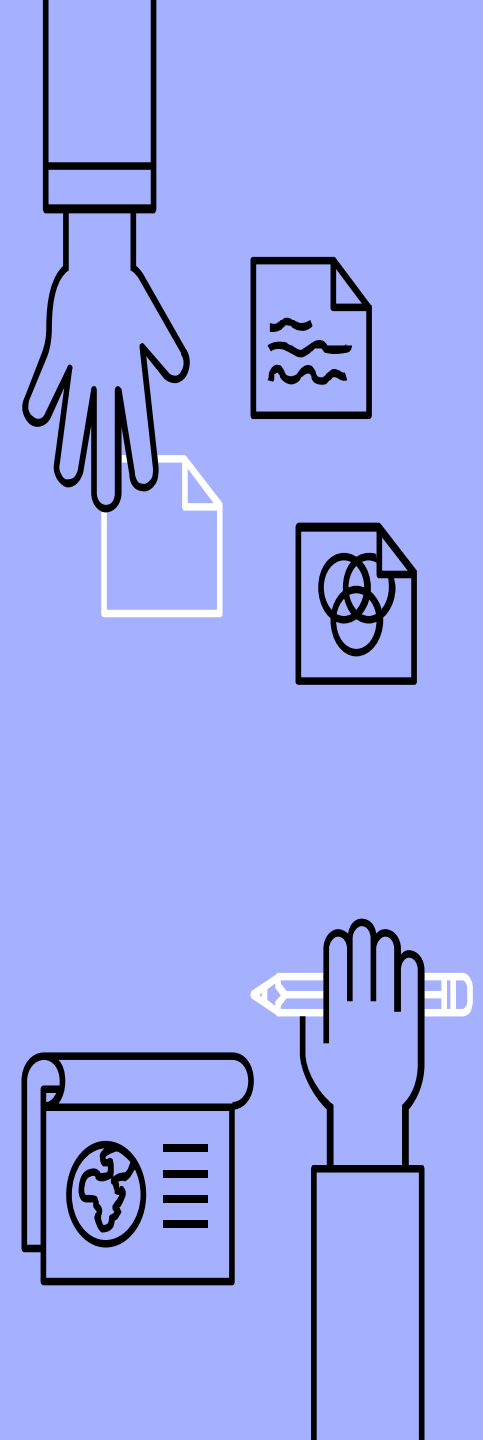


Review of Math K-6: Why-What-Cost-When

Why?

- ▶ NYS Learning Standards changed in 2017-2018
- ▶ The Impact of the Integrated Curriculum
- ▶ Issues with the Modules
 - Teachers
 - Parents
 - Materials are not engaging for students
 - Materials with mathematical errors
 - Lack of Spanish materials and support materials
 - No support for parents working with students at home



The Process

Listening tour around the district

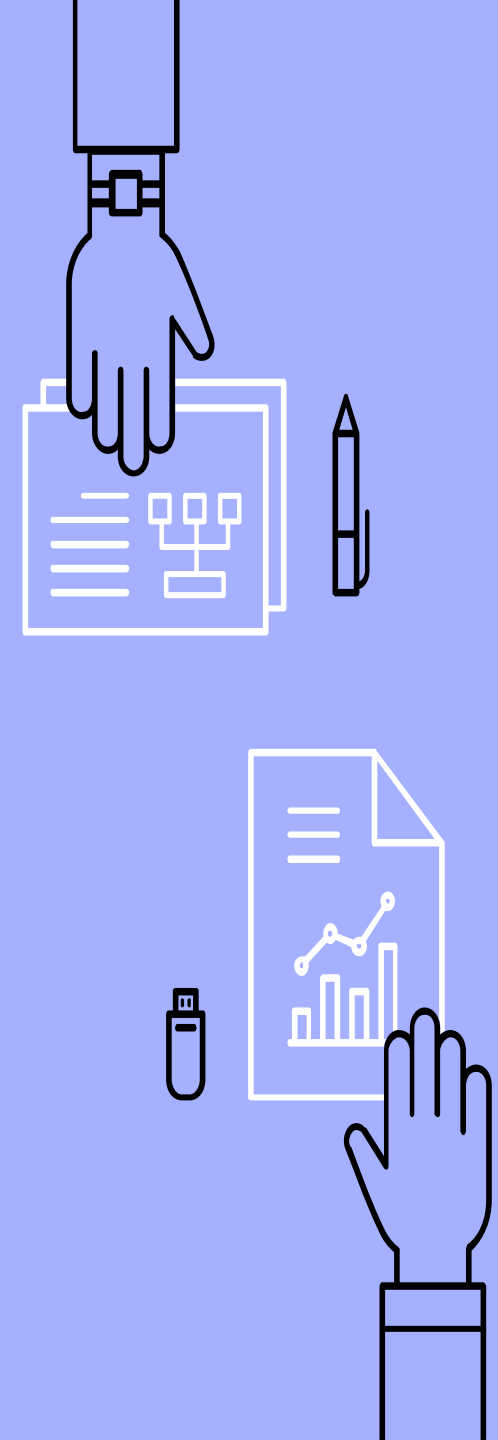
Formed a review committee

Selected three programs for review

- Go Math (HMH)
- Envision Math (Pearson)
- Math Expressions (HMH)

Each Program Rated by Committee

Math Expressions Best Rated



ACTIVE INSTRUCTION
PROVEN
RESULTS



Math Expressions

Math Expressions

Updated and fully aligned with NGSS

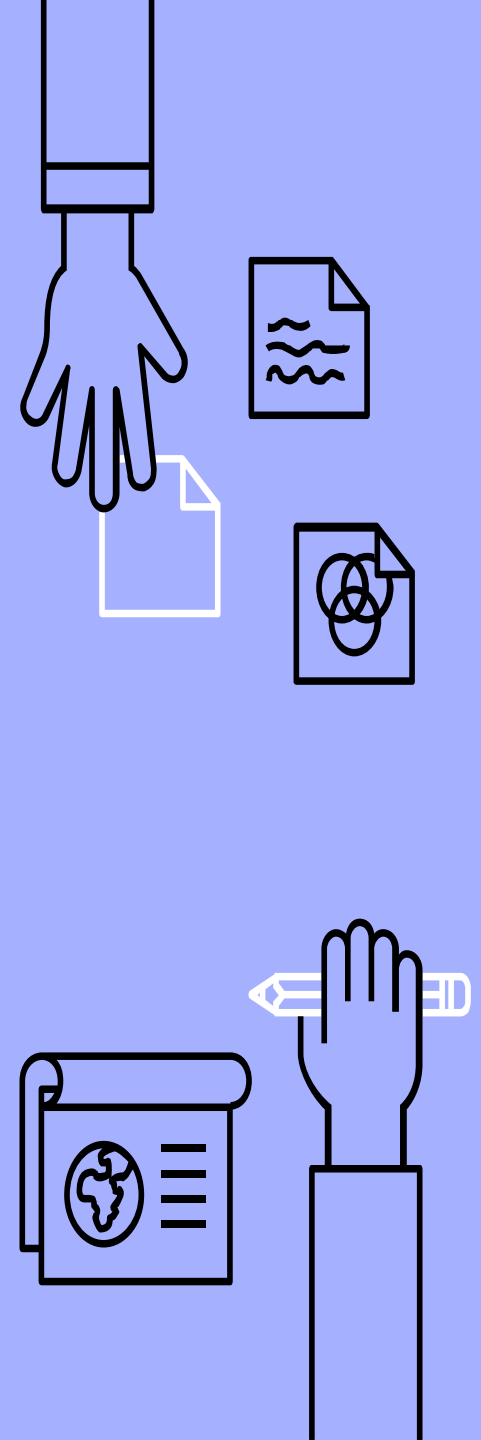
Has digital content

Provides great resources for teachers,
parents and students

Allows for perfect Horizontal and
Vertical alignments

Full program for ENL students

Great resources for both ENL and SWD
students



Dr. Karen Fuson



Partnership

Co Authored 5 NCTM Books
for Teachers

10-year Study of
How to Effectively
Teach Students
Math



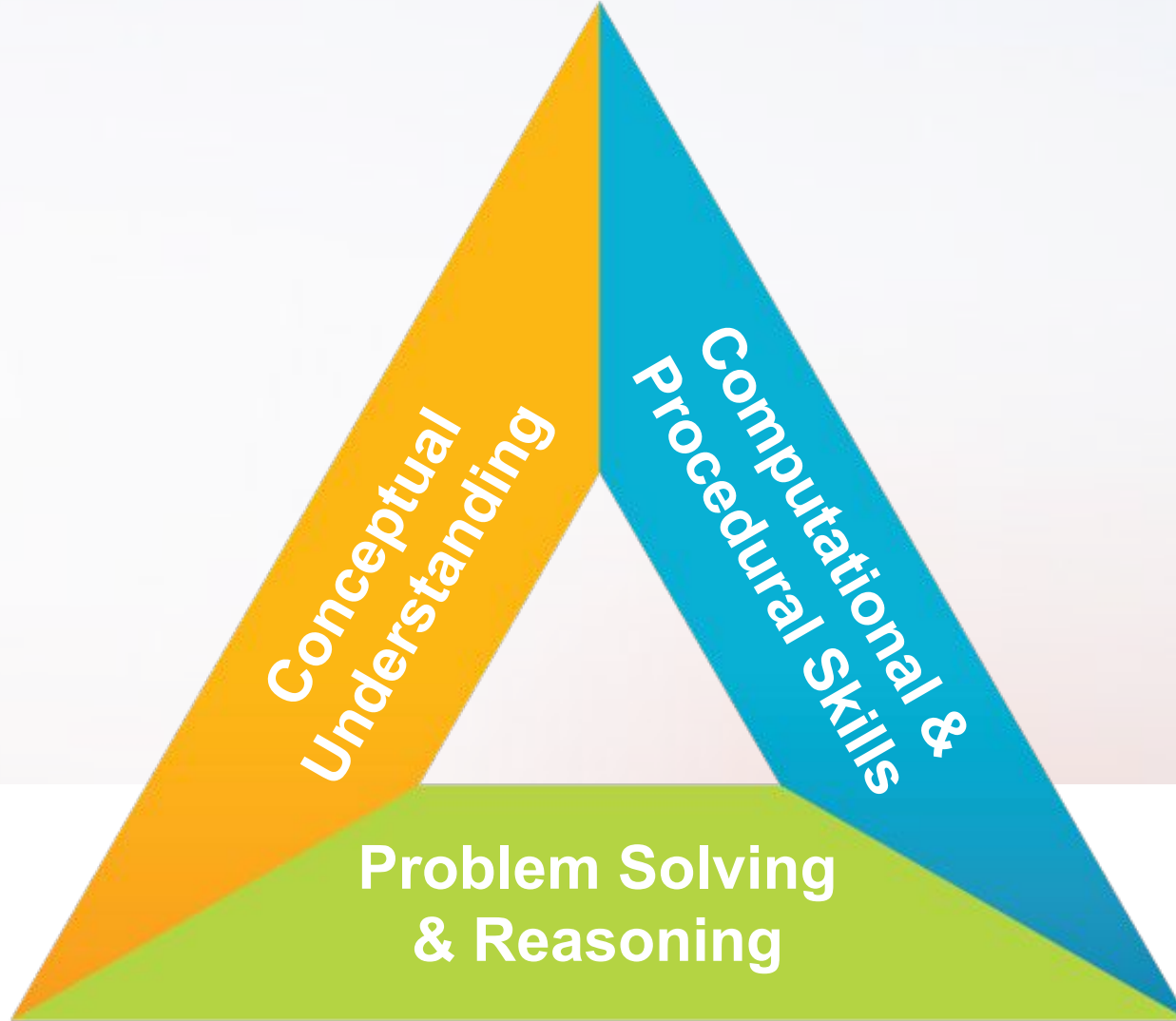
Progression of Learning through
All Mathematical Strands

Collaboration with Dr. Fuson



- Make all resources available
 - personal website and videos for teachers
- Monthly phone conference
- Made suggestions for unit structure and post test content
- Identify potential gaps and high-leverage topics
- Create online courses using videos and other resources
- Provide feedback on progress
- Willing to speak with teachers

A Balanced Mathematics Curriculum



The Five Core Structures



Standards for Mathematical Practice



1 Make sense of problems and persevere in solving them

5 Use appropriate tools strategically

2 Reason abstractly and quantitatively

6 Attend to precision

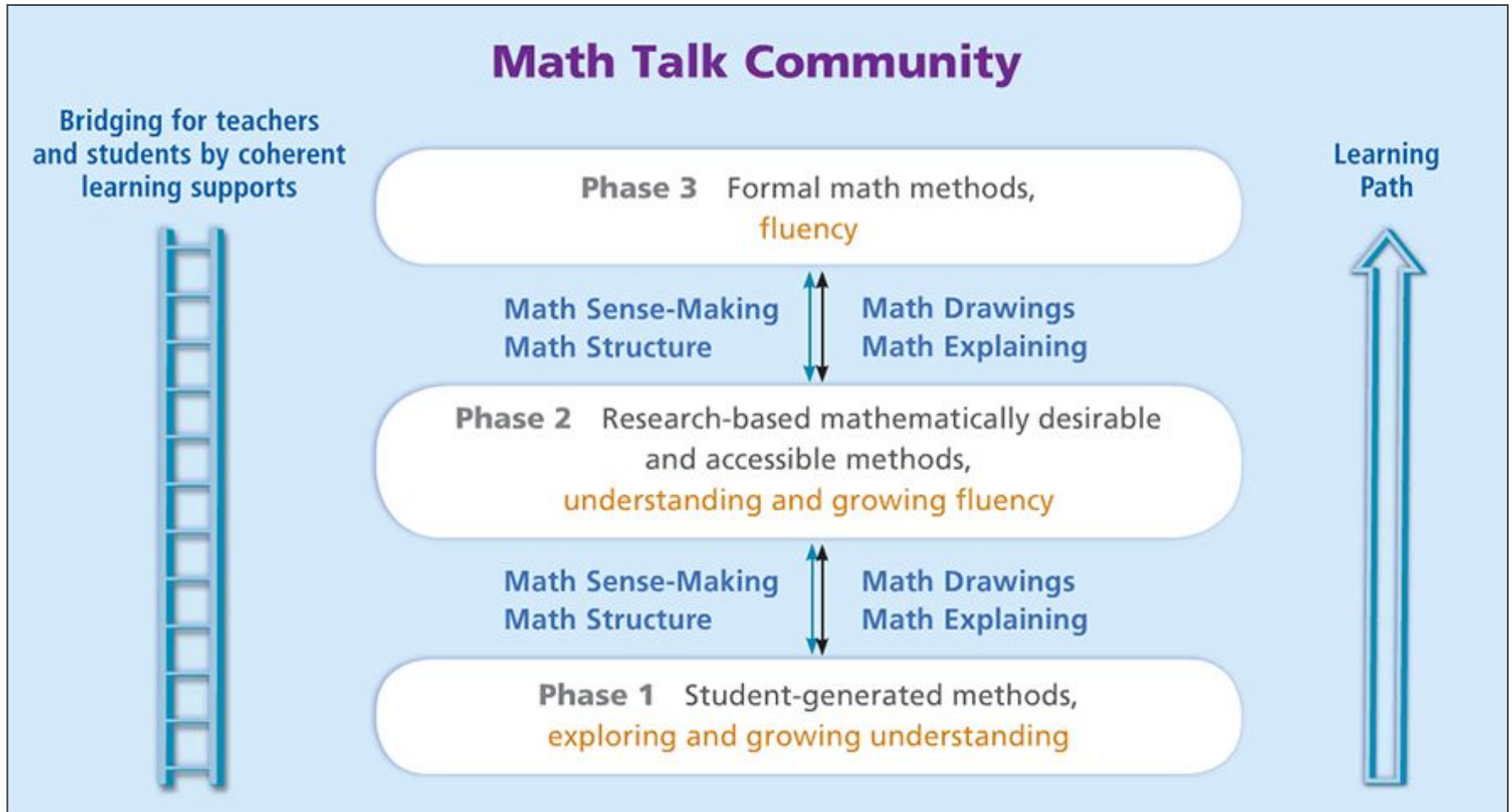
3 Construct viable arguments and critique the reasoning of others

7 Look for and make use of structure

4 Model with mathematics

8 Look for and express regularity in repeated reasoning

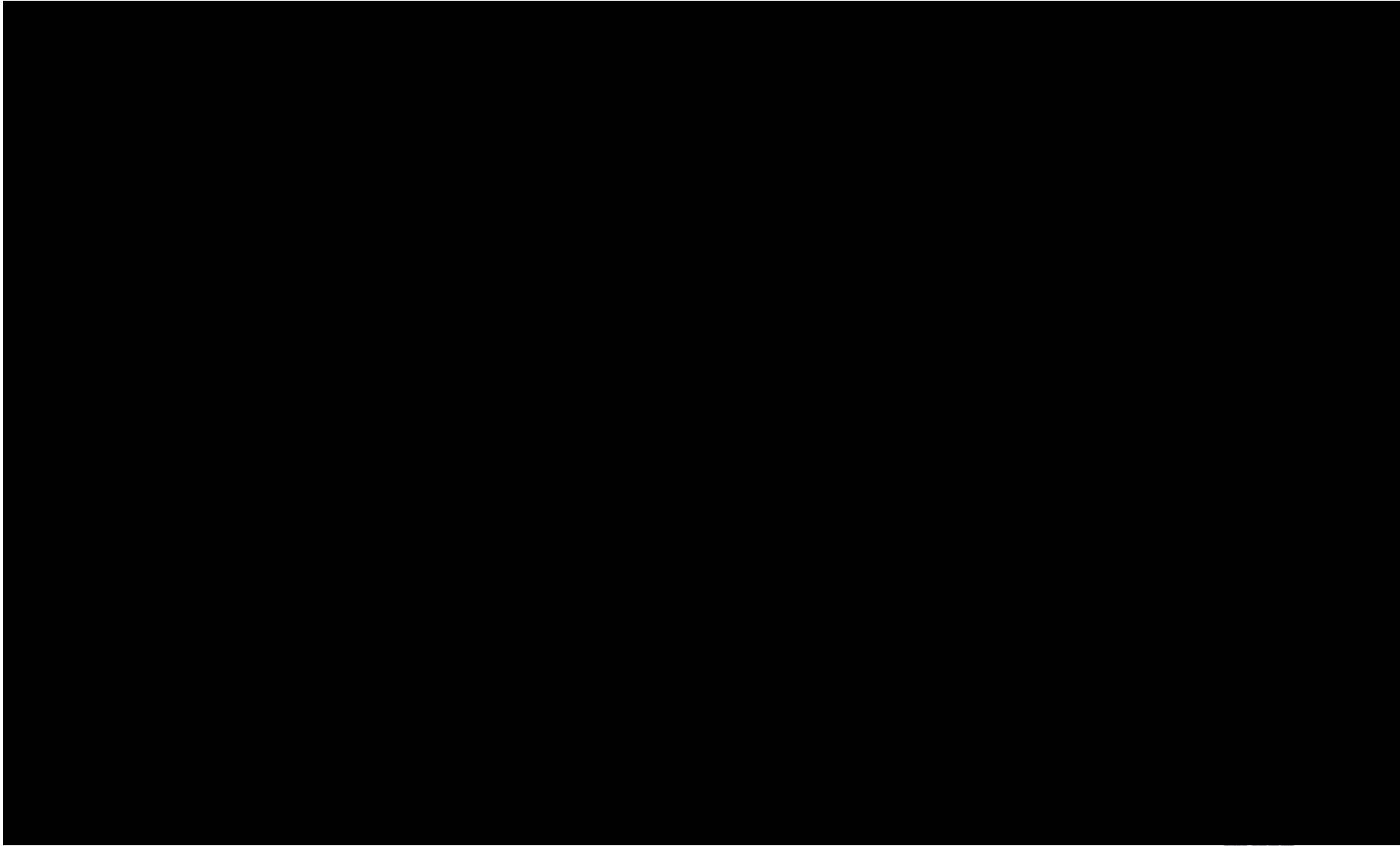
The Inquiry Learning Path





Solve
Explain
Question
Justify

Math Talk Community





We Remember....

- 10% of what we read
- 20% of what we hear
- 30% of what we see
- 50% of what we see and hear
- 70% of what we discuss with others**
- 80% of what we experience**
- 95% of what we teach others**

- *William Glasser*

Quick Practices & Student Leaders



Embedded PD: Putting Research into Practice



Research—Best Practices Putting Research into Practice



Dr. Karen C. Fuson,
Math Expressions Author

From Our Curriculum Research Project: Analyzing the Structure and Language of Word Problems

In this unit, children analyze a variety of word problem structures: *Add To*, *Take From*, *Put Together/Take Apart*, and *Compare*. They also analyze problems with not enough information, problems with extra information, problems with hidden information, and problems that require two steps to solve.

- *Add To* and *Take From* problems provide a quantity which is modified by a change—something is added or subtracted—which results in a new quantity.
- *Put Together/Take Apart* problems have all of the quantities of objects present from the start and nothing is introduced or removed.
- *Compare* problems involve someone or something that has more or less of something than someone or something else.

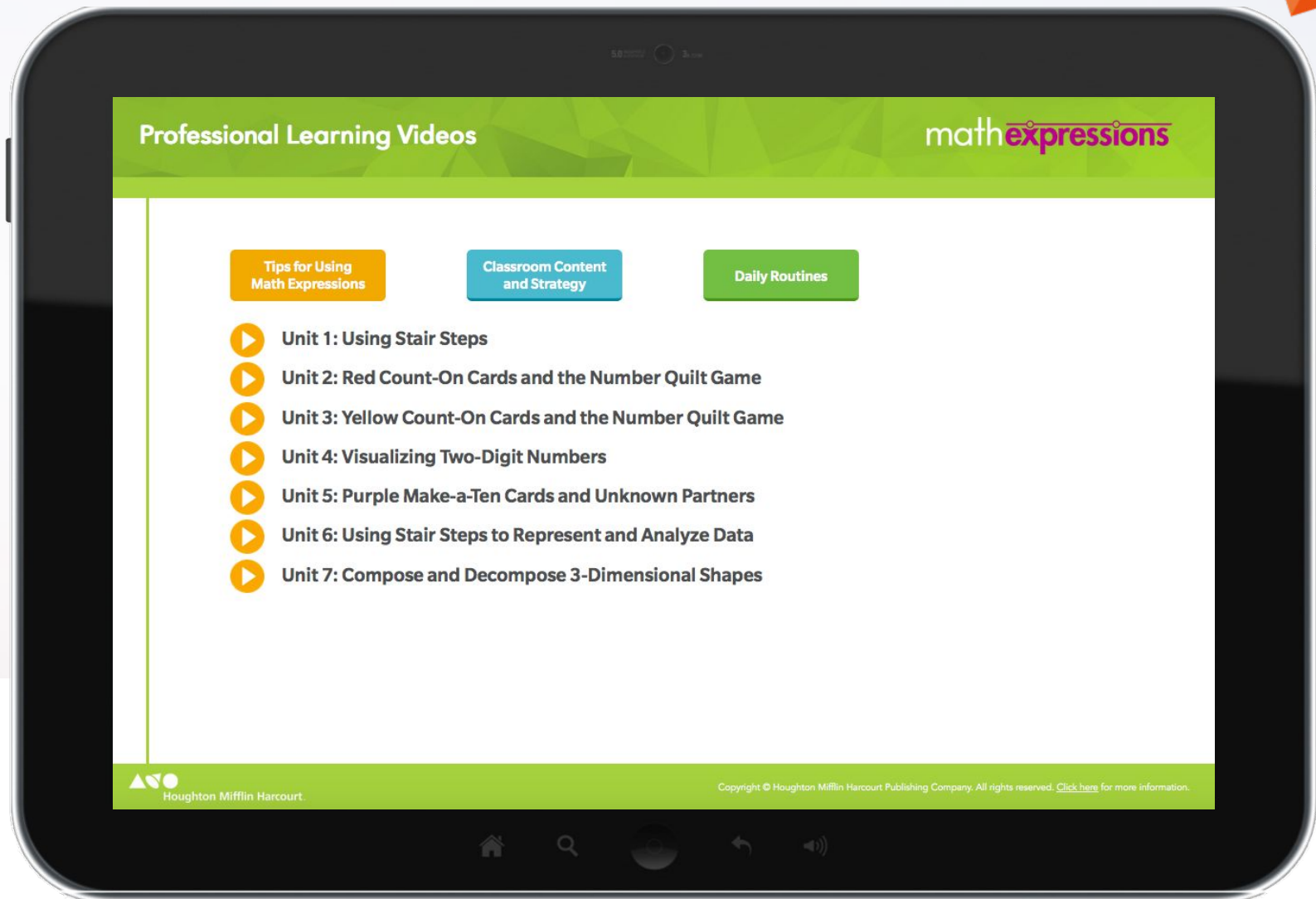
Throughout, children model, draw, or act out the actions or relations presented in the word problems as a strategy for understanding and solving them.

From Current Research: Using Mathematical Drawings

Mathematical drawings focus on the mathematically important features and relationships, such as quantity and operations, and can use small circles or other simple shapes. These representations can evolve into schematic numerical drawings that show relations or operations.

Fuson, Karen C., Clements, Douglas H., Beckman, Sybilla. *Focus in Grade 2: Teaching with Curriculum Focal Points*, National Council of Teachers of Mathematics, 2011. 5

Embedded Professional Development



Embedded PD: Mathematical Practices



from the Progressions for The Common Core State Standards On Operations and Algebraic Thinking

Relate Addition and Subtraction

Lessons 1 and 2

Math Mountains and Equations Math Mountains are used in *Expressions* to show how addition and subtraction are related. A Math Mountain shows a total on top and two partners (addends) at the bottom. In Lesson 1, children relate Math Mountains to addition and subtraction equations and to real world problems.

Math Mountain



Equation

$$8 + 6 = 14$$

Real World Problem

There are 8 flowers in a vase. There are 6 flowers in a glass. How many flowers are there altogether?

Math Mountain



Equations

$$9 + 6 = 15$$

$$15 - 9 = 6$$

Real World Problems

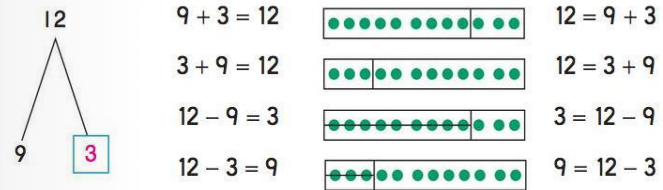
There were 9 children playing in the park. Some more children came. Now there are 15 children playing. How many children came to the park?

There were 15 children playing in the park. Nine went home. How many children are still playing?

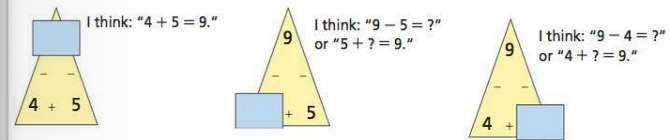
Relate Addition and Subtraction

Diagrams used in Grade 1 to show how quantities in the situation are related continue to be useful in Grade 2, and students continue to relate the diagrams to situation equations. Such relating helps students rewrite a situation equation like $\square - 38 = 49$ as $49 + 38 = \square$ because they see that the first number in the subtraction equation is the total. Each addition and subtraction equation has seven related equations. Students can write all of these equations, continuing to connect addition and subtraction, and their experience with equations of various forms.

Related Equations Children discuss why the eight equations below come from the Math Mountain. In their discussion, they informally discuss properties of addition and of equality, and the relationship between addition and subtraction.



Math Mountain Cards Children use Math Mountain Cards to practice addition and subtraction. The cards make clear how addition, subtraction, and finding an unknown addend are related. The cards reinforce that the same process is used for subtraction and for finding an unknown addend.



Pacing Guide



Introduction

118

Pacing Guide

You can use the Prerequisite Skills Inventory Test in the Assessment Guide to determine how fluent students are with Grade 2 concepts and skills. The information will be useful as you prepare to teach each unit.

This Pacing Guide includes two additional days for the Unit Assessments and one day for Quick Quizzes and Fluency or Strategy Checks that are in the Student Activity Book at the end of each Big Idea.

Unit	Unit Focus	Pacing Suggestion	Days
1	Multiplication and Division with 0–5, 9, and 10 In this unit, students learn how to use a variety of practice materials and routines to practice basic multiplications and divisions. They also learn how to use different strategies for multiplying and dividing, how multiplication and division are related and how to use math drawings and equations to represent and solve word problems.	19 lessons: Lessons 6, 9, 14, and 18 may take 2 days 4 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments, and Formal Assessment 1 day: Prerequisite Skills Inventory Test	30
2	Multiplication and Division with 6s, 7s, 8s and Multiply with Multiples of 10 Students learn multiplications and divisions for 6s, 7s, and 8s, while continuing to practice the rest of the basic multiplications and divisions covered in Unit 1. The lessons for 6s, 7s, and 8s multiplications focus on strategies for finding the products using multiplications they know. This unit also focuses on word problems.	15 lessons: Lessons 8, 13, and 14 may take 2 days 2 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	22
3	Multidigit Addition and Subtraction In this unit, students review place value and rounding numbers to estimate and check reasonableness of answers. They also practice addition and subtraction with multidigit numbers.	18 lessons: Lessons 8 and 11 may take 2 days 3 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	25
4	Fractions, Time, and Data Students build fractions from unit fractions and explore fractions as part of a whole. They compare fractions with either the same denominator or same numerator. Students read and create graphs and display data. They use fractions to solve measurement problems and solve problems involving time and elapsed time.	16 lessons: Lessons 1, 5, 6, 12, and 14 may take 2 days 3 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	26
5	Measurement and Fractions In this unit, students compare area and perimeter and solve area and perimeter problems. They find equivalent fractions and solve problems involving fractions.	10 lessons: Lessons 1, 6, and 8 may take 2 days 2 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	17
6	Write Equations to Solve Word Problems In this unit, students solve one- and two-step addition, subtraction, multiplication, and division problems involving unknown addends and factors.	11 lessons: Lessons 5 and 8 may take 2 days 2 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	17
7	Measurement and Polygons Students solve problems to find liquid volume, capacity, and weight and mass of objects. They analyze and classify triangles and quadrilaterals.	9 lessons 2 days: Quick Quizzes, Strategy/Fluency Checks 2 days: Unit Assessments and Formal Assessment	13
Total Days			150

Teaching the Lesson



Unit 1: Lesson 1

Represent Addition and Subtraction

Common Core State Standards

Mathematical Content
2.OA.A.1, 2.OA.B.2, 2.NBT.B.9
Mathematical Practices
MP2, MP3, MP6, MP7

1 Teaching

Math Background for this lesson

ACTIVITY 1



2 Differentiated Instruction

On-Level, Challenge, and Intervention

- Activity Card / Writing Prompt for each level
- Practice, Reteach, and Challenge

Games

- OSMO™ Activity 26
- Poggles MX
- On the Ferris Wheel Gameboard
- Primary Vocabulary Game

Quick Practice 5m

(See page QP1-U1.)

- *The daily Quick Practice is introduced in Lesson 1-2.*

Personal Math Trainer, Lesson 1-1

Formative assessment and step-by-step intervention.



3 Homework and Spiral Review

Homework and Remembering pp. 1–2

Home and School Connection
Family Letter

Teaching the Lesson



1 Teaching the Lesson



Lesson 1: Represent Addition and Subtraction

ACTIVITY 1 30m

Relate Addition and Subtraction

Common Core State Standards

Mathematical Content
2.OA.A.1, 2.OA.B.2, 2.NBT.B.9

Mathematical Practices
MP2, MP3, MP6, MP7

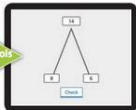
Focus

Relate addition and subtraction using Math Mountains, equations, and word problems.

Materials
Student Activity Book pp. 3–4

Relate Math Mountains and Equations for Addition MathTalk

Ask children to look at the two forms with numbers at the top of Student Activity Book page 3 and discuss what they know about those forms. If no one has seen a Math Mountain, introduce the term using the information on the next page. Then read through the vocabulary together. Ask children to describe what each word means and then answer the questions in Exercise 1 using this vocabulary. The discussion should cover all of the Discussion Points listed on the next page. Share with children any points that do not arise in the discussion.



iTools: Math Mountain
The Math Mountain iTool may be used in this lesson.

Student Activity Book page 3

Unit 1 • Lesson 1 Name _____

Relate Math Mountains and Equations for Addition

VOCABULARY
equation
total
addends

Discuss the Math Mountain and the equation.

- Where is the **total**? Where are the **partners** or **addends**?
- Tell word problems for both.
- Solve both and compare your strategies.

Relate Math Mountains and Equations for Subtraction

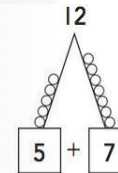
Discuss this Math Mountain and the equations.

- Where is the **total**? Where are the **partners** or **addends**?
- Tell word problems for all.
- Solve all and compare your strategies.

Student Standards 2.OA.A.1, 2.OA.B.2, 2.NBT.B.9
Mathematical Practices MP2, MP3, MP6, MP7

Discussion Points

- An equation says that the expression (numbers and operation) on one side is equal to the expression (numbers and operation) on the other side. A number alone can be on either side of the equal sign. Both sides can have numbers and an operation.
- A Math Mountain shows a total at the top and two partners (addends) at the bottom. In Kindergarten, children had a story about Math Mountains in which Tiny Tumblers came out every day; some played on one side of the mountain, and some played on the other side. The total at the top of the Math Mountain tells how many in all; the partners (addends) at the bottom tell two numbers that add up to the total on the top. The Math Mountain looks like a pointy mountain. This story can help children remember that the total is on the top, and the two numbers on the bottom together make that total.



- The Math Mountain shows a total breaking apart into the addends, so the total is at the top and the addends are at the bottom. An addition equation shows two addends put together (added) to make a total, so the addends are on one side and the total is on the other side. Ask children to circle the total at the top of the Math Mountain and on the right of the equation and to write a T beside or above it to remember where the total is.

MP7 Look for Structure | Identify Relationships Ask children to give word problems for the Math Mountain and for the equation (Exercise 2 on Student Activity Book page 3). Any situation in which the addends are 8 and 6 and the total is unknown is acceptable. Ask children to tell in their own words a word problem another child gives; the problem should describe the same situation. This helps children learn to listen as other children talk and to vary the math language in the question (*in all, in total, altogether, then at the end, and so on*).

MP6 Attend to Precision | Explain a Method Ask children to give solutions for the Math Mountain and for the equation (Exercise 3 on Student Activity Book page 3) and to explain the strategies they used. Elicit strategies until you have all that your class can think of. Ask as you go along, “How many can use that strategy?” to get an idea about how many of the children are using Level 1 counting all, Level 2 counting on, or Level 3 make-a-ten methods. (See Unit Overview.) Some children may say they just know the answer. That is fine, but you can ask them how they would show someone who did not know the answer how to get the answer. Be sure that everyone understands that they can use the same strategies for the Math Mountain and for the equation because they have the same addends and an unknown total. Children will discuss Level 2 counting on more in the next part of this lesson, and the Level 3 make-a-ten methods will be discussed in following lessons.

Activity continued on...

Teaching Notes

Math Background This lesson elicits children’s understandings of addition and subtraction situations and of ways to represent these situations. In Kindergarten and Grade 1, children use Math Mountains and equations to represent addition and subtraction situations. This lesson focuses on these two representations and how they relate to each other in addition and subtraction situations.

A central focus necessary for problem solving, especially with the more difficult types that will be used in Grade 2, is to understand where the total is in the Math Mountain and in addition and subtraction equations.

Vocabulary In the Student Activity Book, at the beginning of each unit, there are Vocabulary Cards that can be cut out. The cards can be used in the classroom or sent home for children to review the math vocabulary in *Math Expressions*. These cards can also be used with the Vocabulary Activities found in the back of this Teacher Edition.

Teaching Notes

Vocabulary In Kindergarten and Grade 1, children in *Math Expressions* used the word *partners* to describe two numbers put together to make a number (the total) because the word *partners* made this easy to understand. The math word for *partner* is *addend*, and the teacher used both words. Now in Grade 2 children will start using the math word *addend* instead of *partner*. In this unit you can use both terms to be sure everyone understands that *addend* means *partner*.

Math Mountain The use of this model in this program is the result of a study of models used in East Asian countries and extensive classroom-based research. Children use Math Mountains to help them solve addition and subtraction problems. They are also used to relate addition and subtraction equations.

Teaching the Lesson



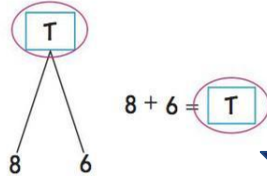
1 Teaching the Lesson (continued)

Relate Math Mountains and Equations for Subtraction

MP6 Attend to Precision | Explain a Representation Ask children to now look at the Math Mountain and the equations at the bottom of Student Activity Book page 3 and identify what is different about the bottom and the top forms. Then use Exercises 4–6 for discussion. The discussion should cover the following points. Share with children any points that do not arise in the discussion.

Discussion Points

- At the top of Student Activity Book page 3, the total is unknown. At the bottom of the page, the partner (addend) is unknown. An unknown addend situation can be written as an addition equation or as a subtraction equation. Subtracting is finding an unknown addend.
- The total is at the top of the Math Mountain. Ask children to circle the total at the top of the Math Mountain and in the equations, and to write a T beside or below it to remember where the total is.



- Word problem situations for the Math Mountain and for the addition equation will be of the following types (see the Unit Overview):

Put Together/Take Apart

Total last: Nine flowers are in the vase, and the rest are in the glass. There are 15 flowers. How many flowers are in the glass?
Total first: There are 15 marbles. Nine of them are blue, and the others are red. How many are red?

Add To

There were 9 children playing at the park. Some more children came. Now there are 15 children playing. How many children came to the park?

For these unknown addend situations, the words *the rest* or *the others* or *part* and *the other part* are important.

- Word problem situations for the subtraction equation will mostly be of the *Take From* type in which some are taken from the initial total:

From
 There were 15 children playing in the park. Nine children went home. How many are still playing?

Add To and Take From situations undo each other. A subtraction situation can be solved by using either a take strategy or an adding to strategy with an unknown.

1 Teaching the Lesson

Lesson 1: Represent Addition and Subtraction

Student Activity Book page 4

Count On for Addition and Subtraction

MP3 Construct a Viable Argument | Compare Methods Explain to children that they will now watch counting on to find a total and counting on to find an unknown addend and then discuss how these methods are alike and different.

Ask one child to demonstrate counting on for $9 + 3 = \square$, and another child to demonstrate counting on for $9 + \square = 12$.

- How are these alike? How are they different?

The children watching will see that they cannot tell which problem a child is solving by watching them. They look the same: The child says 9, counts on 3 keeping track, and stops at 12. Only the solver knows which problem is being solved.

Exercises 7 and 8 on Student Activity Book page 4 and the Teaching Note below summarize the methods for using counting on for either addition or subtraction.

UNIT 1 | Lesson 1

Count On for Addition or Subtraction

1 For addition, I pretend I already counted 9. Then I count on 3 more to get the total. I stop when I see/hear 3. I hear 12, the unknown total.

$9 + 3 = 12$ Stop when I hear 12. I already counted 9. I hear 12. 3 more to make 12.

2 For subtraction, I pretend I already counted 9. I count on until I get to 12. I stop when I hear 12. I see/hear 3, the unknown partner.

$12 - 9 = 3$ I took 9 away. I hear 12. I stop when I hear 12. 3 more to make 12.

Patterns in Equations

3 Discuss patterns in the eight equations for a Math Mountain with total 12 and partners 9 and 3.

$9 + 3 = 12$ $12 = 9 + 3$
 $3 + 9 = 12$ $12 = 3 + 9$
 $12 - 9 = 3$ $3 = 12 - 9$
 $12 - 3 = 9$ $9 = 12 - 3$

Activity continued ▶

English Learners

Write **Math Mountain** on the board. Below it, draw a Math Mountain for 15, 7, and 8. Then write **partners** and **total**, with arrows pointing to the partners (7 and 8) and the total (15) in the Math Mountain.

Emerging

- A Math Mountain shows partners and a total.

Have children repeat these three terms.

- The partners add up to the total at the top.

Expanding

- What gets added together to make the total in a Math Mountain? **the partners**
- What is always at the top of a Math Mountain? **the total**

Bridging

Write on the board: The _____ in a Math Mountain add up to the _____.

Ask children to read the sentence aloud, putting in the correct words. **partners; total**

Condition The on states f two same. y can counting on ly easier s to count.

Counting On for Addition or Subtraction In counting on to find the total 12, you keep track of the second addend 3 and stop when your fingers show 3. The words tell the total 12.

In counting on to find the unknown addend 3, you keep track of the words you say and stop when you hear 12. The number of fingers tells the unknown addend 3.

Represent Addition and Subtraction | 5

Teaching the Lesson



1 Teaching the Lesson (continued)

Patterns in Equations



MP2 Reason Abstractly and Quantitatively | Connect Diagrams and Equations Ask children to look at Exercise 9 on Student Activity Book page 4 and tell why these eight equations are related. Children can use the diagrams in the middle to explain the equations on either side. Be sure that children include the following points in their discussion.

Discuss patterns in the eight equations for a Math Mountain with total 12 and partners 9 and 3.

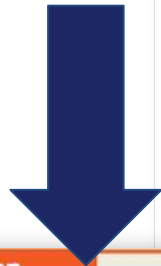
$9 + 3 = 12$		$12 = 9 + 3$
$3 + 9 = 12$		$12 = 3 + 9$
$12 - 9 = 3$		$3 = 12 - 9$
$12 - 3 = 9$		$9 = 12 - 3$

Discussion Points

- The top two equations on the left are related by showing the Commutative Property of Addition. (You can add the addends in either order and the sum is the same.)
- All of the equations on the right are correct equations because if you complete the operation on the right, you get the number on the left. An equation can have just one number on the left.
- The bottom two equations on the left show that subtracting either of the two addends leaves the other addend. You are breaking the total into the same two addends, taking one and leaving the other.

Ask children to circle the total in each equation and discuss patterns they see.

- For addition equations, the total will be alone on the left or on the right.
- For subtraction equations, the total will be on a side with one addend and will be in front of that addend so that addend can be taken away from the total.



Differentiated Instruction

Universal Access | Special Needs Be sure everyone understands classroom expectations for behavior. If some children constantly call out questions or answers, gently remind them to raise their hand when they have a question, and then address the question, or remark. Give these children an opportunity to be actively involved with the activity or discussion by asking them to answer questions or write examples on the board.

Lesson 1: Represent Addition and Subtraction

Student Activity Book page 5

ACTIVITY 2 25m

Practice Relating Equations and Math Mountains

Common Core State Standards
Mathematical Content
2.OA.A.1, 2.OA.B.2
Mathematical Practices
MP3, MP6

Focus
Practice relating equations and Math Mountains.
Materials
Student Activity Book
pp. 5–6

Write Equations for Math Mountains



Use the Solve and Discuss structure (see description below) for each Math Mountain on Student Activity Book page 5. Emphasize that the goal right now is not to find the unknown number. The goal is to write equations that are related to each Math Mountain. Children can write any of the forms of the eight related equations they just discussed (the answer key gives the most common equations that children will give, but accept any correct related equations).

MP6 Attend to Precision | Explain a Method Direct children's attention to the first two Math Mountains in the bottom row on Student Activity Book page 5. Ask for volunteers to show counting on and make-a-ten methods that can be used to find the unknowns. Ask other volunteers to give word problems for these Math Mountains, and ask everyone to check that the equations on the board and their own equations can show or be used to solve that situation.

1st - Lesson 1 Name _____

Write Equations for Math Mountains

Write two equations for each Math Mountain. Equations may vary. Possible equations are shown.

<p>12</p> <p>9 + 5 = <input type="text"/></p> <p><input type="text"/> + 5 = <input type="text"/></p>	<p>12</p> <p>12 - 8 = <input type="text"/></p> <p>8 + <input type="text"/> = 12</p>	<p>17</p> <p>9 + <input type="text"/> = 17</p> <p>17 - 9 = <input type="text"/></p>
<p>16</p> <p>8 + 7 = <input type="text"/></p> <p><input type="text"/> + 7 = 8</p>	<p>16</p> <p>16 - 9 = <input type="text"/></p> <p>9 + <input type="text"/> = 16</p>	<p>14</p> <p>7 + <input type="text"/> = 14</p> <p>14 - 7 = <input type="text"/></p>

Activity continued ▶

Teaching Note

If any children have difficulty writing equations with an unknown box for the total or addend, they can solve the Math Mountain and use the three numbers in their equations. However, the patterns are clearer with the unknown boxes.

Learning Community

MathTalk | Best Practices When using the Solve and Discuss structure, invite four or five children (or as many as will fit) to go to the board to solve a problem while the rest of the class solves at their seats. Then choose just two children to explain their work. This allows time for the class to go on to the next problem and discuss it.

When children are explaining their methods, encourage children at their seats to ask questions. Explain that it is fine if they ask questions in the same way as a teacher asks them: children can ask questions for which they already know the answer if they think that the question can help other children better understand. Children can also ask about anything on the board for which they have questions, or they can help a child correct what they think is an error and explain why they think it is an error.

Represent Addition and Subtraction | 7

Teaching the Lesson



1 Teaching the Lesson (continued)

Draw Math Mountains MathTalk

Repeat these Solve and Discuss steps for each exercise on Student Activity Book page 6. Now children are given one equation. They draw a Math Mountain at the top and write another equation.

Describe the Homework Helper

Tell children that they will have homework almost every day and they will need to choose someone at home or nearby to be

Student Activity Book page 6

100 | Lesson 1

Draw Math Mountains: Order of addends in Math Mountains may vary. Equations may vary.

Draw a Math Mountain and write one more equation.

all three numbers in place.

Represent Addition and Subtraction.

✓ Formative Assessment Check Understanding

On their MathBoards, children will draw a completed Math Mountain. Ask children how Math Mountains show addition and subtraction. Children's explanations should demonstrate understanding that the bottom numbers are partners that add up to the total at the top, and that they can use subtraction to find an unknown addend.

Teaching Note

Watch For! Children may write any correct equations for the Math Mountain. For Math Mountains with an unknown total (such as, Exercise 16 on Student Activity Book page 6), some children may write $\square - 9 = 6$. If this happens, acknowledge that this is a possible equation for this Math Mountain. If children do not bring up this type of subtraction equation in which the total is the unknown, it is not necessary to discuss them at this time. These equations and the situations they represent, will be discussed in Lesson 11.

8 | UNIT 1 | Lesson 1

Class Management

Looking Ahead In the next lesson, children will use Math Mountain Cards. These are on Student Activity Book pages 9–12 and on TRB M1–M2 and will need to be cut out. Children can use the cards in the Student Activity Book, or they can take those home and you can make sturdy cards for classroom use by copying the TRB onto card stock. If you have access to the *Math Expressions* materials kits, the Math Mountain Cards are included, so you will not have to prepare these materials.

Differentiation for All Learners



Daily Homework and Remembering



Dear Family:

Your child is now learning how to add 2-digit numbers. The "big mystery" in adding is making a new ten or a new hundred. Children can write this new group in several ways.

Show All Totals	New Groups Below
$\begin{array}{r} 45 \\ + 28 \\ \hline \end{array}$ <p>Add tens. → 60 Add ones. → 13 73</p> <p>Find total tens. Find total ones.</p> <p>New ten</p>	$\begin{array}{r} 45 \\ + 28 \\ \hline 73 \end{array}$ <p>New ten</p> <p>Find total ones. (13) Write 3 and put the new ten in the tens column ready to add. Add the tens. (4 + 2 = 6, 6 + 1 = 7)</p>

Children usually find it easier to write the new ten below because then they add the new ten last. They add 4 + 2 = 6 and then 6 + 1 = 7.

Traditionally, most children have learned to write the new ten above. With this method, you add 1 + 4 = 5 and then 5 + 2 = 7. This is more difficult for many children, but some children may still choose this method, particularly if they have been taught to do so previously.

Thank you for helping your child learn mathematics.

Sincerely,
Your child's teacher

New Groups Above

$$\begin{array}{r} | \\ 45 \\ + 28 \\ \hline 73 \end{array}$$

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Estimada familia:

Su niño está aprendiendo a sumar números de 2 dígitos. El "gran misterio" en la suma de números de 2 dígitos consiste en formar una nueva decena o una nueva centena. Los niños pueden anotar este nuevo grupo de varias maneras.

Mostrar todos los totales	Grupos nuevos abajo
$\begin{array}{r} 45 \\ + 28 \\ \hline \end{array}$ <p>Sumar decenas. → 60 Sumar unidades. → 13 73</p> <p>Hallar el total de decenas. Hallar el total de unidades.</p> <p>Nueva decena</p>	$\begin{array}{r} 45 \\ + 28 \\ \hline 73 \end{array}$ <p>Nueva decena</p> <p>Hallar el total de unidades. (13) Escribir 3 y poner la nueva decena en la columna de las decenas, lista para sumar. Sumar las decenas. (4 + 2 = 6, 6 + 1 = 7)</p>

Por lo general a los niños les resulta más fácil escribir la nueva decena abajo, porque entonces suman la nueva decena al final. Suman 4 + 2 = 6 y luego 6 + 1 = 7.

Tradicionalmente, la mayoría de los estudiantes han aprendido a escribir la nueva decena arriba. Con ese método, se suma 1 + 4 = 5 y luego 5 + 2 = 7. Para muchos niños ese método resulta más difícil pero algunos siguen escogiéndolo, en especial si ya lo han aprendido.

Gracias por ayudar a su niño a aprender matemáticas.

Atentamente,
El maestro de su niño

Grupos nuevos arriba

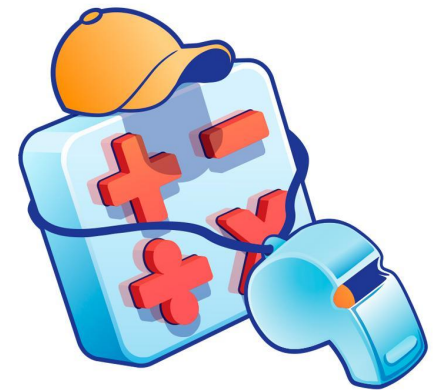
$$\begin{array}{r} | \\ 45 \\ + 28 \\ \hline 73 \end{array}$$

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Assessments Inform Instruction



- **Beginning of the year--Mid Year--End of the Year assessments**
- **Unit assessments: Form A and B**
- **Pre-test and Post test for every unit**
- **Quiz for every big idea**
- **Fluency check**
- **Personal math trainer**



**Personal
Math Trainer[®]**

Adapt Content for Each Student



Reports > [Class Comprehensive Report](#) > Assignment Report

Class Comprehensive Assignment Report

Report Summary

Class: Mrs. Taylor's Class Due Date Range: Aug 01, 2014 - Jul 01, 2015 Report Date: All

Assignment	Due Date	Start Date	Completed	Score			
Tests and Quizzes				78%			
Unit 1 Test	Feb 04, 2015	Jan 29, 2015	Jan 30, 2015	83%			
Unit 2 Test	Feb 17, 2015	Feb 04, 2015		83%			
Daily Intervention Assignments				95%	Warmup	Assignment	Enrichm
Lesson 11.1 PMT Homework	Feb 05, 2015	Jan 29, 2015	Feb 02, 2015	96%	92%	96%	91%
Lesson 11.2 PMT Homework	Feb 05, 2015	Jan 29, 2015	Feb 02, 2015	94%	95%	94%	90%
Personal Study plan				33%	Assignment	Prescription	Retest
Lesson 11.1 Share & Show	Feb 08, 2015	Jan 29, 2015	Jan 30, 2015	58%	58%	91%	88%
PMT Lesson 10.1 Homework		Feb 04, 2015	Expired	-	-	-	-
Lesson 10 Homework		Feb 18, 2015		70%	70%	-	-
Lesson 10 Homework		Feb 18, 2015	Expired	-	-	-	-
Lesson 12.2 Homework		Feb 20, 2015		0%	0%	-	-

Resource : Unit 1 Test
Teacher : Mrs. Taylor
Class : Mrs. Taylor's Class

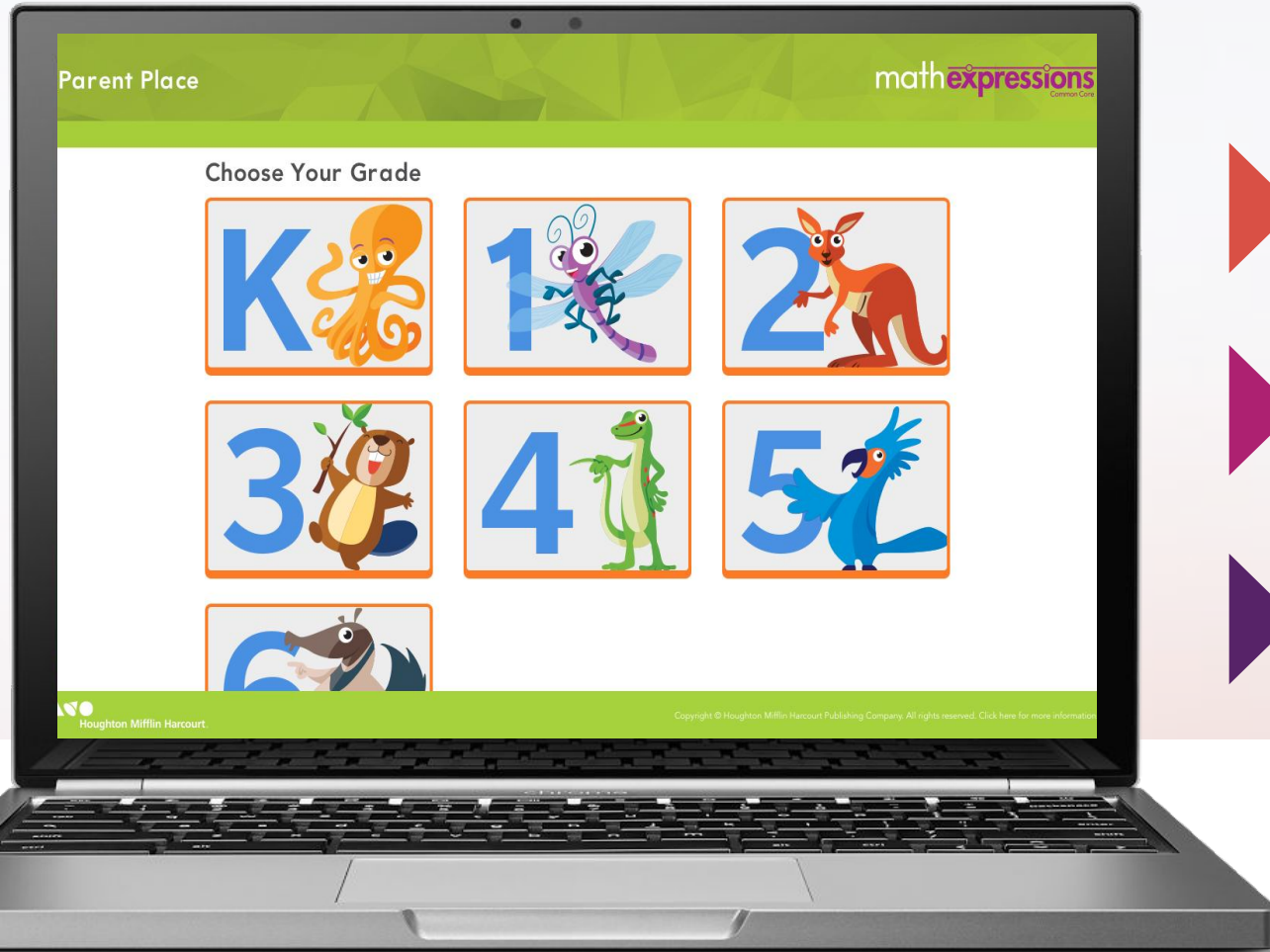
Export

Key: ✔ Correct ⚠ Partially Correct ✘ Incorrect

Student	Total	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q11
O'Neil, Miles	100%	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Lustig, Joshua	96%	✔	✔	✔	⚠	✔	✔	✔	✔	✔	✔
Gupta, Krishna	89%	✔	✔	✔	⚠	✔	✔	✔	✔	✔	✔
Carter, Owen	89%	✔	✔	✔	✔	✔	⚠	✔	✔	✔	✘
Chiang, Jenny	86%	✔	✔	✔	⚠	⚠	✘	✔	✔	✔	✔
Ziegler, Claire	82%	✔	✔	⚠	✔	✘	✔	✔	✔	✔	✔
Number of Students Correct	6 (100%)	6 (100%)	5 (83%)	3 (50%)	4 (66%)	4 (66%)	6 (100%)	6 (100%)	6 (100%)	5 (83%)	5 (83%)
Number of Students Partially Correct	0 (0%)	0 (0%)	1 (16%)	3 (50%)	1 (16%)	1 (16%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Personal
Math Trainer[®]

1.1 Parent Place



Unit Overviews



Unit Research and Math Background



Multi-lingual Family Letters

Synergy

Decision Ed

Able to feed data to

Decision Ed

Data can be downloaded as .csv file

ST Math

ST math is fully aligned with

Math Expressions

based on the standards

Great complement to **Math**

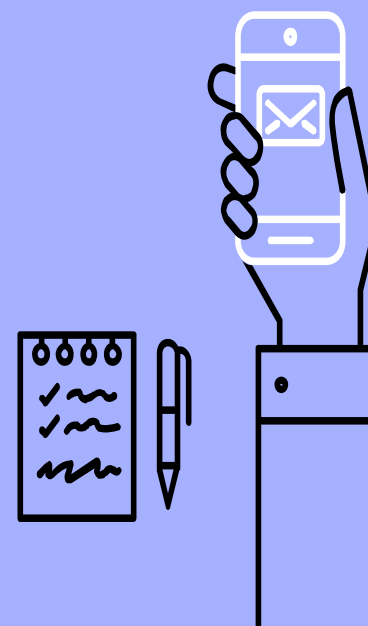
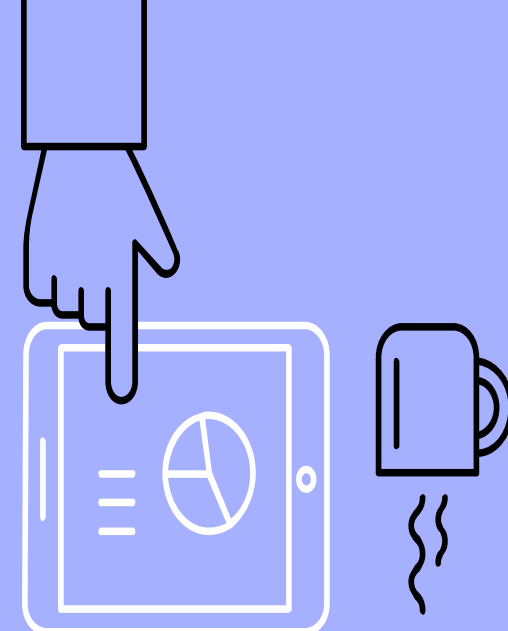
Expressions

School 4 One

Tasks from Math

Expressions can be uploaded to S4One

Data could be collected

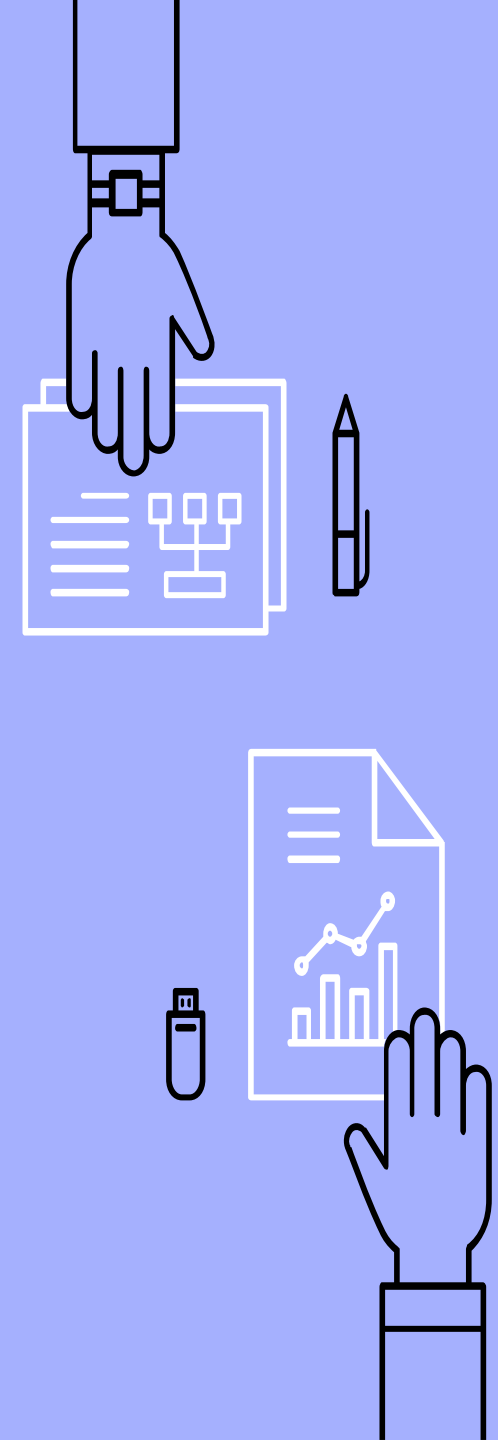


Estimated Final Cost

3 Year Estimate: \$237,404.43

This includes:

- ▷ Student materials
 - English & Spanish
- ▷ Teacher materials
- ▷ Professional Development
- ▷ Online Access



PD Plans

Teacher Granted Access in March

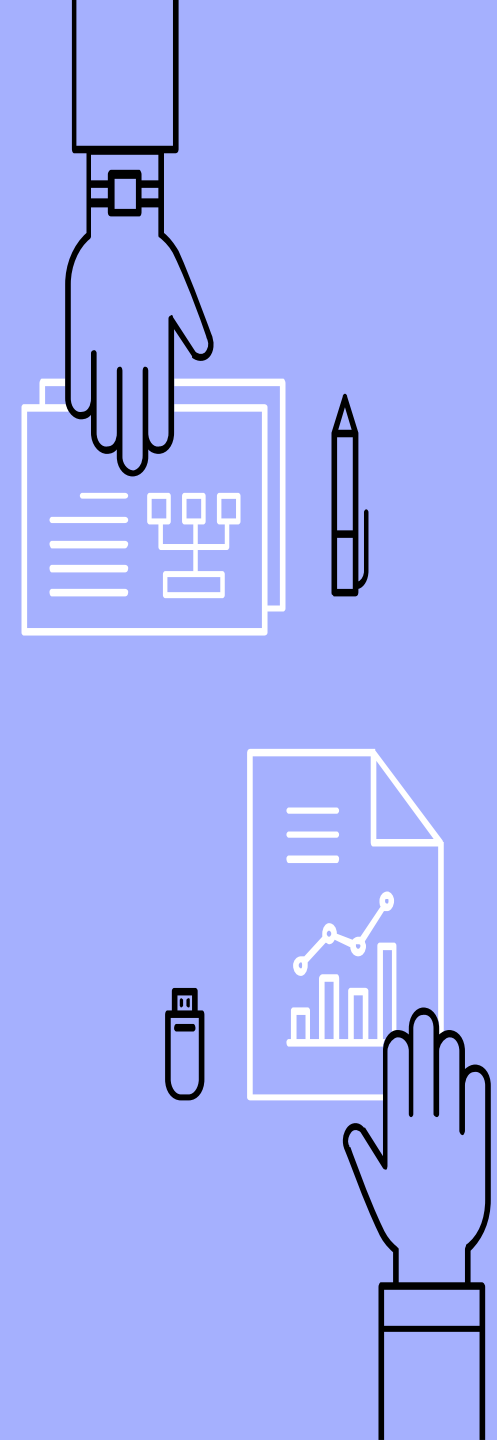
Vendor-provided half a day

Introduction K - 6

Vendor-provided follow up full day

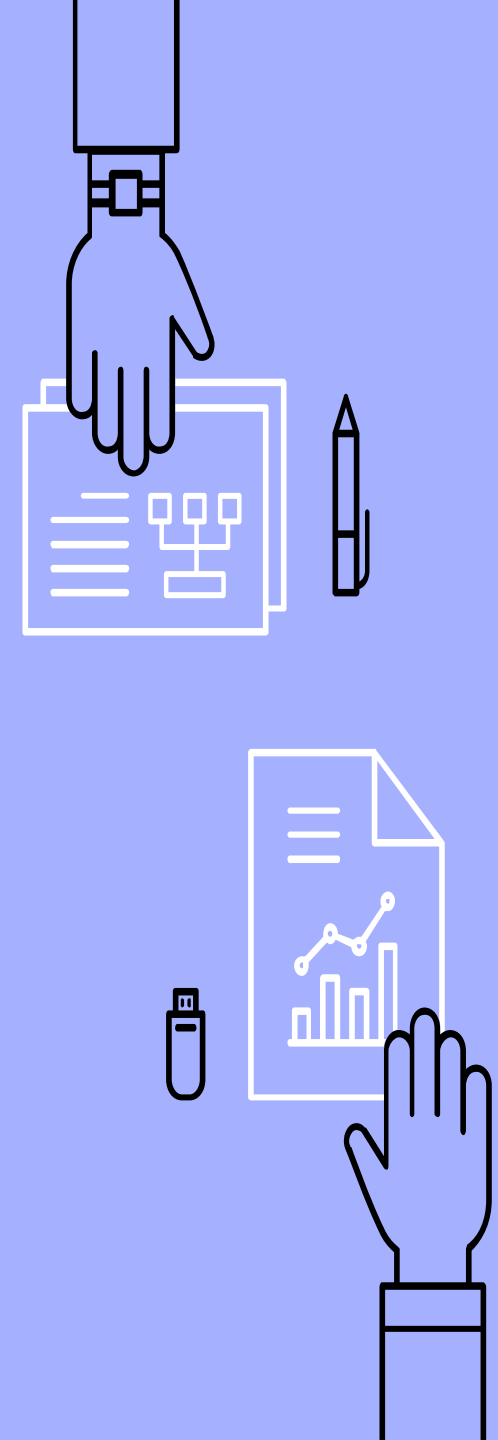
Coaching session

District provided continuing PD and Support.



Timeline:2018-2019

- ▶ Online access for teacher during the spring
- ▶ Awareness training for all K-6 Teachers March, 2019
- ▶ PD on Supt. Conf. Day
- ▶ Mid Year Evaluation in January
- ▶ End of the year Evaluation



THANK YOU!

Any questions?

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