

Kenmore-Town of Tonawanda UFSD

We educate, prepare, and inspire all students to achieve their highest potential



Grade K Module 2 Parent Handbook

The materials contained within this packet have been taken from the Great Minds curriculum Eureka Math.

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*



Spotlight on Math Models:

Rekenrek

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

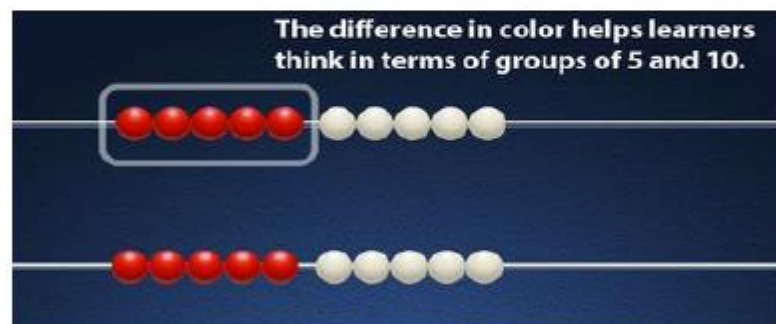
A Story of Units has several key mathematical “models” that will be used throughout a student’s elementary years.

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).



Two-Dimensional and Three-Dimensional Shapes

OVERVIEW

In Module 1, students began the year observing their world. What is exactly the same? What is the same but...? They matched and sorted according to criteria sequenced from simple to complex. Their perceptions evolved into observations about numbers to 10. “4 is missing 1 to make 5.” “4 plus 1 more is 5.” “There are the same number of dogs and flowers, 6.”

In this module, students seek out flat and solid shapes in their world (**K.G.1**). Empowered by this lens, they begin to make connections between the wheel of a bicycle, the moon, and the top of an ice cream cone. Just as the number 4 allowed them to quantify 4 mountains and 4 mice as equal numbers, learning to identify flats and solids allows them to see the relationship of the simple to the complex, a mountain’s top to a plastic triangle and cone sitting on their desk.

To open Topic A, students find and describe flat shapes in their environment using informal language, without naming them at first (**K.G.4**). In Lesson 2, they classify the shapes, juxtaposing them with various examples and non-examples. This process further refines their ability to talk about the shapes, for example, as closed or having straight sides. The naming of the flat shape as a triangle is part of that process, not the focus of it (**K.G.2, K.G.1**).

The same process is then repeated with rectangles in Lesson 3 and hexagons and circles in Lesson 4. In Lesson 5, students manipulate all the flat shapes using position words as the teacher gives directives such as “Move the closed shape with three straight sides behind the shape with six straight sides.” These positioning words are subsequently woven into the instructional program, at times in math fluency activities, but also throughout the entire school day.

The lessons of Topic B replicate those of Topic A but with solid shapes. In addition, students recognize the presence of the flats within the solids. The module closes in Topic C with discrimination between flats and solids. A culminating task involves students in creating displays of a given flat shape with counter-examples and showing related solid shapes (**K.G.3**).

The fluency components in the lessons of Module 1 included activities wherein students used a variety of triangles and rectangles to practice the decompositions of 3 and 4. Flats and solids will continue to be included in fluency activities in this module and throughout the year so that students have repeated experiences with shapes, their attributes, and their names. Daily number fluency practice in this new module is critical. There are two main goals of consistent fluency practice: (1) to solidify the numbers of Module 1 and (2) to anticipate the numbers of Modules 3, 4, and 5. Therefore, students continue to work extensively with numbers to 10 and fluency with addition and subtraction to 5.

The Kindergarten year closes in Module 6 with another geometry unit. By that time, having become much more familiar with flats and solids, the students compose new flat shapes (“Can you make a rectangle from these two triangles?”) and build solid shapes from components (“Let’s use these straws to be the edges and these balls of clay to be the corners of a cube!”). This module will allow them to bring together all that they have learned throughout the year as they manipulate shapes and their components (**K.G.4, K.G.5**).

Terminology

New or Recently Introduced Terms

- Above, below, beside, in front of, next to, behind (position words)
- Circle
- Cone (solid shape)
- Cube (solid shape)
- Cylinder (solid shape)
- Face (flat side of a solid)₃
- Flat (two-dimensional shape)
- Hexagon (flat figure enclosed by six straight sides)
- Rectangle (flat figure enclosed by four straight sides)
- Solid (three-dimensional shape)
- Sphere (solid shape)
- Square (flat figure enclosed by four straight, equal sides)
- Triangle (flat figure enclosed by three straight sides)

Familiar Terms and Symbols

- Match (group items that are the same or have the same given attribute)
- Sort

Suggested Tools and Representations

- Three-dimensional shapes: cone, sphere, cylinder, and cube
- Two-dimensional shapes: circle, hexagon, rectangle, square, and triangle

Grade K Module 2 Topic A

Two-Dimensional Flat Shapes

Focus Standards:

- K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
- K.G.2 Correctly name shapes regardless of their orientations or overall size.
- K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

Instructional Days Recommended: 5

Students began the year, in Module 1, developing number concepts by observing their world. Now, they begin to develop spatial reasoning and geometric concepts by experiencing flat and solid shapes in their world. This module examines how shapes and objects are similar to or different from one another with respect to orientation and relative positions to objects.

In Lesson 1, students use the informal language of their everyday world to name and describe flat shapes without yet expressing mathematical concepts or using the vocabulary of geometry. At this point, students are not yet able to consistently distinguish between examples and non-examples of different groups of shapes such as triangles, circles, squares, rectangles, or hexagons. At this stage, a figure is a square because it looks like a book; another figure is a circle because it is round like the wheel of a car. Students make these observations without explicitly thinking about the attributes or properties of squares or circles.

In Lesson 2, students build on their experiential learning by relating it to the mathematical concepts and vocabulary of geometry, allowing them to enhance their experiences of shapes. Students begin to classify three-sided shapes by identifying them as examples of a triangle. Using various examples and non-examples of triangles, they sort and classify different shapes as examples of a triangle or not a triangle. Having learned to identify shapes as triangles, they explain their decisions about classifying some shapes as triangles and other shapes as not triangles by focusing on common attributes or properties of the shapes they have identified as triangles.

Lessons 3 and 4 continue the work of Lesson 2 in the same vein by identifying shapes as rectangles, hexagons, or circles. In Lesson 5, students communicate about the relative position of shapes by using terms such as above, below, next to, beside, in front of, and behind.

**The sample homework responses contained in this manual are intended to provide insight into the skills expected of students and instructional strategies used in Eureka Math.*

Lesson 1

Objective: Find and describe flat triangles, squares, rectangles, hexagons, and circles using informal language without naming.

Homework Key

Line drawn from square to checkerboard

Line drawn from rectangle to flag

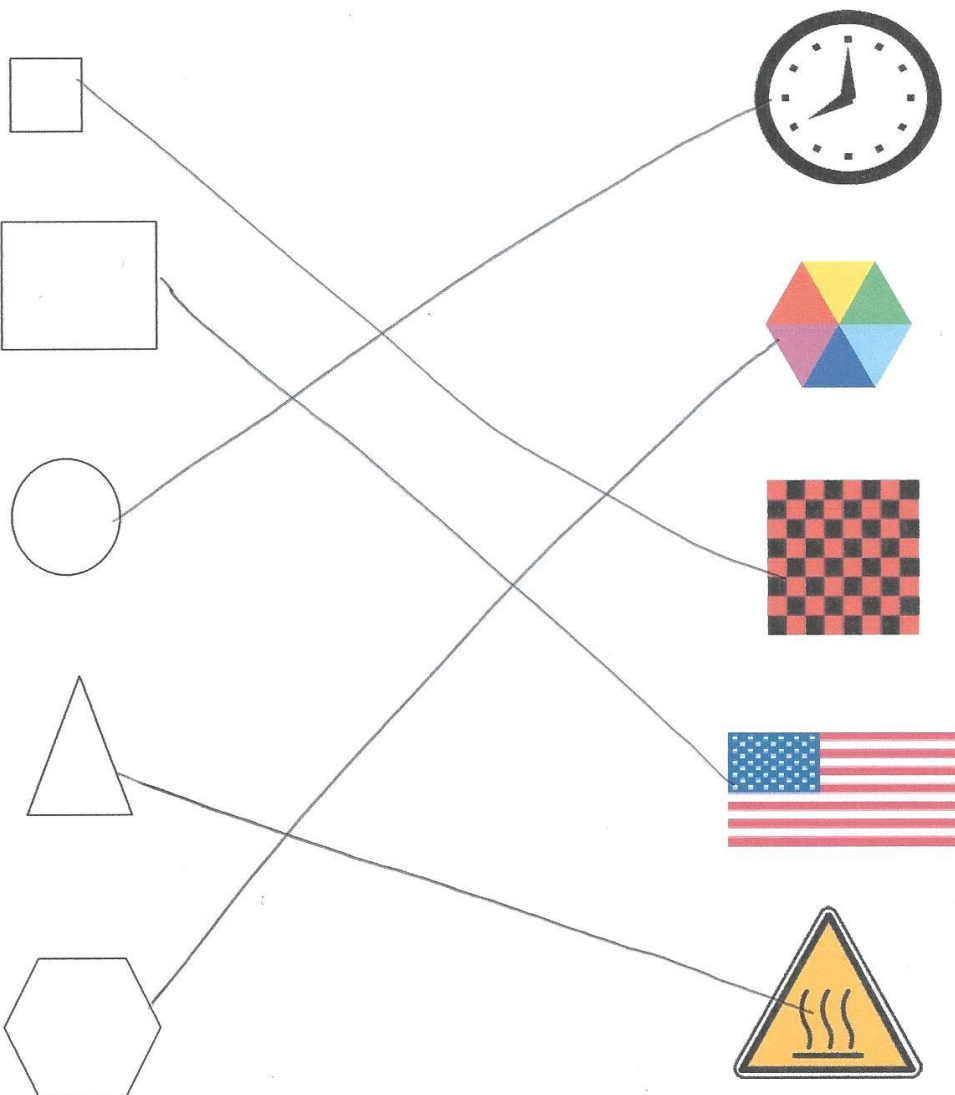
Line drawn from circle to clock

Line drawn from triangle to sign

Line drawn from hexagon to parachute

Homework Sample

Draw a line from the shape to its matching object.



Lesson 2

Objective: Explain decisions about classifications of triangles into categories using variants and non-examples. Identify shapes as triangles.

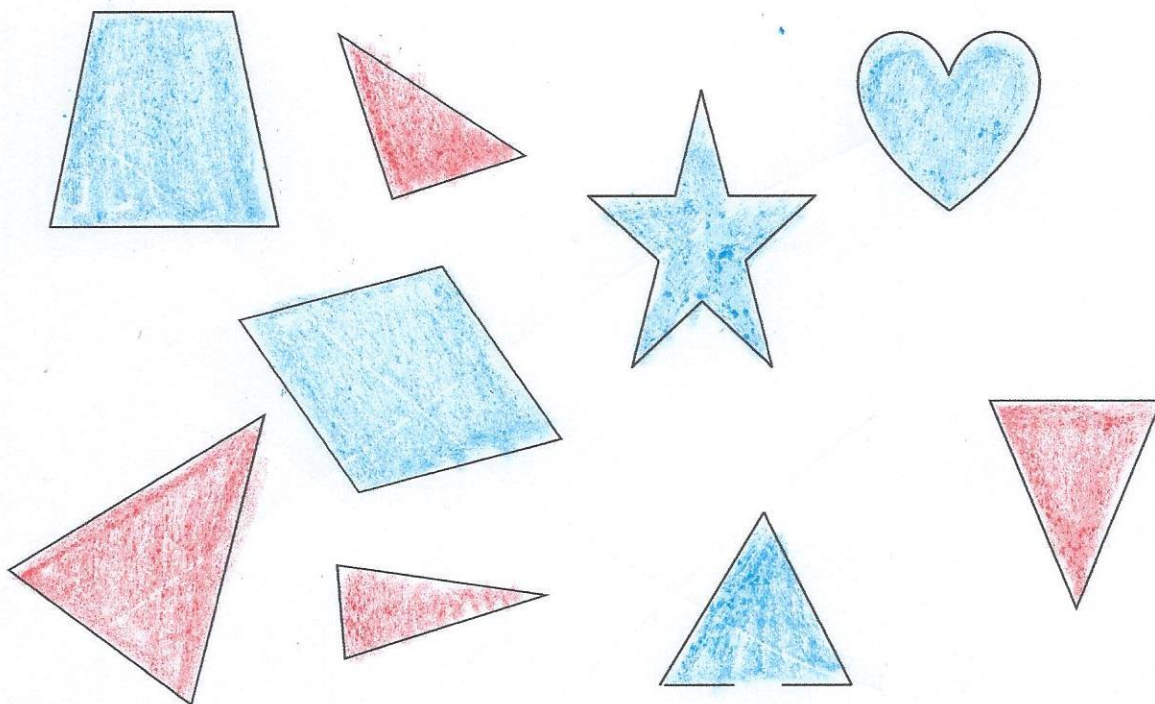
Homework Key

4 triangles colored red; 5 shapes colored blue

2 triangles drawn

Homework Sample

Color the triangles red and the other shapes blue.



Lesson 3

Objective: Explain decisions about classifications of rectangles into categories using variants and non-examples. Identify shapes as rectangles.

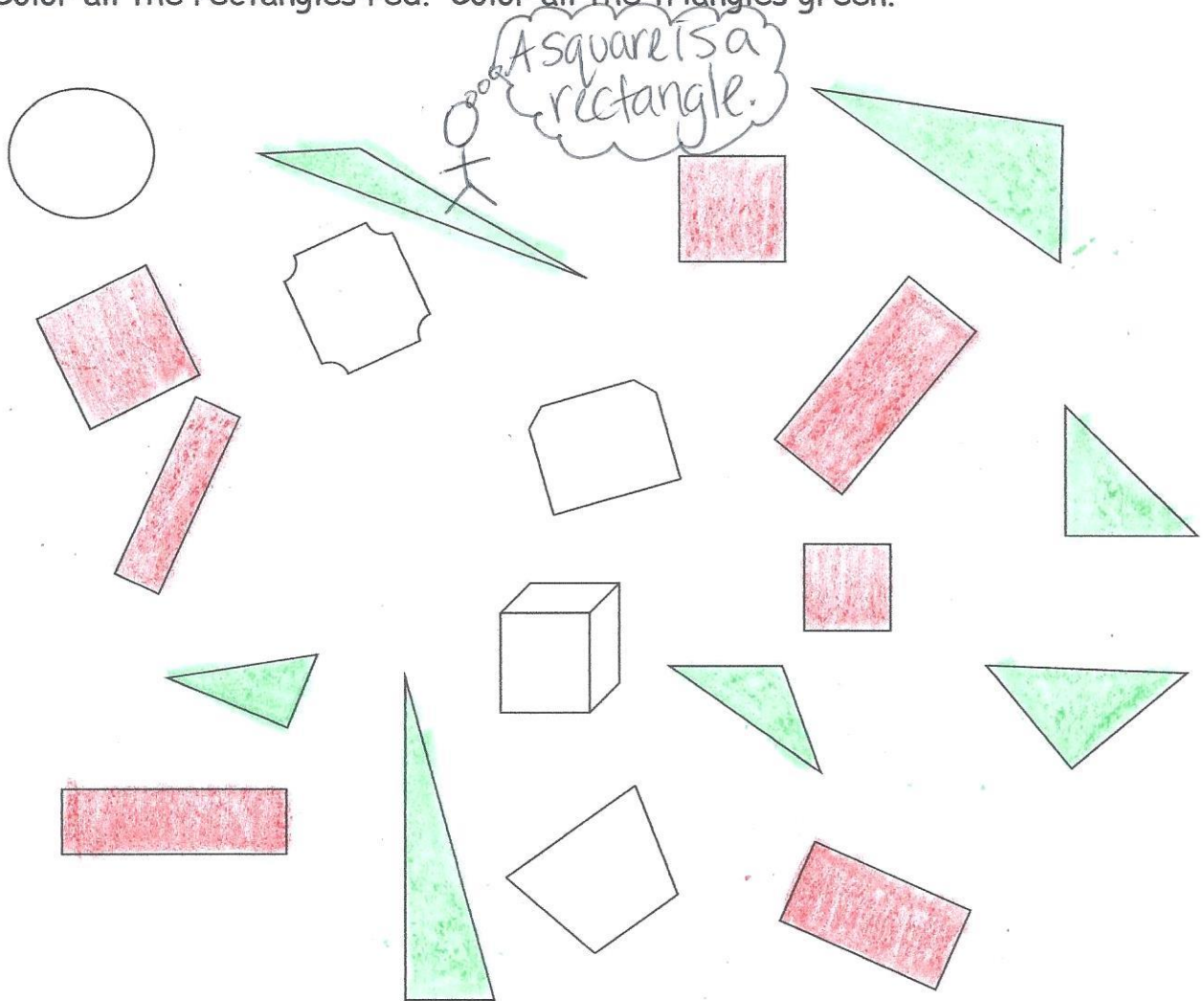
Homework Key

7 rectangles colored red; 7 triangles colored green

2 rectangles and 3 triangles drawn; 5

Homework Sample

Color all the rectangles red. Color all the triangles green.



Lesson 4

Objective: Explain decisions about classifications of hexagons and circles, and identify them by name. Make observations using variants and non-examples.

Homework Key

3 triangles colored blue; 4 rectangles colored red; 2 circles colored green; 4 hexagons colored yellow
2 triangles and 1 hexagon drawn; 3

Homework Sample

Name _____ Date _____

Color the triangles blue.

Color the rectangles red.

Color the circles green.

Color the hexagons yellow.



Lesson 5

Objective: Describe and communicate positions of all flat shapes using the words *above*, *below*, *beside*, *in front of*, *next to*, and *behind*.

Homework Key

Blue square drawn behind elephant

Yellow circle drawn above the elephant

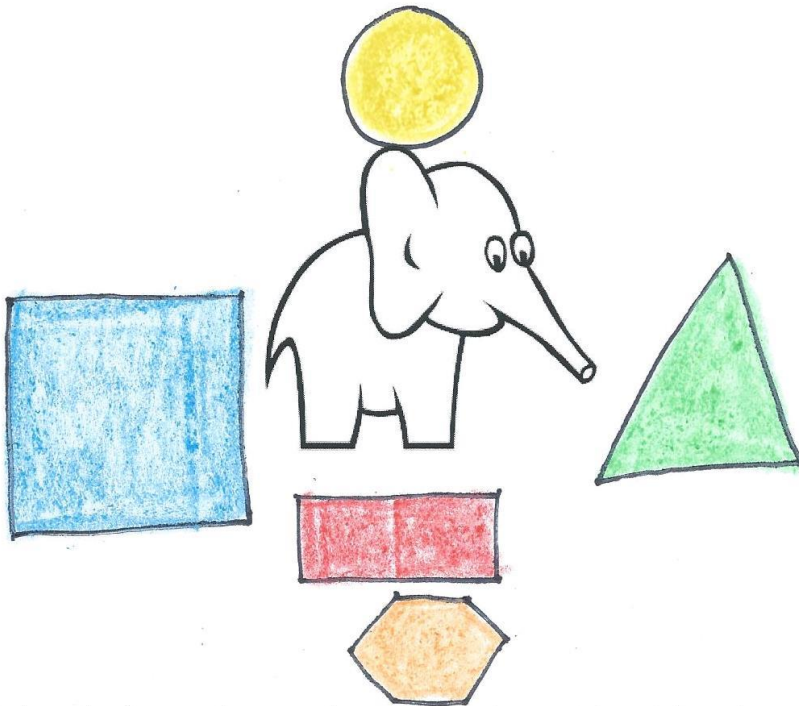
Green triangle drawn in front of elephant

Red rectangle drawn below elephant

Orange hexagon drawn below elephant

1 hexagon and 4 triangles drawn; 5

Homework Sample



- **Behind** the elephant, draw a shape with 4 straight sides that are exactly the same length. Color it blue.
- **Above** the elephant, draw a shape with no corners. Color it yellow.
- **In front of** the elephant, draw a shape with 3 straight sides. Color it green.
- **Below** the elephant, draw a shape with 4 sides, 2 long and 2 short. Color it red.
- **Below** the elephant, draw a shape with 6 corners. Color it orange.

Grade K Module 2 Topic B

Three-Dimensional Solid Shapes

Focus Standards:

- K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
- K.G.2 Correctly name shapes regardless of their orientations or overall size.
- K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

Instructional Days Recommended: 3

The lessons of Topic B replicate concepts taught in Topic A but with solid shapes. Lesson 6 begins with students finding solid shapes in their environment. They might find bottles of paint, tissue boxes, balls, or crayons and describe these objects to their neighbor using informal language. “My ball is round, and it bounces!” “This tissue box has a lot of pointy corners.” Some students might even use the flat shape vocabulary they learned in Topic A to describe their solid shape. “There are a lot of rectangles on my tissue box, too.”

In Lesson 7, students learn the names of the solid shapes and focus on their attributes. They are asked to explain their thinking as they classify the solid shapes into categories. “I’m putting the cube and rectangular prism together because they have six sides.” “The sphere and cylinder roll. They should go together.” Lesson 8 guides the students to use their new solid shape lexicon to communicate the position of solid shapes to each other. Students identify, name, and position shapes relative to each other.

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Lesson 6

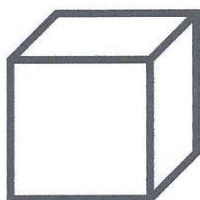
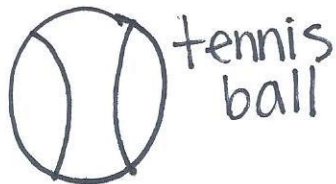
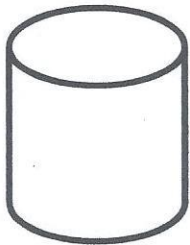
Objective: Find and describe solid shapes using informal language without naming.

Homework Key

Shapes pasted from magazine or drawn to match cylinder, sphere, cone, and cube

Homework Sample

Find things in your house or in a magazine that look like these solids. Draw the solids or cut out and paste pictures from a magazine.



Lesson 7

Objective: Explain decisions about classification of solid shapes into categories.
Name the solid shapes.

Homework Key

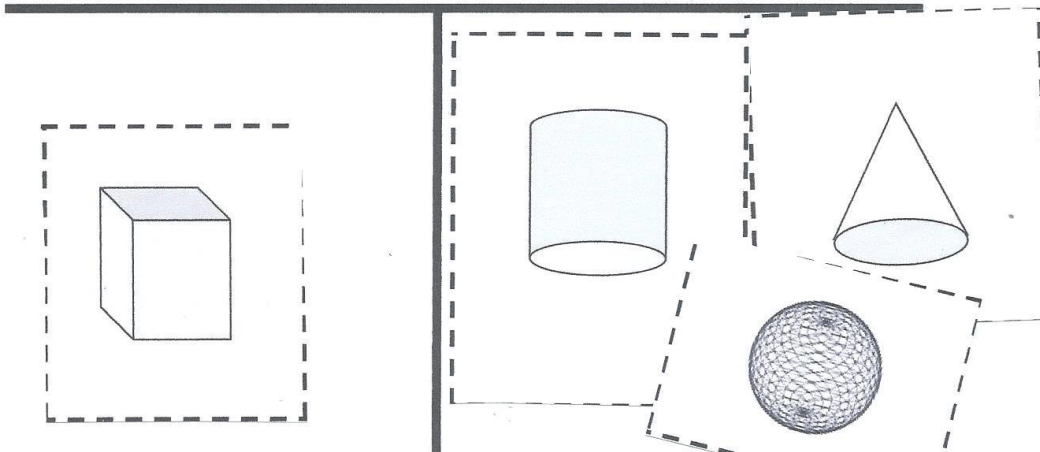
1 cube pasted on left side of chart; 3 other shapes pasted on right side of chart
Answers will vary.

Homework Sample

Cut one set of solid shapes. Sort the 4 solid shapes. Paste onto the chart.

These have corners.

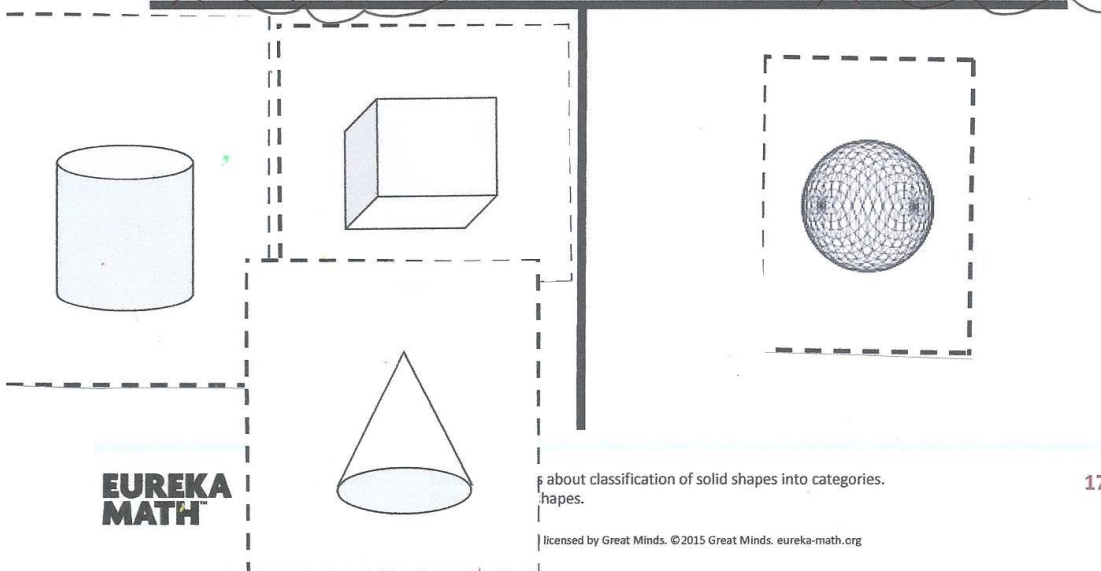
These do not have corners.



Cut the other set of solid shapes, and make a rule for how you sorted them. Paste onto the chart.

These shapes have faces.

These shapes don't have any faces.



Lesson 8

Objective: Describe and communicate positions of all solid shapes using the words *above*, *below*, *beside*, *in front of*, *next to*, and *behind*.

Homework Key

Third car colored green

Second car circled blue

First car colored red

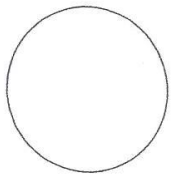
Road drawn below cars

Policeman drawn in front of cars

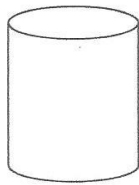
Sun drawn above cars

Homework Sample

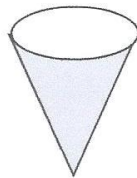
Tell someone at home the names of each solid shape.



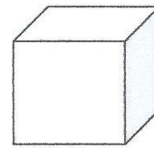
Sphere



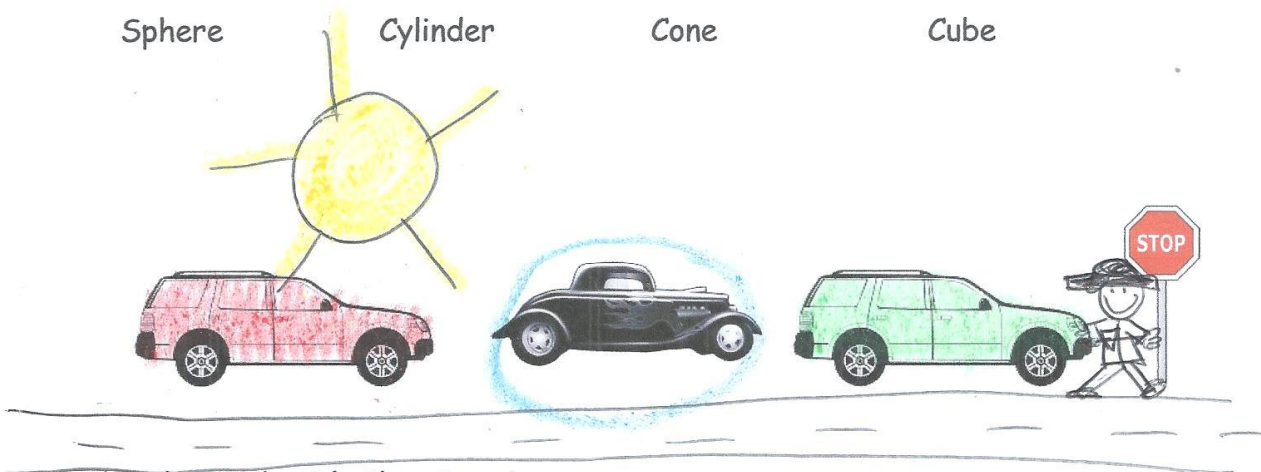
Cylinder



Cone



Cube



Color the car **beside** the stop sign green.

Circle the **next** car with blue.

Color the car **behind** the circled car red.

Draw a road **below** the cars.

Draw a policeman **in front of** the cars.

Draw a sun **above** the cars.

Grade K Module 2 Topic C

Two-Dimensional and Three-Dimensional Shapes

Focus Standards:

- K.MD.3 Classify objects into given categories: count the numbers of objects in each category and sort the categories by count.
- K.G.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
- K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

Instructional Days Recommended: 2

Topic C closes the module with discrimination between flats and solids. In Lesson 9, students identify and sort flat and solid shapes. The goal of this lesson is to focus each student’s attention on the attributes of a flat or solid shape instead of trusting how it looks. The students learn to sort shapes and explain the reason for their groupings.



Young children might group the first and third shapes because “they look like triangles” but not the second shape because “it doesn’t look like other triangles.” This module closes in Lesson 10 with a culminating task that begins by asking students to distinguish between variants, non-examples, and examples of flat shapes. The task continues as students relate the flat shapes to solid shapes as they create a solid and flat shape display.



**The sample homework responses contained in this manual are intended to provide insight into the skills expected of students and instructional strategies used in Eureka Math.*

Lesson 9

Objective: Identify and sort shapes as two-dimensional or three-dimensional, and recognize two-dimensional and three-dimensional shapes in different orientations and sizes.

Homework Key

Circle circled

Flat shape (hexagon) circled

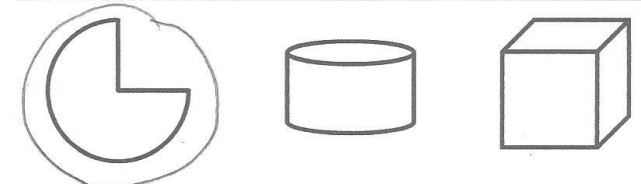
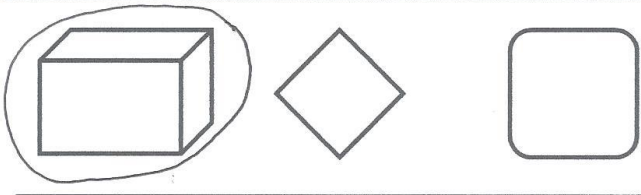
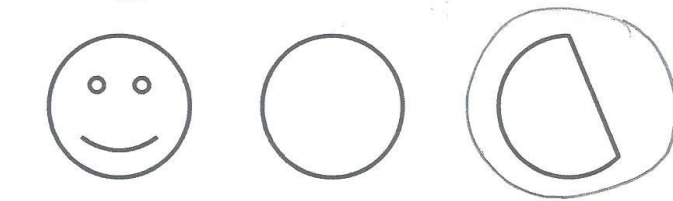
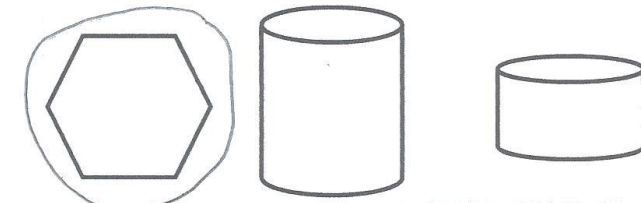
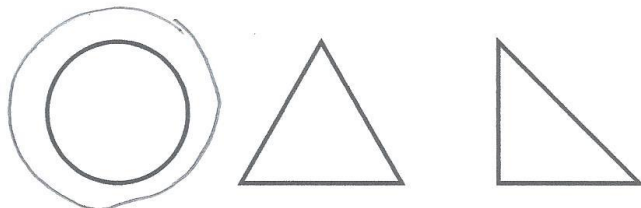
Shape with straight side circled


Solid shape circled

Flat shape circled

Homework Sample

In each row, circle the one that doesn't belong. Explain your choice to a grown-up.



 The circle does not belong because the other shapes are triangles.

Lesson 10

Objective: Culminating task—collaborative groups create displays of different flat shapes with examples, non-examples, and a corresponding solid shape.

Homework Key

Answers may vary.

Homework Sample (*Note: Shapes should be colored.*)

Shape Up Your Kitchen!

Search your kitchen to see what shapes and solids you can find. Make a kitchen-shaped collage by drawing the shapes that you see and by tracing the faces of the solids that you find. Color your collage.

