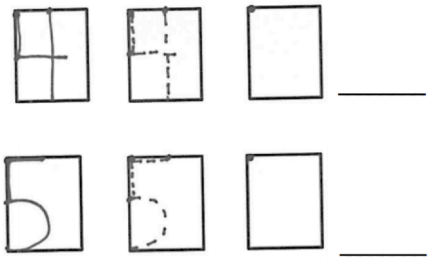
Eureka Math™ Tips for Parents

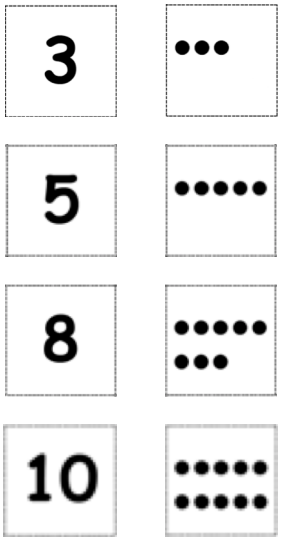
Grade K Module 1

Numbers to 10

In Module 1, students begin to observe and analyze the world around them mathematically. They will count, order, and draw up to ten objects. They will eventually work toward an understanding that each successive number names a quantity that is 1 more, and that the number before is 1 less. This is just the beginning of an exciting mathematical year for kindergarten students!



Students will practice writing numerals from 0 to 10 in this module, practicing in boxes like those above until they are comfortable using just the line.



5-group cards

What Comes After this Module: Module 2 explores two- and three-dimensional shapes. Students will learn about flat and solid shapes, and begin to use position words when referring to shapes in their environment. They will also learn to distinguish between examples and non-examples of flat and solid shapes.

Terms, Phrases, and Strategies in this Module:

Exactly the same/not exactly the same/the same, but: ways to analyze objects to match or sort

Match: group items that are the same or that have the same given attribute

Sort: group objects according to a particular attribute

Answer "how many" when counting quantities or sets

Counting path: order of count, especially with large numbers

Number story: stories with add to or take from situations

Zero: understand the meaning of, write and recognize

Number sentence: 3 = 2 + 1

5-group: see box to the left

Rows/columns: linear configuration types

1 more/1 less: e.g., 4. 1 more is 5, and 4. 1 less is 3

+ How you can help at home:

- Have your student practice counting groups of objects in his/her environment
- In addition to counting, students can practice writing the numerals 0-10
- Practice decomposing numbers, e.g. talk about how 5 is made up of a group of 2 and a group of 3

Key Common Core Standards:

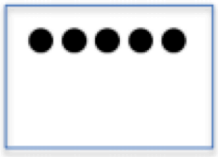
- ***Know number names and the count sequence***
  - Write numbers from 0 to 10
- ***Count to tell the number of objects***
  - Understand the relationship between numbers and quantities; connect counting to cardinality
- ***Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from***
  - Decompose numbers less than or equal to 10 into pairs in more than one way
- ***Classify objects and count the number of objects in each category***
  - Classify objects into given categories; count the numbers of objects in each category and sort the categories by count

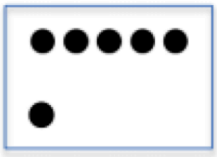
Prepared by Erin Schweng, Math Coach

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.

This module will feature 5-groups, as 5 is an important building block for understanding numbers 6-10. Students learn what 5 looks like, and different ways to make and count to 5.





Left: 5-group cards with clearly marked groups of 5 in each row

Right: Counting on our hand: a natural group of 5!

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 and carefully sequences the progression of mathematical ideals 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:

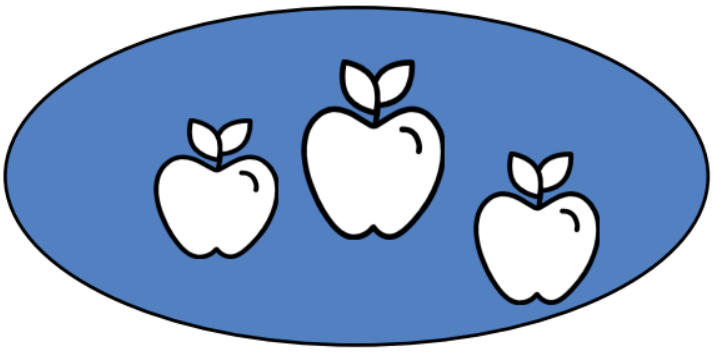
(Example taken from Module 1, Lesson 14)

How many apples are there all together?

_____

3 is the same as _____ and _____.

3 apples = _____ apples + _____ apple.



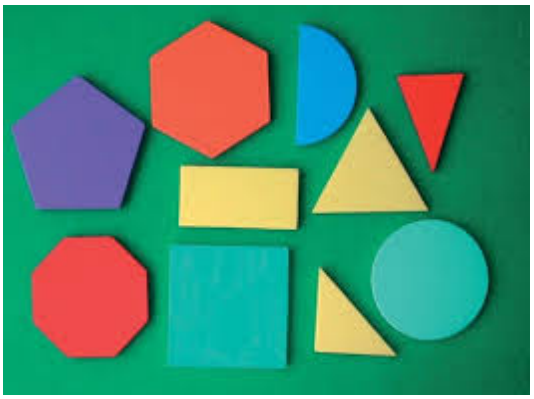
Eureka Math™ Tips for Parents

Grade K Module 2

Two-Dimensional and Three-Dimensional Shapes

In this module, we will start with describing and sorting flat shapes, and then solid shapes. Finally, we'll learn to sort and compare both flat and solid shapes.

Time to work with shapes!



What Came Before this Module: We counted numbers up to ten, including learning about *one more than* and *one less than* a number.

What Comes After this Module: We will continue work with numbers, using units of weight and measurement to talk about more and less than a number.

Key Words to Know

Position words: above, below, beside, in front of, next to, behind

Flat: **two-dimensional shapes**
Circle

Hexagon: flat figure enclosed by six straight sides

Rectangle: flat figure enclosed by four straight sides

Square: flat figure enclosed by four straight, equal sides

Triangle: flat figure enclosed by three straight lines.

Face: flat side of a solid

Solid: three-dimensional shapes
- ***Cone***
- ***Cube***
- ***Cylinder***
- ***Sphere***

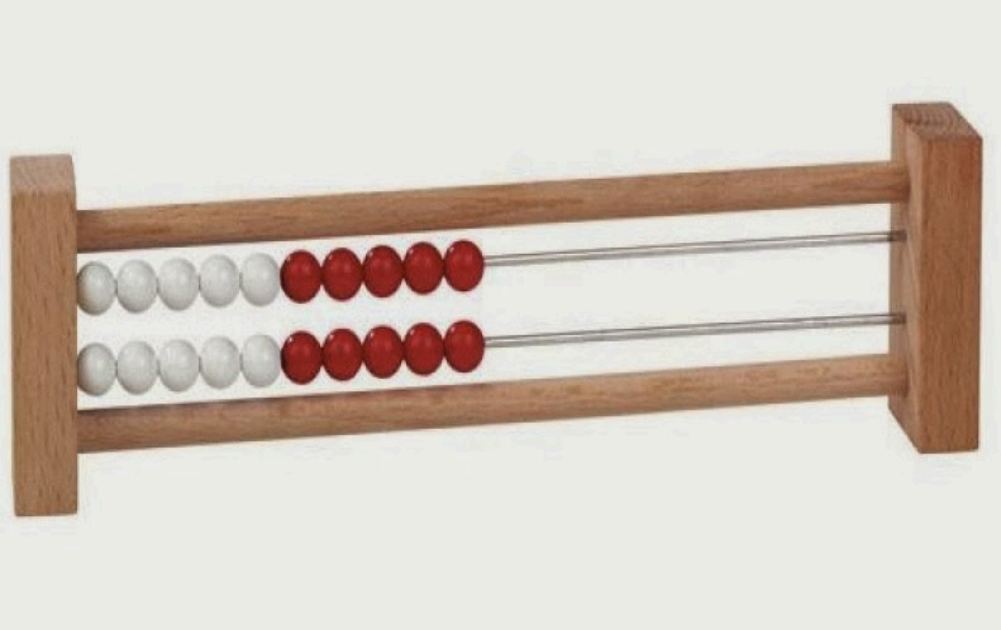
How you can help at home:

- Help your student look for and describe shapes in common objects
- Discuss what types of 2D shapes you can identify "inside of" 3D shapes
- Continue to review and practice counting numbers up to 10

Key Common Core Standards:

- ***Classify objects and count the number of objects in each category***
- ***Identify and describe shapes such as squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres***
- ***Analyze, compare, create, and compose shapes***

Prepared by Erin Schweng, Math Coach



Spotlight on Math Models:

Rekenrek

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

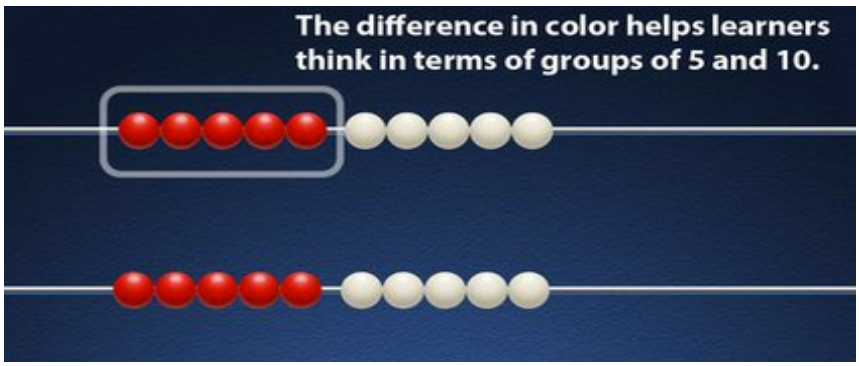
A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

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 in kindergarten first simply as a model of numbers 1–5. Later, the white and red beads can be 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 early months of kindergarten, we use the rekenrek to practice fluency with counting up and down.

Using the Rekenrek

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



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Grade K Module 3

Comparison of Length, Weight, Capacity, and Numbers to 10

In this Module, we will continue to support our growing number sense by comparing lengths, weights, and capacity of containers. Toward the end of the module, we build to comparing actual numerals.

Comparing a picture of a shoe with a cube stick

More or less? Taller or shorter?

What Came Before this Module: We learned all about shapes, both solid and flat. We sorted and compared them, and looked for them around our classroom.

What Comes After this Module: We begin a very exciting part of our learning about numbers: addition and subtraction!

Words we will use in this module:

Comparison words:

- Enough/not enough
- Heavier than/Lighter than (weight)
- Longer than/shorter than (length)
- More than/fewer than - used with discrete quantities
- More than/less than - used with volume, area, and number comparison
- Taller than/shorter than (height)
- The same as

Other vocabulary:

- Balance scale
- Endpoint – used to align strings, etc, for direct comparison
- Capacity – used in reference to volume
- Length
- Weight
- Height

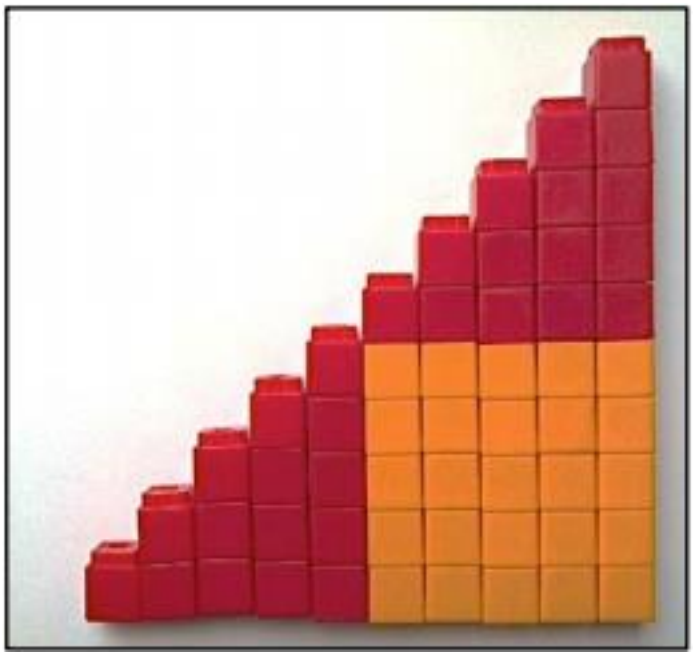
+ How you can help at home:

- Begin asking more than/less than questions about groups of objects (up to 10) around the house
- Encourage measurement activities of all types
- Continue to review and practice counting numbers up to 10

Key Common Core Standards:

- Compare numbers
  - Use the language of "greater than, less than, or equal to" when comparing groups of objects
  - Compare numerals within 10 (e.g. 4 is less than 7)
- Describe and compare measurable attributes (such as length and weight)
  - Directly compare two objects with a measureable attribute in common (e.g. that student is shorter than this student)

Prepared by Erin Schweng, Math Coach



Spotlight on Math Models:

Number Towers

Students will use this tool to model and learn concepts of more than/less than.

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

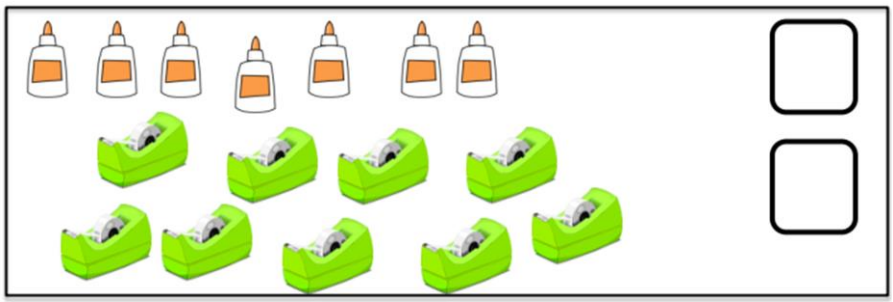
Number towers, also known as number stairs, are representations of quantity made by joining together interlocking cubes. In Kindergarten, they are used to help students literally build their knowledge of cardinality (the number of elements of a set of objects) by erecting towers of various numbers. Number towers are then used to teach concepts of "more/less", as well as the specific patterns of "1 more than/1 less than". This model leads to an understanding of comparison and the word "than" in other contexts as well: taller and shorter than, heavier than, longer than, etc.

Students are encouraged to build towers for quantities 1 through 5 in one color, with quantities beyond 5 added on in a second color. This color change provides developmental support for understanding the important benchmark number 5, which will serve them well when they begin to add and subtract within groups of 10 as the year progresses.

Sample problem from Module 3:

Students count and then compare two groups of objects. They use their information to complete the math sentence under the picture.

(Sample taken from Module 3, Lesson 26)



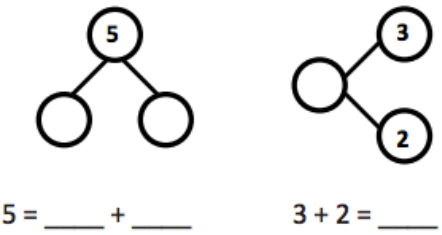
_____is less than _____.

Eureka Math™ Tips for Parents

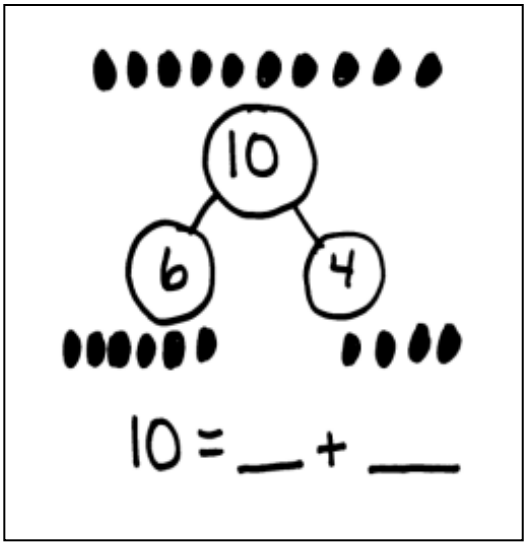
Grade K Module 4

Number Pairs, Addition and Subtraction to 10

Module 4 marks the next exciting step in math for kindergarten students: addition and subtraction! We will start with composing and decomposing numbers using number bonds (see reverse), and move toward work with addition and subtraction equations.



Number bonds, seen above, are models that help students see the part/part/whole relationships within a given number.



What Came Before this Module: We compared lengths, weight, and capacity, and then worked with comparing numerals.

What Comes After this Module: Students will work on their understanding of teen numbers, and work on counting to 100 by ones and by tens.

Words we will use in this module:

- Addition
- Addition and Subtraction sentences (equations)
- Make 10 (combine two numbers from 1-9 that add up to 10)
- Minus (-)
- Number bond (mathematical model)
- Number pairs or partners (embedded numbers)
- Number sentence (3 = 2 + 1)
- Part (addend or embedded number)
- Plus (+)
- Put together (add)
- Subtraction
- Take apart (decompose)
- Take away (subtract)
- Whole (total)

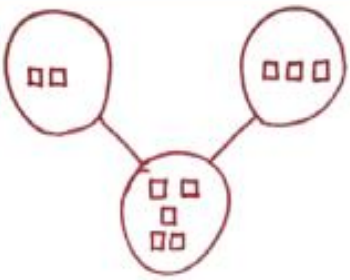
+ How you can help at home:

- Continue to compare groups of objects up to 10, asking more- and less-than questions
- Give your child some Cheerios and ask her to show how many more are needed to make 10
- Review and practice counting numbers up to 30, or as high as possible

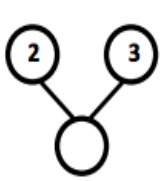
Key Common Core Standards:

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
  - Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, etc.
  - Solve addition and subtraction word problems, and add and subtract within 10.
  - For any number from 1 to 9, find the number that makes 10 when added to the given number.
  - Fluently add and subtract within 5.

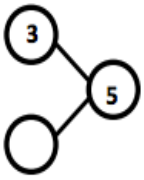
Prepared by Erin Schweng, Math Coach



Some sample types of number bonds seen in Kindergarten. Note how the number bonds can use either drawings or numerals to show the number relationships.



2 + 3 = ____



5 − 3 = _____

Spotlight on Math Models:

Number Bonds

Students will use this model to show part/part/whole relationships within numbers.

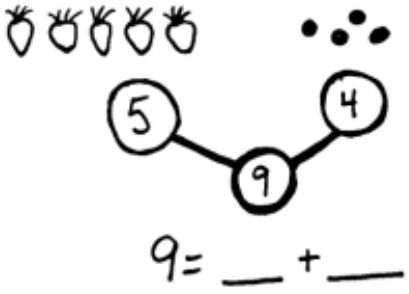
A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

The number bond is a pictorial representation of part/part/whole relationships showing that smaller numbers (the parts) make up larger numbers (the whole). The number bond is a key model for showing students how to both take apart (decompose) and put together (compose) numbers with ease. This in turn leads directly to their emerging addition and subtraction skills.

In Kindergarten, students first become fluent with number bonds to 5, and then build understanding of the very important number 10. As students become more comfortable using number bonds, the bonds may be presented in different orientations (e.g. the whole not always on top).

Sample Problem from Module 4:
(Example taken from Lesson 29)

Toby had 9 tasty berries. Five were strawberries and 4 were blueberries. How many berries did he have in all?

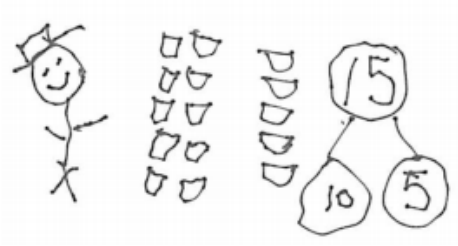


Eureka Math™ Tips for Parents

Grade K Module 5

Numbers 10 – 20; Count to 100 by Ones and Tens

This module is a key next step for kindergarten students in understanding place value beyond the numbers 1-10. We will first talk about teen numbers as "10 ones and some ones," and extend that understanding to writing teen numbers. Finally, we will count to 100 by ones and by tens using various strategies.



Another way of showing that 10 ones and 5 more ones make 15, this time with tacos instead of smiley faces! Note the use of the number bond as well.

What Came Before this Module: We made the exciting step of working with number bonds and other strategies to learn beginning addition and subtraction skills.

What Comes After this Module: To wrap up the year, we will return to geometry. We will compose and decompose 2-dimensional shapes and lay the foundation for understanding area.

New Terms and Strategies in this Module:

Counting to 100 in two different ways:
- regular counting by tens: "ten, twenty, thirty", etc.
- the "Say Ten" way of counting to 100: "1 ten, 2 tens, 3 tens", etc.

Hide Zero Cards – cards used to teach and reinforce place value concepts

10 ones and some ones – a way to talk about teen numbers that emphasizes groups of ten as the basic place value concept

Familiar Terms and Strategies in this Module:

"Say Ten" way of counting – e.g. "ten-one, ten-two, ten-three" instead of "eleven, twelve, thirteen"

Number bonds
Number towers
5-Group
Ten frame
Part/Whole/Total

+ How you can help at home:

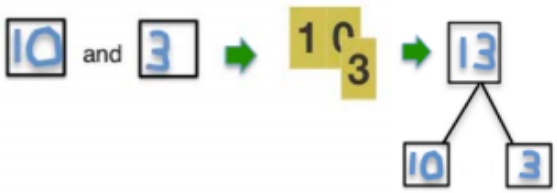
- Review and practice counting numbers up to 100, or as high as possible
- Talk about the numbers 11-19 with your student as "10 ones and ____ ones"
- Practice counting by ten in two ways: "ten, twenty, thirty" and "1 ten, 2 tens, 3 tens"

Key Common Core Standards:

- *Know number names and the count sequence*
  - Count to 100 by ones and by tens
  - Count forward beginning from a given number
  - Write numbers from 0 to 20; Represent a number of objects with a written numeral 0–20
- *Count to tell the number of objects*
  - Understand the relationship between numbers and quantities; connect counting to cardinality
  - Count to answer "how many?" questions about as many as 20 things arranged in various ways
- *Work with numbers 11-19 to gain foundations for place value*
  - Compose and decompose numbers from 11 to 19 into ten ones and some further ones

Prepared by Erin Schweng, Math Coach

The yellow cards are hide zero cards. Digits are used to "hide the zero" in order to emphasize that, for example, 18 is made from a 10 and 8 ones – and the ten is still there as part of the number!



Spotlight on Math Strategies:

Hide Zero Cards

Students will frequently use these cards in the early years of *A Story of Units*.

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

Hide Zero cards are a way of showing that even as we compose and create numbers larger than 10, the 10 is still there, always part of the number.

Thus, we start with the numerals for 10, and cover, or hide, the zero, to make a new number, e.g. 10 and 3 ones. Students' concrete understanding, built up by counting and drawing physical objects, now moves toward a more abstract understanding of how the numbers 11-19 are created. They see the 10, and then the zero covered up to make a new number, but always with the understanding that 10 is a basic building block of that number. Number bonds, as above, are also used to reinforce this new understanding.

Sample Problem from Module 5:
(Example taken from Lesson 10)

Ms. Garcia is painting her fingernails. She has painted all the nails on her left hand except her thumb. How many more nails does she need to paint? How many will she have left to paint after she paints her left thumb? Draw a picture to help you.

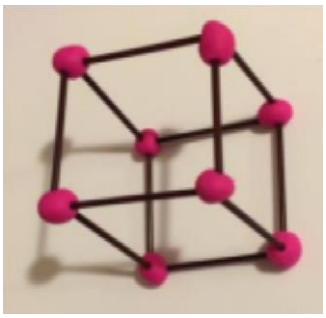
Notice how the student first numbered the left hand nails, then started counting again at 1 with the thumb and on to the other hand.

Eureka Math™ Tips for Parents

Grade K
Module 6

Analyzing, Comparing, and Composing Shapes

Our kindergarten mathematics work comes to a close with another opportunity for students to explore geometry. In Module 6, students build on their previous experience with two- and three-dimensional shapes and expand their spatial reasoning skills. They lay the groundwork for understanding area by composing various geometric figures.



A student-made cube of sticks and clay

What Came Before this Module:

We took our first steps toward understanding place value. We composed and decomposed teen numbers as "10 ones and some ones" and practiced counting to 100 by ones and tens.

New Terms and Strategies in this Module:

Ordinal Numbers: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth

Familiar Terms and Strategies in this Module:

Position Words: above, below, beside, in front of, next to, behind

Two-Dimensional (Flat) Shape Words:

Circle
Triangle
Rectangle
Square
Hexagon
Face—a two-dimensional side of a three-dimensional shape

Three-Dimensional (Solid) Shape Words:

Sphere
Cube
Cylinder
Cone

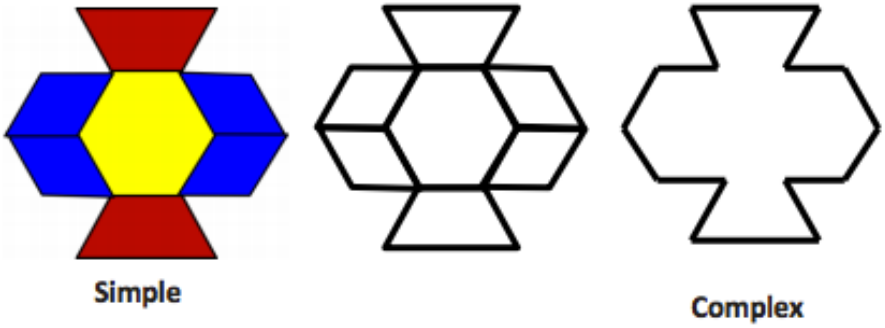
+ How You Can Help at Home:

- Continue to review and practice counting numbers up to 100 or as high as possible.
- Ask your student to use position words (see key terms box) to describe object locations relative to each other, e.g., "that pen is beside the glass of water on the table."

Key Common Core Standards:

- ***Count to tell the number of objects.***
  - Understand the relationship between numbers and quantities; connect counting to cardinality.
    - Develop understanding of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.
- ***Analyze, compare, create, and compose shapes.***
  - Model shapes in the world by building shapes from components; draw shapes.
  - Compose simple shapes to form larger shapes.

Prepared by Erin Schweng, Math Coach



Students will work with pattern blocks such as the ones above to create more complex shapes out of the shapes they already know. Activities can begin with matching pattern blocks to a color picture, then move to filling in the outlined shapes, and eventually require students to develop their own combinations and ideas to fill a larger shape.

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 challenges students to use their basic understanding about shapes to combine and create the shapes they know into new, composite shapes. For example, a student may combine 4 small triangle blocks to make a larger triangle (see image below). 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.

As students use the pattern blocks to create new, larger shapes, we reinforce a central idea of *A Story of Units*: smaller units combine to make larger units. This is true in our work with shapes and area, but it also supports our work with the base ten number system, building a strong foundation for Grade 1.

Sample Problem from Module 6:

Trace to show two ways to make each shape. How many shapes did you use?

(Students will have several large shapes to fill with different pattern blocks of their choice.)

Sample taken from Module 6, Lesson 6