Dear Family/Caregiver,

We recognize that learning outside of the classroom is crucial to your student's success at school. This letter serves as an introduction to the resources designed to assist you as you talk to your student about what they are learning. These resources are available on the Texas Math Solution Support Center at https://www.carnegielearning.com/texas-help/students-caregivers/. Some of the resources available include:

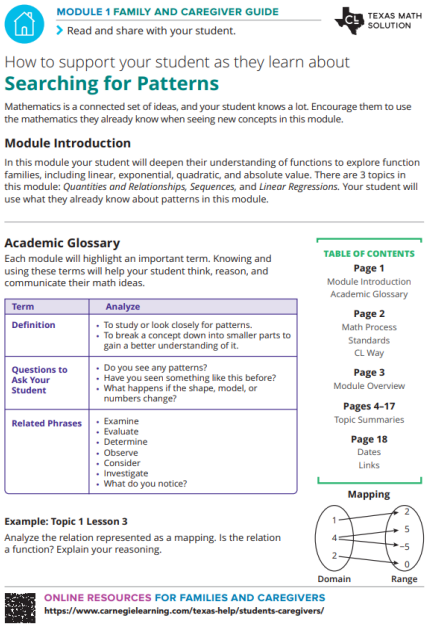
- Module Family and Caregiver Guides
- Topic Family Guides
- A Mathematics Glossary for each course
- Topic Summaries

Family and Caregiver Guides

In Carnegie Learning's Texas Math Solution, each course is organized into modules. Each module has a corresponding Family and Caregiver Guide. These guides all have the same structure. This consistency will allow you and your student to understand how to reference the content of each section. In addition to this letter, a video walk through of the Family and Caregiver Guides can be found on the Texas Math Solution Support Center.

The first page of each Module Family and Caregiver Guide provides a Module Introduction. This introduction includes a brief explanation of what your student will learn in the module, the names of the topics in the module, and the prior knowledge they will use to help them understand these new topics. The Academic Glossary section highlights an important key term that will help your student think, reason, and communicate their mathematical ideas. An example from the module that includes the highlighted term is provided for you and your student to discuss.

Note that at the bottom of each page in the Family and Caregiver Guide, there is a QR code you can scan to access the Texas Math Solution Support Center which includes additional resources for families and caregivers.



MODULE 1 FAMILY AND CAREGIVER GUIDE

Read and share with your student.

TEXAS MATH SOLUTION

How to support your student as they learn about

Searching for Patterns

Mathematics is a connected set of ideas, and your student knows a lot. Encourage them to use the mathematics they already know when seeing new concepts in this module.

Module Introduction

In this module your student will deepen their understanding of functions to explore function families, including linear, exponential, quadratic, and absolute value. There are 3 topics in this module: *Quantities and Relationships*, *Sequences*, and *Linear Regressions*. Your student will use what they already know about patterns in this module.

Academic Glossary

Each module will highlight an important term. Knowing and using these terms will help your student think, reason, and communicate their math ideas.

Term	Analyze
Definition	• To study or look closely for patterns. • To break a concept down into smaller parts to gain a better understanding of it.
Questions to Ask Your Student	• Do you see any patterns? • Have you seen something like this before? • What happens if the shape, model, or numbers change?
Related Phrases	• Examine • Evaluate • Determine • Observe • Consider • Investigate • What do you notice?

TABLE OF CONTENTS

Page 1 Module Introduction, Academic Glossary

Page 2 Math Process Standards, CL Way

Page 3 Module Overview

Pages 4–17 Topic Summaries

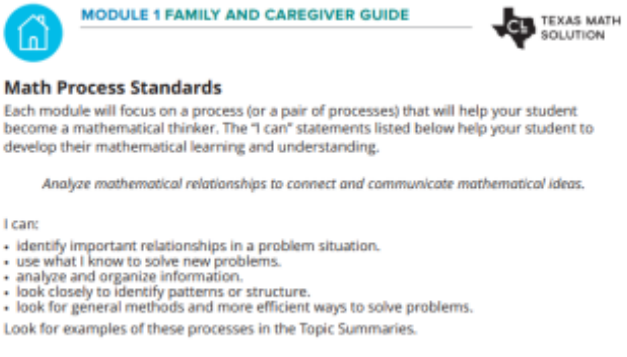
Page 18 Dates, Links

Example: Topic 1 Lesson 3

Analyze the relation represented as a mapping. Is the relation a function? Explain your reasoning.

Mapping

ONLINE RESOURCES FOR FAMILIES AND CAREGIVERS
https://www.carnegielearning.com/texas-help/students-caregivers/



MODULE 1 FAMILY AND CAREGIVER GUIDE

TEXAS MATH SOLUTION

Math Process Standards

Each module will focus on a process (or a pair of processes) that will help your student become a mathematical thinker. The "I can" statements listed below help your student to develop their mathematical learning and understanding.

Analyze mathematical relationships to connect and communicate mathematical ideas.

I can:

- identify important relationships in a problem situation.
- use what I know to solve new problems.
- analyze and organize information.
- look closely to identify patterns or structure.
- look for general methods and more efficient ways to solve problems.

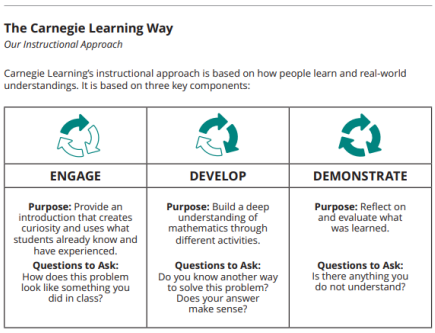
Look for examples of these processes in the Topic Summaries.

The next section of the Family and Caregiver Guide is the Math Process Standards. Each module highlights one or more of the TEKS Mathematical Process Standards. These processes will help your student develop effective communication and collaboration skills that are essential for becoming a successful learner. Discuss with your student the "I can" statements listed below the standard

to help them develop their mathematical learning and understanding. With your help, your student can develop the habits of mind of a productive mathematical thinker.

At Carnegie Learning, we choose the path proven most effective by research and classroom experience. We call that path the Carnegie Learning Way. It is based on a scientific understanding of how people learn and a real-world understanding of how to apply that science to mathematics instructional materials. The Family and Caregiver Guide for each Module highlights a different instructional design element used throughout the entire course to develop conceptual understanding and creative problem solvers.

In the first module guide for each course, Carnegie Learning's Instructional Approach is highlighted. In the second module guide for each course, the Lesson Structure is highlighted. Each lesson is structured the same way and includes four parts: Learning Goals & Connection, Getting Started, Activities, and Talk the Talk. In the remaining module guides for each course the types of problems that students will encounter are highlighted. Problem types include Worked Examples, Thumbs Up/Thumbs Down, and Who's Correct.



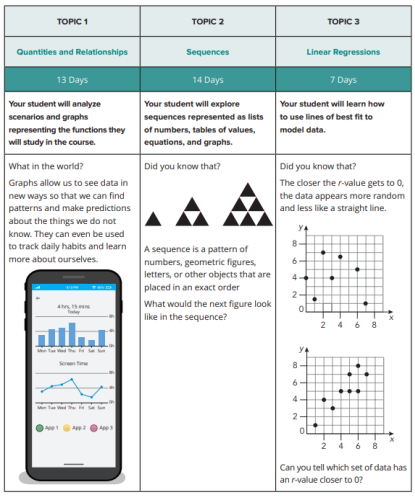
The Carnegie Learning Way

Our Instructional Approach

Carnegie Learning's instructional approach is based on how people learn and real-world understandings. It is based on three key components:

ENGAGE	DEVELOP	DEMONSTRATE
Purpose: Provide an introduction that creates curiosity and uses what students already know and have experienced. **Questions to Ask:** How does this problem look like something you did in class?	**Purpose:** Build a deep understanding of mathematics through different activities. **Questions to Ask:** Do you know another way to solve this problem? Does your answer make sense?	**Purpose:** Reflect on and evaluate what was learned. **Questions to Ask:** Is there anything you do not understand?

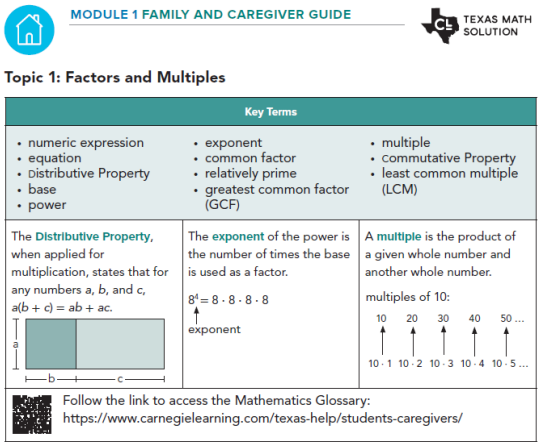
Module Overview



TOPIC 1	TOPIC 2	TOPIC 3
Quantities and Relationships	Sequences	Linear Regressions
13 Days	14 Days	7 Days
Your student will analyze scenarios and graphs representing the functions they will study in the course.	**Your student will explore sequences represented as lists of numbers, tables of values, equations, and graphs.**	**Your student will learn how to use lines of best fit to model data.**
What in the world? Graphs allow us to see data in new ways so that we can find patterns and make predictions about the things we do not know. They can even be used to track daily habits and learn more about ourselves.	Did you know that? A sequence is a pattern of numbers, geometric figures, letters, or other objects that are placed in an exact order What would the next figure look like in the sequence?	Did you know that? The closer the *r*-value gets to 0, the data appears more random and less like a straight line. Can you tell which set of data has an *r*-value closer to 0?

The Module Overview section expands on the content from the Module Introduction. This section includes a more detailed summary of what your student will be learning in each topic within the module. Below the topic summaries are facts and information that connect the concepts in the topic to the real world. Read and discuss the information below the topic summary with your student, and continue to come back to this page throughout the module as your student moves from one topic to the next.

The Topic Overview section lists the Key Terms for the topic along with a few definitions and visual examples. Keep in mind that you can access the Mathematics Glossary for your student's course by using the QR code or website to access the Texas Math Solution Support Center. The rest of the Topic Overview section summarizes key concepts that your student will learn throughout the topic. Take some time in each topic to discuss key concepts, review examples, and do the math together with your student.



MODULE 1 FAMILY AND CAREGIVER GUIDE

TEXAS MATH SOLUTION

Topic 1: Factors and Multiples

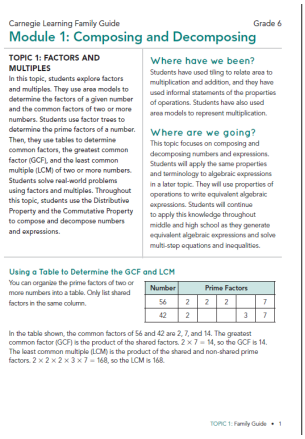
Key Terms		
• numeric expression • equation • distributive Property • base • power	• exponent • common factor • relatively prime • greatest common factor (GCF)	• multiple • commutative Property • least common multiple (LCM)
The **Distributive Property**, when applied for multiplication, states that for any numbers *a*, *b*, and *c*, $a(b + c) = ab + ac$.	The **exponent** of the power is the number of times the base is used as a factor. $8^4 = 8 \cdot 8 \cdot 8 \cdot 8$ exponent	A **multiple** is the product of a given whole number and another whole number. multiples of 10: 10 20 30 40 50 ... 10 · 1 10 · 2 10 · 3 10 · 4 10 · 5 ...
Follow the link to access the Mathematics Glossary: https://www.carnegielearning.com/texas-help/students-caregivers/		

Finally, the Family and Caregiver Guide ends with a Notes and Important Dates section for each module. Discuss important dates throughout this module such as assessments, assignments, or class events with your student. Use the table to record these dates and reference them as your student progresses through the module.

There are a variety of resources that Carnegie Learning has provided to help you make the most of the Texas Math Solution. In the Texas Math Solution Support Center, you will have access to these resources which include Mathematics Glossaries, videos, and topic materials. https://www.carnegielearning.com/texas-help/students-caregivers/.

Topic Family Guides

The Topic Family Guides contain a brief look at the mathematics in a topic and includes talking points to support discussions around the math at home with your student.


Carnegie Learning Family Guide Grade 6

Module 1: Composing and Decomposing

TOPIC 1: FACTORS AND MULTIPLES

In this topic, students explore factors and multiples. They use area models to determine the factors of a given number and the common factors of two or more numbers. Students use factor trees to determine the prime factors of a number. Then, they use tables to determine common factors, the greatest common factor (GCF), and the least common multiple (LCM) of two or more numbers. Students solve real-world problems using factors and multiples. Throughout this topic, students use the Distributive Property and the Commutative Property to compose and decompose numbers and expressions.

Where have we been?

Students have used tiling to relate area to multiplication and addition, and they have used informal statements of the properties of operations. Students have also used area models to represent multiplication.

Where are we going?

This topic focuses on composing and decomposing numbers and expressions. Students will apply the same properties and terminology to algebraic expressions in a later topic. They will use properties of operations to write equivalent algebraic expressions. Students will continue to apply this knowledge throughout middle and high school as they generate equivalent algebraic expressions and solve multi-step equations and inequalities.

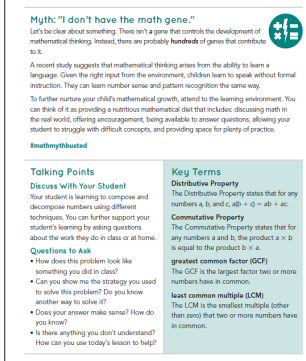
Using a Table to Determine the GCF and LCM

You can organize the prime factors of two or more numbers into a table. Only list shared factors in the same column.

Number	Prime Factors				
56	2	2	2		7
42	2			3	7

In the table shown, the common factors of 56 and 42 are 2, 7, and 14. The greatest common factor (GCF) is the product of the shared factors, $2 \times 7 = 14$, so the GCF is 14. The least common multiple (LCM) is the product of the shared and non-shared prime factors. $2 \times 2 \times 2 \times 3 \times 7 = 168$, so the LCM is 168.

TOPIC 1: Family Guide • 1


Myth: "I don't have the math gene."

Let's be clear about something. There isn't a gene that controls the development of mathematical thinking. Instead, there are probably **hundreds** of genes that contribute to it.

A recent study suggests that mathematical thinking arises from the ability to learn a language. Given the right input from the environment, children learn to speak without formal instruction. They can learn number sense and pattern recognition the same way.

To further nurture your child's mathematical growth, attend to the learning environment. You can think of it as providing a nutritious mathematical diet that includes: discussing math in the real world, offering encouragement, being available to answer questions, allowing your student to struggle with difficult concepts, and providing space for plenty of practice.

#mathmythbusted

Talking Points

Discuss With Your Student

Your student is learning to compose and decompose numbers using different techniques. You can further support your student's learning by asking questions about the work they do in class or at home.

Questions to Ask

- How does this problem look like something you did in class?
- Can you show me the strategy you used to solve this problem? Do you know another way to solve it?
- Does your answer make sense? How do you know?
- Is there anything you don't understand? How can you use today's lesson to help?

Key Terms

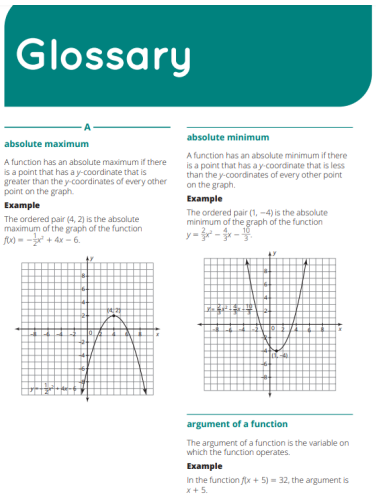
Distributive Property
The Distributive Property states that for any numbers a, b, and c, $a(b + c) = ab + ac$.

Commutative Property
The Commutative Property states that for any numbers a and b, the product $a \times b$ is equal to the product $b \times a$.

greatest common factor (GCF)
The GCF is the largest factor two or more numbers have in common.

least common multiple (LCM)
The LCM is the smallest multiple (other than zero) that two or more numbers have in common.

2 • TOPIC 1: Factors and Multiples


Glossary

A

absolute maximum

A function has an absolute maximum if there is a point that has a y-coordinate that is greater than the y-coordinates of every other point on the graph.

Example

The ordered pair (4, 2) is the absolute maximum of the graph of the function $f(x) = -\frac{1}{2}x^2 + 4x - 6$.

absolute minimum

A function has an absolute minimum if there is a point that has a y-coordinate that is less than the y-coordinates of every other point on the graph.

Example

The ordered pair $(1, -4)$ is the absolute minimum of the graph of the function $y = \frac{2}{3}x^2 - \frac{4}{3}x - \frac{10}{3}$.

argument of a function

The argument of a function is the variable on which the function operates.

Example

In the function $f(x + 5) = 32$, the argument is $x + 5$.

Mathematics Glossary

The Mathematics Glossary for each course is a tool for your student to utilize and reference during their learning. Along with the definition of a term, the glossary provides examples to help further their understanding.

Topic Summaries

This resource provides a list of the key terms introduced in the topic and a brief overview of the mathematical content of each lesson. The overview for each lesson includes definitions and visual examples of the important key terms from the lesson as well as worked examples. The Topic Summary provides an opportunity for you and your student to discuss the key concepts from each lesson, review the examples, and do the math together.


Quantities and Relationships Summary

KEY TERMS

- dependent quantity
- independent quantity
- relation
- domain
- range
- function
- function notation
- Vertical Line Test
- discrete graph
- continuous graph
- increasing function
- decreasing function
- constant function
- function family
- linear functions
- exponential functions
- absolute maximum
- absolute minimum
- quadratic functions
- linear absolute value functions
- x-intercept
- y-intercept

LESSON 1 A Picture Is Worth a Thousand Words

Many problem situations include two quantities that change. When one quantity depends on another, it is said to be the **dependent quantity.** The quantity that the dependent quantity depends upon is called the **independent quantity.**

Graphs relay information about data in a visual way. Connecting points on a coordinate plane with a line or smooth curve is a way to model or represent relationships. The independent quantity is graphed on the horizontal, or x-axis, while the dependent quantity is graphed on the vertical, or y-axis. Graphs can be straight lines or curves, and can increase or decrease from left to right.

We all have the same goal for your student, to become a successful problem solver and use mathematics efficiently and effectively in daily life. Encourage them to use the mathematics they already know when seeing new concepts and communicate their thinking while providing a critical ear to the thinking of others. Take some time to review these Family and Caregiver Guides with your student and visit the Texas Math Solution Support Center for additional resources.

Sincerely,

The Carnegie Learning Texas Math Team

LONG + LIVE + MATH