



Utah State Office of Education
250 East 500 South
P.O. Box 144200
Salt Lake City, UT 84114-4200

Martell Menlove, Ph.D.
State Superintendent
of Public Instruction

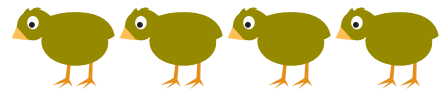
MATH Kindergarten

In the Utah Core State Standards for kindergarten there are two critical areas.

The critical areas define what students should know and understand (conceptual understanding), and be able to do (procedural understanding and fluency).

CRITICAL AREA ONE: By the end of kindergarten, students should:

- 1**
1. Use numbers, including numerals (the symbols for numbers) to:
 - a. Represent quantities (how many items there are).
 - b. Solve problems involving quantities such as counting objects in a set, counting out a certain number of objects, comparing one set with another or one numeral with another.
 - c. Solve problems by modeling such as joining sets of objects together (addition) and separating them (subtraction).
 - d. Solve problems by using simple equations, such as $5 + 2 = 7$ and $7 - 2 = 5$.
 2. Choose and apply effective strategies for answering questions involving quantities, including:
 - a. Quickly recognizing how many objects are in a set (cardinality).
 - b. Counting and making sets of given sizes.
 - c. Counting the number of objects in combined sets.
 - d. Counting the number of objects that remain in a set after some are taken away.
 3. Fluently add and subtract within 5.



Examples:

1. Students are given several sets of random quantities from 0–20. Students are asked to identify the quantity of each set and match a numeral card to show the value of each set.
2. Hyrum has 7 gumballs. Lucy has 6. Mario has 7. Which students have the same number of gumballs?
3. Olivia has 3 lollipops and her friend Sophie has 2 lollipops. How many lollipops do they have all together? Students draw a picture or place objects in sets and then combine them to solve the problem. The teacher then models the equation $3 + 2 = 5$ and relates it to the sets the students combined.
4. Carlos had 10 pieces of gum. He gave 4 of them to his friends. How many does he have left? Students draw pictures or place objects in a set to solve the problem by separating. The teacher then models the equation $10 - 4 = 6$ and relates it to the set the students separated.



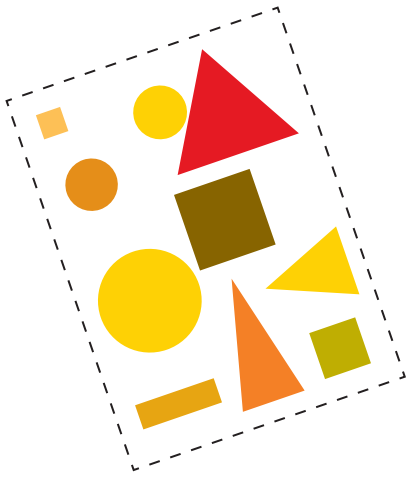
CRITICAL AREA TWO: By the end of kindergarten, students should:

- 2**
1. Describe their world using shapes, orientation (how is the shape turned or positioned), and spatial relations (e.g., above/below, right/left).
 2. Identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons in a variety of ways, e.g., with different sizes and orientations.
 3. Identify, name, and describe basic three-dimensional shapes, such as cubes, cones, cylinders, and spheres in a variety of ways, e.g., with different sizes and orientations.
 4. Use basic shapes and spatial relations to model objects in their environment and to construct more complex objects.

Examples:

1. What shape is the whiteboard? If I turn this square like this, is it still a square? What is under the art table? What is above your heads? What shape is it? Find an object in the room that is shaped like a (circle, rectangle, etc.). What is next to it?





2. Given a piece of paper with different shapes drawn on it, students can circle or color all examples of the same shape, regardless of size or orientation. When given a list of attributes describing a shape, students can point to the correct shape.

TIPS FOR FAMILIES – HOMEWORK HELP

- ▶ **Help your child see that the mathematics he is learning is very much a part of everyday life.** From statistics in sports to the sale price of clothing to the amount of gas needed to travel from one city to another, mathematics is important to us every day. Help your child to link his "school" math to practical events.
- ▶ **Show your child that you like mathematics.** Letting your child see that you use math—and that you aren't afraid of it—will go much further to building positive attitudes than just telling her that she should learn it.
- ▶ **Set high standards for your child in mathematics achievement.** Challenge your child to succeed in math and encourage his interest by finding mathematics in books, on television, in movies, at the playground, or anywhere else you see the opportunity.

(Adapted from Helping Your Child Learn Math, <http://www2.ed.gov/parents/academic/help/math/index.html>)

Other tips for parents can be found at <http://www.nctm.org/resources/content.aspx?id=7928>.