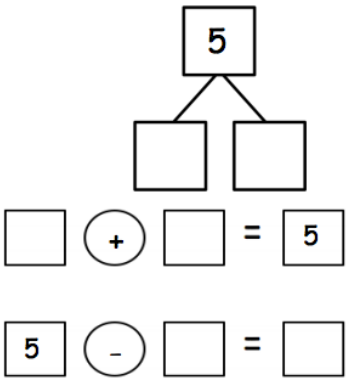
Eureka Math™ Tips for Parents

Grade 1 Module 1

Sums and Differences to 10

In this first module of Grade 1, students make significant progress toward fluency with addition and subtraction of numbers to 10. They are presented with opportunities designed to advance them from counting all to counting on. This leads many students to decomposing and composing total amounts. This module is an important foundational piece for our first grade mathematicians.



Number bonds are used to relate addition and subtraction

1 + 2	1 + 3
2 + 2	
3 + 2	3 + 3

Students will learn to solve related addition problems

What Comes After this Module: In Module 2, students begin to problem-solve with teen numbers. Students will go beyond the beginning strategies of counting on and counting back and learn to use more sophisticated strategies that involve working with groups of 10 as a basic unit, either taking away ten or making ten to solve problems.

Terms, Phrases, and Strategies in this Module:

Count on: Students count up from one addend to the total, e.g. for 5 + 4 they would start with 5, then count 6..7..8..9 to get the total of 9

Expression: e.g., 2 + 1 or 5 + 5 (expressions do not have an equals sign, thus are not equations)

Addend: One of the numbers being added in an addition problem

Doubles: e.g., 3 + 3 or 4 + 4

Doubles plus 1: e.g., 3 + 4 or 4 + 5

Part: e.g., "What is the unknown part? 3 + ___ = 8"

Equation and number sentence: these words are used interchangeably throughout the module

Number Bond: a graphic showing part/part/whole (see reverse side for more information)

+ How you can help at home:

- Practice "counting on" as a strategy for addition, e.g. if you have 7 LEGO pieces, and then you get 3 more, encourage your student to start with the number 7 and count "8…9…10" to find the total.
- Discuss various ways to take apart a given number, e.g. 6 is made of 1 and 5, 2 and 4, 3 and 3, etc.

Key Common Core Standards:

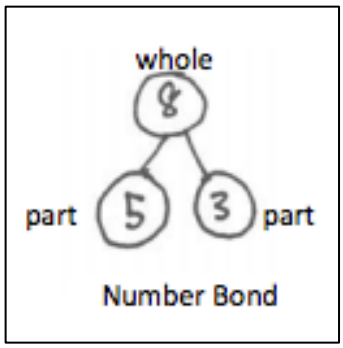
- ***Represent and solve problems involving addition and subtraction***
  - Use addition and subtraction within 10 to solve word problems
- ***Understand and apply properties of operations and the relationship between addition and subtraction***
  - Apply properties of operations as strategies to add and subtract
  - Understand subtraction as an unknown-addend problem
- ***Add and subtract within 10 (eventually within 20)***
  - Relate counting to addition and subtraction
- ***Work with addition and subtraction equations***
  - Understand the meaning of the equal sign
  - Determine the unknown whole number in an addition or subtraction equation relating three whole numbers

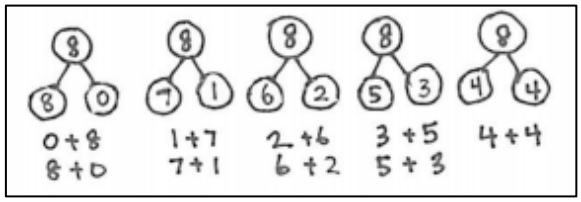
Prepared by Erin Schweng, Math Coach

Welcome to *A Story of Units*!

Each module's parent tip sheet will highlight a new strategy or math model your student will be working on.

In Module 1, first grade students will use Number Bonds to understand the part-part-whole relationships inherent to addition and subtraction. The Number Bond is a powerful mathematical model that students will return to throughout *A Story of Units*.





Number Bonds showing ways to make 8

Read on to learn a little bit about *Eureka Math*, the creators of *A Story of Units:*

Eureka Math is a complete, PreK–12 curriculum and professional development platform. It follows the focus and coherence of the Common Core State Standards (CCSS) and carefully sequences the progression of mathematical ideas into expertly crafted instructional modules.

This curriculum is distinguished not only by its adherence to the CCSS; it is also based on a theory of teaching math that is proven to work. That theory posits that mathematical knowledge is conveyed most effectively when it is taught in a sequence that follows the "story" of mathematics itself. This is why we call the elementary portion of *Eureka Math* "*A Story of Units*." The sequencing has been joined with methods of instruction that have been proven to work, in this nation and abroad. These methods drive student understanding beyond process, to deep mastery of mathematical concepts.

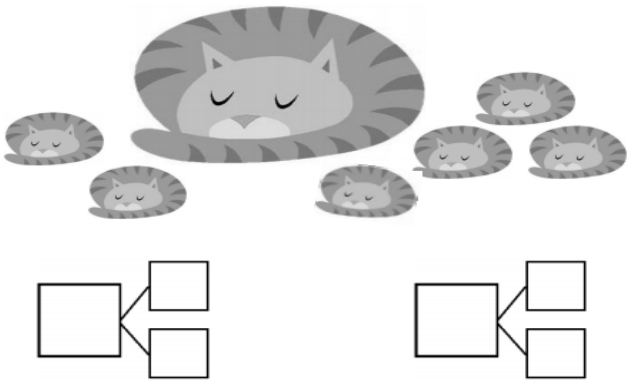
The goal of *Eureka Math* is to produce students who are not merely literate, but fluent, in mathematics. Your student has an exciting year of discovering the story of mathematics ahead!

Sample Problem from Module 1:

(Example taken from Module 1, Lesson 2)

How many animals do you see?

Write at least 2 different number bonds to show different ways to break apart the total.



Eureka Math™ Tips for Parents

Grade 1 Module 2

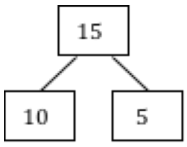
Introduction to Place Value using Addition and Subtraction up to the Number 20

In this module we will extend our work with addition and subtraction to the numbers 1–20, and learn some new strategies along the way.

We are working hard and extending our skills!

Think about this problem:

15 – 9 = ?



We can make a number bond showing that

15 = 10 + 5

Now, using the 10, we subtract 9:

10 – 9 = 1

We now have 1, but we need to add back our 5 from the number bond:

1 + 5 = 6 SO… 15 – 9 = 6!

What Came Before this Module: We worked with ways to make numbers up to 10, including simple addition and subtraction.

What Comes After this Module: We will continue to compare and order numbers, now expanding to topics in length measurement.

Key Words to Know

Units we will use:

A ten: (students will focus mainly on *one* ten during this module)

Ones: (these are individual units, ten of which become a ten)

Mathematical words:

Add
Subtract
Equals
"Teen Numbers": e.g., 13, 15, 19, etc.

Partners to 10: two numbers that together make 10

5 groups: representations of numbers that are lined up in groups of 5

Number bonds: a pictorial representation of how two or more smaller numbers can be combined to make a larger number

Rekenrek: see reverse

How you can help at home:

- Continue to practice finding partners for any given number, e.g., how can we make 8? 10?
- Talk about how we can find "tens" in other, larger numbers
- Make up and discuss short story problems that involve simple addition and subtraction

Key Common Core Standards:

- ***Represent and solve problems using addition and subtraction***
- ***Understand and apply properties of operations and the relationship between addition and subtraction (e.g. 3 + 2 = 2 + 3, and 2 + 6 + 4 = 2 + 10)***
- ***Add and subtract within 20***
- ***Understand place value***

Prepared by Erin Schweng, Math Coach

Spotlight on Math Models:

Rekenrek

Students will use this tool to represent numbers in more and complex ways as they grow.

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

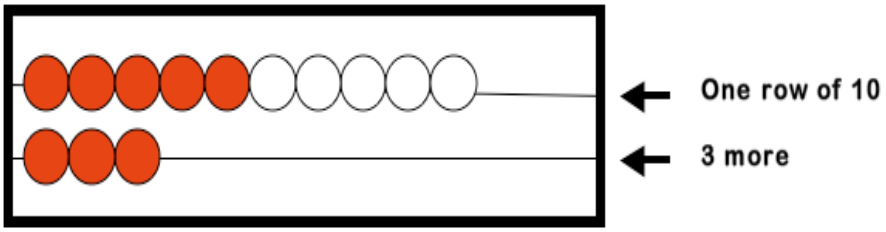
The rekenrek is a kind of abacus that was developed in The Netherlands but has many variations in other world cultures. In *A Story of Units*, rekenreks are used starting in kindergarten first as models of numbers 1–5. Later, the white and red beads are used to illustrate numbers up to 10 and then 20.

There are a variety of skills that students can practice on the rekenrek, including simple counting, skip counting, and eventually beginning addition and subtraction concepts. In the beginning of first grade, we use the rekenreks to model decomposing and composing numbers as we both add and subtract.

Sample Problem from Module 2:

Using the Rekenrek:

Students can easily see groups of both 5 and 10, and can move the beads to show their counting and thinking as they put numbers together and take them apart (compose and decompose numbers).



Thirteen is seen as "10 and 3 more"

Eureka Math™ Tips for Parents

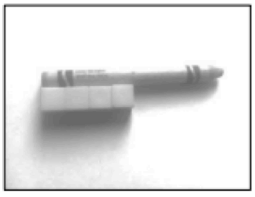
Grade 1 Module 3

Ordering and Comparing Length Measurements as Numbers

In this 13-day module, students will use non-standard units to measure objects, and will compare and order objects by length. They will build conceptual understanding of the need for standard measurement units, beginning with centimeters.

Measuring Musts: Always line up your cubes at the endpoint!

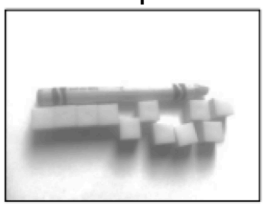
No!



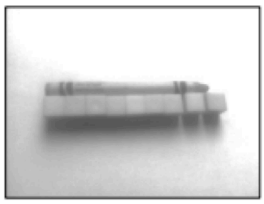
Yes!

Measuring Musts: Make sure your cubes do not overlap.

No!



Yes!



What Came Before this Module: We extended our work with addition and subtraction to the numbers 1-20, and learned some new strategies to use.

What Comes After this Module: We will extend our place value and addition and subtraction work to numbers up to 40, and will begin to use the symbols <, >, and = to compare numbers.

Key Words to Know

Centimeter: standard length unit within the metric measurement system

Centimeter Cube: pictured here:

Students will use centimeter cubes laid end to end to measure various objects.

Length Unit: the smaller units or objects used to measure a longer object

Familiar Terms from past Modules:

- less than
- more than
- longer than
- shorter than

Students will use these phrases to compare up to three objects or amounts.

How you can help at home:

- Give your student many opportunities to measure objects using other, smaller objects, e.g., "How many Lego pieces long is your book? How many blueberries long is this notebook?" etc.
- Continue to practice adding and subtracting within 20.

Key Common Core Standards:

- Represent and solve problems using addition and subtraction
- Measure lengths indirectly and by iterating (repeating) length units
  - Order three objects by length
  - Express the length of an object as a number of small length units, by laying multiple copies of a shorter object end to end
- Represent and interpret data
  - Organize, represent, and interpret data with up to three categories, ask and answer questions about the total number of data points

Sample from a Sprint in Lesson 1

A

Number correct: ____

Name _____ Date _____

*Write the missing number.

1	3 - 3 = ☐		16	13 - 1 = ☐	
2	13 - 3 = ☐		17	13 - 2 = ☐	
3	3 - 2 = ☐		18	14 - 3 = ☐	
4	13 - 2 = ☐		19	14 - 4 = ☐	
5	4 - 2 = ☐		20	14 - 10 = ☐	

Spotlight on Math Strategies:

Sprints

Sprints are a fluency tool used throughout the grades in *A Story of Units*.

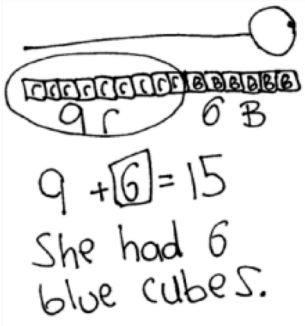
A Story of Units has several key mathematical tools that will be used throughout a student's elementary years.

Sprints are high-energy classroom activities in which students complete as many math facts as they are able in a set amount of time. Care is taken during a sprint to make sure that all students are working as hard as they can to recall facts, notice patterns within the sprint page, and do their personal best. To this end, sprints are designed to come in pairs, so that students can try the first sprint (Sprint A), assess their correct and incorrect answers, and then try to improve their score on Sprint B, given immediately after assessing Sprint A.

Sprints are one of the primary ways in *A Story of Units* in which students gain fluency and competency with math facts, a key building block skill for computation and comprehension throughout elementary school.

Sample Problem from Module 3:
(*Example taken from Module 1, Lesson 6*)

Julia's lollipop is 15 centimeters long. She measured the lollipop with 9 red centimeter cubes and some blue centimeter cubes. How many blue centimeter cubes did she use?



This sample solution is an excellent example of a centimeter cube diagram, a math sentence (equation), and a complete sentence in words that all show the solution to the problem.

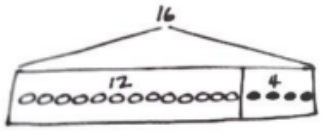
Eureka Math™ Tips for Parents

Grade 1 Module 4

Place Value, Comparison, Addition and Subtraction to 40

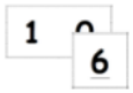
In this 35-day module, students will study, organize, and manipulate numbers within 40. They will compare number quantities, using the symbols for greater and less than (>, <). Students will work with adding and subtracting tens and will begin to add two-digit numbers.

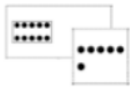
Some ways to show two-digit numerals:



Tape Diagram

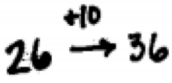
Place Value Chart



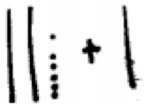


Hide Zero Cards

Some ways to indicate addition with groups of 10:



Arrow Notation



Quick Ten

What Came Before this Module: Students worked with non-standard units to measure objects, and to compare and order objects by length.

What Comes After this Module: In this geometric module, we will review basic shapes, use them to create composite shapes, and discuss ideas like "whole", "half" and "fourths".

Key Words and Ideas in this Module:

Greater than - shown by the symbol >, e.g. 10 > 4

Less than - shown by the symbol <, e.g. 4 < 10

Place value - quantity represented by a digit in a particular place within a number, e.g. the "1" in the number 17 represents a ten

Familiar terms from past modules:

- Equal - e.g. 2 + 6 = 4 + 4
- Ones
- Tens
- Numerals

Some tools/representations we will use:

- Arrow notation
- Hundreds chart
- Place value chart
- Rekenrek
- Number bonds
- Tape diagram

How you can help at home:

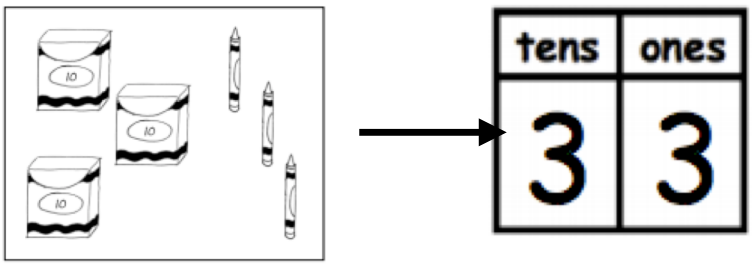
- Continue to practice counting up to 40 or beyond
- Continue to ask your student to compare two different quantities, using the language "greater than" and "less than"
- Begin to ask questions such as "What does the 2 represent in the number 29?"

Key Common Core Standards:

- *Represent and solve problems using addition and subtraction*
- *Extend the counting sequence to 40* (In first grade, we will eventually count to 120)
- *Understand place value*
  - Understand that the two digits of a two-digit number represent amounts of tens and ones.
  - Compare two two-digit numbers based on meaning of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
- *Use place value understanding and properties of operations to add and subtract.*

Prepared by Erin Schweng, Math Coach

The place value chart at this point in 1st grade consists of two boxes; the one on the left labeled "tens" and the one on the right labeled "ones".



Place Value Chart

Students will be asked initially to match a number of objects with the correct representation on the place value chart. Later,

Spotlight on Math Models:

Place Value Chart

You will see this mathematical representation throughout the grades in *A Story of Units*.

A Story of Units has several key mathematical tools that will be used throughout a student's elementary years.

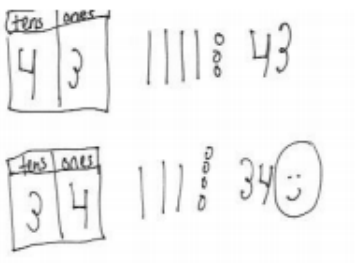
The place value chart is a graphic organizer that students can use to see the coherence of place value and operations between different units. Use of the place value chart begins in Grade 1 as students learn about tens and ones, and continues through the use of decimals in Grade 5. The place value chart is a flexible tool. Young students can place chips on the chart, and physically move them as they bundle and group numbers. Older students can quickly create their own place value charts to illustrate their thinking for a problem and show their understanding of more complex numbers.

In first grade, students use the chart extensively as they work to build their understanding of numbers up to 100, and will often be asked to use the chart to illustrate what each numeral in a digit represents.

Sample Problem from Module 4

(Example taken from Lesson 3):

Sue is writing the number 34 on a place value chart. She can't remember if she has 4 tens and 3 ones or 3 tens and 4 ones. Use a place value chart to show how many tens and ones are in 34. Use a drawing and words to explain this to Sue.



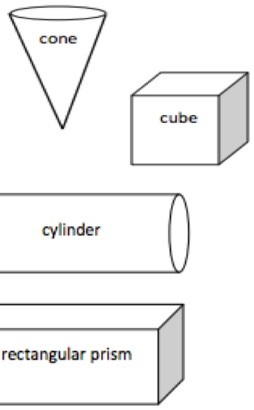
This sample solution shows both a correctly filled-in place value chart as well as a drawing illustrating the difference between 34 and 43.

Eureka Math™ Tips for Parents

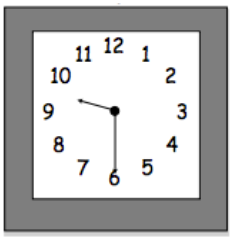
Grade 1 Module 5

Identifying, Composing, and Partitioning Shapes

In this module, students will revisit their kindergarten work with geometric shapes. They will sort, analyze, compare, and create two- and three-dimensional shapes, and put them together to create new shapes. They will also, as in their work with number bonds and addition and subtraction, examine the part-whole relationship through this new geometric lens.



Some three-dimensional shapes



Students will also use the idea of a half-circle to tell time to the ½ hour in this module.

What Came Before this Module:

In Module 4, students studied, organized, and added and subtracted numbers within 40. We used the symbols >, <, and = to compare numbers.

What Comes After this Module:

All of our first-grade learning comes together in this unit in which we will work with place value, addition, and subtraction within 100, as well as continue our work with money and coins.

New Terms and Strategies in this Module:

Attributes - characteristics of an object such as color or number of sides

Fourth - 1 out of 4 equal parts

Half - 1 out of 2 equal parts

Time Terms:
Half hour
Hour
Minute
O'clock

Three-Dimensional Shapes:

Cone	Cube
Cylinder	Sphere
Rectangular prism	

Two-Dimensional Shapes:

Circle	Half-circle
Square	Quarter-circle
Rectangle	Triangle

Hexagon - flat figure enclosed by six straight sides

Rhombus - flat figure enclosed by four straight sides of the same length where two pairs of opposite sides are parallel

+ How you can help at home:

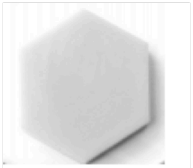
- If you have Pattern Blocks or Tangram pieces at home, use them to practice the skills your student will be working on in this module. If you need blocks, ask your child's teacher for a blank copy of the ones being used in this module, or make your own out of paper from a model. (Please see the reverse side of this sheet for a helpful model of all the blocks).

Key Common Core Standards:

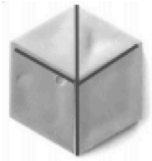
- *Reason with shapes and their attributes*
  - Distinguish between defining attributes (e.g. triangles are closed and three-sided) versus non-defining attributes (e.g. color, relative size, orientation)
  - Compose two-dimensional or three-dimensional shapes to create a composite shape
  - Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters
- *Tell and write time*
  - Tell and write time in hours and half-hours using analog and digital clocks

Prepared by Erin Schweng, Math Coach

Some basic pattern blocks are shown below. In this module, students will use them as shown to make composite shapes from other shapes, as with the 2 triangles and 2 rhombuses combined to make a hexagon.

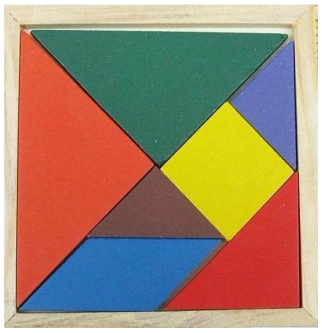


1 hexagon



2 triangles and
2 rhombuses

2 trapezoids



Tangrams, above, are a puzzle game similar to pattern blocks.

Spotlight on Math Strategies:

Pattern Blocks

Students will use these blocks to compose shapes in this module of *A Story of Units*.

A Story of Units has several key mathematical strategies that will be used throughout a student's elementary years.

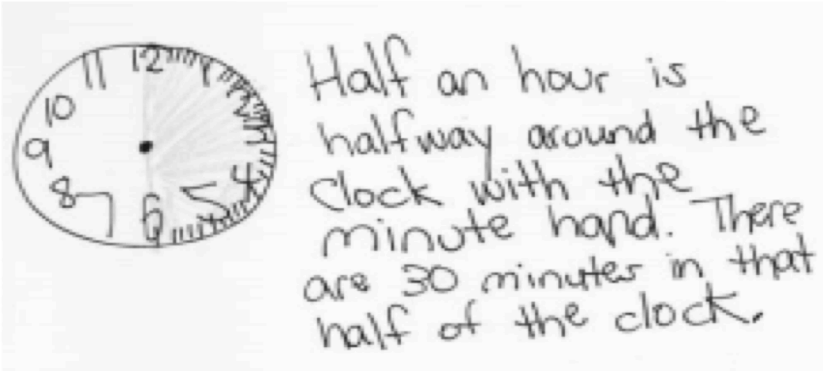
This module takes the basic understanding students have about shapes from Kindergarten and stretches their skills to see how to combine and create the shapes they know into new, composite shapes. Pattern blocks are not exclusive to *A Story of Units*. They are tools that have been used to support math learning for many generations of students.

In this module, students will learn the proper names of all the pattern block shapes: triangle, square, rhombus, hexagon, and trapezoid, (though some pattern block sets do not include trapezoids). We will also use the blocks to discuss equal parts, for example students can compose a hexagon out of several different pattern blocks, as above.

Sample Problem from Module 5:
(Example taken from Lesson 12)

Shade the clock from the start of a new hour through half an hour.

Explain why that is the same as 30 minutes.

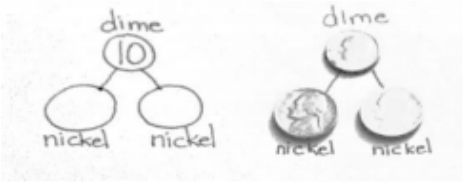


Eureka Math™ Tips for Parents

Grade 1 Module 6

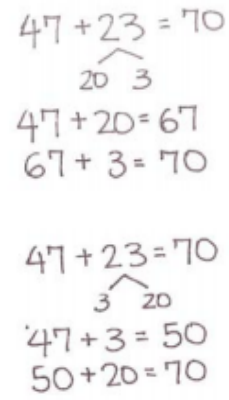
Place Value, Comparison, Addition and Subtraction to 100

In this final module of the school year, students synthesize their learning from all the other modules, working with the most challenging Grade 1 content. In the first several lessons, students identify and solve various types of word problems. Next, they extend their skills with tens and ones to numbers to 120, both counting and performing addition and subtraction. Finally, they are introduced to nickels and quarters, having already worked with dimes and pennies. The module concludes with fun fluency activities to celebrate their year of mathematical learning.



Number bonds with coins

Two different methods for two-digit addition:



What Came Before this Module:

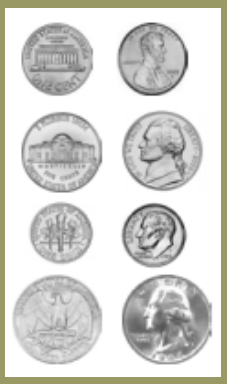
In Module 5, students worked to sort, analyze, and compare both two- and three-dimensional shapes. They also learned how to combine shapes to create new, composite shapes. Finally, as in their work with number bonds and addition and subtraction, they examined the part-whole relationship through this new geometric lens.

Key Terms, Symbols, and Strategies in this Module:

Comparison Problem Type:
In these word problems, students compare two quantities to find the part that makes them different from each other.
(See reverse for a sample problem)

< less than symbol
> greater than symbol
= equal to symbol

Penny	1 cent
Nickel	5 cents
Dime	10 cents
Quarter	25 cents



+ How you can help at home:

- Using loose change around the house, invite your student to count and compare the coins
- Continue to practice 10 more/10 less questions, e.g., "What is 10 less than 40?" "What is 10 more than 52?"
- Ask your student to compare and find the difference between two quantities, and note the strategy used

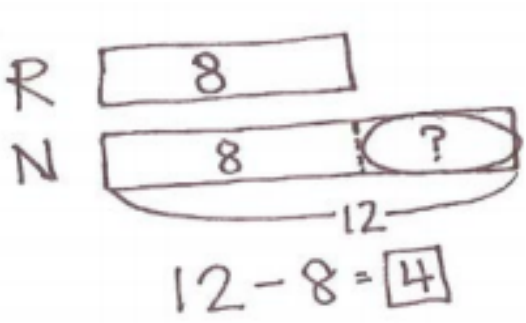
Key Common Core Standards:

- ***Represent and solve problems involving addition and subtraction***
  - Use addition and subtraction within 20 to solve word problems
- ***Extend the counting sequence***
  - Count to 120, starting at any number less than 120
- ***Understand place value***
  - Understand that the two digits of a two-digit number represent amounts of tens and ones
  - Compare two two-digit numbers based on meanings of the tens and ones digits
- ***Use place value understanding and properties of operations to add and subtract***
- ***Tell and write time and money***

Prepared by Erin Schweng, Math Coach

The problem to be solved:
Rose wrote 8 letters. Nikil wrote 12 letters. How many more letters did Nikil write than Rose?

The Tape Diagram



Rose's "tape" shows the 8 letters she wrote. Nikil's shows 12 total, with the known amount of 8 marked off. Students learn to solve for the missing part, and to show their answer as a subtraction equation.

Spotlight on Math Strategies:

Tape Diagrams

Students will use this strategy to solve problems in this module of *A Story of Units*.

A Story of Units has several key mathematical strategies that will be used throughout a student's elementary years.

The tape diagram is a powerful model that students can use to solve various types of problems. At this point in first grade, we will introduce it as another way to conceptualize addition and subtraction word problems. Tape diagrams are especially powerful visual models for comparing two quantities, which students will do quite extensively in Module 6. These diagrams are also called "bar models" and consist of simple bar drawings that students make and adjust to fit a word problem. They then use the drawing to discuss and solve the problem.

As students move through the grades, tape diagrams will continue to be used and later will provide an essential bridge to algebra. Below is a sample word problem from Module 6 solved using a tape diagram to show the parts of the problem.

Sample Problem from Module 6:
(Example taken from Module 6, Lesson 7)

Shanika has 6 roses and 7 tulips in a vase. Maria has 4 roses and 8 tulips in a vase.

Who has more flowers? How many more flowers does she have?