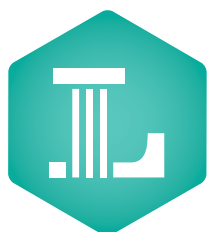LINCOLN
EMPOWERED

Parent & Teacher Guide

This Parent and Teacher Guide is designed to help you support your student's learning. The information presented in this guide is based on the course content at the time of printing. Occasionally, the online version of your course may change slightly, but the tips in the Parent and Teacher Guide are designed to broadly cover the course's content.

This guide is arranged in lesson order. You will find everything you need for each day of the school year.

LINCOLN
LEARNING
SOLUTIONS

Course Introduction

Welcome to Mathematics 5

LINCOLN
EMPOWERED

Introduction

Welcome to Mathematics 5, by Lincoln Empowered™. At this age, students show great creativity and inventiveness. Now is the time to harness this inquisitive, curious, inventive nature in order to guide your student to becoming a savvy problem solver. Encourage them to reason and think through problems at their own pace, exploring their ideas fully, even if their thought process leads to a wrong answer. While it is important to ensure your student eventually gets to the right answer, it is equally important to harness the power of productive failure. Allow your student to grapple with a problem, examine the steps they took, ask themselves what went wrong, and then try again.

In fifth grade, students begin to develop a higher level of mathematical thinking and are able to understand increasingly abstract concepts. This course focuses on developing math skills and problem-solving strategies. The problems and activities are designed to get students reasoning abstractly and quantitatively, constructing arguments, and modeling with mathematics. As your student advances and problems become more complex, it will become increasingly important to focus on precision of expression, using words to precisely explain how a problem is solved and why.

In order to strengthen your student's productive disposition, it is particularly important to project a positive attitude about math and about your student's ability to do math. Fifth graders are still forming their attitudes about math, how they perceive their mathematical abilities, their level of interest in math, and the motivation they have to tackle challenging problems and persevere in solving them. Their outlook on math this year will influence their success in math for years to come. While everyone has areas where they excel and struggle, math learning is now held to the same standard as literacy learning. In the twenty-first century, illiteracy is detrimental to an individual; the same is true for mathematical illiteracy. It is essential that students value math the same way that they value reading. Help encourage your student to feel good about math and to see themselves as a mathematician in training.

The purpose of this Parent and Teacher Guide is to aid you as you help your student on the path to success. This guide contains an overview of the course content, an introduction to navigating the course online, course expectations, and useful teaching tips and suggestions.

Understanding the Parent and Teacher Guide

The purpose of this Parent and Teacher Guide is to aid you as you help your student on the path to success.

This guide contains individual lesson pages, written to you, in order to supply you with the tools you will need to guide your student through each of the 180 days of Mathematics 5.

You will find clearly marked learning objectives for each day. These objectives were based off of national and state standards. You will also find lists of all the materials you need to facilitate your student's learning. After that, you will find designated sections to support you in the use of the curriculum.

A typical day's lesson will contain the following sections:

Activate

The **Activate** sections provide you with activities that you can use to help uncover your student's prior knowledge and get them excited about their upcoming lesson.

E

The **Engage** sections steer you to use both online and offline activities and provide you with tips to guide your student through their learning.

Demonstrate

The **Demonstrate** sections support the ways your student will show their understanding of the content. These pages, along with the remainder of the information you will find in this Course Introduction, will empower you to be an effective educational guide.

Course at a Glance

Please guide your student to watch the brief welcome video for their course, which can be found just before the Lesson 1 folder. This engaging video is intended to excite your student and kickstart their learning. It will introduce your student to Mr. Reuben, who will guide them on a quick journey through some major topics covered in the course. As your student progresses, Mr. Reuben may return to provide encouragement or to simply add a personal touch.

End of the Year Expectations for Mathematics 5

By the end of the year, and in order to be sixth grade ready, your student will have mastered the following concepts:

Fractions	The ability to add and subtract fractions with accuracy and ease, to use equivalent fractions as a strategy to add and subtract fractions (e.g., 1/2 + 1/4 is the same as 2/4 + 1/4), to multiply fractions by whole numbers (e.g., 3/5 × 4), to multiply fractions by fractions (e.g., 1/8 × 3/4), to divide fractions by whole numbers (e.g., 1/2 ÷ 3), and to divide whole numbers by fractions (e.g., 6 ÷ 1/10)
Decimals	The ability to perform operations (+, −, ×, ÷) with decimals, to compare decimals and determine which is larger, to order decimals, and to round decimals to any place; the ability to understand fractions as division problems and to convert a remainder to a decimal

Place Value	The ability to explain that in a multidigit number, a digit in the one place represents 10 times as much as it represents in the place to the right, and 10 times less than what it represents in the place to the left
Powers of 10	The ability to use whole number exponents to denote powers of ten (e.g., 10^3, 10^4, 10^{10}, …) and to explain how the number of zeros changes or how the decimal moves when multiplying by a power of ten (e.g., that $5 \times 10^4 = 50{,}000$ and $5.234 \times 10^4 = 52{,}340$)
Whole Number Operations	The ability to perform operations with multidigit whole numbers with accuracy and ease, including division problems with two-digit divisors (e.g., $350 \div 25$)
Algebraic Expressions	The ability to write and solve expressions using the order of operations (e.g., given the word problem, "Add 8 and 7 then multiply by 2"; the ability to write and solve $2 \times (8 + 7)$)
Unit Conversion and Measurement	The ability to convert like measurement units within a given measurement system (e.g., inches to feet, grams to kilograms, minutes to hours)
Volume	The ability to explain what volume is, to calculate volume, and to relate volume to addition and subtraction (e.g., to understand that the volume of an irregular shape can be calculated by dividing the shape into familiar shapes, then finding and adding the volume of each)
Represent and Interpret Data	The ability to graph data on a line plot or on the coordinate plane; the ability to use graphs and tables to solve real-world and mathematical problems
Geometry	The ability to classify two-dimensional shapes into categories based on their properties
Word Problems	The ability to write and evaluate mathematical expressions to solve word problems; the ability to apply mathematical content knowledge to real-world scenarios

NOTE: If your student has already mastered any of this content in previous grades, it is not necessary to spend a significant amount of time on the previously mastered content in this course. It is, however, important to review the content so that the learning is not lost.

Daily Practice

The problems and activities in this course are designed to develop your student's reasoning and problem-solving skills. They will be asked to explain their thinking, use mathematical tools, and look for patterns. To help solidify these ideas, students need the opportunity to practice math daily. Studies have shown that students who practice math every day have higher retention rates of key skills than those who practice less frequently.

Materials and Kits

An essential piece of learning mathematics is using math manipulatives. The Lincoln Empowered™ materials kit provides many of the tools your student will need in order to succeed in math learning. Beyond the items in the kit, you will be asked to utilize common household objects such as pennies, pieces of cereal, buttons, etc.

Students are expected to keep a math notebook for this course. A composition book or spiral notebook with graph paper are two possible formats. Many students prefer using a one-inch, three-ring binder with loose leaf graph paper inside as their math notebook. The three-ring binder will allow your student to file printed activity pages and graded assessments along with daily notebook entries, keeping everything in one place.

Students will benefit from completing their work in pencil, as mistakes will inevitably arise, making it necessary to erase and rewrite. Your student should have pencil and paper or a notebook available for every lesson, so they will not be listed separately as required materials in the lesson content or this guide.

Course Assessments

There are two types of assessments in Mathematics 5: Assess Its and Mastery Assess Its. Both are graded assessments. Assess Its are shorter assessments with a narrower scope of focus. The purpose of Assess Its is to gauge where your student is on the road to mastery of the targeted content. You can use the result of this formative assessment to reflect on the concepts and skills your student needs to revisit. Assess Its are often completed offline and then submitted for grading.

Mastery Assess Its are longer with a broader scope of focus. They serve as an opportunity for your student to demonstrate their level of mastery of a set of skills and concepts. Mastery Assess Its are typically completed and submitted online, within the course.

The Standards for Mathematical Practice

Along with the mathematical content that your student will learn, it is good for them to think about practices that span all math content knowledge. As your student progresses through this course, look for opportunities to support the development of these characteristics of good problem solvers:

- Reason abstractly and quantitatively
- Construct viable arguments and critiques
- Make sense of problems and persevere
- Attend to precision

- Model with mathematics
- Look for and make use of structure
- Use appropriate tools strategically
- Look for and express regularity in repeated reasoning

The Math Notebook

Your student should keep a math notebook, logging an entry for each day of lessons and each problem solved. Ideally, the math notebook should have graph paper in it. As your student works through the lessons, ask them to write down the key terms and ideas and to show their work in a neat, organized way in their notebook when solving problems. Have them circle or draw a box around their solution. Your student should always show the steps they take to reach their answer, writing one step per line. This notebook will be a great resource to study before the Mastery Assess It exams, and it will help solidify the concepts in your student's mind, increasing their retention of the material learned.

Understanding How People Learn

Helping Your Student

You play an important role in your student's learning, and being able to effectively support the learning process is key. This section will provide you with additional helpful hints, beyond the individual lesson pages, to bring learning to life inside and outside the classroom.

Did you know? The brain recognizes the five senses in five different areas. It is best for all learners to tap into as many of these areas as they can, simultaneously. This approach is called a multisensory experience for students.

Understanding Attention Span: A good rule of thumb in understanding your student's attention span is to consider their age. Students are generally able to actively concentrate for one minute per age year. Therefore, a fifth grade student will only be able to focus on one thing, without a cognitive shift, for about ten to eleven minutes. At that point, change the way you present an activity to keep your student engaged. For example, a simple change from reading to solving a problem will help your student to concentrate. You can also watch a video and pause it for a discussion. Alternating modes of learning will help your student stay engaged with the content.

Developmental Characteristics of Fifth Graders:

Fifth grade is a year of great cognitive and physical growth. Fifth grade students are generally more emotionally resilient than they were in fourth grade, very talkative, and cognitively more mature. They are able to concentrate and listen attentively for longer periods of time. Ten-year-olds are more sophisticated in their ability to see things from different perspectives. They think abstractly and evaluate right and wrong. As your student moves through the year, you may notice their interest in explaining things and arguing. They like to share their experiences, but they can be impulsive and talk without thinking. They will likely have a tendency to become more argumentative as the conversation progresses. These types of interactions are a great time to help your student learn to express their opinions and back them up with facts. Along with the cognitive and academic developments your fifth grader will go through, be aware that they are also going through physical growth spurts this year, which can affect their energy and concentration. Your student may be very hungry during the day or appear tired. These traits are normal signs of the growth spurts that your student is experiencing. Being aware of these developmental tendencies of ten- and eleven-year-old students can help you be a better educational guide. Here are some tips to keep in mind this year to support your student.

- Engage your student in conversations and discussions frequently. These conversations will satisfy their need to talk and explain things. If your student becomes argumentative, help them to back up their argument with facts. Use the questions provided in the Art of Questioning section of this Introduction to help guide discussions with your student.

- Provide snacks and breaks for physical activity to ease the effects of your student's growth spurts. Encourage an early bed time, as students may need more sleep as they grow.

Balancing Factual and Conceptual Learning

Factual learning is basically rote memorization of facts, terms, and content. **Conceptual learning** is a deeper understanding of a concept and can be better achieved through multisensory learning. To move from learning to true understanding, students need a balance of both types of learning, as each is of equal importance.

To help your student build **factual knowledge** in Mathematics 5, consider the following points:

- **Flashcards:** Use number cards and flashcards to practice number sense and to aid in the memorization of math facts, such as formulas for volume, powers of ten, or multiplication facts. (Your student should have memorized their multiplication facts for 1 to 12 by now.)

- **Memory Games:** Create a memory game with math terms on one card and the definition on the card that makes the pair. Play memory games once your student has a grasp of these math facts from studying their flashcards.

- **Time Trials:** Use time trials to develop fluency in computational skills and make practicing more fun. Time your student as they solve a problem set (Practice Its or Show Its, for example). Focus on a specific problem type and encourage your student to beat their best time to complete the problem set with 100 percent accuracy. If your student needs more practice, there are a host of free worksheets that can be found online. Use the title or objective of the lesson in focus as the search term.

- **Math is Everywhere:** Point out math everywhere you go. When shopping or even just driving down the road, show your student that math is all around them. Name the shapes of signs you see on the road, and connect this activity to the math vocabulary your student is learning. When eating pizza or a cake, use the slices to illustrate fractions. Challenge your student to point out examples of math to you.

To support **conceptual learning**, think about learning in three stages. Consider concrete examples first, followed by pictorial representation, and finally abstract representation. Concrete examples should always come before you ask your student to simply read about or memorize a fact or concept.

1. **The Concrete Stage:** First, use objects to **act out** math problems, bringing them to life for your student. Have your student explore the concept using concrete objects, such as pasta, pennies, balls, or other three-dimensional manipulatives (for example, those provided in the Lincoln Empowered™ materials kit). By manipulating objects, students can more easily transfer learning to paper and pencil.

2. **The Representational Stage:** Next, **draw** a picture to show what is happening in the math problem. Play Its or Watch Its often offer visual representations of problems, so it is great to allow your student to engage with these items before completing a problem with pencil and paper.

3. **The Abstract Stage:** Finally, **use math symbols and numbers** to solve the problem. Help your student make connections between the concrete, representational, and abstract stages of solving a problem.

Cognitive Abilities for Mathematics Learning

Language development is critically integrated with the development of mathematical thinking. Language is a tool for performing and understanding mathematical tasks. As your student solves problems, they should be able to explain their reasoning aloud or in writing. You can support language development by having your student explain their work to you. Assist them in finding the right words when they are stuck. As your student masters skills and problems, they will be able to clearly articulate how and why they took certain steps to solve a problem. They will also be able to explain the result achieved. Ask your student to teach you how to do a problem in order to support this development.

Memory is another cognitive ability that is of the utmost importance to mathematics learning. Spend time with your student practicing and memorizing math facts using flashcards and games or searching online for songs, funny acronyms, or phrases to aid memory (e.g., PEMDAS—**P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally—to help remember the order of operations: **p**arentheses, **e**xponents, **m**ultiplication, **d**ivision, **a**ddition, **s**ubtraction). Even playing a memory game not related to math will help support your student's memory. Memorizing math facts is partly accomplished by studying and partly accomplished through practice and the application of math facts.

Finally, it is important that your student is able to make **mental representations of number and space**. When you see geometrical shapes in buildings or nature, point out these shapes to your student. Ask your student to imagine how many candies would fit in a glass jar or how many balls would fit in a box. Play "Paint a Picture in Your Mind": Ask your student to close their eyes and imagine a series of objects that you narrate. For example, you could say, "Imagine a cube, now imagine another cube stacked on top of it, now imagine…." Get your student visualizing number and space when you find the opportunity.

Math Talk

In order to support the development of mathematical thinking and language development, assign some problems to be answered in words. Ask your student to write out the steps they take and the reasons why they take those steps to solve a problem. Students should write as if they were talking out loud, teaching the problem to someone else, or talking themselves through what they are doing and why. Here are some sentence starters to help get your student writing out their problem-solving steps:

Math Talk – Sentence Starters

- The first thing I did to solve the problem was…
- First/Next/Then/After that…
- I figured out ___ by…
- I tried ___, but this didn't work because… OR
- I tried ___, and this worked because…
- I compared ___ to ___ and decided to…

- I noticed…
- The drawing/graph/table shows me…
- I decided to use the math rule ___ because…, and this worked/didn't work because…
- This makes sense because…
- I know the answer is reasonable because…

Assess Prior Knowledge

It is always best to assess students' prior knowledge before they are introduced to a new topic. This simply means finding out what students already know (or think they know) about the topic. By knowing what your student knows, you are able to quickly review mastered content, uncover misunderstandings, and learn where you need to slow down and provide better support. Consider these tried and true staples of any educator's classroom.

1. **Ask a focus question:** Focus questions are written in a way that focuses the student's attention solely on the small task ahead and simply asks what they know.

2. **KWL Charts:** Work with your student to complete the chart to the right. K — list what the student knows; W — list what the student wants to know; L — list what the student has learned about a given topic.

3. **3-2-1:** Ask your student to share three things they know about the topic, two things they would like to know, and one question related to the topic.

Know what I *Know*	Wonder what I *Want* to know	Learn what I *Learned*

Setting a Reason for Learning

Besides uncovering what your student already knows or doesn't know, it is important to set a reason for learning. Getting students excited about learning a new concept is half the battle in getting them to understand it. Introducing a topic in a fun, exciting way will cause students to want to learn more. Creating excitement can often be accomplished through relating math to real-life situations that your student finds interesting. For example, many students at this age enjoy video games or watching cartoons. Relate the idea that the people who create their favorite games and shows rely on math to do their jobs. You can take this discussion a step further by finding an online video to show your student how math is used in these careers. Playing games is also a great way to get your student excited about math. Along with uncovering your student's prior knowledge, these tools create curious learners who want to explore concepts even further.

Sometimes, it is necessary to learn a math fact for which there is no concrete, real-world example. There may come a time this year when your student asks, "When will I ever use this?" Math facts and rules are the grammar of the language of mathematics. While alone they may seem abstract and unnecessary for daily life, it is important to master these facts in order to learn to "speak" and do mathematics. Remind your student that the exciting, real-world connections come once they have gained a level of proficiency that allows them to do the math that makes science and technology possible. Examples of real-world math include website design, the computer programming used in the creation of every video game or animated movie, the technology of 3-D printers, and the science behind self-driving cars, weather forecasting, air traffic control, and medical testing.

Develop Metacognition

Metacognition is a complex word for something that is part of our daily lives. Simply explained, "meta" means after or beyond, and "cognition" means the process of acquiring knowledge. Therefore, metacognition is something we do after we gain knowledge. The process of metacognition is about self-monitoring, self-evaluating, and self-regulating all types of thought.

When students gain knowledge, it is up to teachers and parents to help them build on their knowledge. Helping your student to develop metacognitive skills is essential.

To help build metacognition, ask your student these questions:

- What are you thinking?
- What do you wonder?
- What did you notice?
- What questions do you have?
- What does this remind you of?

- What are you trying to figure out?
- What are you picturing in your head?
- How are you feeling?
- What do you find interesting?
- What other concept does this connect to?

The goal is to eventually move away from asking your student these questions to your student stating them without being prompted. Eventually, your student will say: "I'm thinking, I notice, I wonder…"

The Art of Questioning

To inquire about something is to ask questions about it, to examine or investigate it, or to probe and explore it. A good rule of thumb when guiding your student's learning is to tell less and ask more. While you don't want a student to hit their frustration point, grappling with content actually helps a student to more effectively master that content. To aid them in their learning, consider asking guided questions. This type of open-ended questioning requires more than a one-word answer. Lead your student through the content by posing good questions. A student will retain information longer if they discover the concepts themselves instead of being told. Here are some questions you might use when working on math problems with your student:

- What do you need to find out?
- What information do you already have?
- What do you need to know first?
- How can you get that information?
- What words or symbols in the problem do you (not) understand?
- Can you make a drawing to show what is happening?
- What would happen to the number ___ if we ___?
- Is there another way to represent this number (e.g., using fractions, powers of ten, or a mathematical expression)?
- Are ___ and ___ equal/the same? How can you prove it?
- How can this sentence be written using math symbols?
- How would you read this math expression as a sentence in words?
- Can you think of a problem that you have solved that was similar to this one?

- What do you think you (might) need to do next? What if you ___?
- Do you notice any patterns or relationships that seem important?
- How does that relate to…?
- Why did you ___?
- Is there another way you could have ___?
- Can you think of a rule or a property that could help us?
- How do you know?

Empowered™ Courses: What You Need to Know

LINCOLN EMPOWERED

Lincoln Empowered™ is a unique kind of curriculum. Courses are composed of learning activities called learning objects. A number of learning objects are presented together as lessons. Learning objects are individual pages and activities that provide students with the content and practice they need to master specific learning objectives, or goals, for a course. Students are often asked to demonstrate mastery of learning objectives by completing assessments.

Engagement

Students are engaged through various activities, videos, and simulations. Students may be asked to complete a task on paper, or they may engage with a variety of online activities. TextPoppers, for example, are found within the content as blue, bold text. Students can hover over these words with a mouse or click on them to see definitions of key terms and phrases.

Learning Objects

Ten different types of learning objects exist within Lincoln Empowered courses:

Read It

Read Its are the primary learning tools within a course. They contain all of the instructional information students need to demonstrate mastery of the granular learning objectives.

Practice It

Practice Its are interactive activities that can be accessed online or offline. They provide the opportunity for students to check their understanding of the learning objectives.

Watch It

Watch Its are learning tools that utilize videos to enhance the learning experience and bring abstract concepts to life for students.

Play It

Play Its are content-focused, interactive games that support learning.

Show It

Show Its are activities that provide the opportunity to show mastery of specific learning objectives.

Answer Key

Answer Keys are available to the instructors for all Show Its and Apply Its. They provide correct answers and detailed feedback that can be shared with students.

Assess It

Assess Its are graded activities that allow students to demonstrate mastery of learning objectives and standards.

Reinforce It

Reinforce Its are supplemental activities to assist students who may be struggling. They also offer a great review before taking assessments.

Extend It

Extend Its provide additional content to extend student knowledge.

Apply It

Apply Its are non-graded assessments that cover content from multiple lessons. Apply Its can be cumulative projects that allow students to demonstrate mastery of several learning objectives. Teachers can elect to make these gradable.

Course Structure

Each Lincoln Empowered™ course is structured in a similar manner. When you and your student enter a course, you will find a number of topic folders. These topics reflect the key concepts that your student will learn in a specific grade and subject. Each topic folder contains a number of lessons.

Each lesson (e.g., Lesson 1, Lesson 2) represents one day of learning. Lesson folders contain the content, or the learning objects. A set of learning objects is presented to help a student master the content.

The Lincoln Empowered approach to instruction allows students multiple opportunities to learn and master objectives, which leads to mastery of the standards. It is not necessary for a student to complete every learning object. They were created to appeal to different modalities. You will notice that some content repeats, giving students additional exposure to a concept before an assessment. If your student has mastered the concept, move on to the next objective. Work the curriculum to meet your student's needs. There is flexibility in the "Its" that allows for student choice and greater differentiation, which puts you and your student in control of the learning.

Games and Videos

While games (Play Its) and videos (Watch Its) may appear after the content within the course, you may want to consider allowing your student to engage with these items first, especially when you need to grab their attention. This type of engagement builds excitement; it encourages the student to share prior knowledge or ask questions; and it helps to build knowledge for students who are lacking experience in a certain concept. Often, you will hear your student say, "They talked about that in the video," or other statements of excitement.

Course Resources

The first folder in your course is titled "Course Resources." It contains a set of useful resources that will help your student begin the course. Start by reviewing the Supply List and Pacing Guide. Then, view some of the materials you will need throughout the course.

Tips and Tricks

Documents & Handouts: Throughout the course, you will find many worksheets and reference sheets provided as PDF files. In some cases, it is best to download these PDFs to your computer so that you can view them in a larger format, while in other situations it will be necessary to print these files.
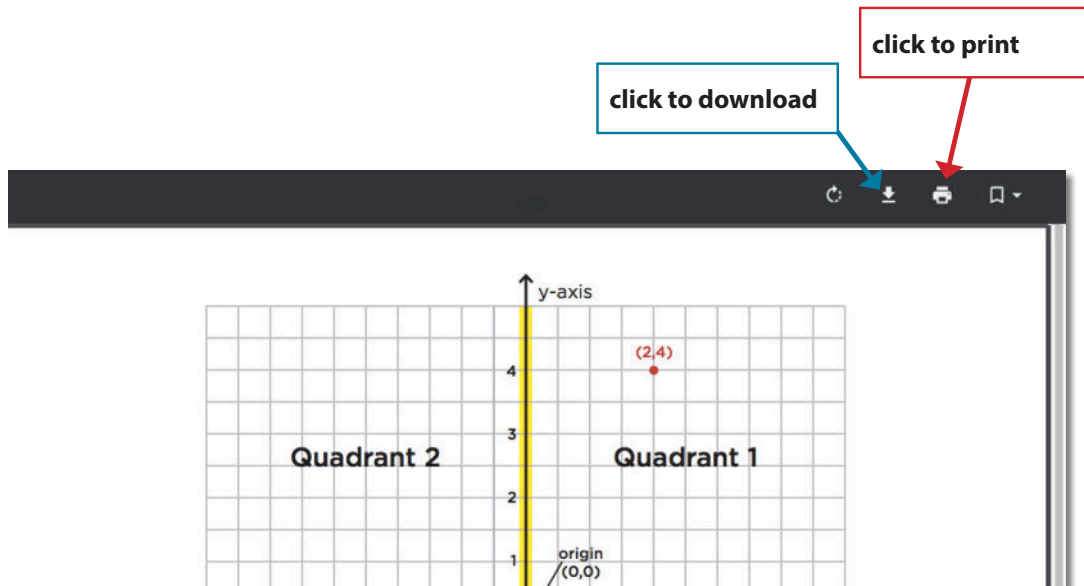
Optimizing Your View: Some PDFs, at first glance, do not seem ideal to read on the computer screen because of their large size. When you encounter these texts, if the content found in the PDF window is too large, click the "Fit to page" icon located at the bottom right of your PDF to adjust the zoom. This will auto adjust your view to your screen.
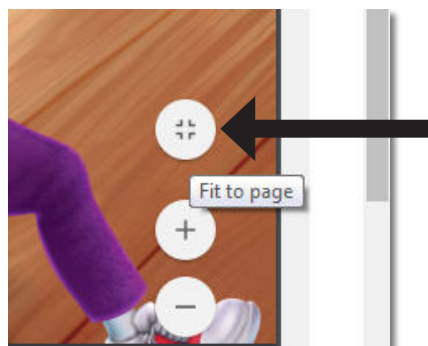
Time to Get Started

You now have all the information you need to have a successful year. So, what are you waiting for? Log in to your course and get started!

LESSON 1

Topic | **Place Value and Operations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use place value to read, write, and compare whole numbers through the hundred millions

Materials

- none required

Place Value of Whole Numbers

Activate

1. Ask your student if they would rather have 8 dimes or 1 dollar.
2. Ask if they would rather have 9 pennies or 2 dimes.
3. Next, ask your student how they determined their answers. Discuss their thinking.
4. Now, tell them that the answers to their questions were based on place value.

E

1. Allow your student some time to play the game in the **Extraction-Place Value – Play It** on the easy level.
2. Next, instruct your student to read the content of the **Read It**. Ask your student to give an example of a number in standard, word, and expanded form.
3. After that, have your student complete the crossword puzzle in the **Practice It**.
4. If they complete it correctly, have them move on.
5. If they do not complete it correctly, have them finish the **Practice It**.
6. If your student answered two out of three of the remaining questions in the **Practice It** incorrectly, direct them to watch the video in the **Whole Number Forms – Watch It**.

Demonstrate

1. Now, instruct your student to complete the **Show It**. Encourage them to keep an image of a place value chart handy to reference as needed.
2. Then, use the **Show It AK** to help your student check their responses.
3. To extend learning, encourage your student to point out when they use place value to make decisions. This could be when they are buying things, playing games, and so on. Consider prompting them when they shop with you or whenever an opportunity presents itself.

LESSON 2

| Topic | Place Value and Operations |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use place value to read, write, and compare decimal numbers through the thousandths

Materials

- none required

Place Value of Decimals

Activate

1. Ask your student if they would rather have 98 cents or 5 dollars.
2. Next, ask your student how they determined their answers. Discuss their thinking.
3. Explain to them that the place value of the cents makes the total value of 98 cents less than 5 dollars.

E

1. Have your student read through the content in the **Read It**.
2. Now, have your student complete the **Practice It**. Prompt them to check their work using the answer keys in the text.
3. If your student answers four out of seven questions in the **Practice It** incorrectly, direct them to watch the video in the **Decimals in Written Form – Watch It**.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.

LESSON 3

Topic | **Place Value and Operations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use place value to compare and order whole numbers to the hundred millions and decimals to the thousandths

Materials

- none required

Compare and Order Numbers

Activate

1. Ask your student if they would rather have a bag of candy that weighs 1.27 lb. or one that weighs 1.96 lb.
2. Next, ask your student how they determined their answer. Discuss their thinking.
3. Remind your student that to answer the question, they needed to compare the decimal numbers.

E

1. Instruct your student to read through the content of the **Read It**.
2. Next, tell your student to watch the video in the **Ordering Decimals – Watch It** to see a comparing and ordering problem worked out.
3. They can then play the game in the **Extraction-Comparing Decimals – Play It**.
4. Have your student complete the **Practice It**. This is an interactive learning object. Have your student watch and listen to the content on each slide, clicking the **Next** button to move on to the next slide. Once your student reaches slide 10, have them follow the instructions to complete the practice problems.

Demonstrate

1. Tell your student to complete the **Show It**. Encourage them to use a place value chart or graph paper to stack the numbers when they are comparing if needed.
2. After that, use the **Show It AK** to help them check their answers.
3. In order to extend their learning, have the student find different prices for items in an advertisement or at a store. Have them compare the prices and order the prices of the items from greatest to least and then least to greatest.

LESSON 4

Topic | Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use place value to round whole numbers to the hundred millions and decimals to the thousandths

Materials

- "Rounding Decimals and Whole Numbers" worksheet

Round Whole Numbers and Decimals

Activate

1. Tell your student that a toy they want costs $9.99, and ask them if they would need $9 or $10 to buy the toy.
2. Have them discuss their thinking and explain how they got their answer.
3. Explain that to know that they would need $10, they needed to use rounding.

E

1. Instruct your student to read through the content in the **Read It**. Have them tell you the steps to rounding a decimal number.
2. Have your student complete the **Practice It**. This learning object contains an interactive learning object. Have your student watch and listen to the content on each slide, clicking the **Next** button to move onto each new slide. Once your student reaches slide 5, encourage them to follow the directions to practice the skill until they answer the final question on page 7.
3. Allow them to play the game in the **Beaker's Big Buzz-Rounding Decimals – Play It**.
4. If your student misses two or more questions in the game, prompt them to watch the video in the **Round Whole Numbers and Decimals – Watch It**. If they miss less than two questions in the game, they can move on.

Demonstrate

1. Now, have your student complete the "Rounding Decimals and Whole Numbers" worksheet in the **Show It**. Encourage them to use a number line to round if needed.
2. When they are finished, help them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student look through their home pantry and find the weights of different food items listed on the boxes. Have your student round each amount to the nearest whole number, tenth, or hundredth.

LESSON 5

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- rewrite whole numbers using exponential notation and powers of ten

Materials

- none required

Powers of Ten

Activate

1. Ask your student what the product of 10 x 10 x 10 is.
2. Encourage them to explain how they would solve the problem, and discuss their thinking.
3. Tell them that they can use powers of ten and exponents to represent and solve this problem.

E

1. Instruct your student to read through the content of the **Read It**. Ask them to tell you an example of a power of ten in exponential form.
2. Prompt your student to complete the activities in the **Practice It**, checking their answers as they go.
3. If your student missed two or more questions in the **Practice It**, have them create a memory game with paper or index cards to match whole numbers to their exponential forms.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
3. To extend student learning, have the student research distances (in miles) from Earth to different stars and planets to see examples of powers of ten.

LESSON 6

Topic | **Place Value and Operations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- break numbers down into their prime factors using factor trees

Materials

- none required

A Number and Its Factors

Activate

1. Time your student for one minute and ask them to come up with as many different math problems that they can think of that have an answer of 12.
2. Ask them to share all of the multiplication problems that they identified. Did they try multiplying more than two numbers? Discuss their answers and their thinking.
3. Tell your student that the numbers that you multiply together to get a certain product are the factors of that number.

E

1. Open the **Space Rox-Divisibility – Play It**, and have your student play the game on the easy level.
2. Prompt your student to read through the content of the **Read It**.
3. Instruct your student to work through the **Practice It**.
4. If they answer all of the questions correctly, have them complete the challenge problem to extend their learning.

Demonstrate

1. Tell your student to complete the **Show It**. If your student struggles to find factors, encourage them to use a multiplication table.
2. To extend their learning, have your student complete the two challenge problems.
3. Finally, have them use the **Show It AK** to evaluate their responses.

LESSON 7

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- rewrite factors using exponents

Materials

- none required

Rewrite Factors Using Exponents

Activate

1. Ask your student what the numbers 1, 2, 3, 5, 7, and 11 have in common. They should answer that they are prime numbers.
2. Discuss with your student the difference between prime and composite numbers.
3. Then, ask your student if they know any shortcuts for writing math problems with prime numbers, such as 2 x 2 x 2 x 3.
4. Discuss their thinking, and tell them they will learn shortcuts for writing math problems with prime numbers in this lesson.

E

1. Encourage your student to read through the content in the **Read It**. Ask them to demonstrate how to write the prime factorization of a number of your choice using exponents.
2. Next, have your student work through the problems in the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Instruct your student to complete the **Show It**. Allow them to use a multiplication table if needed.
2. Last, have your student use the **Show It AK** to evaluate their answers.

LESSON 8

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the properties of addition and multiplication

Materials

- none required

Mathematical Properties

Activate

1. Ask your student which of the expressions below is equal to $(2 + 4) + 7$.
   a. $(2 \times 4) \times 7$
   b. $(2 + 4) \times 7$
   c. $2 \times (4 + 7)$
   d. $2 + (4 + 7)$
2. Have your student explain their answer and discuss their thinking with you.
3. Tell your student that this problem demonstrates the associative property of addition and that they will learn about several mathematical properties.

E

1. Allow your student to play the game in the **Space Rox-Commutative and Associative – Play It** to practice identifying the commutative and associative properties of addition.
2. Next, tell your student to read the content of the **Read It**. Ask them to give you a brief explanation of the commutative, associative, and identity properties for both addition and multiplication.
3. For extra practice identifying and using each property, have your student complete the **Practice It**.
4. If your student answers one or more questions incorrectly in the **Practice It**, help them create a song or poem to help them remember the basic idea of each property. Creating flashcards with the name of the property on one side and an example on the other can also be helpful.

Demonstrate

1. Instruct your student to answer the questions in the **Show It**.
2. Then, prompt your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student write examples of each property with decimal numbers. Do the properties still apply?

LESSON 9

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- recognize and use inverse operations

Materials

- none required

Inverse Operations

Activate

1. Ask your student what they think the word *inverse* means.
2. Discuss their thinking with them.
3. Next, ask them how they think this word applies to math.
4. Tell them that they will learn about inverse operations in math.

E

1. Instruct your student to read through the content of the **Read It**. Ask them to write an example of two equations that represent inverse operations. Have them complete the challenge problem at the end to extend their learning.
2. Tell your student to complete the activities in the **Practice It**.

Demonstrate

1. Prompt your student to complete the **Show It**.
2. Then, tell your student to use the **Show It AK** to evaluate their responses.

LESSON 10

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- explore the order of operations

Materials

- none required

Intro to the Order of Operations

Activate

1. Ask your student what the basic steps to baking a cake are. Then, ask what would happen if they completed those steps out of order.
2. Tell them to explain their answer and discuss their thought process with you.
3. Remind your student that, just like in baking, the order in which they complete steps in math is very important.

E

1. Have your student read through the **Read It**. Ask them to tell you the order of operations.
2. Next, instruct your student to complete the first activity in the **Practice It**. If the student chooses the correct order on the first try, they can move on.
3. If it takes your student more than one try to choose the correct order, have them complete the rest of the problems in the **Practice It**.

Demonstrate

1. Now, have your student move on to the **Assess It**.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
3. To extend learning, have your student write their own expressions that contain different mathematical operations. Then, have them solve them using the order of operations.
4. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 1 through 10 in order to prepare for the assessment.

LESSON 11

Topic	Place Value and Operations

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 1

1. **Mastery Assess It 1** will cover what your student has learned in Lessons 1 through 10.
2. Click on the **Mastery Assess It 1** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 12

Topic | Multiply or Divide Whole Numbers

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use area models to decompose numbers and multiply
- recognize multiplication as repeated addition

Materials

- ten of the same kind of item

Multiply Using Models

💡 Activate

1. Have your student gather ten of the same kind of item.
2. Explain that the items can be arranged into rows and columns to form an array–a visual aid used to multiply two numbers.
3. Have your student first arrange the items into two rows of five. Then, have them rearrange the items into five rows of two.
4. Discuss how the arrays resemble the multiplication expressions 2 x 5 (two groups of five) and 5 x 2 (five groups of two).

🔌 E

1. Open the **Beaker's Big Buzz-Multiplication – Play It**, and allow your student some time to play the game.
2. Have your student then complete the **Read It**.
3. Now, have your student complete the **Practice It**.
4. If your student does not complete questions 1 and 2 correctly, direct them to the video in the **Multiplication via Area Models – Watch It** before having them try again.

🔧 Demonstrate

1. If your student completed questions 1 and 2 correctly in the **Practice It**, prompt them to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.

● ● ●

Multiply with Facts and Patterns

Activate

1. Copy the following table onto a separate piece of paper:

1	4
2	8
3	12
4	

2. Ask your student to determine the missing number and explain their answer.
3. Describe the pattern in the second column as being multiples of 4 and even numbers.
4. Explain that 4 x 4 is the same as adding 4 four times.

E

1. Have your student read the **Read It** and complete the sorting activity at the bottom.
2. Next, have your student complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.
3. If your student did not answer all of the questions correctly, open the **Airship Odyssey-Multiplication – Play It** and allow your student some time to play the game on the easy level. Encourage them to use a multiplication table as needed for reference.

Demonstrate

1. Now, instruct your student to complete the **Show It**. Encourage them to reference a multiplication table if needed.
2. To extend their learning, have your student explain any patterns they used to help them answer the **Show It** questions.
3. Finally, use the **Show It AK** to help your student check their responses.

LESSON 13

Topic | Multiply or Divide Whole Numbers

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- explain patterns when multiplying by powers of ten

Materials

- base ten blocks

Multiplying by Powers of Ten

Activate

1. Instruct your student to gather one unit, one rod, and one flat.
2. Ask your student how many ones are in 1 ten. Using the base ten blocks, discuss how 1 ten is 10 times as many as 1 one.
3. Ask your student how many tens are in 1 hundred.
4. Have your student use the base ten blocks to explain that 1 hundred is 10 times as many as 1 ten.

E

1. Begin watching the video in the **Multiplying Multiples of 10 – Watch It** with your student.
2. Consider pausing the video at 0:20. Ask your student how many hundreds are in 800. Then, ask them how many hundreds are in 400.
3. Explain that 8 x 100 x 4 x 100 is the same as multiplying 800 x 400. Resume the video and review this strategy for multiplying multiples of 100.
4. Next, instruct your student to read the content of the **Read It**.
5. Once your student has answered the You Try! question correctly, have them complete the activities in the **Practice It**.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.

LESSON 14

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply two- and three-digit numbers by one-digit numbers

Materials

- none required

Multiplying by One-Digit Numbers

Activate

1. Share with your student that the average heart rate of a fifth-grade student is 80 beats per minute.
2. Pretend you want to know how many times on average a fifth-grade student's heart beats in 5 minutes.
3. Have your student identify an operation that can be used to solve this problem.
4. Explain that multiplication and repeated addition are the same and that multiplying 5 x 80 is faster than adding 80 to itself five times.
5. Introduce the game in the **Space Rox-Multiply and Divide – Play It**. Allow your student some time to play the game on the easy level.

E

1. Have your student read the content of the **Read It**. Ask which method they prefer using for multiplying two- and three-digit numbers by one-digit numbers and why.
2. Next, instruct your student to complete the **Practice It**. For questions 1 through 3, prompt your student to check their work using the answer keys in the text.
3. If your student did not answer questions 1 through 3 in the **Practice It** correctly, have them watch the video in the **One Digit x Two and Three Digits – Watch It** before trying again.

Demonstrate

1. Instruct your student to complete the **Show It**. Encourage them to use pencil and paper and to show all of their work.
2. Once they have finished their work, help them evaluate their answers using the **Show It AK**.

LESSON 15

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply two- and three-digit numbers by two-digit numbers

Materials

- none required

Multiplying by Two-Digit Numbers

Activate

1. Ask your student how they think multiplying large numbers is used in the real world.
2. Discuss their response.
3. If needed, give examples such as finding the area of a warehouse floor that is 81 feet long by 42 feet wide or calculating the cost of buying 24 office chairs at $103 per piece.

E

1. Next, have your student read the content of the **Read It**.
2. Prompt your student to solve the You Try! question by breaking the multiplication into parts. Encourage them to use paper and pencil and to show all of their work.
3. Next, direct your student to the video in the **Multiply Two and Three Digits – Watch It**.
4. Pause the video at 00:18 and have your student solve problem 1 on their own. Resume the video and help them evaluate the solution along with the narrator.
5. Now, pause the video at 02:10, and ask your student to solve problem 2. Resume the video, and evaluate the solution together.
6. Next, have your student use paper and pencil as needed to complete the activities in **Practice It**.
7. Assist your student with checking their work using the answer keys in the text.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend your student's learning, have them try solving two three-digit by three-digit multiplication problems, such as 126 x 203 and 212 x 315. Encourage your student to solve one of the problems by breaking the multiplication into parts and the other by using the standard algorithm for multiplication.

LESSON 16

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- model the division of whole numbers

Materials

- base ten blocks

One-Digit Divisor Models

Activate

1. Have your student draw a rectangle, labeling the length 9 feet and the width 3 feet.
2. Ask your student to calculate the area by multiplying 3 x 9.
3. Explain that area models like this also show division. Assist your student with writing the two division equations shown by the area model.
4. Next, have your student gather 2 rods and 7 units. Explain how trading in the 2 rods for 20 units makes using the models to divide easier.
5. Ask your student to first divide the 27 units into 3 groups of 9 units and then into 9 groups of 3 units.
6. Discuss how both models made dividing the whole numbers easier.

E

1. Next, have your student read the Introduction section of the **Read It**.
2. Ask your student to define the term *inverse operation* and give an example.
3. Guide your student to finish reading the content in the **Read It**.
4. Ask your student to follow the directions given in the **Practice It** to complete the PhET simulation activity.
5. For questions 1 through 3, prompt your student to check their work using the answer keys in the text.
6. If your student did not answer questions 1 through 3 in the **Practice It** correctly, have them watch the video in the **Dividing with Base Ten Blocks – Watch It** before trying again.

Demonstrate

1. Now, instruct your student to complete the **Show It**.
2. Then, use the **Show It AK** to help your student check their responses.
3. Finally, to extend learning, have your student use base ten blocks to model and solve the following division problems:
   - $42 \div 6$
   - $56 \div 8$
   - $18 \div 3$

LESSON 17

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- explain the relationship between multiplication and division

Materials

- none required

Use Factors to Find the Quotient

Activate

1. Ask your student what multiplication expression undoes $75 \div 5 = 15$.
2. Explain that multiplication and division are inverse operations.
3. Discuss how multiplication can be used to help solve division problems and vice versa.

E

1. Begin by having your student read the content in the **Read It**.
2. Prompt them to solve the You Try! question using their knowledge of multiplication.
3. Next, ask your student to follow the directions given in the **Practice It** to complete the PhET simulation activity.
4. Instruct your student to answer questions 1 through 5. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Have your student complete the **Show It**. Encourage them to use pencil and paper and to show all of their work.
2. Assist your student with evaluating their answers using the **Show It AK**.

LESSON 18

| Topic | Multiply or Divide Whole Numbers |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide by one-digit divisors

Materials

- "Divide by One-Digit Numbers" worksheet

Dividing by One-Digit Divisors

Activate

1. Remind your student that multiplication and division are inverse operations.
2. Have your student write the equations $45 \div 9 = 5$ and $45 \times 9 = 5$ on a separate piece of paper.
3. Ask your student to explain whether or not the equations are inverses of each other.
4. Discuss why the dividend being used as a factor is an error in second equation.

E

1. Introduce the **Space Rox-Multiply and Divide – Play It**. Allow your student some time to play the game on the easy level.
2. Next, have your student read through the content of the **Read It**.
3. Prompt your student to complete the **Practice It** and check their work using the answer keys in the text.
4. If your student did not complete five questions correctly in the **Practice It**, direct them to the video in the **Dividing Numbers: Long Division – Watch It**. When the video has ended, have them retry any **Practice It** questions they missed.

Demonstrate

1. Now, have your student complete the **Show It**. Encourage them to use paper and pencil and to show all of their work.
2. When your student is finished, use the **Show It AK** to help them check their work.
3. To extend learning, have your student write the multiplicative inverses for problems 5 through 7 in the **Show It**.
4. You may also open the **Space Rox-Multiply and Divide – Play It** and allow your student some time to play the game on the medium or hard level.

LESSON 19

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use models to express the remainders of division problems
- write remainders as fractions

Materials

- base ten blocks

Use Models to Express Remainders

Activate

1. Explain to your student that models such as base ten blocks can be helpful for dividing whole numbers.
2. Instruct your student to gather 21 units.
3. Ask your student to use the units they have gathered to solve the division expression 21 ÷ 2.
4. Guide your student as needed to create 2 equal groups of 10 units. Explain that the number of units in each group represents the quotient 10. Point out that the 1 unit left over is the remainder.

E

1. Prompt your student to read the Introduction in the **Read It** as well as Examples 1 and 2 in the Dividing a Group of Objects section. Have your student complete the first You Try! activity by drawing pictures.
2. Stop and discuss with your student how their base ten blocks could also be used to model the division expressions given in the You Try! activity.
3. Have your student read the remainder of the content in the **Read It**.
4. Next, have your student complete the **Practice It**.
5. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Guide your student to complete the **Show It**.
2. Encourage them to use their base ten blocks as needed to help them divide.
3. Have your student compare their responses with the responses in the **Show It AK**.
4. To extend their learning, ask your student to write a second challenge question similar to the one given for the division equation 22 ÷ 5 = 4 R2.

● ● ●

Write Remainders as Fractions

Activate

1. Ask your student how 2 students could share 7 pieces of pizza equally.
2. Discuss their response.
3. Explain to your student that the remainder 1 can be placed over the divisor 2 to make ½, which means each student will get 3½ pieces of pizza.
4. If needed, have your student draw a picture or draw the picture for them and review it together.

E

1. Direct your student to read the content of the **Read It**.
2. Review with your student how drawing pictures can help them model a division problem with a remainder that includes a fraction.
3. Next, have your student complete the **Practice It**.
4. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend their learning, have your student draw a picture to model the quotient for the following problem.
3. Five people want to share 19 oranges. How much of an orange will each person get?

LESSON 20

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- interpret remainders in division problems

Materials

- twenty real or pretend dollar bills

Interpret Remainders

Activate

1. Have your student gather 20 real or pretend dollar bills.
2. Pretend you are selling T-shirts for $7 each.
3. Ask your student to purchase as many T-shirts as they can with $20.

E

1. While your student reads the **Read It**, discuss with them the importance of understanding the situation so they know what to do with the remainder.
2. Next, have your student complete questions 1 through 7 in the **Practice It**. Encourage your student to use paper and pencil and to show all of their work.
3. Prompt your student to check their work using the answer keys in the text.
4. If your student did not answer all seven questions correctly, have them complete the sorting activity and retry any questions they missed.

Demonstrate

1. Have your student answer all of the questions in the **Show It**. Afterward, prompt them to compare their answers to the ones given in the **Show It AK**.
2. As an extension to their learning, have your student draw pictures to model the solutions to the **Show It** questions.

LESSON 21

Topic **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve multiplication and division word problems

Materials

- none required

Solve Whole Number Word Problems

Activate

1. Ask your student how they know when to multiply or divide when they are solving word problems. Discuss their response.
2. Now, read the following question to your student:
   - If Emma runs at least 8 miles per week, which operation could you use to determine the least amount of miles she runs in 4 weeks?
3. Discuss with your student that the part value 8 and the other value 4 must be multiplied together to find the total value.

E

1. Begin by opening the **Practice It** and having your student complete the sorting activity only.
2. Next, direct your student to read the content of the **Read It** until they reach the second You Try! section.
3. Ask your student to tell whether each number is a part value, other number, or total value prior to answering the question.
4. Now, open the **Practice It** and have your student solve the remaining problems.
5. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Have your student complete the **Show It**.
2. Prompt them to use the **Show It AK** to see if their answers are correct.
3. To extend their learning, challenge your student to write two word problems of their own—one multiplication problem and one division problem.

LESSON 22

Topic	Multiply or Divide Whole Numbers

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- estimate quotients
- use partial quotients to divide by two-digit divisors

Materials

- pretend money
- "Use Partial Quotients" worksheet

Estimate Quotients

Activate

1. Ask your student to determine how many $21 pairs of shoes they could buy with $215.
2. Discuss their response.

E

1. Watch the video in the **Estimate and Adjust Quotients – Watch It** with your student.
2. Next, instruct your student to read the content of the **Read It**.
3. Once your student has answered the You Try! question correctly, have them complete the activities in the **Practice It**.
4. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.

• • •

Partial Quotients

Activate

1. Complete the following activity with your student:
   a. Using pretend money, give your student $275 (two $100 bills, three $20 bills, one $10 bill, and one $5 bill).
   b. Tell your student they can use the money to purchase video games (or another item) for $25 each.
   c. Ask your student, "How many video games can you buy with one $100 bill? How much money will you have left?"
   d. Next, ask your student if they can buy 4 more video games with another $100 bill. Have them tell you how much money is remaining.
   e. Now ask your student how many games they can buy with $75. Explain to your student that the total number of video games they would have is the quotient.

E

1. Have your student read the content of the **Read It**.
2. Next, prompt your student to complete questions 1 through 4 in the **Practice It**. Encourage your student to use paper and pencil and to show all of their work.
3. Encourage your student to check their work using the answer keys in the text.
4. If your student did not answer at least three questions correctly, have them complete the labeling and drag and drop activities and then retry any questions they missed.

Demonstrate

1. Now, instruct your student to complete the "Use Partial Quotients" worksheet in the **Show It**.
2. To extend their learning, have your student explain why they chose the numbers they did to find partial quotients.
3. Finally, use the "Use Partial Quotients Answer Key" in the **Show It AK** to help your student check their responses.

LESSON 23

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- model division with two-digit divisors

Materials

- base ten blocks

Two-Digit Divisor Models

Activate

1. Show your student the following image:

2. Ask your student how many boxes they will need to store the bags of chips if 6 bags fit in each box.
3. Have your student write a division equation that represents this situation.

E

1. Introduce and allow your student some time to play the game in the **FrankenLab-Division – Play It**.
2. Have your student read the content of the **Read It**.
3. Next, instruct your student complete the **Practice It**. For questions 1 through 3, prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Once they have finished, help them evaluate their answers using the **Show It AK**.
3. To extend the student's learning, have your student use their base ten blocks to model the division problem 144 ÷ 12.

LESSON 24

Topic | **Multiply or Divide Whole Numbers**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide by two-digit divisors

Materials

- index cards
- "Long Division with Two-Digit Divisors" worksheet

Dividing by Two-Digit Divisors

Activate

1. Have your student make flashcards for the terms *dividend*, *divisor*, and *quotient*.
2. Review these terms with your student using their flashcards.

E

1. Next, have your student read through the content of the **Read It**.
2. Prompt your student to complete the **Practice It** and check their work using the answer keys in the text.
3. If your student did not complete questions 1 through 4 correctly in the **Practice It**, direct them to watch the video in the **Multi-Digit Division – Watch It**. When the video ends, have the student retry any **Practice It** questions they missed.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend learning, have your student write and solve three division problems of their own that contain two-digit divisors.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 12 through 24 in order to prepare for the assessment.

LESSON 25

Topic	Multiply or Divide Whole Numbers

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 2

1. **Mastery Assess It 2** will cover what your student has learned in Lessons 12 through 24.
2. Click on the **Mastery Assess It 2** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 26

Topic | **Add and Subtract Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- read and write decimal numbers as fractions and fractions as decimal numbers

Materials

- none required

Relate Fractions and Decimals

Activate

1. Ask your student if they can write the expression 1 divided by 5 in more than one way.
2. Encourage them to use different symbols, and discuss their thinking.

E

1. First, have your student read through the content of the **Read It**. Ask them to write a decimal number and then write it in fraction form.
2. Next, have your student watch the video in the **Interpret Fractions as Division – Watch It**.
3. Then, instruct your student to complete the activities in the **Practice It**. They should check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Encourage them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student represent three different decimal numbers using base ten blocks and then write the decimals as fractions.

LESSON 27

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use base ten blocks to model decimal addition
- use money to model decimal addition

Materials

- base ten blocks
- dry erase board with grid
- graph paper

Model Decimal Addition - Blocks

💡 Activate

1. Ask your student to list at least three different strategies they have used to add numbers.
2. They may have listed using a picture, base ten blocks, the standard algorithm, or a number line. Encourage them to think about how these different strategies helped them to solve problems.
3. Tell your student that they will learn how to use different strategies to add decimal numbers.

🔌 E

1. Instruct your student to read through the content of the **Read It**. Ask them to model a decimal addition problem using base ten blocks and a grid.
2. Next, tell them to complete the activities in the **Practice It**.
3. For extra practice, have your student write their own addition problems using decimal numbers and add them together using the strategies they have just learned. Check their answers to make sure they are correct.

🔧 Demonstrate

1. Tell your student to complete the **Show It** by using base ten blocks and graph paper to create grids.
2. Encourage your student to then use the **Show It AK** to evaluate their responses.

● ● ●

Model Decimal Addition - Money

Activate

1. Ask your student to look at the decimal number 2.65. Ask them to tell you how they would represent that decimal number using money.
2. Have them explain their answer and discuss their thinking with you.
3. Tell your student that they will learn how to add decimal numbers using money.

E

1. Encourage your student to read through the content of the **Read It**.
2. Then, instruct them to complete the activities in the **Practice It**.
3. If your student answers the first two questions in the **Practice It** correctly, they can move on.
4. If your student misses one or more of the questions, have them complete the rest of the practice problems.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Next, tell your student to use the **Show It AK** to evaluate their responses.
3. To extend the student's learning, give them a receipt from a recent shopping trip and have them add up the amounts listed on the receipt.

LESSON 28

Topic | Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- estimate decimal sums using rounding
- estimate decimal sums using mental math

Materials

- none required

Estimate Sums by Rounding

Activate

1. Ask your student to tell you about a time when they used estimation or rounding in their everyday life.
2. Discuss their answers, and help them think of an example if they are struggling to come up with one on their own.

E

1. Have your student read through the content of the **Read It**. Have them explain to you how they know when to estimate a sum or not.
2. Then, tell them to complete the initial activities in the **Practice It**.
3. Next, have them continue on in the **Practice It** with the practice problems in the Estimate Sums section. If your student answers the first two questions correctly, have them move on.
4. If your student answers one or more of the first two question incorrectly, have them complete the remaining problems.

Demonstrate

1. Tell your student to complete the **Show It**.
2. Then, encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student choose two items they wish to buy at a store and estimate how much the total would be for both items.

● ● ●

Estimate Sums - Mental Math

Activate

1. Ask your student to think of all of the different whole number pairs that add up to 10.
2. Tell your student that these pairs can be used when you are estimating sums of decimal numbers.

E

1. Have your student read through the content of the **Read It**.
2. Then, instruct them to complete the activities in the **Practice It**.

Demonstrate

1. Next, have your student complete the **Show It**.
2. Tell them to use the **Show it AK** to evaluate their responses.
3. To extend their learning, encourage your student look at a menu from a restaurant the next time you go out to eat. Or, search for a menu on the Internet. Have them choose three items to order from the menu and use mental math to estimate the sum.

LESSON 29

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use base ten blocks to show properties of addition
- apply properties of addition to write equivalent expressions

Materials

- base ten blocks

Place Value and Properties

Activate

1. Ask your student to explain to you what the differences between the commutative and associative properties of addition are.
2. Discuss their thinking, and tell them that they are going to use base ten blocks to illustrate these properties.

E

1. Tell your student to read through the content of the **Read It**.
2. Then, have them complete the **Practice It**.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Tell them to use the **Show it AK** to evaluate their responses.

● ● ●

Addition Properties and Decimals

Activate

1. Ask your student if the commutative, associative, and identity properties of addition apply to problems containing decimal numbers instead of whole numbers.
2. Ask them to explain their reasoning and how they got their answer.

E

1. Tell your student to complete the **Read It**.
2. Instruct them to complete the activities in the **Practice It**.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Last, have your student use the **Show It AK** to evaluate their work.

LESSON 30

Topic | Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- add decimal numbers

Materials

- none required

Add Decimals

Activate

1. Show your student the following measurements of pieces of wood needed to build a birdhouse. Ask your student what they notice about the measurements and what things they might need to pay attention to when they are adding these numbers together.
   - 12.2 in.
   - 14.85 in.
   - 3.75 in.
   - 2.5 in.
2. Discuss their thinking and how they came up with their answer. Encourage your student to think about place value and how they might make sure they add the numbers correctly.

E

1. Instruct your student to complete the **Read It**. Ask them to tell you at least two different strategies they can use to add decimal numbers.
2. Have your student watch the video in the **Add Decimals: Standard – Watch It**.
3. Then, allow your student to play the game in the **Extraction-Adding and Subtracting Decimals – Play It** on the easy level.
4. Encourage your student to complete the activities in the **Practice It**.
5. If your student misses two or more of the practice questions in the **Practice It**, have them watch the video in the **Adding Decimals Review – Watch It**.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 31

Topic **Add and Subtract Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve decimal addition word problems

Materials

- none required

Decimal Addition Word Problems

Activate

1. Ask your student to list any keywords they can think of that might tell them they need to add to complete a word problem.
2. Review their answers and ask them to give examples of how to use each word in a sentence.

E

1. First, have your student read through the content of the **Read It**.
2. Next, instruct your student to watch the video in the **Adding Decimal Numbers – Watch It**.
3. Then, tell your student to complete the practice activities and word problems in the **Practice It**.

Demonstrate

1. Tell your student to complete the **Show It**.
2. Instruct your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student write their own decimal addition word problem and then solve it.

LESSON 32

Topic — Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use base ten blocks to model decimal subtraction
- use money to model decimal subtraction

Materials

- base ten blocks
- graph paper

Subtract Decimals - Block Models

Activate

1. Ask your student what the hundreds flat, tens rod, and ones cube each represent when they are used to model a decimal number.
2. Have them use base ten blocks to represent the number 1.42.
3. Tell them that they will use base ten blocks to model decimal subtraction problems.

E

1. Instruct your student to read through the content of the **Read It**.
2. Next, have your student complete the **Practice It**.

Demonstrate

1. Tell your student to complete the **Show It**. Encourage them to use base ten blocks and graph paper to complete the problems.
2. Encourage your student to use the **Show It AK** to evaluate their responses.

● ● ●

Subtract Decimals - Money Models

Activate

1. Ask your student to tell you what coins and dollar bills they would use to represent the decimal number 2.35.
2. Discuss your student's answer, and ask them to explain their thinking. Remind them that using money and a money chart is a great way to model subtracting decimals.

E

1. Encourage your student to complete the **Read It**.
2. Next, tell your student to complete the activities and the first two practice problems in the **Practice It**.
3. If the student answers the first two practice problems correctly, they may move on.
4. If the student answers one or more practice problems incorrectly, have them complete the remaining problems.

Demonstrate

1. Instruct your student to complete the **Show It**. Allow your student to use coins and a money chart to solve the problems if needed.
2. Have your student use the **Show It AK** to evaluate their responses.

LESSON 33

Topic | **Add and Subtract Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- estimate decimal differences using rounding
- find decimal differences using mental math when possible

Materials

- none required

Estimate Differences by Rounding

Activate

1. Ask your student about how much money they would have left if they used a $10 bill to buy a book that cost $4.77.
2. Have your student explain their answer, and discuss their thinking.
3. Tell them that they had to use estimation to find their answer.

E

1. Instruct your student to read the **Read It**. Ask them what the steps are to estimate a decimal difference.
2. Then, have them complete the activities and the first two practice problems in the **Practice It**.
3. If your student answers both practice problems correctly, instruct them to move on.
4. If they answer one or more problems incorrectly, have them complete the remaining problems.

Demonstrate

1. Tell your student to show what they know by completing the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student measure the heights of different family members to the exact decimal. Have them practice rounding the heights to the nearest whole number or tenth and finding the differences in height between different family members.

● ● ●

Differences - Mental Math

Activate

1. Ask your student if they can simplify the following expressions without using a pencil and paper.
   a. 4 - 2
   b. 25 - 15
   c. 300 - 130
   d. 10 - 6
2. Ask your student how they were able to complete these problems in their head. Discuss their thinking.
3. Inform your student that this practice is called "mental math" and that they will learn how to use mental math to find differences between decimal numbers.

E

1. Instruct your student to complete the **Read It**. Ask your student to explain to you how to use mental math to find a difference in decimal numbers.
2. Next, have your student complete the activities and practice problems in the **Practice It**.

Demonstrate

1. Have your student complete the **Show It**.
2. Tell them to use the **Show it AK** to evaluate their responses.

LESSON 34

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- subtract decimal numbers

Materials

- none required

Subtract Decimals

💡 Activate

1. Ask your student what would happen if they did not line up the decimal points when they were adding or subtracting decimal numbers.
2. Ask them to explain their answer, and discuss their thinking.

🔌 E

1. Tell your student to work through the content in the **Read It**.
2. Next, have them watch the video in the **Subtract Decimals: Standard – Watch It**.
3. After that, they can work through the activities and problems in the **Practice It**.
4. If your student answered two or more questions incorrectly in the **Practice It**, have them play the game in the **Extraction-Adding and Subtracting Decimals – Play It** for extra practice.

🔧 Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
3. To extend their learning, have your student make a pretend store and price items. Then, tell them they have $20 to spend. For each item they want to buy, have them subtract the price from $20.

LESSON 35

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve decimal subtraction word problems

Materials

- none required

Decimal Subtraction Word Problems

Activate

1. Ask your student what the following words and phrases make them think of:
   - fewer
   - left over
   - remain
   - take away
2. Ask them to use each word and phrase in a sentence and think about what they are telling them to do.

E

1. Tell your student to read through the content of the **Read It**.
2. Have them watch the video in the **Subtracting Decimal Numbers – Watch It**.
3. After that, instruct your student to complete the activities and practice problems in the **Practice It**.

Demonstrate

1. Now, tell your student to complete the **Show It**. Encourage them to highlight keywords and important parts of each word problem to help them focus on the important parts of the problem.
2. Tell your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student use inverse operations to check the answers they found for each word problem.

LESSON 36

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify and write patterns with decimals

Materials

- none required

Decimal Patterns and Sequences

Activate

1. Have your student look at the following table. It shows the heights of a flower measured every week for five weeks. Ask your student if they see any pattern in the measurements.

Week 1	Week 2	Week 3	Week 4	Week 5
4 in.	4.5 in.	5 in.	5.5 in.	6 in.

2. Ask them to explain their thinking and how they got their answer.
3. Tell them that they will be learning about sequences and patterns involving decimal numbers.

E

1. Have your student complete the **Read It**. Ask them to give you an example of a sequence of numbers.
2. Next, have them complete the **Practice It**.

Demonstrate

1. Tell your student to complete the **Show It**. Allow your student to have an index card with the following three questions written on it to use as a reference when they are determining a pattern:
   - Are the values increasing or decreasing?
   - Does each value increase or decrease by the same amount?
   - Is it a pattern?
2. Encourage them to use the **Show It AK** to evaluate their responses.
3. To extend the student's learning, give them a starting number and a rule. Have them use a jump rope or do another type of movement like skipping or hopping to list off at least five numbers in the pattern. With each jump or step, they should say the next number in the sequence.

LESSON 37

Topic **Add and Subtract Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use rules to find unknown terms in decimal sequences

Materials

- none required

Write Rules to Describe Patterns

Activate

1. Ask your student to determine the missing values in the following sequence:
   - 14, _____, 18, 20, _____, 24, 26...
2. Ask them to explain to you how they got their answers. Discuss their thinking.
3. Remind them that sequences of numbers can contain decimal numbers as well. Tell them that they will learn how to find missing numbers in a sequence containing decimal numbers.

E

1. Now, have your student work through the content and example problems in the **Read It**.
2. Next, instruct them to complete the activities and problems in the **Practice It**.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Tell your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, give your student a job or chore that they are to complete each day for the next ten days. Tell them that they will start with a nickel and each time they complete the chore, the amount they get will increase by a nickel. You can use real or pretend money. Ask them to determine what they will earn on the tenth day.
4. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 26 through 37 in order to prepare for the assessment.

LESSON 38

Topic	Add and Subtract Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 3

1. **Mastery Assess It 3** will cover what your student has learned in Lessons 26 through 37.
2. Click on the **Mastery Assess It 3** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 39

Topic	**Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- model multiplication of a decimal by a whole number

Materials

- base ten blocks
- graph paper
- real or pretend money

Model Decimal Times Whole Number

Activate

1. Have your student gather 1 flat, 3 rods, and 2 units.
2. Explain to your student that various models–including base ten blocks–can be used to represent decimal numbers. Flats represent whole numbers, rods represent tenths, and units represent hundredths.
3. Describe to your student that the decimal number 1.32 can be shown with base ten blocks using 1 flat, 3 rods, and 2 units.
4. Ask your student if they know of any other models that can be used to represent decimal numbers. Discuss their response.
5. On graph paper, draw a picture for your student that represents the decimal number 1.32.
6. Show your student how the decimal number 1.32 can be modeled using 1 one-dollar bill, 3 dimes, and 2 pennies.

E

1. Have your student read through the content of the **Read It**.
2. Next, have your student answer questions 1 through 3 in the **Practice It**. Prompt your student to check their work using the answer keys in the text.
3. If your student did not answer all three questions correctly, have them complete the flashcard and identify activities before they retry any questions they missed.

Demonstrate

1. Have your student complete the **Show It** using models such as base ten blocks, graph paper, and money.
2. Then, have them check their work using the examples in the **Show It AK**.
3. To provide an extension, have your student model each quotient in more than one way.

LESSON 40

| Topic | Multiply Decimals |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use patterns to multiply decimals by powers of ten

Materials

- none required

Multiply Decimals – Powers of 10

Activate

1. Ask your student which number is missing in the following pattern:
   - 2, 20, _____, 2,000, 20,000...
2. Discuss how they determined their answer.

E

1. Instruct your student to read the content of the **Read It**.
2. Once your student has answered the You Try! question correctly, have them complete the activities in the **Practice It**.
3. Prompt your student to check their work using the answer keys in the text.
4. If your student did not answer questions 1 through 3 in the **Practice It** correctly, direct them to the video in the **Decimal x Power of Ten – Watch It**.
5. Pause the video at 05:52. Ask your student to solve problems 1 through 4.
6. When your student is finished, resume the video and evaluate the solutions along with the narrator.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.

LESSON 41

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply a decimal and a whole number

Materials

- base ten blocks

Multiply Decimal by Whole Number

Activate

1. Ask your student to model the following expressions using base ten blocks:
   - 3 x 1
   - 3 x 0.1
   - 3 x 0.01
2. Have a discussion about the value of each product and the base ten blocks that were used to represent them.

E

1. As your student reads the content of the **Read It**, have them explain how they know how many places to move the decimal point to the left for each example problem.
2. Introduce the **Extraction-Multiplying and Dividing Decimals – Play It**. Allow your student some time to play the game on the easy level.
3. Next, prompt your student to complete the **Practice It**. For questions 1 through 3, have them check their work using the answer keys in the text.
4. If your student did not answer questions 1 through 3 correctly, direct them to the video in the **Multiply Decimals: Standard – Watch It**.
5. Pause the video at 06:20. Ask your student to solve the problem 0.23 x 571 in their notebook.
6. When your student is finished, resume the video and evaluate the solution together.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. As an extension, encourage your student to spend some time playing the game in the **Extraction-Multiplying and Dividing Decimals – Play It** on the medium or hard level.

LESSON 42

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use the commutative, associative, and identity properties of multiplication to multiply decimal numbers by whole numbers
- use the distributive property of multiplication to multiply decimals by whole numbers

Materials

- graph paper
- index cards

Multiply Decimals - Properties

Activate

1. Ask your student what they know about the commutative and associative properties.
2. Discuss the meaning of these terms with your student as they relate to addition.

E

1. Begin by having your student complete the sorting activity in the **Practice It**.
2. Next, have your student read through the content of the **Read It**.
3. If your student needs extra support, help them make flashcards for the terms *commutative property*, *associative property*, and *identity property*.
4. Spend some time reviewing these terms and their meanings with your student using their flashcards.
5. Now, have your student complete the remainder of **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, instruct your student to complete the **Show It**.
2. When they are finished, have them compare their answers to the ones given in the **Show It AK**.

● ● ●

Distribute with Decimals

Activate

1. Review the concept of whole number place values with your student. In their notebook, have them write the number 8,452 in expanded form (8,000 + 400 + 50 + 2).
2. Explain to them that the expanded form of a decimal number shows the parts of the decimal.
3. Have them write the expanded form of 8.452 in their notebook (8 + 0.4 + 0.05 + 0.002).

E

1. Begin by having your student complete the first drag and drop activity in the **Practice It**.
2. Next, have your student read the content in the **Read It**. As they read, ask them to create a flashcard for the term *distributive property*.
3. Now, instruct your student to complete the remainder of the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Direct your student to complete the **Show It**.
2. Help them to evaluate their answers using the **Show It AK**.
3. To extend their learning, have your student use graph paper to model problems 1 through 4 in the **Show It**.

LESSON 43

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use graph paper to multiply two decimals

Materials

- graph paper

Model Decimal Times Decimal

Activate

1. Ask your student what they think it means to multiply.
2. Discuss their response. If needed, explain how multiplication with whole numbers is often defined as repeated addition.

E

1. Next, have your student read through the content in the **Read It**.
2. Then instruct them to complete the **Practice It**.

Demonstrate

1. Prompt your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their answers.

LESSON 44

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply two decimals

Materials

- none required

Multiply Two Decimals

Activate

1. Ask your student if they think there is more than one way to multiply two decimal numbers. Discuss their response.
2. Describe to your student that, just like with whole numbers, the product of two decimal numbers can be found using visual models such as graph paper or by using the standard algorithm for multiplication.

E

1. Begin by instructing your student to read the content in the **Read It**.
2. Next, have your student solve problems 1 through 3 in the **Practice It**. Encourage them to use paper and pencil and to show all of their work.
3. If your student did not answer all three questions correctly, have them complete the first two activities in the **Practice It** and then retry the problems they missed.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. As an extension to their learning, have your student model problems 1 through 3 in the **Practice It** using graph paper.

LESSON 45

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- determine if the decimal point is in the correct place in the product of a multiplication problem

Materials

- none required

Check Decimal Products

Activate

1. Present to your student the multiplication problem 0.5 x 12.03 = 6015.
2. Ask your student how many places to the left they should move the decimal point in the product to determine the correct answer.
3. If needed, tell your student that they can count how many digits are to the right of the decimal point in each factor to determine the correct placement in the product.
4. Explain that because there are two digits to the right of the decimal point in 12.03 and one digit to the right of the decimal point in 0.5, the product is 6.015.

E

1. Instruct your student to read the contents of the **Read It**.
2. When your student masters the You Try! section, have them complete the **Practice It**.
3. For questions 1 and 2, prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Next, have your student use paper and pencil to complete the first three sections in the **Show It**.
2. Help them evaluate their answers using the **Show It AK**.
3. To extend their learning, instruct your student to complete the Challenge question at the bottom of the **Show It**.

LESSON 46

Topic | **Multiply Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- estimate to find reasonable solutions to decimal multiplication problems

Materials

- none required

Estimate Decimal Multiplication

Activate

1. Ask your student to round 306 to the nearest ten (310).
2. Now, ask your student to round 454 to the nearest ten (450).
3. Explain to your student that they can apply the same rules for rounding whole numbers to decimal numbers.
4. If the decimal part of the number is less than 0.5, you round down.
5. If the decimal part of the number is greater than or equal to 0.5, you round up.

E

1. Direct your student to read the contents of the **Read It**.
2. Have your student explain the difference between using rounding and compatible numbers to estimate decimal products.
3. When your student masters both You Try! sections, instruct them to complete the **Practice It**.

Demonstrate

1. Prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their answers.

LESSON 47

Topic | Multiply Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply decimal numbers greater than 1

Materials

- colored pencils
- graph paper
- highlighters

Multiply Decimals Greater Than 1

Activate

1. Present the following decimal numbers to your student on a separate piece of paper:
   - 1.25
   - 8.03
   - 15.75
2. Ask your student to highlight each whole number in one color and each fractional part (number with a value less than 1) in another color.

E

1. Direct your student to begin reading the **Read It** content.
2. Encourage your student to work through Examples 1 and 2 in the Multiply with Area Models section using graph paper and colored pencils.
3. Next, have them use paper and a pencil to work through Examples 1 and 2 in the section Multiply Using the Standard Algorithm.
4. If your student answers both You Try! questions correctly, have them move on to complete the **Practice It**.

Demonstrate

1. Tell your student to show what they know by completing the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, instruct your student to try solving the problems under the first heading using the standard algorithm and the problems under the second heading using models.

LESSON 48

Topic	Multiply Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve word problems involving decimal multiplication

Materials

- pretend or real money

Multiply Decimals Word Problems

Activate

1. Ask your student to give an example of a real-world scenario for which they would need to find the product of two decimal numbers.
2. Discuss their response. If needed, provide an example such as calculating the cost of purchasing 1.5 pounds of ground meat at $3.67 per pound.

E

1. Instruct your student to read the content of the **Read It**.
2. Once your student has answered the You Try! questions correctly, have them complete the drag and drop activity and word problems in the **Practice It**.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 39 through 48 in order to prepare for the assessment.

LESSON 49

Topic | Multiply Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 4

1. **Mastery Assess It 4** will cover what your student has learned in Lessons 39 through 48.
2. Click on the **Mastery Assess It 4** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 50

| Topic | Divide Decimals |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use base ten blocks to model division of a decimal by a whole number

Materials

- base ten blocks

Model Decimal Division - Blocks

Activate

1. Have your student gather 4 flats, 6 rods, and 3 units.
2. Ask your student to tell you which decimal number the base ten blocks represent.

E

1. Next, ask your student to complete the **Read It**. Encourage them to work through each example problem using their base ten blocks.
2. Once your student has successfully completed the You Try! question, have them complete the **Practice It**.
3. If needed, have your student to use their base ten blocks to help them complete the activities.

Demonstrate

1. Now ask your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their answers.
3. As an extension, ask your student to write their own word problem in which a decimal number must be divided by a whole number and to solve it using base ten blocks.

LESSON 51

| **Topic** | Divide Decimals |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide decimals by powers of 10

Materials

- none required

Divide Decimals - Powers of 10

Activate

1. Have your student write the quotient of 30 ÷ 10.
2. Using what they know about the quotient in the equation 30 ÷ 10 = 3, have your student write the quotients of 300 ÷ 10 and 3,000 ÷ 10.
3. Ask your student to describe the pattern they see in the three quotients.

E

1. As your student reads through the **Read It**, engage them in a conversation about the pattern in the table.
2. Then, encourage your student to work through each given example in their notebook.
3. Next, ask your student to complete the **Practice It** activities.
4. If your student did not complete the activities correctly, direct them to watch the video in the **Divide Decimals by Power of Ten – Watch It**.
5. Instruct your student to first review the examples then pause the video at 05:05.
6. Have your student complete problems 1 through 4 on their own on a separate piece of paper. When they are finished, resume the video and evaluate the solutions together.

Demonstrate

1. Next, have your student to complete the **Show It**.
2. Instruct your student to use the **Show It AK** to evaluate their responses.

LESSON 52

| Topic | Divide Decimals |

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use grid models to divide a decimal number by a whole number
- model decimal division with area models

Materials

- colored pencils
- graph paper

Model Decimal Division - Grids

Activate

1. Ask your student to think of a real-world scenario for which a decimal number would be divided by a whole number.
2. Discuss their response. If needed, provide an example such as calculating the cost per cookie if the total cost of 5 cookies is $5.25.

E

1. Instruct your student to read the content of the **Read It**. Encourage them to work through each example problem using graph paper and colored pencils.
2. Ask your student to take their time answering each You Try! question. Instruct them to use graph paper and colored pencils to neatly draw each model.
3. When your student has successfully answered each question, have them complete the **Practice It**.

Demonstrate

1. Next, prompt your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their responses.
3. To extend your student's learning, ask them to draw a grid model to represent 11 sets of 0.6. Ask them to write the division equation represented by this model.

● ● ●

Model Decimal Division - Area

Activate

1. On a piece of graph paper, draw a rectangle 5 units long and 4 units wide.
2. Ask your student to calculate the area of the rectangle.
3. Discuss one or more methods for finding the area.

E

1. Begin by having your student watch the video in the **Division with Arrays – Watch It**.
2. Next, have your student read through the content of the **Read It**. Encourage them to work through each example problem using graph paper and colored pencils.
3. Once your student has successfully completed the You Try! problem, have them complete the **Practice It**. Instruct your student to use graph paper and colored pencils to complete questions 2 through 5.

Demonstrate

1. Now, ask your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their answers.

LESSON 53

| Topic | Divide Decimals |

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- use a number line to divide decimal numbers by whole numbers
- draw a model when given an equation and write an equation when given a model

Materials

- base ten blocks

Decimal Division - Number Line

Activate

1. Ask your student if the quotient for a division problem such as 8 ÷ 2 will be greater than or less than the dividend.
2. Discuss how division results in a quotient that is less than the number being divided.

E

1. Instruct your student to complete the **Read It**. Encourage them to work through each example using the provided decimal division number lines.
2. Next, have your student complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. When they are finished, use the **Show It AK** to evaluate their answers together.
3. As an extension, have your student solve a division problem such as 4.2 ÷ 3 by drawing and labeling their own number line.

● ● ●

Draw Decimal Division

Activate

1. Ask your student to write a multiplication sentence with a decimal number and a whole number, such as 1.8 x 2 = 3.6.
2. Have them write the equation backwards to form a division sentence (3.6 ÷ 2 = 1.8).

E

1. As your student reads through the **Read It**, encourage them to use the provided decimal division number lines and grids as well as their base ten blocks to model the given examples.
2. Your student may use the **Practice It** as needed. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Ask your student to complete the **Show It**.
2. When they are finished, lead them to use the **Show It AK** to evaluate their answers.
3. As an extension, have your student choose one problem from the **Show It** to solve using a decimal number line model, area model, grid model, and base ten block model.

LESSON 54

Topic	Divide Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide decimal numbers by whole numbers using the standard algorithm

Materials

- none required

Divide Decimals by Whole Numbers

Activate

1. Ask your student, "If 21 ÷ 7 = 3, what can you say about the quotient of 2.1 ÷ 7?"
2. Discuss their response.

E

1. Instruct your student to complete the **Read It**.
2. Once your student answers the You Try! section correctly, have them complete the **Practice It**.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend their learning, have your student model each quotient for questions 1 through 7 in the **Assess It** using a decimal number line, grid model, base ten blocks, or area model.

LESSON 55

Topic | Divide Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use multiplication to check the solutions to division problems, recognizing that multiplication and division are inverse operations

Materials

- index cards

Check Division by Multiplying

💡 Activate

1. Ask your student to use their knowledge of multiplication to check the quotient in the division equation 20 ÷ 4 = 5.
2. Discuss their response.

🔌 E

1. Instruct your student to work through the content of the **Read It**.
2. Ask them to note the differences among the dividend, divisor, quotient, factors, and product in a division equation in their notebook.
3. Next, have your student complete the Check with Multiplication section of the **Practice It**.
4. If your student did not answer at least five questions in the **Practice It** correctly, ask them to complete the activities in the Inverse Operations section before they retry solving any questions they missed.

🔧 Demonstrate

1. Have your student move on to complete the **Show It**.
2. Allow them to compare their answers to the ones provided in the **Show It AK**.
3. As an alternative to the fill-in-the-blank activity, have your student make flashcards for the terms in the word bank.

LESSON 56

Topic | **Divide Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- estimate to find reasonable solutions to decimal division problems

Materials

- none required

Estimate Decimal Division

Activate

1. Have your student fill in the blank in the following statement:
   - A(n) _____ is an answer close to the correct answer, but it is not exact.
2. Ask your student to give an example of an estimate. Discuss their response.

E

1. Next, instruct your student read the **Read It**.
2. As your student works through each example, engage them in a conversation about why each decimal number is being rounded to a certain whole number.
3. Once your student answers the You Try! question correctly, have them complete the activities in the **Practice It**.

Demonstrate

1. Now, instruct your student to complete the **Show It**.
2. If your student requires additional support, guide them to use decimal number lines to help them round.
3. When your student is finished, direct them to check their work using the **Show It AK**.
4. As an extension, have your student write three decimal division problems of their own and use rounding to estimate the quotients.

LESSON 57

Topic | Divide Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- create models to divide decimal numbers by decimal numbers

Materials

- base ten blocks
- colored pencils

Model Decimal Divided by Decimal

Activate

1. Have your student gather 1 flat from their base ten blocks.
2. Ask your student the following questions about the flat:
   - How many rows make up 1 flat?
   - What is the value of each row?
3. Prompt your student to write a multiplication equation based on their responses. Then, see if they can write a division equation.

E

1. Now, instruct your student to read the content of the **Read It**.
2. Encourage your student to work through the given examples using their base ten blocks, graph paper, and colored pencils.
3. Next, have your student complete the **Practice It**.
4. As an extension, tell your student to try solving some of the problems again using a different method than the one specified.

Demonstrate

1. Prompt your student to complete the **Show It**.
2. Instruct your student to use the examples in the **Show It AK** to evaluate their work.

LESSON 58

Topic	Divide Decimals

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide decimal numbers by decimal numbers using the standard algorithm

Materials

- none required

Divide Decimals by Decimals

Activate

1. Ask your student if they think two decimal numbers can be divided without using a model. Discuss their response.
2. Review the steps of the standard algorithm for division with your student.

E

1. Introduce the **Extraction-Multiplying and Dividing Decimals – Play It** to your student, and allow them some to play the game on the easy level.
2. Next, direct your student to watch the video in the **Divide Decimals by Decimals – Watch It**.
3. Next, instruct your student to read through the content of the **Read It**. Encourage them to work through each example in their notebook.
4. Once your student has successfully answered the You Try! question, have them complete the **Practice It**.
5. Encourage your student to use paper and pencil and to show all of their work. For the word problem, prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. As an extension, direct your student back to the **Extraction-Multiplying and Dividing Decimals – Play It** and allow them some to play the game on the medium or hard level.

LESSON 59

Topic — **Divide Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the strategy of adding a zero to the dividend in order to solve a division problem

Materials

- none required

Write Zeros in the Dividend

Activate

1. Have your student write the quotient of 40 ÷ 4.
2. Ask your student to explain the significance of the 0 in the quotient (10).

E

1. As your student reads through the **Read It**, engage them in a conversation about how adding a zero after a decimal point does not change the value of a decimal number.
2. Next, instruct your student to complete the **Practice It**. For problems 1 through 3, prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Ask them to carefully check their work using the **Show It AK**.
3. As an extension to their learning, have your student try to solve a division problem like 1.2 ÷ 0.9. Discuss how sometimes the digits following the decimal point repeat and go on forever.

LESSON 60

Topic | **Divide Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use various strategies to solve decimal division word problems

Materials

- base ten blocks

Decimal Division Word Problems

Activate

1. Ask your student to name more then one method for solving decimal division problems.
2. Engage in a discussion about various ways to model decimal division.

E

1. Have your student complete the **Read It**. Encourage them to take their time and work through each example.
2. Next, instruct your student to complete problem 1 at the bottom of the **Practice It**. Have them review the examples as needed.

Demonstrate

1. Now, ask your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their answers.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 50 through 60 in order to prepare for the assessment.

LESSON 61

Topic | **Divide Decimals**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 5

1. **Mastery Assess It 5** will cover what your student has learned in Lessons 50 through 60.
2. Click on the **Mastery Assess It 5** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 62

Topic | **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- model addition of fractions with unlike denominators
- model subtraction of fractions with unlike denominators

Materials

- fraction tiles

Model Fraction Addition

Activate

1. Ask your student the following question:
   - If you ate ¾ of a cherry pie on Monday and another ¼ of the same cherry pie on Tuesday, how much of the pie did you eat?
2. Ask them to explain their thinking and how they got their answer.
3. Explain to them that they just added fractions and that they will learn how to add fractions with different denominators.

E

1. Have your student start by completing the **Read It**. Ask them to explain to you how they can use fraction tiles to add fractions.
2. Next, tell them to complete the **Practice It**. If your student answers all five questions in the first section correctly, they can move on.
3. If they answer any of the questions incorrectly, have them complete the remaining activity.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Tell your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with visual models made out of food. You can use cookies, pizza, pies, or pieces of bread. Have your student divide the food into different sizes of fractions and give them simple addition problems to solve using the food.

● ● ●

Model Fraction Subtraction

Activate

1. Ask your student to solve the following problem:
   - If their math homework had 8 problems and they completed 3 already, what fraction of their total problems would they have left to complete? After they completed 3 more problems, what fraction would they have left?
2. Discuss your student's answers with them and talk through the steps they used to solve the problem.
3. Tell your student that they will learn how to subtract fractions with unlike denominators.

E

1. Tell your student to work through the content and examples in the **Read It**. Ask them to model a fraction subtraction problem using fraction tiles.
2. Then, have your student complete the activities and practice problems in the **Practice It**.

Demonstrate

1. Instruct your student to complete the **Show It** using fraction tiles to model each problem.
2. Next, have your student use the **Show It AK** to evaluate their answers.
3. To extend the student's learning, ask them how they could use the inverse operation of addition to check their work in the **Show It**.

LESSON 63

Topic | **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- find the greatest common factor of two numbers
- simplify fractions

Materials

- none required

Greatest Common Factor

Activate

1. Ask your student how the numbers 2 and 7 are related to the number 14.
2. Ask them to explain their answer and discuss their thinking.
3. Tell them that 2 and 7 are two of the factors of 14. Ask them if they know the other two.

E

1. Instruct your student to complete the **Read It**. Ask them to find the greatest common factor of 12 and 14.
2. Next, have your student complete the **Practice It**. If needed, allow your student to use real or fake coins to complete the last problem.

Demonstrate

1. Tell your student to complete the **Show It**. Allow them to use a multiplication table if they are struggling to remember the factors for different numbers.
2. Encourage them to use the **Show It AK** to evaluate their responses.

● ● ●

Simplifying Fractions

Activate

1. Ask your student the following question:
   - If you have two pies – one that is cut into 10 equal pieces and another is cut into 6 equal pieces – what fraction would represent half of each pie?
2. Ask your student how they arrived at their answers and discuss their thinking. Ask them what the two fractions have in common and what makes them different.
3. Tell your student that they will learn how to simplify fractions so that they have the same value but are in the simplest form possible.

E

1. First, tell your student to complete the **Read It**. Ask them to tell you the steps they should follow in order to reduce a fraction to simplest form.
2. After that, have your student open the **How to Find Simplest Form – Watch It**, and ask them to make note of the username and password provided on the Discovery Education image. Be sure that they click the link for the video and enter the provided username and password to watch the video.
3. Next, allow your student to play the game in the **Elixir Mixer-Simplest Form – Play It** to practice recognizing equivalent fractions.
4. Finally, instruct your student to complete the **Practice It**.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Then, tell your student to use the **Show It AK** to check their answers.
3. To extend their learning, have your student find a fraction in a recipe either from a website or a cookbook. Because the fraction will most likely already be in simplest form, challenge your student to write three equivalent fractions that are not in simplest form.

LESSON 64

Topic — **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- find the least common multiples of numbers
- find the least common denominators of fractions

Materials

- none required

Least Common Multiple

Activate

1. Show your student the two sequences of numbers below. Ask them if there are any numbers that both sequences share.
   - 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
   - 4, 8, 12, 16, 20, 24, 28, 32, 36
2. Explain to your student that the numbers the sequences share are common multiples of 3 and 4.

E

1. Instruct your student to complete the **Read It**. Ask them to explain to you how they would find the least common multiple (LCM) of two numbers.
2. Then, tell them to complete the **Practice It**.

Demonstrate

1. Instruct your student to complete the **Show It**. Encourage them to complete the Challenge problem.
2. Prompt your student to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student mark every fourth and every fifth page in a book that they have read by placing a piece of paper in the appropriate pages. Tell them to use one color paper for every fourth page and a different color for every fifth page. Have them determine which is the first page that will have a piece of paper for each color.

● ● ●

Least Common Denominator

Activate

1. Ask your student if it is possible to simplify the following expression. Then, ask them why or why not.
   - $\frac{5}{12} + \frac{2}{3}$
2. Discuss their thinking and ask them what they think might need to happen in order to find an answer.

E

1. Have your student complete the **Read It**. Ask them to explain to you how to find a common denominator of two fractions.
2. Next, tell them to complete the **Practice It**.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Then, prompt your student to use the **Show It AK** to check their answers.
3. To extend your student's learning, have them find a common ingredient in two different recipes found either online or in a cookbook. See if they can add the two amounts together by creating common denominators if the amounts contain fractions.

LESSON 65

Topic	Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- compare and order fractions

Materials

- none required

Compare and Order Fractions

Activate

1. Ask your student the following question.
   - If you needed ⅞ yard of fabric for one project and ⅜ yard of fabric for another project, how could you determine which project needed a greater amount of fabric?
2. Have your student explain their answer and discuss their thinking.
3. Tell them that they will learn how to compare and order fractions.

E

1. Instruct your student to complete the **Read It**.
2. After that, tell your student to complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.
3. To extend the student's learning, encourage them to complete the challenge problems.

Demonstrate

1. Open the **Assess It**, and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 66

Topic	Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- estimate sums and differences of fractions

Materials

- none required

Estimate Sums and Differences

💡 Activate

1. Ask your student which of the following problems would be easier to solve:
   - $1\frac{4}{5} + \frac{5}{12}$
   - $2 + \frac{1}{2}$
2. Ask them to explain their thinking and why they chose the one that they did.
3. Explain to your student that when you do not need an exact answer, estimating with fractions that are easier to work with can be a great way to solve a problem.

E

1. Instruct your student to complete the **Read It**. Ask them to tell you what a benchmark fraction is.
2. After that, they can move on to the **Practice It**. Prompt your student to check their work using the answer keys within the text.

🔧 Demonstrate

1. Tell your student to complete the **Show It**. Provide them with a simple number line containing benchmark fractions if needed.
2. Encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with three places that are no more than 3 miles from where they live or go to school. Assist them in using a map or online map tool to find the distance in tenths of a mile that each one is from their home or school. Tell them to estimate the total distance by using benchmark fractions and finding the approximate sum.

LESSON 67

Topic | **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- add fractions with unlike denominators

Materials

- fraction circles

Add Fractions

Activate

1. Provide your student with a set of fraction circles.
2. Ask your student to find different pieces or groups of pieces that they think are equal to one another.
3. Ask them to explain their answer, and discuss their thinking.

E

1. First, have your student work through the **Read It**. Engage them in a discussion about why it is important to have like denominators when they are adding fractions.
2. Then, have your student watch the video in the **Add-Unlike Denominators – Watch It**. Consider pausing the video at 3:21, after the first example, and asking your student if they understand everything that was done. Answer any questions they may have, and then watch the remaining example in the video.
3. Next, tell them to complete the activities and problems in the **Practice It**. Tell them to check their work using the answer keys in the text.
4. If your student misses two or more problems in the **Practice It**, have them create a notecard that has the steps in order for how to add fractions with unlike denominators. They can use this as a reference while they are solving further problems.

Demonstrate

1. The next step is to have your student complete the problems in the **Show It**.
2. Tell them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student write their own word problem that involves adding fractions with unlike denominators. Have them solve the problem and explain how they got their answer.

LESSON 68

Topic | Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- subtract fractions with unlike denominators

Materials

- none required

Subtract Fractions

Activate

1. Ask your student the following question:
    - If you have completed ¾ of a project, how much of the project do you have left?
2. Ask them to explain how they got their answer, and discuss their thinking.
3. Tell them that they will learn how to solve subtraction problems involving fractions with unlike denominators.

E

1. Have your student start by completing the **Read It**. Ask them to tell you the steps required to subtract two fractions with unlike denominators.
2. Next, allow your student to play the game in the **Extraction-Adding and Subtracting Fractions – Play It**.
3. When they have finished playing the game, tell them to complete the problems in the **Practice It**. Prompt your student to check their work using the answer keys within the text.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Prompt them to use the **Show It AK** to check their answers.
3. To extend your student's learning, solve a few of the problems from the **Show It** incorrectly. Then, have your student examine your work and find the mistakes.

LESSON 69

Topic | **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- model mixed numbers to find sums
- add mixed numbers with unlike fractions

Materials

- none required

Model Mixed Number Addition

Activate

1. Ask your student the following question:
   - If you had two whole pizzas and three halves of pizzas leftover after a party, what number could you use to represent the amount of pizza that was left?
2. Ask them to explain how they got their answer, and discuss their thinking.
3. Tell them that this is an example of a mixed number and they will learn how to add mixed numbers.

E

1. Have your student read through the content of the **Read It**. Have them explain how to use a model to add mixed numbers.
2. After that, tell them to complete the **Practice It**.

Demonstrate

1. Have your student complete the **Show It**.
2. Tell them to use the **Show It AK** to check their answers.

● ● ●

Add Mixed Numbers

Activate

1. Ask your student the following question:
   - If you were making two different recipes and one called for 3½ cups of sugar and the other called for 1¼ cups of sugar, how would you know how much total sugar you would need?
2. Have your student explain their answer and reasoning. Discuss their thinking with them.

E

1. Have your student begin by completing the **Read It**. Ask them to explain to you how to add mixed numbers with unlike fractions.
2. Then, have them watch the video in the **Adding Mixed Numbers – Watch It**.
3. Following watching the video, tell your student to complete the **Practice It**. If your student answers three or more questions incorrectly, instruct them to watch the video again.
4. For a challenge, have your student play the game in the **Elixir Mixer-Add-Subtract Fractions – Play It** to practice adding mixed numbers and attempt subtracting them.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 70

| **Topic** | **Add and Subtract Fractions** |

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- model subtraction of mixed numbers with unlike denominators
- subtract mixed numbers with unlike denominators

Materials

- none required

Model Mixed Number Subtraction

Activate

1. Ask your student what different strategies they can recall for adding or subtracting fractions with different denominators.
2. Ask them if they think these strategies would be the same or different if they had to add or subtract mixed numbers.
3. Discuss their thinking and talk through their answers with them.

E

1. Have your student complete the **Read It**.
2. Next, tell them to watch the video in the **Mixed Numbers-Subtracting – Watch It**.
3. Following watching the video, prompt them to complete the **Practice It**, using the answer keys in the text to check their work.
4. If they answer the first three problems correctly, tell them they can move on. If they answer one or more incorrectly, have them complete the remaining problems.

Demonstrate

1. Now, have your student complete the **Show It**. Allow them to use fraction circles or other models if needed.
2. Tell them to use the **Show It AK** to evaluate their responses.
3. To extend your student's learning, give them modeling clay, and have them create models for different mixed number subtraction problems. Tell them to create a model of the first number and then cut away or remove the amount of the second number.

● ● ●

Subtract Mixed Numbers

Activate

1. Ask your student the following question:
   - If you read 10½ pages in your book, but then realized that you only needed to read 8 pages, how many extra pages did you read?
2. Have your student explain how they got their answer, and discuss their thinking.

E

1. Allow your student to start by playing the game in the **Elixir Mixer-Add-Subtract Fractions – Play It** to practice adding and subtracting mixed numbers.
2. After that, tell them to work through the content of the **Read It**.
3. Then, instruct them to complete the problems and activities in the **Practice It**.

Demonstrate

1. The next step is for your student to complete the **Show It**.
2. Tell them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student write their own mixed-number subtraction word problem and solve it. Tell them to explain how they got their answer.

LESSON 71

Topic | Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert improper fractions to mixed numbers

Materials

- 13 equal strips of paper
- colored pencils
- scissors
- "Converting Improper Fractions" worksheet

Convert Improper Fractions

Activate

1. Ask your student how many candy bars they would have left if they had five bars but their younger sibling ate half of each one.
2. Ask them to explain their thinking and how they got their answer.
   - Tell them that they will learn about improper fractions like ⁵⁄₂.

E

1. First, have your student complete the **Read it**. Example 1 is an interactive learning object. Make sure your student listens to every slide and clicks the **Next** button to move onto each new slide. Ask them to give you an example of an improper fraction.
2. After that, they can complete the **Practice It**.
3. If your student answers three or more parts of a problem incorrectly in the **Practice It**, encourage them to play the game in the **Airship Odyssey-Improper Fractions Number Line – Play It**.

Demonstrate

1. Now, have your student follow the instructions to complete the "Converting Improper Fractions" worksheet in the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.

LESSON 72

| **Topic** | **Add and Subtract Fractions** |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- add and subtract mixed numbers

Materials

- ruler or tape measure

Add and Subtract Mixed Numbers

Activate

1. Ask your student, "If you were checking your work for a fraction problem, and your answer was $2\frac{3}{8}$, but the answer key said the answer was $\frac{19}{8}$, did you get the answer right or wrong?"
2. Ask them to explain their reasoning to you and how they got their answer.
3. Tell them that they will practice adding and subtracting mixed numbers in more than one way.

E

1. Allow your student to play the game in the **Cosmic Trail-Fractions – Play It** to review important information about fractions.
2. After that, tell your student to complete the **Read It**.
3. Once they have successfully answered all of the You Try! questions, direct them to complete the **Practice It**. Prompt them to use the answer keys in the text to check their work.

Demonstrate

1. Now, tell your student to complete the **Show It**.
2. When they are finished with the **Show It**, instruct them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student use a ruler or tape measure to measure various items in the room to the nearest quarter inch. Have them practice converting the measurements to improper fractions, adding them together to find different sums, and subtracting them to find differences.

LESSON 73

Topic	Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the properties of addition to add fractions and mixed numbers

Materials

- none required

Addition Properties - Fractions

Activate

1. Ask your student to look at the following equations and determine which mathematical property is being shown:
   - $14 + (3 + 5) = (14 + 3) + 5$
   - $29 + 11 = 11 + 29$
2. Ask them how they got their answer, and discuss their thinking.
3. Then, ask them if their answer would be the same if the equations looked like they do below. Ask them why or why not.
   - $\frac{1}{4} + (\frac{3}{8} + \frac{1}{18}) = (\frac{1}{4} + \frac{3}{8}) + \frac{1}{8}$
   - $2\frac{9}{10} + 1\frac{9}{10} = 1\frac{1}{5} + 2\frac{9}{10}$
4. Tell your student they will take a closer look at mathematical properties involving fractions and mixed numbers.

E

1. To begin, have your student work through the content of the **Read It**. Ask them to describe two mathematical properties from the lesson.
2. After that, tell them to complete the practice problems and activities in the **Practice It**, using the answer keys in the text to check their answers.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 74

Topic | **Add and Subtract Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify patterns in fraction sequences

Materials

- none required

Fraction Patterns and Sequences

Activate

1. Ask your student if they notice a pattern in the following sequence:
   - 10, 9½, 9, 8½, 8, 7½, 7, 6½, 6, 5½...
2. Ask them to explain their answer, and discuss their thinking.
3. Tell them that they will look at patterns in sequences of numbers that include fractions.

E

1. Now, have your student complete the **Read It**. Ask them to give you an example of a number sequence with a pattern that increases by ⅕.
2. The next step is for your student to complete the **Practice It**. Prompt your student to use the answer keys in the text to check their work.

Demonstrate

1. At this time, have them move on to the **Show It**.
2. Encourage them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student find a solution to the following problem:
   - If a baby alligator grows ¾ inch every week, how many inches will it have grown after 6 weeks? At what week will it have grown a total of 6 inches?
4. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 62 through 74 in order to prepare for the assessment.

LESSON 75

Topic	Add and Subtract Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 6

1. **Mastery Assess It 6** will cover what your student has learned in Lessons 62 through 74.
2. Click on the **Mastery Assess It 6** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 76

Topic	Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- model the division of whole numbers

Materials

- none required

Find Part of a Group

Activate

1. Direct your student to watch the video in the **Compare Fractions Using Pictures – Watch It**.
2. Ask your student how they might draw the fraction ⅖ differently if they were thinking of it as a division problem. Discuss their response.
3. Explain to your student that ⅖ can be written as a the division expression 2 ÷ 5 or the multiplication expression 2 x ⅕.

E

1. Have your student start by completing the **Read It**. Ask them to tell you the definitions of the terms *mixed number*, *quotient*, *dividend*, and *divisor*.
2. Next, ask your student to complete the **Practice It**. For problems 1 through 3, encourage them to use paper and a pencil and to show all of their work.
3. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Prompt them to use the **Show It AK** to check their answers.
3. To extend their learning, help your student locate five fractions in the real world. Ask your student to rewrite each fraction as a division expression and a multiplication expression.

LESSON 77

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use fraction tiles and drawings to show the product of a fraction and a whole number

Materials

- fraction tiles

Model Fractions by Whole Numbers

Activate

1. Instruct your student to gather three ¼ fraction tiles.
2. Ask your student what fraction the tiles represent together. Discuss their response.

E

1. Have your student read through the content of the **Read It**. Ask them to explain how a model can be used to multiply a fraction by a whole number.
2. After that, instruct your student to watch the video in the **Fraction/Whole Numbers Multiply – Watch It**.
3. Next, tell your student to complete the **Practice It**.
4. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, ask your student to complete the **Show It**.
2. Have them evaluate their work using the **Show It AK**.
3. To extend their learning, give your student three multiplication problems containing fractions and whole numbers. Have your student model each problem using their fraction tiles.

LESSON 78

Topic | Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use rounding and compatible numbers to estimate the product of a fraction and a whole number

Materials

- none required

Estimate Products

💡 Activate

1. Ask your student to tell you what they know about rounding fractions.
2. Give them examples such as ⅓ and ⅔. Explain to your student that ⅓ is closer to the whole number 0 on a number line and that ⅔ is closer to the whole number 1.
3. Tell your student that a fraction can also be rounded to another fraction that is easier to mentally multiply or divide.

🔌 E

1. Instruct your student to complete the **Read It**.
2. Once your student has successfully answered the You Try! questions, have them complete the **Practice It**.
3. Prompt your student to check their work using the answer keys in the text.

🔧 Demonstrate

1. Next, have your student complete the **Show It** in their notebook. Encourage them to take their time and to show all of their work.
2. Ask your student to make any necessary changes after viewing the answers in the **Show It AK**.

LESSON 79

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- calculate the product of a whole number and a fraction using the standard algorithm and write the answer in simplest form

Materials

- none required

Fraction - Whole Number Products

Activate

1. Ask your student how they would evaluate the multiplication expression 4 x ⅓.
2. Discuss their response.

E

1. Begin by having your student read through the content of the **Read It**. Engage in a discussion about how the greatest common factor is used to reduce a fraction to its lowest terms.
2. Have your student explain the process of converting an improper fraction to a mixed number.
3. Next, tell your student to complete the **Practice It**.
4. For problems 1 and 2, prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student work through the **Show It** problems in their notebook.
2. As an extension, tell them to also complete the Challenge problem.
3. Evaluate your student's answers together using the **Show It AK**.

LESSON 80

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use an area model to show the product of two fractions

Materials

- colored pencils

Model Fractions by Fractions

Activate

1. Ask your student to explain what it looks like to model the multiplication of two decimals numbers, such as 0.5 x 0.5.
2. Have them explain whether they think multiplying two fractions might be the same or different as multiplying two decimals.

E

1. Instruct your student to work through the **Read It**. If extra support is needed, have your student use colored pencils to work through each problem.
2. Next, have your student complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.
3. If your student did not complete all the questions correctly, direct them to the video in the **Represent Products of Fractions – Watch It**.
4. Consider pausing the video at 04:42. Encourage your student to use colored pencils to model the practice problem.
5. When your student is finished, resume the video and evaluate the solution together.

Demonstrate

1. Now, have your student complete the **Show It**.
2. They can then use the **Show It AK** to evaluate their work.
3. To extend their learning, have your student solve a real-world problem containing an improper fraction by drawing an area model. For example, two friends are sharing a pizza. Each friend will get ½ the amount that is left, which is ¾ pizzas. How much of a pizza will each friend receive?

LESSON 81

Topic	Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- compare the product of two fractions to the fractions that were multiplied to get the product

Materials

- fraction tiles

Compare Products and Fractions

💡 Activate

1. Ask your student to write the equation 4 x 2 = 8.
2. Have them use the > (greater than) and < (less than) symbols to compare the factors and product.
3. Prompt your student to explain why they think the product is greater than both factors.
4. Ask your student if they think a product will ever be less than its factors.
5. Discuss their response.

🔌 E

1. Instruct your student to complete the **Read It**. Engage them in a conversation about how fraction tiles can be used to multiply two fractions.
2. Next, tell your student to complete the **Practice It**.
3. As an extension, have your student model each fraction multiplication problem using their fraction tiles.

🔧 Demonstrate

1. Now, have your student complete the **Show It**.
2. Instruct them to use the **Show It AK** to check their work.

LESSON 82

Topic **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- multiply fractions using the standard algorithm and will write the answer in its simplest form

Materials

- none required

Multiply Fraction and Fraction

💡 Activate

1. Have your student look at the model for multiplying ¾ x ⁴⁄₆.
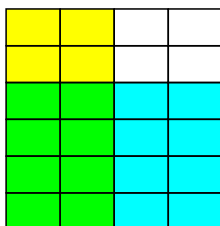
2. Tell your student that the product is ⁸⁄₂₄, or ⅓.
3. Now, have them look at the model for multiplying ⅘ x ⅔.
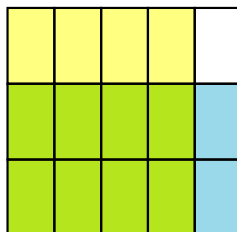
4. Tell your student the product is ⁸⁄₁₅.
5. Ask your student to explain any patterns they notice between the factors and product.
6. Discuss the value of the product as being less than both of its factors.

E

1. Begin by having your student watch the video in the **Multiplying Fractions: Muffins – Watch It**.
2. Next, have your student complete the **Read It**. Ask them to explain the steps for using the standard algorithm to solve fraction multiplication problems containing a mixed number.
3. Now, instruct your student to complete the **Practice It**. Encourage them to use paper and a pencil and to show all of their work.
4. Prompt your student to check their work using the answer keys in the text. Have them make any necessary changes so their work is accurate and complete.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. As an extension, have your student write a word problem containing a fraction and a mixed number and solve it using the standard algorithm.

LESSON 83

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- compare the product of two factors without multiplying

Materials

- none required

Multiplication as Scaling

Activate

1. Tell your student you have a cookie recipe that calls for two eggs but that you only have one egg.
2. Ask your student if they think some cookies can still be made.
3. Engage in a discussion about what it means to cut the recipe in half or scale it down so that a half batch of cookies can be made.

E

1. Begin by having your student watch the video in the **Multiplication as Scaling – Watch It**.
2. Next, have your student complete the **Read It**.
3. Once your student answers the You Try! questions correctly, have them complete the **Practice It** activities.

Demonstrate

1. Tell your student to complete the **Show It**.
2. Encourage them to use the **Show It AK** to evaluate their responses.
3. To extend the student's learning, take turns saying multiplication problems aloud and telling whether the product will be larger, smaller, or the same as the first factor. For example, if you start and say "½ x ⁵⁄₇," your student should say "less than."

LESSON 84

Topic	Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve multiplication as scaling word problems

Materials

- none required

Scaling Word Problems

Activate

1. Ask your student what it means to scale up. Discuss their response.
2. Now, ask your student what it means to scale down. Have them give you an example.

E

1. Instruct your student to complete the **Read It**. Engage in a discussion about how the first factor compares to the product when it is scaled up or scaled down.
2. Next, have your student complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Tell your student to complete the **Show It**. Encourage them to use paper and a pencil and to show all of their work.
2. Use the **Show It AK** to evaluate their answers together.
3. As an extension, have your student answer the following challenge question:
   - Danny used the copy machine to double the size of his picture. The copy is 9¼ inches tall. How tall is the original picture (it is 4⅝ inches)?

LESSON 85

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use tiling to find the area of a rectangle with fractional side lengths

Materials

- colored pencils

Model Multiplying Mixed Numbers

Activate

1. Direct your student to watch the video in the **Areas of Rectangles: Fractions – Watch It**.
2. Pause the video at 04:11. Engage in a discussion with your student about how mixed number models might be similar to or different than fraction area models.

E

1. Next, have your student read through the content of the **Read It**.
2. After that, instruct them to complete the **Practice It**. Encourage your student to take their time and to use grid paper to solve problems 1 and 2.
3. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**. Encourage them to use grid paper and, if needed, colored pencils to make creating the area models easier.
2. Using the examples given in the **Show It AK**, evaluate your student's responses together.

LESSON 86

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- compare the product of a mixed number and a factor equal to one, less than one, and greater than one

Materials

- none required

Compare Products and Factors

Activate

1. Ask your student if ⅗ or 2⅕ is greater.
2. Have them explain how they know.

E

1. As your student reads through the **Read It**, engage them in a conversation about how the first factor compares to the product when it is multiplied by a factor greater than 1 and when it is multiplied by a factor less than 1.
2. If your student answers all three You Try! questions correctly, have them move on to the **Show It**.
3. If your student needs additional support, have them complete the **Practice It** activities prior to moving on.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Prompt them to check their work using the **Show It AK**.
3. To extend their learning, have your student think of three real-world scenarios for which comparing the product to the factor in a fraction multiplication problem would be helpful.

LESSON 87

Topic **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- decompose mixed numbers into whole numbers and fractions before multiplying
- convert mixed numbers to improper fractions in order to multiply

Materials

- none required

Decompose Mixed Numbers

Activate

1. Direct your student to watch the video in the **Multiply Mixed Numbers – Watch It**.
2. Start the video at 4:55. Have your student watch until the end of the video.
3. Ask your student what two multiplication problems were modeled in solving 1¾ x ½.
4. Next, have them describe why ⅘ and ⅜ were added together.
5. Explain to your student that when the mixed number was multiplied by the fraction, the whole number part and the fraction part were multiplied separately. The products were then added together.

E

1. Instruct your student to complete the **Read It**. Ask them to explain how a rectangle model makes using the distributive property to multiply mixed numbers easier.
2. Once your student has successfully answered both You Try! questions, have them move on to the **Practice It**.
3. Encourage your student to use paper and a pencil and to show all of their work. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Next, instruct your student to complete the **Show It**. Encourage them to use paper and a pencil and to show all of their work.
2. Use the **Show It AK** to evaluate their answers together.

● ● ●

Multiply Mixed Numbers

Activate

1. Ask your student if they prefer using models or the standard algorithm to multiply fractions.
2. Have them explain their reasoning.

E

1. Prompt your student to read through the content of the **Read It**. Engage them in a discussion about the importance of converting mixed numbers to improper fractions when they are using the standard algorithm to multiply.
2. Then, ask your student whether the product needs to be simplified or if it can stay improper. Have them explain their thinking.
3. Direct your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.
4. If additional support is needed, have your student watch the video in the **Equations: Fractions and Mixed Numbers – Watch It**.
5. Consider pausing the video at 03:54 and allowing your student some time to complete the practice problem on their own.
6. Resume the video when they are finished, and evaluate the student's solution along with the narrator.

DEMONSTRATE
1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend their learning, encourage your student to write and solve five mixed-number multiplication problems of their own.

LESSON 88

| Topic | Multiply and Divide Fractions |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve word problems involving multiplication of fractions and mixed numbers

Materials

- none required

Multiply Fractions Word Problems

Activate

1. Ask your student to give you a real-world example for which a mixed number must be multiplied by another mixed number.
2. If needed, provide an example such as the following:
   - You want to know the distance you walked on Tuesday. On Tuesday, you walked 1½ times the distance you walked on Monday, which was 2½ miles.

E

1. Have your student read through the content of the **Read It**.
2. Next, have them complete the **Practice It**.
3. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, instruct your student complete the **Show It**.
2. Have them use **Show It AK** to check their answers.

LESSON 89

| Topic | Multiply and Divide Fractions |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- model and explain how to divide whole numbers by unit fractions

Materials

- none required

Divide with Unit Fractions

Activate

1. Ask your student how many halves make up 1 whole.
2. Discuss their response.
3. Explain that unit fractions like ½ can be combined to form 1 whole.

E

1. Have the student read through the content of the **Read It**.
2. If your student successfully answered the You Try! questions, have them move on to the **Practice It**.
3. If you student did not answer the You Try! questions correctly, direct them to watch the video in the **Whole Numbers/Fractions – Watch It**.
4. Pause the video at 03:05 and instruct your student to solve the practice problem.
5. When your student is finished, resume the video and evaluate the solution together.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. When your student is finished, have them compare their answers to the ones given in the **Show It AK**.
3. To extend their learning, assist your student with finding real-world examples of unit fractions, such as those on measuring spoons or on a tape measure.

LESSON 90

Topic	Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide unit fractions by whole numbers

Materials

- none required

Unit Fractions by Whole Numbers

Activate

1. Have your student write the fractions ¹⁄₁₀ and ¹⁰⁄₁ on a piece of paper.
2. Ask your student if both fractions have the same value.
3. Discuss their response and the different fraction values.

E

1. Introduce your student to the **Airship Odyssey-Divide Fractions – Play It**. Allow them some time to play the game on the easy level.
2. Next, have your student read the **Read It**. Encourage them to work through each example on a piece of paper.
3. Once your student has successfully answered the You Try! questions, have them complete the **Practice It**.
4. If your student needs additional support, direct them to watch the video in the **Equations: Divide Fractions – Watch It**.
5. Consider pausing the video at 03:45 and having your student complete the practice problem. When your student is finished, resume the video and evaluate the solution together.

Demonstrate

1. Now, have your student complete the Show It.
2. When they are finished, use the Show It AK to evaluate their answers together.
3. As an extension, direct your student back to the Airship Odyssey-Divide Fractions – Play It. Allow them some time to play the game on the hard level.

LESSON 91

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

• interpret fractions as division problems

Materials

• none required

Fractions Are Division Problems

Activate

1. Have your student write the fraction ½.
2. Ask your student what they think the fraction ½ means.
3. Explain to your student that ½ refers to 1 out of 2 equal parts and that 1 whole has been divided into 2 equal pieces.

E

1. Prompt your student to read through the content in the **Read It**. Ask them to demonstrate how fractions and division are related using a fraction of your choice.
2. Next, have your student complete the **Practice It**. For problems 1 through 4, help them check their work using the answer keys in the text.

Demonstrate

1. Now, instruct your student to complete the **Show It**.
2. Encourage them to evaluate their answers using the **Show It AK**.
3. As an extension to their learning, have your student use household items to model one or more division expressions that can be represented as fractions.

LESSON 92

Topic	Multiply and Divide Fractions

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- divide unit fractions by whole numbers and whole numbers by unit fractions to solve word problems

Materials

- none required

Divide Fractions Word Problems

Activate

1. Ask your student if they know how many ¼ cup measurements of flour fit into 1 cup.
2. Discuss with your student multiple ways to solve this problem including dividing 1 by ¼.

E

1. Begin by having your student complete the crossword puzzle in the **Practice It**.
2. Next, direct your student to read through the content of the **Read It**. Encourage your student to work through each example problem in their notebook.
3. Once your student has successfully completed the You Try! section, instruct them to complete the rest of the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Open the **Assess It**, and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend their learning, instruct your student to use an alternate method to solve one problem from each section in the **Assess It**.

LESSON 93

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- interpret and solve word problems involving fractions, deciding whether multiplication or division is appropriate in each case

Materials

- none required

Fraction Word Problems

Activate

1. Ask your student to tell you some places they have seen fractions in the real world.
2. Discuss their response.

E

1. As your student reads through the **Read It**, engage them in a conversation about terms that indicate multiplication and division.
2. Ask your student to describe the various strategies for multiplying and dividing fractions. Have them explain which methods they prefer and why.
3. Next, instruct your student to complete the **Practice It**. For questions 1 through 3, prompt your student to check their work using the answer keys in the text.
4. As an extension, have your student solve problems 1 through 3 again using a different strategy.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Encourage them to use the **Show It AK** to evaluate their responses.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 76 through 93 in order to prepare for the assessment.

LESSON 94

Topic | **Multiply and Divide Fractions**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

• not applicable

Materials

• none required

Mastery Assess It 7

1. **Mastery Assess It 7** will cover what your student has learned in Lessons 76 through 93.
2. Click on the **Mastery Assess It 7** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 95

Topic	**Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- match numerical expressions and word phrases

Materials

- none required

Match Expressions and Phrases

Activate

1. Ask your student to look at the following simple expression. Ask them how they would use words to write the same expression.
   - 5 + 10
2. Ask them to explain their thinking and how they got their answer. Ask them if there is more than one way to answer this question.
3. Tell them that they will learn how to use words to communicate mathematical expressions.

E

1. Have your student begin by working through the **Read It**. Ask them to give you an example of a keyword for each of the four mathematical operations.
2. Following the **Read It**, have them complete the activities in the **Practice It**.
3. For extra practice, you can have them cut words out of magazines or newspapers to represent numerical expressions.

Demonstrate

1. The next step is to have your student complete the **Show It**. Encourage them to complete the Challenge problem to extend their learning.
2. Tell them to use the **Show It AK** to check their work.

LESSON 96

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- interpret numerical expressions without evaluating them

Materials

- none required

Interpret Expressions

Activate

1. Ask your student the following question:
   - If you had twelve toys that you wanted to separate into equal groups of three, how could you use numbers and symbols to represent your answer?
2. Have your student explain how they got their answer, and discuss their thinking.

E

1. Now, have your student complete the **Read It**.
2. After that, instruct your student to watch the video in the **Explaining Expressions – Watch It**.
3. Following the video, have them move on to the **Practice It**.

Demonstrate

1. The next step is for your student to complete the **Show It**.
2. When they have completed the **Show It**, have them use the **Show It AK** to check their answers.
3. To extend their learning, have your student use physical objects to act out or represent different mathematical expressions from the lesson.

LESSON 97

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- write word phrases and numerical expressions

Materials

- calculator

Write Expressions and Phrases

Activate

1. Ask your student what they think the word *translate* means.
2. Allow them to look up the term in a dictionary to compare its definition to their answer.
3. Tell them that math can sometimes seem like another language. Then, ask them to translate the following expression into words:
   - 100 x 2
4. Have them explain how they got their answer, and discuss their thinking.

E

1. Have your student work through the content and practice problems in the **Read It**.
2. Following that, they can watch the video in the **From Word to Number Form – Watch It**.
3. The next step is for your student to complete the **Practice It**.

Demonstrate

1. Now, have your student move on to the **Show It**. To extend their learning, have them complete the Challenge problem.
2. After that, tell them to use the **Show It AK** to evaluate their responses.

LESSON 98

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- apply the order of operations to simplify expressions

Materials

- none required

The Order of Operations

Activate

1. Ask your student if they think surgeons have to follow a specific order of tasks when they are completing a surgery.
2. Have your student explain their answer, and discuss their thinking.
3. Tell them that the order they follow to simplify expressions and solve problems is important as well. If they do not follow the correct order of operations, they might end up with an incorrect answer.

E

1. To begin, have your student read the content in the **Read It**. To extend their learning, they can work through the Challenge problem at the end of the content.
2. Next, have them watch the video in the **Order of Operations: Numbers – Watch It**.
3. After that, encourage your student to work through the **Apply the Order Of Operations – Practice It**. This is an interactive learning object. Have your student listen to each slide and click the **Next** button to go to each new slide. Have them complete the practice problems that are included.
4. Following that, your student can complete the first two problems in the **Practice It**. If they answer both problems correctly, have them move on.
5. If they answer one or more problems incorrectly, have them complete the remaining problems and activities.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 99

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- evaluate exponents

Materials

- none required

Evaluate Exponents

Activate

1. Ask your student to find the prime factorization of the number 16.
2. Once they have come up with the correct answer (2 x 2 x 2 x 2), ask them if they can write it in a simpler way. If they are struggling to find an answer, suggest that they think about exponents.
3. Ask them to explain their answer and to discuss their thinking with you.
4. Tell them that exponents can be a big help in situations like this and that they will learn more about them.

E

1. To start off, have your student complete the **Read It**. Ask them to explain to you what it means for a number to have an exponent.
2. Next, allow your student to watch the video in the **Exponents – Watch It**. Consider pausing the video at 1:02 to discuss the common mistake and why it would be easy to do.
3. Pause the video when prompted to allow your student to try the practice problems.
4. After that, they can complete the first section of the **Practice It**. If your student answers three or more questions correctly, have them move on to the real-world problem at the bottom.
5. If your student answers three or more question incorrectly in the first section, have them complete the practice problems in the Try More! section.
6. Then, instruct them to complete the real-world problem at the bottom of the **Practice It**.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Encourage them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student conduct research – on the Internet and with your supervision – to find a few facts about the binary code that makes up the basis of all computers. This is one example of how exponents are used in the real world.

LESSON 100

Topic **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- evaluate and simplify numerical expressions

Materials

- none required

Evaluate Expressions

Activate

1. Ask your student what the difference is between an expression that they might learn about in an English language arts class and a numerical expression that they might learn about in a math class. How are they the same and how are they different?
2. Encourage your student to discuss their thoughts with you and how they got their answer.

E

1. Have your student begin by completing the **Read It**. Ask them to tell you the steps of the order of operations in the correct order.
2. Then, have your student watch the video in the **Evaluating Expressions – Watch It** to see the effect that parentheses have on an expression. Consider pausing the video to allow your student to attempt to solve each example problem before the narrator walks through each step.
3. After that, tell your student to complete the **Practice It**. If your student misses less than two questions, they can move on.
4. If your student misses two or more questions in the **Practice It** and needs extra practice, allow them to play the game in the **Extraction-Order of Operations – Play It**.

Demonstrate

1. Tell your student that it is time to complete the **Show It**.
2. When they are finished with the **Show It**, have your student then use the **Show It AK** to evaluate their responses.

LESSON 101

| **Topic** | **Expressions and Equations** |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- write numerical expressions from word problems and evaluate them

Materials

- none required

Expression Word Problems

Activate

1. Ask your student the following question:
   - If you have three chores to do at home and your friend has three times as many chores as you do, how many chores does your friend have?
2. Ask your student to explain their answer, and discuss their thinking.
3. Tell them that they will learn how to write expressions from word problems and evaluate them.

E

1. Have your student read through the content of the **Read It**.
2. After your student has successfully completed the You Try! at the bottom, tell them to work through each problem in the **Practice It**. Prompt them to use the answer keys in the text to check their work.

Demonstrate

1. At this time, tell your student to move on to the **Show It**.
2. When they are finished, tell them to use the **Show It AK** to check their answers.
3. To extend their learning, provide your student with simple mathematical expressions and have them create real-world problems to match the expressions. Then, have them evaluate each one.

LESSON 102

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- simplify algebraic expressions by substituting values for variables

Materials

- none required

Substitute Values for Variables

Activate

1. Ask your student the following question:
   - Pretend that you want to buy gifts for three of your friends. You know you want to give each of them the same thing, but you are not sure how much it costs yet. How could you write an expression for the amount of money that the three gifts will cost before you know the price of one of the items?
2. Encourage your student to think through different ideas and to discuss their thinking with you. If they get stuck, ask them to think about using a symbol or letter to represent the unknown amount.
3. Tell them that they will learn how to use variables when they are writing and simplifying expressions.

E

1. To start, tell your student to complete the **Read It**. Ask them to explain to you what a variable is.
2. Then, tell them to move on to the **Practice It** and follow the instructions to complete each problem. They can use the answer keys in the text to check their work.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Tell them to then use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student create a menu with different prices. For each menu item, have them create a variable to represent the item's price. Then, have them write at least three expressions using variables and then substitute the correct values to evaluate each expression.

LESSON 103

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify inverse operations

Materials

- "Inverse Operations" worksheet

Equations and Inverse Operations

Activate

1. Ask your student what they might do to figure out the missing number in the equation below:
   - _____ - 9 = 11
2. Ask them to explain their reasoning and how they found their answer.
3. Tell them that one way to solve the problem is to use the inverse operation of addition. Tell them that they will learn about inverse operations.

E

1. Direct your student to complete the **Read It**. Ask them to name the inverse operations of addition and multiplication.
2. Then, have them complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. The next step is for them to follow the instructions to complete the "Inverse Operations" worksheet in the **Show It**.
2. Have them use the **Show It AK** to check their answers.
3. To extend your student's learning, have them write their own equation for each of the four operations. Then, have them write the inverse operation to match it. They can also write equations in each of which one number is missing and use the inverse operation to find the missing number.

LESSON 104

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve addition equations

Materials

- none required

Addition Equations

Activate

1. Allow your student to watch the video in the **Sorting Equations & Expressions – Watch It** to make sure they understand the difference between an equation and an expression.
2. Consider pausing the video at 1:49 to allow your student to attempt sorting the equations and expressions before the narrator does in the video. Pause the video when prompted to allow your student to complete the practice problem.

E

1. Tell your student to complete the **Read It**. Ask them to give you an example of an addition equation with a variable.
2. Following that, they can complete the **Practice It**, checking their answers as they go with the answer keys in the text.

Demonstrate

1. Now, have your student move on to the **Show It**.
2. After that, have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, give your student examples of equations and expressions, and have them identify whether each example is an equation or not.

LESSON 105

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve word problems involving addition equations

Materials

- none required

Addition Equation Problems

Activate

1. Ask your student to look at the following addition equation that contains a variable. Ask your student to make up a real-world scenario that this equation could be used to solve.
   - $7 + d = 12$
2. Ask them to explain their answer, and discuss their thinking.
3. Tell them that they will solve word problems that require them to write addition equations.

E

1. To begin, have your student work through the content and examples in the **Read It**.
2. After that, have them complete the practice problems in the **Practice It**. They can check their answers as they go by using the answer keys embedded in the text.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 106

Topic	Expressions and Equations

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve subtraction equations

Materials

- none required

Subtraction Equations

Activate

1. Ask your student which of the four operations they could use to solve the following problem:
   - You were going to buy a shirt that was priced at $15, but when you went to check out, your total was $12.50. What was the discount you got on the shirt?
2. Have your student explain how they got their answer, and discuss their thinking.
3. Tell them that they will look closely at subtraction equations.

E

1. Instruct them to complete the **Read It**. Ask them to give you an example of a subtraction equation that contains a variable.
2. Next, tell your student to move on to the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, it is time for your student to complete the **Show It**.
2. When they have finished, have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student come up with as many words as they can that would tell them to subtract.

LESSON 107

Topic | **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve word problems involving subtraction equations

Materials

- index cards

Subtraction Equation Problems

Activate

1. Ask your student to write an equation to solve the following problem:
   - There were 35 bicycles at a store. After a big sale, only 12 bikes remained in the store. How many bikes did the store sell during the sale?
2. Ask your student to explain how they got their answer, and discuss their thinking.
3. Tell them that they will use subtraction equations to solve real-world problems.

E

1. Have your student work through the content of the **Read It**.
2. To extend their learning, have your student complete the Challenge problem and You Try! problem.
3. After that, have them move on to the **Practice It** and complete the practice problems. They can check their work by using the answer keys embedded in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Following that, they can use the **Show It AK** to check their answers.
3. To extend your student's learning, you or your student can write out the subtraction equations from the lesson on index cards. Then, they can write the inverse equations for the equations from the lesson on separate index cards. Finally, you can play a memory game where they try to match each equation to its inverse equation.

LESSON 108

Topic **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve multiplication equations

Materials

- none required

Multiplication Equations

Activate

1. Ask your student how they could represent the following problem with an equation:
   - You are asked to bring 36 cupcakes to a bake sale, and you can only make batches of 12 cupcakes at a time. How many batches do you need to make?
2. Ask your student to explain their answer, and discuss their thinking.
3. Tell them that they will learn how to write and solve multiplication equations that contain variables.

E

1. To start, have your student complete the **Read It**. Have them give you an example of a multiplication equation that contains a variable.
2. After that, have them move on to the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Tell your student to complete the **Show It**. Encourage them to extend their learning by completing the Challenge problem.
2. Then, have them use the **Show It AK** to check their answers.

LESSON 109

Topic — **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the distributive property to solve equations

Materials

- magnetic numbers or number cards

Solve with Distributive Property

Activate

1. Ask your student how they would simplify the following expression. What would they do first, second, and so on?
   - $(3 \times 4) + (5 \times 2)$
2. Have them explain their answer to you, and discuss their thinking.
3. Tell them that they will see parentheses in equations that require them to use the distributive property to solve.

E

1. Encourage your student to read through the content of the **Read It**.
2. Tell them to then complete to the **Practice It**, checking their work as they go using the answer keys embedded in the text.
3. If they get the first three practice problems correct, tell them they can move on.
4. If they miss one or more of the first three practice problems, have them complete the remaining problems.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. After that, tell them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, allow your student to use magnetic numbers or number cards to create problems that require them to use the distributive property to solve. Have them rearrange the numbers and use additional numbers and symbols to show how they would solve them. For example, they could first create the equation $4(3 + 2)$. Then, they would rearrange the equation to show $(4 \times 3) + (4 \times 2)$.

LESSON 110

Topic — **Expressions and Equations**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve division equations

Materials

- none required

Division Equations

Activate

1. Ask your student what expression they could write to solve the following problem.
   - You are making goody bags for your birthday party. You have 20 bags and a bag of 100 pieces of candy. You are going to distribute the 100 pieces of candy equally among the 20 goody bags. How many pieces of candy do you need to put in each bag so everyone gets the same amount?
2. Have your student explain their answer, and discuss their thinking.
3. Tell them they will learn how to write and solve division equations.

E

1. Have your student complete the **Read It**. Ask them to give you an example of a division equation that contains a variable.
2. Next, have your student complete the **Practice It**. They can check their answers as they go by using the answer keys in the text.

Demonstrate

1. The next step is for your student to complete the **Show It**.
2. After that, have them use the **Show It AK** to evaluate their responses.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 95 through 110 in order to prepare for the assessment.

LESSON 111

| Topic | Expressions and Equations |

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 8

1. **Mastery Assess It 8** will cover what your student has learned in Lessons 95 through 110.
2. Click on the **Mastery Assess It 8** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 112

Topic — Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify the patterns for shape sequences

Materials

- colored pencils, crayons, or markers

Pattern in Shape Sequence

Activate

1. Ask your student to define the term *pattern*. Discuss their response.
2. If needed, give them some examples of hexagons found in the real world, such as those that make up a honeycomb.

E

1. Next, have your student read the **Read It** content and answer the You Try! section at the bottom. To extend their learning, have them also answer the Challenge question.
2. Now, instruct your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Last, ask your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.
3. As an extension, instruct your student to create a shape pattern of their own. Tell them to ask at least one other person to describe the rule for their pattern.

LESSON 113

Topic	Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify the patterns for number sequences

Materials

- none required

Number Patterns

Activate

1. Ask your student why they think patterns are important. Discuss their response.
2. If needed, give your student some examples of the importance of patterns, such as the consecutively numbered pages of a book or the numbers on a clock face.

E

1. Prompt your student to read through the content of the **Read It**.
2. Next, instruct your student to work through the **Practice It**.
3. If your student needs additional support, direct them to watch the video in the **Create Sets of Number Patterns – Watch It**.
4. Consider pausing the video at 04:37 and having your student complete the practice problems.
5. When your student is finished, resume the video and evaluate the solutions together.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Prompt them to use the **Show It AK** to evaluate their answers.
3. To extend their learning, have your student develop three pattern rules of their own. Instruct them to prompt others to create the patterns based on their rules.

LESSON 114

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify and use addition and subtraction rules for tables

Materials

- none required

Addition or Subtraction Rules

Activate

1. Ask your student to give you an example of one everyday rule they follow and one math rule they follow.
2. Discuss their responses and the importance of following the rules in both everyday life and math.

E

1. Prompt your student to complete the **Read It**. Ask them to explain the rule for each given table.
2. Next, instruct your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Use the **Show It AK** with your student to check their answers.
3. To extend their learning, instruct your student to create their own addition or subtraction rule for a table. Challenge them to complete a table with at least eight terms – four in each column.

LESSON 115

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use a rule to write an expression using addition and subtraction

Materials

- none required

Add or Subtract Using Rules

Activate

1. Copy the following table onto a separate piece of paper:

In	Out
102	90
90	78
78	
66	54

2. Ask your student to find the missing term.
3. Have them explain how they determined the pattern rule.

E

1. Have your student read through the content of the **Read It**.
2. To extend their learning, have them also complete the Challenge problem.
3. After that, instruct your student to complete the activities in the **Practice It**.
4. Have them check their work using the answer keys in the text.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. To extend their learning, instruct your student to write a short paragraph to explain their thinking process for solving problem 1 in the What Do You Think? section of the **Assess It**.

LESSON 116

Topic **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify and use multiplication and division rules for tables

Materials

- none required

Multiplication or Division Rules

Activate

1. Copy the following table onto a separate piece of paper. Tell your student that the rule is $n + 3$.

In	Out
2	5
5	8
8	
11	14

2. Ask your student to find the missing term.
3. Have them explain how they think the terms would change if the rule was n x 3 instead of $n + 3$.

E

1. Instruct your student to read through the content in the **Read It**. Have a discussion about the similarities and differences between multiplication and division rules for tables and addition and subtraction rules for tables.
2. Next, instruct your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Once they are finished, direct them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, instruct your student to create their own multiplication or division rule for a table. Challenge them to complete a table with at least eight terms – four in each column.

LESSON 117

Topic — **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use a rule to write an expression using multiplication and division

Materials

- none required

Multiply or Divide Using Rules

Activate

1. Copy the following table onto a separate piece of paper:

In	Out
243	81
	9
9	3
3	1

2. Ask your student to find the missing term.
3. Have them explain how they determined the pattern rule.

E

1. Have your student read through the content of the **Read It**.
2. To extend their learning, have the student also complete the Challenge problem.
3. After that, instruct your student to complete the activities in the **Practice It**.
4. Have them check their work using the answer keys in the text.

Demonstrate

1. Next, instruct your student to complete the **Show It**.
2. Use the **Show It AK** to evaluate their answers together.
3. To extend their learning, instruct your student to write a short paragraph to explain their thinking process for solving problem 1 in the What Do You Think? section in the **Show It**.

LESSON 118

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify relationships between numerical patterns

Materials

- none required

Relationships between Patterns

Activate

1. Say to your student, "Think about studying for a test."
2. Ask your student if they think there is a relationship between the amount of time they spend studying and the test score they receive.
3. Have your student describe that relationship, and discuss their thinking.
4. Tell your student that two sets of data can also have a relationship that is mathematical.

E

1. Have your student read through the content of the **Read It**.
2. Once they have successfully completed the You Try! question, instruct your student to complete the **Practice It**.

Demonstrate

1. Next, have your student complete the **Show It**. Encourage them to use paper and pencil and to show all of their work.
2. Prompt your student to use the **Show It AK** to check their work.

LESSON 119

Topic **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- write and use rules to describe how two patterns are related

Materials

- none required

Rules to Relate Patterns

Activate

1. Give your student the following information:
   - Column *x*: 2, 4, 6, 8, 10...
   - Column *y*: 16, 32, 48, 64, 80...
2. Have them determine the rule for each column.
3. Discuss a possible relationship between the sets of corresponding digits.

E

1. Tell your student to complete the **Read It**. Ask them to give you an example of a pattern they have seen in nature.
2. Next, allow your student to watch the video in the **Pattern Rules with Variables – Watch It**.
3. Consider pausing the video at 05:35 and allowing your student some time to write a rule with a variable based on the information given in each chart.
4. When your student is finished, resume the video and evaluate the solutions together.
5. Following the video, have your student complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, instruct your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their work.
3. To extend their learning, have your student create sets of corresponding terms and identify the relationship between them.

LESSON 120

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- describe a path between two points

Materials

- none required

Paths on a Grid

Activate

1. Ask your student to define the term *path*.
2. Discuss different paths they take to get to various places within their home, classroom, or neighborhood.

E

1. Now, direct your student to complete the **Read It**. Ask them to explain one or more ways a grid may be useful to them when they are reading a map.
2. Once your student has successfully answered the You Try! question, have them complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Next, instruct your student to complete the **Show It**.
2. Have them use the **Show It AK** to check their work.
3. To extend their learning, challenge your student to draw a map with a grid that includes at least three points of reference. Ask your student to describe the path from one point to another using cardinal directions.

LESSON 121

Topic | Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

• draw and label the coordinate plane

Materials

• index cards

The Coordinate Plane

Activate

1. Ask your student what they know about the coordinate plane.
2. Have a discussion with your student about how the coordinate plane is made up of four grids.

E

1. Have your student work through the content of the **Read It**.
2. If your student successfully completes the You Try! section, have them move on to the **Practice It**.
3. For additional support, direct your student to watch the video in the **Quadrants of the Coordinate Plane – Watch It**. Review the quadrants, origin, and axes together.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Instruct them to use the **Show It AK** to check their answers.
3. If your student needs additional support, have them create flashcards for the terms x-*axis*, y-*axis*, *origin*, *quadrant*, *horizontal*, *vertical*, and *counterclockwise*. Spend some time reviewing these terms with your student.

LESSON 122

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify ordered pairs on a city map

Materials

- graph paper

Ordered Pairs on a City Map

Activate

1. Play a game with your student by having them give directions to various locations in your home, classroom, or neighborhood without naming the location.
2. Try to guess the location based on your student's directions.

E

1. Instruct your student to complete the **Read It**.
2. After that, tell your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.
3. If your student needs additional support, have them watch the video in the **Coordinate Grid: Naming Points – Watch It**.

Demonstrate

1. Next, have your student to complete the **Show It**.
2. Encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with a physical or online map with a grid. Have your student name the coordinates of one or more locations on the map.

LESSON 123

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- write and plot ordered pairs when given data in a table

Materials

- none required

Plotting Ordered Pairs

Activate

1. Have your student write down three sets of ordered pairs.
2. Ask them to name each *x*- and *y*-coordinate.
3. Have your student describe what would happen if the coordinates were reversed.
4. Discuss why each point would be in a different place on the coordinate plane.

E

1. To begin, have your student read the content in the **Read It** entirely.
2. Next, have them watch the video in the **Plotting Ordered Pairs – Watch It**.
3. After that, encourage your student to work through **Plotting on a Coordinate Grid – Practice It**. This is an interactive learning object. Have your student plot each ordered pair and click the **Submit** button to move on to each new page.
4. Following that, have your student use the **Practice It** as needed.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 124

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- plot points on the coordinate plane to create pictures

Materials

- graph paper

Plot Points to Create a Picture

Activate

1. Begin by having your student watch the video in the **Coordinate Grid: Plot Points – Watch It**.
2. Engage in a discussion about the process of plotting ordered pairs on a coordinate plane.

E

1. Next, instruct your student to read through the content of the **Read It**.
2. When your student has successfully completed the You Try! activity, they can move on.
3. For additional practice plotting ordered pairs, have your student complete the **Practice It**.

Demonstrate

1. At this time, have your student complete the **Show It**.
2. Prompt them to check their work using the **Show It AK**.
3. To extend their learning, have your student draw a shape on a blank coordinate plane. Then, instruct them to write down the ordered pairs that could be used to redraw the same shape in the same location.

LESSON 125

Topic **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- gather data and plot it on a coordinate plane

Materials

- graph paper

Gather and Plot Data

Activate

1. Ask your student how they would define the term *data*.
2. Discuss their response, and give them some examples of data if needed.
3. Explain to your student that there are many different kinds of data and that data can be organized in various ways.

E

1. Have your student begin by reading the content in the **Read It**. Ask your student why they think plotting data might be important.
2. Next, instruct your student complete the **Practice It**.

Demonstrate

1. Last, prompt your student to work through the activities in the **Show It**.
2. Use the **Show It AK** to evaluate their work together.

LESSON 126

Topic Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- find the distance between two points on a coordinate plane

Materials

- graph paper
- two objects

Distance between Points

Activate

1. Place two objects, such as coins or pencils, any distance apart on a piece of graph paper.
2. Ask your student to explain to you one way to describe how far apart they are.
3. Discuss the idea of counting the squares or units between the two objects.

E

1. Direct your student to watch the video in the **Distance on a Coordinate Plane – Watch It**.
2. Then, have them work through the content of the **Read It**.
3. Once your student has successfully answered the You Try! question, instruct them to complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**.
2. When they are finished, tell them to use the **Show It AK** to check their answers.
3. To extend their learning, have your student draw a coordinate plane on piece of graph paper. Instruct them to plot at least five points labeled A through E. Have your student find the distance between each pair—A and B, C and D, A and E.

LESSON 127

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- generate numerical patterns and identify relationships between corresponding terms

Materials

- none required

Ordered Pair Patterns

Activate

1. Show your student the following table:

In	Out
3	33
6	66
9	99
12	132

2. Have them identify the pattern in each column.
3. Now, ask your student if they can identify the pattern between the columns.

E

1. Begin by having your student complete the **Read It** in its entirety. Encourage your student to work through each example problem in their notebook.
2. Next, have your student complete the **Practice It**.
3. If additional support is needed, direct your student to the video in the **Analyze Number Patterns – Watch It**.
4. Consider pausing the video at 06:28, allowing your student some time to complete the practice problems. When they are finished, resume the video and evaluate their answers together.

Demonstrate

1. Last, have your student complete the **Show It**.
2. Tell them to use the **Show It AK** to check their work.

LESSON 128

Topic	Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- create a line graph and analyze the plotted data

Materials

- none required

Line Graphs

Activate

1. Have your student list types of information that can be graphed.
2. Discuss their response.
3. Ask your student the following question:
    - What do you think a graph that shows a relationship between two things might look like?

E

1. Begin by having your student complete the matching activity in the **Practice It**.
2. Next, instruct your student to read through the content of the **Read It**.
3. Once your student has successfully completed the You Try! sections, have them complete the remainder of the **Practice It**.
4. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**. If needed, instruct them to use graph paper as an aid for creating their line graphs.
2. Use the **Show It AK** to evaluate your student's work together.

LESSON 129

Topic | **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- determine appropriate scales and intervals to create a graph when given a set of data

Materials

- none required

Scale and Interval

Activate

1. Ask your student the following question:
   - What is the purpose of a line graph?
2. Discuss their response.
3. Explain to your student that a line graph is a visual picture of information.

E

1. Next, instruct your student to complete the **Read It**. Ask them to define the terms *scale* and *interval* as they relate to math.
2. Once your student has successfully completed the You Try! section, have them move on to the **Practice It**.
3. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student complete the **Show It**. If needed, instruct them to use graph paper as an aid for creating their line graphs.
2. Tell your student to check their work using the **Show It AK**.
3. To extend your student's learning, have them collect and record their own set of data and then use that data to create a line graph.

LESSON 130

Topic Patterns and Graphing

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use graphs to interpret data

Materials

- none required

Using Graphs to Interpret Data

Activate

1. Ask your student to identify the important parts of a line graph.
2. Have a discussion about the importance of each part of a line graph, including the title, scale, intervals, data points, and labels.

E

1. As your student reads through the content of the **Read It**, engage them in a conversation about the parts of a line graph and what they represent. Discuss with them how line graphs show how information is connected in some way, such as change over time.
2. Next, instruct your student to complete the **Practice It** in its entirety.

Demonstrate

1. Open the **Assess It** and have your student complete the activity. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
2. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 112 through 130 in order to prepare for the assessment.

LESSON 131

Topic **Patterns and Graphing**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 9

1. **Mastery Assess It 9** will cover what your student has learned in Lessons 112 through 130.
2. Click on the **Mastery Assess It 9** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 132

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert and compare customary units of length

Materials

- none required

Customary Lengths

Activate

1. Ask your student to put the following units of customary measurement in order from shortest to longest:
   - yard
   - foot
   - mile
   - inch
2. Ask them to explain their reasoning and how they got their answer.
3. Tell your student that they will learn how to convert customary measurements and compare them.

E

1. Allow your student to watch the video in the **Customary Measurements: Length – Watch It**.
2. Then, have them work through the content of the **Read It**.
3. After that, they can complete the **Practice It**. Encourage your student to write out their work clearly on a piece of paper to keep track of each measurement and conversion.

Demonstrate

1. Now, have your student complete the **Show It**.
2. When they are finished, have them use the **Show It AK** to check their answers.
3. To extend their learning, help your student research to find out the standard length and width of a football field. Tell them to convert the measurements to express the length and the width in inches, feet, and yards.

LESSON 133

Topic | Measurement

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert and compare customary units of liquid volume

Materials

- empty container
- measuring cup

Customary Units of Volume

Activate

1. Ask your student to name customary units of measurement that they could use to measure liquid ingredients like soda.
2. Ask them to tell you which unit of measurement would be the best for measuring a small can of soda and which would be best for measuring a large swimming pool of soda.
3. Ask them to explain their reasoning and to discuss their thinking with you.
4. Tell them that they will learn about customary units of liquid measurement and how to convert and compare them.

E

1. First, tell them to complete the **Read It**. Ask them how they would convert a measurement that is in cups to a measurement that is in quarts.
2. Then, tell them to watch the video in the **Converting U.S. Units of Volume – Watch It**.
3. After that, instruct them to complete the activities and practice problems in the **Practice It**.

Demonstrate

1. At this time, tell your student to complete the **Show It**. Encourage them to sketch a visual reminder of the liquid units of measurement, such as the graphic below, to serve as a reference if needed.

1 gallon = 4 quarts = 8 pints = 16 cups = 128 fluid ounces
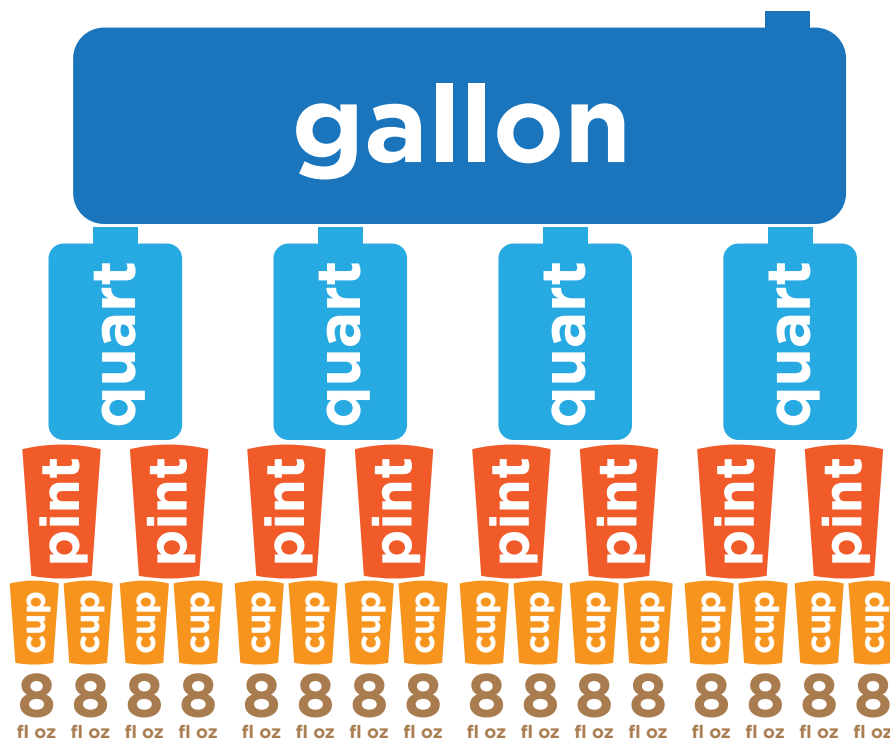
2. Then, tell them to use the **Show It AK** to evaluate their responses.
3. To extend your student's learning, provide them with any container that holds liquid, such as an empty milk jug, soda bottle, bucket, or pitcher. Have them use a measuring cup to transfer water to the container. Have them determine how many cups it takes to fill the container to capacity.

LESSON 134

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert and compare customary units of weight

Materials

- none required

Weight

Activate

1. Ask your student if they know how much they weigh. Then, ask them if they can think of something that weighs about the same amount that they do.
2. Ask them to explain how they got their answer, and discuss their thinking.
3. Tell them that they are going to learn about customary units of weight and how to compare and convert them.

E

1. Have your student start by completing the **Read It**. Ask them to name the different customary units of weight.
2. The next step is for your student to complete all of the activities in the **Practice It**. Prompt your student to check their work using the answer keys in the text.

DEMONSTRATE

1. At this point, your student can move on to the **Show It**.
2. Once they have completed the **Show It**, they can use the **Show It AK** to check their answers.
3. To extend their learning, have your student research the average weights of three of their favorite animals. Then, ask them which animal is the heaviest and which is the lightest. Tell them to then convert the weights so they can express each one in ounces, pounds, and tons.

LESSON 135

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- solve multistep problems that require unit conversions

Materials

- none required

Multistep Conversions

Activate

1. Ask your student the following question:
   - You are making a dessert for a party. The recipe calls for 32 ounces of sugar. The store has a 1-pound bag and a 3-pound bag of sugar. Which bag should you buy so that you have enough sugar for the recipe?
2. Ask the student to explain how they got their answer and to discuss their reasoning with you.
3. Tell them that they will learn how to use conversions like this to solve multistep problems.

E

1. Allow your student to play the game in the **Airship Odyssey-Converting Measurements – Play It** on the easy level to review basic conversions.
2. Then, instruct your student to complete the **Read It**.
3. After that, they can move on to the **Practice It**.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
3. To extend the student's learning, have them research the height requirements for rides at their favorite amusement park. Have them express the heights in inches and feet and then compare them to their own height to see if there are any they cannot ride.

LESSON 136

Topic Measurement

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use and compare metric units of measurement

Materials

- none required

The Metric System

Activate

1. Tell your student that they will learn about the metric system of measurement.
2. Tell them that a centimeter is one metric unit of measurement. Ask them if they know what the prefix *centi-* means and if they can think of any other words that begin with that prefix. Discuss their answer with them, and talk through their reasoning.
3. Tell them that they will learn about the importance of prefixes like *centi-* in the metric system of measurement.

E

1. Have your student begin by completing the **Read It**. Ask them to explain to you how to convert measurements within the metric system.
2. Now, have your student open **The Metric System – Watch It**, and ask them to make note of the username and password provided on the Discovery Education image. Be sure that they click the link for the video and enter the provided username and password to watch the video.
3. After that, they can move on to complete all of the activities in the **Practice It**.

Demonstrate

1. The next step is for your student to follow the instructions to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student research the average height, length, and weight of an elephant in different metric units of measurement.

LESSON 137

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert metric units of length, volume, and mass to solve problems

Materials

- none required

Convert Metric Units

Activate

1. Remind your student that the metric system of measurement is based on the number 10.
2. Ask them how they would multiply or divide a number like 5 by powers of ten. What do they do with the decimal point?
3. Ask them to explain their answer, and discuss their thinking.

E

1. Instruct your student to complete the **Read It**. Engage them in a discussion about how to go from a larger unit to a smaller unit and from a smaller unit to a larger unit in the metric system.
2. Once they have successfully completed the You Try! questions, tell them to move on to the **Practice It**. Prompt them to use the answer keys embedded in the text to check their work.

Demonstrate

1. Now, have your student move on to the **Show It**. Allow them to use a metric prefix chart like the one below if needed.

kilo (k)	hecto (h)	deka (da)	basic unit		deci (d)	centi (c)	milli (m)
				•			

2. Encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student determine the amount of liquid a 2-liter bottle can hold in deciliters, centiliters, dekaliters, and kiloliters.

LESSON 138

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert customary and metric units to solve problems

Materials

- none required

Customary and Metric Conversions

Activate

1. Engage your student in a discussion about the metric and customary systems of measurement.
2. Ask them what the two systems have in common and what is different about them.

E

1. Tell your student to complete the **Read It**. Encourage them to divide a piece of paper in half. Then, as they read through the content, they can write helpful notes about how to convert units in the customary system on one side of the paper and how to convert units in the metric system on the other side.
2. After they have worked through the examples and You Try! questions, have them move on to the **Practice It**.

Demonstrate

1. Finally, open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 139

Topic | **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- convert units of time to solve elapsed time problems

Materials

- none required

Elapsed Time Problems

Activate

1. Ask your student how long they think it takes them to do a simple task such as tying their shoes or making their bed. How could they find out the exact time?
2. Allow them to explain their answer and to discuss their thinking with you.
3. Tell them that the amount of time that passes while they are completing the task is the elapsed time.

E

1. Have your student begin by reading through the content and examples in the **Read It** completely. Ask them what units of time they could use to show elapsed time.
2. Then, allow them to play the game in the **Beaker's Big Buzz-Elapsed Time – Play It** to test their elapsed-time skills.
3. Then, have them complete the **Practice It**, checking their work as they go using the answer keys embedded in the lesson.

Demonstrate

1. The next step is for your student to complete the **Show It**.
2. When they are finished, they can use the **Show It AK** to check their answers.
3. To extend their learning, time your student doing chores around their learning environment. Have your student convert the times from seconds to minutes or vice versa.
4. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 132 through 139 in order to prepare for the assessment.

LESSON 140

Topic **Measurement**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 10

1. **Mastery Assess It 10** will cover what your student has learned in Lessons 132 through 139.
2. Click on the **Mastery Assess It 10** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 141

Topic Geometry

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- describe and name shapes based on their attributes

Materials

- index cards
- ruler

Attributes in Geometry

Activate

1. Tell your student to list as many shapes as they can.
2. Ask them to describe each shape using words.
3. Tell your student that characteristics used to describe a shape are called *attributes*.

E

1. Next, have your student work through the content of the **Read It**.
2. Once they have successfully completed the You Try! section, instruct your student to complete the **Practice It** activity.

Demonstrate

1. Now, have your student complete the **Show It**.
2. Tell them to use the **Show It AK** to evaluate their responses.
3. If your student needs additional support, have them make flashcards for the terms *attributes*, *vertex*, *line segment*, *right angle*, *congruent*, and *parallel lines*. Spend some time reviewing these terms with your student.

LESSON 142

Topic	Geometry

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- define and differentiate between congruent and similar figures

Materials

- ruler
- "Congruent and Similar Figures" worksheet

Congruent or Similar Figures

Activate

1. Ask your student to describe the differences among a right angle, an obtuse angle, and an acute angle. Discuss their response.
2. Then, have them draw an example of each type of angle.
3. Tell your student they will use what they know about attributes in geometry to compare two shapes.

E

1. Now, instruct your student to complete the **Read It**. Ask them to explain the meanings of the terms *congruent figures* and *similar figures*.
2. Next, have them complete the **Practice It**.
3. To extend their learning, tell your student to also answer the Challenge question. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Last, tell your student to complete the "Congruent and Similar Figures" worksheet in the **Show It**.
2. Evaluate their responses together using the answer key given in the **Show It AK**.

LESSON 143

Topic | **Geometry**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- categorize two-dimensional shapes by their attributes

Materials

- none required

Categorize Shapes

Activate

1. Instruct your student to draw two rectangles on a piece of paper—one large and one small.
2. Ask your student whether the shapes are similar or congruent. Have them explain their thinking.
3. Discuss your student's response as well as the definition of each term.

E

1. Start with the **Read It** and have a discussion about the attributes of various two-dimensional shapes.
2. Next, have your student complete the **Practice It**.
3. If additional support is needed, direct your student to watch the video in the **Attributes of Shapes – Watch It**.

Demonstrate

1. Instruct your student to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their work.
3. To extend your student's learning, challenge them to write a riddle that describes the attributes of a two-dimensional shape without naming it. Encourage them to ask others to guess the shape the riddle describes.

LESSON 144

Topic | Geometry

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- classify polygons by their attributes

Materials

- "Polygons and Their Attributes" worksheet

Classify Polygons

Activate

1. Ask your student to name real-world examples of two-dimensional shapes.
2. Discuss their response. If needed, provide a few examples such as a stop sign, window, or kite.

E

1. As your student reads through the **Read It**, engage them in a conversation about the different types of quadrilaterals.
2. Encourage your student to complete the Challenge questions to extend their learning. Prompt them to check their work using the answers keys in the text.
3. After that, instruct your student to work through the **Classify Polygons – Practice It**. This is an interactive learning object. Have your student review the polygons then complete the activities.

Demonstrate

1. Now, open the **Assess It** and have your student complete the "Polygons and Their Attributes" worksheet.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 145

Topic | **Geometry**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- distinguish among regular polygons, irregular polygons, and non-polygons

Materials

- ruler

Polygons

Activate

1. Ask your student how many sides and angles a triangle has. Have a discussion about how a triangle is made up of three sides and three angles.
2. Have your student answer the same question about a square, pentagon, hexagon, heptagon, octagon, nonagon, and decagon.
3. Discuss the with your student how a square is made up of four sides and four angles, a pentagon is made up of five sides and five angles, a hexagon is made up six sides and six angles, a heptagon is made up of seven sides and seven angles, an octagon is made up of eight sides and eight angles, a nonagon is made up of nine sides and nine angles, and a decagon is made up of ten sides and ten angles.

E

1. Introduce the **Space Rox-Open and Closed – Play It** to your student. Allow them some time to play the game on the easy level.
2. Next, instruct your student to complete the **Read It**.
3. Once your student answers the You Try! questions correctly, have them complete the **Practice It**.
4. Encourage your student to answer the Challenge question to extend their learning. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. At this time, have your student complete the **Show It**.
2. Tell your student to then use the **Show It AK** to check their work.
3. To extend their learning, direct your student to the **Space Rox-Open and Closed – Play It** and allow them some time to play the game on the medium or hard level.

LESSON 146

Topic | **Geometry**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- classify and compare quadrilaterals

Materials

- object of choice

Quadrilaterals

Activate

1. Have your student trace an object of their choice on a blank piece of paper.
2. Have them tell your whether or not the shape on their paper is a polygon and if it is regular or irregular.
3. Instruct your student to explain their thinking.

E

1. Direct your student to read through the content of the **Read It** and answer all of the You Try! questions.
2. After that, instruct them to work through the **Quadrilaterals – Practice It**. This is an interactive learning object. Have your student review the information about quadrilaterals and answer the questions that follow.

Demonstrate

1. Now, open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 147

| Topic | Geometry |

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- classify triangles by the lengths of their sides and the measures of their angles

Materials

- "Classifying Triangles" worksheet

Triangles

Activate

1. Ask your student to name attributes of triangles. Discuss their response.
2. Explain to your student that there are many different types of triangles—each with different attributes—but that all triangles have three sides and three angles.

E

1. As your student reads through the **Read It**, engage them in a conversation about the differences among acute, right, and obtuse triangles.
2. After that, instruct your student to work through the **Classifying Triangles: Sides – Practice It**. This is an interactive learning object. Have your student complete the activities by sorting the triangles.
3. If your student needs additional support, direct them to watch the video in the **Classifying Triangles – Watch It**.

Demonstrate

1. Next, have your student complete the **Show It** activity by completing the "Classifying Triangles" worksheet.
2. Use the answer key embedded in the **Show It AK** to work with your student to check their answers.

LESSON 148

Topic — Geometry

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- categorize shapes as symmetrical or asymmetrical

Materials

- scissors
- "Categorize Shapes" worksheet

Symmetry

Activate

1. Instruct your student to write the first letter of their name on a blank piece of paper.
2. Explain to your student that the term *symmetry* means "the same on both sides."
3. Ask your student to fold the letter in half vertically then horizontally.
4. Have a discussion about whether or not the first letter of their name has symmetry.

E

1. Begin by telling your student to watch the video in the **Symmetry – Watch It**.
2. Then, have them read through the content in the **Read It**.
3. Next, instruct your student to complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Prompt your student to complete the "Categorize Shapes" worksheet in the **Show It**.
2. Use the answer key embedded in the **Show It AK** with your student to evaluate their work.
3. To extend their learning, challenge your student to find at least three real-world examples of symmetry.

LESSON 149

Topic | **Geometry**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify unit squares and determine how they are used to calculate area

Materials

- building blocks
- graph paper

Unit Squares

Activate

1. Instruct your student to use building blocks of the same size to create a square or rectangle.
2. Ask your student how many blocks they used to create the shape.
3. Discuss with your student how each block represents one unit of the square or rectangle.

E

1. Begin by having your student watch the video in the **Intro to Area and Unit Squares – Watch It**.
2. Next, ask them to read through the content of the **Read It**.
3. Once your student successfully completes the You Try! activity, have them complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Last, direct your student to complete the **Show It**.
2. Have them use the **Show It AK** to check their work.
3. To extend their learning, introduce your student to the **FrankenLab-Area – Play It**. Allow them some time to play the game.

LESSON 150

Topic | **Geometry**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- find the areas of rectangles and squares by counting unit squares

Materials

- graph paper
- "Find the Area" worksheet

Area of a Rectangle and Square

Activate

1. Ask your student to draw two polygons on a piece of graph paper, each with an area of 4 square units.
2. Have them explain how the area of each shape can be determined.

E

1. Introduce the **Area of a Rectangle and Square – Practice It** to your student. This is a PhET simulation. Have your student drag the unit squares into each figure to find the area.
2. Next, instruct your student to read the content in the **Read It**.
3. For additional support, your student may play the game in the **Airship Odyssey-Area – Play It** on the easy level.

Demonstrate

1. Last, have your student complete the "Find the Area" worksheet in the **Show It**.
2. Tell them to use the answer key provided in the **Show It AK** to check their work.
3. To extend their learning, direct your student to the **Airship Odyssey-Area – Play It**. Allow them some time to play the game on the hard level.
4. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 141 through 150 in order to prepare for the assessment.

LESSON 151

Topic	Geometry

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 11

1. **Mastery Assess It 11** will cover what your student has learned in Lessons 141 through 150.
2. Click on the **Mastery Assess It 11** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 152

Topic | Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- classify three-dimensional shapes by naming them

Materials

- none required

Classify 3-D Shapes

Activate

1. Ask your student if they have ever seen a 3-D movie. What makes a 3-D movie different than a regular movie?
2. Ask them how they think this concept applies to 2-D and 3-D shapes.
3. Talk through their answer with them, and discuss their thinking.

E

1. To begin, tell your student to complete the **Read It**. Ask them to give you a real-world example of different 3-D shapes such as a sphere, cylinder, pyramid, and rectangular prism.
2. Next, have your student complete the activities and practice problems in the **Practice It**. Tell them to use the answer keys embedded in the text to check their work.

Demonstrate

1. Instruct your student to follow the directions to complete the **Show It**.
2. After that, encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student go on a 3-D shape scavenger hunt in a setting of your choice.

LESSON 153

Topic | Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify the number of faces, edges, and vertices of three-dimensional figures

Materials

- none required

Faces, Edges, and Vertices

Activate

1. Ask your student to explain to you how they can tell the difference between two 3-D shapes such as a sphere and a cube.
2. Encourage them to explain their answer, and discuss their thinking.
3. Tell them that they will learn about faces, edges, and vertices of 3-D shapes and how to use them to identify 3-D figures.

E

1. Have your student complete the **Read It**. Ask them to describe to you what a face, edge, and vertex are on a 3-D figure.
2. Then, allow them to watch the video in the **Three-Dimensional Figures – Watch It**. Consider allowing your student to hold a model of a cube as they watch the video. This will allow them to physically see and feel where each face, edge, and vertex is.
3. Pause the video at 03:12, and allow your student to attempt the practice problems.
4. Then, resume the video to hear the narrator explain the solutions.
5. After that, your student should complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. At this time, have your student complete the **Show It**.
2. Tell your student to then use the **Show It AK** to check their work.
3. To extend their learning, tell your student to take a closer look in the pantry and see if they can identify different 3-D shapes. Ask them to count the number of faces, edges, and vertices each shape has.

LESSON 154

Topic   Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- define *unit cube* and use unit cubes to build solid figures

Materials

- base ten blocks

Unit Cubes

Activate

1. Provide your student with base ten blocks. Tell them to build a figure using 12 unit cubes.
2. Ask them to brainstorm how they could determine the volume of their figure, or how much space it takes up.
3. Discuss their answers, and help them logically think through them.

E

1. Instruct your student to complete the **Read It**. Ask them to tell you what a unit cube is.
2. To extend your student's learning, have them complete the Challenge section at the end of the **Read It**.
3. After that, allow them to watch the video in the **Square & Cubic Unit Dimensions – Watch It**.
4. Following that, your student can move on to the **Practice It**. Prompt them to use the answer keys embedded in the text to check their work as they go.

Demonstrate

1. Next, tell your student to follow the directions to complete the **Show It**.
2. When they have finished, direct them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, ask your student how many unit cube base ten blocks they would need to use in order to build a larger cube on which each side is 3 units long. What would the volume of the cube be?

LESSON 155

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

• differentiate how to measure liquid volume from how to measure solid volume

Materials

• none required

Liquid and Solid Volume

Activate

1. Ask your student the following question:
    • If you had a rectangular baby pool in your yard, how could you determine the volume of water it could hold?
2. Encourage them to think through different possibilities, and discuss their reasoning.
3. Tell them that the way liquid volume is measured differs from the way solid volume is measured.

E

1. Have your student start by reading the content of the **Read It**.
2. Once they have successfully completed the You Try! questions, tell them to move on to the **Practice It**. Have them use the answers keys embedded in the text to check their work.

Demonstrate

1. At this point, tell your student to complete the **Show It**.
2. After that, they can use the **Show It AK** to check their answers.

LESSON 156

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- identify the difference between a square unit and a cubic unit

Materials

- base ten blocks

Square and Cubic Units

Activate

1. Ask your student what the difference between a square and a cube is. What do they have in common?
2. Listen to their answer, and discuss their thinking with them.
3. Tell them that they will learn about square and cubic units and when to use them.

E

1. To begin, have your student work through the content of the **Read It**.
2. After they have successfully completed all of the You Try! questions, they can move on to the **Practice It**.
3. If your student misses two or more problems in the **Practice It**, have them watch the video in the **Introduction to Volume – Watch It**.
4. If they miss one or less problems, they can move on.

Demonstrate

1. Instruct your student to complete the **Show It**. Allow your student to have a ones cube base ten block to represent a cubic unit as they work through the problems if needed.
2. After that, tell them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student find an example of something in their learning environment that could be measured in cubic units and something that could be measured in square units.

LESSON 157

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- determine volume by counting cubic units

Materials

- base ten blocks

Measure Volume Using Unit Cubes

Activate

1. Ask your student to give you an example of something they could measure using cubic units and something they could measure using square units.
2. Ask them to explain their answer, and discuss their reasoning.
3. Tell them they will learn how to find the volume of a 3-D shape by counting cubic units.

E

1. Instruct your student to complete the **Read It**. Ask them to give you examples of different cubic units that can be used to measure volume.
2. Next, have your student watch the video in the **Volume in Cubic Inches and Feet – Watch It**. Consider pausing the video at 2:32 and 2:58 to allow your student time to attempt to find the volume before the narrator explains the answer.
3. Then, tell your student to complete the first four problems in the **Practice It**. If they answer each one correctly, tell them they can move on. If they miss one or more, tell them to complete the remaining problems.
4. If your student incorrectly answered three or more questions in the **Practice It**, consider having them watch the video in the **Volume in Cubic Centimeters – Watch It** for learning reinforcement.

Demonstrate

1. Now, have your student complete the **Show It**. Remind them to make sure to report their answers with the correct units.
2. Tell them to them use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with base ten block cubes. Tell them different volumes, and have them create figures that have the given volumes.

LESSON 158

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- estimate the volumes of everyday items

Materials

- none required

Estimate Volume

Activate

1. Ask your student the following question:
   - If you wanted to find the volume of a room in your house, would you use cubic inches or cubic feet?
2. Ask them to explain why they chose that unit, and discuss their thinking.
3. Tell them they will learn how to estimate volume in these and other units.

E

1. Instruct your student to complete the **Read It**. Ask them what strategies they can use to estimate cubic volume.
2. Once they have successfully completed the You Try! questions, tell them to move on to the **Practice It**. They can use the answer keys embedded in the text to check their work as they go.

Demonstrate

1. At this time, they can complete the **Show It**.
2. To extend their learning, have them complete the Challenge problem at the bottom.
3. After they have finished, they can use the **Show It AK** to check their answers.

LESSON 159

Topic | Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- create models of rectangular prisms

Materials

- base ten blocks

Model Rectangular Prisms

Activate

1. Ask your student what their favorite thing to build with blocks is.
2. Then, ask them if they have ever built a rectangular prism out of blocks. How did they do this?
3. Discuss their answer, and then tell them that they will learn how to create models of rectangular prisms.

E

1. To begin, have your student complete the **Read It**. Ask them to describe a rectangular prism to you.
2. After they have successfully completed the You Try! questions at the bottom, tell them to move on to the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. The next step is for your student to complete the **Show It**. Provide them with base ten blocks to complete the activities.
2. When they are finished, they can use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student find examples of rectangular prisms in their learning environment. Have them attempt to create models of these prisms with base ten blocks that are approximately equal in volume.

LESSON 160

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- determine the volumes of right rectangular prisms with unit cubes

Materials

- base ten blocks

Find Volume with Unit Cubes

Activate

1. Ask your student to define the word *volume* in their own words.
2. Ask them how to find the volume of a figure using unit cubes.
3. Discuss their responses, and tell them that they will learn a new method for using unit cubes to find the volume of a rectangular prism.

E

1. Have your student complete the **Read It**. To extend their learning, have them complete the Challenge problem at the bottom.
2. Next, allow your student to watch the video in the **Volume in Cubic Units – Watch It**.
3. Once they have watched the video, instruct your student to complete the **Practice It**. They can use the answer keys embedded in the text to check their work.

Demonstrate

1. Tell your student to follow the directions to complete the **Show It**. Provide them with base ten blocks if needed.
2. Allow them to use the **Show It AK** to evaluate their responses.

LESSON 161

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use an everyday object to estimate the volume of a right rectangular prism

Materials

- box

Estimate Volumes of Prisms

Activate

1. Ask your student if they have ever used something other than a ruler or tape measure to find the length of something. Have they ever used something non-traditional like their hand or foot or another object?
2. Discuss their answer, and talk about their experiences.
3. Tell them that they can use non-traditional objects to measure volume as well. Ask them how they think this might work.

E

1. To start off, have your student complete the **Read It**. Consider stopping after each example to discuss the method used and how the problem was solved.
2. After that, tell your student to complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Then, have them use the **Show It AK** to check their work.
3. To extend their learning, provide your student with a box of any size. Have them brainstorm different items they could use to estimate the volume of the box. If the items are accessible, have them fill the box and make an estimate of its volume.

LESSON 162

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the formulas $V = l \times w \times h$ and $V = b \times h$ to calculate the volumes of right rectangular prisms

Materials

- none required

Calculate Volume with Formulas

Activate

1. Ask your student what the formula is to find the area of a rectangle.
2. Then, ask your student what makes a 2-D rectangle different than a 3-D rectangular prism.
3. Ask them how they think these differences might change the formula if they wanted to find the volume of a rectangular prism instead of the area of a rectangle.
4. Discuss their answers, and help them think critically about the formula.

E

1. Instruct your student to complete the **Read It**. Ask them to tell you the formula for finding the volume of a rectangular prism.
2. Allow your student to watch the video in the **Volume of Rectangular Prisms – Watch It**. Consider pausing the video at 1:12 to ask your student what the associative property of multiplication states.
3. Also, pause the video when prompted to allow your student to complete the practice problems. Then, resume the video to see the solutions.
4. Next, tell your student to play the game in the **Airship Odyssey-Volume – Play It** on the easy level to practice volume problems.
5. After that, they can move on to the **Practice It**. This is an interactive learning object. Instruct your student to answer each question and to click the **Submit** button to move on to each new slide.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 163

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- **list examples of the associative property of multiplication by using the volume formula**

Materials

- none required

Associative Property and Volume

Activate

1. Ask your student which property of multiplication is illustrated by the equation below:
   - (14 x 2) x 5 = 14 x (2 x 5)
2. Ask them to explain their answer, and discuss their thinking.
3. Tell them that they will take a closer look at how the associative property of multiplication affects finding the volume of a rectangular prism.

E

1. Instruct your student to start by completing the **Read It**. Ask them to explain to you how the associative property of multiplication and the formula for volume of a rectangular prism are related.
2. Then, tell them to complete the **Practice It**. They can use the answer keys embedded in the text to check their work.

Demonstrate

1. The next step is for your student to complete the **Show It**.
2. After that, they can use the **Show It AK** to evaluate their answers.

LESSON 164

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- use the associative property of multiplication to determine possible dimensions of rectangular prisms

Materials

- none required

Find Possible Prism Dimensions

Activate

1. Ask your student what the volume of a rectangular prism with the following dimensions would be:
   - 10 cm x 2 cm x 5 cm
2. Then, ask them what they would do if they knew the volume but one of the dimensions was missing. What would they do to figure it out?
   - 10 cm x _____ x 5 cm = 100 cm³
3. Talk through their answers with them, and discuss their thinking.

E

1. Have your student read through the content of the **Read It**.
2. After they successfully complete the You Try! questions, have them watch the video in the **Associative: Multiplication – Watch It**.
3. Following watching the video, tell them to complete Part 1 of the **Practice It**. If they answer each question in Part 1 correctly, they can move on.
4. If they miss one or more questions in Part 1, have them complete Part 2 of the **Practice It**.

Demonstrate

1. At this time, instruct your student to complete the **Show It**.
2. Following that, they can use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with a possible volume of a rectangular prism. You can roll a dice twice or use a random number generator to find a 2-digit number. Have your student write possible dimensions for a rectangular prism with that volume.

LESSON 165

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- demonstrate understanding of composite figures by using three-dimensional objects to build and draw composite figures

Materials

- base ten blocks

Build Composite Figures

Activate

1. Ask your student to look around the room they are sitting in and to identify examples of 3-D shapes that they have learned about such as a sphere, cone, cylinder, rectangular prism, and pyramid.
2. Then, ask them if the desk or table they are sitting at is a 3-D shape. Why or why not?
3. Encourage them to think about all of the different shapes that make up the desk or table.
4. Tell them that they will learn about composite figures and how to build and draw them.

E

1. Instruct your student to complete the **Read It**. Ask them to explain to you what a composite figure is.
2. After they have completed the You Try! questions successfully, tell them to complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, have your student move on to the **Show It**. Provide them with base ten blocks and encourage them to try to build their answers multiple ways before they settle on their final answer.
2. After that, they can use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student create a composite person. Have them model with objects or draw an image of a person using different 3-D shapes to make up each part of the body. Tell them to label each shape to show how they all come together.

LESSON 166

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- find the volume of a composite figure by finding the volumes of the individual shapes and adding them together

Materials

- boxes or blocks
- ruler

Volume of Composite Figures

Activate

1. Ask your student to tell you the definition of the term *composite figure* in their own words.
2. Then, ask them to brainstorm ideas of how they might find the volume of a composite figure.
3. Have them explain their answers, and discuss their thinking.

E

1. Tell your student to work through the content and examples of the **Read It**.
2. After they have answered the You Try! question correctly, tell them to complete the **Practice It**. They can use the answer keys embedded in the text to check their work.

Demonstrate

1. Open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.
3. To extend their learning, tell your student to use boxes or blocks to create a composite figure. Allow them to use a ruler to measure the dimensions of each box, and have them use the formula $V = l \times w \times h$ to find its volume. Then, tell them to add the volumes together to find the volume of their composite figure.

LESSON 167

Topic Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- compare different three-dimensional shapes that have the same volumes

Materials

- base ten blocks

Compare Volumes

Activate

1. Ask your student the following question:
   - If two rectangular prisms have the same volume, can they have a different base area? Why or why not?
2. Ask your student to explain how they got their answer, and discuss their thinking.
3. Tell them that they will compare shapes that have the same volume.

E

1. Tell your student to begin by completing the **Read It**. As they read, engage in a discussion about how the dimensions of a shape affect its volume.
2. After that, tell them to move on to the **Practice It**. Encourage them to use the answer keys embedded in the text to check their work.

Demonstrate

1. At this point, have your student follow the directions to complete the **Show It**.
2. Have them use the **Show It AK** to evaluate their responses.
3. To extend their learning, provide your student with a sample volume of a rectangular prism and have them build different models with base ten blocks that have that volume. Challenge them to build a model, then change the model but keep one of the dimensions the same. Ask them how many different models they could make for one volume.

LESSON 168

Topic | Volume

Learning Objectives

The activities in this lesson will help your student meet the following objective:

• solve a multi-step volume word problem and explain your reasoning

Materials

• none required

Volume Project

Activate

1. Ask your student how they solve a word problem that as more than one step. How do they keep track of their work and make sure they give the correct answer?
2. Discuss their thinking with them, and help them brainstorm strategies if they need help.
3. Tell them that they will solve multi-step word problems related to volume and will use these strategies and more.

E

1. Tell your student to work through the content of the **Read It**. Engage them in a discussion about why it is important to explain their answers to word problems.
2. After that, encourage them to complete the **Practice It**. Prompt them to use the answer keys embedded in the text to check their work.

Demonstrate

1. Have your student complete the **Show It**. Remind them to make sure they explain the answer they get for each problem.
2. Then, tell them to use the **Show It AK** to check their answers.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 152 through 168 in order to prepare for the assessment.

LESSON 169

Topic | Volume

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 12

1. **Mastery Assess It 12** will cover what your student has learned in Lessons 152 through 168.
2. Click on the **Mastery Assess It 12** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.

LESSON 170

Topic | **Data Analysis**

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- **identify data collection methods and collect data using observations, surveys, and experiments**
- **identify the expected characteristics of data collected from an experiment**

Materials

- none required

Data Collection

Activate

1. Ask your student if they have ever responded to a survey.
2. Listen to their response, and discuss situations in which a survey might be used.
3. Tell them that surveys are only one form of data collection that they will learn about.

E

1. Have your student begin by reading through the content of and examples in the **Read It**. Ask your student to explain to you the differences among a survey, observation, and an experiment.
2. After they have successfully answered the You Try! questions, have them continue by completing the **Practice It**. They can use the answer keys embedded in the text to check their responses.

Demonstrate

1. The next step is to have your student follow the directions to complete the **Show It**.
2. After that, instruct them to use the **Show It AK** to evaluate their answers.
3. To extend their learning, have your student write out the pros and cons of each type of data collection.

● ● ●

Collecting Data by Experiment

Activate

1. Ask your student if they have ever conducted an experiment in science class.
2. Ask them to explain what they were trying to determine by completing the experiment.
3. Remind them that experiments are one way to get more information or data.

E

1. Have your student complete the **Read It**. Ask them to explain to you what a hypothesis is and to give you an example of one.
2. Tell them to complete the **Practice It** and then to use the answer keys in the text to check their work.

Demonstrate

1. At this time, tell your student to complete the **Show It**.
2. After that, they can use the **Show It AK** to evaluate their responses.
3. To extend their learning, have them design an experiment to answer a question of their choice. Tell them to look at the kind of data they would need to collect and to make sure it is relevant to their hypothesis.

LESSON 171

Topic **Data Analysis**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- recognize the differences in representing and analyzing categorical and numerical data and identify examples of each

Materials

- none required

Categorical and Numerical Data

Activate

1. Have your student ask three to five people what their favorite colors are.
2. Explain to your student that they have just collected data.
3. Discuss with your student the definition of the term *data*, how data can be collected through surveys like the one they just conducted, and how the information collected through a survey might be used.

E

1. Have your student begin with the **Read It**. Engage them in a conversation about the differences between categorical data and numerical data.
2. Once your student successfully completes the You Try! section, have them complete the **Practice It**.
3. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Finally, instruct your student to complete Parts 1 and 2 in the **Show It**.
2. Have them use the **Show It AK** to check their work.

LESSON 172

Topic | Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- represent data using pictographs

Materials

- colored pencils

Pictographs

💡 Activate

1. Ask your student to identify what type of graph is used below to represent data:

<u>Favorite Ice Cream Flavor</u>

Vanilla

Chocolate

Cookie & Cream

Mint Chocolate Chip

Other

= 20 people

2. Ask them to explain to you how they got their answer. Discuss their thinking.
3. Tell them that they will learn more about how to use pictographs to display data.

🔌 E

1. Have your student complete the **Read It**. Ask them to give you an example of data that could be displayed using a pictograph.
2. Now, have your student open the **Represent Data in Pictographs – Watch It**, and ask them to make note of the username and password provided on the Discovery Education image. Be sure that they click the link for the video and enter the provided username and password to watch the video.
3. Next, tell them to complete the practice problems in the **Practice It**. They can use the answer keys embedded in the text to check their answers.

🔧 Demonstrate

1. Instruct your student to follow the directions to complete the **Show It**.
2. When they have finished, they can use the **Show It AK** to check their work.
3. To extend their learning, have your student create a pictograph to show data about their friends or family. They can represent hair colors, eye colors, favorite movies, favorite type of gums, or any other categorical data.

LESSON 173

Topic Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- interpret pictograph data to solve word problems

Materials

- none required

Pictograph Word Problems

Activate

1. Ask your student to name the important parts of a pictograph.
2. Discuss the significance of including the title, categories, and key on a pictograph.

E

1. Instruct your student to complete the **Read It**. Encourage them to work through each example in their notebook.
2. Once your student successfully answers the You Try! question, have them move on to the **Practice It**.

Demonstrate

1. Last, have your student complete the **Show It**.
2. Prompt them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student conduct a survey on a subject of their choice and create a pictograph displaying the results. Ask them to write a word problem that can be solved using the information on their pictograph.

LESSON 174

Topic Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- represent data using bar graphs and use these to analyze data, describe relationships, draw conclusions, and solve problems

Materials

- colored pencils
- "Create and Interpret Bar Graphs" worksheet

Bar Graphs

Activate

1. Ask your student to name tools other than a pictograph that they can use to display data.
2. Discuss their answers and the pros and cons of each tool that they named.
3. Tell them that they will learn about bar graphs and how to use them to display and analyze data.

E

1. Tell your student to start off by completing the **Read It**. Ask them to name the parts of a bar graph.
2. Now, have your student open the **Create a Bar Graph – Watch It**, and ask them to make note of the username and password provided on the Discovery Education image. Be sure that they click the link for the video and enter the provided username and password to watch the video.
3. At this point, your student should complete the **Practice It**. Have them complete Part 1 to practice analyzing and interpreting bar graphs and Part 2 to practice creating a bar graph.

Demonstrate

1. The next step is for your student to complete the **Show It**. Instruct them to follow the directions to complete the "Create and Interpret Bar Graphs" worksheet.
2. Have your student use the **Show It AK** to evaluate their responses.
3. To extend their learning, assist your student in doing research online to find a real-world example of a bar graph that is used to show data.

LESSON 175

Topic | **Data Analysis**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

• represent data using double bar graphs and use them to analyze data, describe relationships, draw conclusions, and solve problems

Materials

• colored pencils

Double Bar Graphs

Activate

1. Have your student pretend they earn different amounts of money for completing different chores.
2. Ask your student how their monthly earnings might be displayed on a bar graph. Discuss their thinking.

E

1. Instruct your student to read through the content of the **Read It**. Ask your student to explain how bar graphs can be used to compare two sets of data.
2. Next, have your student complete the **Practice It**. Prompt them to check their work using the answer keys in the text.

Demonstrate

1. Now, open the **Assess It** and have your student complete the activity.
2. When they are finished, scan the document or take a photo of it and upload it to the Dropbox. For additional instructions on how to use the Dropbox, click on the paper clip icon in the upper-left corner of the **Assess It**.

LESSON 176

Topic | Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- display fractional sets of data using a line plot in order to solve problems

Materials

- ruler

Line Plots

Activate

1. Ask your student to draw a number line from 1 to 10 on a piece of paper.
2. Ask your student to name some of the ways that they can use number lines to solve different types of math problems.
3. Discuss their answers. Then, tell them that a number line can be used to create another type of visual tool that displays data.
4. Tell them they will learn about line plots.

E

1. To begin, have your student work through the content and examples in the **Read It**.
2. Once they have answered the You Try! questions correctly, allow them to watch the video in the **Measurement Data: Line Plot – Watch It**.
3. Pause the video when prompted at 9:31, and tell your student to complete the practice problem.
4. Once they have attempted the problem, resume the video to hear the solution.
5. After that, have them complete the **Practice It**. If your student answers the first two problems correctly, allow them to move on. If they answer any part of the first two problems incorrectly, have them complete the remaining problems before moving on.

Demonstrate

1. Instruct your student to complete the **Show It**. Remind them to use a ruler to draw their line plots and to make sure their work is neat.
2. Prompt them to use the **Show It AK** to check their answers.

LESSON 177

Topic | **Data Analysis**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- make a T-chart to solve a multi-step problem

Materials

- none required

Make a T-Chart

Activate

1. Have your student name some ways data can be displayed.
2. Ask them to explain some of the differences among a pictograph, bar graph, double bar graph, and line graph.
3. Inquire as to what each X on a line plot represents.
4. Discuss the definition of the term *frequency* as it relates to data.

E

1. Next, have your student work through the **Read It**. Discuss with them how a T-chart can be a helpful tool for analyzing patterns in data.
2. Once they have successfully answered the You Try! question, have them complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, instruct your student to complete the **Show It**. Encourage them to use paper and pencil and to show all of their work.
2. Use the **Show It AK** to evaluate their responses together.
3. To extend their learning, have your student collect their own set of frequency data. Instruct them to first display the data on a line plot and then on a T-chart. Discuss possible questions that could be asked and answered using the data.

LESSON 178

Topic | Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objective:

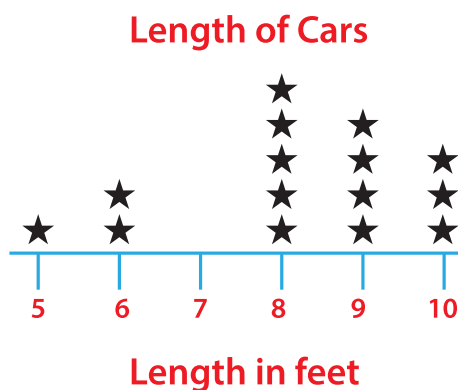- interpret line plot data to solve word problems

Materials

- none required

Line Plot Word Problems

💡 Activate

1. Ask your student to look at the line plot below:

Length of Cars

Length in feet

2. Ask them to brainstorm possible real-world problems that could be solved by using the data represented on the line plot.
3. Tell them that they will learn how to use line plots to solve real-world problems.

🔌 E

1. Tell your student to begin by completing the **Read It**. Ask them to tell you the steps they should follow to create a line plot.
2. Then, instruct them to complete the **Practice It**. Prompt your student to check their work using the answer keys in the text.

🔧 Demonstrate

1. The next step is to have your student complete the **Show It**.
2. Once they have finished, encourage them to use the **Show It AK** to evaluate their responses.
3. To extend their learning, have your student use the line plot in the Activate section and write five questions that could be answered using the data shown.

LESSON 179

Topic **Data Analysis**

Learning Objectives

The activities in this lesson will help your student meet the following objective:

- collect, analyze, and display data to solve a real-world problem

Materials

- art supplies
- index cards
- ruler
- stopwatch or timer
- tri-fold poster board

Data Analysis Project

Activate

1. Write each of the following steps for creating a line plot on a separate index card. Do not number them.
   - gather data
   - place the data in numerical order
   - draw a number line with the appropriate scale and intervals
   - label your graph
   - mark an X on the number line every time the data occurs
   - interpret the data
2. Shuffle the index cards. Have your student place the steps in the correct order.

E

1. Begin by having your student solve the crossword puzzle in the **Practice It**.
2. Next, instruct them to complete the **Read It** in its entirety. Encourage your student to work through each example in their notebook.
3. Once your student successfully completes the You Try! sections, have them complete the remainder of the **Practice It**.
4. Prompt your student to check their work using the answer keys in the text.

Demonstrate

1. Now, move on to the **Show It**, and have your student follow the directions to collect, analyze, and display data.
2. Use the examples given in the **Show It AK** to evaluate their work together.
3. The next lesson is a **Mastery Assess It**. Encourage your student to review Lessons 170 through 179 in order to prepare for the assessment.

LESSON 180

Topic Data Analysis

Learning Objectives

The activities in this lesson will help your student meet the following objectives:

- not applicable

Materials

- none required

Mastery Assess It 13

1. **Mastery Assess It 13** will cover what your student has learned in Lessons 170 through 179.
2. Click on the **Mastery Assess It 13** icon to begin the online assessment.
3. Have your student read the instructions before they get started. Remind them to take their time and to do their best work.
4. When they are finished and ready for their assessment to be graded, have them click the **Submit** button.