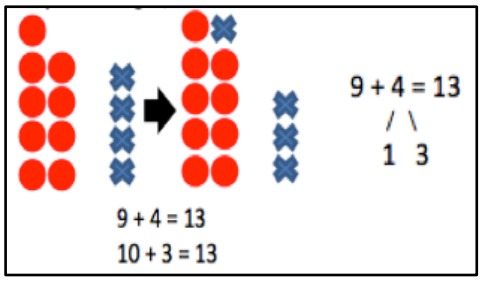
Eureka Math™ Tips for Parents

Grade 2 Module 1

Sums and Differences to 20 Sums and Differences to 100

In both version 2 and version 3 of this first module of Grade 2, we set the foundation for students to master sums and differences to 20. They will then apply these skills to fluently add one-digit to two-digit numbers up through 100, using place value understanding, properties of operations, and the relationship between addition and subtraction.



The "make a ten" strategy: note how 4 is decomposed as 1 and 3 in order to make a ten, i.e., 9 + 1 + 3 = 10 + 3.

A new way to count!

Regular	Say Ten
fifty-one	5 tens 1
sixty-seven	6 tens 7
seventy-five	7 tens 5
eighty-four	8 tens 4
ninety-five	9 tens 5

Above, an illustration of the "Say Ten" way of counting, in which students name how many tens are in a number and then say the ones.

What Comes After this Module:

In Module 2, students will engage in activities designed to deepen their conceptual understanding of measurement and to relate addition and subtraction to length. They will use metric units in this module; customary units will be introduced in Module 7.

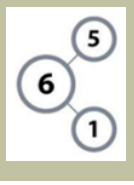
Terms, Phrases, and Strategies in this Module:

STRATEGY: *Make ten and subtract from ten* - strategy in which students decompose a number in order to make a ten, thus using simpler, known facts to solve the problem, e.g., 8 + 3 = 8 + 2 + 1 and 15 - 7 = 10 - 7 + 5 = 3 + 5

STRATEGY: *Say ten counting* - e.g., 11 is "1 ten 1," 12 is "1 ten 2," twenty is "2 tens," 27 is "2 tens 7," 35 is "3 tens 5," 100 is "10 tens," 146 is "14 tens 6"

Ten plus: number sentences in which students automatically combine one addend with the group of 10 without having to count, e.g., 10 + 3 = 13, 30 + 5 = 35, 70 + 8 = 78

Number bond: used to explore the part/whole relationships within a given number, e.g., for the number 6: 5 + 1 = 6, 1 + 5 = 6, 6 - 1 = 5, 6 - 5 = 1



+ How you can help at home:

- Review with your student all the ways to make 10; students will need to have these memorized as we work through this module
- Practice "10 plus" problems, such as 10 + 9, 20 + 8, 40 + 6, 70 + 7, and so on, so that your student becomes very adept at doing them mentally and quickly

Key Common Core Standards:

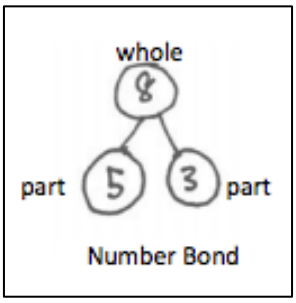
- ***Represent and solve problems involving addition and subtraction***
  - Use addition and subtraction within 100 to solve one- and two-step word problems
- ***Add and subtract within 20***
  - Fluently add and subtract within 20 using mental strategies
- **Use place value understanding and properties of operations to add and subtract**
  - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction

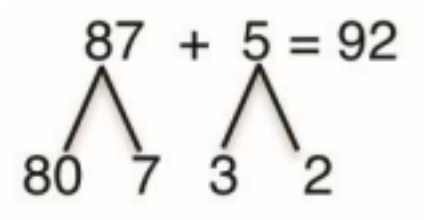
Prepared by Erin Schweng, Math Coach

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.

Number Bonds are a tool first introduced in earlier years of *A Story of Units*. They illustrate a part-part-whole relationship and are very useful in this module as students use the "make a 10" strategy for both addition and subtraction.





In the above problem, the number bonds illustrate how to decompose the numbers in order to make 80 + 7 + 3 + 2, or 80 + 10 + 2, or 92.

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!

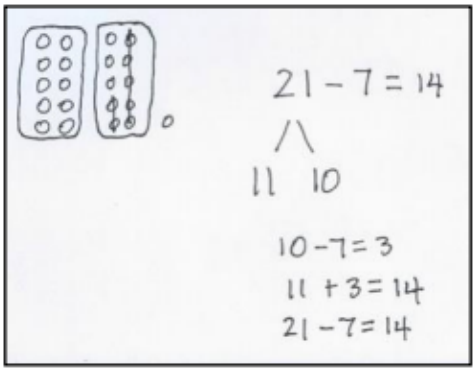
Sample Problem from Module 1:

(Example taken from Module 1, Lesson 8)

Kayla has 21 stickers.

She gives Sergio 7 stickers.

How many stickers does she have left?

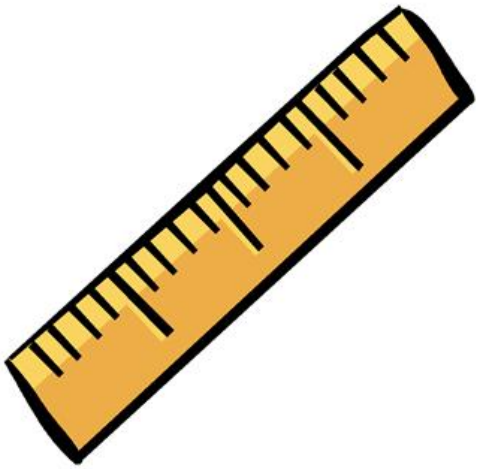


Eureka Math™ Tips for Parents

Grade 2 Module 2

Addition and Subtraction of Length Units

In this module, we will be exploring the ruler, estimating and measuring lengths using various tools and units, and finally, relating addition and subtraction to length.



What Came Before this Module: We practiced making sums and differences to the number 20

What Comes After this Module: We will begin work with the base-10 place value system

Key Words to Know

Endpoint: Where something ends, where measurement begins

Hash mark: The marks on a ruler or other measurement tool

Number Line: A line marked at evenly spaced intervals

Estimate: An approximation of the value of a quantity or number

Tape Diagram: See back of this sheet!

Common Words:

Length
Combine
Difference
Meter
Height
Compare
Centimeter

+ How you can help at home:

- Ask questions that encourage your student to estimate lengths of household items
- Continue to review adding and subtracting up to 20
- Practice measuring lengths longer than a ruler by marking and measuring from a mark

Key Common Core Standards:

- ***Relate addition and subtraction to length***

Examples:

- Line A is 4 cm long, and Line B is 7 cm long. Together, Lines A and B measure _____ cm.

- In the example above, how much shorter is Line A than Line B?

- ***Measure and estimate lengths in standard and non-standard units***

Examples:

- How many centimeter cubes long is my pencil?

- How many Lego-pieces long is this bracelet?

Prepared by Erin Schweng, Math Coach

Spotlight on Math Models:

Tape Diagram

You will often see this mathematical representation in *A Story of Units*.

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

The tape diagram is a powerful model that students can use to solve various kinds of problems. In second grade, you will often see this model as an aid to addition and subtraction problems. Tape diagrams are also called "bar models" and consist of a simple bar drawing that students make and adjust to fit a word problem. They then use the drawing to discuss and solve the problem.

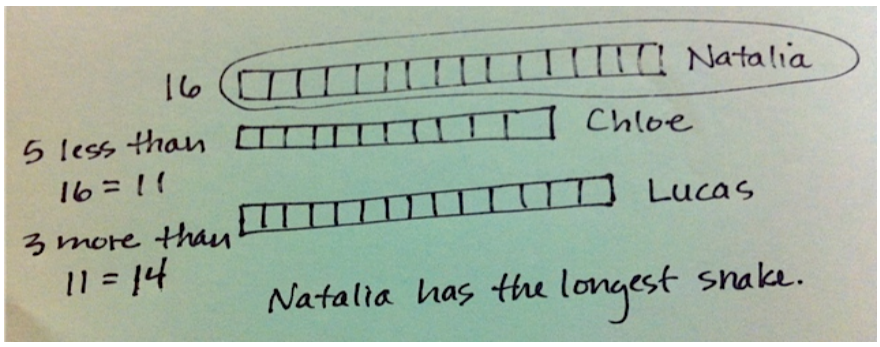
As students move through the grades, tape diagrams provide an essential bridge to algebra. Below is a sample word problem from Module 2 solved using a tape diagram to show the parts of the problem.

Sample Problem from Module 2:

(Example taken from Module 2, Lesson 7)

Natalia, Chloe, and Lucas are making clay snakes. Natalia's snake is 16 centimeters. Chloe's snake is 5 centimeters shorter than Natalia's. How long is Chloe's snake?

Lucas's snake is 3 centimeters longer than Chloe's snake. Who has the longest snake: Natalia, Lucas, or Chloe?



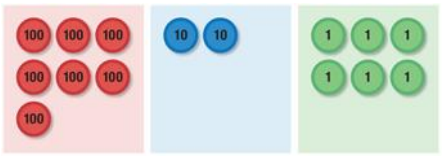
Eureka Math™ Tips for Parents

Grade 2 Module 3

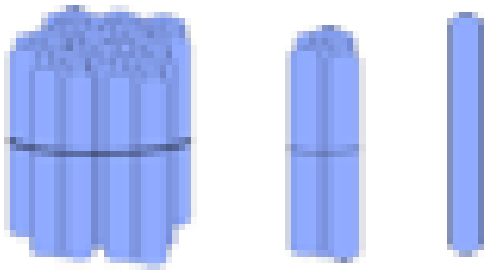
Place Value, Counting, and Comparison of Numbers to 1,000

In this 25-day module, students expand their skill with and understanding of unit by bundling ones, tens, and hundreds (up to a thousand) with straws or sticks. They solve simple problems that require an understanding of place value as a system based on repeated groupings by 10.

We are working on many different ways to represent two- and three-digit numbers!



Unit form modeled with number disks:
7 hundreds 2 tens 6 ones = 72 tens 6 ones



Ten ones are bundled into a ten.

Ten bundles of ten are bundled into a hundred.

What Came Before this Module: We worked on measurement with various tools, and related our work to addition and subtraction.

What Comes After this Module: We will continue to work on adding and subtracting fluently within 100, and build conceptual understanding up through 200.

Key Vocabulary:

Standard Form: e.g. 576

Expanded Form: e.g. 576 = 500 + 70 + 6

Word Form: e.g. Five hundred seventy-six

Unit Form: Stating the amount of hundreds, tens, and ones in each number, e.g., 11 is stated as *1 ten 1 one*, 27 as *2 tens 7 ones*, 100 as *1 hundred*, and 576 as 5 hundreds, 7 tens, 6 ones

Base-Ten Numeral: The idea that 1000 equals 10 hundreds, 100 equals 10 tens, and so on

Bundling: Putting smaller units together to make a larger one, e.g. putting 10 tens together to make a hundred

Regrouping: Renaming, (instead of "carrying" or "borrowing,") e.g., a group of 10 ones is "renamed" a ten when the ones are bundled and moved from the ones to the tens place

How you can help at home:

-Ask how many ones, tens, and hundreds are in numbers that you and your student come across

-Continue to review addition and subtraction skills

-Help your student begin to compare numbers by asking questions about "more than", "less than", and "equal"

Key Common Core Standards:

Understand Place Value

More specifically:

- Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- Count within 1000, skip-counting by 5s, 10s, and 100s
- Read and write numbers using base-ten numerals, number names, and expanded form
- Compare three-digit numbers using >, <, and =

Prepared by Erin Schweng, Math Coach

A classroom model of bundles created to show the number 476...

Hundreds	Tens	Ones
4	7	6

…will build the foundation that enables students' transition to writing the numerals in the place value chart.

Spotlight on Math Models:

Bundling

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

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

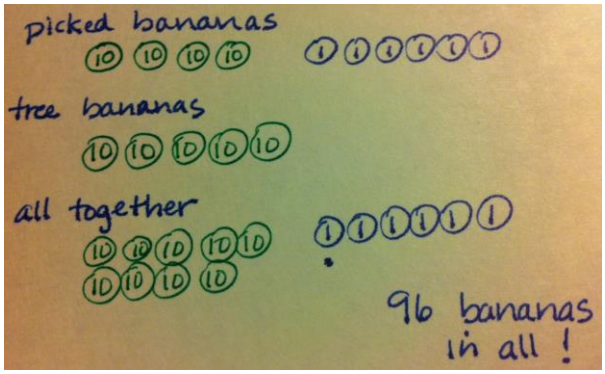
A model used primarily in grades K-2, bundles are discrete groupings of place value units (tens, hundreds, thousands). Students or teachers easily make them by placing a rubber band or twist tie around straws, popsicle sticks, or coffee stirrers. But these humble models are a key step in the transition that students must make from the very concrete (seeing the bundled popsicle sticks), to the more abstract place value chart, and finally to working with pure numbers in computation.

Bundled numbers can also be "unbundled", e.g. a group of 10 can be broken apart into its component 10 ones when needed for subtraction. Students will use this same concept when they work with division in the upper grades. Bundling and unbundling are critical skills for students to have as a tool for our continued work with place value and operations.

Module 3 Sample Problem
(from Lesson 6)

Timmy the monkey picked 46 bananas from the tree. When he was done, there were 50 bananas left.

How many bananas were on the tree at first?



This problem was solved using place value disks, yet another way of representing base-ten numerals.

Eureka Math™ Tips for Parents

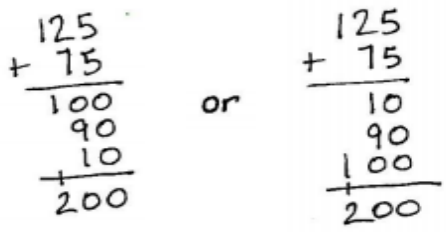
Grade 2
Module 4

Addition and Subtraction Within 200 with Word Problems to 100

In this 31-lesson module, students will work on fluency in addition and subtraction up to 100. They will also build conceptual understanding of adding and subtracting multi-digit numbers to 200, and will apply their skills when solving problems.

Building the number 234 with place value cards showing the following:
2 = 2 hundreds = 200
3 = 3 tens = 30
4 = 4 ones = 4

So 234 = 200 + 30 + 4!



This is a picture of the method known as "***totals below***", in which students decompose multi-digit numbers into like place-value groups as they add.

What Came Before this Module: Students expanded their understanding of unit and of place value by bundling ones, tens, and hundreds with sticks.

What Comes After this Module: In Module 5, we will continue to strengthen and deepen our conceptual understanding of addition and subtraction, working with numbers up to 1000.

Key Vocabulary:

Minuend: A quantity or number from which another number is to be subtracted

Subtrahend: A quantity or number being subtracted from another

Difference: The solution to a subtraction problem

Place value: Referring to the unit value of each digit in a given number

Place Value Chart: (see reverse): A graphic organizer that students can use to see the coherence of place value and operations between different units.

How you can help at home:

- Continue to ask how many ones, tens, and hundreds are in numbers that you and your student come across

- When possible, encourage your student to explain their mathematical thinking by drawing a diagram or picture that links to their addition and subtraction problems

Key Common Core Standards:

- **Represent and solve problems involving addition and subtraction**
- **Use place value understanding and properties of operations to add and subtract, including:**
  - Fluently add and subtract within 100
  - Add and subtract within 200, using concrete models or drawings and strategies based on place value, and explaining chosen strategies in writing

Prepared by Erin Schweng, Math Coach

Place Value Chart Without Headings
(Used with labeled materials such as disks)

Hundreds	Tens	Ones

Place Value Chart with Headings
(Used with unlabeled materials such as base-ten blocks or bundles)

Spotlight on Math Models:

Place Value Charts

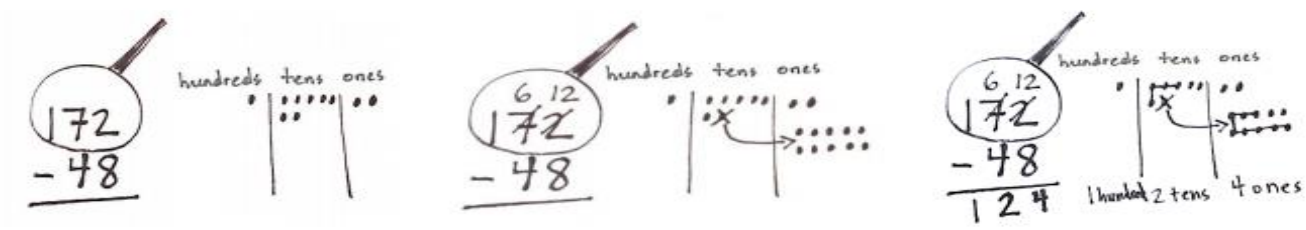
You will see this mathematical representation throughout the grades in *A Story of Units*.

A Story of Units has several key mathematical "models" 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. It enables students to discover the value of each digit in a given number at the concrete level, as they represent numbers with place value disks or bundles. 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 second grade, students use the chart extensively as they work to build their understanding of numbers up to 1000, and will often be asked to use the chart to illustrate how to compose and decompose numbers.

Module 4 Sample Problem (Lesson 15): Model 172 – 48 using the place value chart.



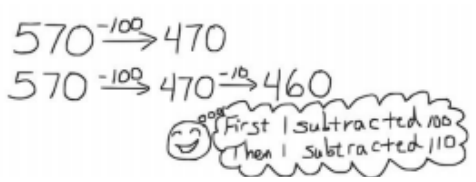
Eureka Math™ Tips for Parents

Grade 2
Module 5

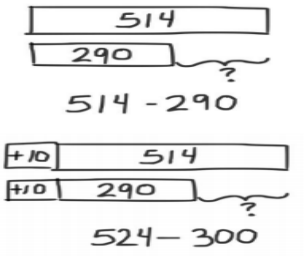
Addition and Subtraction Within 1,000 with Word Problems to 100

In this module, students build upon all their previous work with place value. They extend their work with addition and subtraction algorithms to numbers up to 1,000. Students continue to use drawings and models to strengthen and deepen their conceptual understanding. They also continue to work with various types of word problems with numbers up to 100.

Strategy Example: the *arrow way* of showing 570 – 110. Notice that the solution builds on an easier problem first: 570 – 100. Then, students can complete the problem by subtracting 10 more.
(See reverse for more on the arrow way.)



Strategy Example: In this example of compensation, the subtraction problem 514 – 290 is made much simpler by adding 10 to both numbers before solving:



What Came Before this Module: Students worked on fluency in adding and subtracting to 100 and built conceptual understanding for operations on numbers up to 200.

What Comes After this Module: In Module 6, students begin to examine the foundations of multiplication and division. They learn about equal groups, arrays, and the idea that numbers other than 1, 10, and 100 can be units/groups.

New Terms in this Module:

Algorithm: a step-by-step procedure to solve a particular type of problem

Compensation: a simplifying strategy where students add or subtract the same amount to or from both numbers to create an equivalent but easier problem, e.g., 610-290 = 620-300 = 320

Compose: to make 1 larger unit from 10 smaller units

Decompose: to break 1 larger unit into 10 smaller units

New groups below: show newly composed units on the line below the appropriate place in the addition algorithm

Simplifying strategy: e.g., to solve 299 + 6, think 299 + 1 + 5 = 300 + 5 = 305

Familiar Terms:

Addend	Addition
Bundle	Difference
Equation	Number bond
Place value	Rename
Subtraction	Tape diagram
Total	Unbundle

Units of ones, tens, hundreds

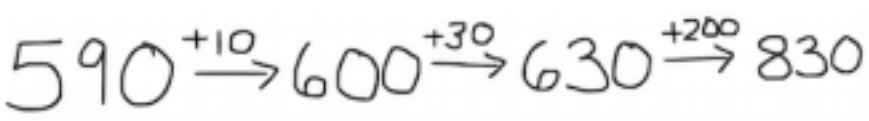
+ How You Can Help at Home:

- Help your student practice counting both backward and forward by 10s and 100s.
- Given any two- or three-digit number, help your student practice finding 10 more or 10 less, and/or 100 more or 100 less than the number.

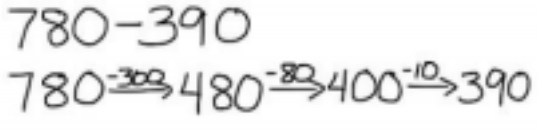
Key Common Core Standards:

- ***Use place value understanding and properties of operations to add and subtract.***
  - Add and subtract within 1000, using concrete models or drawings and strategies.
  - Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
  - Explain why addition and subtraction strategies work, using place value and the properties of operations.

Prepared by Erin Schweng, Math Coach



This is an example of how one might add 590 + 240 using the arrow way. Notice that 240 has been decomposed, or chunked, into 10 + 30 + 200 in order to make the adding easier.



This is a simple subtraction example of 780 – 390. In this case, 390 has been decomposed into 300, 80, and 10.

Spotlight on Math Strategies:

The Arrow Way

Students will frequently use this strategy in this module of *A Story of Units*.

The *arrow way* is a strategy for both addition and subtraction that is heavily featured in this module.

At first glance, arrow notation, or the *arrow way* of doing mathematical operations, may seem complicated. However, it is a very helpful method, and it is actually very similar to what many of us have naturally learned to do mentally while adding and subtracting.

The arrow way involves chunking a number into more manageable mental pieces in order to add or subtract. Students use numbers that they have become confident working with, such as 100 and 10, in order to simplify the problem. They record their mathematical thinking as an expression with arrows in between the numbers to show the chunks of numbers that they are working with as they go.

This method is just one of several that students will be encouraged to use throughout this module. By employing various models and strategies, students deepen their facility with the mathematics they are learning and eventually build a tool kit of strategies to choose from as math becomes more complex throughout the elementary grades.

Sample Problem from Module 5:
(Example taken from Module 5, Lesson 9)

The table to the right represents the halftime score at a basketball game.

Red Team	63 points
Yellow Team	71 points

The red team scored 19 points in the second half.

The yellow team scored 13 points in the second half.

a. Who won the game?

b. By how much did that team win?

This problem gives students many options for solving. They can choose from the strategies they have learned in this module to do the addition and subtraction necessary to solve the problem.

Eureka Math™ Tips for Parents

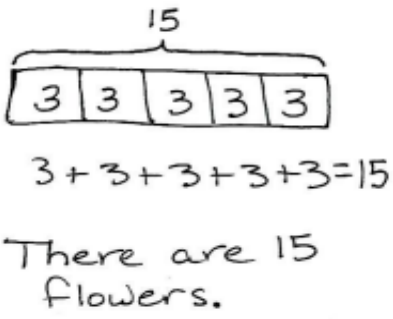
Grade 2
Module 6

Foundations of Multiplication and Division

Module 6 lays the conceptual foundation for multiplication and division in Grade 3 and the idea that numbers other than 1, 10, and 100 can serve as units.

Students learn to make equal groups, moving from concrete work with objects to more abstract pictorial representations. Finally, they learn about even and odd numbers.

We are learning to make equal groups!



Moving from concrete objects to more abstract representations of equal groups

What Came Before this Module:

Students extended their work with addition and subtraction algorithms to numbers up to 1,000. They also worked with word problems with numbers up to 100.

What Comes After this Module:

In Module 7, students work on their addition and subtraction skills using units for length, as well as money. They also collect and represent data in various ways, including bar graphs, picture graphs, and line plots.

New Terms in this Module:

Array—arrangement of objects in rows and columns

Columns—the vertical groups in a rectangular array

Even number—a whole number whose last digit is 0, 2, 4, 6, or 8

Odd number—a number that is not even

Repeated addition—e.g., 2 + 2 + 2

Rows—the horizontal groups in a rectangular array

Tessellation—tiling of a plane using one or more geometric shapes with no overlaps and no gaps

Whole number—e.g., 0, 1, 2, 3,…

Familiar Terms:

Addend	Double
Equation	Pair
Rectangle	Skip Counting
Square	Sum
Tape Diagram	Total

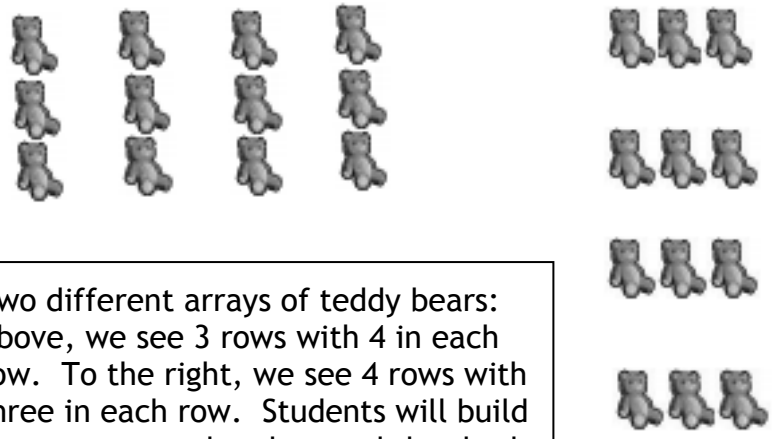
+ How You Can Help at Home:

- Using any number of small objects, challenge your student to sort them into equal groups.
- Practice skip-counting by 2s. This will help as students work with odd and even numbers in this module.

Key Common Core Standards:

- ***Work with equal groups of objects to gain foundations for multiplication.***
  - Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends.
  - Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns.
- ***Reason with shapes and their attributes.***
  - Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

Prepared by Erin Schweng, Math Coach



Two different arrays of teddy bears: Above, we see 3 rows with 4 in each row. To the right, we see 4 rows with three in each row. Students will build these arrays and understand that both equal a total of 12 and why that is so.

Spotlight on Math Strategies:

Arrays

Students will use this model in Module 6 of *A Story of Units*, as well as throughout their elementary years.

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

An array is an arrangement of objects organized into equal groups in rows and columns. Arrays help make counting easy. Students are reminded in this module that counting by equal groups is more efficient than counting objects one by one. This module focuses on establishing a strong connection between the array and repeated addition (e.g., 3 rows of 4 can be expressed as 4 + 4 + 4 = 12). Beginning in kindergarten, arrays are used as students organize objects into groups to make 10. Now, in Grade 2, we introduce the idea that equal groups can be made of numbers other than 1, 10, or 100.

In Module 6, students build arrays and then use them to write equations showing the repeated addition represented by the array. This lays important groundwork for understanding multiplication as repeated addition in Grade 3. As students progress through their elementary years, arrays will be frequently used to reinforce the relationship between multiplication and division.

Sample Problem from Module 6:

Redraw the following sets of dots as columns of two or as two equal rows.

(This problem shows how students will be learning about odd and even numbers in Module 6.)

Sample taken from Module 6, Lesson 18

a.

There are _____ dots.

Is ____ an even number? _____

b.

There are _____ dots.

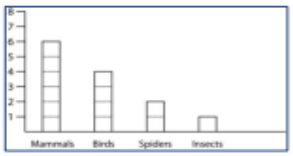
Is ____ an even number? _____

Eureka Math™ Tips for Parents

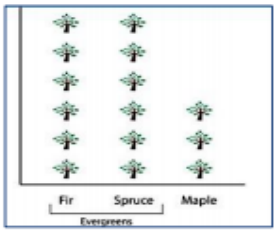
Grade 2
Module 7

Problem Solving with Length, Money, and Data

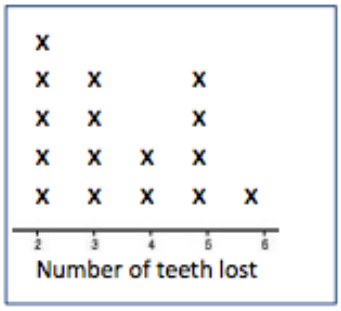
Module 7 presents an opportunity for students to practice addition and subtraction strategies within 100. They also use problem-solving skills as they learn to work with various types of units within the contexts of length, money, and data. Students will represent categorical and measurement data using picture graphs, bar graphs, and line plots.



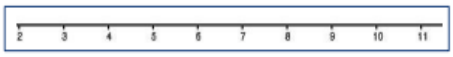
Bar Graph



Picture Graph



Line Plot



Scale

What Came Before this Module: In Module 6, we laid the conceptual foundation for multiplication and division in Grade 3. Students made equal groups and learned about even and odd numbers.

What Comes After this Module: In Module 8, students extend their understanding of part-whole relationships through the lens of geometry. They compose and decompose shapes and begin to see unit fractions as equal parts of a whole.

New Terms in this Module:

Bar graph—diagram showing data using lines or rectangles of equal width

Data—facts assembled for analysis or information

Degree—unit of temperature measure

Foot—ft, unit of length measure equal to 12 inches

Inch—in, unit of length measure

Legend—notation on a graph explaining what symbols represent

Line plot—graph representing data with an X above each instance of value on a number line

Picture graph—representation of data like a bar graph, using pictures instead of bars

Scale—system of ordered marks at fixed intervals used as a reference standard in measurement

Table—representation of data using rows and columns

Yard—yd, unit of length measure equal to 36 inches or 3 feet

+ How You Can Help at Home:

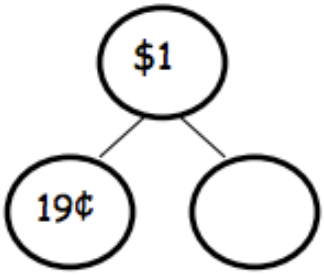
- Ask your student to count the coins received in change when shopping or to count a handful of coins at home.
- Once students have learned a few ways of representing data, find something around the house you can make a line or bar graph about, e.g., types of stuffed animals, colors of LEGO pieces, etc.

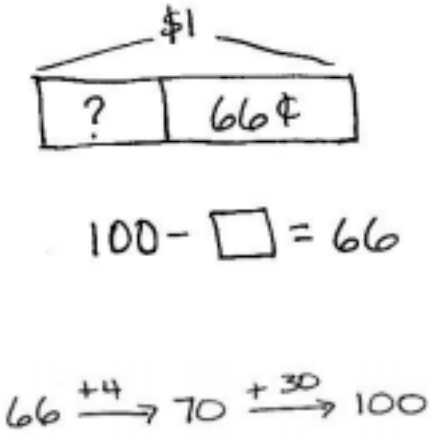
Key Common Core Standards:

- *Use place value understanding and properties of operations to add and subtract.*
- *Measure and estimate lengths in standard units.*
- *Relate addition and subtraction to length.*
- *Work with time and money.*
- *Represent and interpret data.*

Prepared by Erin Schweng, Math Coach

A number bond and tape diagram both showing how students will work on addition and subtraction with money as the context





Spotlight on Math Models:

Money

Students will use this model in Module 7 of *A Story of Units* as they work with measurement.

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

In Module 7, students work with various units of measurement, one of which the most exciting is money. Students see how 100¢ can be decomposed various ways, and they use the familiar number bond and tape models to demonstrate addition and subtraction problems. Place value concepts are reinforced as we review that one hundred 1¢ coins and ten 10¢ coins both make $1.

We also work with bills, which is very similar to our work with whole number addition and subtraction. A typical problem is as follows:

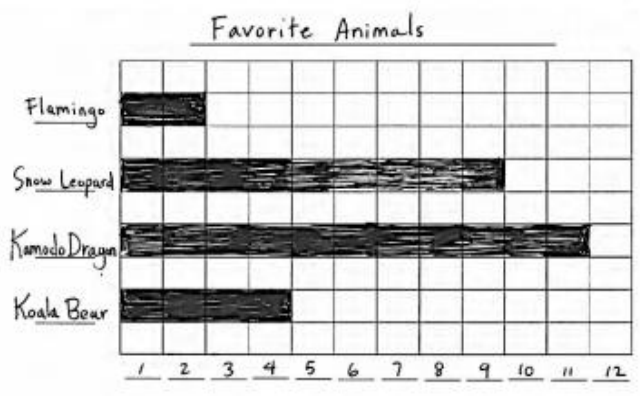
Ryan went shopping with 3 twenty-dollar bills, 3 ten-dollar bills, 1 five-dollar bill, and 9 one-dollar bills. He spent 59 dollars on a video game. How much money did he have left?

This problem showcases the accumulated skills needed to both compute the mathematics, as well as handle the multi-step nature of the work. These Grade 2 math students have learned so much!

Sample Problem from Module 7, Lesson 4:

After a trip to the zoo, Ms. Anderson's students voted on their favorite animals. Use the bar graph to answer the following questions.

a. Which animal got the fewest votes?
b. Which animal got the most votes?
c. How many more students liked komodo dragons than koala bears?
d. Later, two students changed their votes from koala bear to snow leopard. What was the difference between koala bears and snow leopards then?

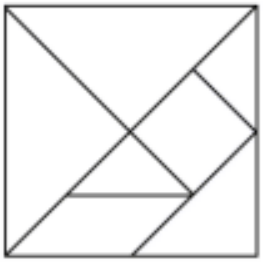


Eureka Math™ Tips for Parents

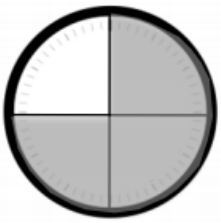
Grade 2
Module 8

Time, Shapes, and Fractions as Equal Parts of Shapes

In this final Module of the year, students extend their understanding of part-whole relationships through the lens of geometry. As students compose and decompose shapes, they begin to develop an understanding of unit fractions (fractions with one in the numerator) as equal parts of a whole.



A tangram puzzle: In Module 8, students will cut out the shapes, name them, and use them to compose composite shapes.



Relating fractional parts of a circle to minutes on the clock

What Came Before this Module:

In Module 7, students worked extensively with data and measurement. They gathered data and represented it in various ways, measured in standard and metric units, and solved addition and subtraction problems with money (both coins and bills).

New Terms in this Module:

a.m./p.m.

Analog Clock/Digital Clock

Angle—e.g., figure formed by the corner of a polygon

Parallel—two lines on the same plane are parallel if they do not intersect

Parallelogram—quadrilateral with both pairs of opposite sides parallel

Polygon—closed figure with three or more straight sides, e.g., triangle, quadrilateral, pentagon, hexagon

Quadrilateral—four-sided polygon, e.g., square, rhombus, rectangle, parallelogram, trapezoid

Quarter past, quarter to—as relating to time and the clock

Right angle—e.g., a square corner

Third of (shapes), **thirds**—three equal shares

A **Whole** can be made up of 2 halves, 3 thirds, or 4 fourths

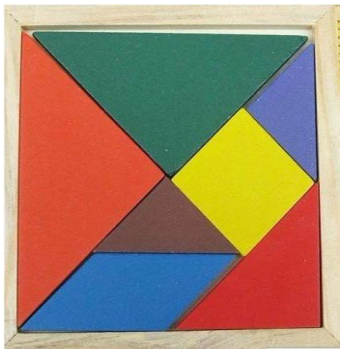
How You Can Help at Home:

- It's time to practice telling time! Using an analog clock, help your student practice telling time to the nearest 5 minutes.
- When drawing simple shapes, have your student practice dividing them into halves, thirds, and fourths (emphasizing equal-sized pieces).

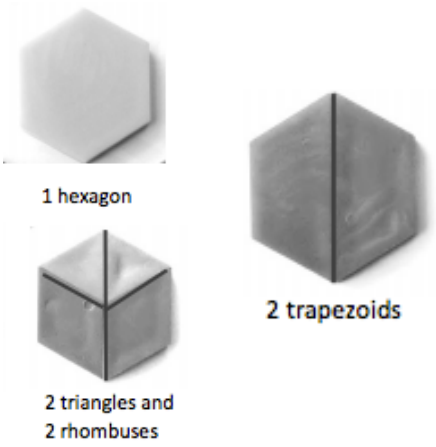
Key Common Core Standards:

- ***Work with time.***
  - Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- ***Reason with shapes and their attributes.***
  - Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
  - Partition circles and rectangles into two, three, or four equal shares.

Prepared by Erin Schweng, Math Coach



(Above) Tangrams, pattern block puzzle pieces that students use as described below in Module 8



(Above) Using pattern blocks to create composite shapes

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 builds on the basic understanding students have about shapes earlier in *A Story of Units* 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 use the proper names of all the pattern block shapes: triangle, hexagon, trapezoid, and square and rhombus (two examples of quadrilaterals). We will also use the pattern blocks to notice the attributes of each shape, e.g., number of sides, angles, side lengths, etc. Finally, students divide the shapes into equal parts, focusing on halves, thirds, and fourths.

Sample Problem from Module 7, Lesson 9:

Circle the shapes that have 2 equal shares with 1 share shaded.