Fifth Grade Math with Confidence

Instructor Guide

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WELL-TRAINED MIND PRESS

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Welcome to *Fifth Grade Math with Confidence!*

Fifth Grade Math with Confidence is a **complete, hands-on, and fun** math curriculum that will give your child a solid foundation in math. Your child will learn the following fifth-grade math skills:

- multiplying and dividing multi-digit numbers
- adding and subtracting fractions and mixed numbers with different denominators
- multiplying and dividing fractions and mixed numbers
- adding, subtracting, multiplying, and dividing decimals
- fraction and decimal word problems
- using fractions and decimals to express measurements and solve measurement problems
- volume, geometry, line graphs, and the coordinate plane
- finding the mean and median of a data set

The incremental, confidence-building lessons will help your child develop a strong understanding of math, step by step. Plus, daily review ensures she fully masters what she has learned in previous lessons. With this blend of deep conceptual understanding and traditional skill practice, you'll give your child a thorough fifth-grade math education.

Like the earlier levels of *Math with Confidence*, you'll find many hands-on activities and fun games to help your child develop a positive attitude toward math. You'll also find more written explanations and printed examples to help your child develop math study skills and begin to complete her math lessons more independently.

Besides this Instructor Guide, *Fifth Grade Math with Confidence* also includes two colorful, engaging Student Workbooks. You'll need both workbooks to complete the program. Workbook Part A covers Units 1—7, and Workbook Part B covers Units 8—16.

Many parents worry about their ability to teach math as their children move into more challenging topics like fractions and decimals. If that's the case for you, don't worry: I promise to guide you every step of the way! *Fifth Grade Math with Confidence* is full of features that will help you teach math with confidence all year long:

- **Scripted, open-and-go lessons** help you clearly explain and teach new math concepts
- **Explanatory notes** help you understand more deeply how children learn math so you feel well-equipped to teach your child
- **Unit Wrap-ups and Checkpoints** at the end of each unit provide assessment and give you guidance on whether your child is ready to move on to the next unit

In the next section, you'll learn how the curriculum is organized and how to get your materials ready. Invest a little time reading this section now (and getting your Math Kit ready), and you'll be ready to teach math like a pro all year long.

Wishing you a joyful year of fifth grade math!
Kate Snow

Introduction

The Goals of *Fifth Grade Math with Confidence*

Fifth Grade Math with Confidence aims to help children become confident and capable math students, with a deep understanding of math concepts, proficiency and fluency with fundamental skills, and a positive attitude toward math.

Deep Conceptual Understanding

You'll focus on one main topic per unit so your child can build deep conceptual knowledge of the new material. (Educators call this a *mastery approach* to new content.) Each new lesson builds on the previous one so your child gradually develops thorough understanding.

Proficiency with Fundamental Skills

Children need lots of practice to master the basic skills necessary for proficiency in math. *Fifth Grade Math with Confidence* provides continual, ongoing review of these core skills so your child fully grasps them by the end of the year. (Educators call this a *spiral approach* to review, because children periodically revisit topics, just as the curve of a spiral returns to the same point on a circle.)

Positive Attitude

The lessons in *Fifth Grade Math with Confidence* include games, real-life applications, and lots of hands-on learning so your child enjoys and even looks forward to math time. Optional enrichment lessons at the end of each unit provide a break from the usual routine and help your child appreciate how math is used in everyday life.

What's New in Fifth Grade

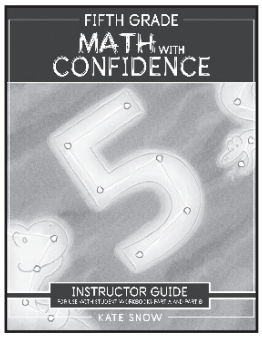
If you used earlier levels of *Math with Confidence*, you'll find a few changes in *Fifth Grade Math with Confidence* to reflect your child's growing maturity.

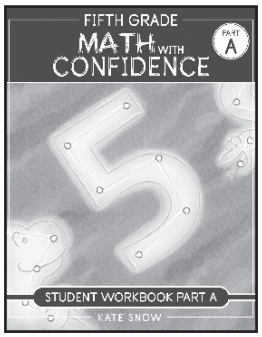
- The Lesson Activities pages have more examples and text to read together, so that your child develops the ability to read and study math more independently.
- Each unit now includes a Unit Reference page that summarizes the core skills your child will learn in the unit. Your child can refer to these pages as she completes the practice and review workbook exercises. (You'll find these pages at the back of each workbook.)
- There is no longer a different picture book listed at the end of each unit. Instead, the enrichment lessons recommend buying one longer book and reading a few pages from the book at the end of each unit.

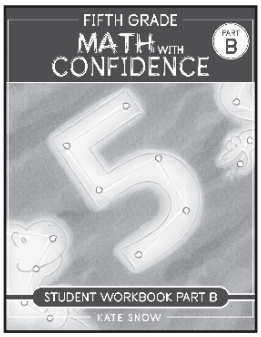
Overview

You'll need three books to teach *Fifth Grade Math with Confidence*. All three books are essential for the program.

- This Instructor Guide contains the scripted lesson plans for the entire year.
- Workbook Part A contains the workbook pages for the first half of the year (Units 1—7).
- Workbook Part B contains the workbook pages for the second half of the year (Units 8—16).

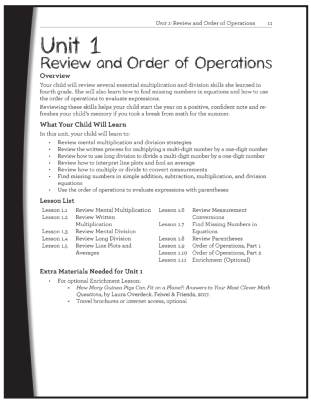






Units

Fifth Grade Math with Confidence is organized into 16 units. Each unit focuses on developing thorough understanding of one main concept, such as multiplying fractions, finding volume, or dividing decimals. Units vary in length from 6 to 13 lessons, and there are a total of 144 lessons. The final lesson in each unit is an optional enrichment lesson.



Unit 1: Review and Order of Operations 11

Unit 1
Review and Order of Operations

Overview

Your child will review several essential multiplication and division skills she learned in fourth grade. She will also learn how to find missing numbers in equations and how to use the order of operations to evaluate expressions.

Reviewing these skills helps your child start the year on a positive, confident note and refreshes your child's memory if you took a break from math for the summer.

What Your Child Will Learn

In this unit, your child will learn to:

- Review mental multiplication and division strategies
- Review the written process for multiplying a multi-digit number by a one-digit number
- Review how to use long division to divide a multi-digit number by a one-digit number
- Review how to interpret line plots and find an average
- Review how to multiply or divide to convert measurements
- Find missing numbers in simple addition, subtraction, multiplication, and division equations
- Use the order of operations to evaluate expressions with parentheses

Lesson List

Lesson 1.1	Review Mental Multiplication	Lesson 1.6	Review Measurement Conversions
Lesson 1.2	Review Written Multiplication	Lesson 1.7	Find Missing Numbers in Equations
Lesson 1.3	Review Mental Division		
Lesson 1.4	Review Long Division	Lesson 1.8	Review Parentheses
Lesson 1.5	Review Line Plots and Averages	Lesson 1.9	Order of Operations, Part 1
		Lesson 1.10	Order of Operations, Part 2
		Lesson 1.11	Enrichment (Optional)

Extra Materials Needed for Unit 1

- For optional Enrichment Lesson:
  - *How Many Guinea Pigs Can Fit on a Planet?: Answers to Your Most Clever Math Questions*, by Laura Overdeck. Poisel & Friends, 2017.
  - Travel brochures or internet access, optional

The preview for each unit includes the following:

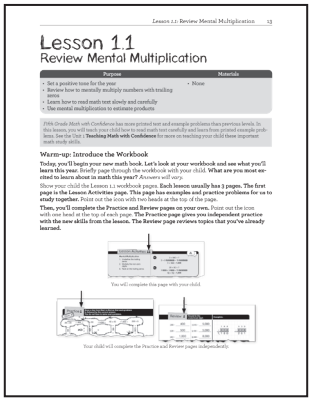
- **Overview.** A brief summary of what you'll teach your child.
- **What Your Child Will Learn.** A detailed list of objectives for the unit.
- **Lesson List.** The full list of lessons included in the unit.
- **Extra Materials.** This section gives you a heads-up if you need any extra materials for the unit. You'll sometimes need to supplement your regular math materials with a few everyday household items, such as colored pencils, scissors, or a measuring tape. The optional enrichment lessons also usually require some extra materials.
- **Teaching Math with Confidence.** These notes help you understand more deeply how children learn math so that you're well-prepared to teach the new concepts.

Lessons

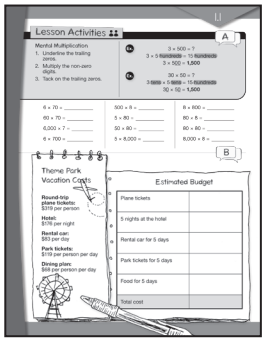
You'll need both the Instructor Guide and Student Workbook for every lesson. Most pilot families spent an average of 30-45 minutes on each lesson, with 10-15 minutes of parent-led instruction and 20-30 minutes of independent work. However, this will vary depending on your teaching style and your child's learning style—and whether you have any toddlers interrupting you!

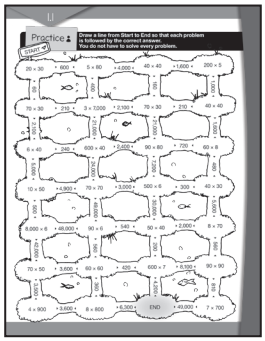
The Instructor Guide contains the scripted, open-and-go lesson plans. Within the Instructor Guide:

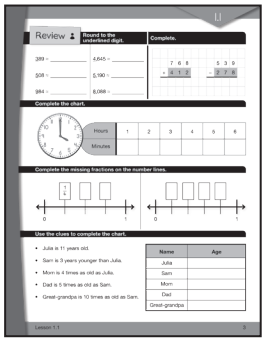
- **Bold text** indicates what you are to say.
- *Italic text* provides sample answers.
- Gray-highlighted text indicates explanatory notes.


Lesson 1.1
Review Mental Multiplication

The Student Workbook includes three workbook pages for each lesson. First, you'll use the Lesson Activities page to teach your child the new concept or skill. Then, your child will complete the Practice and Review pages to reinforce what she learned in the lesson and review previously-learned skills.

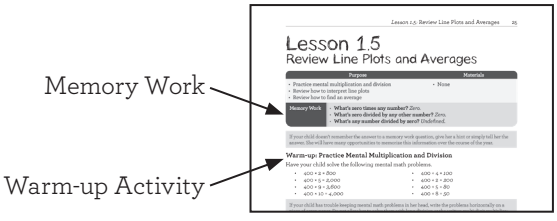

Lesson Activities


Practice


Review

Memory work and warm-up activity with parent

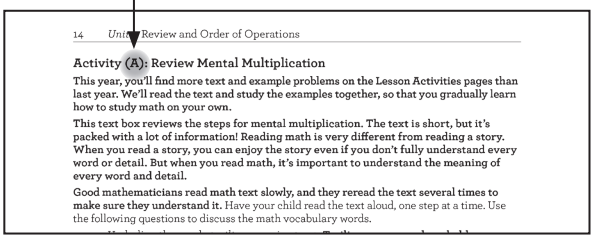
Each lesson begins with a few memory work review questions and a quick warm-up activity. The memory work questions are listed at the top of each lesson. Reviewing a few questions daily helps your child master these important facts and vocabulary words. The warm-up activity eases your child into math time and helps start the lesson on a confident and positive note.



Lesson activities with parent

Next, you'll use the scripted lesson plan and Lesson Activities page to teach your child new concepts and skills. The Instructor Guide and Lesson Activities workbook pages are lettered so that it's easy to see how they align. Some activities are only in the Instructor Guide, without a matching section on the Lesson Activities page.

Instructor Guide


14 *Unit* Review and Order of Operations

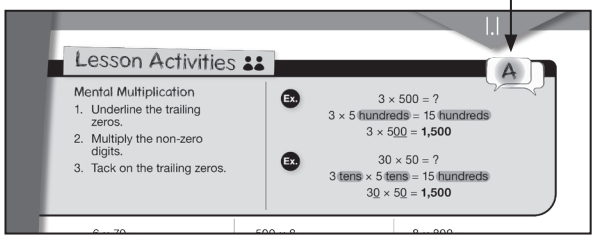
Activity (A): Review Mental Multiplication

This year, you'll find more text and example problems on the Lesson Activities pages than last year. We'll read the text and study the examples together, so that you gradually learn how to study math on your own.

This text box reviews the steps for mental multiplication. The text is short, but it's packed with a lot of information! Reading math is very different from reading a story. When you read a story, you can enjoy the story even if you don't fully understand every word or detail. But when you read math, it's important to understand the meaning of every word and detail.

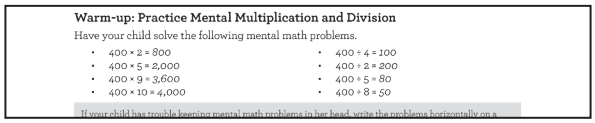
Good mathematicians read math text slowly, and they reread the text several times to make sure they understand it. Have your child read the text aloud, one step at a time. Use the following questions to discuss the math vocabulary words.

Student Workbook



The activity headings and images in the Instructor Guide are lettered to help you find the matching activity in the Student Workbook.

Instructor Guide


Warm-up: Practice Mental Multiplication and Division

Have your child solve the following mental math problems.

- 400 × 2 = 800
- 400 × 5 = 2,000
- 400 × 9 = 3,600
- 400 × 10 = 4,000
- 400 ÷ 4 = 100
- 400 ÷ 2 = 200
- 400 ÷ 5 = 80
- 400 ÷ 8 = 50

If your child has trouble keeping mental math problems in her head, write the problems horizontally on a

Some activity headings in the Instructor Guide do not have a letter. These activities do not have a matching section in the Student Workbook, and they are completed either orally or with hands-on materials instead.

As in the previous levels of *Math with Confidence*, the **lesson plans in the Instructor Guide are an essential part of the program.** Even if you don't follow the scripted lesson word-by-word, make sure you use this Instructor Guide alongside the Student Workbook. The text on the Lesson Activities page summarizes the core concept or skill in each lesson, but there are often warm-ups, games, and explanations in the Instructor Guide that aren't printed in the workbook.

Independent practice

Last, your child will complete the Practice and Review workbook pages on her own. You'll find answer keys for the Practice and Review pages at the end of each unit.

Enrichment Lessons (Optional)

Optional enrichment lessons are included at the end of each unit. The Instructor Guide provides enrichment activity directions, while the Student Workbook includes a two-page Unit Wrap-Up for your child to complete.

Many parents and children find that the enrichment lessons are their favorite part of the program. (Siblings often enjoy participating in them, too!) However, these lessons are completely optional. You are free to choose the ones that sound the most fun for your family, or skip them entirely if your schedule is too full.

Math enrichment book

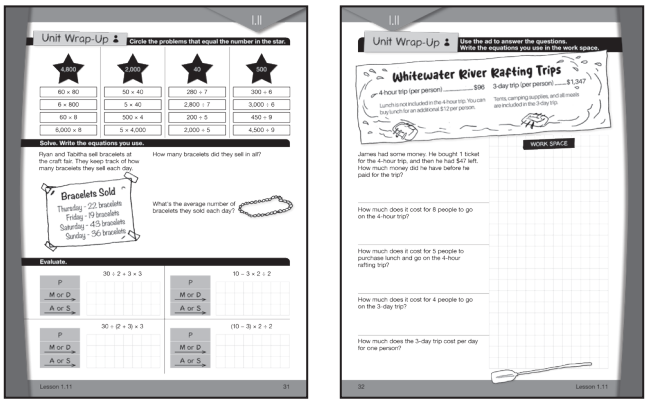
Each enrichment lesson lists suggested pages to read from *How Many Guinea Pigs Can Fit on a Plane?: Answers to Your Most Clever Math Questions*, by Laura Overdeck. This book makes a fun companion to *Fifth Grade Math with Confidence*. It includes many real-life examples of the topics your child will study this year, including multiplication and division with large numbers, fractions, decimals, and measurements.

Enrichment activity

The enrichment activities help your child appreciate how math is used in everyday life. You'll find suggestions for art projects, cooking activities, real-world applications, and more to make math come alive for your child.

Unit Wrap-up (review and assessment)

The Unit Wrap-Ups provide two pages of additional exercises for the concepts and skills your child learned in the unit. You can use them to casually review the unit, or you can use them as tests to assess your child's progress more formally. Either way, children and parents often find it very satisfying to see this concrete evidence of growth. If you live in a state where you're required to provide evidence of learning, you may want to save them for your child's portfolio.



Your child is not expected to fully master every skill from every unit before moving on to the next unit. See below for more on pacing and assessing your child's progress.

Pacing and Checkpoints

Fifth Grade Math with Confidence provides lots of flexibility so your child can learn at his own pace. You know your child best, and you are always welcome to slow down or speed up the pace of the lessons based on your child's needs.

Is My Child Ready to Start *Fifth Grade Math with Confidence*?

Your child is ready to begin this program if he can:

- Understand place value in numbers to 1,000,000.
- Name answers to the multiplication and division facts (up to 10×10 and 100÷10). He should be able to recall the answers to most within 3 seconds or so.
- Solve multiplication problems with the traditional written process (up to four-digit numbers times one-digit numbers or two-digit numbers times two-digit numbers).
- Use long division to solve division problems (up to four-digit numbers divided by one-digit numbers).
- Find equivalent fractions and convert improper fractions to mixed numbers (and vice versa).
- Add and subtract fractions or mixed numbers with the same denominators.
- Read, write, and compare decimals to the hundredths place.
- Solve measurement problems and convert measurements within a system of measurement (for example, inches to feet, or kilograms to grams).
- Measure, compare, and reason about angles.

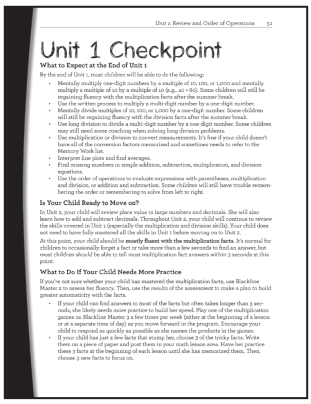
All of these skills are reviewed in the first few units, so don't worry if your child needs a refresher on a few of them. However, if your child is shaky on many of these skills, *Fourth Grade Math with Confidence* may be a better fit for him. Math skills build incrementally, and it will be difficult for your child to develop proficiency and confidence with the new fifth-grade skills if he has a weak foundation.

If your child is not fluent with the multiplication facts but knows the rest of the skills listed above, she is probably ready to begin *Fifth Grade Math with Confidence*. Make sure to add 5 minutes of daily multiplication fact practice to each lesson until your child becomes more fluent with the facts. *Multiplication Facts that Stick* (also available from Well-Trained Mind Press) provides quick games to help your child master these essential skills. See the Unit 1 Checkpoint (page 51) for more guidance on assessing and developing multiplication fact fluency.

How Do I Know Whether to Stick with a Lesson (or Unit) or Move On?

Most children need lots of exposure to a new concept or skill before they fully grasp it. Each lesson in *Fifth Grade Math with Confidence* gently builds on the previous one, but your child doesn't need to completely master every lesson before moving on to the next. The program includes many opportunities for practice and review before your child is expected to achieve full proficiency with a topic.

In general, continue teaching new lessons until you reach the end of a unit. At the end of each unit, you'll find a Checkpoint that provides guidance on whether your child is ready to move on to the next unit.



Unit 1: Review and Order of Operations 51

Unit 1 Checkpoint

What to Expect at the End of Unit 1

By the end of Unit 1, most children will be able to do the following:

- Mentally multiply one-digit numbers by a multiple of 10, 100, or 1,000 and mentally multiply a multiple of 10 by a multiple of 10 (e.g., 40 × 80). Some children will still be regaining fluency with the multiplication facts after the summer break.
- Use the written process to multiply a multi-digit number by a one-digit number.
- Mentally divide multiples of 10, 100, or 1,000 by a one-digit number. Some children will still be regaining fluency with the division facts after the summer break.
- Use long division to divide a multi-digit number by a one-digit number. Some children may still need some coaching when solving long division problems.
- Use multiplication or division to convert measurements. It's fine if your child doesn't have all of the conversion factors memorized and sometimes needs to refer to the Memory Work list.
- Interpret line plots and find averages.
- Find missing numbers in simple addition, subtraction, multiplication, and division equations.
- Use the order of operations to evaluate expressions with parentheses, multiplication and division, or addition and subtraction. Some children will still have trouble remembering the order or remembering to solve from left to right.

Is Your Child Ready to Move on?

In Unit 2, your child will review place value in large numbers and decimals. She will also learn how to add and subtract decimals. Throughout Unit 2, your child will continue to review the skills covered in Unit 1 (especially the multiplication and division skills). Your child does not need to have fully mastered all the skills in Unit 1 before moving on to Unit 2.

At this point, your child should be **mostly fluent with the multiplication facts.** It's normal for children to occasionally forget a fact or take more than a few seconds to find an answer, but most children should be able to tell most multiplication fact answers within 3 seconds at this point.

What to Do If Your Child Needs More Practice

If you're not sure whether your child has mastered the multiplication facts, use Blackline Master 2 to assess her fluency. Then, use the results of the assessment to make a plan to build greater automaticity with the facts.

- If your child can find answers to most of the facts but often takes longer than 3 seconds, she likely needs more practice to build her speed. Play one of the multiplication games on Blackline Master 3 a few times per week (either at the beginning of a lesson or at a separate time of day) so you move forward in the program. Encourage your child to respond as quickly as possible as she names the products in the games.
- If your child has just a few facts that stump her, choose 3 of the tricky facts. Write them on a piece of paper and post them in your math lesson area. Have her practice these 3 facts at the beginning of each lesson until she has memorized them. Then, choose 3 new facts to focus on.

The Checkpoints are divided into three parts:

- **What to Expect at the End of the Unit** This list of skills tells you what fifth graders typically are able to do at the end of each unit.
- **Is Your Child Ready to Move On?** This section tells you what your child needs to have mastered before moving on to the next unit.
- **What to Do if Your Child Needs More Practice** If your child isn't quite ready to move on, this section gives you options for reviewing and practicing the skills your child needs to master before the next unit. (This section is omitted if no specific skills are necessary for the next unit.)

Scheduling

Fifth Grade Math with Confidence includes 144 lessons. 128 are regular lessons, and 16 are optional enrichment lessons. You're welcome to adjust the number of lessons you teach per week to best fit your family's schedule. Some families prefer to teach math 5 days per week, while others prefer to teach math 4 days per week and leave one day open for co-ops, errands, or field trips.

Use the following guidelines to plan your year:

- If you teach 4 lessons per week and teach all the enrichment lessons, *Fifth Grade Math with Confidence* will take you 36 weeks.
- If you teach 4 lessons per week and skip the enrichment lessons, *Fifth Grade Math with Confidence* will take you 32 weeks.
- If you teach 5 lessons per week and teach all the enrichment lessons, *Fifth Grade Math with Confidence* will take you 29 weeks.
- If you teach 5 lessons per week and skip the enrichment lessons, *Fifth Grade Math with Confidence* will take you 26 weeks.

Use this list as a rough guide to planning your year, but don't set it in stone. You'll generally be able to cover one lesson per day, but you may occasionally find that you want to split a lesson over two days.

How Can I Adjust the Lessons to Best Fit My Child and My Schedule?

Children vary tremendously in how quickly they learn new math concepts and skills. Use these suggestions to adjust the lessons to best fit your child's needs and your family's schedule.

- If your student is a fast processor or picks up math skills quickly, you may be able to condense lessons and teach more than one lesson in one day. If so, teach the concepts that are new to your child. Then, have your child complete a selection of exercises on the corresponding Practice and Review pages.
- If your child has a slower processing speed or takes a while to grasp math concepts and skills, some lessons may take longer than you would like (or, longer than your child is able to stay engaged and attentive). If that's the case, set a timer for your desired lesson length, stop when the timer goes off, and continue the next day where you left off. In the elementary years, you are setting a foundation for a lifetime of proficiency and confidence in math. It's okay not to rush through these essential skills.
- If your child doesn't have the stamina to complete the Practice and Review pages at the same time, split the lesson into two parts. Do the Lesson Activities page and Practice page during one part of the day, and then have your child complete the Review page at a different time of the day.
- Adjust your use of manipulatives to fit your child's learning style. Some fifth graders are able to think abstractly about math concepts, but many still need concrete manipulatives to help them understand new topics. If your child readily understands a skill and doesn't enjoy using manipulatives, allow her to solve the problems without them. If your child learns best with a lot of visual and hands-on reinforcement, allow her to use manipulatives to model problems as much as she needs.
- If your child resists you "teaching" the lesson, come alongside him as a coach, working to understand the text and examples together.
- Games provide a fun way to practice math skills, and they can be a great way to bond with your child. However, if your child doesn't enjoy games, or you don't have time for a game on a particular day, choose a few problems from the game for your child to solve instead. That way, she'll still get the extra practice that the game was meant to provide.
- Don't worry if you have a bad day every once in a while. Extra tiredness, oncoming illness, or just plain grumpiness can make for a less-than-cheerful math lesson. It's perfectly normal for children to occasionally get frustrated, and it doesn't mean that you're a bad math teacher or need to change the way you teach. If emotions rise during math, just cut the lesson short and resume later in the day or the next day. Most of the time, you'll find that the next day goes much better.

Developing Independence in Math

Many fifth graders are eager for more independence, but that doesn't mean they're ready to go off and learn math on their own. Most still need direct instruction, lots of encouragement and accountability, and many opportunities to ask questions. Consider the next few years a gradual process of transferring responsibility to your child for her math learning, not an immediate or dramatic shift. And, don't be surprised if some days your child is ready to zoom through her Practice and Review pages on her own, while other days she needs you right by her side.

Use these tips to help your child develop age-appropriate independence in math this year:

- Encourage your child to refer to the Unit Reference pages (at the back of the workbook) if she can't remember how to solve a problem on a Practice or Review page. These pages provide a summary of the key teaching in each unit so that your child can refer to them rather than immediately asking you for help.
- When your child has a question about his independent work, have him write a question mark or place a small sticky note next to the tricky problem. Discuss the tricky problems *after* he finishes the rest of the page. Children often discover that they actually know how to find the answer if they wait a few minutes before asking for help.
- Teach your child how to check her own work with the answer keys in this Instructor Guide. Mark the matching answer key with a bookmark or sticky note to make it easier for her to find the correct page. Have her correct her work with a different colored pen or marker, and then ask her to try to figure out her mistakes before you help her with them.

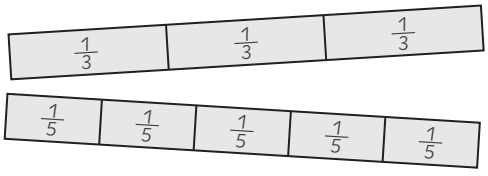
What You'll Need

If you've used previous levels of *Math with Confidence*, you'll find that fifth grade has fewer manipulatives and Blackline Masters to manage. Most lessons only require materials from your Math Kit, but you'll also sometimes use everyday objects to enhance the lessons.

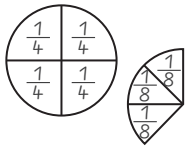
How to Create Your Math Kit

You'll use materials from your Math Kit in most core lessons. Stick the following materials in a box or basket so they're always ready to go, and keep them handy when you're teaching.

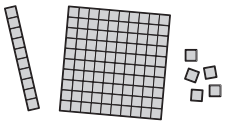
- **30 small counters (15 each of 2 different colors).** Any type of small object (such as plastic tiles, Legos, blocks, or plastic discs) is fine. You will mostly use these for game pieces.
- **Fraction bars.** These plastic bars are split into fractional parts. Look for a set that includes halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. Real bars are easiest to use, but you can copy and cut out Blackline Master 8 (page 571) if you don't have access to real fraction bars.



- **Fraction circles.** These plastic circles are another way to show fractional parts. As with fraction bars, look for a set that includes halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. Or, you can copy and cut out Blackline Master 14 (page 587).



- **Base-ten blocks (30 unit blocks, 20 rods, 12 flats).** You will occasionally use base-ten blocks to represent decimal place-value. If you don't already own base-ten blocks, you may want to photocopy and color Blackline Master 15 (page 591) rather than buying a complete set.



- **30 centimeter cubes (if you don't own base-ten blocks).** The small unit blocks in base-ten block sets are also known as centimeter cubes. Your child will use these blocks to explore volume this year. If you already own a set of base-ten blocks, you do not need to purchase any additional centimeter cubes. If you don't have a set of real base-ten blocks, make sure to buy a small set of centimeter cubes.
- **Play money (20 one-dollar bills, 20 ten-dollar bills, and 10 hundred-dollar bills).** You will only occasionally need play money this year. Play money from a toy cash register or board game works well. If you don't already have some, you can copy and cut out the play money on Blackline Master 16 (page 593).
- **1-foot (or 30-centimeter) ruler.**
- **Protractor.** Any clear plastic protractor is fine.
- **2 packs of playing cards and 2 dice.** You'll use playing cards and dice for some of the games in this book. Any standard 52-card decks and regular, six-sided dice will work fine.
- **Blank paper.** Your child may occasionally need scrap paper for extra space for solving problems. Any kind of paper is fine, including plain copy paper.
- **Pencils.** Keep sharp pencils on hand for lessons and workbook pages.
- **Highlighter.** Any color is fine.
- **1 plastic page protector and dry-erase marker.** You'll place one Blackline Master in a plastic page protector so that you can write on it with a dry-erase marker.

You will also sometimes use the rest of the Blackline Masters (from the back of this Instructor Guide or available online at welltrainedmind.com/mwc.) Most of the Blackline Masters are used for only a few lessons, but there are a few you may want to keep handy. See page 547 for more information.

You will occasionally need to save items for future lessons. This symbol will alert you if you need to save anything.

Other Supplies Needed

You'll only need your Math Kit for most lessons, but occasionally you'll need a few other common household items. You'll find these items listed in three different places in the curriculum to make sure you always know what you need:

- The preview for each unit lists all extra household items needed.
- The top of each lesson lists all supplies you'll need to teach that lesson. These lists include items from your Math Kit as well as extra household items. (Note that some lessons require scrap paper or a separate piece of paper. To save space, paper is not listed as a separate material.)
- You'll find the complete list of household items needed throughout the year on page 545.

Don't feel you have to gather the extra household items now. Most are common things like colored pencils, scissors, or a measuring tape you can grab right before you begin the lesson.

Helpful Resources

You'll find an appendix of helpful resources at the back of this book:

- Memory Work
- Scope and Sequence
- Materials List
- Blackline Masters

Unit 1
Review and Order of Operations

Overview

Your child will review several essential multiplication and division skills she learned in fourth grade. She will also learn how to find missing numbers in equations and how to use the order of operations to evaluate expressions.

Reviewing these skills helps your child start the year on a positive, confident note and refreshes your child's memory if you took a break from math for the summer.

What Your Child Will Learn

In this unit, your child will learn to:

- Review mental multiplication and division strategies
- Review the written process for multiplying a multi-digit number by a one-digit number
- Review how to use long division to divide a multi-digit number by a one-digit number
- Review how to interpret line plots and find an average
- Review how to multiply or divide to convert measurements
- Find missing numbers in simple addition, subtraction, multiplication, and division equations
- Use the order of operations to evaluate expressions with parentheses

Lesson List

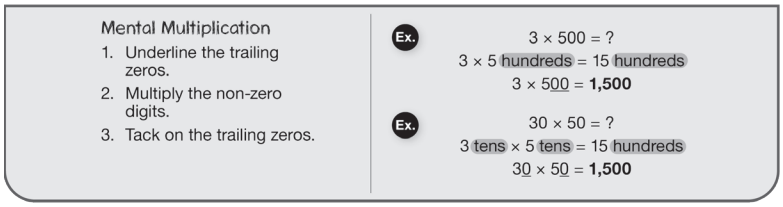
Lesson 1.1	Review Mental Multiplication	Lesson 1.6	Review Measurement Conversions
Lesson 1.2	Review Written Multiplication	Lesson 1.7	Find Missing Numbers in Equations
Lesson 1.3	Review Mental Division	Lesson 1.8	Review Parentheses
Lesson 1.4	Review Long Division	Lesson 1.9	Order of Operations, Part 1
Lesson 1.5	Review Line Plots and Averages	Lesson 1.10	Order of Operations, Part 2
		Lesson 1.11	Enrichment (Optional)

Extra Materials Needed for Unit 1

- For optional Enrichment Lesson:
  - *How Many Guinea Pigs Can Fit on a Plane?: Answers to Your Most Clever Math Questions*, by Laura Overdeck. Feiwel & Friends, 2017.
  - Travel brochures or internet access, optional

Teaching Math with Confidence: How to Teach Your Child to Read Math Text and Learn from Printed Examples

In *Third* and *Fourth Grade Math with Confidence*, the Lesson Activities pages in the Student Workbook included very little text or printed examples. Instead, the pages listed key words and provided space for you to demonstrate how to solve sample problems. *Fifth Grade Math with Confidence* includes more text and printed sample problems so that your child begins to learn how to read and study math books.



Sample text and example problems, from Lesson 1.1.

As in the previous levels of *Math with Confidence*, the **Instructor Guide is an essential part of the program.** Even if you don't follow the scripted lesson word-by-word, make sure you use the Instructor Guide alongside the Student Workbook. The text on the Lesson Activities page summarizes the core concept or skill in each lesson, but there are often warm-ups, games, and explanations in the Instructor Guide that aren't printed in the workbook.

In this unit, you'll teach your child how to read her math book slowly and carefully. Children are often under the mistaken impression that if they don't understand math explanations the first time, they're either not good at math or not a good reader. You'll correct this false assumption by teaching your child that math texts are different from narrative texts. When you read a story, you can enjoy the story even if you don't fully understand every word or detail. But when you read math, it's important to **read slowly**, make sure you **understand every vocabulary word**, and **check that you fully comprehend the text** before moving on. It's often helpful to **re-read** the text multiple times to help it sink in, too.

Besides teaching your child these important reading strategies, you'll also teach her how to study printed example problems. Children sometimes assume they can grasp the examples at a glance and want to rush past them. If this becomes a source of conflict with your child, use the following strategies to encourage her to slow down and discuss the examples with you.

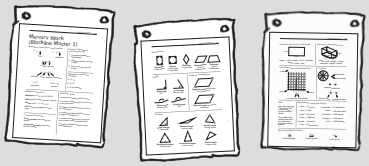
- **Cover the rest of the page** with a piece of paper to help focus her attention on the example you're discussing.
- If your child is visually overwhelmed by the examples, **write out the example step-by-step on a separate piece of paper or whiteboard.** It's fine if you use the example on the page as a guide for yourself rather than as the main teaching tool for your child. Or, cover the example with a piece of paper and reveal only one line at a time.
- If your child is adamant that she understands the example and does not need it explained to her, **ask her to "be the teacher" and explain the example to you.** Then, check the Instructor Guide to make sure there aren't any additional teaching points to mention.

Developing math study skills is a gradual process. Just as with other skills, most children will need lots of direct teaching and coaching as they learn how to read and study math.

Lesson 1.2
Review Written Multiplication

Purpose	Materials
• Introduce memory work • Review how to multiply a multi-digit number by a one-digit number with the multiplication algorithm • Estimate products and compare the estimate with the exact answer	• Deck of playing cards • Memory Work (Blackline Master 1)

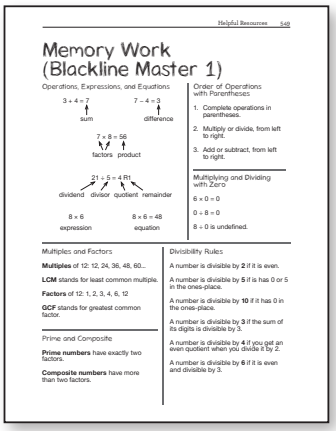
In this lesson, you'll introduce your child to the Memory Work list (Blackline Master 1). Many families find it helpful to post the Memory Work pages near their lesson area to help their children gradually memorize the items over the course of the year.



All Blackline Masters are available at the back of the book. **You can also find all Blackline Masters at welltrainedmind.com/mwc for easy printing.**

Warm-up: Introduce and Practice Memory Work

Show your child the Memory Work list (Blackline Master 1). **You'll memorize these important vocabulary words and facts this year. You already know many of them, and some of them are new. We'll practice them throughout the year so that you learn all of them.** Briefly look over the list with your child and have him point out a few facts he already knows.



Memory Work (Blackline Master 1)

Operations, Expressions, and Equations

3 + 4 = 7 (sum); 7 − 4 = 3 (difference)

7 × 8 = 56 (factors, product)

21 ÷ 5 = 4 R1 (dividend, divisor, quotient, remainder)

8 × 6 (expression); 8 × 6 = 48 (equation)

Order of Operations with Parentheses

1. Complete operations in parentheses.
2. Multiply or divide, from left to right.
3. Add or subtract, from left to right.

Multiplying and Dividing with Zero

6 × 0 = 0

0 ÷ 8 = 0

8 ÷ 0 is undefined.

Multiples and Factors

Multiples of 12: 12, 24, 36, 48, 60...

LCM stands for least common multiple.

Factors of 12: 1, 2, 3, 4, 6, 12

GCF stands for greatest common factor.

Prime and Composite

Prime numbers have exactly two factors.

Composite numbers have more than two factors.

Divisibility Rules

A number is divisible by **2** if it is even.

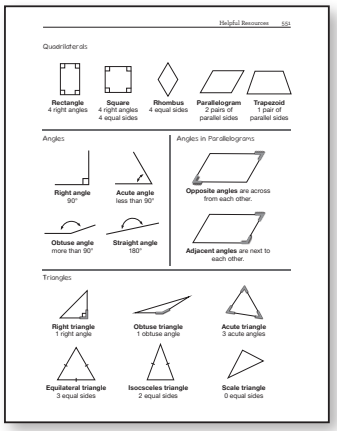
A number is divisible by **5** if is has 0 or 5 in the ones-place.

A number is divisible by **10** if it has 0 in the ones-place.

A number is divisible by **3** if the sum of its digits is divisible by 3.

A number is divisible by **4** if you get an even quotient when you divide it by 2.

A number is divisible by **6** if it is even and divisible by 3.



Quadrilaterals

Rectangle 4 right angles; **Square** 4 right angles, 4 equal sides; **Rhombus** 4 equal sides; **Parallelogram** 2 pairs of parallel sides; **Trapezoid** 1 pair of parallel sides

Angles

Right angle 90°; **Acute angle** less than 90°; **Obtuse angle** more than 90°; **Straight angle** 180°

Angles in Parallelograms

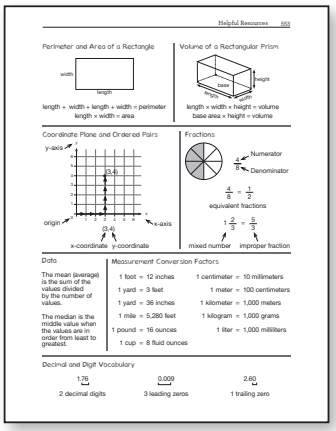
Opposite angles are across from each other.

Adjacent angles are next to each other.

Triangles

Right triangle 1 right angle; **Obtuse triangle** 1 obtuse angle; **Acute triangle** 3 acute angles

Equilateral triangle 3 equal sides; **Isosceles triangle** 2 equal sides; **Scale triangle** 0 equal sides



Perimeter and Area of a Rectangle

length + width + length + width = perimeter

length × width = area

Volume of a Rectangular Prism

length × width × height = volume

base area × height = volume

Coordinate Plane and Ordered Pairs

origin; x-axis; y-axis; (3,4); x-coordinate; y-coordinate

Fractions

Numerator; Denominator

$\frac{4}{8} = \frac{1}{2}$ equivalent fractions

$1\frac{2}{3} = \frac{5}{3}$ mixed number; improper fraction

Data

The mean (average) is the sum of the values divided by the number of values.

The median is the middle value when the values are in order from least to greatest.

Measurement Conversion Factors

1 foot = 12 inches; 1 yard = 3 feet; 1 yard = 36 inches; 1 mile = 5,280 feet; 1 pound = 16 ounces; 1 cup = 8 fluid ounces

1 centimeter = 10 millimeters; 1 meter = 100 centimeters; 1 kilometer = 1,000 meters; 1 kilogram = 1,000 grams; 1 liter = 1,000 milliliters

Decimal and Digit Vocabulary

1.76 (2 decimal digits); 0.009 (3 leading zeros); 2.60 (1 trailing zero)

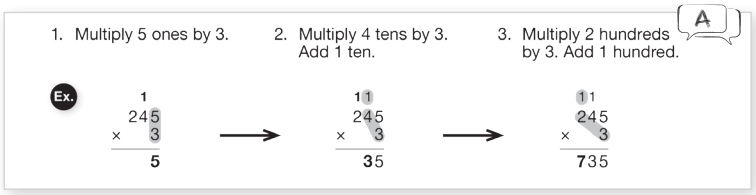
Children learned many of these items in *Fourth Grade Math with Confidence*. If you didn't use *Fourth Grade Math with Confidence*, you do not need to stop and help your child memorize all these items now. He'll have plenty of opportunities to learn them throughout fifth grade.

Activity (A): Review How to Multiply a Multi-Digit Number by a One-Digit Number

Last year, you learned how to multiply multi-digit numbers by one-digit numbers with the multiplication algorithm. Today, we'll review the process.

This text box demonstrates each step for multiplying a three-digit number by a one-digit number. Use the following questions to discuss the steps and example.

- **First, you multiply the 5 ones by 3. What's 5 times 3?** *15.* **15 ones equal 1 ten and 5 ones, so you write a 1 above the tens-place and 5 in the answer's ones-place.**
- **Second, you multiply 4 tens by 3. What's 4 times 3?** *12.* **Then, you add the 1 ten from the previous step. What's 12 tens plus 1 ten?** *13 tens.* **13 tens equal 1 hundred and 3 tens, so you write a 1 above the hundreds-place and 3 in the answer's tens-place.**
- **Last, you multiply 2 hundreds by 3. What's 2 times 3?** *6.* **Then, you add the 1 hundred from the previous step. What's 6 hundreds plus 1 hundred?** *7 hundreds.* **You write 7 in the answer's hundreds-place.**

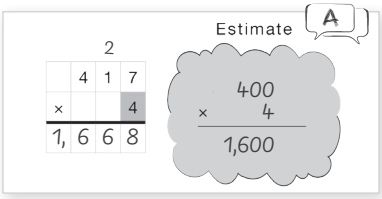


If your child is confused by the steps, model the problem with play money. Place 3 groups of 2 hundred-dollar bills, 4 ten-dollar bills, and 5 one-dollar bills on the table. Demonstrate each step with the bills, and trade as needed. For example: **The first step is to multiply 5 ones by 3. We have 3 groups of 5 one-dollar bills, so we have 15 one-dollar bills in all. We trade 10 one-dollar bills for 1 ten-dollar bill.**

Before you solve 417 times 4, let's estimate the answer. Estimating before you solve helps you know whether your answer is reasonable.

What's 417 rounded to the nearest hundred? *400.* Write 400 × 4 as shown. **What's 400 times 4?** *1,600.* Write 1,600 as shown. **Do you think the exact answer will be higher or lower than 1,600? Why?** *Sample answer: Higher. We rounded 417 down, so the estimate will be lower than the exact answer.*

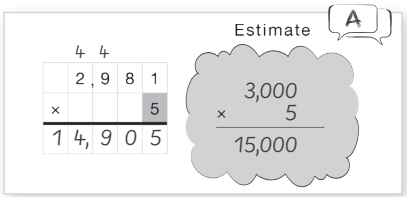
Now, let's multiply to find the exact answer. Have your child multiply to find the exact product. Encourage him to refer to the example as needed.



We estimated the product would be about 1,600. You found that the exact product is 1,668, so that seems like a reasonable answer. It's a little more than the estimate, since we rounded 417 down to 400.

Whether or not an answer is "reasonable" depends on the numbers involved. The product of a three-digit number times a one-digit number can be several hundred off from the estimate and still be a reasonable answer.

You can use this same process to multiply any multi-digit number times a one-digit number. You just keep multiplying until you have multiplied all the digits in the top number by the bottom number. Repeat with 2,981 × 5.



Activity (B): Play Multiplication War

Play Multiplication War.

Encourage your child to use estimation to arrange the cards to form the greatest product possible.

Multiplication War

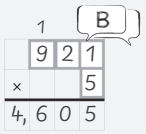
Materials: Deck of playing cards, with 10s, jacks, queens, and kings removed (36 cards total)

Object of the Game: Have a greater total score than your opponent.

Shuffle the cards and place them face down in one pile.

Multiplication War has 3 rounds. On your turn, flip over the top 4 cards in the pile. Use the digits to make a three-digit number and a one-digit number. Write the numbers in your first multiplication grid and multiply to find the product.

For example, if you turn over a 5, 9, 2, and 1, you can create multiplication problems such as 129 × 5, 295 × 1, or 591 × 2. Try to arrange the numbers to create the greatest product possible. This product is your score for the round.



Make the greatest possible product from your cards.

Take turns until both players have completed all 3 rounds. Each player finds the sum of their 3 scores. Whoever has the greater total score wins.

Independent Practice and Review

Have your child complete the Lesson 1.2 Practice and Review workbook pages.

Lesson 4.2
Multiply to Find Volume

Purpose	Materials
• Practice finding the volume of solids constructed from centimeter cubes • Use the volume formula (length × width × height) to find the volume of rectangular prisms	• 3 dice

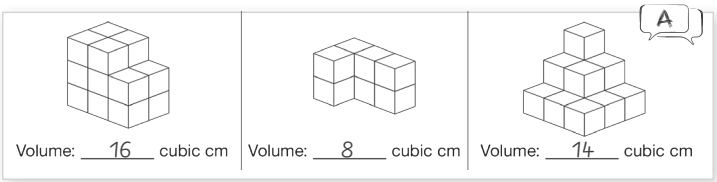
Memory Work

- **What do we call the top number in a fraction?** *The numerator.*
- **What do we call the bottom number in a fraction?** *The denominator.*
- **What do we call fractions that look different but have the same value?** *Equivalent fractions.*
- **What do we call numbers that have a whole number and a fraction?** *Mixed numbers.*

Warm-up (A): Find the Volume of 3-D Solids

In the last lesson, you learned how to use cubic centimeters to measure volume. Have your child find the volume of each solid in part A.

A

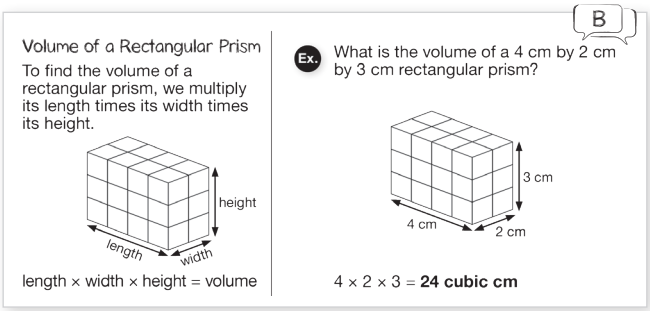


Your child does not need to build the solids out of centimeter cubes unless he has trouble finding their volumes.

Activity (B): Find the Volume of Rectangular Prisms

We can use multiplication to find the volume of rectangular prisms. Have your child read the text box.

B



Point to the formula for volume. **This is called the formula for volume. It tells how to use multiplication to find the volume of any rectangular prism. Formulas are equations that describe mathematical rules. This formula only works for rectangular prisms. You can't use it to find the volume of a cone or a pyramid!**

Let's study the example to see how to use the formula.

- **What is the length of this rectangular prism?** *4 centimeters.*
- **What is its width?** *2 centimeters.*
- **What is its height?** *3 centimeters.*

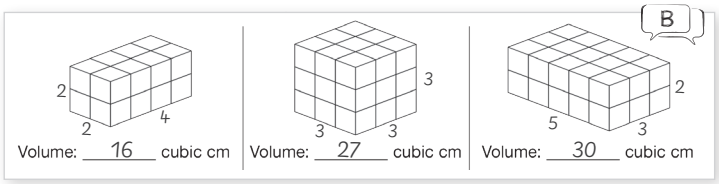
Point to the written equation. **4 times 2 times 3 equals 24, so the volume is 24 cubic centimeters.**

Which part of the equation tells the number of cubes in each layer? *4 times 2*. **When we multiply length times width, we find the number of cubes in the bottom layer. Then, when we multiply 8 times 3, we multiply the number of cubes in each layer by the number of layers.**

With your child, label the dimensions of the solid in the first practice problem. **People sometimes use the word "by" to describe the dimensions of a rectangular prism. We could say that this solid is "2 by 4 by 2."**

Then, demonstrate how to write an equation for the volume on scrap paper: 2 × 4 × 2 = 16. Point to the left side of the equation. **You can write 2 times 4 times 2 as a short way to describe the solid's dimensions. We'll use this way to write dimensions in our game today.**

Have your child complete the other practice problems in the same way. Have your child write the equations on scrap paper if he needs more space.



2 × 4 × 2 = 16 3 × 3 × 3 = 27 5 × 3 × 2 = 30

Activity (C): Play Build the Box

In this game, we'll pretend we're building boxes out of wood. We'll roll to find the dimensions of each box and then multiply to find the volume of the box. Play Build the Box.

If your child enjoys this game, play additional rounds and keep track of your scores on scrap paper.

Build the Box

Materials: 3 dice

Object of the Game: Score more points than the other player by creating boxes with a greater total volume.

Roll 3 dice. Write the numbers as the dimensions for your first box. (You may write the numbers in any order.) Multiply to find the volume of the prism and write it in the volume column. This product is your score.

C

Dimensions (cm)	Volume (cubic cm)
6 × 2 × 4	48

Sample round.

Play then passes to the other player. Continue until both players have completed all 3 rounds. Add up each player's total points. The player with more points wins.

Independent Practice and Review

Have your child complete the Lesson 4.2 Practice and Review workbook pages.

Lesson 5.5
Use Common Denominators to Add Fractions

Purpose	Materials
• Review adding fractions with the same denominator • Use common denominators to add fractions with different denominators	• Fraction bars • Fraction cards
Memory Work	• **What is the order of operations?** *Parentheses, multiply or divide from left to right, add or subtract from left to right.*

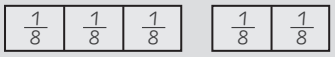
Warm-up (A): Review Adding Fractions with the Same Denominator

Last year, you learned how to add fractions with the same denominator. Have your child complete the fraction addition problems.

A

$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$ | $\frac{6}{10} + \frac{3}{10} = \frac{9}{10}$ | $\frac{4}{12} + \frac{1}{12} = \frac{5}{12}$

If your child doesn't remember how to add fractions with the same denominator, model the fractions with fraction bars. Remind her to add the numerators and keep the denominators the same: **Just like 3 books plus 2 books equals 5 books, 3 eighths plus 2 eighths equals 5 eighths.**



$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$

Activity (B): Use Common Denominators to Add Fractions

In the warm-up, the fractions in each problem had the same denominator. Today, you'll learn how to add fractions with different denominators.

Adding fractions with different denominators is a lot like adding fractions with the same denominator. We just find equivalent fractions with a common denominator first. Have your child read the text box.

B

How to Use Common Denominators to Add Fractions

1. Find the least common multiple (LCM) of both denominators. You will use this number for the common denominator.
2. Rewrite each fraction as an equivalent fraction with the common denominator.
3. Add the fractions.

Ex. $\frac{2}{3} + \frac{1}{6} = ?$

The denominators are 3 and 6.
The LCM of 3 and 6 is 6.
So, use 6 as the common denominator.

$\frac{2}{3} + \frac{1}{6}$

$\downarrow \quad \downarrow$

$\frac{4}{6} + \frac{1}{6} = \frac{5}{6}$

Read aloud the example problem: ***Two-thirds plus one-sixth equals what?***

- Point to the pizza. **There is two-thirds of a cheese pizza and one-sixth of a pepperoni pizza. We want to add two-thirds and one-sixth to find the total amount of pizza.**
- **The first step is to find the least common multiple of the denominators. What are the denominators for these fractions?** *3 and 6.* **What is the least common multiple of 3 and 6?** *6.*
- **The second step is to rewrite each fraction with the common denominator. Two-thirds equal how many sixths?** *4.* **If you cut each third into 2 slices, you get four-sixths of a pizza. One-sixth already has 6 as its denominator.**

- **The last step is to add. What's four-sixths plus one-sixth?** *Five-sixths.* **There is a total of five-sixths of a pizza.**

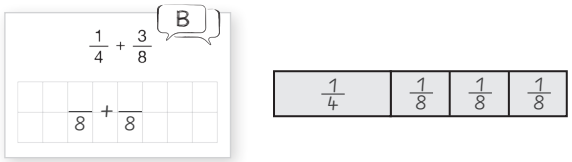
You've learned in younger grades that we always add "like to like." When you add whole numbers, you add ones to ones and tens to tens. When you add measurements, you add feet to feet and inches to inches, or meters to meters and centimeters to centimeters.

Adding fractions with different denominators is the same. We can't add thirds to sixths. We first have to convert the thirds to sixths.

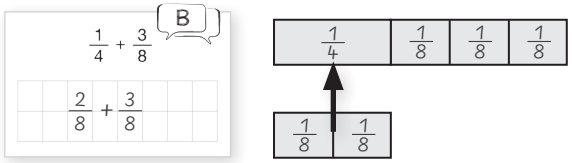
Demonstrate how to solve the first practice problem.

- **We want to add one-fourth and three-eighths.** Model the problem with fraction bars as shown.

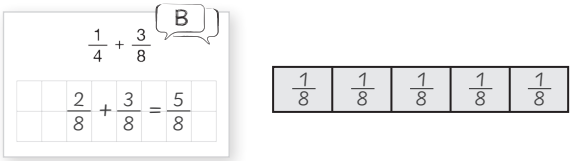
- **The first step is to find the least common multiple of the denominators. What are the denominators for these fractions?** *4 and 8.* **What is the least common multiple of 4 and 8?** *8.* **So, we'll use 8 as the common denominator.**
- **The second step is to rewrite each fraction with the common denominator.** Begin to rewrite the fractions as shown below the printed problem. Leave the numerators blank.



- **One-fourth equals how many eighths?** *2.* Write 2 as the numerator for the first fraction. Replace the 1 fourths-bar with 2 eighths-bars. **One-fourth equals two-eighths. Three-eighths already has 8 as a denominator.** Write 3 as the numerator for the second fraction.

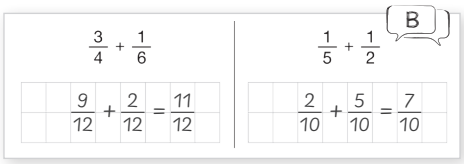


- **The last step is to add. What's two-eighths plus three-eighths?** *Five-eighths.* Write 5/8 to complete the equation.



Solving fraction arithmetic problems in this methodical and careful way helps prevent careless mistakes. Even if your child can find the answers to the problems mentally, make sure she writes out the equivalent fractions below each problem and follows this process. See the Unit 5 **Teaching Math with Confidence** for more tips on helping your child organize her written work.

Have your child use the same approach to complete the remaining practice problems. Make sure she rewrites each problem with equivalent fractions before solving. Model the problems with fraction bars as needed.



Activity (C): Play Fraction Addition War

Play Fraction Addition War.

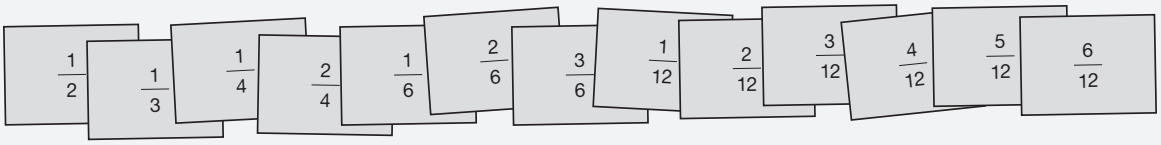
Your child does not need to simplify her answers (or reduce the fractions to lowest terms) in this unit. She will learn how to simplify fractions in Unit 8.

Fraction Addition War

Materials: Fraction cards

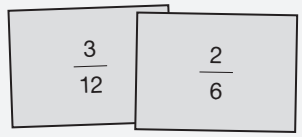
Object of the Game: Win the most points by creating greater sums.

Find the following fraction cards. Shuffle these cards and place them face down in a pile. (You will not use the rest of the fraction cards.)

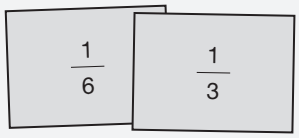


On your first turn, flip over the top 2 cards in the pile. Write the fractions in your score card. Use a common denominator to find their sum.

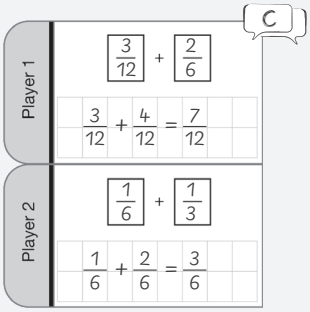
Then, the other player takes a turn in the same way. Whoever has the greater sum wins a point. (Use logical reasoning, fraction bars, or common denominators to compare the sums.) If the sums are equal, both players win a point.



Player 1's cards.



Player 2's cards.



Sample round. 7/12 is greater than 3/6, so Player 1 wins the point.

Play until both players complete their scorecards. Whoever has won more points wins the game.

Advanced Variation: Deal 3 cards to each player. On your turn, choose 2 of the cards to use. Then, take 2 new cards to replenish your hand. Reshuffle the discarded cards as needed.

Independent Practice and Review

Have your child complete the Lesson 5.5 Practice and Review workbook pages.

If your child isn't sure what to write for the "find the mistake" exercises on the Practice page, say: **Imagine you were helping a friend with math and she made this mistake. What would you tell her to help her fix her mistake?** Your child may also tell you the mistake orally rather than writing it on the Practice page.

Lesson 6.7
Find Greatest Common Factors

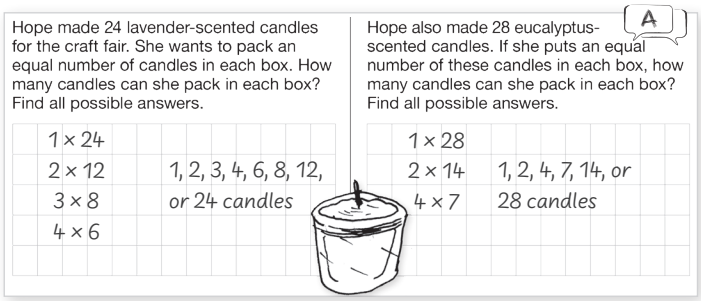
Purpose	Materials
• Practice finding all factor pairs for a number • Find the greatest common factor for a pair of numbers	• None

Memory Work

- **What is a prime number?** *A number with exactly 2 factors.*
- **What is a composite number?** *A number with more than 2 factors.*

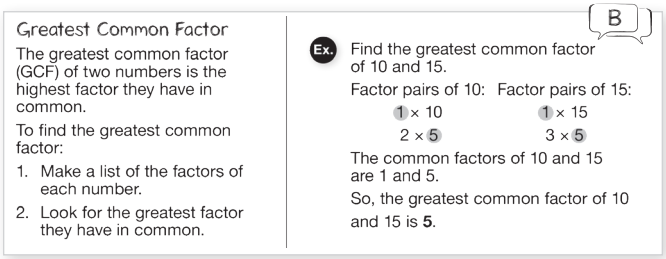
Warm-up (A): Practice Finding All Factors of a Number

In the last lesson, you reviewed how to find all factors of numbers to 100. You check whether the number is divisible by each of the numbers from 1 to 9. Have your child solve the problems in part A. She should find all factors of 24 for the first problem and all factors of 28 for the second problem.



Activity (B): Find the Greatest Common Factor for a Pair of Numbers

Today, you'll learn how to find the greatest common factor for a pair of numbers. We can find common factors just like we find common multiples. We make a list of all the factor pairs for both numbers and then look for the greatest factor they have in common. Have your child read the text in part B aloud.

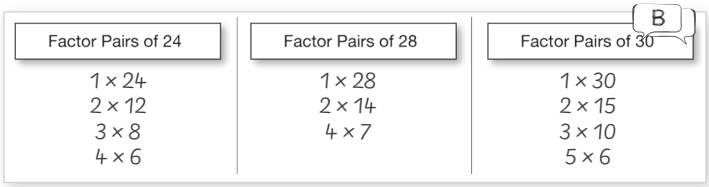


Let's study the example to see how to find the greatest common factor of 10 and 15.

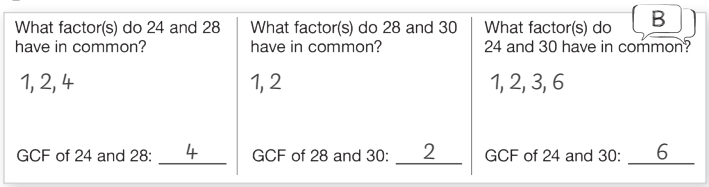
- **What are the factor pairs of 10?** *1 times 10 and 2 times 5.*
- **What are the factor pairs of 15?** *1 times 15 and 3 times 5.*
- **What factors do the two lists have in common?** *1 and 5.*
- **What is the greatest factor they have in common?** *5.*

British English generally uses the term "highest common factor" instead of "greatest common factor." If you live in a country that uses British English rather than American English, feel free to substitute this term as you teach the lesson.

Let's complete these charts so we can find the greatest common factor of the different number pairs. You already found all the factor pairs of 24 and 28 in the warm-up. Have your child write all the factor pairs of 24 and 28 as shown. Then, have her find all the factor pairs of 30.



What factors do 24 and 28 have in common? *1, 2, and 4*. Write "1, 2, 4" in the space. **Which of the common factors is the greatest?** *4*. **So, the GCF of 24 and 28 is 4.** Write 4 in the blank. Repeat for the other questions.



Independent Practice and Review

Have your child complete the Lesson 6.7 Practice and Review workbook pages.

Lesson 8.6
Find a Fractional Part of a Set

Purpose	Materials
• Split a set of counters into fractional parts • Find the number of objects in a fraction of a set	• Counters • Paper clip

Memory Work

- **What is the order of operations?** *Parentheses, multiply or divide from left to right, add or subtract from left to right.*

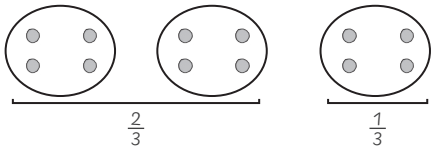
In this lesson, your child will learn how to use whole-number arithmetic to find a fraction of a set. For example, to find 3/8 of 16, he'll first divide 16 into 8 equal parts to find the size of 1 eighth. Then, he'll multiply the answer by 3 to find the size of 3 eighths. This approach encourages him to think deeply about the size of the fractional parts and the relationship between the part and whole.

Warm-up: Find Part of a Set of Counters

Place 12 counters on the table. Arrange the counters in 2 rows of 6. **Let's pretend that the counters are candies. I want to give you two-thirds of the candies and keep one-third for myself.**

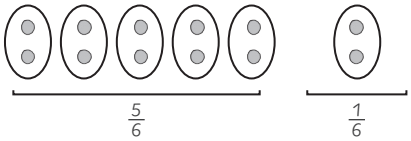
Dividing the counters into thirds is the same as splitting the set into 3 equal groups. Split the counters into 3 groups as shown. **How many candies are in each third?** *4*.

If I give you two-thirds of the set, how many candies do you get? *8*. **How do you know?** *Sample answers: 2 groups of 4 equal 8. 2 times 4 equals 8.* **If I keep one-third of the set, how many candies do I get?** *4*.



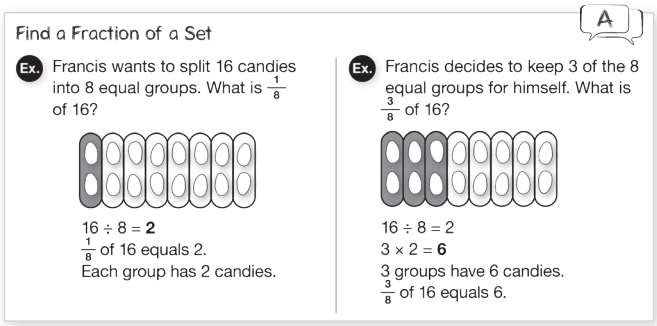
Push the counters back together. **Let's say I want to keep five-sixths of the candies and give you one-sixth. Dividing the counters into sixths is the same as splitting the set into 6 equal groups.** Split the counters into 6 groups as shown. **How many candies are in each sixth?** *2*.

If I keep five-sixths of the set, how many candies do I keep? *10*. **How do you know?** *Sample answers: 5 groups of 2 equal 10. 5 times 2 equals 10.* **If I give you one-sixth of the set, how many candies do you get?** *2*.



Activity (A): Find Part of a Set

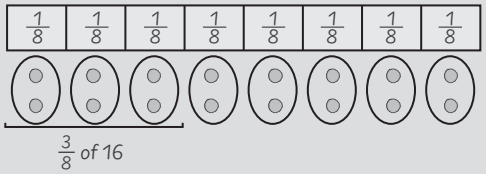
In Lesson 8.1, you learned how to write a fraction to describe part of a set. Today, you'll learn how to find a fractional part of a set. The text box shows how to divide and multiply to find a fraction of a set. It's just like what you did in the warm-up. Have your child read the top part of the text box.



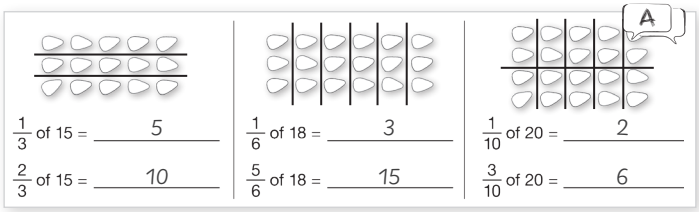
The first example shows how to find one-eighth of 16. We split the 16 candies into 8 equal groups. 16 divided by 8 equals 2, so one-eighth of 16 equals 2.

The second example shows how to find three-eighths of 16. We already found that one-eighth of 16 is 2. We want *three*-eighths of the set, so we multiply 3 times 2. 3 times 2 equals 6. Three-eighths of 16 equals 6.

If your child has trouble understanding the examples, use fraction bars and counters to make the problems more concrete. Place 8 eighth-bars on the table. Then, take 16 counters. **We want to split the 16 counters into eighths. 16 divided by 8 equals 2.** Put 2 counters under each eighth-bar. **If I take three-eighths of the counters, I take 3 groups of 2.**



For the practice problems, have your child first draw lines to split each set into the fractional part indicated. Then, have him divide and multiply to complete the problems. (He may write out the equations or solve them mentally.)



Activity (B): Play Spin a Set

Play Spin a Set.

Encourage your child to find the answers mentally in this game. For example, if he spins 3/5 and chooses 20: **What's one-fifth of 20?** *4*. **So, what's three-fifths of 20?** *12*. If he has trouble keeping the numbers in his head, it's fine for him to write the equations on paper instead.

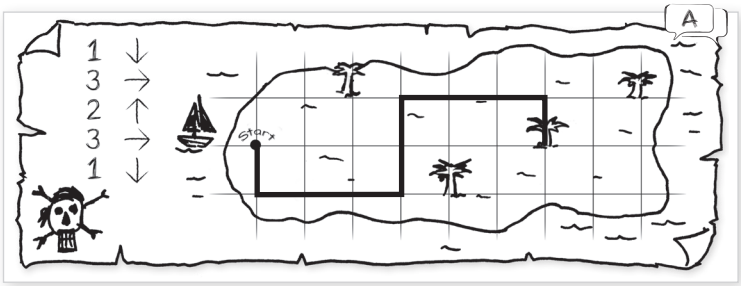
Lesson 9.1
Plot Points on the Coordinate Plane

Purpose	Materials
• Preview the idea of traveling on a coordinate plane • Learn coordinate plane vocabulary • Use ordered pairs to identify locations and plot points on the coordinate plane	• None
Memory Work	• **What does LCM stand for?** *Least common multiple.* • **Name 4 multiples of 8.** *Sample answers: 8, 16, 32, 64.*

Warm-up (A): Follow Directions to Find the Treasure

This pirate map has a grid and starting point. The treasure is hidden under one of the palm trees on the map, and the numbers and arrows show how to move on the grid to find the treasure.

Have your child put the tip of her pencil on the starting point. **The first direction is to move 1 unit down.** Have your child draw a line 1 unit long (along the vertical grid line) as shown. Repeat with the rest of the directions until your child reaches the end and finds the correct palm tree. **You found the treasure!**



Activity (B): Introduce the Coordinate Plane

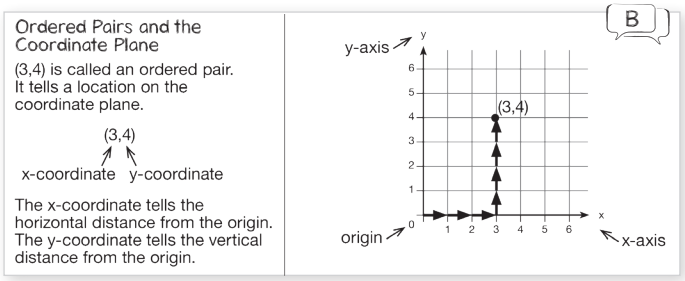
We're beginning a new unit today. You'll learn how to plot points and identify locations on the coordinate plane. You'll find that the coordinate plane is a lot like the grid you used to find the pirate treasure in the warm-up.

In math, coordinate is pronounced "co-OR-din-it" (and not "co-or-din-ATE," as in the verb that means to work together).

Show your child the coordinate plane in part B. **The coordinate plane is like a map made from two perpendicular number lines. We can use the numbers from the number lines to identify any location on the map.**

Remind your child as needed that lines that are perpendicular to each other meet to form a right angle.

In math, the word *plane* means a flat, two-dimensional surface. What does it mean when two people coordinate? *It means they work together to do something.* **On the coordinate plane, two numbers work together to name a location on a flat surface.** Have your child read the text box aloud.



Highlight the following features of the coordinate plane:

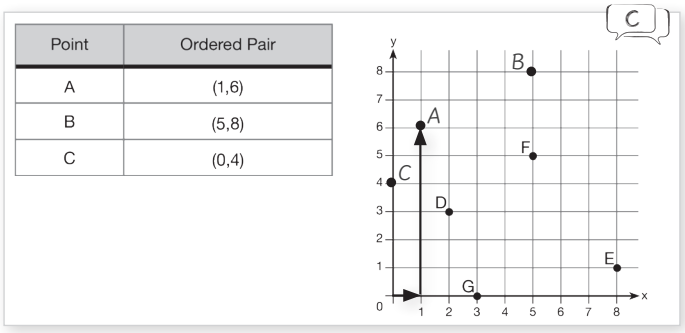
- Point to the point labeled "origin." **This point is called the origin. It's the 0-mark for both of the number lines.**
- **The number lines on either side are called the axes. The horizontal line is called the x-axis. The vertical line is called the y-axis.**
- Point to the labeled point. **We say that the coordinates of this ordered pair are (3,4). If you start at the origin, move 3 units to the right, and 4 units up, you land at this point. 3 is the x-coordinate, and 4 is the y-coordinate.**

Axes (pronounced AK-sees) is the plural form of axis. Calling them the x-axis and y-axis is simply a mathematical convention.

When you name an ordered pair, read only the two numbers in the ordered pair (and not the comma or parentheses). For example, read (3,4) as "three four."

Activity (C): Identify Locations on the Coordinate Plane

Let's plot point A on the coordinate plane. The chart says that point A should be at (1,6). To graph it, put your finger on the origin. The x-coordinate is 1, so slide your finger 1 unit horizontally to the right. The y-coordinate is 6, so slide your finger 6 units up vertically. Have your child draw a point at this location and label it A. Repeat with points B and C.

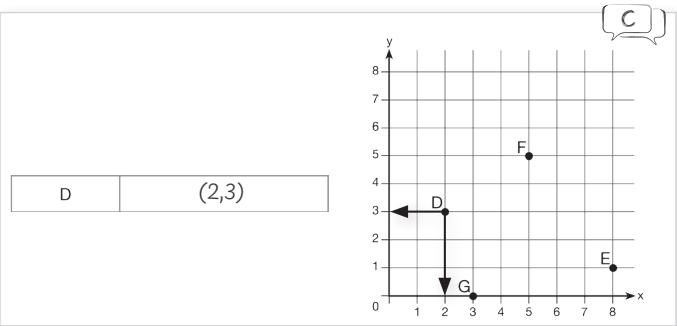


Moving step-by-step from the origin helps your child understand that ordered pairs identify the horizontal and vertical distance from the origin.

Now, let's find the ordered pair that identifies the location of point D.

- **First, I put my finger on the point. Then, I slide it down to the x-axis.** Put your finger on the point and slide it down to the x-axis. **I land on 2, so the x-coordinate is 2.**

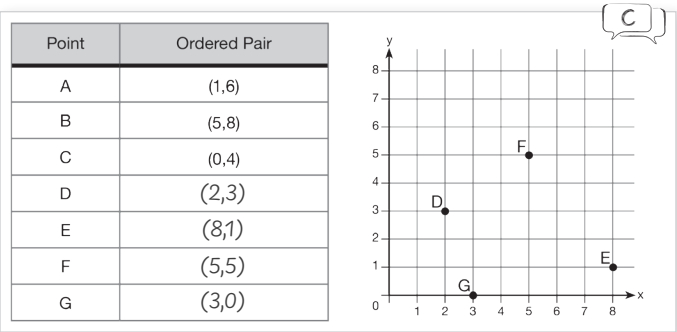
- **Next, I put my finger back on the point. This time, I slide it across to the y-axis.** Put your finger on the point and slide it across to the y-axis. **I land on 3, so the y-coordinate is 3.** Write (2,3) in the chart.



D	(2,3)

We always write the x-coordinate first and then the y-coordinate so that we know which is which. We write a comma between the two numbers and write parentheses around them.

Have your child identify the locations of points E, F, and G and write the matching ordered pairs in the chart.



Point	Ordered Pair
A	(1,6)
B	(5,8)
C	(0,4)
D	(2,3)
E	(8,1)
F	(5,5)
G	(3,0)

Activity (D): Play Hot and Cold on the Coordinate Plane

Now, we'll play Hot and Cold. I'll choose a secret location on the coordinate plane. You'll guess a location, draw a point there, and tell me the coordinates. If you're far away from my secret point, I'll say, "Cold." If you're close to my secret point, I'll say, "Hot."

You can also use other words for hot and cold to express how close your child is to your secret location. **You're ice cold. You're getting warmer. You're burning up!**

Secretly choose a point on the first coordinate plane and write its coordinates on a piece of scrap paper. Then, have your child guess a location on the coordinate plane, draw a point at the location, and tell you the matching ordered pair.

For example, if you chose (0,5) as your secret location:

- *Is your secret location (4,2)?* **Cold.**
- *Is your secret location (2,3)?* **Getting warmer.**
- *Is your secret location (1,5)?* **Hot.**
- *Is your secret location (0, 5)?* **You found it!**

Continue until your child guesses your secret location. Then, reverse roles and play again on the second coordinate plane.

If your child would like to play multiple rounds, re-use the coordinate planes and use a different colored marker or colored pencil to record the new locations.

Independent Practice and Review

Have your child complete the Lesson 9.1 Practice and Review workbook pages.

Lesson 10.6
Enrichment (Optional)

Purpose	Materials
• Practice memory work • Appreciate how math can be used to answer real-life questions • Create fraction-of-a-fraction word problems for a real-life situation • Summarize what your child has learned and assess your child's progress	• *How Many Guinea Pigs Can Fit on a Plane?: Answers to Your Most Clever Math Questions*, by Laura Overdeck • Rectangular chocolate bar with lines that split it into fractional parts

For the enrichment activity, you will need a rectangular chocolate bar with lines that split it into smaller rectangles, such as a Hershey bar or Cadbury Dairy Milk bar. If you don't have a chocolate bar, use a paper rectangle or a rectangular baked treat (like a pan of brownies or cake) instead.

Warm-up: Review Memory Work

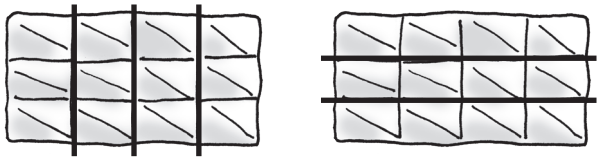
Quiz your child on any of the memory work items that he struggled with during this unit.

Math Picture Book: *How Many Guinea Pigs Can Fit on a Plane?*

Read pages 92-101 in *How Many Guinea Pigs Can Fit on a Plane?*

Enrichment Activity: Create Fraction-of-a-Fraction Word Problems about a Chocolate Bar

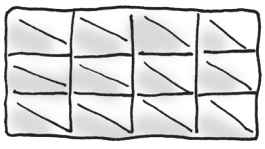
Today, you'll create fraction-of-a-fraction word problems about a chocolate bar! Show your child a rectangular chocolate bar. **What kind of fractional parts do the vertical lines split the chocolate bar into?** *Sample answer: Fourths.* **What kind of fractional parts do the horizontal lines split the chocolate bar into?** *Sample answer: Thirds.*



Have your child use the fractional parts to make up and solve several fraction-of-a-fraction word problems about the chocolate bar. Then, enjoy the chocolate bar together.

If I eat $\frac{2}{3}$ of $\frac{1}{4}$ of the chocolate bar, how much of the whole bar do I eat?

$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$



Sample word problem.

Unit Wrap-Up

Have your child complete the Unit 10 Wrap-Up.

Unit 10 Checkpoint

What to Expect at the End of Unit 10

By the end of Unit 10, most children will be able to do the following:

- Multiply to find a fraction of a fraction and simplify the result if needed.
- Write and solve fraction multiplication problems to solve fraction-of-a-fraction word problems. Some children may need help imagining the situation and describing it with "of."
- Reason about fraction multiplication and compare products of fraction multiplication. Some children will still have trouble with this, especially if they don't have a concrete situation to imagine.
- Multiply to find the area of rectangles with fractional lengths.

Is Your Child Ready to Move on?

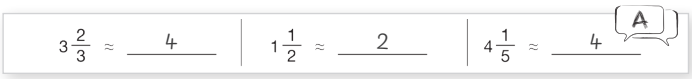
In Unit 11, your child will learn how to multiply fractions, mixed numbers, and whole numbers. Before moving on to Unit 11, your child should be very comfortable multiplying fractions. If your child is having trouble multiplying fractions, review the steps (from Lesson 10.2) at the beginning of each lesson and make up a few simple fraction multiplication problems for him to complete.

Lesson 11.3
Estimate Products of Whole Numbers and Mixed Numbers

Purpose	Materials
• Practice rounding mixed numbers to the nearest whole number • Estimate products of whole numbers and mixed numbers • Practice multiplying whole numbers by mixed numbers	• None
Memory Work	• **How do you know if a number is divisible by 3?** *The sum of its digits is divisible by 3.* • **How do you know if a number is divisible by 4?** *When you divide it by 2, the quotient is even.* • **How do you know if a number is divisible by 6?** *It is even and divisible by 3.*

Warm-up (A): Round Mixed Numbers to the Nearest Whole Number

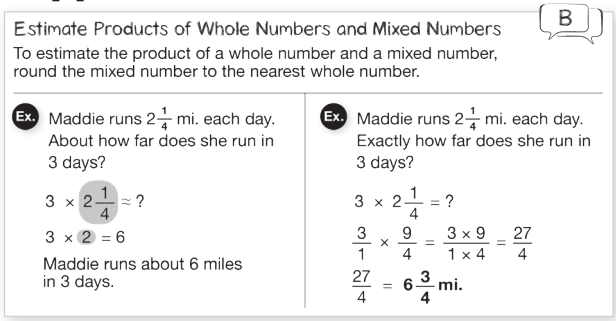
We'll warm up by rounding these mixed numbers to the nearest whole number. Have your child round each number to the nearest whole number.



If needed, remind your child to think about whether the fractional part of the number is less than, equal to, or greater than 1/2. **If the fraction is less than one-half, you round down. If the fraction is equal to or greater than one-half, you round up.**

Activity (B): Estimate Products of Whole Numbers and Mixed Numbers

In the last few lessons, you learned how to multiply a whole number by a mixed number to find the total of equal groups. Today, you'll learn how to estimate these products. Have your child read aloud the top part of the text box.



The first example shows how to estimate the product of a whole number and mixed number. Read the word problem aloud.

- **We want to find the product of 3 and 2 and one-fourth.**
- **What's 2 and one-fourth rounded to the nearest whole number?** *2.*
- **So, we multiply 3 times 2 to estimate the product. 3 times 2 is 6, so she ran about 6 miles.**
- **Do you expect that the exact answer will be greater than or less than 6?** *Greater than 6.* **Why?** *Sample answer: 2 and one-fourth is greater than 2, so we're missing part of the exact answer in the estimate.*

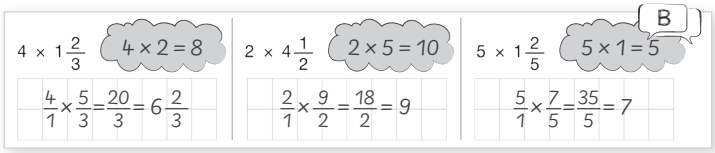
The second example shows how to find the exact product.

- **What fraction equals 3 wholes?** *3 over 1.*
- **What fraction equals 2 and one-fourth?** *Nine-fourths.*
- **3 times 9 equals 27. 1 times 4 equals 4. Twenty-seven-fourths equals 6 and three-fourths.**

Show your child the first practice problem in part B. **What is 1 and two-thirds rounded to the nearest whole number?** *2.* **What's 4 times 2?** *8.* **So, 8 is a good estimate for this problem.** Write "4 × 2 = 8" in the cloud.

Do you predict the answer will be greater than 8 or less than 8? Why? *Sample answer: The answer will be less than 8. 1 and two-thirds is less than 2, so the estimate is a little too much.*

Then, have your child find the exact product (either with the distributive property or fraction multiplication). **Is the product greater than or less than 8?** *Less.* Repeat with the other two problems.



Activity (C): Play Pop the Product (1-Player Game)

Explain to your child how to play Pop the Product. Then, have her complete this one-player game. Encourage her to round the mixed numbers in the problems to the nearest whole number to help estimate the products.

Pop the Product

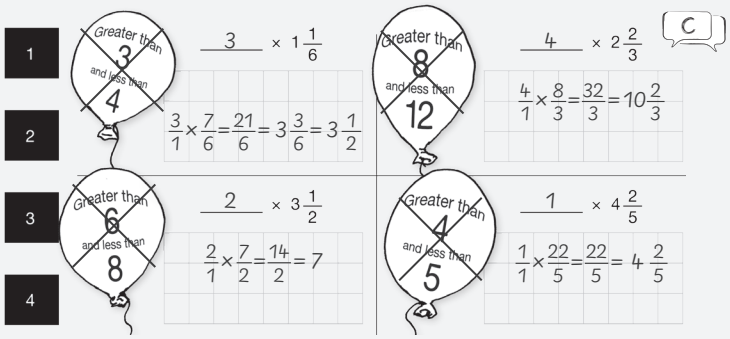
Materials: None

Object of the Game: Write factors in the multiplication problems so that each problem yields the target product in the balloons.

For each problem, choose a number from the boxes on the left. Write the number in a multiplication problem so that the problem's product matches the description in the balloon. Then, solve the problem to check whether you are correct. If you are correct, draw an X on the balloon to "pop" it.

For example, the target product for the first problem is "greater than 3 and less than 4." Look for a number that you can multiply by 1 1/6 to yield a product between 3 and 4. Repeat until you've popped all the balloons.

Answer Key:



Independent Practice and Review

Have your child complete the Lesson 11.3 Practice and Review workbook pages.

Lesson 12.4
Find Missing Angles in Triangles

Purpose	Materials
• Create acute, right, and obtuse triangles from paper • Investigate the sum of angles in different kinds of triangles • Learn that the sum of the angles in a triangle always equals 180° • Find the measure of an unknown angle in a triangle	• Paper • Scissors • Ruler

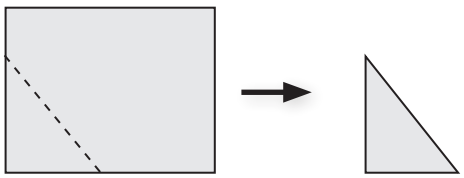
Memory Work

- **What is an acute triangle?** *A triangle with 3 acute angles.*
- **What is a right triangle?** *A triangle with a right angle.*
- **What is an obtuse triangle?** *A triangle with an obtuse angle.*

Warm-up: Investigate the Sum of Angles in Paper Triangles

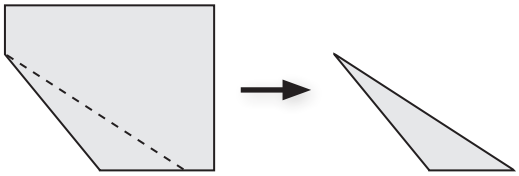
In the last lesson, we reviewed how to identify triangles based on their angles. To warm up today, we'll create triangles out of paper and investigate the sum of their angles.

Have your child create a right triangle from a piece of paper. Encourage him to use the corner of the piece of paper as the right angle and then use a ruler to draw the opposite side. The other angles and sides may have any measure.



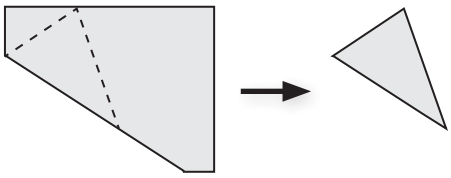
Sample right triangle.

Have your child create an obtuse triangle from the remaining part of the paper. Encourage him to use a ruler to draw just one line across the remaining piece of paper to create the obtuse triangle.



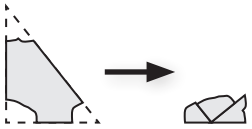
Sample obtuse triangle.

Have your child create an acute triangle from the remaining part of the paper. He may need to use the ruler to draw one or two lines, depending on how he cut the previous triangles.



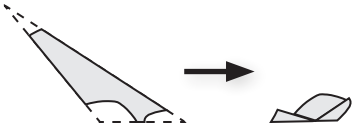
Sample acute triangle.

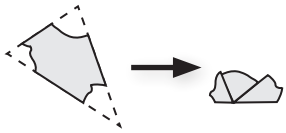
Now, let's investigate the sum of the angles in each triangle. Tear off the 3 corners of the right triangle and place them together as shown. **The three angles form a straight angle! So, what must the sum of the three angles equal?** *180 degrees.*



Make sure to roughly tear the corners rather than cutting them with scissors. The "shaggy" edges make it easier to see which corners to put together to form a straight angle.

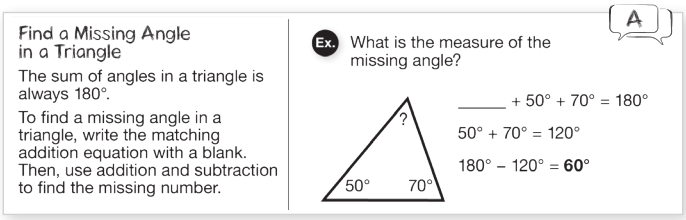
Have your child repeat with the obtuse and acute triangles. **The sums of the angles in these triangles equal 180 degrees, too!**





Activity (A): Find a Missing Angle in a Triangle

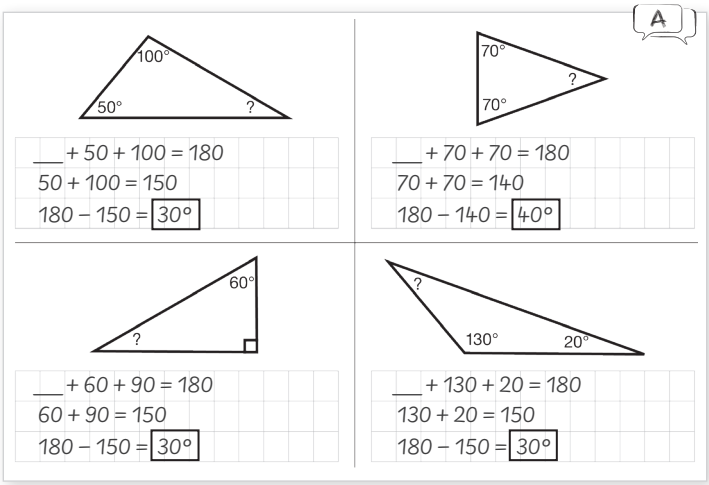
In the warm-up, we saw that the sum of the angles in each triangle was 180 degrees. This is always true for all triangles. We can use this fact to find a missing angle in a triangle. Have your child read the text box aloud.



In the example, we know that one angle measures 50 degrees and another angle measures 70 degrees. We want to find the measure of the third angle.

50 plus 70 equals 120. So, we can subtract 120 from 180 to find the measure of the third angle. What's 180 minus 120? *60.* **The third angle measures 60 degrees.**

Have your child use this method to find the measure of the missing angles in the triangles in part A. He may use mental math or write out his equations on scrap paper.



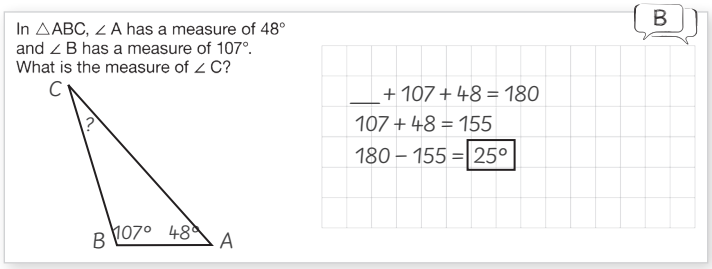
If your child has trouble with the bottom left exercise, point out that the right angle measures 90°.

Activity (B): Draw a Triangle and Find a Missing Angle

Read aloud the word problem in part B. **This word problem tells the degree measures for two of the angles in a triangle, but there's no drawing. Let's make a quick sketch to help visualize the problem.**

Will this triangle be acute, obtuse, or right? *Obtuse.* **How do you know?** *The 107-degree angle is obtuse.* **So, draw a sketch of an obtuse triangle. It's okay if the angles don't exactly match the measurements.** Have your child draw an obtuse triangle, label the vertices to match the problem, and label the measures for the known angles. Have him draw a question mark inside ∠C.

Have your child write the matching addition equation with a blank to show the sum of the angles. Then, have him find the measure of the missing angle. **What's the measure of angle C?** *25 degrees.*



Sample drawing. Your child's drawing may look different.

Look back at the drawing with your child. **Does 25 degrees seem like a reasonable measurement for angle C?** *Yes.* **If you'd gotten an answer that seemed unreasonable, you'd want to check your work!**

Independent Practice and Review

Have your child complete the Lesson 12.4 Practice and Review workbook pages.

Lesson 14.4
Multiply Decimals by One-Digit Whole Numbers

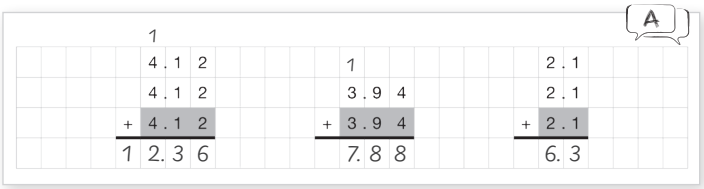
Purpose	Materials
• Preview decimal multiplication by adding equal decimal amounts • Use the written algorithm to multiply a decimal by a one-digit whole number	• Base-ten blocks • Decimal Place-Value Chart (Blackline Master 6) • Die

Memory Work

- **What do we call the result when we multiply two numbers?** *The product.*
- **What do we call the numbers in a multiplication equation that we multiply together?** *Factors.*

Warm-up (A): Add Equal Decimals

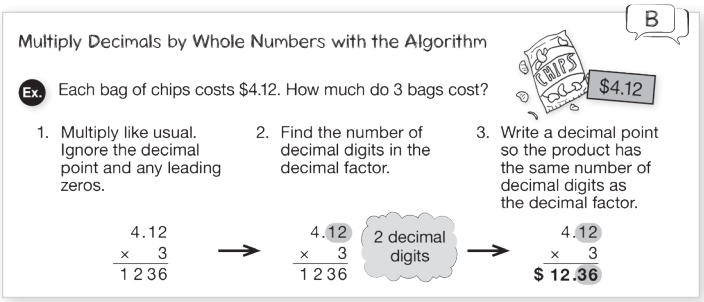
Earlier this year, you learned how to add decimals. Have your child complete the problems.



Activity (B): Multiply Decimals by Whole Numbers with the Written Multiplication Algorithm

In the warm-up, you added to find the sum of equal decimal amounts. What operation do we use to add equal groups more quickly? *Multiplication.* **Today, you'll learn how to use written multiplication to find the total of equal decimal amounts.**

Have your child read the text box aloud.

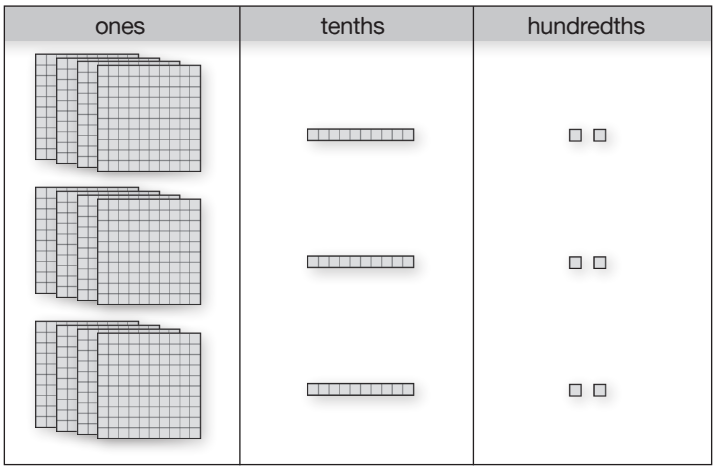


The example shows how to multiply 4.12 times 3.

- **First, we multiply the digits like usual with the multiplication algorithm, starting with the ones-place.**
- **Then, we count the decimal digits in the decimal factor. How many decimal digits does 4.12 have?** *2.*
- **Last, we write the decimal point so the product has the same number of decimal digits as the decimal factor. In this problem, 4.12 has 2 decimal digits, so the product has 2 decimal digits as well.**

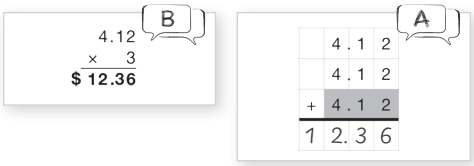
Placing the decimal point in this way makes sure that each digit ends up in the correct place. Let's use base-ten blocks to check that each digit is in the correct place. Arrange 3 groups of 4 flats, 1 rod, and 2 unit blocks on the Decimal Place-Value Chart.

- **2 hundredths times 3 equals 6 hundredths, so the 6 belongs in the hundredths-place.**
- **1 tenth times 3 equals 3 tenths, so the 3 belongs in the tenths-place.**
- **4 ones times 3 equals 12 ones. 12 ones equals 1 ten and 2 ones, so the 1 belongs in the tens-place and 2 belongs in the ones-place.**



Stack the flats as needed to fit on the Decimal Place-Value Chart.

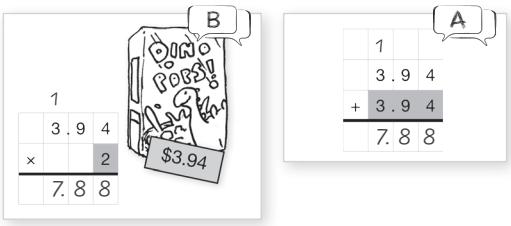
Point back to the matching addition problem in part A. **Multiplying 4.12 times 3 is just like adding 4.12 plus 4.12 plus 4.12.**



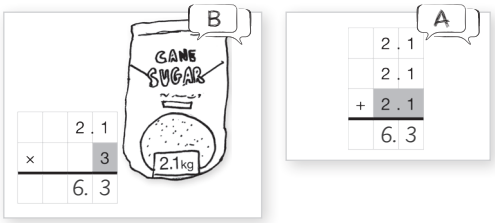
When we add decimals, we line up the decimal points so that we add the digits with the same place value. We add hundredths to hundredths, tenths to tenths, and ones to ones.

When we multiply a decimal by a whole number, we don't need to line up the decimal points. That's because the whole number simply tells us how many groups or copies of the decimal amount we have. In this problem, the 3 tells us that we have 3 groups of $4.12.

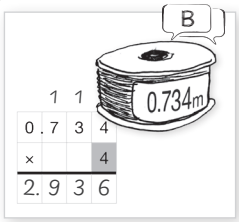
In the first practice problem, you multiply 3.94 times 2 to find how much 2 boxes of cereal cost. Have your child follow the steps to solve the problem. Use base-ten blocks to model the problem as needed. After your child solves it, point back at the matching addition problem in part A. **Whether you add or multiply, 2 boxes of cereal cost $7.88.**



In the second problem, each bag of sugar weighs 2.1 kilograms. So, we'll multiply 2.1 by 3 to find how much 3 bags weigh. After your child solves it, point back at the matching addition problem in part A. **How much do 3 bags of sugar weigh?** *6.3 kg.*



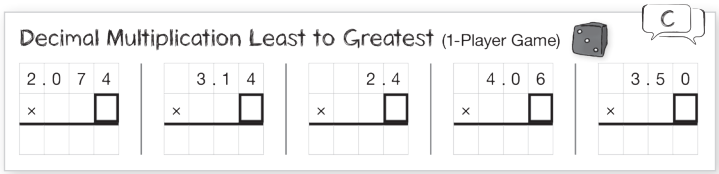
In the last problem, each spool of wire is 0.734 meters long. Let's multiply 0.734 by 4 to find out how much wire is on 4 spools. Remind your child as needed to ignore the leading zero. **If we wanted to use addition to check the multiplication, what addition problem would we use?** *0.734 plus 0.734 plus 0.734 plus 0.734.* (Your child does not need to find this sum.)



Activity (C): Play Decimal Multiplication Least to Greatest (1-Player Game)

To play this game, you roll a die. You write the number on the die as the missing factor in one of the multiplication problems and find the product. Your goal is to complete your game board so that the products are in order from least to greatest. Be careful, though! Once you write a factor, you can't change it.

Let's pretend I rolled a 6 and wrote it in the first problem on the left side of the gameboard. Do you think that would be a good play? Why or why not? *Sample answer: That wouldn't be a good play, because the product would be around 12. That means all the other products would have to be greater than 12.* **If you write 6 in the first problem, all the other problems' products have to be greater than that product. You probably want to write the 6 on the right side of the game board and wait until you roll smaller numbers for the left side.**



The goal of the game is for the products to end up in order from least to greatest (from left to right). So, it's better to place lower rolls on the left side of the board and higher rolls on the right side.

Have your child play Decimal Multiplication Least to Greatest. Encourage him to use estimation as he decides where to place the factors.

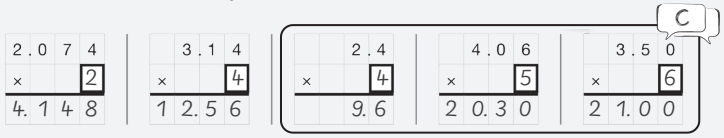
Decimal Multiplication Least to Greatest

Materials: Die

Object of the Game: Complete the multiplication problems so that the products are in order from least to greatest.

Roll the die. Write the number you roll as the missing factor in one of the multiplication problems. (If you roll a 1, roll again.) Then, multiply to find the product.

After you complete all the multiplication problems, count how many of the products are in order from least to greatest (with no out-of-order products between them). Use the scoring guide to see how well you did.



Sample completed game board. This player has 3 products in a row from least to greatest.

Independent Practice and Review

Have your child complete the Lesson 14.4 Practice and Review workbook pages.

Unit 16 Checkpoint

What to Expect at the End of Unit 16

By the end of Unit 16, most children will be able to do the following:

- Find the mean for a data set by adding the values and dividing by the number of values. Some children will still need help rounding to the correct place if the mean is a decimal.
- Use the mean to find a missing value in a data set.
- Find the median for a data set. Some children will need to be reminded to find the mean of the middle two values if the data set has an even number of values.
- Use the mean and median to draw conclusions and compare two data sets.

Congratulations!

Congratulations on finishing *Fifth Grade Math with Confidence*! Give yourself a pat on the back for all that you've taught your child this year.

Scope and Sequence

Unit	Objectives
Unit 1 Review and Order of Operations	• Review mental multiplication and division strategies • Review the written process for multiplying a multi-digit number by a one-digit number • Review how to use long division to divide a multi-digit number by a one-digit number • Review how to interpret line plots and find an average • Review how to multiply or divide to convert measurements • Find missing numbers in simple addition, subtraction, multiplication, and division equations • Use the order of operations to evaluate expressions with parentheses
Unit 2 Place Value and Decimals	• Understand whole-number place value to the billions-place • Round large numbers to any place • Add and subtract numbers to the billions-place • Understand decimal place value to the thousandths-place • Compare decimals to the thousandths-place • Write decimals in expanded form • Write decimals as mixed numbers or fractions with base-ten denominators (i.e., understand that 4.372 equals 4 372/1,000) • Round decimals to any place • Add and subtract decimals to the thousandths-place
Unit 3 Whole Number Multiplication	• Find the least common multiple (LCM) for a pair of numbers • Use the "multiply and adjust" strategy to mentally multiply • Use doubling to mentally multiply by 2 or 4 • Use the associative property to multiply three or more factors • Multiply numbers with trailing zeros, either mentally or with the multiplication algorithm • Use the box method to multiply two- or three-digit numbers • Extend the multiplication algorithm to larger numbers (up to four-digit times two-digit or three-digit times three-digit)
Unit 4 Volume	• Understand that volume is the amount of space a solid takes up • Use volume formulas (length × width × height or base area × height) to find volume • Divide to find a missing dimension of a rectangular prism • Divide to find the base area or height of a rectangular prism • Split solids into rectangular prisms and add to find the total volume • Solve volume word problems
Unit 5 Add and Subtract Fractions and Mixed Numbers with Different Denominators	• Review how to convert mixed numbers to fractions and fractions to mixed numbers • Review how to multiply to create equivalent fractions and find missing numbers in pairs of equivalent fractions • Use common denominators to compare fractions with different denominators • Add and subtract fractions or mixed numbers with different denominators • Solve fraction and mixed number word problems • Estimate the answers to mixed number addition and subtraction problems

Unit	Objectives
Unit 6 Mental Division	• Mentally divide by 15, 25, and 35 • Use divisibility rules to tell whether numbers are divisible by 2, 3, 4, 5, or 6 • Mentally divide by 2 by splitting numbers in half • Mentally divide by 4 by dividing by 2 twice • Use the "multiply and adjust" strategy to mentally divide two-digit numbers by one-digit numbers • Use mental division and divisibility rules to find all factors of numbers to 100 • Find the greatest common factor (GCF) of two numbers • Mentally divide by multiples of 10 or 100 (for example, 600 ÷ 30 or 3,000 ÷ 500)
Unit 7 Long Division	• Review how to use long division to divide by one-digit numbers • Use long division to divide by multiples of 10 and two-digit numbers • Use long division to solve word problems
Unit 8 Fractions of Sets and Simplest Form	• Describe part of a set with a fraction • Write fractions in simplest form • Describe part of a set or measurement unit with a fraction and find fractional parts of measurement units • Find the number of objects in a fractional part of a set • Use bar models to solve find-the-part, comparison, and find-the-whole fraction word problems
Unit 9 The Coordinate Plane and Line Graphs	• Identify and plot points on the coordinate plane (positive coordinates only) • Identify the slope of lines on the coordinate plane as upward, downward, horizontal, or vertical • Create and interpret line graphs based on real-world data • Make a table of values based on a real-life number pattern, plot the resulting ordered pairs, and use the graph to draw conclusions about the number pattern
Unit 10 Multiply Fractions	• Multiply to find a fraction of a fraction • Reason about fraction multiplication and compare products of fraction multiplication • Solve fraction multiplication word problems • Multiply to find the area of rectangles with fractional lengths
Unit 11 Multiply Mixed Numbers	• Multiply whole numbers by fractions or mixed numbers to find the total of equal groups • Multiply to find fractions of whole numbers or mixed numbers • Estimate products of mixed numbers and products of whole numbers and mixed numbers • Reason about fraction multiplication and predict whether a product will be greater than, less than, or equal to one the factors • Solve multiplication word problems that involve multiplying fractions, whole numbers, or mixed numbers • Multiply fractions, whole numbers, or mixed numbers to find the area of rectangles

Unit	Objectives
Unit 12 Geometry	• Review how to measure and draw angles with a protractor • Identify acute, right, and obtuse triangles • Identify equilateral, isosceles, and scalene triangles • Categorize triangles based on both their angles and sides • Find the measure of a missing angle in a triangle • Identify quadrilaterals • Build and draw triangles and quadrilaterals • Find the measure of missing angles in parallelograms and rhombuses
Unit 13 Divide Fractions	• Understand that the fraction bar is another way to represent division • Divide small whole numbers by small whole numbers and write the result as a fraction or mixed number (for example, 6 ÷ 5 = 1 1/5 or 3 ÷ 4 = 3/4) • Write remainders as fractions • Divide fractions by whole numbers (for example, 2/3 ÷ 4) • Divide whole numbers by unit fractions (for example, 3 ÷ ½) • Solve word problems that involve dividing fractions and whole numbers
Unit 14 Multiply Whole Numbers by Decimals	• Write decimals as groups of tenths, hundredths, or thousandths • Use place-value thinking to mentally multiply whole numbers by simple decimals • Move the decimal point to multiply decimals by 10, 100, or 1,000 • Multiply to convert metric measures • Multiply whole numbers by decimals with written multiplication • Estimate answers to decimal multiplication problems • Solve decimal multiplication word problems, including problems with money
Unit 15 Divide Decimals by Whole Numbers	• Divide decimals by 10, 100, or 1,000 • Divide to convert metric measures • Divide decimals by whole numbers with mental math or long division (and round the answer to a given place, if needed) • Estimate answers to decimal division problems • Solve decimal division word problems, including problems with money
Unit 16 Data	• Find the mean and median for a data set • Use the mean to find a missing value in a data set • Use the mean and median to draw conclusions and compare two data sets

Materials List

What You'll Need in Your Math Kit

You'll use the following materials regularly in *Fifth Grade Math with Confidence*. Stash them in a box or basket and always keep them ready for your next lesson. (See page 9 in the Introduction for more detailed descriptions of each item.)

- 30 small counters (15 each of 2 different colors)
- Fraction bars
- Fraction circles
- Base-ten blocks (30 unit blocks, 20 rods, 12 flats)
- 30 centimeter cubes (if you don't own base-ten blocks)
- Play money (20 one-dollar bills, 20 ten-dollar bills, 10 hundred-dollar bills)
- 1-foot (or 30-centimeter) ruler
- Protractor
- 2 packs of playing cards
- 2 dice
- Blank paper
- Pencils
- Highlighter
- 1 plastic page protector
- Dry-erase marker

Other Supplies

Besides your Math Kit, you'll also need the following household items. You'll only need most of them once or twice, so you don't need to gather them ahead of time or store them separately. Check the unit overviews for the specific household items you'll need for each unit.

Items marked with an asterisk are needed for the optional enrichment lessons at the end of each unit.

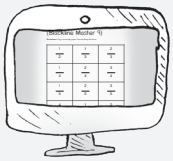
- *Travel brochures or internet access, optional
- World map, optional
- *8-10 jars of spices, labeled in ounces
- *Calculator or calculator app
- 1 extra die (to play a game that calls for 3 dice)
- 3 small boxes of different sizes (like boxes of pasta or rice)
- Measuring tape
- *Pillows, blankets, and furniture for building a fort
- Paper clip
- *Ingredients and supplies to make vegetable soup, optional
- 4 small slips of paper
- *Map app
- 5 craft sticks or writing utensils
- *Collection of 20-30 objects

- Colored pencils or markers
- *World map or globe with latitude and longitude lines, optional
- 3 paper half-circles
- Scissors
- Paper square foot
- 10 in. by 8 in. paper rectangle
- Rectangular object whose length and width are less than 1 foot (such as a book or picture)
- *Rectangular chocolate bar with lines that split it into fractional parts (such as a Hershey bar or Cadbury Dairy Milk bar)
- Measuring cups and spoons, optional
- 4 one-inch paper squares
- *Recipe with fractions and mixed numbers
- *Small piece of cardstock or cardboard (about 3 inches square)
- *Black marker
- *Colored pencils, markers, or watercolor paints
- *Grocery store flyer or website
- *Family recipe that makes a large batch, optional
- Stopwatch or stopwatch app

Guide to the Blackline Masters

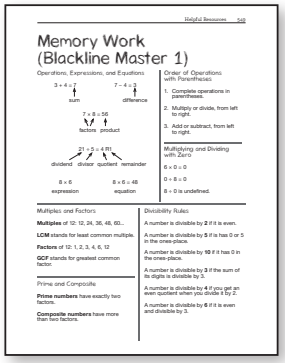
Digital Copies of Blackline Masters

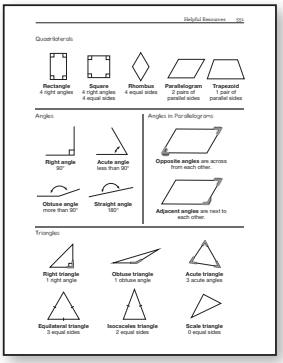
Prefer to print the Blackline Masters rather than copy them from the book? **Download digital copies of all Math with Confidence Blackline Masters at welltrainedmind.com/mwc.**

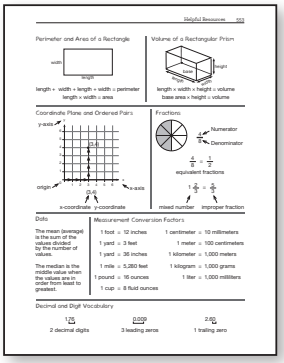


Reference Blackline Masters

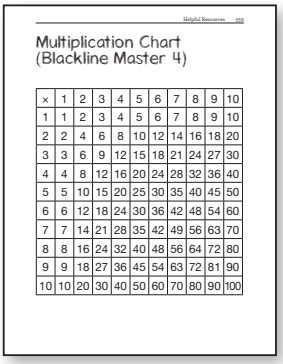
Families often find it helpful to have the Memory Work pages (Blackline Master 1) available for easy reference. If possible, post these pages near your lesson area to help your child gradually memorize the items over the course of the year.







If slow multiplication fact recall is causing frustration or making the lessons long and tedious, keep the Multiplication Chart (Blackline Master 4) nearby and allow your child to use it as needed. For some children, using the chart for a few months makes a big difference in helping them solidify their multiplication fact fluency. See the Unit 1 Checkpoint (page 51) for more on multiplication fact fluency.



Multiplication Chart
(Blackline Master 4)

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Short-Term-Use Blackline Masters

You will use these Blackline Masters for only a few lessons. You do not need to save them after you finish the corresponding unit.

- Decimal Cards (Blackline Master 5), used in Units 2 and 14 only
- Decimal Place-Value Chart (Blackline Master 6), used in Units 2 and 14 only
- Decimal Squares (Blackline Master 7), used in Unit 2 only
- Fraction Cards (Blackline Master 9), used in Units 5 and 10 only
- Paper Strips (Blackline Master 10), used in Unit 12 only
- Triangles for Folding (Blackline Master 11), used in Unit 12 only
- Paper Parallelogram (Blackline Master 12), used in Unit 12 only
- Paper Chocolate Bars (Blackline Master 13), used in Unit 13 only

Optional Blackline Masters

The Multiplication Assessment (Blackline Master 2) and Multiplication Review Games (Blackline Master 3) are optional for assessing and improving your child's multiplication fact recall. See the Unit 1 Checkpoint (page 51) for details on whether or not you need them.

The following Blackline Masters are provided in case you do not own real fraction bars, fraction circles, base-ten blocks, or play money.

- Fraction Bars (Blackline Master 8)
- Fraction Circles (Blackline Master 14)
- Base-Ten Blocks (Blackline Master 15)
- Play Money (Blackline Master 16)