



Third Edition
TRANSMATH[®]
REVIEWER GUIDE

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► Watch the *TransMath* Overview Video

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



Third Edition
TRANSMATH[®]
Welcome, Florida Math Adoption Reviewers!

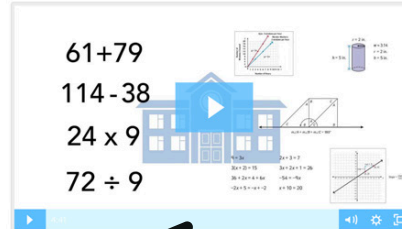
TransMath[®] is a unique pre-algebra program. Traditional core pre-algebra programs are built with algebra readiness as the goal. However, many students struggle to be successful in these courses due to a lack of foundational skills. *TransMath* shares the goal of algebra readiness but is designed with a specific emphasis on conceptual understanding for struggling math students (in Florida, Levels 1 and 2). With its unique dual-topic instructional approach and assortment of differentiation tools, *TransMath* delivers rigorous, standards-based instruction to prepare students for success in algebra while also providing the foundational skill instruction needed to fill gaps in knowledge. *TransMath* is an intensive core with the instructional supports to get students back on track with their peers and ready for algebra success.



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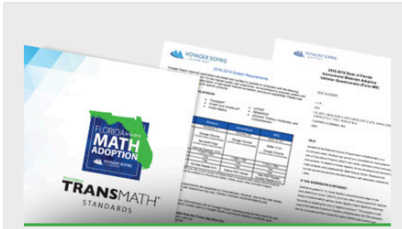
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OVERVIEW VIDEO

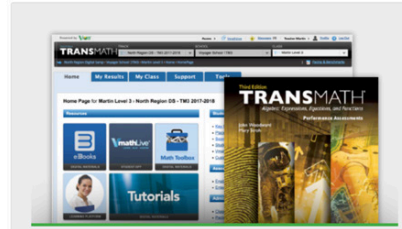
Click on the overview video to get an introduction to the program before beginning your exploration.



MAFS ALIGNMENT & OTHER RESOURCES

We have provided the following resources online to support your review of the materials.

[Alignment to MAFS](#) • [Publisher Questionnaire](#)
[UDL Questionnaire](#) • [System Requirements](#)
[Bid Details](#)



EXPLORE TRANSMATH

Please have your Reviewer Guide available to login and effectively navigate through the digital materials and begin with the Teacher Experience.

[ENTER THE STUDENT CENTER](#)

[ENTER THE TEACHER CENTER](#)

► Review the Standards Alignment Document

TransMath[®] aligns to all the standards for the M/J Pre-Algebra #12005070 course and includes the prerequisite skills required to master these standards.

1. **Download this document** to view a complete list of MAFS and course standards covered in *TransMath*.
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.



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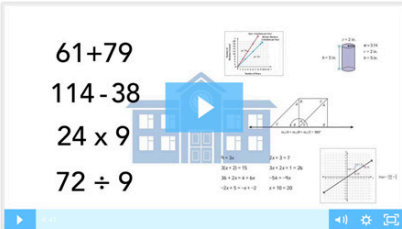
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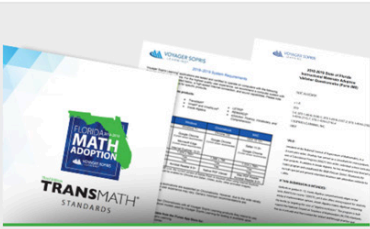
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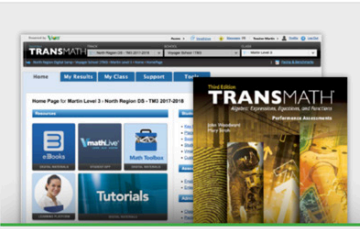
Please watch this brief overview video to get an introduction to *TransMath* before beginning your exploration.



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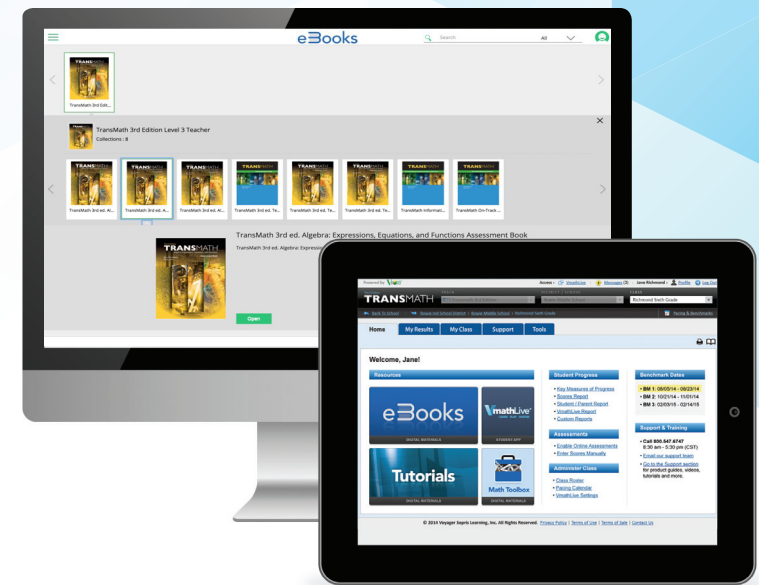
[ENTER THE TEACHER CENTER](#)

► *TransMath* Materials and Technology

This Reviewer Guide was created for Florida to explore and review all *TransMath* components in a digital format. Outside of this guide, *TransMath* is available as a blend of print materials and engaging technology.

TEACHER MATERIALS

Teacher Guides (Two-volume set)
VPORT® Online Data Management System
Online Resources
Access to *VmathLive*



STUDENT MATERIALS

Student Textbook
Student Interactive Text
Access to *VmathLive*



► Log in to the *TransMath* Teacher Center

1. **Click Enter the Teacher Center** from the Adoption Review site to begin.

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 *TransMath* Teacher Center website.

Username: **MooreT480**

Password: **StillApple1**

Back to Voyager Sopris home page

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- High-speed Internet connection
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- Call 1.800.547.6747 between the hours of 8:30 AM - 6:30 PM Central.
- Email our support team

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FLORIDA 2018-2019 MATH ADOPTION
VOYAGER SOPRIS LEARNING

Third Edition
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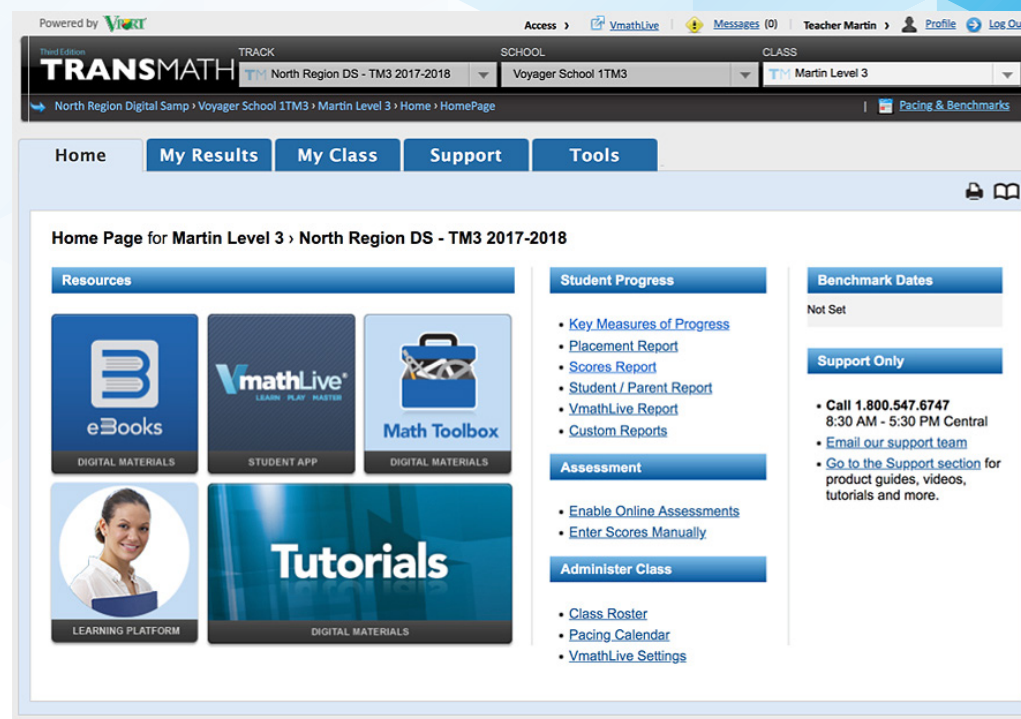
EXPLORE TRANSMATH

Please have your Reviewer Guide available to login and effectively navigate through the digital materials and begin with the Teacher Experience.

► Teacher Center Overview

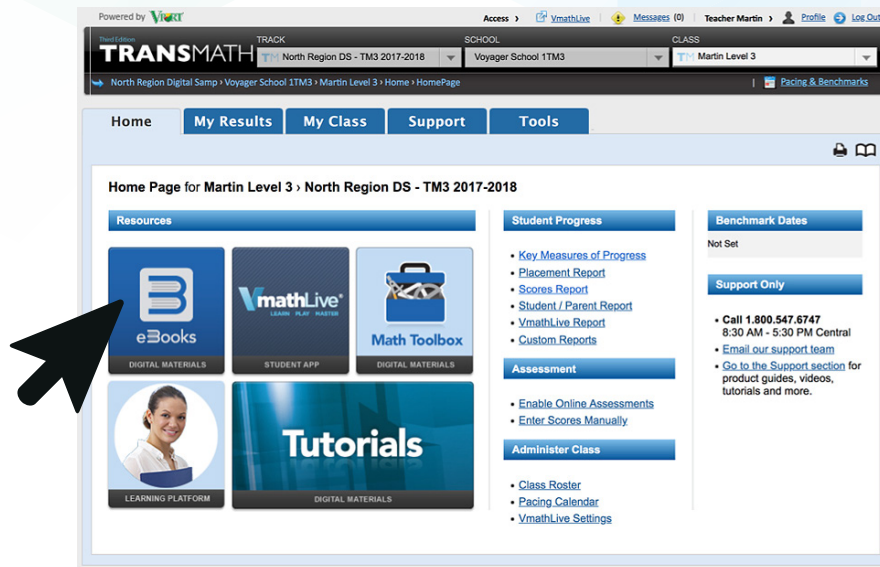
The Teacher Center is the landing page from which teachers can access all digital materials and resources used in *TransMath* including:

1. **eBooks:** Includes digital versions of the print and digital-only books
2. **VmathLive:** Provides a teacher view of the student technology
3. **Math Toolbox:** Contains all digital manipulatives used in instruction
4. **Learning Platform:** Includes online training and ongoing support tools
5. **Tutorials:** Contains all Teacher Talk Tutorials and Click-Thrus
6. **Student Progress:** Links to specific reports and data

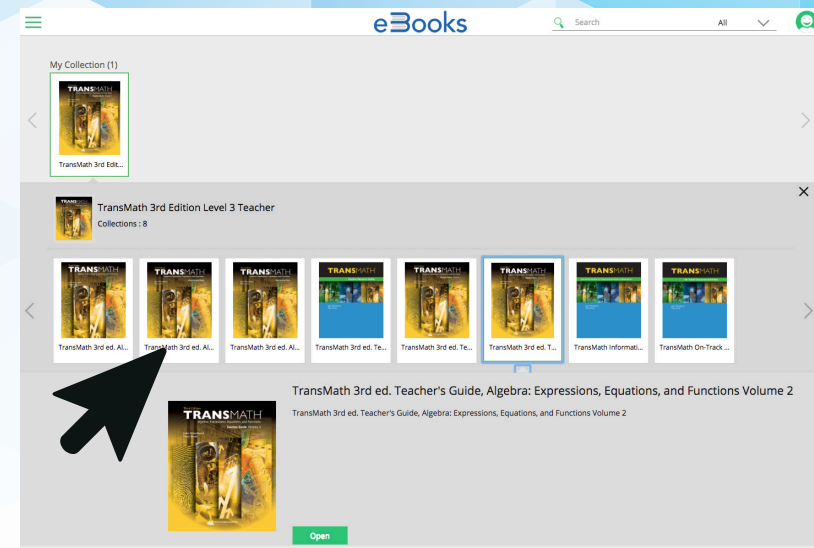


NOTE: More detailed information for each section will be covered throughout of the Review Guide.

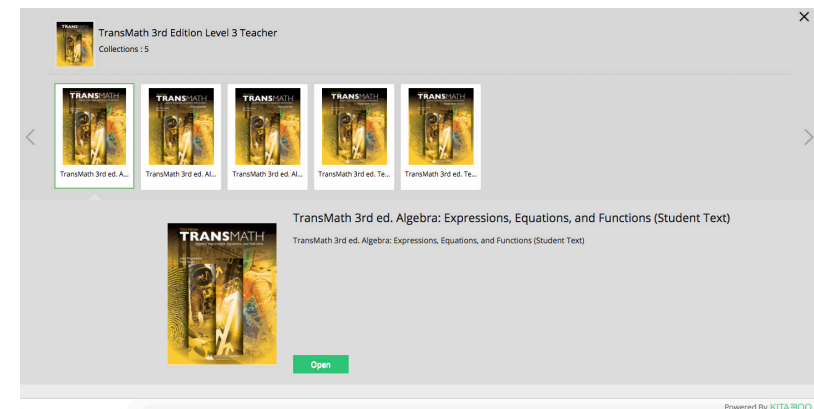
► Access the Teacher Guide eBooks



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



2. **Select the second book** called *Florida TransMath 3rd ed. Teacher's Guide, Algebra: Expressions, Equations, and Functions Volume 2*. Depending on your screen, you may need to click the right scroll arrow to view all books.
3. **Click the green Open button** to enter. The eBook has fully loaded once the toolbar appears across the top.



Instruction & Pedagogy

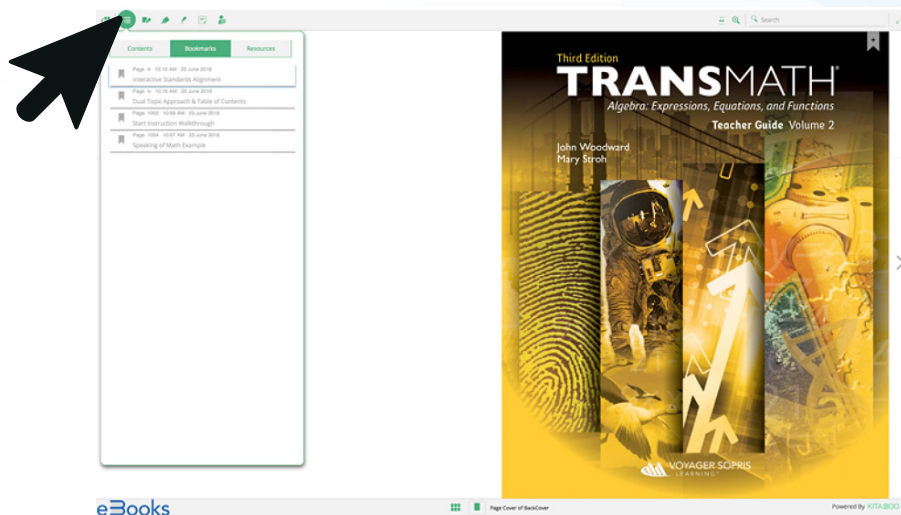
Let's take a look at *TransMath*'s unique instruction, pedagogy, and the supportive tools and resources that make it easy for teachers to implement and effective for students becoming algebra ready.

THIS SECTION ADDRESSES:

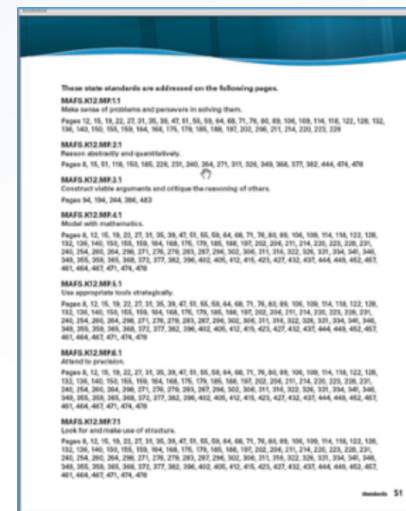
- Interactive Standards Alignment
- The Dual-Topic Approach
- Planning & Preparation
- Instructional Design

► Review Interactive Standards Alignment

Explore how *TransMath* aligns to the **MAFS** and course standards. The Interactive Standards Alignment tool provides an easy way for teachers to search and review the standards inside the instruction.



1. **Click the Contents icon** in the toolbar on top.
Click Bookmarks.
Click Interactive Standards Alignment.



2. The Interactive Standards Alignment tool **links directly to the point of instruction** where a standard is taught.

► Review Interactive Standards Alignment EXPRESSIONS & EQUATIONS

Please review a few examples of how *TransMath* covers standards related to **Expressions and Equations**, one component of the major work of grade 8.

➡ **Click the code** in the Interactive Standards Alignment (in the correct Teacher Volume) to see the lesson.

Lesson 1 ► Thinking About Algebraic Equations
Problem Solving:
Introduction to Algebraic Word Problems

Lesson Planner

Skills Maintenance
Solving Equations

Building Number Concepts:
► Thinking About Algebraic Equations

Students learn the importance of looking at algebraic equations carefully before solving them. A slight difference in the equation can result in a much different solution. We introduce four steps to help students think about how to approach solving equations in a systematic way.

Objective
Students will use steps to solve algebraic equations.

Problem Solving:
► Introduction to Algebraic Word Problems

In this lesson, students learn strategies for approaching algebraic word problems. They first review translating words to expressions. They have been practicing this skill with expressions in the Skills Maintenance and Distributed Practice section of the homework for some time now. This practice should help make this part of the problem solving much easier. Next students look at a series of questions that will help them understand the problems they are solving.

Objective
Students will use translations and basic questions to guide them in solving algebraic word problems.

Homework
Students tell the difference in each pair of figures, tell the difference in each pair of equations, and solve word problems using algebra. In Distributed Practice, students practice using the order of operations and integer operations and solving one-step equations.

Lesson 1 Skills Maintenance

Name: _____ Date: _____

Skills Maintenance
Solving Equations

Activity 1
Solve the equations using the properties and rules you know. Check the answer when you have finished by substituting the value for the variable in the original equation.

A. $x + 1 = 15$
Solve: $x + 1 = 15$
Subtract 1 from both sides: $x + 1 - 1 = 15 - 1$
 $x = 14$
Check: $14 + 1 = 15$
 $15 = 15$ ✓

B. $w - 3 = -2$
Solve: $w - 3 = -2$
Add 3 to both sides: $w - 3 + 3 = -2 + 3$
 $w = 1$
Check: $1 - 3 = -2$
 $-2 = -2$ ✓

C. $y + 7 = -2$
Solve: $y + 7 = -2$
Subtract 7 from both sides: $y + 7 - 7 = -2 - 7$
 $y = -9$
Check: $-9 + 7 = -2$
 $-2 = -2$ ✓

D. $z - 1 = 12$
Solve: $z - 1 = 12$
Add 1 to both sides: $z - 1 + 1 = 12 + 1$
 $z = 13$
Check: $13 - 1 = 12$
 $12 = 12$ ✓

Skills Maintenance
Analyzing Slopes

Activity 1
Students look at three lines on a coordinate plane and identify the equation that goes with each line, compare pairs of functions and tell which function has the steeper line, and make comparisons of two lines on a graph. In Distributed Practice, students practice solving one- and two-step equations.

862 Unit 8 • Lesson 1

Lesson 9 ► Rate of Change
Problem Solving:
The Advantages of Lines

Lesson Planner

Vocabulary Development
rate of change

Skills Maintenance
Analyzing Slopes

Building Number Concepts:
► Rate of Change

Students learn that we can use our knowledge of slopes to help us solve everyday problems involving rate of change. We look at a situation involving salary, and how the rate of change can help us predict how long it takes to reach a goal.

Objective
Students will solve rate of change problems.

Problem Solving:
► The Advantages of Lines

Students learn that we can get much more information about a function by seeing it as a line on a graph than by evaluating equations. This is because the line shows us many characteristics of the function at once.

Objective
Students will examine the advantages of using lines to make comparisons.

Homework
Students look at three lines on a coordinate graph and identify the equation that goes with each line, compare pairs of functions and tell which function has the steeper line, and make comparisons of two lines on a graph. In Distributed Practice, students practice solving one- and two-step equations.

Lesson 9 Skills Maintenance

Name: _____ Date: _____

Skills Maintenance
Analyzing Slopes

Activity 1
Look at the pairs of functions and think about how their graphs look. Which of the lines is steeper? Circle the correct answer.

1. Line A: $y = 3x$
Line B: $y = 2x$
Which line has the steeper slope? Circle and: A. ☒ B. ☐

2. Line A: $y = -4x$
Line B: $y = -3x$
Which line has the steeper slope? Circle and: A. ☒ B. ☐

3. Line A: $y = 2x$
Line B: $y = 3x$
Which line has the steeper slope? Circle and: A. ☐ B. ☒

Activity 2
Put each equation on the line shown in a coordinate graph. Circle the correct answer.

1. Where is the line $y = 2x$?
Circle and: Quadrants I & II or Quadrants I & III

2. Where is the line $y = -3x$?
Circle and: Quadrants II & III or Quadrants I & II

3. Where is the line $y = -4x$?
Circle and: Quadrants II & III or Quadrants I & II

Skills Maintenance
Analyzing Slopes

Activity 1
Students tell which line is steeper by looking at the equations of two functions.

Activity 2
Students tell which quadrants contain the line for each of the functions described.

1078 Unit 9 • Lesson 9

Lesson 5 ► Properties of Irrational Numbers
Monitoring Progress:
Quiz 1

Lesson Planner

Vocabulary Development
perfect square numbers
irrational numbers

Skills Maintenance
Finding Square Roots

Building Number Concepts:
► Properties of Irrational Numbers

We start the lesson by looking at different rational numbers. We look at decimal numbers, fractions, and integers. In today's lesson, students learn that when we solve square roots, they often result in irrational numbers, or decimal numbers that do not terminate and do not repeat. It is sufficient to round irrational numbers to the nearest tenths or hundredths place when we work with these numbers in everyday situations.

Objective
Students will find irrational numbers by taking the square roots of different numbers.

Monitoring Progress:
► Quiz 1

Distribute the quiz, and remind students that the questions involve material covered over the previous lessons in the unit.

Homework
Students find the square root, tell if the numbers are integers, rational numbers, or irrational, and find the square roots between 20 and 30 and answer questions about them. In Distributed Practice, students create x/y tables for each of the functions shown in graphs.

Lesson 5 Skills Maintenance

Name: _____ Date: _____

Skills Maintenance
Finding Square Roots

Activity 1
Find the square root of each number. Use a calculator to find the square roots of numbers that are not perfect squares. Round to the nearest hundredth. Don't forget to include the negative square roots.

1. 49 square roots: 7 and -7

2. 81 square roots: 9 and -9

3. 100 square roots: 10 and -10

4. 144 square roots: 12 and -12

5. 169 square roots: 13 and -13

6. 225 square roots: 15 and -15

Skills Maintenance
Finding Square Roots

Activity 1
Students evaluate square roots. They should round to the nearest hundredth.

1194 Unit 10 • Lesson 5

MAFS.8.EE.3.7 – page 862

MAFS.8.EE.2.5 – page 1078

MAFS.8.EE.1.2 – page 1194

► Review Interactive Standards Alignment FUNCTIONS

Please review a few examples of how *TransMath* covers standards related to **Functions**, one component of the major work of grade 8.

➡ **Click the code** in the Interactive Standards Alignment (in the correct Teacher Volume) to see the lesson.

Lesson 1 | Introduction to Functions
Problem Solving:
Coordinate Graphs

Lesson Planner

Vocabulary Development

function
coordinate graph
coordinates
coordinate pair
x-axis

y-axis
quadrant
x-coordinate
y-coordinate
origin

Skills Maintenance

Evaluating Algebraic Expressions

Building Number Concepts:

► **Introduction to Functions**

Students learn that functions are systematic relationships between two variables. Students learn about functions through the concepts of input and output. Students begin to see the difference between a function and other kinds of algebraic equations.

Objective

Students will define the functional relationship between input and output.

Problem Solving:

► **Coordinate Graphs**

Students review how to locate a point on a coordinate graph. Students review the signs of the coordinates of points in each quadrant.

Objective

Students will identify the coordinates of points on a coordinate graph.

Homework

Students tell what part of each statement depends on another part of the statement, tell the rule for the function machines, and answer questions about the coordinate graph. In Distributed Practice, students solve one- and two-step equations.

Skills Maintenance

Evaluating Algebraic Expressions
(Interactive Text, page 359)

Activity 1

Students evaluate expressions for the given value of the variable.

1008 Unit 9 • Lesson 1

MAFS.8.F.1.1 – page 1008

Lesson 4 | Problem Solving:
Nonlinear Functions

Lesson Planner

Vocabulary Development

nonlinear function

Skills Maintenance

Using the Pythagorean Theorem

Problem Solving:

► **Nonlinear Functions**

Students learn the difference between linear and nonlinear functions. One key feature of a nonlinear function is that it has an exponent other than 0 or 1 associated with the independent variable. Also the graph of a nonlinear function is not a straight line but rather a curve.

Objective

Students will analyze and graph nonlinear functions.

Homework

Students create x/y tables for linear and nonlinear functions, complete the graphs of nonlinear functions using their knowledge of symmetry, and answer multiple-choice questions about the differences between linear and nonlinear functions. In Distributed Practice, students write an equation for each written description of a function.

Skills Maintenance

Using the Pythagorean Theorem
(Interactive Text, page 432)

Activity 1

Students apply the Pythagorean Theorem to find the length of the missing side. Students use calculators for this activity.

1187 Unit 10 • Lesson 4

MAFS.8.F.1.3 – page 1187

► Review Interactive Standards Alignment TWO- & THREE-DIMENSIONAL SPACE

Please review a few examples of how *TransMath* covers standards related to **Two- and Three-Dimensional Space**, one component of the major work of grade 8.

➡ **Click the code** in the Interactive Standards Alignment (in the correct Teacher Volume) to see the lesson.

Lesson 1
The Pythagorean Theorem

Problem Solving:
► **Concept of Volume**

How do we measure what's inside a three-dimensional shape?
(Student Text, pages 456–457)

Build Vocabulary
Have students turn to page 456 of the Student Text. Remind students of important vocabulary introduced in the last unit. Be sure students understand this vocabulary because it is critical to moving forward in the discussion of **volume**. Remind students that we worked with surface area of three-dimensional shapes. Introduce the term **volume** as the measurement of the inside of a three-dimensional shape.

Demonstrate

- Read the material on the page, and discuss the common objects shown: the coffee cup and the bottle of juice. The measurement of the coffee cup and what is in the coffee cup are the volume. The measurement of the bottle of juice and its contents are the volume.
- Be sure students see the distinction between this and the surface area, or the measurement of the outside of the shapes, which we describe as the skin or the wrapping.

456 Unit 6 • Lesson 1 651

MAFS.8.G.3.9 – page 651

Lesson 1
The Pythagorean Theorem

Lesson Planner

Vocabulary Development
Pythagorean Theorem
hypotenuse
legs

Skills Maintenance
Substitution

Building Number Concepts:
► **The Pythagorean Theorem**

Students read about the relationship between squares, rectangles, and triangles to understand the Pythagorean Theorem. They learn that the Pythagorean Theorem is a proven strategy for finding the missing length of a side of a right triangle. The formula is $a^2 + b^2 = c^2$, where a and b are the lengths of the legs of the triangle, and c is the length of the side opposite the 90-degree angle, or the hypotenuse.

Objective
Students will analyze the relationship between the lengths of the sides of a right triangle using the Pythagorean Theorem.

Homework
Students find the areas of a square and triangle, tell if statements are true or false about properties of shapes and change the wording of false statements to make them true, and prove the Pythagorean Theorem works for the two triangles. In Distributed Practice, students practice creating x/y tables to represent functions.

1158 Unit 10 • Lesson 1

MAFS.8.G.2.6 – page 1158

► Review Interactive Standards Alignment MATHEMATICAL PRACTICES

Please review a few examples of how *TransMath* covers standards in a variety of ways related to **Mathematical Practices**.

➡ **Click the code** in the Interactive Standards Alignment (in the correct Teacher Volume) to see the lesson.

USE TOOLS STRATEGICALLY

Lesson 4

Here is the original equation. Notice that $x - 2 = 1$ is the same as $x + (-2) = 1$. Both subtractions are changed into additions.

$$x - 2 = 1$$

$$x + (-2) = 1$$

We substitute 3 for x .

$$3 - 2 = 1$$

The equation stays balanced. The answer is correct.

Let's take a look at how we would solve these types of problems without algebra tiles.

Example 1

Solve $x + 8 = 17$ and $x - 8 = 17$ without using algebra tiles.

To get rid of the 8, we need to cancel out the 8 on the left side. We need to add -8 to cancel out the 8. The answer will also need to add -8 to the right side. Remember, we need to keep the equation balanced.

$$x + 8 = 17$$

$$x + 8 - 8 = 17 - 8$$

$$x = 9$$

We find that $x = 9$.

To check the answer, we substitute 9 into our original equation.

$$9 + 8 = 17$$

$$17 = 17$$

The equation stays balanced. The answer is correct.

554 Unit 7 • Lesson 4 783

Demonstrate

- Walk through the steps to check the answer to Example 2 on page 554. We do this by substituting the value for x back into the original equation. Point out to students that the original equation $x - 2 = 1$ is the same as $x + -2 = 1$, so we can substitute the value of x in either one of those equations to check the answer. Because the answer is $x = 3$, we substitute 3 in the equation, $3 + -2 = 1$, and simplify. The statement $1 = 1$ is a true statement. The equation stays balanced and our answer is correct.
- Next have students look at **Example 3**. In this example, we will demonstrate how to solve these types of problems *without* algebra tiles. Start with the equation $x + 8 = 17$. Explain that to get x by itself, we must add -8 to both sides. Point out to students how this is done horizontally when we do this with numbers instead of algebra tiles. We write $+ -8$ right next to the 8 on the left side of the equation and next to the 17 on the right side of the equation. We find that $x = 9$.
- Again, we can check this answer by substituting 9 into the original equation: $9 + 8 = 17$. The statement $17 = 17$ is a true statement. The equation stays balanced and our answer is correct.

MAFS.K12.MP.5 – page 783

MAKE SENSE OF STRUCTURE

Lesson 6 Problem Solving Activity

Have students turn to pages 279 and 280 of the *Interactive Text* and complete the activity.

Students are given two different students' strategies for finding the measure of a missing angle between two parallel lines. They are to compare the strategies to determine whether they both yield a correct answer and evaluate the efficiency of their strategies. Monitor students' work as they complete the activity.

Watch for:

- Can students analyze and compare the two methods and see that they both yield a correct answer?
- Can students describe the two strategies?

Problem-Solving Activity
(Interactive Text, pages 279–281)

Have students turn to pages 279 and 280 of the *Interactive Text* and complete the activity.

Students are given two different students' strategies for finding the measure of a missing angle between two parallel lines. They are to compare the strategies to determine whether they both yield a correct answer and evaluate the efficiency of their strategies. Monitor students' work as they complete the activity.

279 Unit 7 • Lesson 6 807

MAFS.K12.MP.7 – page 807

MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM

Lesson 8 Problem Solving: Using Slopes to Analyze Functions

Problem Solving: Using Slopes to Analyze Functions

How do we use slopes to analyze functions?
(Student Text, page 754)

Discuss

Have students turn to page 754 of the *Student Text* and discuss how we can tell a lot about the slope of a line by looking at the graph.

Demonstrate

- Go over **Example 1**. Demonstrate how to look at a graph and see what type of function is associated with it just by looking at the quadrants, the line, and how the line slopes.
- Point out that in this case, the line is in Quadrants II and IV and passes through the origin. That means the slope is negative.
- Of the choices for the equation of the function, there is only one function that has a negative slope. The function $y = -x$ is associated with this graph.

Reinforce Understanding

Remind students that they can review lesson concepts by accessing the online Unit 9 Lesson 8 Problem Solving Teacher Talk Tutorial.

754 Unit 9 • Lesson 8 1075

MAFS.K12.MP.1 – page 1075

► Dual-Topic Approach

What is the Dual-Topic approach?

TransMath[®] utilizes a dual-topic approach divided into two learning components:

Building Number Concepts teaches math concepts and foundational skills in a scaffolded sequence.

Problem Solving engages students in critical thinking to solve multistep problems needed for algebra readiness.

Why is the Dual-Topic approach important?

Dual topics break learning into smaller parts to keep students engaged and reduce risks of cognitive overload. The dual-topic approach allows for more distributed practice wherein students have many opportunities to practice skills and concepts.

The screenshot displays the Table of Contents for Volume 1 of TransMath, Third Edition. It is organized into two main columns, each representing a dual-topic approach. The left column lists units from Fractions and Decimal Numbers to Variables, Ratios and Proportions. The right column lists units from Inequalities, Working with Rates to Algebraic Patterns, Percent. Each unit is further broken down into lessons, with specific topics and page numbers listed. The interface includes a search bar at the top right and navigation icons at the bottom.

Table of Contents • Volume 1		
UNIT 1	FRACTIONS AND DECIMAL NUMBERS	STATISTICS
1	Overview	1
2	Lessons Objectives	2
Lesson 1	Building Number Concepts	Problem Solving
1	Fair Shares and Operations on Fractions	Organizing Data
2	Equivalent Fractions	Mean Statistics
3	Multiplying Fractions	Mean Absolute Deviation
4	Adding and Subtracting Fractions	Mean Absolute Deviation
5	Dividing Fractions	Box and Whisker Plots
6	Mean Fractions with Fractions	Box and Whisker Plots
7	Decimal Numbers	Box and Whisker Plots
8	Working with Decimal Numbers	Box and Whisker Plots
9	Adding and Subtracting Decimal Numbers	Box and Whisker Plots
10	Comparing Decimal Numbers	Box and Whisker Plots
11	Multiplication of Decimal Numbers	Box and Whisker Plots
12	Traditional Multiplication of Decimal Numbers and Number Sense	Box and Whisker Plots
13	Division of Decimal Numbers	Box and Whisker Plots
14	The Traditional Method for Dividing Decimal Numbers	Box and Whisker Plots
15	Unit Review	Box and Whisker Plots
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2	Lessons Objectives	163
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1	Understanding Variables	Problem Solving
2	Patterns with More Than One Variable	Problem Solving
3	Substitution	Problem Solving
4	More Substitutions	Problem Solving
5	Numbers and Algebraic Equations	Problem Solving
6	Thinking About Proportions in a Different Way	Problem Solving
7	Using Variables in Formulas	Problem Solving
8	Figuring Out the Formula	Problem Solving
9	Translating Word Statements into Algebraic Statements	Problem Solving
10	Translating Algebraic Statements into Word Statements	Problem Solving
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13	Unit Review	Problem Solving
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4	Inequality Statements	Problem Solving
5	Multiplication and Division in Inequalities	Problem Solving
6	Compound Inequalities	Problem Solving
7	Showing Data of Numbers on a Number Line	Problem Solving
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2	Lessons Objectives	421
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2	Interpreting Percentages in Proportions	Problem Solving
3	Complex Patterns	Problem Solving
4	Algebraic Patterns and the 100-Square Grid	Problem Solving
5	Patterns in Tessellations	Problem Solving
6	Patterns in Tessellations	Problem Solving
7	More Complicated Tables	Problem Solving
8	Patterns and Types of Numbers	Problem Solving
9	More Number Patterns	Problem Solving
10	Unit Review	Problem Solving

From the Table of Contents, review the dual topics covered in each unit of instruction.

► Dual-Topic Approach

BUILDING NUMBER CONCEPTS TOPIC

What is the Building Number Concepts topic?

In the Building Number Concepts topic, teachers direct the majority of the lesson by developing conceptual understanding, demonstrating visual models, and then monitoring students as they apply skills. The topics are designed to reinforce previously learned skills and expand upon students' foundational knowledge.

Why is the Building Number Concepts topic important?

In the Building Number Concepts topic, the instructional method is a more traditional approach. Students must have an advanced knowledge of foundational skills to achieve at grade level, and this portion of the lesson ensures students master those skills before applying them to the learning of new skills and standards.

Building Number Concepts:
► **Algebraic Patterns**

How do variables help us describe algebraic patterns?
(Student Text, pages 295–297)

Connect to Prior Knowledge
Begin by going over the patterns in the Skills Maintenance section students just completed. Go through the patterns one by one, and ask students to describe them using their own words.

Listen for:

- Pattern 1 is counting forward by 2.
- Pattern 2 is counting forward by 3.
- Pattern 3 is counting backward by 5.
- Pattern 4 is counting forward by 5.
- Pattern 5 is counting backward by 100.
- Pattern 6 is counting forward by 2.

Link to Today's Concept
Tell students that in today's lesson, we analyze patterns with different methods. We introduce a way of using algebra to analyze patterns more efficiently.

Demonstrate
Engagement Strategy: Teacher Modeling
Demonstrate how to use variables in an algebraic pattern in the following way:

- Have students turn to page 295 of the Student Text. Explain to them that business travelers usually pay more for tickets because they need the convenience and flexibility of last-minute booking. Vacation travelers usually reserve tickets ahead of time and stick to their plans. These tickets are less costly. In fact, the business traveler generally pays two times what the vacation traveler pays.

Unit 4 • Lesson 1 429

Building Number Concepts:
► **Thinking About Algebraic Equations**

What are the four steps for solving algebraic equations?
(Student Text, pages 603–607)

Connect to Prior Knowledge
Begin by going over the Skills Maintenance activity. Ask for volunteers to come up to the board or overhead and demonstrate their strategies for solving these problems.

Link to Today's Concept
Tell students that we move beyond these one-step equations in this unit and solve more complex equations. Explain that the rules and properties are all the same, but we combine more of them within one problem.

Demonstrate
Engagement Strategy: Teacher Modeling
Demonstrate the four steps for solving algebraic equations in the following way:

- Show each step for solving equations while discussing the strategy.

STEP 1

- Tell students that we have to look carefully at the entire equation.
- Explain that although our first instinct is to solve from left to right, it is important to adjust our thinking.

STEP 2

- Point out that there may be differences in the equations that cause us to adjust our strategy.

Unit 8 • Lesson 1 863

Building Number Concepts:
► **Simplifying and Evaluating Algebraic Expressions**

How do we evaluate more complex algebraic expressions?
(Student Text, pages 466–471)

Connect to Prior Knowledge
Remind students that they simplified expressions in Unit 5. Ask students what they remember about like terms.

Listen for:

- Like terms are variable terms and number terms.
- Only like terms can be combined: variables with variables and numbers with numbers.
- It looks like the variable terms and number terms are combined with an expression like $3m$ but the 3 is a coefficient that is part of the variable term.

Write the expression $m + 5 + 2m + -5$ on the board. Have a student come to the board and simplify the expression (3m). Next ask another volunteer to come to the board and evaluate the expression when $m = 2$. Point out we have been working both types of problems independently in the last two units. If necessary, remind students that $3m$ means 3 times m so when we substitute 2 for m , we are finding 3 times 2. The answer is 6.

Link to Today's Concept
Tell students that sometimes algebraic expressions are not in their simplest form when we are asked to evaluate them. Two methods will be introduced for evaluating these types of expressions.

Demonstrate
Engagement Strategy: Teacher Modeling
Demonstrate how to evaluate more complex algebraic expressions in the following way:

- Begin by reviewing how to simplify an algebraic expression using algebra tiles. Remind students that like terms are key to this task. Have students look at **Example 1**, where we simplify the expression $3x + 1 + -2x + -2$. Have students model the problem with tiles at their desks. Walk through the steps for moving like terms together, combining like terms, finding, and canceling out zero pairs, and writing the simplified expression. The simplified expression is $x + -1$.

Unit 6 • Lesson 3 664

► Dual-Topic Approach

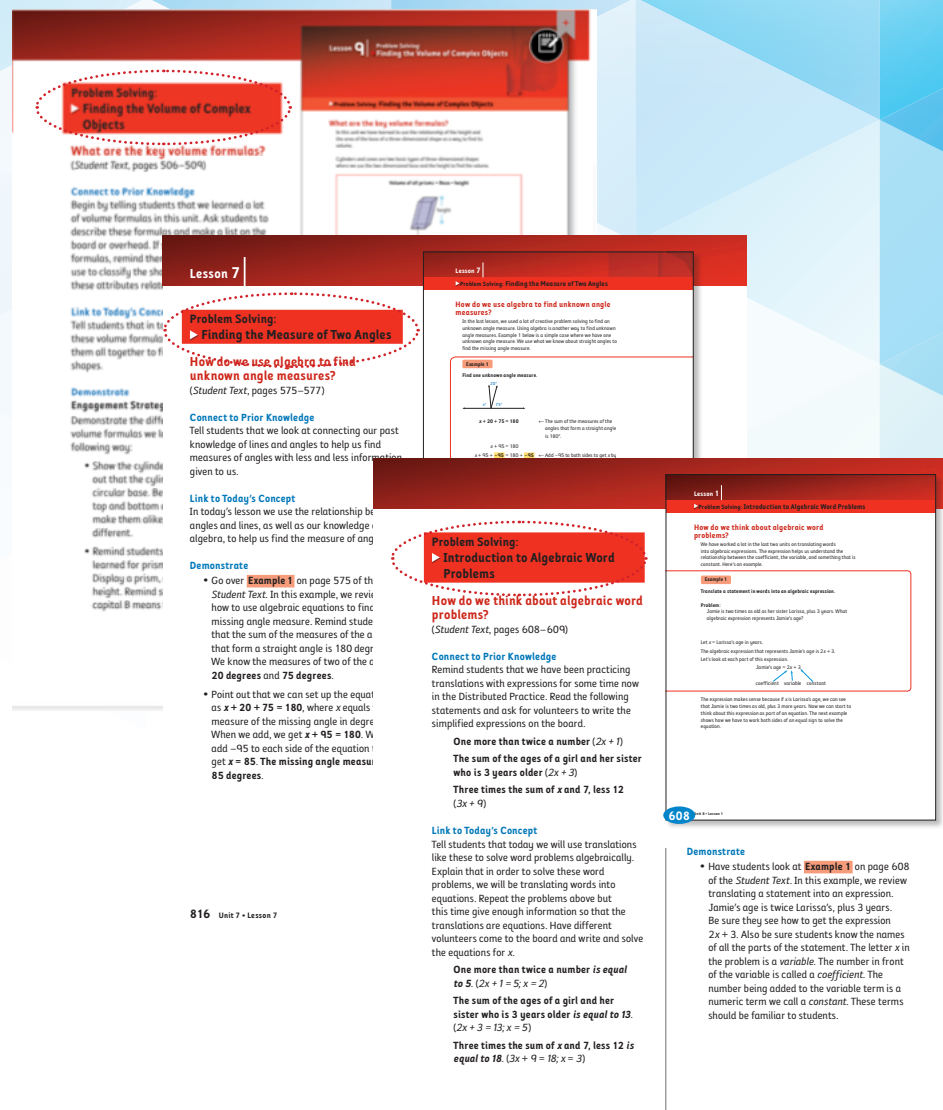
PROBLEM SOLVING TOPIC

What is the Problem Solving topic?

In the Problem Solving topic, teachers take on a more facilitator-like role so students can think and apply problem-solving strategies independently or in small groups. During this portion of the lesson, there is dialogue and collaboration between students learning new skills while teachers monitor progress.

Why is the Problem Solving topic important?

In the Problem Solving topic, there is a definitive change in both instruction and methodology from traditional to more interactive. The interactivity promotes a more enriched learning environment with students discussing multiple solutions, validating answers with reasoning, and applying previously learned skills. In this topic, the more complex college and career-ready standards are achieved—in-depth metacognitive and critical thinking, cooperative problem-solving, adaptive reasoning, and real-world application.



► Dual-Topic Approach

IES: IMPROVING MATHEMATICAL PROBLEM SOLVING GUIDE FOR GRADES 4–8

John Woodward, the author of *TransMath*[®], also served as the chair for the IES Improving Mathematical Problem Solving Guide for grades 4–8. *TransMath* incorporates each problem-solving recommendation into every daily lesson:

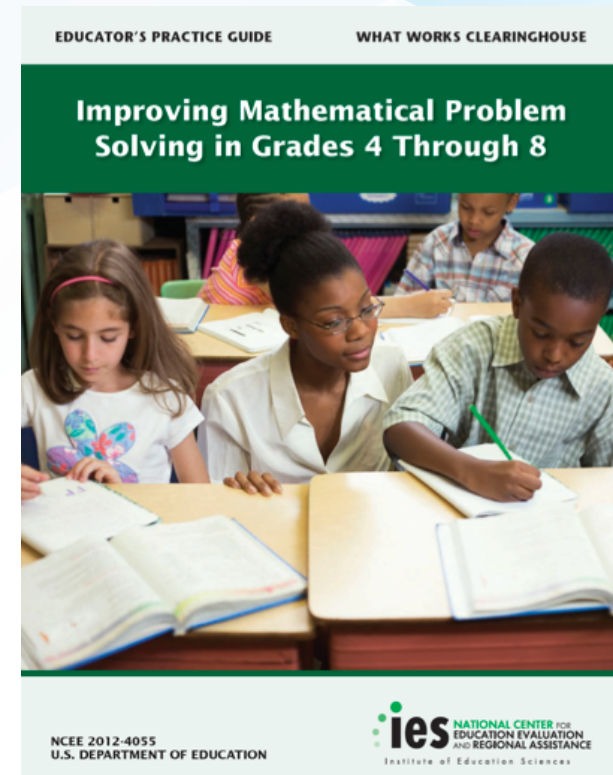
Recommendation 1: Problem-solving activities should be incorporated into daily instruction, not just saved for seatwork or occasional activities.

Recommendation 2: Students should be taught to think through the answers to questions as “What is the question asking me to do?” and “Why did these steps in solving the problem work or not work?”

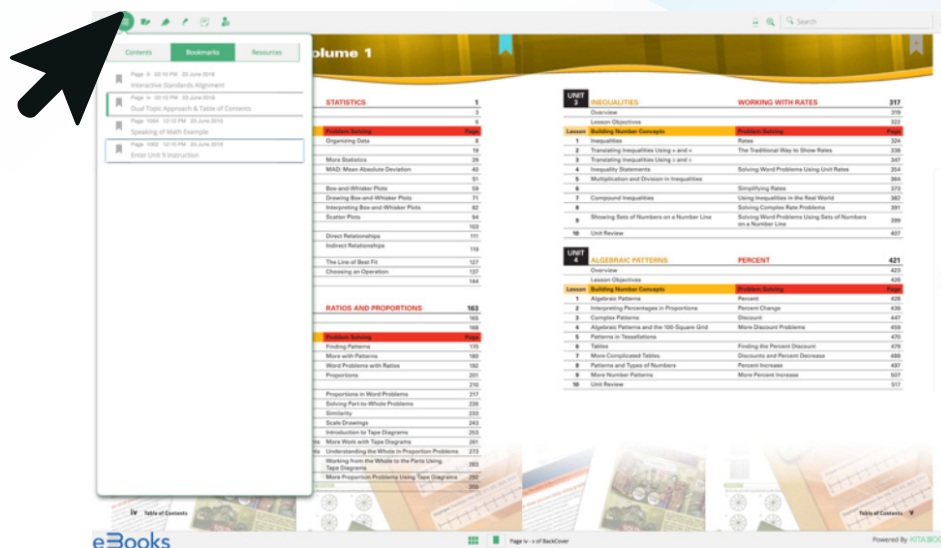
Recommendation 3: Visual representations, such as tables, graphs, and diagrams should be used as a part of the problem-solving solution.

Recommendation 4: While there are multiple strategies in the various content and skills, students sharing, comparing, and discussing strategies to communicate their thinking while listening to others help them become flexible to think about other ways to approach problem solving.

Recommendation 5: The teacher should recognize and articulate mathematical concepts and notation during problem-solving activities so students begin to make connections.



► Access Unit 9 Instruction



1. Enter Unit 9 by clicking Contents from the toolbar.
Click Bookmarks.
Click on Enter Unit 9 Instruction.

2. Unit 9 begins with the **Unit Opener**.

► Planning & Prep

UNIT OPENERS

What are Unit Openers?

Every unit begins with a Unit Opener that links real-life experiences or real-world context—careers, sports, phenomena, etc.—to introduce math skills and promote discussions.

Why are Unit Openers important?

Unit Openers help teachers set the expectations and goals for the class while engaging students with intriguing, age-appropriate subjects that help them relate math to their own life.

Teacher Note (pg. 1002):

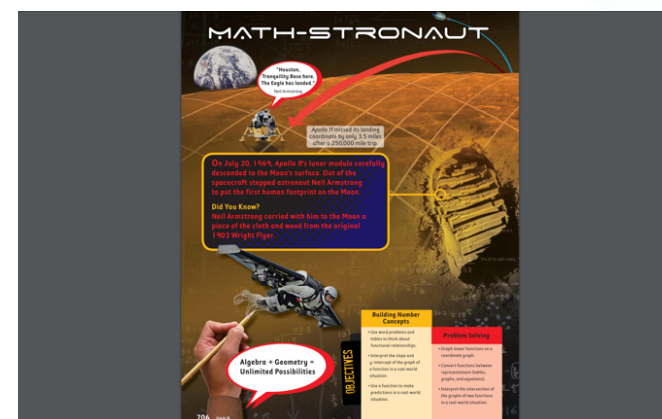
Background information is presented to the teacher as an optional resource to further explore the subject presented.

Student Note (Bottom thumbnail):

The Unit Opener is presented in a highly visual format with introductory information about the subject and how it relates to the *TransMath* unit.



1. On Page 1002, **review the Unit Opener.**
Click on Student Page icon.



2. Student view of Unit Opener.

► Planning & Prep

UNIT & LESSON OBJECTIVES

What are the Unit & Lesson Objectives?

The Unit & Lesson Objectives provide an at-a-glance view of the instructional objectives for each strand with details about how these objectives will be accomplished.

Why are the Unit & Lesson Objectives important?

The objectives pages provide teachers with a “birds-eye view” of the unit to understand the purpose of the dual topics and the steps/materials needed to teach them. In addition, it helps establish the pacing of the unit as a whole and lesson-by-lesson to properly plan.

Note on Unit Objectives (pg. 1003):

Unit vocabulary is listed with a link to the teacher glossary. Teachers have the option of pre-teaching vocabulary to get students acquainted with these terms.

Note on Lesson Objectives (pgs. 1006 and 1007):

Sometimes a lesson concentrates on only one strand of the dual topics in order to provide extended instruction for more complex skills and standards. Along with the instructional objectives of each lesson, an assessment schedule is provided in blue.

Unit 9 Building Number Concepts:
Introduction to Functions
Problem Solving:
Working with Coordinate Graphs

Building Number Concepts:

- Use word problems and tables to think about functional relationships.
- Interpret the slope and y-intercept of the graph of a function in a real-world situation.
- Use a function to make predictions in a real-world situation.

Problem Solving:

- Graph linear functions on a coordinate graph.
- Convert functions between representations (tables, graphs, and equations).
- Interpret the intersection of the graphs of two functions in a real-world situation.

Overview

Students learn about functions when they are introduced to algebra. In some cases, the line between algebra equations and functions can be unclear, especially if functions are presented only through symbols and graphs. This unit uses word problems, tables, and symbols to present an integrated treatment of the topic.

Unit Vocabulary

function
systematic relationship
x/y table
independent variable
dependent variable
slope
run
rise
positive slope
negative slope
rate of change
y-intercept
slope-intercept form

coordinate graph
coordinates
coordinate pair
x-axis
y-axis
quadrant
x-coordinate
y-coordinate
origin
translate
line of symmetry
reflect
linear function
zero slope

Unit 9 • Overview 1003

Unit 9 Lesson Objectives

Building Number Concepts:
Introduction to Functions

Problem Solving:
Working with Coordinate Graphs

Lesson	Lesson Objectives—Students will:	Lesson Objectives—Students will:	Assessment
1	Define the functional relationship between input and output.	Identify the coordinates of points on a coordinate graph.	
2	Put values into function tables to analyze relationships.	Translate shapes on a coordinate graph.	
3	Analyze graphs to describe the relationship between variables.	Reflect shapes on a coordinate graph.	
4	Use tables and graphs to analyze functional relationships in everyday data.		
5	Examine the data in an x/y table.		Quiz 1
6	Write functions based on the relationship between x and y.	Graph functions on coordinate graphs.	
7	Write functions algebraically.	Use the slope to draw lines.	
8	Determine the slope of a line.	Identify the function represented by a graph.	
9	Analyze different kinds of slopes.	Examine the advantages of using lines to make comparisons.	
10	Solve rate of change problems.		Quiz 2
11	Analyze graphs of linear functions that do not go through the origin.	Graph linear equations.	
12	Use the slope-intercept form to draw a function on a coordinate graph.	Use linear functions and algebraic equations to solve problems.	
13	Use algebraic equations to solve word problems.	Find where the graphs of two functions intersect.	
14	Create x/y tables from graphs.	Use functions to figure out the better deal.	
15	Create equations from a graph.	Review Working with Coordinate Graphs concepts.	Unit Review
Unit Assessments	End of Unit Assessment Performance Assessment		End of Unit Assessment Performance Assessment

1006 Unit 9 • Lesson Objectives

Unit 9 • Lesson Objectives 1007

1. Turn to page 1003, for Unit Objectives.

2. Turn to page 1006 and 1007, to view Lesson Objectives.

► Planning & Prep

UNIT OVERVIEWS

What are Unit Overviews?

Unit Overviews provide the background information regarding the skills, rationale, and tools that will help teach the unit.

Why are Unit Overviews important?

Unit Overviews break down the unit into three sections that highlight the what, why, and how of instruction:

Key Questions determine WHAT students need to know.

Enduring Understandings gives the reasoning for WHY students need to know each of the concepts being taught.

Tools for Understanding explains HOW the units help students understand and develop content.

Note the concepts taught in each topic

(pgs. 1004 and 1005):

The Building Number Concepts component of the lesson focuses on why a function is a dependent relationship in the problem solving component, the topics focus on helping students understand what functions look like on a coordinate graph and how functions help model real-world events.

Unit 9 Overview	Problem Solving: Working with Coordinate Graphs
Building Number Concepts: ► Introduction to Functions	
Key Questions That Guide Student Understanding Why is a function a dependency relationship? Enduring Understandings for Introduction to Functions Once students become proficient in their ability to manipulate symbols, they tend to look at early algebra topics in the same way. Consequently, solving an equation like $3x + 20 = 50$ seems much like $y = 3x + 20$. Functions allow students to represent everyday problems in meaningful ways. This unit stresses the dependent nature of functions. Thinking about the relationship between what is on each side of the equal sign as "one depends on the other" helps students see that functions are systematic or predictable relationships. This understanding allows students to create a potentially infinite x/y table based on even the simplest function. Tools for Understanding Introduction to Functions Using Word Problems, Tables, and Graphs Current thought about introducing functions suggests students learn best with an integrated understanding of functions. This means using common contexts for word problems and linking them to tables and graphs as a way of showing functional relationships.	Key Questions That Guide Student Understanding - What do functions look like on a coordinate graph? - How do functions help us model real-world events? Enduring Understandings for Working with Coordinate Graphs Throughout the remainder of secondary mathematics, functions become increasingly complex, and they often appear on coordinate graphs. At this stage, students are able to see the connection between a relatively simple symbolic representation of a function and its appearance as a line. They can apply what they know about components of the slope-intercept form for linear functions ($y = mx + b$) to understand concepts of slope and y-intercept. This understanding allows students to move back and forth between coordinate graphs and symbolic representations of functions without creating tables. Functions on coordinate graphs are also concise ways to understand concepts like rate of change, the intersection of the graphs of two functions, and the comparison of one function to another over time. Tools for Understanding Working with Coordinate Graphs Using Graphs The coordinate graph is the foundation for presenting functions visually. Students can use tables to graph lines and then adjust lines based on changes in slope. Intersections of lines on coordinate graphs help students see when different functions produce the same result.
1004 Unit 9 - Overview	Unit 9 - Overview 1005

1. Turn to page 1004 and 1005, to review the Unit Overviews.

► Planning & Prep LESSON PLANNER

What are Lesson Planners?

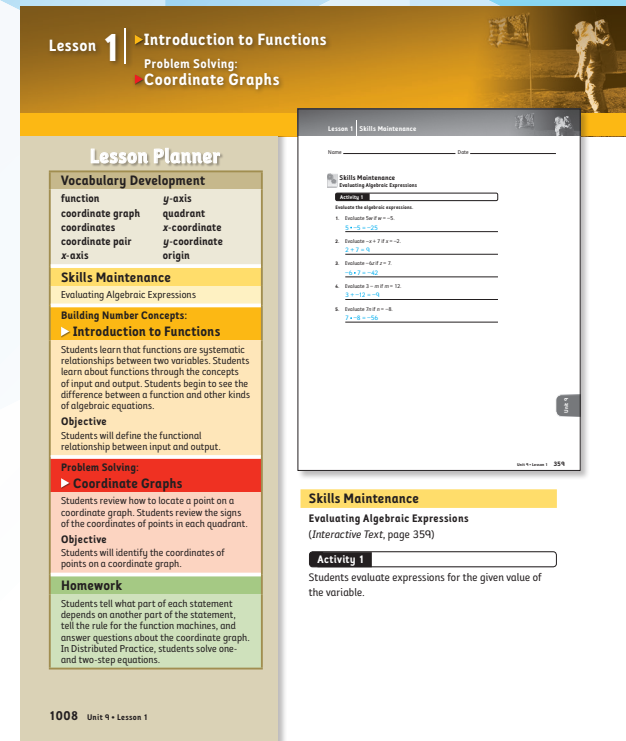
Each lesson begins with a Lesson Planner which includes a summary of the four main sections of instruction: Skills Maintenance, Building Number Concepts lesson, Problem Solving lesson, and Homework.

Why are Lesson Planners important?

By outlining the objectives and instructional imperatives for each section, teachers can best manage class time and expectations.

Note on Lesson Planner (pg. 1008):

The color coding of each main section helps teachers visually organize the four main sections and the transitions between the lesson's instructional components. Notice this color code continues throughout the lesson.



1. **Turn to page 1008,** to view the Lesson Planner.

► Planning & Prep TEACHER TALK TUTORIALS

What are Teacher Talk Tutorials?

Linked at the start of each lesson, Teacher Talk Tutorials are interactive presentations of the initial concept of each lesson.

Why are Teacher Talk Tutorials important?

As a planning tool, the tutorials help teachers by modeling how the concept and skill should be presented in the lesson. These tutorials can also be utilized as an instructional support/model during instruction.

Note on the Teacher Talk Tutorials:

Once you click the icon, the tutorial automatically begins. Scan down to see the controls that allow teachers to move between slides and control the volume (see bottom image).

Lesson 1 Introduction to Functions
Problem Solving: Coordinate Graphs

Lesson Planner

Vocabulary Development

function	g-axis
coordinate graph	quadrant
coordinates	x-coordinate
coordinate pair	y-coordinate
x-axis	origin

Skills Maintenance

Evaluating Algebraic Expressions

Building Number Concepts:

► **Introduction to Functions**

Students learn that functions are systematic relationships between two variables. Students learn about functions through the concepts of input and output. Students begin to see the difference between a function and other kinds of algebraic equations.

Objective

Students will define the functional relationship between input and output.

Problem Solving:

► **Coordinate Graphs**

Students review how to locate a point on a coordinate graph. Students review the signs of the coordinates of points in each quadrant.

Objective

Students will identify the coordinates of points on a coordinate graph.

Homework

Students tell what part of each statement depends on another part of the statement, tell the rule for the function machines, and answer questions about the coordinate graph. In Distributed Practice, students solve one- and two-step equations.

Skills Maintenance

Evaluating Algebraic Expressions
(Interactive Text, page 354)

Activity 1

Students evaluate expressions for the given value of the variable.

Function Machine

Define the functional relationship between the input and the output.

Input	Output
4	20
10	50

2. Teacher Talk Tutorials pop up in a new browser window so teachers can easily return to the eBook.

► Instructional Design

SKILLS MAINTENANCE

What are Skills Maintenance activities?

Every lesson begins with a Skills Maintenance activity, which is a quick five-minute class starter to help students prime their thinking, practice previously taught skills, and reinforce instruction.

Why are Skills Maintenance activities important?

Skills Maintenance activities allow the distribution of practice, reinforcing previously taught skills that might otherwise be forgotten. This routine activity allows students to receive the repeated practice and feedback that they need to solidify foundational skills.

Note on Student Page Thumbnail (pg. 1008):

The student page in the Teacher Guide includes the correct answers for the activity.

The image displays three pages from a TransMath textbook. The left page is the 'Lesson Planner' (pg. 1008) for Lesson 1, 'Introduction to Functions'. It lists various activities including 'Skills Maintenance', 'Building Number Concepts', 'Problem Solving', and 'Homework'. A large black arrow points to the 'Skills Maintenance' section. The middle page is the 'Skills Maintenance' activity page (pg. 1009) titled 'Evaluating Algebraic Expressions'. It includes 'Activity 1' instructions: 'Students evaluate expressions for the given value of the variable.' The right page is the 'What is a Function?' page (pg. 1009). It features a 'What is a Function?' section with a definition and a 'What is a Function?' diagram showing a function machine.

1. **Turn to page 1008**, to view the skills covered in Skills Maintenance.

► Instructional Design CLICK-THRU PRESENTATION

What are Click-Thru presentations?

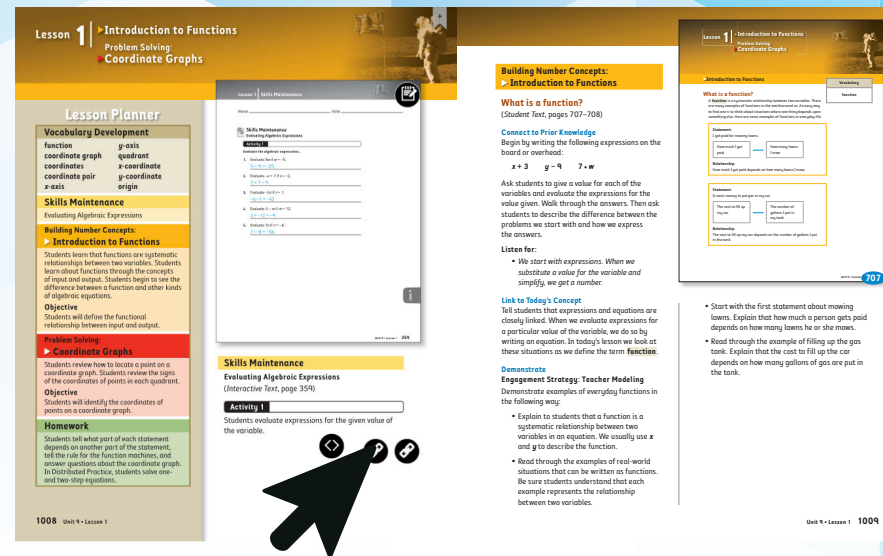
The Click-Thrus are PowerPoint presentations of the lesson. Teachers can download the presentation, customize or add slides, and use to deliver instruction.

Why are Click-Thru presentations important?

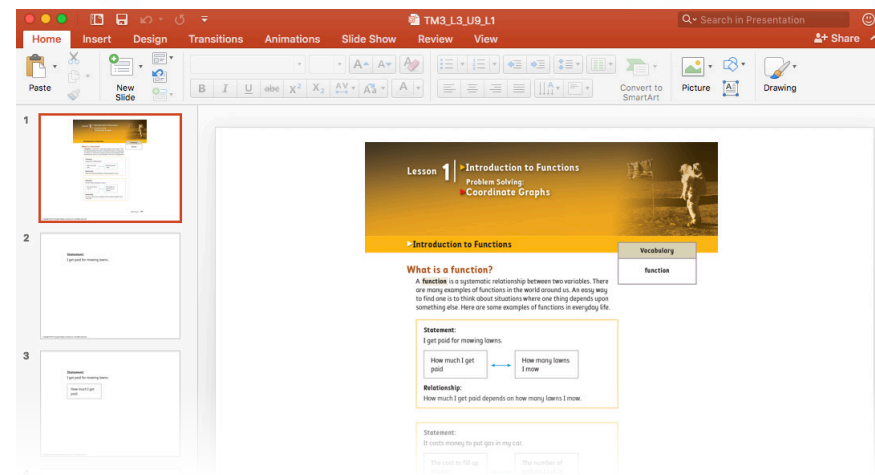
Teachers already are busy. They don't need the burden of creating tools to help teach. *TransMath* includes a Click-Thru presentation for every lesson. Teachers can use the Click-Thru to model, demonstrate, and share the concepts and skills taught in the lesson following the lesson format.

Note on Click-Thru Presentations:

Not only do these presentations support the teacher during instruction, they empower teachers to customize their instructional delivery to suit their needs and the needs of their students. Additional information, images, or practice can all be saved in one location for ease of use.



1. Turn to page 1008 and **click the Introduction to Functions (Click-Thru) icon, to download.**



2. Once downloaded, **teachers can open and edit the file to suit their needs.**

► Instructional Design

BUILDING NUMBER CONCEPTS

What are Building Number Concepts?

Building Number Concepts are the first half of the dual topics. They focus on developing students' knowledge of number concepts and skills through guided practice and visual models and representations.

Why are Building Number Concepts important?

Students who lack foundational or prerequisite skills struggle to meet the expectations and rigor of grade-level MAFS standards. Building Number Concepts reinforce that foundational knowledge for students to achieve grade-level proficiency.

Note on Conceptual Understanding:

Many students know "how" to reach a correct answer by using the right procedure, but they don't have the conceptual understanding to know "why." These students consistently struggle with word problems and writing about math.

1. Turn to pages 1009–1011, for the Building Number Concepts.

Lesson 1 Introduction to Functions
Problem Solving
Coordinate Graphs

Lesson Planner

Vocabulary Development

function	y-axis
coordinate graph	quadrant
coordinates	x-coordinate
coordinate pair	y-coordinate
x-axis	origin

Skills Maintenance
Evaluating Algebraic Expressions

Building Number Concepts
Introduction to Functions

Students learn that functions are systematic relationships between two variables. Students learn about functions through the concepts of input and output. Students begin to see the difference between a function and other kinds of algebraic equations.

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Students will define the functional relationship between input and output.

Problem Solving
Coordinate Graphs

Students review how to locate a point on a coordinate graph. Students review the signs of the coordinates of points in each quadrant.

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Students will identify the coordinates of points on a coordinate graph.

Homework
Students tell what part of each statement depends on another part of the statement. Tell the rule for the function machines, and answer questions about the coordinate graph. In Disrupted Practice, students solve one- and two-step equations.

Building Number Concepts: Introduction to Functions
What is a function?
(Student Text, pages 1007–1008)

Connect to Prior Knowledge
Begin by writing the following expressions on the board or overhead:
 $x + 3$ $g - 9$ $7 \cdot w$

Ask students to give a value for each of the variables and evaluate the expressions for the value given. Walk through the answers. Then ask students to describe the difference between the problems we start with and how we express the answers.

Listen for:

- We start with expressions. When we substitute a value for the variable and simplify, we get a number.

Link to Today's Concept
Tell students that expressions and equations are closely linked. When we evaluate expressions for a particular value of the variable, we do so by writing an equation. In today's lesson we look at these situations as we define the term **function**.

Demonstrate
Engagement Strategy: Teacher Modeling
Demonstrate examples of everyday functions in the following way:

- Explain to students that a function is a systematic relationship between two variables in an equation. We usually use x and y to describe the function.
- Read through the examples of real-world situations that can be written as functions. Be sure students understand that each example represents the relationship between two variables.

Unit 9 • Lesson 1 1009

Lesson 1 Introduction to Functions
Problem Solving
Coordinate Graphs

Lesson Planner

Vocabulary Development

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coordinate graph	quadrant
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coordinate pair	y-coordinate
x-axis	origin

Skills Maintenance
Evaluating Algebraic Expressions

Building Number Concepts
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- Read through the examples of real-world situations that can be written as functions. Be sure students understand that each example represents the relationship between two variables.

Unit 9 • Lesson 1 1010

► Instructional Design PROBLEM SOLVING LESSONS

What are Problem Solving lessons?

Problem Solving lessons are the second half of the dual topics. They focus on introducing new skills and standards with a greater emphasis on collaborative and small-group work.

Why are Problem Solving lessons important?

Students must be proficient in grade-level standards and prerequisite skills to be ready for success in algebra. Problem Solving lessons help make that connection and allow students to apply the key foundational skills they have learned to more rigorous, grade-level activities.

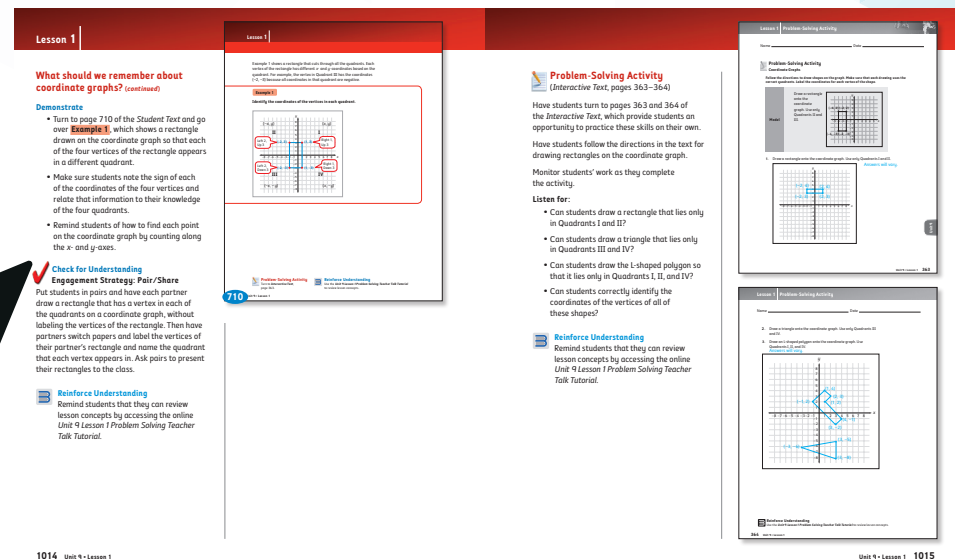
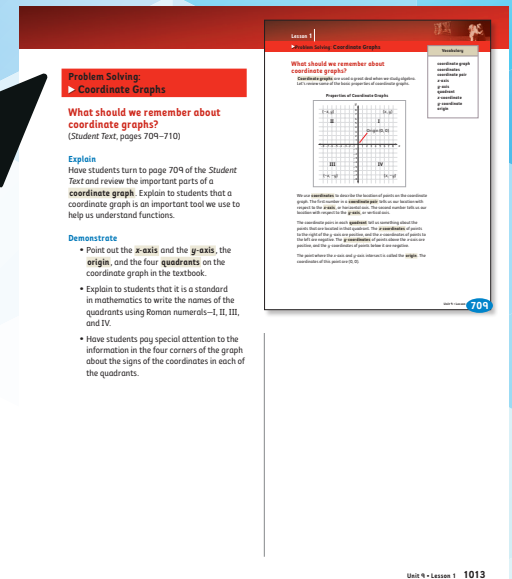
Note on Students:

After the teacher models the new skill, students are given more opportunities to work together. In this Problem Solving lesson, students interact in pairs with an engaging activity.

Note on Teachers:

As students work in pairs, teachers have the freedom to monitor instruction and check students' understanding. In addition, notice the links for the Teacher Talk Tutorials and Click-Thrus for the Problem Solving lesson on page 1013.

1. Turn to pages 1013–1015, to view a full Problem Solving lesson.



2. Turn to page 1014, to view the Pair/Share Engagement Strategy.

► Instructional Design

CONSISTENT FORMAT & DELIVERY

What is the Consistent Format & Delivery?

TransMath instruction is designed to be consistent to create an instructional routine and familiar structure for both teachers and students.

Why is the Consistent Format & Delivery important?

Introducing new instructional methods and teacher prompts can distract students from learning. The consistent format and delivery of *TransMath* allows teachers and students to avoid unnecessary distractions and focus on what is important—instruction.

Note on Consistent Format (pg. 1009):

Titles highlighted in blue—demonstrate, explain, reinforce understanding—are repeated across all levels and provide a dependable format that promotes the ease of use for teachers.

Note on Consistent Delivery (pgs. 1009–1015):

Teacher Guides contain softly scripted language that guides teachers through the instructional delivery and allows room for flexibility and differentiation.

1. Turn to page 1009, **to see examples of consistent format.**

Building Number Concepts: Introduction to Functions
(Student Text, pages 707–708)

What is a function?
(Student Text, pages 707–708)

Connect to Prior Knowledge
Begin by writing the following expressions on the board or overhead:

$$x + 3 \quad y - 4 \quad 7 \cdot w$$

Ask students to give a value for each of the variables and evaluate the expressions for the value given. Walk through the answers. Then ask students to describe the difference between the problems we start with and how we express the answers.

Listen for:

- We start with expressions. When we substitute a value for the variable and simplify, we get a number.

Link to Today's Concept
Tell students that expressions and equations are closely linked. When we evaluate expressions for a particular value of the variable, we do so by writing an equation. In today's lesson we look at these situations as we define the term **function**.

Demonstrate
Engagement Strategy: Teacher Modeling

What is a function?
A **function** is a special relationship between two variables. There is only one output for every input. We can think of a function as a machine that takes an input and gives us an output. We can write a function as $f(x)$ or $y = f(x)$.

What is a function?
A **function** is a special relationship between two variables. There is only one output for every input. We can think of a function as a machine that takes an input and gives us an output. We can write a function as $f(x)$ or $y = f(x)$.

What should we remember about coordinate graphs?
(Student Text, pages 709–710)

Explain
Have students turn to page 709 of the Student Text and review the important parts of a **coordinate graph**. Explain to students that a coordinate graph is an important tool we use to help us understand functions.

Demonstrate

- Point out the **x-axis** and the **y-axis**, the **origin**, and the four **quadrants** on the coordinate graph in the textbook.
- Explain to students that it is a standard in mathematics to write the names of the quadrants using Roman numerals—I, II, III, and IV.
- Have students pay special attention to the information in the four corners of the graph about the signs of the coordinates in each of the quadrants.

2. On pages 1009 and 1013, **notice the differences in softly scripted dialogue between reinforcing a learned skill and introducing a new skill.**

► Instructional Design

VOCABULARY & FORMAL MATHEMATICAL LANGUAGE

What is Vocabulary & Formal Mathematical Language?

Teaching the language of math is supported in each unit through the introduction of new vocabulary terms and the consistent use of formal mathematical language.

Why is Vocabulary & Formal Mathematical Language important?

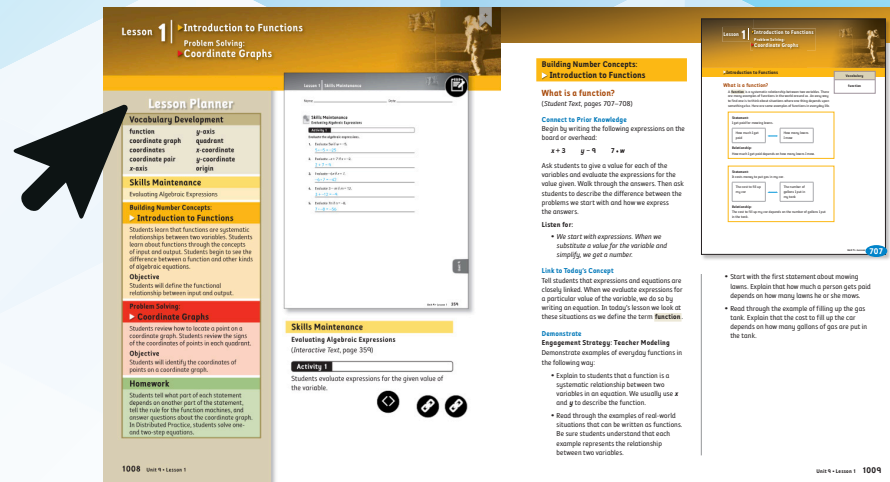
To meet the expectations of the MAFS standards, students not only need to be fluent in computational skills, but to write about math, they also need to be fluent in the language and vocabulary of math. These language and writing skills are taught explicitly throughout *TransMath*.

Note on Unit Vocabulary (pg. 1009):

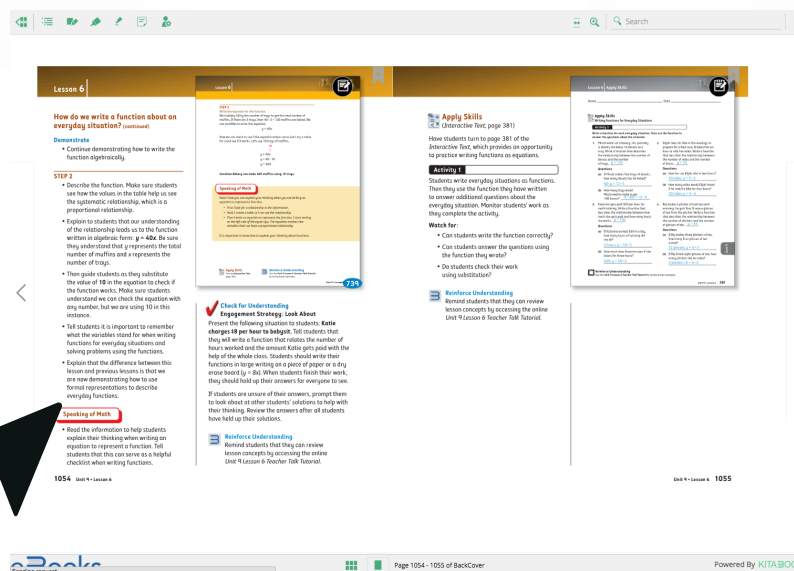
Unit Vocabulary is listed in full on the Unit Objectives page and highlighted whenever it is used in the teacher and student text.

Note on Mathematical Language (pg. 1054):

Many *TransMath* lessons include a section called Speaking of Math, which provides students with support when writing about their thinking.



1. On page 1008, **review the vocabulary for the lesson and notice the highlight on page 1009.**



2. View a Speaking of Math activity by **clicking on** Contents from the toolbar. **Click** Bookmarks. **Click on** Speaking of Math Example.

► Instructional Design PROBING QUESTIONS

What are Probing Questions?

The Building Number Concepts and Problem Solving lessons begin with a probing question to help frame what will be taught in the lesson.

Why are Probing Questions important?

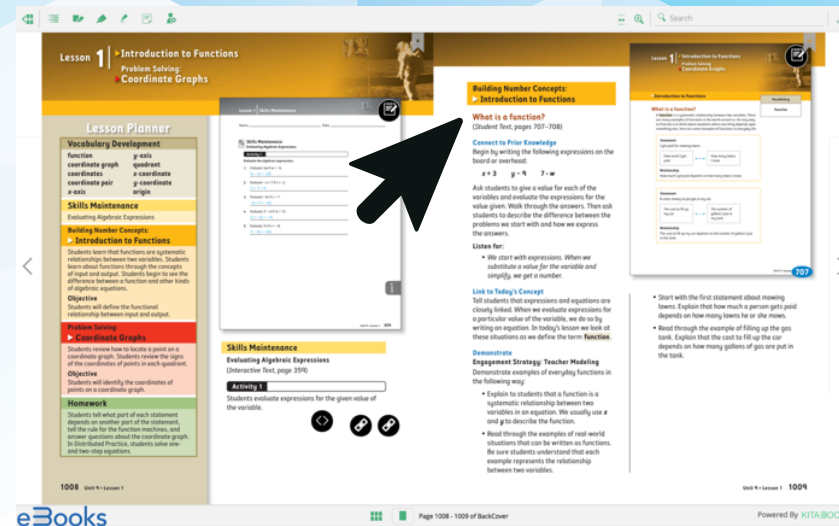
Probing Questions act as a transition tool for teachers. Students not only shift their focus to the skill being taught in the lesson, but they also are encouraged to recall the prerequisite skills related to the new skill.

Note on Building Number Concepts (pg. 1009):

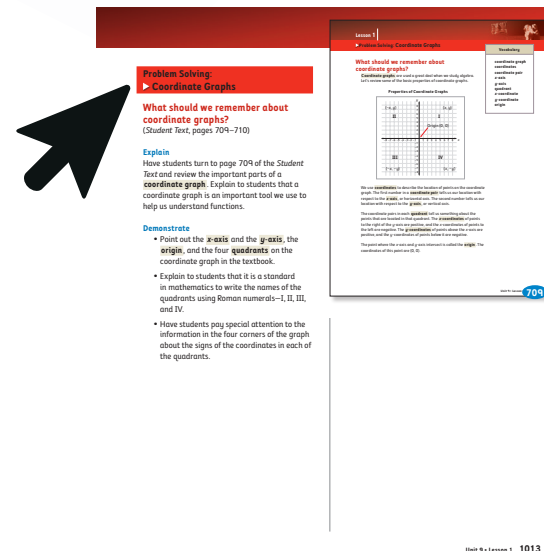
Teachers guide students to make connections to previously taught skills and link them to the current lesson.

Note on Problem Solving lesson (pg. 1013):

Teachers explain and demonstrate a new skill being taught in this lesson.



1. Turn to page 1009, **to view the first probing question.**



2. Turn to page 1013, **to view the second probing question.**

► Instructional Design

VISUAL MODELS & DIGITAL MANIPULATIVES

What are Visual Models & Digital Manipulatives?

Visual Models and Digital Manipulatives enable students to break down complex processes into simple steps and move from concrete visual representations to more abstract understanding.

Why are Visual Models & Digital Manipulatives important?

By replacing long text explanations and providing concrete representations of challenging concepts, the Visual Models and Digital Manipulatives simplify and enrich instruction to increase a student's depth of knowledge, engagement, and rate of proficiency.

Note on Building Number Concepts (pg. 1010):

Teachers use a Function Machine as a visual model to support students' understanding of functions and the relationship between two variables in an equation.

Note on Problem Solving lesson (pgs. 1013 and 1014):

Teachers can use the Coordinate Plane digital manipulative (link found on page 1008) to enhance the instruction on coordinate graphs.



Lesson 1

What is a function? (continued)

Demonstrate

- Continue showing everyday functions. Explain that how easy it is to move a rock in the garden depends on how heavy the rock is.
- Next direct students' attention to **Example 8**. Tell students that a good way to visualize functions is with a table and a function machine. In a function machine, we discuss input and we discuss output. The function is the rule that is applied to the input to get the output.
- Go over the function in **Example 1**. In this example, we demonstrate the function $y = 5x$.
- Go through each input and output. Be sure students understand that the y -values, or the output, are always five times the x -values, or the input.

Check for Understanding

Engagement Strategy: Think, Think

Tell students that they will be given the following input numbers for the function from **Example 1**, $y = 5x$. Have students listen for their name and give the output number when they are called on. Allow students time to think of their answer for each input number, then call on a student by name. If correct, congratulate the student.

Ask:

- What is the output if 3 is the input? (15)
- What is the output if 5 is the input? (25)
- What is the output if 100 is the input? (500)

Reinforce Understanding

Remind students that they can review lesson concepts by accessing the online **Unit 9 Lesson 1 Teacher Talk Tutorial**.

Apply Skills

Interactive Text, pages 360–362

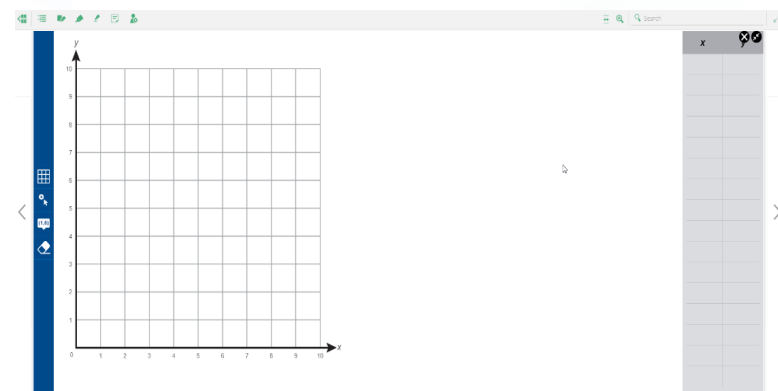
Have students turn to pages 360–362 of the **Interactive Text**, which provide an opportunity to practice these skills on their own.

Activity 1

Students describe the part of the statement that depends on another part of the statement. Tell students they do not need to solve these problems.

1010 Unit 9 • Lesson 1

1. Turn to page 1010, to view the **Function Machine model**.



2. On page 1008, **click the open Coordinate Plane icon**. Use the table on the right side to enter an input and output variable.

► Instructional Design ENGAGEMENT STRATEGIES

What are Engagement Strategies?

Four recurring Engagement Strategies are embedded in each lesson to encourage student discussion and active participation.

Why are Engagement Strategies important?

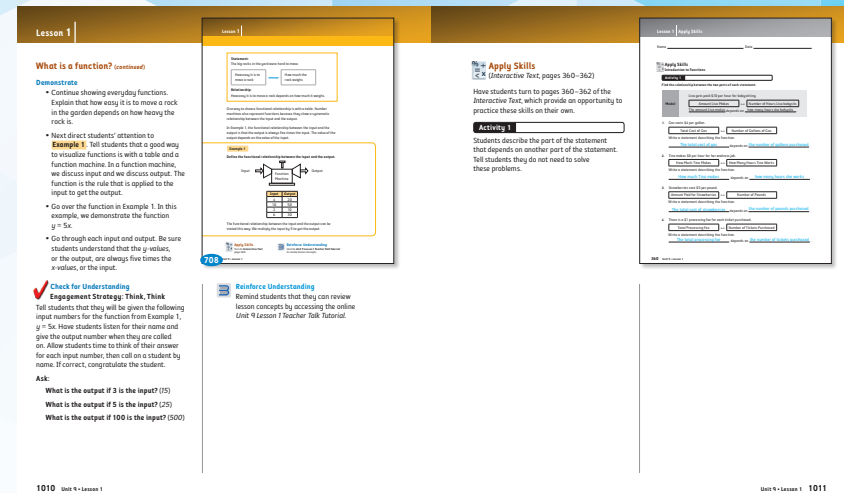
Engagement Strategies allow teachers to informally assess student learning and prescribe solutions for immediate support if needed.

Note on Building Number Concepts (pg. 1010):

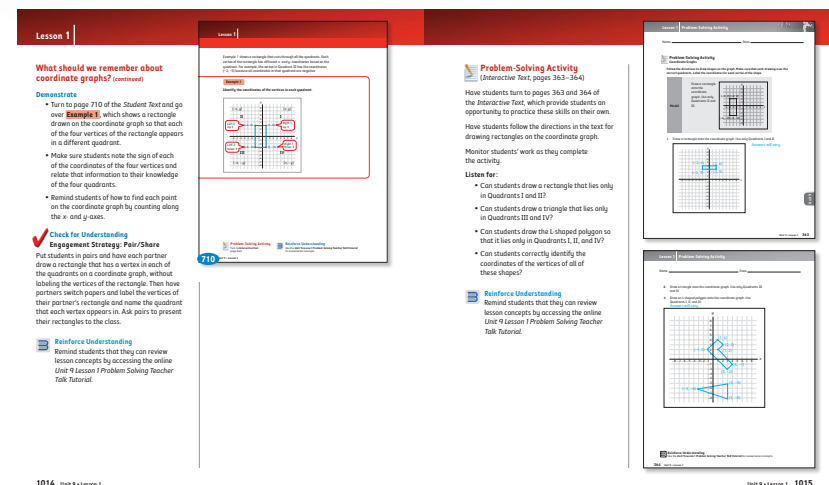
Teachers employ the “Think Think” strategy, which has students stop, reflect, and respond to the whole group.

Note on Problem Solving lesson (pg. 1014):

Teachers employ the “Pair/Share” strategy wherein students work in pairs and present results to the whole group.



1. Turn to page 1010, *to review the Think Think Engagement Strategy.*



2. Turn to page 1014, *to review the Pair/Share Engagement Strategy.*

► Instructional Design CHECK FOR UNDERSTANDINGS

What are Check for Understandings?

In the Apply Skills, Watch For and Listen For sections, teachers are given the opportunity to monitor student understanding, and the Teacher Guide includes common misconceptions to identify.

Why are Check for Understandings so important?

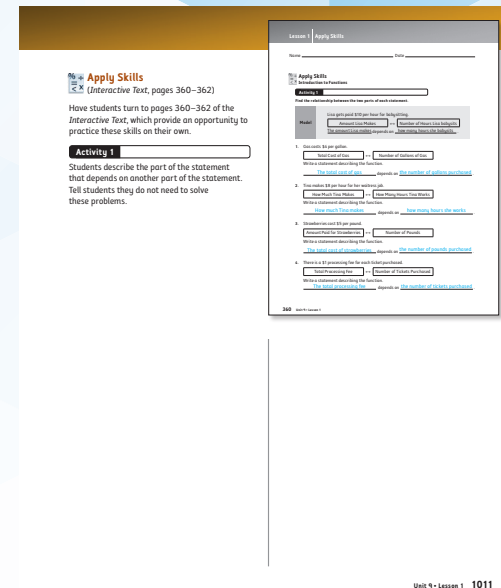
Teachers can easily identify students who are struggling and provide additional instruction as needed.

Note on Building Number Concepts (pg. 1011):

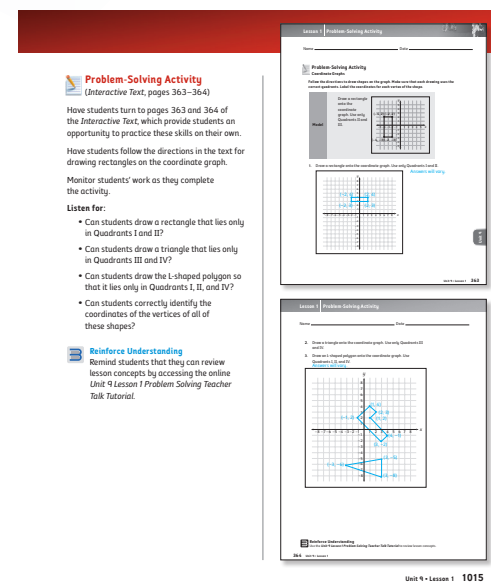
The Apply Skills section has students work independently while teachers monitor understanding of key concepts.

Note on Problem Solving lesson (pg. 1015):

The “Listen For” strategy provides examples of common misconceptions related to the problem-solving activity.



1. Turn to page 1011,
to review the Apply Skills section.



2. Turn to page 1015,
to review the Listen For strategy.

► Instructional Design

HOMEWORK

What is the Homework component?

Homework is a daily reinforcement of the newly learned skills by way of out-of-class practice and a distributed practice activity of skills and concepts learned in previous lessons.

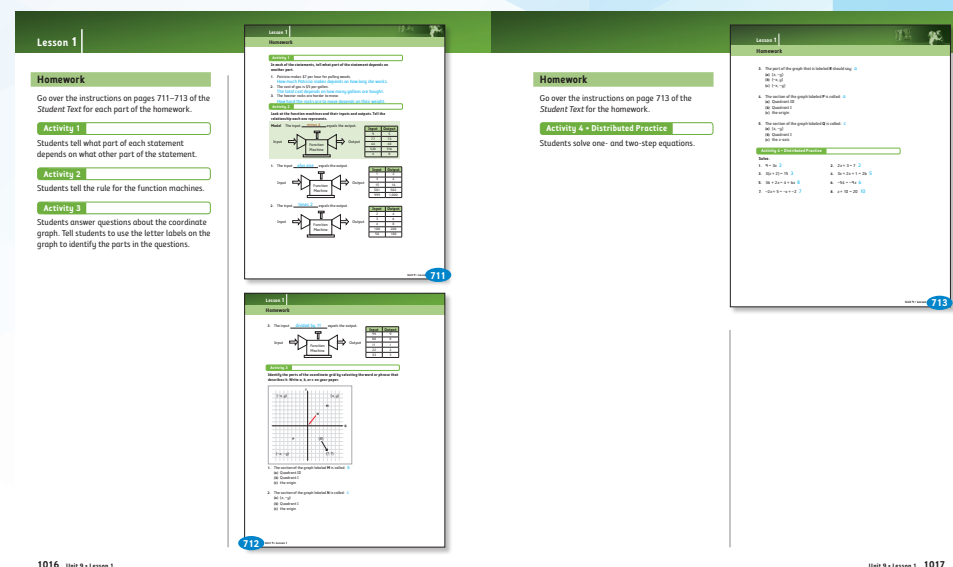
Why is the Homework component important?

Students have the opportunity to work on their own, revisit the skills learned from the day's lesson, and practice previously taught skills. Once submitted, teachers have an additional way to identify strengths and weaknesses in student learning.

Note on Homework assignment (pgs. 1016 and 1017):

There are four skills covered in this assignment that reinforce the day's lesson:

- Activity 1:** Practicing the connections and dependencies within statements found in word problems as reinforced in Lesson 1.
- Activity 2:** Using the Function Machine from Lesson 1.
- Activity 3:** Labeling a coordinate graph.
- Activity 4:** Solving 1- and 2-step equations.



1. Turn to pages 1016 and 1017, **to view the Homework component.**

► Instructional Design ON-TRACK! EXTENSION ACTIVITIES

What are On-Track! Extension Activities?

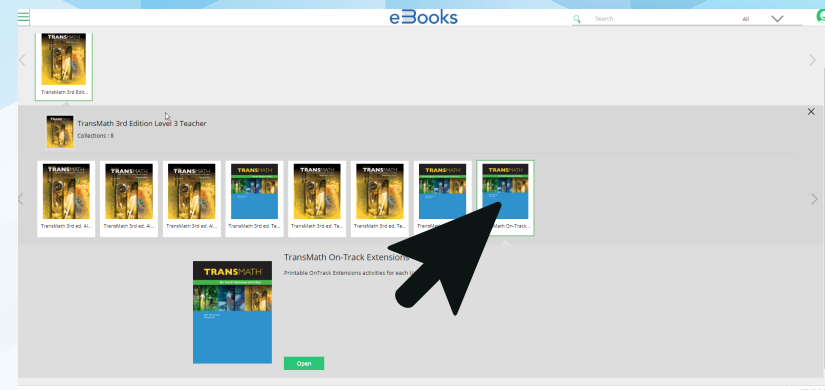
For each unit quiz or end-of-unit assessment, there is a corresponding Extension Activity designed for small groups. Students who have demonstrated proficiency work in a student-led group and struggling students work in a teacher-led group for additional support.

Why are On-Track! Extension Activities important?

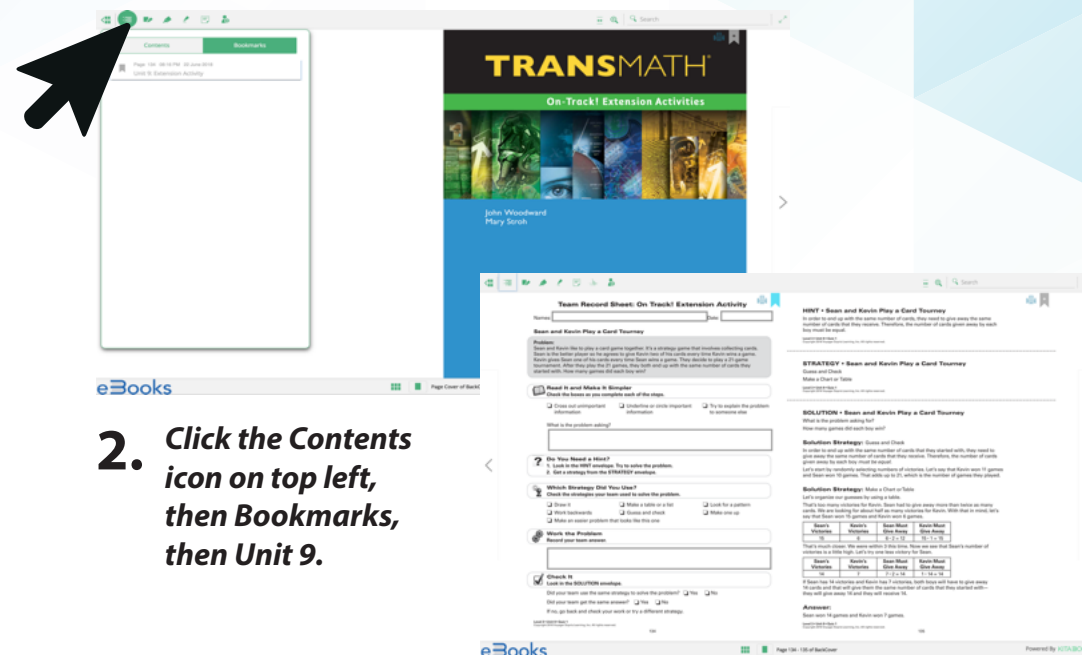
Extension Activities are designed to challenge students and prepare them for the FSA through multistep word problems.

Note on the Unit 9 Extension Activity:

Notice the focus on process where students are successfully developing problem-solving strategies, explaining their decisions, and checking their solutions.



1. From the eBookshelf, **click on the Transmath On-Track! Extension Activities book (last blue book) and click open.**



2. **Click the Contents icon on top left, then Bookmarks, then Unit 9.**

3. **Review three Extension Activities related to Unit 9.**

Assessments & Reports

The comprehensive *TransMath* assessment system allows teachers 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 progress to parents, and ensure students meet their goals.

Take a look at each assessment students, reports teachers can generate, and the overall purpose of monitoring.

► Baseline & Summative Assessments

What are Baseline and Summative Assessments?

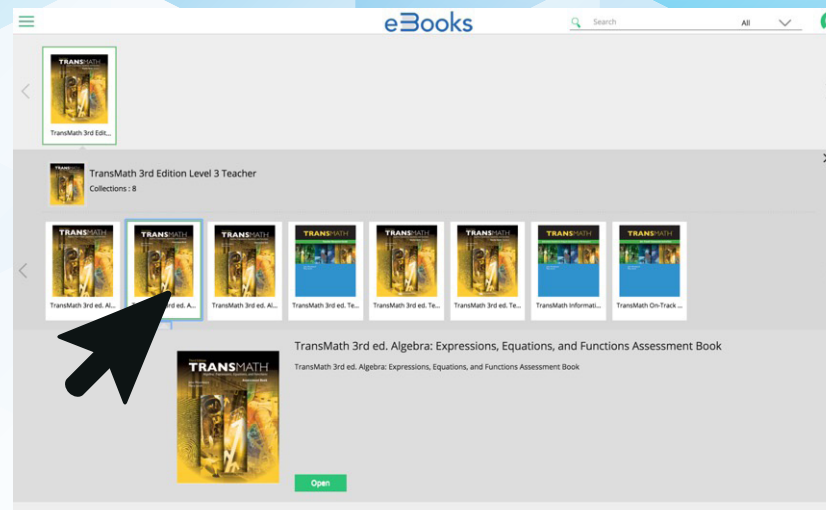
The Baseline and Summative assessments are administered at the beginning and end of each year, respectively. Based on the *TransMath* level, each assessment measures six-nine topics. **These assessments can be administered online or paper/pencil. Reports are automatically available when assigned/administered online.**

Why are Baseline and Summative Assessments important?

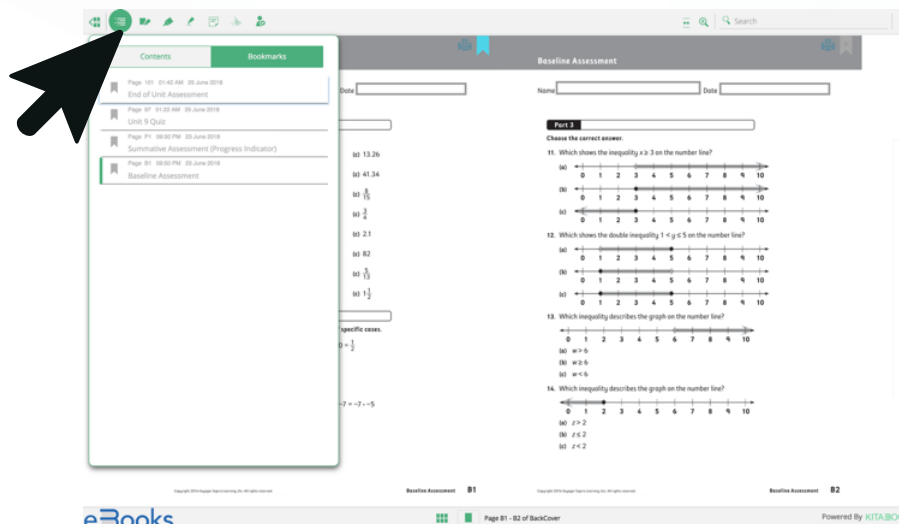
The Baseline Assessment provides a starting point from which student growth can be measured in the Summative Assessment. With six-nine topics, teachers can determine a student's strengths and weaknesses at a more granular level.

Note on Accessing eBook Version:

- From the Teacher Center, return to the eBook bookshelf:
Select and open the *TransMath* 3rd ed. Algebra: Expressions, Equations, and Functions Assessment Book."
Once open, click Contents icon on toolbar.
Click Bookmarks.
Click on either baseline or summative assessment.



2. Assessment book is found in the eBook bookshelf.



3. Locate the Baseline Assessment on page B1 and B2.

► TransMath Quizzes

What are TransMath Quizzes?

Each *TransMath* unit has one or two quizzes (depending on number of lessons in unit) that are designed to assess key skills, procedures, and conceptual knowledge. **All quizzes can be administered online or paper/pencil. Reports are automatically available when assigned/administered online.**

Why are TransMath Quizzes important?

Frequent, brief assessments provide crucial, timely data for teachers to make instructional decisions for students mid-lesson. In addition, teachers can use the quizzes as a graded exercise.

Note on Accessing eBook Version:

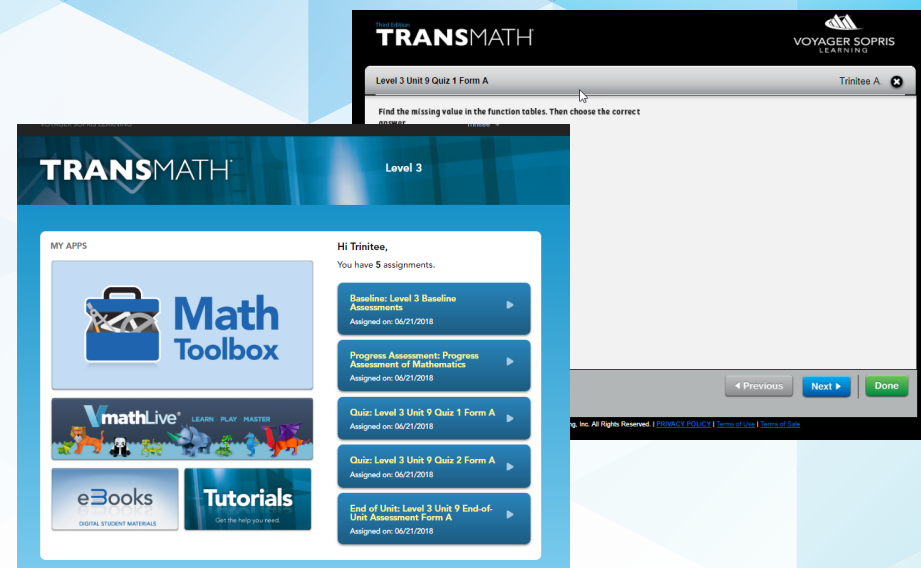
1. In the *TransMath* 3rd ed. Algebra: Expressions, Equations, and Functions Assessment Book:

Click Contents icon on toolbar.

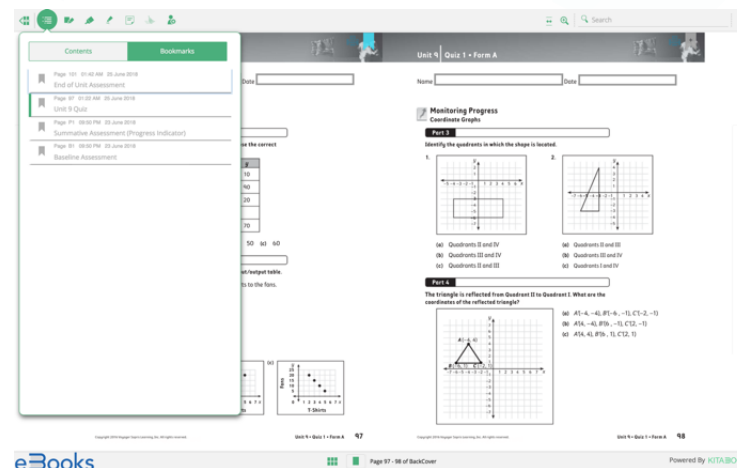
Click Bookmarks.

Click on Unit 9 Quiz.

Third Edition TRANSMATH® REVIEWER GUIDE



When teachers assign quizzes online, students can access them directly from the Student Center.



Unit 9 *TransMath* Quizzes in eBook.

► End-of-Unit Assessments

What are the End-of-Unit Assessments?

End-of-Unit Assessments encompass all the skills and concepts taught in the unit. There are two forms for each assessment (Form A & B) allowing the teacher to test, differentiate, and retest students. **All quizzes can be administered online or paper/pencil. Reports are automatically available when assigned/administered online.**

Why are *TransMath* End-of-Unit Assessments important?

Like the quizzes, End-of-Unit Assessments collect data that is used to determine proficiency and to guide differentiation needs. Teacher Guide includes recommendations for differentiation based on student results.

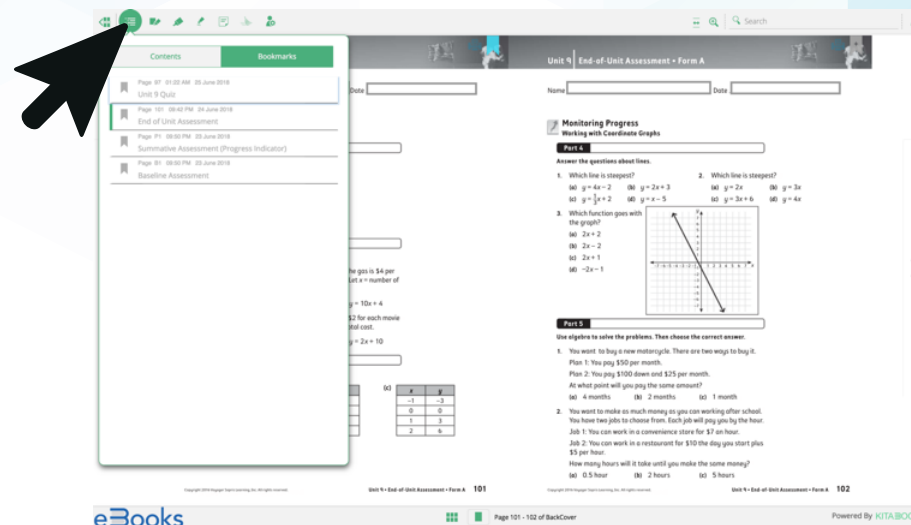
1. Note on Accessing eBook Version:

In the *TransMath* 3rd ed Algebra: Expressions, Equations, and Functions Assessment Book:

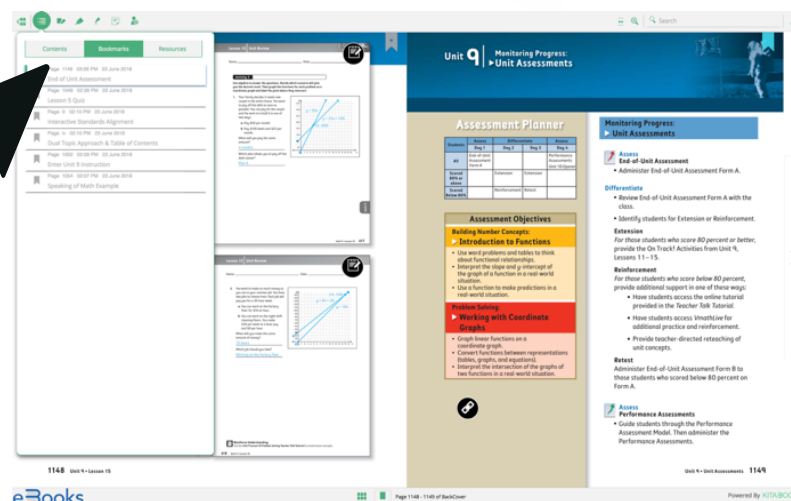
Click Contents icon on toolbar.

Click Bookmarks.

Click on Unit 9 End-of-Unit Assessment.



2. Starting on page 101, **view Form A and Form B.**



Recommendations for differentiation found in the Teacher Guide.

► Performance Assessments

What are Performance Assessments?

Performance Assessments are an additional tool to assess student reasoning and problem solving after each unit. They require students to communicate their thinking through words, drawings, and the use of symbols.

Why are Performance Assessments important?

Performance Assessments provide scaffolded support for students as they learn to solve complex problems, use mathematical language, and explain their thinking. They also are used as an effective prep tool for the FSA.

Note on Accessing eBook Version:

- Performance Assessments can be downloaded from the Teacher Center by:
Clicking on the Support tab.
Click on the Library subtab.
Scroll down and click on the Performance Assessment Level 3 document to download in a printable PDF.

The image displays two screenshots of the TransMath website interface. The top screenshot shows the 'Home' page for Moore Level 3, with a black arrow pointing to the 'Support' tab in the navigation bar. The bottom screenshot shows the 'Library' subtab, with a black arrow pointing to the 'Performance Assessment Level 3' document in the 'Library Topics' section. Below these screenshots is a book cover for 'Third Edition TRANSMATH[®] Algebra: Expressions, Equations, and Functions Performance Assessments' by John Woodward and Mary Seroh. To the right of the book cover is a preview of a performance assessment problem, 'Monitoring Progress Practice Problem 3-4', which includes a graph of two linear functions and a word problem about downloading movies.

► Progress Assessments of Mathematics

What are Progress Assessments of Mathematics?

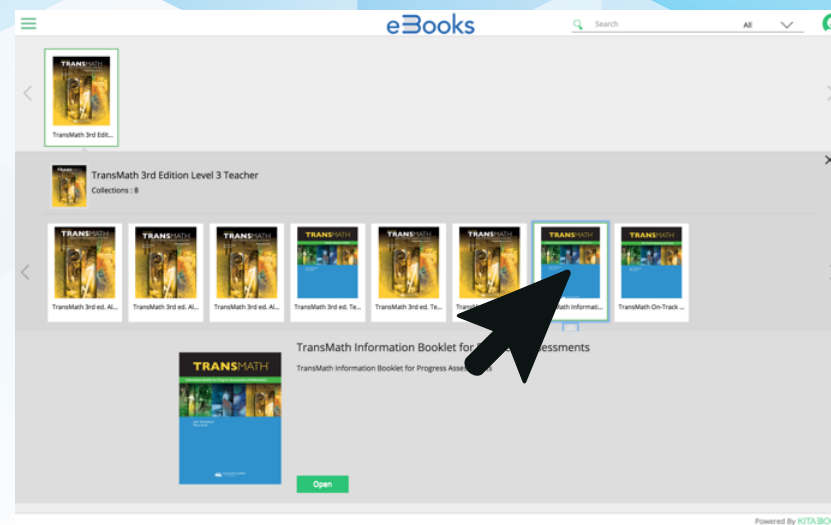
TransMath utilizes the Progress Assessment for Mathematics (PAM) powered by The Quantile Framework[®] as a benchmark assessment that can be **administered online or paper/pencil** three times a year. Reports are automatically available when assigned/administered online.

Why are Progress Assessments important?

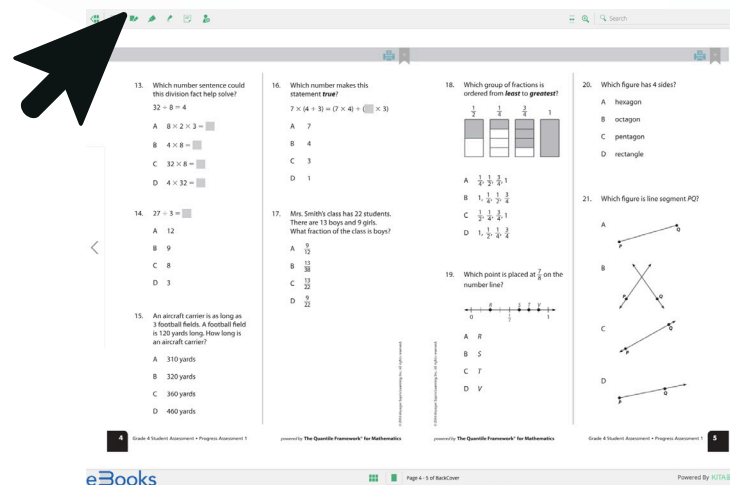
The PAM assessment assigns students a Quantile score. Like lexiles in reading, a Quantile represents a student's range of skills and readiness for learning new skills. As a benchmark assessment, the PAM is used to determine student proficiency during the course of the year.

Note on Accessing eBook Version:

- Print versions of the PAM are in the Informational Booklet for Progress Assessments of Mathematics, which can be found in the eBook bookshelf. Once opened, **click on** the Contents icon on toolbar. **Click on** Bookmarks. **Click on** Grade 8 Progress Assessment.



Information Booklet for Progress Assessments of Mathematics.



Grade 8 Progress Assessment of Mathematics in print form

► Viewing Reports

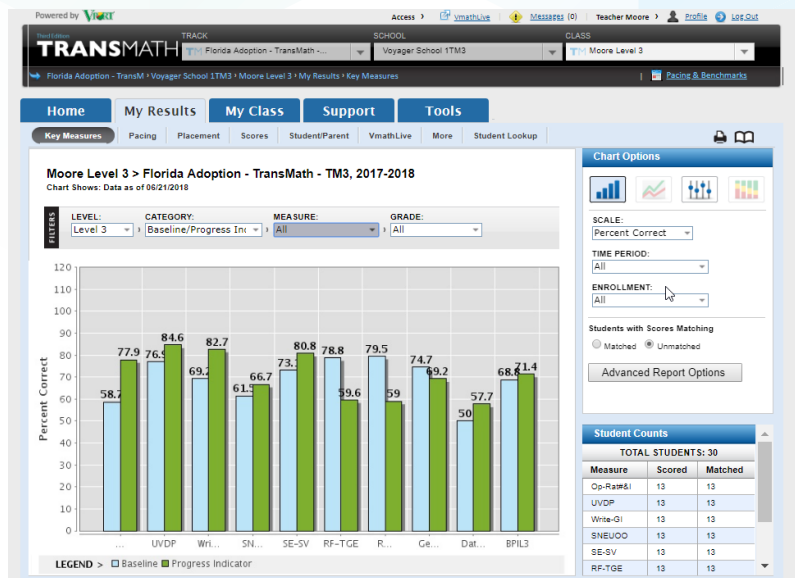
All reports are conveniently stored in our data management system and easily accessed from the Teacher Center. Depending on the need and user, reports can be viewed from a district average level down to an individual student level.

1. To view the reports from the Teacher Center:
Click on the My Results tab.
Click on the Key Measures subtab (default starting location).
Click on the Category scroll down menu.
Choose an assessment to view.

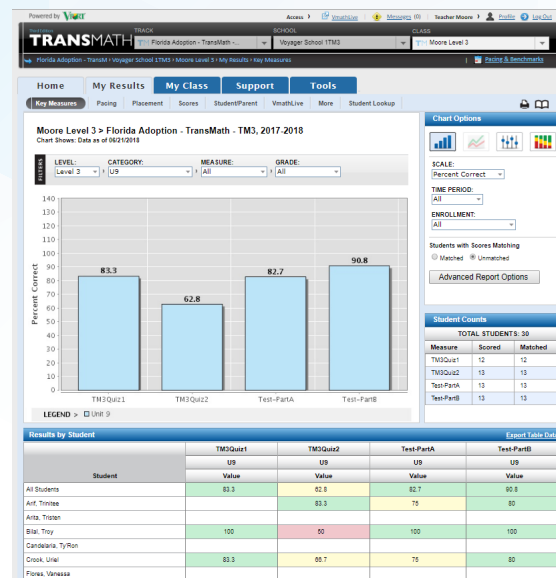


Often, the PAM is the default report when entering the key measures.

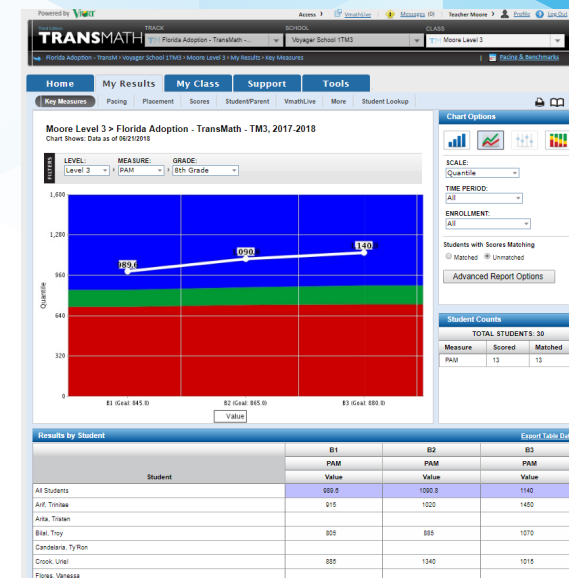
► Report Examples



Baseline & Progress Indicator (Summative) Report shows students' strengths and weaknesses in the six-nine skill topics assessed (based on *TransMath* level).



Unit Assessment Report shows performance on both the Unit Quizzes & the End-of-Unit Assessments.



Progress Assessment Report (PAM) shows proficiency in grade-level skills along with a Quantile score.

Topics Assessed

Part	Level 1	Level 2	Level 3
1	Operations with whole numbers	Operations with positive rational numbers	Operations with positive rational numbers
2	Estimating with whole numbers	Converting fractions, decimals, and percents	Use variables to describe patterns
3	Factors and multiples	Locate fractions, decimal numbers, and percents on a number line	Write and graph inequalities
4	Fractions	Correct placement of the decimal point	Simplify numeric expressions using order of operations
5	Geometry and measurement	Word problems with fractions and mixed numbers	Solve equations for a single variable
6	Data and statistics	Properties of integers	Represent functions as a table, graph, or equation
7		Operations with integers	Ratio, proportion, and rate
8		Data and probability	Geometry and measurement
9		Geometry and measurement	Data and probability

Student Technology

Technology plays an integral role in teaching, but it must be used with purpose to be effective. Students in *TransMath* 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 *TransMath* experience wherever and whenever students need it.

► Log in to the *TransMath* Student Center

1. **Click on Enter the Student Center** from the Adoption Review site to begin.
2. Please note Voyager Sopris Learning offers single sign-on integrations to simplify accessibility and interoperate with pre-existing district technologies.

Enter the username and password below to enter the *TransMath* Student Center site.

Username: **thomast723**

Password: **graysurf3**

Third Edition
TRANSMATH[®]
Welcome, Florida Math Adoption Reviewers!

TransMath[®] is a unique pre-algebra program. Traditional core pre-algebra programs are built with algebra readiness as the goal. However, many students struggle to be successful in these courses due to a lack of foundational skills. *TransMath* shares the goal of algebra readiness but is designed with a specific emphasis on conceptual understanding for struggling math students (in Florida, Levels 1 and 2). With its unique dual-topic instructional approach and assortment of differentiation tools, *TransMath* delivers rigorous, standards-based instruction to prepare students for success in algebra while also providing the foundational skill instruction needed to fill gaps in knowledge. *TransMath* is an intensive core with the instructional supports to get students back on track with their peers and ready for algebra success.

DOWNLOAD THE REVIEWER GUIDE
We have created a comprehensive Reviewer Guide with step-by-step instructions for the digital review process. Please download and have this guide available before you begin to review.
[DOWNLOAD NOW](#)

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

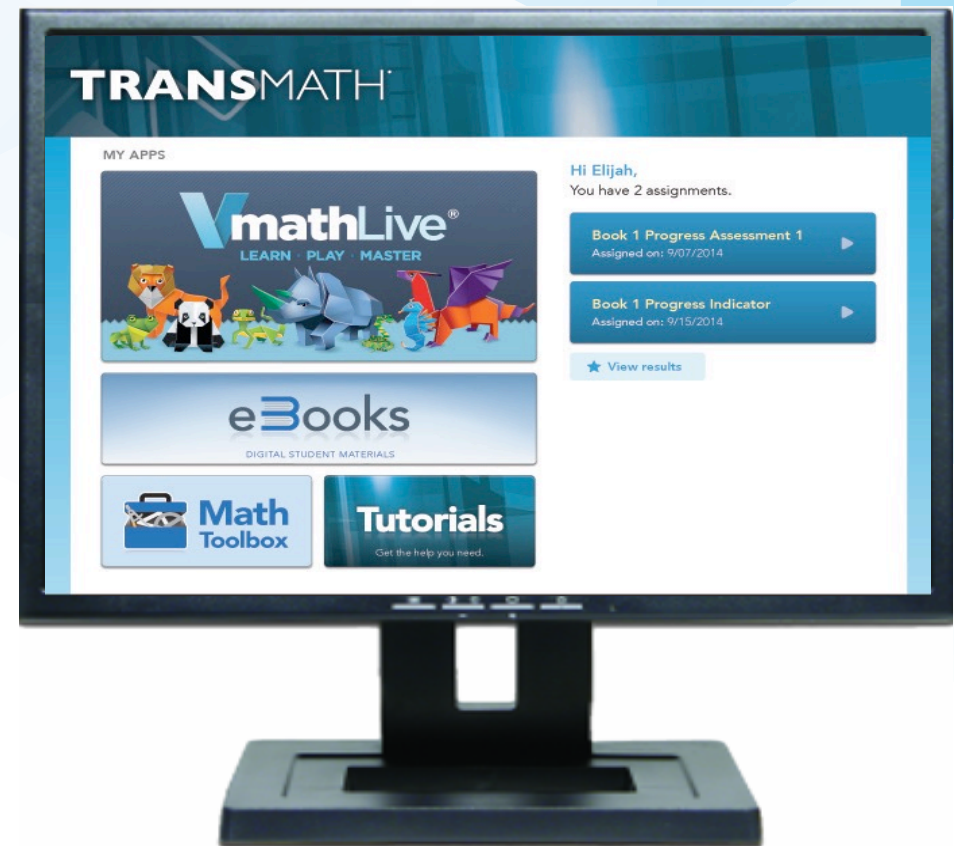
MAFS ALIGNMENT & OTHER RESOURCES
We have provided the following resources online to support your review of the materials.
[Alignment to MAFS](#) • [Publisher Questionnaire](#)
[UDL Questionnaire](#) • [System Requirements](#)
[Bid Details](#)

EXPLORE TRANSMATH
Please have your Reviewer Guide available to login and effectively navigate through the digital materials and begin with the Teacher Experience.
[ENTER THE STUDENT CENTER](#)
[ENTER THE TEACHER CENTER](#)

► Student Center Overview

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

1. **Student Assignments:** Any assignments or assessments a teacher has scheduled for the student will appear here.
2. **VmathLive:** Provides entry into the student technology.
3. **eBooks:** Includes digital versions of the print and digital-only books.
4. **Math Toolbox:** Contains all digital manipulatives used in instruction.
5. **Tutorials:** Contains all Teacher Talk Tutorials and Click-Thrus.



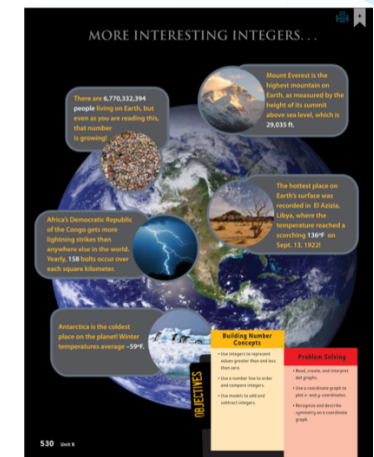
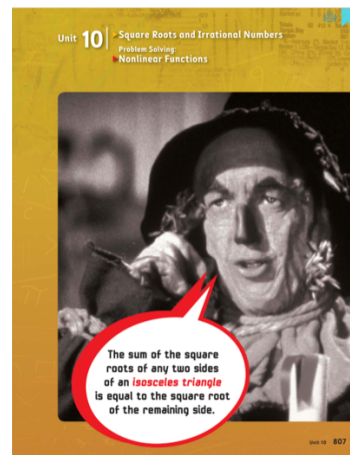
► **Student Center**
eBooks

What are eBooks?

The eBooks are digital, interactive versions of the Student Text and Interactive Text that are included in print format as well.

Why are eBooks important for students?

Through the eBooks bookshelf, students have 24/7 access to all the materials needed for the **TransMath** course. The eBooks include interactive tools and capabilities students need to highlight, notate, search, and submit for review any work completed online. In addition, teachers can mark up and return any submitted work online.



► Student Center TUTORIALS

What is the Tutorials section?

The Tutorials section contains Teacher Talk Tutorials and Click-Thrus from every lesson. These videos and presentations reinforce lessons using effective narration and animated visual models to concretely develop the concept.

Why are Tutorials important for students?

With the Tutorials section, students have 24/7 online access to revisit and relearn the lessons taught in class. The videos and presentations are invaluable tools for students in need of differentiation, students who missed a day's lesson or were sick, students wanting a refresher on a previously learned skill, and any situation that could put a student at risk of falling behind.

Notes
Slide 19

Lesson 4: Algebraic Patterns and the 100-Square Grid (09/02/09/09)

Fifty-six. Because 56 is the next number in the pattern on the 100-square grid, the pattern works.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$n + 11$ $45 + 11 = 56$

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Notes
Slide 1

Lesson 8: Other Nonlinear Functions (09/04/09/04)

What happens to the graph when our function is $y = x^2$?

Lesson 8
► Other Nonlinear Functions

What happens to the graph when our function is $y = x^2$?

The only kind of graph with a curve we have studied is a parabola. This function has a curve. The function $y = x^2$ is a common example.

When we change the function to $y = x^2$, it seems like a small change. However, it makes a big difference when we look at the graph. Looking at the shape of the graph is entirely different. If we look at the x-axis, the change makes sense. The equation is an addition, so when we multiply two negative numbers together, we get a positive answer.

Example 1
Graph the function $y = x^2$.

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

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Notes
Slide 61

Lesson 1: The Pythagorean Theorem (09/02/09/02)

...equals c^2 . This is true for any right triangle.

The Pythagorean Theorem

$a^2 + b^2 = c^2$

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► Student Center MATH TOOLBOX

What is the Math Toolbox?

The Math Toolbox contains all the digital manipulatives used in *TransMath* instruction to break down complex processes and difficult concepts. Students are able to work through instruction or re-create lesson models with tools such as algebra tiles, Cuisenaire rods, coordinate planes, and more.

Why is the Math Toolbox important?

Digital manipulatives included in the Math Toolbox not only help with lessons, but also enable students to expand and explore these concepts beyond the classroom instruction to move from the concrete to the abstract.

Lesson 4

How do we use algebra tiles to model and evaluate numeric expressions with integers? (continued)

Demonstrate

- Have students look at **Example 3** on page 401 of the Student Text. In this example, we model and evaluate the numeric expression $-2 - 4$. Remind students about the rule of changing subtraction to "adding the opposite." This helps us keep the signs straight. Have students model the problem at their desks using algebra tiles. Be sure they see that there are two zero pairs in this problem. Point out that the answer is positive because we only have yellow tiles left: $-2 - 4 = 2$.
- Point out that in Examples 2 and 3, we could predict the sign of the answer because we only had one color of tiles left after we removed the zero pairs. The color of tiles left indicates the sign of the answer.

Let's look at an example modeling subtraction. We need to consider an expression with three colors of tiles. We will subtract an additional 4 by taking the opposite.

Example 3

We represent the expression $-2 - 4$ using algebra tiles. We begin with 2 negative tiles, modeling -2 . We add 4 positive tiles, modeling $+4$. We will subtract 4, so we take away 4 positive tiles. We are left with 2 negative tiles, modeling -2 . We need to subtract 4 more, so we add 4 zero pairs. We remove 4 positive tiles, leaving 2 negative tiles and 4 negative tiles. The answer is -6 .

401

572 Unit 5 • Lesson 4

Apply Skills

(Interactive Text, pages 159–160)

Have students turn to pages 159 and 160 of the Interactive Text, which provide students an opportunity to practice writing algebraic expressions for patterns in the 100-square grid.

Activity 1

Students use a variable and write an expression for patterns in 100-square grids. Tell students they are to look at the gray squares in the grid when they describe the patterns. Monitor students' work as they complete the activity.

Watch For:

- Can students identify the pattern represented in the 100-square grid?
- Can students identify the variable portion of the pattern and the constant portion of the pattern?
- Can students write the correct expression that describes the pattern?

Reinforce Understanding

Remind students that they can review lesson concepts by accessing the online Unit 4 Lesson 4 Teacher Talk Tutorial.

160

Unit 4 • Lesson 4 463

► 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.

Why is VmathLive important?

VmathLive engages students with online opportunities to improve their math skills in conjunction with TransMath instruction or as an additional differentiation and enrichment tool.

1. 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 homepage—both Go Learn and Go Play components are accessed from here.



VmathLive Course Map gives an at-a-glance view of units.

► *VmathLive* Design: GO LEARN COMPONENT

What is the Go Learn component?

In *VmathLive's* Go Learn component, students complete module activities in computational practice and problem solving. The problem-solving activities are presented as a word problem and allow students to apply what they have learned.

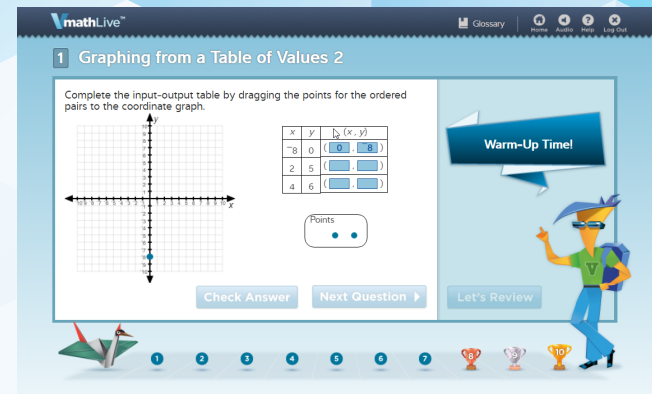
Why is the Go Learn component important?

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

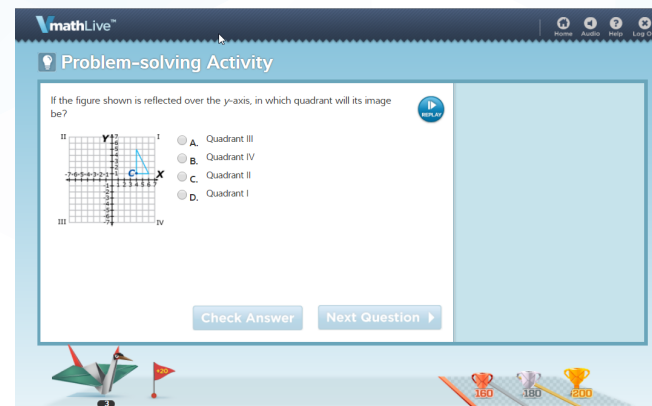
Note on Mastery of Skills:

Students are required to pass a module test before moving to the next module. All results are available to teachers in the data management center.

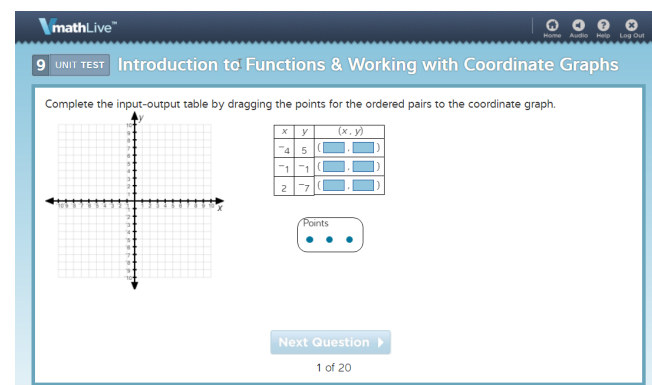
Go Learn
practice activity



Go Learn
problem-solving activity



Go Learn
module test



► **VmathLive Design:** **GO PLAY COMPETITION COMPONENT**

What is the Go Play Competition Component?

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

Why is the Go Play Competition Component important?

Fluency and accuracy of mathematical skills are critical for student success. Using a fun, interactive, and safe platform, students can practice these skills and engage in the competitive spirit. Games range in topics from operations of whole numbers to order of operations.

Note on the Competition Component:

Students can play against the computer, a friend, or in a game with others. All assignments must be completed prior to competing.



Students track their own progress.



Compete with other students or the computer.

► *VmathLive* Design: SCAFFOLDED INSTRUCTION

How does *VmathLive* scaffold instruction?

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

Why is the scaffolded instruction important?

VmathLive promotes accuracy and fluency by encouraging students to think about their 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 audio is available in Spanish and English.

2 Find the Function Rule

Find the function rule for the input-output table.

x	-3	-6	-9	-12	-15
q	1	2	3	4	5

$x = \frac{q}{3}$ $x = -3q$
 $q = \frac{x}{3}$ $q = -3x$

Incorrect

Check Answer Next Question Let's Review

1. Compare an input value to its output value.
 $x = -3$ and $q = 1$

Unfold Next Hint

Students get immediate corrective feedback.

LET'S REVIEW

Find the Function Rule

Number of yards, x	Number of feet, y
2	6
3	9
6	18
7	21

00:06 02:27

REPLAY

Let’s Review video provides additional instruction.

► *VmathLive* Support Tools: ANIMATED GLOSSARY

What is the Animated Glossary?

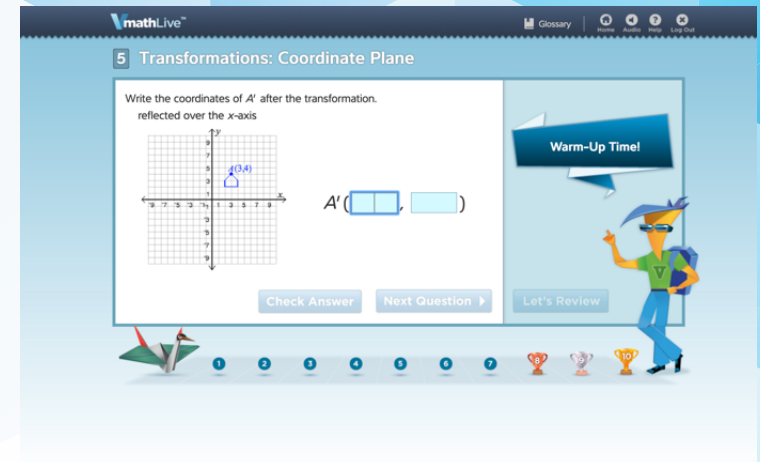
The Animated Glossary is embedded in the Go Learn components and contains approximately 400 common math vocabulary terms and definitions. Students can select a term from the alphabetical list or type it into the search function.

Why is the Animated Glossary important?

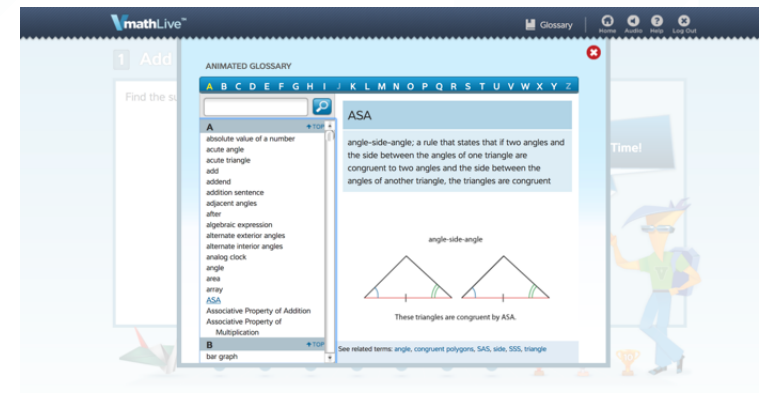
The language of math is often challenging and confusing. *VmathLive's* Animated Glossary allows students to hear the pronunciation and definition of a term while watching an animated representation of the term.

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		Learn	Play	Time
1	10 of 10 ACTIVITIES	Whole Numbers	21 5 hrs 20 min	502 15,500 90%
2	12 of 12 ACTIVITIES	Adding and Subtracting Whole Numbers	19 4 hrs 46 min	467 10,220 80%
3	23 of 23 ACTIVITIES	Multiplying and Dividing Whole Numbers	20 6 hrs 04 min	484 12,495 90%
4	14 of 14 ACTIVITIES	Decimals	18 4 hrs 59 min	453 13,890 85%
5	2 of 13 ACTIVITIES	Number Theory and Fractions	6 22 min	24 865 -
6	10 ACTIVITIES	Geometry		
7	11 ACTIVITIES	Measurement		
8	9 ACTIVITIES	Data Analysis and Probability		

My Progress page shows current and past activity.



See all trophies and awards in Achievements.

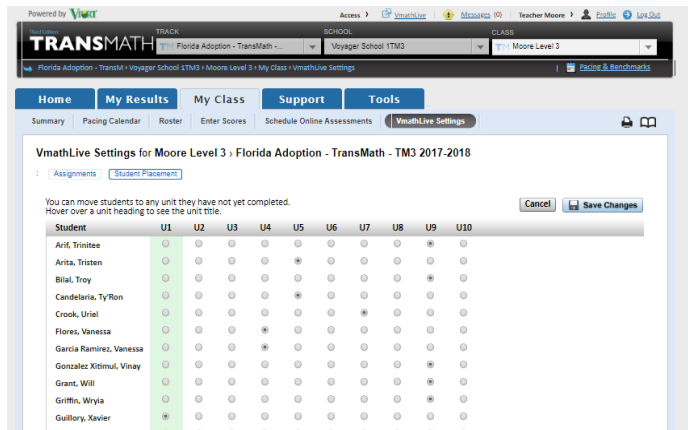


All avatars can be customized by students.

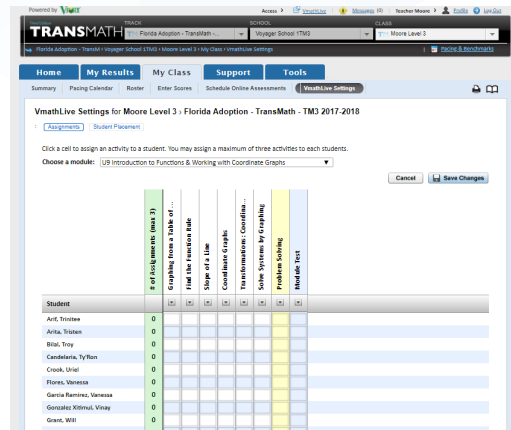
► *VmathLive* Support Tools: DIFFERENTIATION CAPABILITIES

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

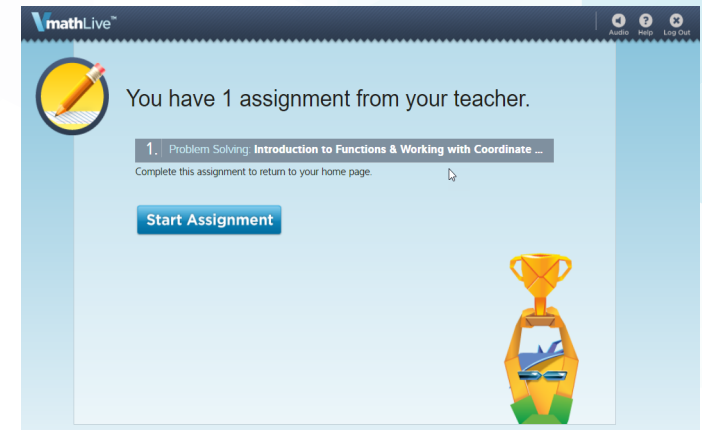
Teachers can place students in specific modules of instruction to reinforce or extend learning. Teachers also can assign specific activities within a unit.



Choosing which module a student needs.



Assigning specific activities is easy.



Students must complete assignments before having full access.

