://em-ccss.everydaymathonline.com>
- 2) Enter your student's username and press “LOG IN”.



- 4) Then the password window will show up. Enter the 3 digit password from your student's card. Then click “LOG IN”.
- 5) Then you can choose between using the Online Games or the Interactive Student Reference Book.

Online Games

When you choose the online games, your child can select a grade range and then pick a game from the menu. The games allow students a fun way to practice what they are learning at school.

Interactive Student Reference Book

When you choose the reference book, you can look up math terms in the glossary, search for a topic in the table of contents, or see examples of problems being solved. When you see the open book icon on a math homework assignment, go to the suggested page number in the online reference book to find further explanation and examples.

We hope you find these tools useful in supporting your student at home. Have fun doing math together!

login: student919 password: 354

Estimadas Familias,

Estamos entusiasmados en anunciar que su familia ya tiene acceso a las herramientas en línea de Matemáticas Diarias en cualquier computadora que tenga conexión de Internet. Esperamos que los Juegos En línea y el Libro de Referencia Estudiantil le sean de utilidad en ayudar a su niño/a en casa.

Así funciona:

- 1) Abra "Internet Explorer" o cualquier otro buscador y vaya a <http://em-ccss.everydaymathonline.com>
- 2) Entre el nombre de usuario de su estudiante y presione "LOG IN".



- 4) La ventana para el código de paso aparecerá. Entre el código de 3 dígitos que aparece en la tarjeta de su estudiante. Luego haga clic en "LOG IN".
- 5) Ahí puede escoger usar los Juegos En línea o el Libro de Referencia Estudiantil.

Juegos En línea

Al escoger los juegos su niño/a debe seleccionar el rango de grados que sea más apropiado y escoger del menú de juegos. Los juegos serán una manera muy divertida de practicar lo que han estado estudiando en la escuela.

Libro Interactivo de Referencia Estudiantil (También en Español)

En el libro de referencia puede buscar términos matemáticos en el glosario, buscar tópicos en la tabla de contenido o ver ejemplos de cómo solucionar problemas. Cuando vea el dibujo del libro abierto en la tarea, puede ir a la página indicada en el libro de referencia para ver más ejemplos y explicaciones. Para español presione el botón en la esquina superior derecha.

Esperamos que esto le sea útil. Diviértanse juntos con matemáticas!

Sinceramente,