

REVIEWER GUIDE
MIDDLE SCHOOL

Dear Hillsborough County Reviewer:

Thank you for reviewing *Vmath* for students in the **Intensive Math Grades 6–8 Course**. Included within this submission package, we have provided everything needed for a comprehensive review of our research-based, supplementary intervention program.

When you're ready to begin, please go here:

<https://www.voyagersopris.com/florida/hillsborough/vmath>

The Digital Review

The website above has been designed for Hillsborough County Public School District's review of *Vmath* which is a blended solution of both printed materials and web-based technology (all print materials available in eBook format). On this website, you will find:

1. The Reviewer Guide with step-by-step instructions on how to review *Vmath*
2. Introductory *Vmath* information and resources, including video overview, MAFS alignments, efficacy reports, testimonials, and a digital copy of the brochure
3. Links to both the student and teacher login pages to review the full curriculum and digital-only resources (assessment books, extension lessons, and resource guide), the *VmathLive* student technology and eBooks

	Level	User Name	Password
Teacher	G (Gr.6)	Vmath4T14	FirstSnail8
	H (Gr. 7)	Vmath6T14	HeavyFloor3
	I (Gr. 8)	Vmath8T14	ReadyLamp4
Student	G (Gr. 6)	dc000097	rightbulb2
	H (Gr. 7)	danielss105	chiefstreet0
	I (Gr. 8)	fourg011	grandfrog9

Print Review and Additional Resources

The "Instruction and Pedagogy" section of the reviewer guide (pages 9–23) walks you through a sample *Vmath* unit using the eBooks (Level H - 7th Grade), but you can also use the printed materials provided for this adoption. As requested by Hillsborough Public School District, we have included three (3) full sets of the student and teacher print materials:

- Teacher Edition for Levels G–I (9 Total Teacher Editions)
- Student Workbooks for Levels G–I, One (1) Student Box with Seven (7) Modules for Each Level (63 Total Student Workbooks)
- Standards Alignment (Teacher Editions are tabbed/labeled in conjunction with alignment)
- Printed Reviewer Guide

Enjoy our fun, purposeful, and best-in-class curriculum! Please contact me with any questions or concerns.

Get to Know

Getting Started	3
1. Watch <i>Vmath</i> [®] Video	3
2. Review the Standards Alignment Document.	4
3. All <i>Vmath</i> Materials	5
4. Log in to <i>Vmath</i>	6
5. Teacher Center Overview	7
6. Access the Teacher Material eBooks	8
Instruction & Pedagogy	9
1. Teacher Edition Table of Contents.	10–11
2. Preskill Lessons.	12
3. <i>Vmath</i> Lessons.	13
4. Hands On Guided Discovery Lessons.	14
5. Gizmo Guided Discovery Lessons	15
6. Math Flash Lessons	16
7. Problem Solving <i>Vmath</i> Lessons.	17
8. Conceptual Understanding.	18–20
9. Vocabulary	21
10. Apply Skills	22
11. Differentiate Instruction	23
Assessments & Reports	24
1. Assessment Guide	25
2. Assessment Guide Student Edition	26
3. Assessments	27–29
Student Technology	30
1. Log in to the <i>Vmath</i> Student Center	31
2. Student Center Overview	32
3. <i>VmathLive</i> [®]	33–39
4. Gizmos	40



▶ Watch the *Vmath* Overview Video

1. **Go to the *Vmath* Adoption Review site:**
<https://www.voyagersopris.com/florida/hillsborough/vmath>
2. **View the video** on the *Vmath* Adoption Review site for an overview of the *Vmath* program and purpose.



FLORIDA MATH ADOPTION
 VOYAGER SOPRIS LEARNING

Vmath
 Welcome, Florida Math Adoption Reviewers!

Vmath® is a targeted, standards-based solution to accelerate Florida's struggling students to grade-level math success. This Review Site was created for Florida educators to learn more about the *Vmath*® pedagogy and to review all components in a digital format. Please begin your review by downloading and printing the Reviewer Guide. Thank you for your consideration.

DOWNLOAD THE REVIEWER GUIDE
 We have created comprehensive Reviewer Guides with step-by-step instructions for the digital review process. Please download and have these guides available before you begin to review.

ELEMENTARY **MIDDLE SCHOOL**

WATCH OVERVIEW VIDEO
 Please watch this brief overview video for an introduction to *Vmath* before beginning your exploration.

MAFS ALIGNMENT & OTHER RESOURCES
 We have provided these resources online to support your review of the materials.
 Levels: G-1 Alignment to MAFS • System Requirements

EXPLORE VMATH
 Please have your Reviewer Guide available to log in and effectively navigate through the digital materials. Begin with the Teacher Center.

ENTER THE STUDENT CENTER
ENTER THE TEACHER CENTER

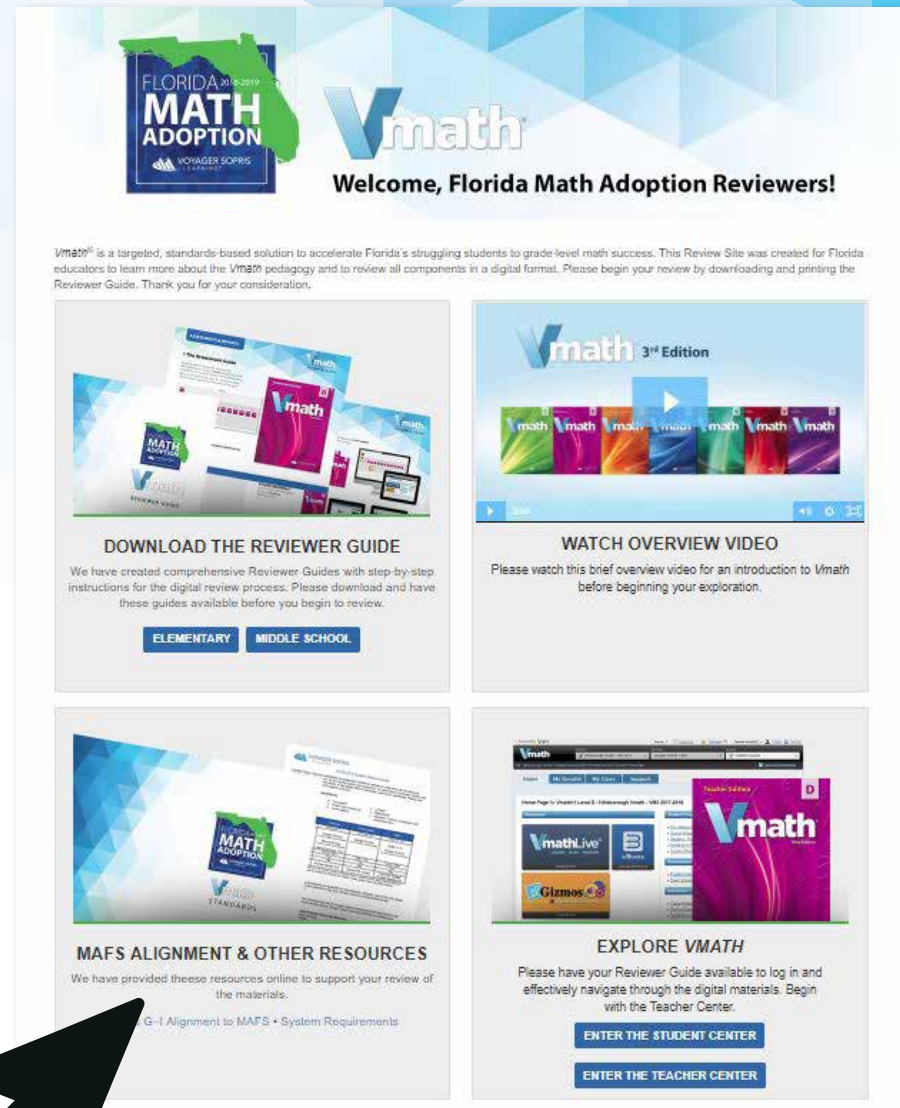
► Review the Standards Alignment Document

Vmath® aligns to the following Courses:

- 1204000
- 5012040
- 5012050
- 5012060
- 5012070

Vmath's balanced, systematic approach creates successful learning experiences for students and develops confident, independent learners of mathematics. As an intervention system it includes explicit instruction and a range of targeted assessments to inform teachers and support data-driven decision making.

1. **Download this document** to view a complete list of MAFS and course standards covered in Vmath.
2. During the Instructional Design section of this Reviewer Guide, **you will be directed to several examples of standards coverage** using our Interactive Standards Alignment tool located in the eBooks.



FLORIDA MATH ADOPTION
MAYAGER SOPRIS

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G-1 Alignment to MAFS - System Requirements

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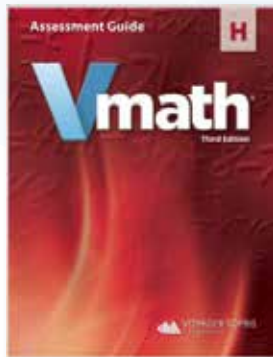
ENTER THE STUDENT CENTER
ENTER THE TEACHER CENTER

► Introduction to *Vmath*

This Reviewer Guide was created as a resource to be used when exploring *Vmath* **Level H**. *Vmath* is available as a blend of print materials and engaging technology.

TEACHER MATERIALS

- Vmath* Teacher Edition (print and digital)
- Additional assessment and reteach material (digital only)
- VPORT Online Data Management
- Access to *VmathLive*
- Access to Gizmos



STUDENT MATERIALS

- Student Books (print and digital)
- Access to *VmathLive*
- Access to Gizmos



► Log in to the *Vmath* Teacher Center

1. To begin your review, **login to the Teacher Center**. Enter the username and password provided to enter the *Vmath* Teacher Center site.

Please note Voyager Sopris Learning® offers single sign-on integrations to simplify accessibility and interoperate with pre-existing district technologies.

2. **Enter the username and password below**, to enter the *Vmath* Level H Teacher Center website.

Username: **Vmath6T14**

Password: **HeavyFloor3**



The screenshot shows the VPORT login interface. At the top, it says "Enter scores • Track results • Generate reports • Get support". The main logo is "VPORT" in large green letters with a colorful circle in the 'O', and the tagline "Managing student achievement" below it. There are two input fields: one for the username "vmath6t14" and one for the password "*****". A "Login" button is to the right of the password field. Below the password field is a link "Forgot User ID or Password?". The footer contains the Voyager Sopris Learning logo and name, system requirements (high-speed internet, green check in System Check bar), customer support information (call 1-888-547-6747), a Facebook share button, and a "Secured by Entrust" badge. Copyright information for 2018 Voyager Sopris Learning, Inc. is at the bottom.

► Teacher Center Overview

The *Vmath* Teacher Center provides access to all of the resources to support a successful implementation of *Vmath* instruction including:

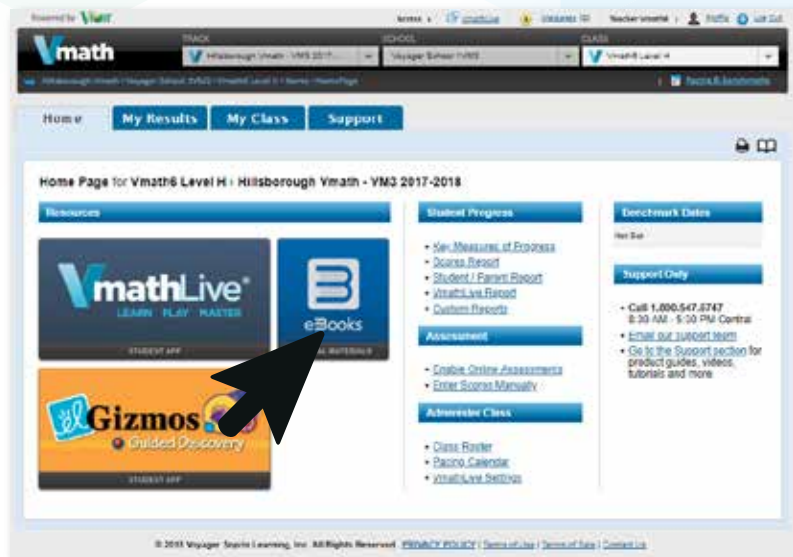
1. **eBooks:** digital versions of the print and digital-only Vmath resources
2. **VmathLive:** provides a teacher view of the student technology
3. **Gizmos:** interactive simulations to reinforce conceptual knowledge

To continue your review of *Vmath* instructional components, click the eBook icon from the Teacher Center to enter the bookshelf.

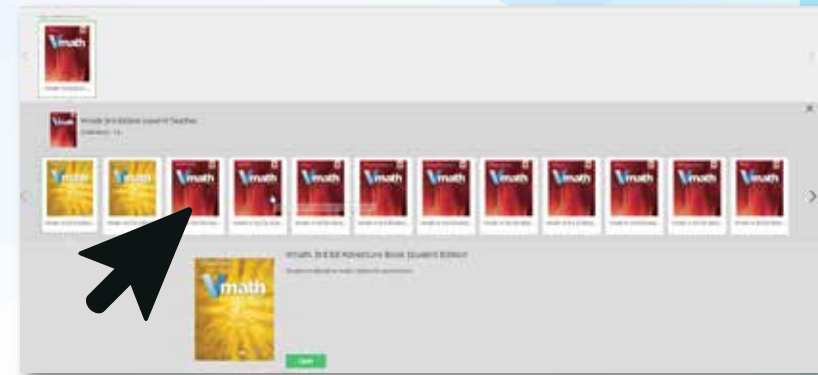


NOTE: More detailed information for each section will be covered throughout of the Review Guide.

► Access the Teacher Material eBooks



1. **Click the eBooks icon** from the Teacher Center to enter the bookshelf.



2. Use your cursor to scroll over each book to see the full title. Select the *Vmath* Level H Teacher Edition.

Click the green Open button to enter. The eBook has fully loaded once the toolbar appears across the top.

Teacher Materials:

The **Vmath Teacher Edition**, available in both print and digital format

Reteach Book, available in digital only format

The **Assessment Guide**, available in digital edition only

Vmath Adventure Resource, available in digital only format.

NOTE: Use the arrow on the right side of the screen to view all books on this shelf.

Instruction & Pedagogy

Vmath provides targeted math intervention and is specifically designed to reinforce grade level expectations. As a blended print and digital program—*Vmath* delivers essential content using strategies proven to accelerate and motivate at-risk students.

Let's take a look at *Vmath's* unique instruction, pedagogy, and the supportive tools and resources that make it easy for teachers to implement and effective for students to reach grade level expectations.

► Review the Teacher Edition Table of Contents

To explore the *Vmath* experience, turn to **Module 4, Expressions and Equations** in the Table of Contents and click the page number of the first lessons. (Page 129.) As you explore the lesson types notice the variety of ways *Vmath* addresses the standards associated with using variables to represent equalities.

eBook navigation: eBook tools that help you quickly navigate the book are found in the top left corner of the screen, in the bottom center of the screen, or the search bar in the upper right hand corner can be used.

Print navigation: You can choose to explore *Vmath* by using the Teacher Edition provided.

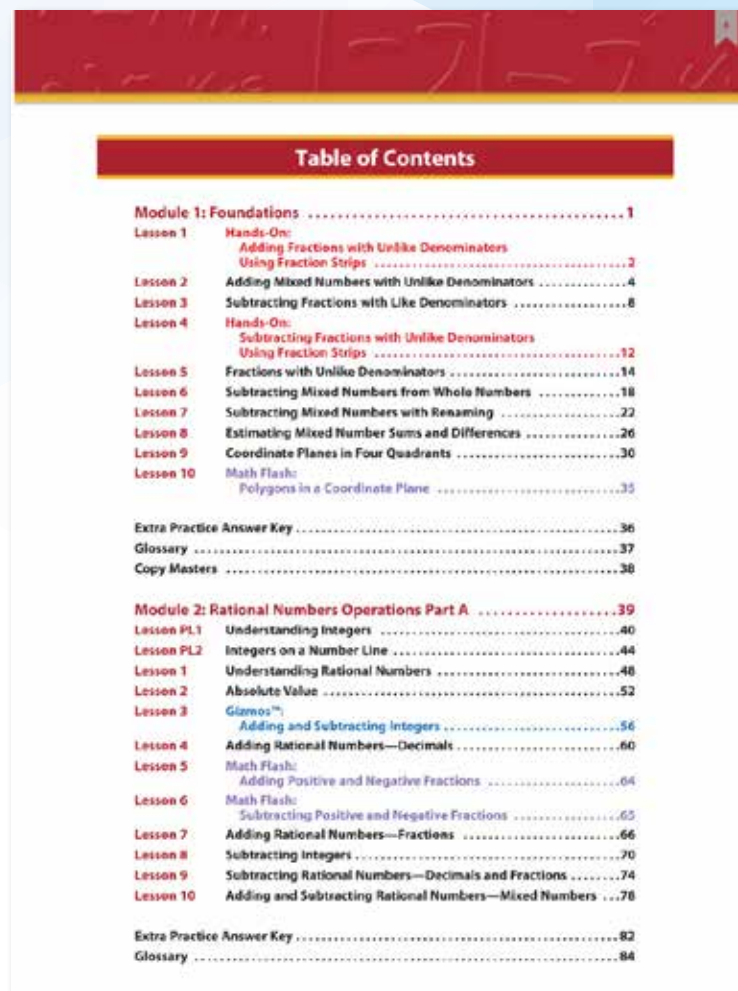


Table of Contents	
Module 1: Foundations	1
Lesson 1 Hands-On: Adding Fractions with Unlike Denominators Using Fraction Strips	2
Lesson 2 Adding Mixed Numbers with Unlike Denominators	4
Lesson 3 Subtracting Fractions with Like Denominators	8
Lesson 4 Hands-On: Subtracting Fractions with Unlike Denominators Using Fraction Strips	12
Lesson 5 Fractions with Unlike Denominators	14
Lesson 6 Subtracting Mixed Numbers from Whole Numbers	18
Lesson 7 Subtracting Mixed Numbers with Renaming	22
Lesson 8 Estimating Mixed Number Sums and Differences	26
Lesson 9 Coordinate Planes in Four Quadrants	30
Lesson 10 Math Flash: Polygons in a Coordinate Plane	35
Extra Practice Answer Key	36
Glossary	37
Copy Masters	38
Module 2: Rational Numbers Operations Part A	39
Lesson PL1 Understanding Integers	40
Lesson PL2 Integers on a Number Line	44
Lesson 1 Understanding Rational Numbers	48
Lesson 2 Absolute Value	52
Lesson 3 Gizmos™: Adding and Subtracting Integers	56
Lesson 4 Adding Rational Numbers—Decimals	60
Lesson 5 Math Flash: Adding Positive and Negative Fractions	64
Lesson 6 Math Flash: Subtracting Positive and Negative Fractions	65
Lesson 7 Adding Rational Numbers—Fractions	66
Lesson 8 Subtracting Integers	70
Lesson 9 Subtracting Rational Numbers—Decimals and Fractions	74
Lesson 10 Adding and Subtracting Rational Numbers—Mixed Numbers	78
Extra Practice Answer Key	82
Glossary	84

► Learn about the Four Types of Lessons in *Vmath*

To understand the instructional design of *Vmath*, first become familiar with the **Table of Contents**. There are seven modules in each *Vmath* level. Module 1 is a foundation module acting as a review of concepts and skills from previously taught grades. Modules 2–7 focus on concepts and skills specific to the major work of the grade the level represents.

The **Table of Contents** includes several important features to highlight the instructional components.

Each module focuses on a specific topic or skills. Within in each module are a variety of different types of lessons.

- Lessons indicated by **black font** in the TOC refer to *Vmath* lessons.
- Lessons indicated by **red font** refer to **Hands-On Guided Discovery Lessons**.
- Lessons indicated by **blue font** refer to **Gizmo Guided Discovery Lessons**.
- Lessons indicated by **purple font** refer to **Math Flash Lessons**.



► Explore the features of PreSkill Lesson

Turn to page 130.

Preskill lessons are lessons to help students revisit previously learned skills, or prerequisite skills, to the content to be taught in the module.

The **Preskill lessons** may be from previous modules or previous levels of *Vmath*. Teachers may choose to skip the Preskill lessons if data show that students have mastered the prerequisite skills needed.

Preskill lessons may take the form of any of the lesson types you will explore in your review.

As you begin to explore the eBook, notice the black circle icons. These are additional links to resources to help the teacher present the lesson.



► Explore the features of *Vmath* Lessons

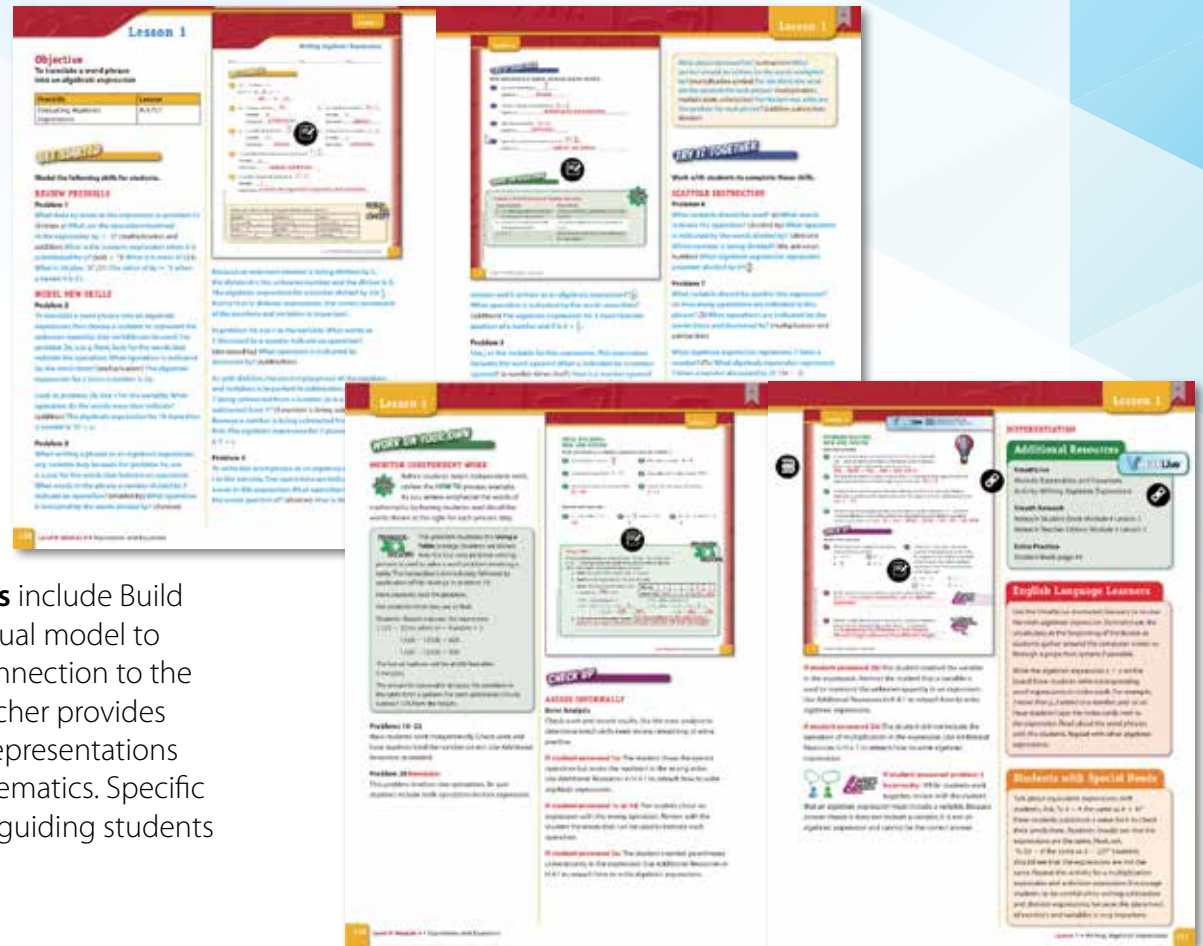
Turn to page 138.

Vmath Lessons contain four-step scaffolded instruction specific to concepts and skills related to grade-level expectations for both problem-solving and concept development.

Vmath Lessons follow an instructional routine that includes four steps:

1. **Get Started**—teacher modeling to introduce new skills
2. **Try it Together**—Transition students from initial learning to independent practice
3. **Work on Your Own**—Apply new learning independently
4. **Check Up**—information assessments to check understanding analyze errors, and provide corrective feedback.

To promote conceptual understanding, *Vmath* Lessons include Build the Concept and How to boxes on the page using a visual model to help students develop a deeper understanding and connection to the mathematical concepts. Along with the model, the teacher provides explicit language to help students connect the visual representations to the standard symbolic representations used in mathematics. Specific *Vmath* Lessons also include problem-solving practice guiding students through the use of problem-solving strategies.



MAFS.7.EE.2.4

► Explore the features of Hands On Guided Discovery Lessons

Turn to page 146.

Hands On Guided Discovery Lessons include activities that are specific to the use and application of manipulatives to help students develop deeper conceptual understanding.

Hands On Guided Discovery Lessons provide a systematic approach to using manipulatives for problem solving and conceptual understanding. Each Hands-On lesson follows a four-step instructional routine:

1. **Get Reading**—teacher modeling of new concepts.
2. **Discover**—teacher guides student learning
3. **Discover Box**—students use manipulatives to discover key concepts
4. Students engage in further exploration independently

Hands On Lessons use concrete manipulatives such as base-10 pieces and fraction strips to reinforce conceptual understanding.

The screenshot displays the 'HANDS-ON GUIDED DISCOVERY Lesson 3' interface. It is divided into several sections:

- Objective:** To use algebra tiles to solve a two-step equation.
- Materials:** Algebra tiles.
- Lesson Notes:** A section with a spiral notebook icon providing background information for the teacher.
- GET READY:** A section with a blue banner containing 'Problem 1' and 'Problem 2' with their respective instructions.
- DISCOVER:** A central section with a purple banner containing 'Problem 3' and 'Problem 4' with their respective instructions.
- DISCOVER BOX:** A section on the right with a red banner containing a 'Discover Box' and 'EXPLORE MORE' section.
- Lesson Adaptations for Module 4:** A red-bordered box at the bottom right with 'Lesson 3.3' instructions.

MAFS.7.EE.2.3 and MAFS.7.EE.2.4

► Explore the features of Gizmo Guided Discovery Lessons

Turn to page 156.

Gizmo Guided Discovery Lessons incorporate online digital manipulatives to help student develop deeper conceptual understanding.

Gizmo Guided Discovery Lessons are modular, interactive online math simulations for students. Gizmos provide explicit and systematic instruction to help teachers guide students as they use online manipulatives to understand abstract concepts.

There Gizmo lessons follows a four step instructional routine:

1. **Get Ready**—teacher and students review prerequisite skills needed
2. **Discover**—teacher guides students to discover important math concepts.
3. **Discover Box**—students use online manipulatives to discover key concepts
4. **Explore More**—students engage in further exploration independently.

Gizmos integrate conceptual understanding using fun, easy to use simulations. Students can access Gizmos through their student center.

The screenshot shows the Gizmo interface for Lesson 6, 'Using Algebraic Equations'. It includes sections for Objective, Materials, Lesson Log Instructions, Lesson Notes, Get Ready (with two problems), Discover (with two problems), Discover Box, and Explore More (with one problem).

MAFS.7.EE.2.3 and MAFS.7.EE.2.4

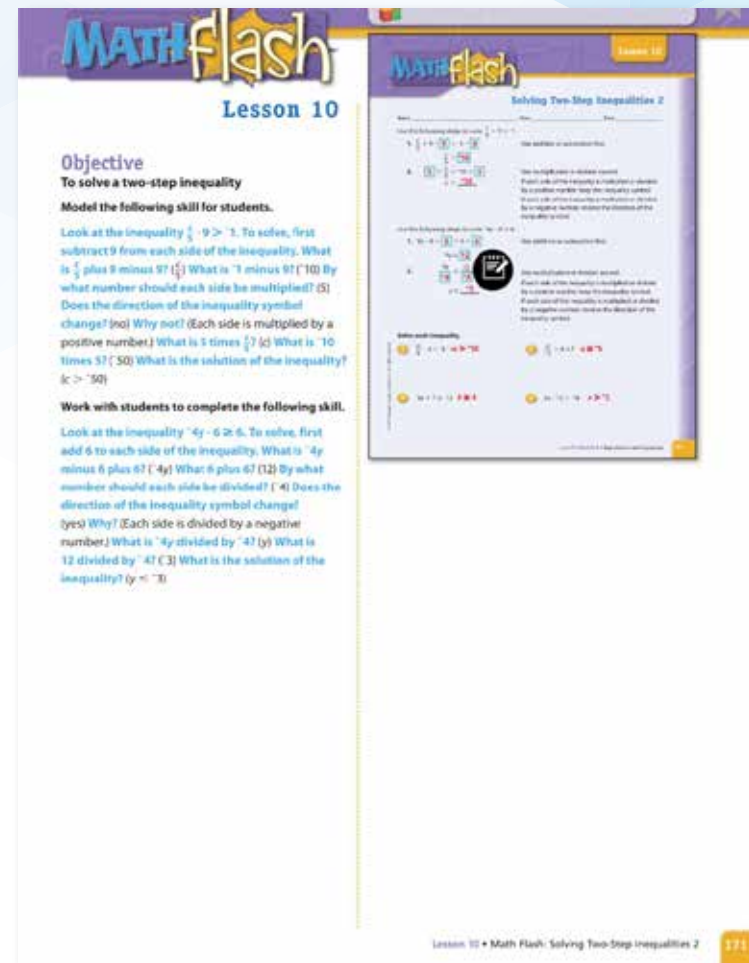
► Explore the features of Math Flash Lessons

Turn to page 171.

Math Flash Lessons are brief 20-minute lessons that help students reinforce the skills needed to close gaps in instruction.

Math Flash Lessons reinforce the concepts and skills that are frequently tested providing students with proficiency practice.

Continue to learn more about the instruction of *Vmath* by exploring how *Vmath* helps students build problem solving skills. Turn to page 184 for an example.



MATH flash
Lesson 10

Objective
To solve a two-step inequality
Model the following skill for students.

Look at the inequality $x - 9 > 3$. To solve, first subtract 9 from each side of the inequality. What is x plus 9 minus 9? (3) What is 3 minus 9? (10) By what number should each side be multiplied? (5) Does the direction of the inequality symbol change? (no) Why not? (Each side is multiplied by a positive number.) What is 5 times 3? (15) What is 10 times 5? (50) What is the solution of the inequality? ($x > 50$)

Work with students to complete the following skill.

Look at the inequality $-4y - 6 \geq 6$. To solve, first add 6 to each side of the inequality. What is $-4y$ minus 6 plus 6? ($-4y$) What 6 plus 6? (12) By what number should each side be divided? (4) Does the direction of the inequality symbol change? (yes) Why? (Each side is divided by a negative number.) What is $-4y$ divided by -4 ? (y) What is 12 divided by -4 ? (3) What is the solution of the inequality? ($y \leq 3$)

Lesson 10 • Math Flash: Solving Two-Step Inequalities 2 171

MAFS.7.EE.2.4

► Vmath promotes Problem Solving

Turn to page 184–187.

Vmath provides specific lessons entirely devoted to teaching problem-solving strategies. These lessons, which integrate the instruction and practice in problem solving emphasize the four step process most often used in core math programs: Understand, Plan, Solve, and Look Back.

The problem solving lessons use the four step process as used in all Vmath lessons but also includes a problem solving box highlighting steps to reinforce the strategy and can be referred to as students apply the strategy on their own.

Vmath also builds conceptual understanding, turn to page 196 to begin your exploration.

PROBLEM- This problem illustrates the **Using a Table** strategy. Students are shown how the four-step problem-solving process is used to solve a word problem involving a table. The instruction is immediately followed by application of the strategy in problem 14.

The problem gives a table with the dimensions of three rectangles. Students are asked to find which of the two rectangles are similar.

For each pair of rectangles, students will write ratios using corresponding sides. They will compare those ratios to find whether the rectangles are similar.

First, compare rectangles A and B. The ratio of the widths is $\frac{2}{3}$ and the ratio of the lengths is $\frac{6}{9}$. Expressed in simplest form, the ratios are $\frac{1}{3}$ and $\frac{2}{3}$. Because $\frac{1}{3}$ and $\frac{2}{3}$ are not equivalent, rectangles A and B are not similar.

Next, compare rectangles B and C. The ratio of the widths is $\frac{3}{4}$ and the ratio of the lengths is $\frac{9}{12}$. Expressed in simplest form, the ratios are $\frac{3}{4}$ and $\frac{3}{4}$. Because $\frac{3}{4}$ and $\frac{3}{4}$ are not equivalent, rectangles B and C are not similar.

SOLVING

Using a Table

Rectangle	A	B	C
Width (in.)	2	3	4
Length (in.)	6	9	12

Two of the rectangles are similar. Which two rectangles are similar?

a. Find: the two similar rectangles.

b. How? Use the information in the table to write ratios using corresponding sides and compare.

c. Solve:

Ratio: Width and Length

A and B: $\frac{2}{3}$ and $\frac{6}{9} = \frac{2}{3}$ and $\frac{2}{3} = \frac{2}{3}$ Equivalent/Not Equivalent

B and C: $\frac{3}{4}$ and $\frac{9}{12} = \frac{3}{4}$ and $\frac{3}{4} = \frac{3}{4}$ Equivalent/Not Equivalent

A and C: $\frac{2}{4}$ and $\frac{6}{12} = \frac{1}{2}$ and $\frac{1}{2} = \frac{1}{2}$ Equivalent/Not Equivalent

Rectangle **A** and Rectangle **C** are similar.

d. Is the answer reasonable? Explain. Yes; cross multiplication can be used to verify the ratios form a proportion; $2 \times 12 = 24$ and $3 \times 6 = 18$.

MAFS.7.G.1.1

► **Vmath builds Conceptual Understanding**

Turn to page 196.

Gizmo lessons present important math concepts using several different tools to build conceptual understanding of important concepts.

Gizmos integrate conceptual understanding using fun, easy to use simulations. Students can access Gizmos through their student center.

Lesson 7

Objective
To use a model to explore markup and discount as percents of change

Materials
Gizmo: Percent of Change

Gizmo Link to Instruction
Click on the Percent of Change Gizmo link.

Lesson Notes
Before beginning the lesson, have students have their Student Notes and are ready to work at the computer.
Complete problem 1 before starting to work on the Percent of Change Gizmo.
If students have additional time, have them answer Assessment Questions 1-3 in the Gizmo. They can click on the Check Your Answers button to see how well they did on the assessment.

GET READY

Problem 1
In problem 1, 40 (percent) is 40% of the change in business of a business' discount. The first step in finding a percent increase is to find the amount of increase. How is the amount of increase found? Subtract the original amount from the amount after the increase. What is the original amount? (40) What is the amount after the increase? (48) What is 48 minus 40? (8) So, the amount of increase is 8. The next step is to divide the amount of increase by the original amount. What is the division problem? $8 \div 40$. What is it divided by 40? (8) What is

Problem 2
Have students log in to the Percent of Change Gizmo using the instructions at the top. Look at problem 2. It asks a change from for an item that the store paid for it. This is how a store makes money. It asks with a percent for 48. The exercise cost the store \$36. To model this situation, drag the selling price handle to 48 in the Markup portion of the Gizmo. Then drag the Original cost handle to 36. Look at the model. The selling price is the sum of what two amounts? (the original cost and the markup) The amount of increase from the original cost to the selling price is the markup. The increments on the ruler are labeled every 10. According to the model, what is the amount of the markup? (12) Compare the length of the Markup bar with the length of the Original cost bar. The length of the Markup bar is $\frac{1}{3}$ the length of the Original cost bar. One-half bar is written as what percent? (50%) So, the length of the Markup bar is 50% of the length of the Original cost bar.

Problem 3
Look at problem 3. A store costs a store \$20. The store wants to mark up the price by 25%. To model this situation, drag the Original cost handle to 20 in the Markup portion of the Gizmo. What is the percent increase? (25%) So, the length of the Markup bar should be 25% of the length of the Original cost bar. What is 25% written as a fraction? ($\frac{1}{4}$) So, the length of the Markup bar should be $\frac{1}{4}$ of the length of the Original cost bar. Look at the length of the Original cost bar. What length is $\frac{1}{4}$ the length of the Original cost bar? (5) Drag the Markup bar handle so that the selling price is 55 more than the original cost. The percent below the model is 25%. According to the model, what is the selling price? (25)

Problem 4
Look at problem 4. There are some sales in which they reduce their prices. The difference between the original price and the sale price is the discount. Look at the original price for \$40 is a sale for \$30. To model this situation, drag the Original price handle to 40 in the Discount portion of the Gizmo. Then drag the Sale price handle to \$30. Look at the model. The sale price is the difference of what two amounts? (the original price and the discount) The amount of decrease from the original price to the sale price is the discount. According to the model, what is the amount of the discount? (10) Compare the length of the Discount bar with the length of the Original price bar. The length of the Discount bar is $\frac{1}{4}$ the length of the Original price bar. One-fourth can be written as what percent? (25%) So, the length of the Discount bar is 25% of the length of the Original price. The discount is 25% of the original price. The sale price can be written as a percent of the original price. Look at the sale price and the Original price bar. The Sale price bar is $\frac{3}{4}$ the length of the Original price bar. Three-fourths can be written as what percent? (75%) The sale price is 75% of the original price.

MAFS.7.R.1.3

► *Vmath* builds Conceptual Understanding

Turn to page 224.

Vmath lessons include Build the Concept and How to boxes on the page using a visual model to help students develop a deeper understanding and connection to the mathematical concepts. Along with the model, the teacher provides explicit language to help students connect the visual representations to the standard symbolic representations used in mathematics.

BUILD THE CONCEPT

Noah has a bike with tires that have a diameter of 26 inches. How far will the bike travel with one full rotation of the tires?

$$C = \pi d$$

$$= 3.14 \times 26$$

$$C = 81.64 \text{ in.}$$

Noah's bike travels about 81.64 in. with one full rotation of the tires.



BUILD THE CONCEPT

Model how to find the circumference of a circle. Noah has a bike with tires that have a diameter of 26 inches. He wants to know how far his bike will travel when the tires complete one full rotation. To do this, he places a piece of tape on one tire and a piece on the ground. He slowly moves the bike forward until the tape on the tire reaches the ground again and marks the spot. The distance his bike travels is the same as what measure of the tire? (the circumference) So, the distance his bike travels with one rotation of the tires can be found by finding the circumference of a tire.

Lesson 2

Objective
To find the circumference of a circle

Prerequisite	Lesson
Multiplying Rational Numbers—Operations	15.2.2
Dividing Rational Numbers—Operations	15.2.3

Academic Vocabulary
Before the lesson, introduce and discuss the Academic Vocabulary. Refer to the Academic Vocabulary as needed during the lesson.

- circle**
The set of points in a plane that are the same distance from a point called the center.
- center**
The point in the same plane such that every point on the circle is the same distance from it.
- radius**
The distance from the center of a circle to any point on the circle.
- diameter**
The distance across a circle through the center of the circle.
- circumference**
The distance around a circle.

GET STARTED

Model the following skills for students.

REVIEW PREVIOUS

Problem 1
Simplify: $2 \times \frac{1}{3}$; $3 \times \frac{1}{4}$; $4 \times \frac{1}{5}$; $5 \times \frac{1}{6}$; $6 \times \frac{1}{7}$; $7 \times \frac{1}{8}$; $8 \times \frac{1}{9}$; $9 \times \frac{1}{10}$

MEET NEW SKILL

Problem 2
Look at Figure 1. A circle is the set of points in a plane that are the same distance from a point called the center of the circle. How is the center of the circle marked? Label the center.

Problem 3
The circumference of a circle is the distance around the circle. The formula for the circumference of a circle is $C = \pi d$, where C represents the circumference and d represents the diameter. Use 3.14 as an approximation for π . The radius of a circle is 10 inches. Find the circumference of the circle. Round to the nearest hundredth.

Problem 4
The diameter of the circle in Figure 1 was found by problem 3. What is the diameter of the circle? Label the diameter. Round to the nearest hundredth.

Problem 5
The circumference of a circle is 31.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 6
The circumference of a circle is 62.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 7
The circumference of a circle is 125.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 8
The circumference of a circle is 251.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 9
The circumference of a circle is 502.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 10
The circumference of a circle is 1004.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 11
The circumference of a circle is 2009.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 12
The circumference of a circle is 4019.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 13
The circumference of a circle is 8038.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 14
The circumference of a circle is 16076.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 15
The circumference of a circle is 32153.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 16
The circumference of a circle is 64307.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 17
The circumference of a circle is 128614.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 18
The circumference of a circle is 257228.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 19
The circumference of a circle is 514457.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 20
The circumference of a circle is 1028915.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 21
The circumference of a circle is 2057830.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 22
The circumference of a circle is 4115660.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 23
The circumference of a circle is 8231321.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 24
The circumference of a circle is 16462643.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 25
The circumference of a circle is 32925286.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 26
The circumference of a circle is 65850572.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 27
The circumference of a circle is 131701145.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 28
The circumference of a circle is 263402291.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 29
The circumference of a circle is 526804582.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 30
The circumference of a circle is 1053609164.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 31
The circumference of a circle is 2107218329.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 32
The circumference of a circle is 4214436659.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 33
The circumference of a circle is 8428873318.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 34
The circumference of a circle is 16857746636.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 35
The circumference of a circle is 33715493273.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 36
The circumference of a circle is 67430986547.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 37
The circumference of a circle is 134861973094.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 38
The circumference of a circle is 269723946188.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 39
The circumference of a circle is 539447892377.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 40
The circumference of a circle is 1078895784755.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 41
The circumference of a circle is 2157791569510.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 42
The circumference of a circle is 4315583139020.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 43
The circumference of a circle is 8631166278041.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 44
The circumference of a circle is 17262332556083.2 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 45
The circumference of a circle is 34524665112166.4 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 46
The circumference of a circle is 69049330224332.8 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 47
The circumference of a circle is 138098660448665.6 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 48
The circumference of a circle is 276197320897312 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 49
The circumference of a circle is 552394641794624 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 50
The circumference of a circle is 1104789283589248 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 51
The circumference of a circle is 2209578567178496 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 52
The circumference of a circle is 4419157134356992 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 53
The circumference of a circle is 8838314268713984 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 54
The circumference of a circle is 17676628537427968 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 55
The circumference of a circle is 35353257074855936 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 56
The circumference of a circle is 70706514149711872 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 57
The circumference of a circle is 141413028299423744 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 58
The circumference of a circle is 282826056598847488 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 59
The circumference of a circle is 565652113197694976 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 60
The circumference of a circle is 1131304226395389952 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 61
The circumference of a circle is 2262608452790779904 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 62
The circumference of a circle is 4525216905581559808 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 63
The circumference of a circle is 9050433811163119616 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 64
The circumference of a circle is 18100867622326239232 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 65
The circumference of a circle is 36201735244652478464 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 66
The circumference of a circle is 72403470489304956928 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 67
The circumference of a circle is 144806940978609913856 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 68
The circumference of a circle is 289613881957219827712 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 69
The circumference of a circle is 579227763914439655424 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 70
The circumference of a circle is 1158455527828879310848 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 71
The circumference of a circle is 2316911055657758621696 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 72
The circumference of a circle is 4633822111315517243392 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 73
The circumference of a circle is 9267644222631034486784 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 74
The circumference of a circle is 18535288445262068973568 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 75
The circumference of a circle is 37070576890524137947136 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 76
The circumference of a circle is 74141153781048275894272 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 77
The circumference of a circle is 148282307562096557788544 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 78
The circumference of a circle is 296564615124193115577088 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 79
The circumference of a circle is 5931292302483862311544176 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 80
The circumference of a circle is 11862584604967724623088352 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 81
The circumference of a circle is 23725169209935449246177088 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 82
The circumference of a circle is 47450338419870898492354176 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 83
The circumference of a circle is 94900676839741796984708352 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 84
The circumference of a circle is 189801353679483593969416704 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 85
The circumference of a circle is 379602707358967187938833408 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 86
The circumference of a circle is 759205414717934375877666816 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 87
The circumference of a circle is 1518410829435868751755333632 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 88
The circumference of a circle is 3036821658871737503510667264 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 89
The circumference of a circle is 6073643317743475007021334528 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 90
The circumference of a circle is 12147286635486950014042669056 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 91
The circumference of a circle is 24294573270973900028085338112 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 92
The circumference of a circle is 48589146541947800056170676224 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 93
The circumference of a circle is 97178293083895600112341352448 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 94
The circumference of a circle is 194356586167791200224682704896 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 95
The circumference of a circle is 388713172335582400449365409792 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 96
The circumference of a circle is 777426344671164800898730819584 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 97
The circumference of a circle is 1554852689342329601797461639168 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 98
The circumference of a circle is 3109705378684659203594923278336 inches. Find the diameter of the circle. Round to the nearest hundredth.

Problem 99
The circumference of a circle is 6219410757369318407189846556672 inches. Find the diameter of the circle. Round to the nearest hundredth.

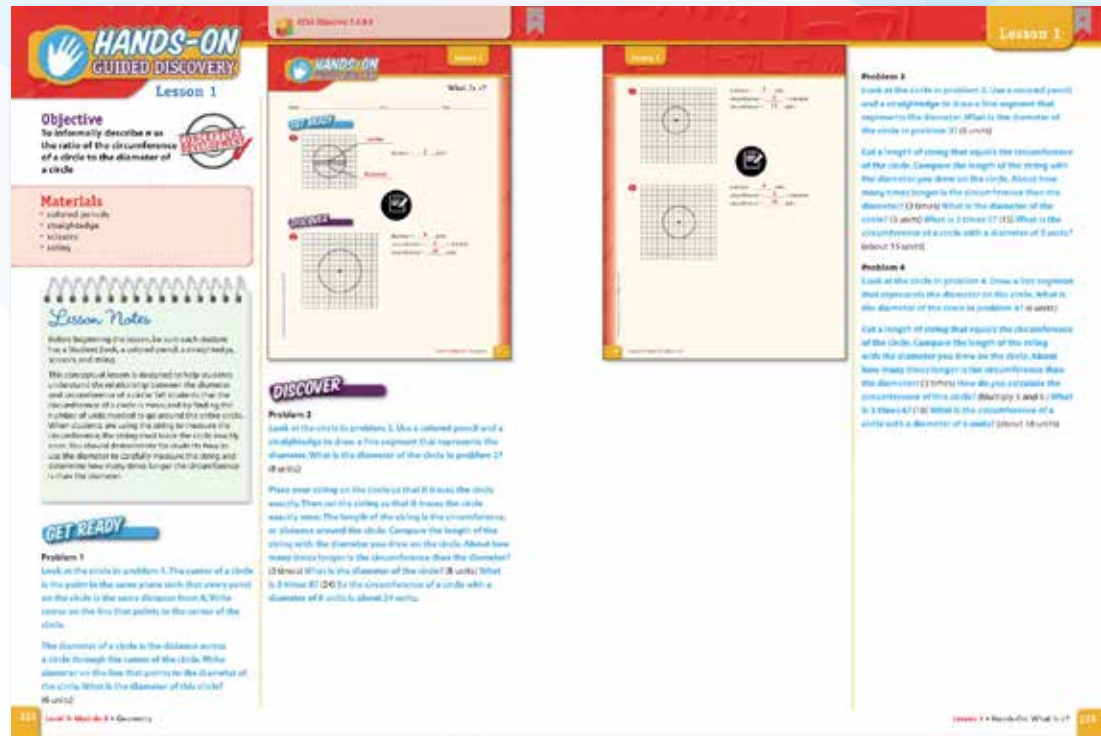
Problem 100
The circumference of a circle is 12438821514738636814379693113344 inches. Find the diameter of the circle. Round to the nearest hundredth.

MAFS.7.G.2.4

► **Vmath builds Conceptual Understanding**

Turn to page 228.

Hands-On Lessons use concrete manipulatives such as base-10 pieces and fraction strips to reinforce conceptual understanding.



MAFS.7.G.2.4

With its explicit and systematic approach, **Vmath** also provides students the opportunity to master the language of mathematics, receive scaffolded instruction, and apply their skills. Continue to explore these features now.

► **Vmath builds Vocabulary**

Turn to page 48.

Students are provided with multiple exposures and the opportunity to acquire the language of mathematics as part of their skill development. Emphasis on learning the language of math enables English Language Learners and students struggling to succeed.

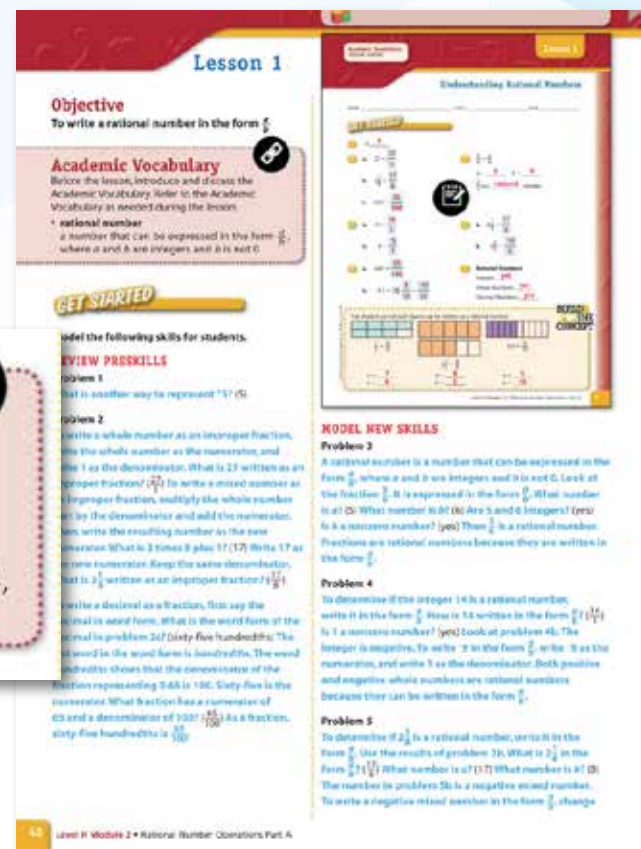
Vmath lessons reinforce the recursive academic vocabulary critical for student understanding. Teachers introduce the words at the start of each Vmath lesson and reinforce the specific language as they follow the explicit language in the lessons.

Click the “link” in the Academic vocabulary box on the TE page. This link is to the VmathLive glossary.

Academic Vocabulary

Before the lesson, introduce and discuss the Academic Vocabulary. Refer to the Academic Vocabulary as needed during the lesson.

- rational number**
a number that can be expressed in the form $\frac{a}{b}$, where a and b are integers and b is not 0



MAFS.7.NS.1.1

► *Vmath* helps students Apply Skills

Several components of *Vmath* are geared to help students apply their learning. *Vmath* lessons include Critical Thinking, Explain It, Write Math or Algebraic Thinking. Hands On and Gizmo lessons also include Discover Boxes for writing about observations as concepts develop.

This screenshot shows the interface for Lesson 1. It includes a sidebar with navigation options like 'GIZMO', 'DIFFERENTIATION', and 'Additional'. The main content area features a 'Write Math' section with a question: 'How does knowing the sign of a rational number help eliminate answer choices?'. Below this is an 'Explain It' section with a question: 'A student writes the decimal number 0.7 as $\frac{7}{10}$ in the first column and writes 0.7 in the form $\frac{7}{10}$ correctly. Explain in the next column what you know about the relationship between these two representations.' There is also an 'Algebraic Thinking' section with a table of decimal and rational numbers.

Decimal Number	0.25	0.250	0.2500	
Rational Number	$\frac{25}{100} = \frac{1}{4}$	$\frac{250}{1000} = \frac{1}{4}$	$\frac{2500}{10000} = \frac{1}{4}$	$\frac{1}{4}$

Page 50
MAFS.7.NS.1.1

This screenshot shows Lesson 9 with a 'Discover' box. It includes a problem: '65% of 80 is what number?'. Below the problem is a number line from 0 to 100, with 60% marked. The 'Discover' box contains the following text: 'Use the formula for the volume of a rectangular prism, $V = l \times w \times h$, to write a formula for the volume of a rectangular pyramid. Explain how you got your formula.'

Page 204
MAFS.7.RP.1.1

This screenshot shows Lesson 10 with a 'Discover Box'. It includes a problem: 'Look at the three-dimensional figures in problem 6. These figures are the solids you created in problem 5. How do you find the volume of a rectangular prism? Multiply the area of the base by the height of the prism. What number are you multiplying to find the volume? 10, 8, and 6? 10 and 6? 8 and 6? 10 and 6? 10 and 6? 10 and 6? What is the volume of the rectangular prism? 480 cubic units.' Below the problem is a diagram of a rectangular prism and a pyramid. The 'Discover Box' contains the following text: 'Use the formula for the volume of a rectangular prism, $V = l \times w \times h$, to write a formula for the volume of a rectangular pyramid. Explain how you got your formula.'

Page 258
MAFS.7.G.2.6

Each of these features are designed to promote reasoning and decision making in mathematics.

► *Vmath* helps differentiate instruction for students

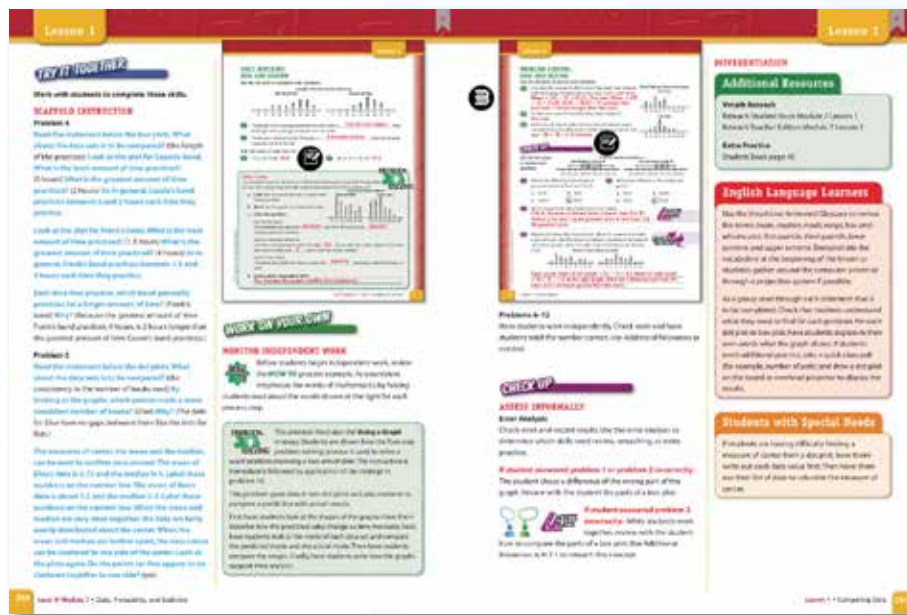
Turn to page 288.

Vmath provides three additional components to support teachers as they differentiate instruction.

Additional resources—lessons which can be used for practice, reteaching, or review

ELL Teaching Tips—lesson tips that provide specific activities that focus on increasing students' understanding of the language of math

Adaptations for students with Special Needs—teaching strategies in the lessons provide adaptations that support students requiring additional support



MAFS.7.SP.2.4

DIFFERENTIATION

Additional Resources

Vmath Reteach
Reteach Student Book Module 7 Lesson 1
Reteach Teacher Edition Module 7 Lesson 1

Extra Practice
Student Book page 45

English Language Learners

Use the Vmath Live Animated Glossary to review the terms *mean*, *median*, *mode*, *range*, *box-and-whisker plot*, *first quartile*, *third quartile*, *lower extreme*, and *upper extreme*. Demonstrate the vocabulary at the beginning of the lesson as students gather around the computer screen or through a projection system if possible.

As a group, read through each statement that is to be completed. Check that students understand what they need to find for each problem. For each dot plot or box plot, have students explain in their own words what the graph shows. If students need additional practice, take a quick class poll (for example, number of pets) and draw a dot plot on the board or overhead projector to display the results.

Students with Special Needs

If students are having difficulty finding a measure of center from a dot plot, have them write out each data value first. Then have them use their list of data to calculate the measure of center.

The differentiation activities provided in the *Vmath* lessons help actively engage students in the learning process as well as provide suggestions to the teacher regarding the use of additional concepts to help connect students to the skill being taught.

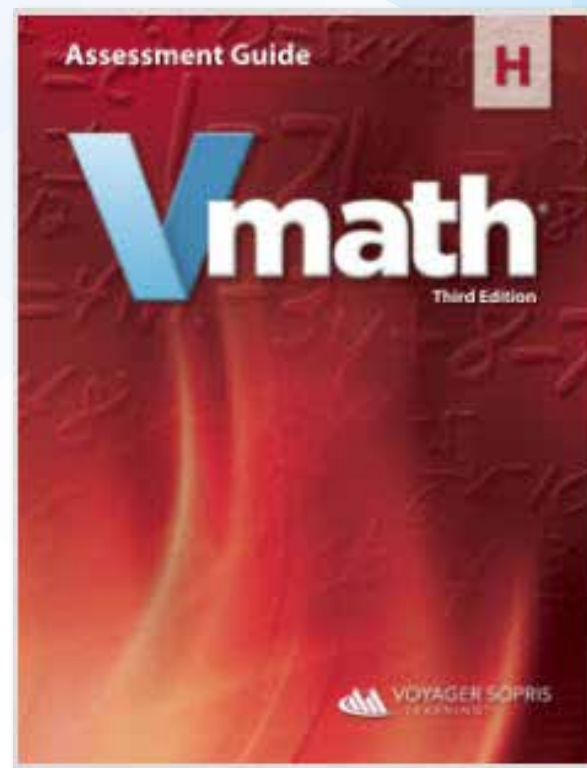
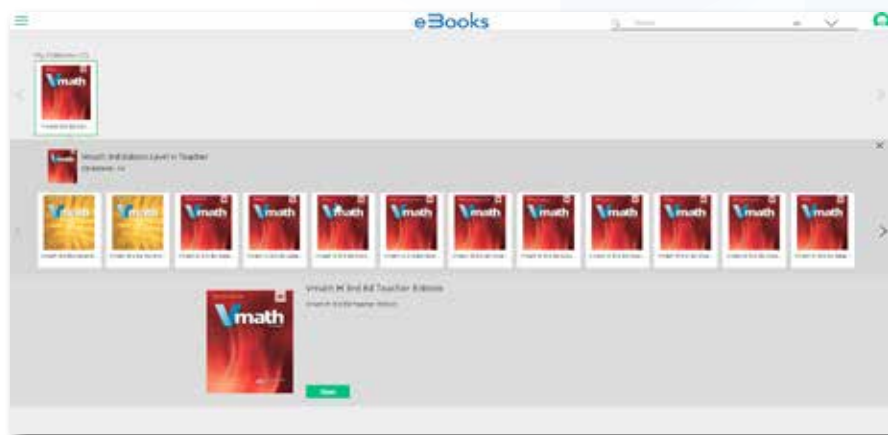
Assessments & Reports

The *Vmath* assessment system allows teacher to accurately measure student progress and proficiency at every stage of instruction. With a variety of reports available, teachers and administrators have actionable data that can be used to drive instructional decisions, communicate to parents and ensure students meet their goals.

Take a look at each assessment, reports teachers can generate, and overall purpose of monitoring learning that occurs in *Vmath*.

► The Assessment TE eBook

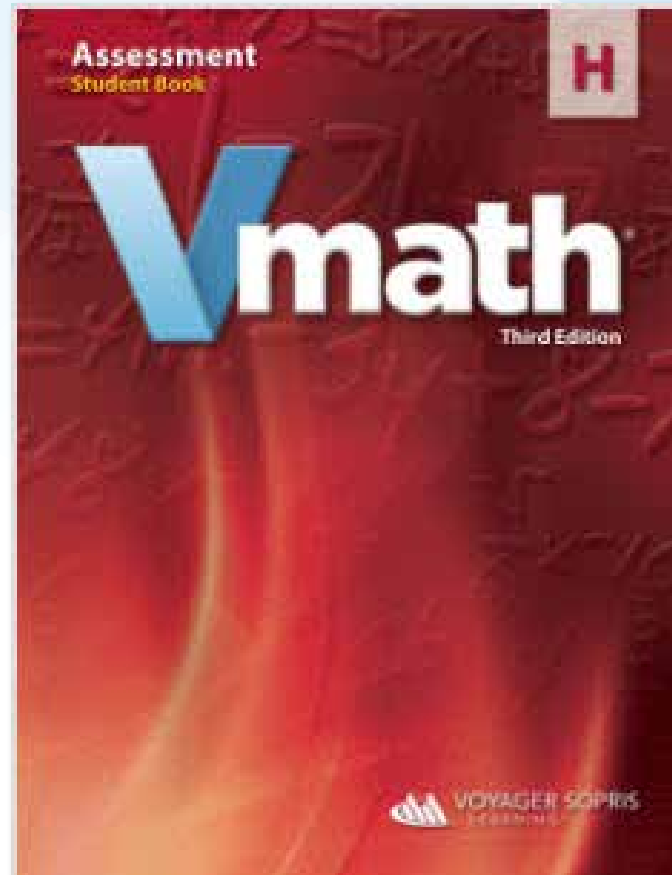
The Assessment Guide provides directions for administering and scoring all *Vmath* assessments as well as guidelines for using the data for instructional planning. Return to the eBook Shelf. Select the Assessment Guide Teacher Edition. Explore the components of this guide.



Note: The Assessment Guide is only available in eBook format.

► The Assessment Guide Student Edition

The Assessment Guide student edition provides the blackline masters which can be printed directly from the eBook. These assessments are also available to be administered and scored online.



Note: The Assessment Guide student edition is only available in eBook format.

► Initial and Final Assessments

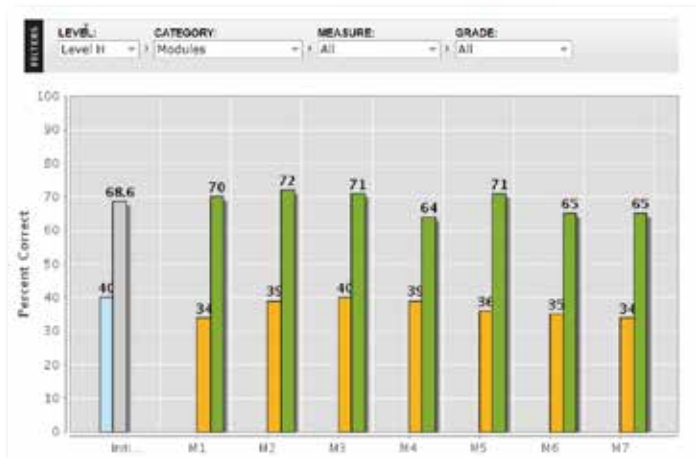
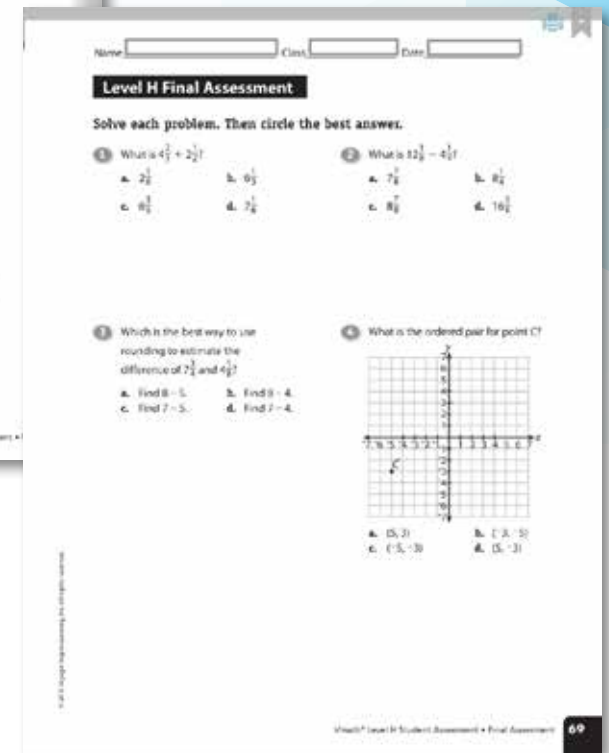
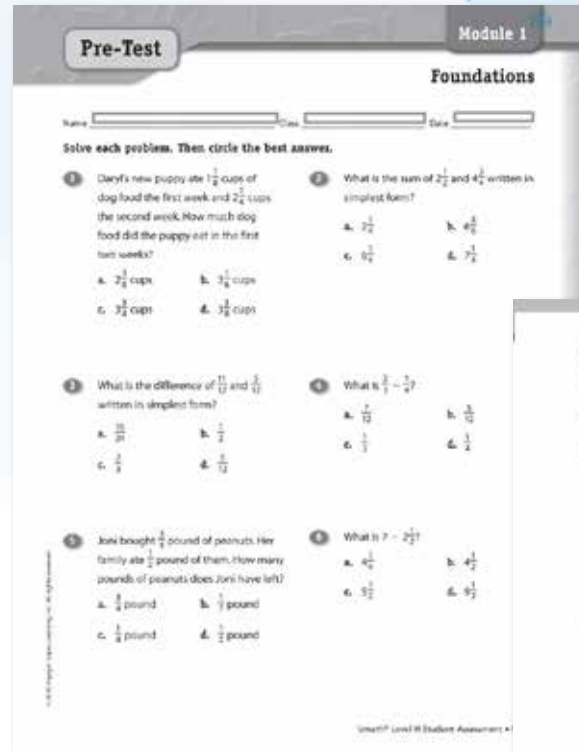
Turn to page 1 to review the Initial Assessment.

Turn to page 69 to review the Final Assessment.

Administered to the entire class at the beginning of *Vmath* instruction, the initial assessment highlights student instructional strengths and weaknesses.

Administered at the completion of a *Vmath* level, the final assessment can be used to document student growth and measures intervention results.

Pre-Tests measure students prior knowledge, Post-Test measures student growth of module specific content.



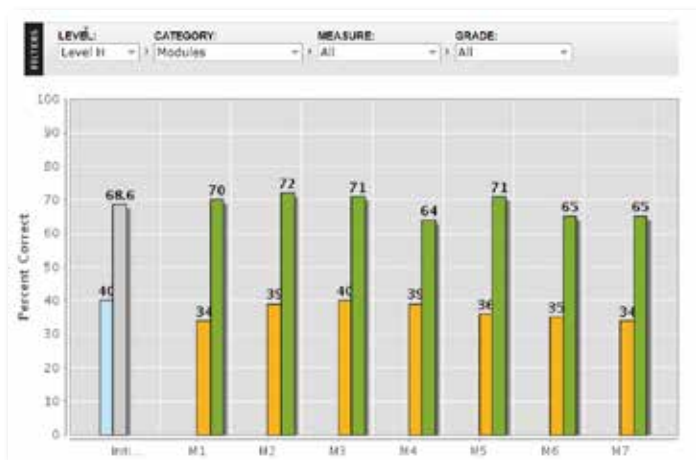
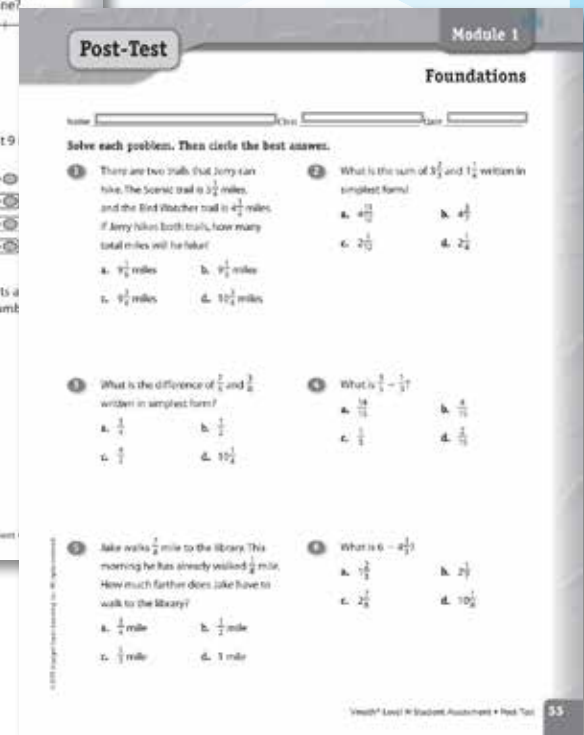
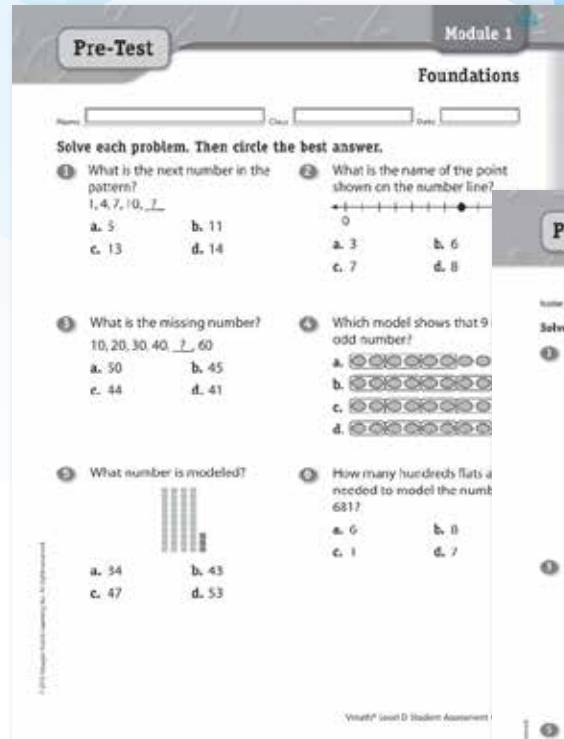
► Module Pre/Post Tests

Turn to page 43 to see the Module 1 Pre-Test.

Turn to page 55 to review the Module 1 Post-Test.

Pre Tests and Post Tests are module specific assessments used to monitor student growth and mastery of the concepts, skills and strategies taught in each module.

Results can be used to determine instructional needs of students. If a student scores <70% on a pre-test, the PL Lessons are taught. If a student scores >70% teaching would begin with Lesson 3. Similarly post-test results can be used to determine reteaching and practice needed.



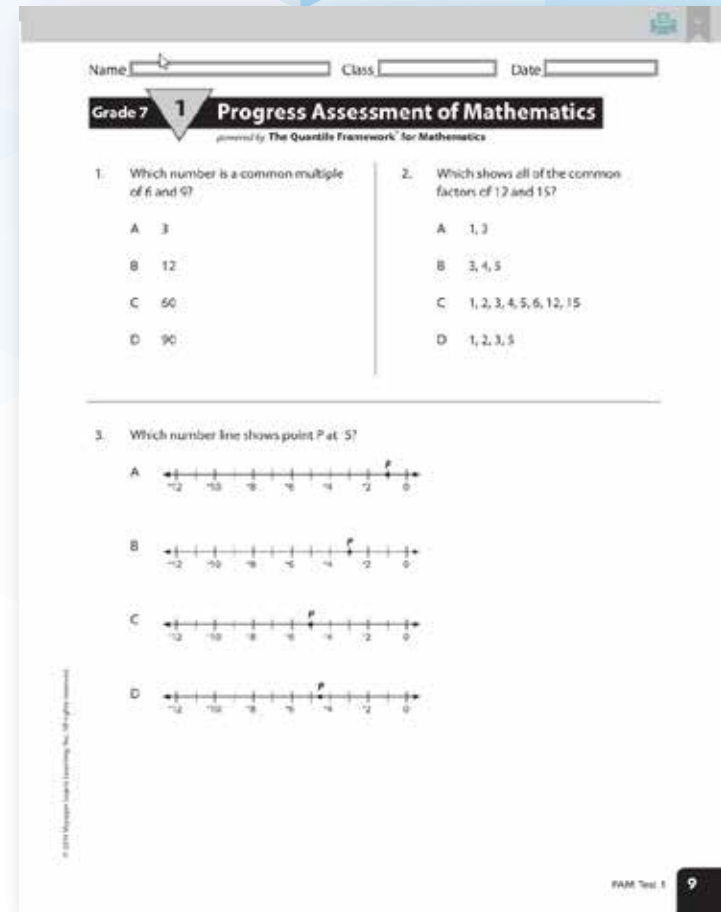
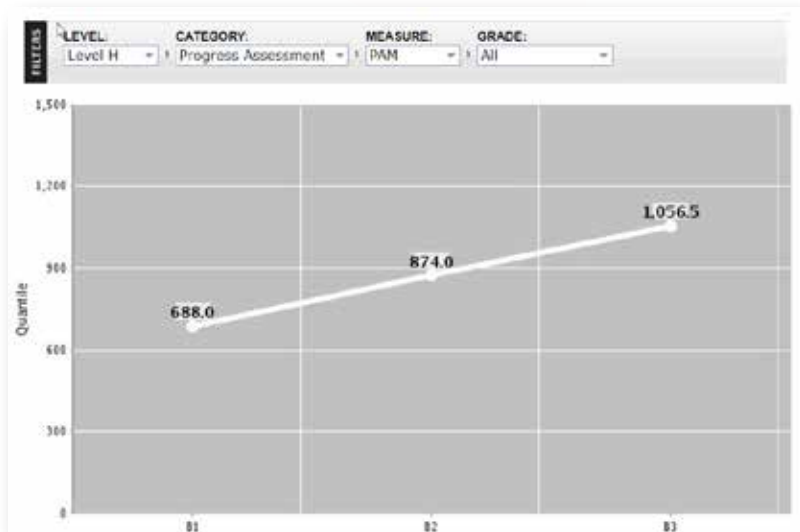
► Progress Assessments

Turn to page 9 to review the Progress Assessment.

Progress Assessments powered by the Quantile Framework for Mathematics are curriculum-based measures administered 3 times per year.

When teachers know a student's math achievement level and the level of difficulty of mathematical task, they are able to adjust instruction to meet a student's readiness to learn. The Quantile provided for each student after completing the Progress Assessment provides information regarding:

- Skills a student has mastered
- Skills on which a student needs further instruction
- Skills a student is ready to learn



Student Technology

Technology plays an integral role in teaching, but it must be used with purpose to be effective. Students in *Vmath* have access to robust digital resources designed to enrich instruction, extend learning, and engage students in and out of the classroom.

Take a look at how technology enhances the *Vmath* experience wherever and whenever students need it.

► Log in to the *Vmath* Student Center

Username and password: Level D Student

Username: **danielss105**

Password: **chiefstreet0**



The screenshot shows the Vmath login interface. On the left, there is a login form with the Vmath logo at the top. Below the logo are two input fields: the first contains the username 'danielss105' and the second contains a masked password represented by ten dots. Below the password field is a link that says 'Forgot Username or Password?'. At the bottom of the form is a blue 'LOGIN' button. On the right side of the login area, there is a 'System Requirements' section with the text 'If you do not have a green check, click to review requirements.' Below this is a 'System Check' button with a red 'X' icon. Further down is a 'Customer Support' section with two options: 'Call (800)-547-6747 between 8:30 am - 5:30 pm (CST)' and 'Email our support team'.

► Student Center Overview

The Student Center is the landing page from which students can access all digital materials and resources used in *Vmath* including:

1. Student Assignments
2. eBooks
3. *VmathLive*
4. Gizmos



► *VmathLive* Technology

What is *VmathLive*?

VmathLive is an online, independent-learning component that helps students apply math skills in a fun, interactive environment available anytime and anywhere on any device.

Accessing *VmathLive*:

From the Student Center:

Click on the *VmathLive* section.

Click on Course Map in the toolbar to review units. Students will gain access to the Go Learn and Go Play components from the homepage.



► *VmathLive* GO LEARN

In *VmathLive's* Go Learn component, students complete module activities in computational practice and problem solving.

Moving from conceptual understanding to application is difficult for students. *VmathLive* provides an opportunity for students to practice and master problem-solving skills.



The screenshot displays the VmathLive user interface. At the top, navigation links include 'My Progress', 'Achievements', 'Course Map', 'Leader Board', 'VmathLive', and 'Logout'. The main content area is titled 'MODULE 4: Whole Number Multiplication' and features a progress bar with numbers 2 through 13. A 'GAMES' section shows '1 Play Tokens' and '0 Weekly Points'. The 'Current Activity' is '1. Groups of Five', with a 'Start Here' callout and a 'Go Learn' button highlighted by a black mouse cursor. Below this, there is a 'RECENT ACHIEVEMENT' section with a '1st Place' badge and a 'Student' profile. A 'TIME' graph on the right shows a 'Goal' line and data points for '3 hrs ago', '2 hrs ago', 'Last week', and 'This week'.

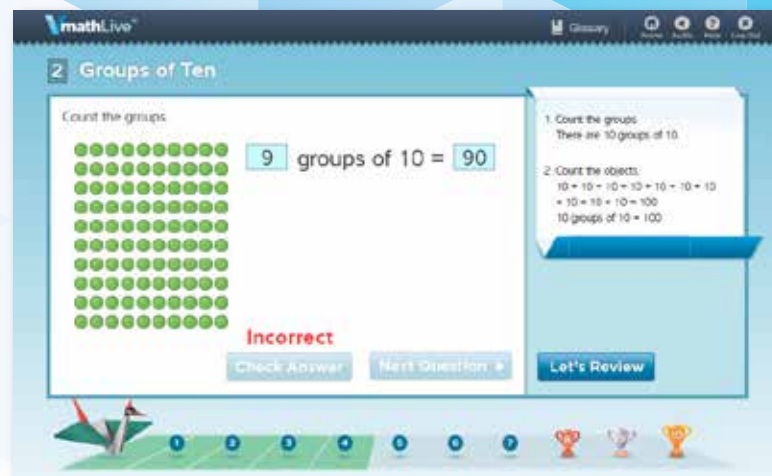
► *VmathLive* SCAFFOLDED INSTRUCTION

VmathLive offers several levels of scaffolded support for students as they work in Go Learn.

VmathLive promotes accuracy and fluency by encouraging students to think about their answer choices. If students get stuck, they can access a hint to see the problem unfold. If students continue to struggle, they have access to “Let’s Review,” a short video providing guided instruction on a related problem.

Note for Spanish-Speaking Students:

Let’s Review videos are available in Spanish and English.



Students get immediate corrective feedback.



Let’s Review video provides additional instruction.

► *VmathLive* Design: GO PLAY COMPETITION COMPONENT

Go Play provides students an opportunity to practice their fluency and mental math skills in one-minute competition games.

Fluency and accuracy of mathematical skills are critical for student success in math. Using a fun, interactive, and safe platform, students can practice these skills and engage in competitive play. Games range in topics from operations of whole numbers to order of operations. Students can play against the computer, a friend also enrolled in *VmathLive*, or in a game with others as assigned by *VmathLive*.



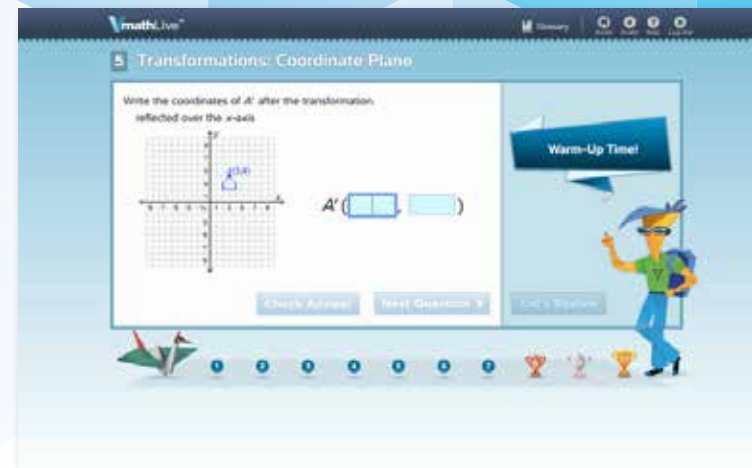
► *VmathLive* Design: ANIMATED GLOSSARY

The Animated Glossary is embedded in the Go Learn components and contains approximately 400 common math vocabulary terms and definitions. Students can select a term from the alphabetical list or type it into the search function.

The language of math is often challenging and confusing. *VmathLive's* Animated Glossary allows students to hear the pronunciation and definition of a term while watching an animated representation of the term.

Note for Spanish-Speaking Students:

Animated Glossary allows students to view written and hear audio definitions of terms in Spanish.



Link to the Animated Glossary in the toolbar of the Go Play component.



Search by name of term or from the alphabetized list of terms.

► *VmathLive* Support Tools: ENGAGEMENT FEATURES

What are the Student Engagement features?

From the *VmathLive* homepage, students have a variety of ways to stay motivated and engaged.

Avatars: Students earn an avatar when they achieve mastery in a module. *VmathLive* avatars are origami creatures students can decorate and personalize using tokens they have earned. Each avatar includes instructions about building the avatar on their own with paper.

My Progress: This page details how the student is doing in the program for both the Go Learn and Go Play components.

Achievements: This page contains every accomplishment a student has achieved—trophies and badges earned, certificates awarded, and avatars collected.

Leaderboard: This board allows students to see their rank in their school, districts, and nationally.



My Progress page shows current and past activity.



See all trophies and awards in Achievements.

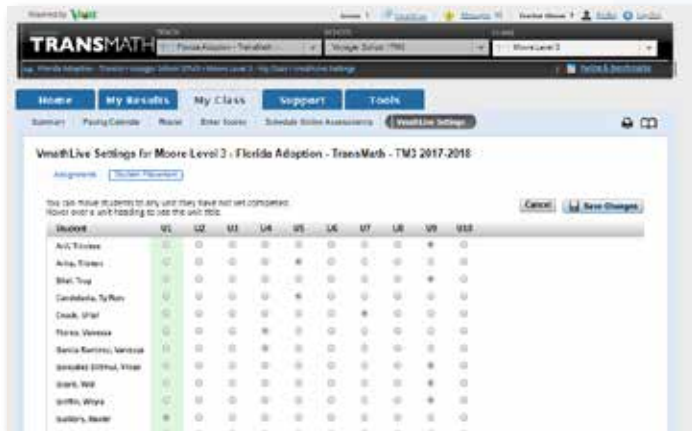


All avatars can be customized by students.

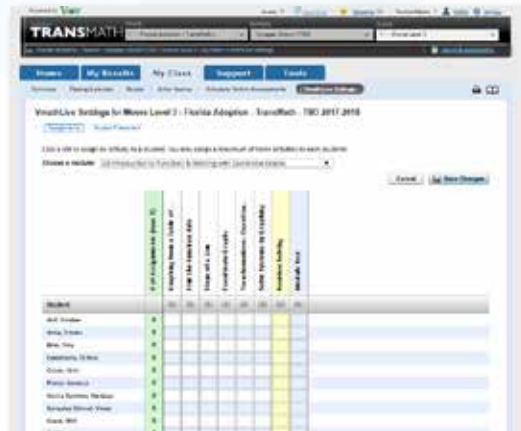
► *VmathLive* Support Tools: DIFFERENTIATION CAPABILITIES

How can *VmathLive* be used as a differentiation tool?

Teachers can place students in specific modules of instruction to reinforce or extend learning. Teachers also can assign specific activities within a unit.



Choosing which module a student needs.



Assigning specific activities is easy.



Students must complete assignments before having full access.

► Gizmos

Gizmos are a series of online manipulatives that correspond to the Gizmo lessons.

Return to the student center, select the Gizmo box, and then choose a Gizmo from the menu.

Accessing Gizmos:

From the Student Center:

Click on the Gizmo section.

Click on any Gizmo to explore the interaction and mathematical simulations.





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