Build Proficiency for Success in Math
Create a successful path to algebra for struggling students through conceptual understanding and problem solving.

When I do well in math, I believe in myself... and I can succeed.

Third Edition
TRANS® MATH
Grades 5–10

When I do well in math, I believe in myself... and I can succeed.
Most students who struggle in math experience difficulties in two key areas:

1. **The ability to move from concrete to abstract concepts**
2. **A lack of foundational skills related to addition, subtraction, multiplication and division**

Even after addressing these challenges, some students continue to struggle because many standards-based math curricula are too dense, with unfamiliar and confusing mathematical vocabulary. Additionally, these same curricula rush students through the material without providing in-depth learning opportunities.

**TransMath Bridges the Gap**

*TransMath*® 3rd is a comprehensive math intervention that bridges the “math gap” for middle and high school students who:

- lack the foundational computational and problem solving skills
- struggle with the pace of grade-level material
- are two or more years below grade level based on a high-stakes test
- would be unsuccessful in Algebra I without intervention

**The TransMath approach:**

- Deepens conceptual understanding by building problem-solving skills through explicit instruction and multisensory strategies
- Embeds lesson-by-lesson models to support teacher preparation and strengthen teachers’ content knowledge
- Facilitates whole-class and individual interactive learning with digital tools to increase opportunities for mathematical discourse and peer learning
- Provides students and teachers with eBook access to support learning and foster more meaningful interaction
- Uses well-chosen visual models and digital manipulatives in conjunction with conceptual explanations to help students understand and remember math concepts

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**ABOUT THE AUTHORS**

Dr. John Woodward is a distinguished professor and dean in the School of Education at the University of Puget Sound.

Mary Stroh teaches mathematics at Central Michigan University.

Together, Woodward and Stroh developed the program after noticing middle school students had deep gaps in their understanding. When those students were taught the conceptual skills to fill those gaps, the students did better than their nonstruggling peers. The authors knew they were on to something, and developing *TransMath* became their passion.
“Having a program like TransMath that breaks [math] down is amazing… When my students say, ‘I can’t do fractions,’ and then by the end of the lesson they’re getting 95 percent and saying, ‘Yes, I can,’ it’s really great to see.”

—Sarah Sherman, Kennedy Middle School, Albuquerque, NM

Struggling Students Advance with TransMath

Proven Results—More Than THREE years of growth in one year!

There are three levels in TransMath. This report shows the results for each level of the program during the 2015–2016 school year from the beginning to the end of the year using the Quantile assessment, Progress Assessment of Mathematics (PAM).

With more than 400 students in the data collection, positive results are evident. The effect size gain was statistically significant and can be equated to more than three years of gain in one school year.

TransMath Success in New Rochelle, NY

Proven results are what TransMath has given the City School District of New Rochelle, NY, where growth in math skills has led to growth in students’ class participation and confidence. Patrice Kentner, special education teacher, describes Voyager Sopris Learning’s TransMath as “like a Christmas present” and says the program is “great for multisensory learners and provides pacing to allow students to close the achievement gap in a timely manner as well as additional practice without the issue of cognitive overload for struggling students.”

THE THREE LEVELS OF **TRANSMATH**

Proven, effective elements accelerate students toward grade-level mathematics with lesson-by-lesson models

**TransMath** is a **skill-level program**, which means it is easy for teachers to combine students of various grade levels into the same class based on the needs of each student.

Also, with the goal of successful entry into algebra, the intentional scope and sequence of **TransMath** breaks down barriers that challenge student success in math.

**Each level is intended to be a full year of instruction.**

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**LEVEL 1**
**Developing Number Sense**

- Place Value
- Whole Numbers
- Operations
- Factors
- Multiples
- Estimation
- Fractions
- Multistep Problems
- Mean, Median, Range
- Measurement

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**LEVEL 2**
**Making Sense of Rational Numbers**

- Fractions
- Decimal Numbers
- Percentages
- Exponents
- Negative Numbers
- Estimation
- Data and Statistics
- Two-Dimensional Geometry
- Probability

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**LEVEL 3**
**Algebra: Expressions, Equations, and Functions**

- Properties
- Simple Algebraic Expressions
- Inequalities
- Functions
- Square Roots
- Irrational Numbers
- Estimation
- Ratio and Proportion
- Coordinate Graphs
- Slope
- Three-Dimensional Geometry

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**TransMath** simultaneously teaches **foundational computational skills** and the **rich, grade-level problem-solving** experiences students need to succeed on high-stakes assessments.

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Dual-Concept Approach Fuels Advancement

Each TransMath lesson is delivered in dual concepts: Topic 1 provides a conceptual skill; Topic 2 provides a problem-solving skill. These two topics often are not related to avoid cognitive overload and provide students a greater opportunity to not only master foundational skills but also move toward grade-level proficiency through problem-solving activities.

The result? Students build confidence every step of the way as they master number sense, rational numbers, and algebraic expressions.

Designed to be taught in 50- to 60-minute segments daily, TransMath:

- Breaks learning into smaller parts
- Increases student engagement
- Balances foundational and grade-level instruction

**Level 1: Developing Number Sense**

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<thead>
<tr>
<th>Conceptual Skill</th>
<th>Problem-Solving Skill</th>
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<tbody>
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<td>Whole Number Operations</td>
<td>Working with Data</td>
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<td>Factors, Primes, Composites</td>
<td>Problem Solving with Data</td>
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<td>Common Factors Compositions</td>
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<td>Fraction Concepts</td>
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<td>Adding and Subtracting Fractions</td>
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<td>Transformations and Symmetry</td>
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<td>Statistics</td>
<td>Units of Measurement</td>
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</table>

**Level 2: Making Sense of Rational Numbers**

<table>
<thead>
<tr>
<th>Conceptual Skill</th>
<th>Problem-Solving Skill</th>
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</thead>
<tbody>
<tr>
<td>Fractions: Fair Shares and Part/Whole Fractions</td>
<td>Fraction Problem Solving</td>
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<tr>
<td>Magnitude, Equivalence, and Operations</td>
<td>Tools for Measurement</td>
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<td>Mixed Numbers</td>
<td>Tessellations</td>
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<td>Decimals and Operations</td>
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<td>Percent</td>
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<td>Probability</td>
<td>Probability and Percent Problem Solving</td>
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<tr>
<td>Integers and Integer Operations</td>
<td>Graphing</td>
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<td>Coordinate Graphs</td>
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</table>

**Level 3: Algebra: Expressions, Equations, and Functions**

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<thead>
<tr>
<th>Conceptual Skill</th>
<th>Problem-Solving Skill</th>
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<td>Fractions and Decimals</td>
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<td>Variables</td>
<td>Ratios, Proportions, Percents</td>
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<td>Inequalities</td>
<td>Surface Area of 3D Shapes</td>
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<td>Algebraic Patterns</td>
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<td>Algebraic Expressions</td>
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<td>Algebraic Rules and Properties</td>
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<tr>
<td>Intro to Functions</td>
<td>&amp; Angle Measurement</td>
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<td>Square Roots</td>
<td>Lines and Angles</td>
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<td>Irrational Numbers</td>
<td>Working with Coordinate Graphs</td>
</tr>
<tr>
<td>Non-Linear Functions</td>
<td></td>
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</tbody>
</table>

Download samples at www.voyagersopris.com/transmath
Logical, consistent lesson design keeps students moving toward conceptual understanding and mastery.
**Watch for** questions guide teachers in assessing student understanding.

- Can students name a fraction given a model of the unit fraction and the whole?
- Do students understand that there are other fractions using the same whole that are multiples of the unit fraction?
- Can students use a unit fraction to name other fractions that use the same whole?

**Reinforce understanding** with interactive online models.

Reinforce Understanding
Remind students that they can review lesson concepts by accessing the online Unit 1 Lesson 3 Teacher Talk Tutorial.

**Engagement strategies** provide ongoing, informal assessment in every lesson.

Lesson 3
How do we select Cuisenaire rods to model a fraction? (continued)

- Have students look at page 14 of the Student Text. In this example, students are shown how to model the fraction \( \frac{1}{6} \). Explain that the red rod can also be used to represent the fraction \( \frac{1}{6} \). Ask students to look at the fraction to be modeled. The fraction \( \frac{1}{6} \) is being modeled. Ask students to name how many red rods are needed to model \( \frac{1}{6} \). Because two unit fractions are needed, the fraction can be written as \( \frac{2}{6} \).
- Have students look at the next picture in Example 2. The picture shows a representation for \( \frac{2}{6} \). Two of the red rods and one orange rod represent the fraction \( \frac{2}{6} \). Ask students to name the fraction. Be sure they name two red rods and one orange rod.
- Review the vocabulary at the end of the example. There may be critical conceptual understanding of parts to whole relationships.

**Skill application** provides immediate opportunity for students to practice what they learned.

**Activity 1**
Students are given two rods representing a unit fraction and the whole and are to name the unit fraction. Remind them to divide up the whole if they cannot see the relationship without the rods.

- Can students name a fraction given a model of the unit fraction and the whole?
- Do students understand that there are other fractions using the same whole that are multiples of the unit fraction?
- Can students use a unit fraction to name other fractions that use the same whole?

**Activity 2**
Students are shown the unit fraction and the whole. They are to name the unit fraction and the whole and are to name the unit fraction. Remind them to divide up the whole if they cannot see the relationship without the rods.

- Can students name a fraction given a model of the unit fraction and the whole?
- Do students understand that there are other fractions using the same whole that are multiples of the unit fraction?
- Can students use a unit fraction to name other fractions that use the same whole?

**Activity 3**
Students are given two rods representing a unit fraction and a second fraction made up of multiple unit fractions. Students complete the multiplication of two fractions that shows the number of unit fractions in the second fraction and then name the second fraction. A model is provided to help students understand what is expected of them.

- Can students name a fraction given a model of the unit fraction and the whole?
- Do students understand that there are other fractions using the same whole that are multiples of the unit fraction?
- Can students use a unit fraction to name other fractions that use the same whole?

**Activity 4 • Distributed Practice**
Students practice basic computational skills. Tell students that they practice these skills so they do not forget the algorithms and they continue to get better at them.

**Distributed practice** in every lesson provides continued practice of previously learned skills.
Built-in Features and Resources Aid in Differentiation

Units in TransMath are built for differentiation. Structured in either 10 or 15 lessons, units are designed for 50- to 60-minute blocks per day with designated times for differentiation. TransMath gives teachers the tools and time they need to assess, reinforce, and differentiate student instruction.

Throughout TransMath, students receive:
- Concrete and Visual Representations
- Distributed Practice
- Varied Opportunities for Communication
- Multiple Forms of Assessment
- Reinforcement of Concepts

Teacher Differentiation Support

Teachers have access to all Teacher and Student materials in eBook format, as well as:
- Math Toolbox that provides a variety of digital manipulatives to use with TransMath lessons
- TeacherTalk Tutorials that reinforce lesson concepts using narrated, animated visual models that make the concept concrete for the student
- Interactive Click-Thru slideshow presentations that use visual models to concretely develop concepts
- On Track! Extension Activities that are multistep word problems designed for small groups, to prepare students for high-stakes tests
- Form B Retests for Quizzes and End-of-Unit Assessments can be downloaded

voyagersopris.com/transmath
Student Placement and Balanced Assessment

A proven approach to student placement—based on skill levels, not grade levels—ensures students learn at a comfortable pace.

Three entry points build incremental success:

Entry Point 1:
Developing Number Sense:
For students who need foundational number sense skills

Entry Point 2:
Making Sense of Rational Numbers:
For students proficient in basic number sense skills but lack foundational skills for rational numbers

Entry Point 3:
Algebra: Expressions, Equations, and Functions:
For students proficient with rational numbers but lack foundational skills for pre-algebra

Balanced Assessment

Numerous opportunities to assess knowledge as students master concepts and skills is critical to efficient progress monitoring. TransMath provides data-driven insights to identify areas of struggle.

Informal Assessment
- Check for understanding after each major concept
- Activities to apply skills learned in Building Numbers Concept section of each lesson
- Problem-solving section activities to apply knowledge of concepts from each lesson

Formal Assessment
- Quizzes every five lessons to provide feedback on student progress
- End-of-unit assessment to measure student mastery of skills through a whole unit
- Performance assessment to measure each student’s ability to reason and communicate

PROGRESS ASSESSMENT
POWERED BY THE QUANTILE FRAMEWORK BY METAMETRICS

Each unit of TransMath contains multiple methods to assess students’ reasoning and ability to communicate ideas. Each type of assessment serves a different purpose.
Built-in Resources for Additional Practice and Online Engagement

Once students begin to master concepts, they gain confidence and become enthusiastic and eager learners. TransMath consistently builds student enthusiasm with online, interactive digital tools that make learning math more relevant and understandable.

Various built-in digital manipulatives help reinforce concepts and bring them to life. Age-appropriate unit openers and graphic novellas are used to introduce concepts and motivate and engage students to work on word problems.

Student Support

All TransMath resources are available to students in eBook format. The Math Toolbox, a collection of digital manipulatives, also is available to students in the eBook, as well as through the TransMath Student Center.

TransMath is accompanied by VmathLive at no additional charge

VmathLive® is meaningful online math practice anytime, anywhere. With activities directly aligned with TransMath content, VmathLive includes:

- Practice for essential math concepts, skills, and problem-solving strategies
- Playful origami avatars and virtual tutors
- Combination of “learn” and “play” activities
- Embedded multimedia hints—including online conceptual models and videos in English and Spanish
On-Demand Professional Development Included

In addition to face-to-face support options, teachers using TransMath have access to our integrated Learning Platform of “on demand” training and support.

When you click on the icon of the teacher in the Teacher Center, you’ll find the Learning Platform, which is organized into modules, such as Program Overview, how to get started, assessment, online resources, and implementation, with many topics to explore.

And best of all, the Learning Platform is included in the cost of the program.
Partnering to Provide Results

Teaching math to struggling students requires a unique set of skills. We partner with you to create a custom implementation that fits the exact needs of your teachers and students. Our Support Services team provides unparalleled support using a model built around keys to success:

- The amount of instruction struggling students receive is critical.
- Through the use of assessments, we can monitor student progress.
- Having assessment data allows teachers to differentiate instruction.
- Incorporating strong classroom management strategies allows for quality instruction.

We offer in-person and online self-paced training, ongoing training, coaching and support, and a Train-the-Trainer model to help you sustain the program for many years to come.

Interested in math training for your teachers?

**NUMBERS**

Grades K–8 | Product-agnostic mathematics professional development that creates the foundation for sustained improvement in math achievement.

General training often does not adequately prepare teachers (or provide the depth needed) to properly teach math. As a result, some educators feel ill equipped or uncomfortable with their readiness to teach math.

Get your teachers up to speed in a consistent manner with NUMBERS, the deep, cost-effective professional development designed to improve mathematics achievement and equip teachers and students to succeed—regardless of the mathematics solutions already used in your school or district.

Time-saving, flexible training options make NUMBERS easy to implement. Learn more about how NUMBERS can improve teacher instruction and student achievement: voyagersopris.com/professional-development/numbers/overview

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“"The professional development was incredible because the leaders engaged me in all ways. They wanted my feedback; I felt appreciated for my work. I found all TransMath professional development engaging, thought-provoking, and motivating.”

—Angel Roman,
Hayes Middle School, Albuquerque, NM

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Third Edition

**TRANS MATH**

Proven to Dramatically Increase Quantile Gains and Performance on Standardized Assessments

Call us at 800.547.6747 for a demonstration, or visit voyagersopris.com/transmath to download samples.