

Mathematics Standards

Practiced in *What's the BIG Idea?*™

The Process Standards

Problem Solving

For young children, this includes...

- Using simple approaches to solving mathematical problems: asking for help, counting, trial-and-error, guessing-and-checking.

Reasoning and Proof

For young children, this includes...

- Learning to explain how they solved a mathematical problem: describing the steps taken verbally, in a drawing, or with concrete objects.

Communicating

For young children, this includes...

- Telling others about their math-related work: using language, pictures or other symbols, or concrete objects.
- Beginning to use some math language: numbers, shape names, size words, names of math materials, etc.

Making Connections

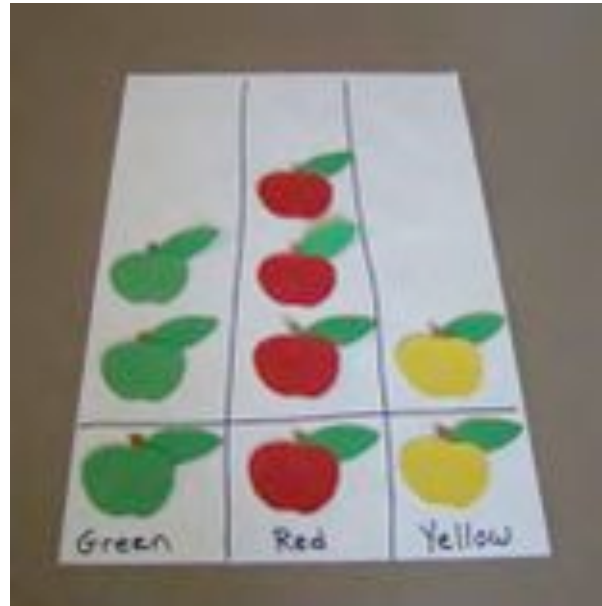
For young children, this includes...

- Using math skills in a variety of situations, not just when prompted by an adult.
- Linking their own math experiences to those of other people, in real life or in books.
- Recalling previous math experiences when engaged in current ones.

Representing

For young children, this includes...

- Using simple pictures, graphs, diagrams, or dictated words to represent their mathematical ideas.



*What's our favorite apple?
This pictograph gives us the answer.*

Representing Data

How we represent, organize and communicate the data we collect depends on the amount and type. We may take notes, make drawings, write down measurements. We might organize the data into charts and graphs in order to analyze it more carefully and look for patterns and relationships. A computer is an excellent tool we use to store, organize and represent large amounts of data in graphs and charts in a variety of styles.

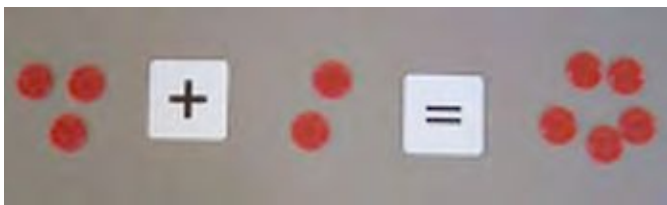


The Content Standards

Numbers and Operations

For young children, this includes...

- Recognizing and naming some written numerals.
- Having a sense of quantity: knowing that the number name “three” and the symbol “3” mean three of something.
- Counting: learning the sequence of number names (1, 2, 3).
- Counting objects: learning to count an object only once, using one-to-one correspondence in counting objects and matching groups of objects.
- Beginning addition: Adding two groups of concrete objects by counting the total.
- Beginning subtraction: Taking away one group of concrete objects from another by taking some away and counting the remainder.
- Comparing: understanding ideas such as more than, less than, and the same as and having a general idea that some numbers stand for a lot and some numbers mean a little.



*Number sentences (equations)
can be represented in many ways.*

Geometry and Spatial Sense

For young children, this includes...

- Matching, sorting, naming, and describing shapes: circles, squares, rectangles, and triangles.
- Naming and describing shapes found in everyday environments.
- Combining shapes to make new shapes.
- Making shape designs that have symmetry and balance.
- Understanding and using words that describe where objects are located: *over, under, through, above, below, beside, behind, near, far, inside, outside.*



Patterns, Functions and Algebra

For young children, this includes...

- Identifying, making, copying and extending simple patterns: sequenced or repeated organization of objects, sounds, or events.
- Using patterns to predict what will come next in a sequence.
- Recognizing single number patterns such as “one more.”
- Noticing, describing, and explaining mathematical changes in quantity, size, temperature, or weight.



Can you copy this pattern? Can you extend this pattern? What comes next?

Measuring

When we use Problem Solving and Scientific Inquiry, we often describe, compare and classify by using some form of measurement. Measurement is basically a process “tool” used to collect data, which helps us describe with more exactness. When we use measurement as part of our observations we add to the data we are collecting. We can then easily communicate our conclusions to others interested in the same problem or inquiry.

Measurement

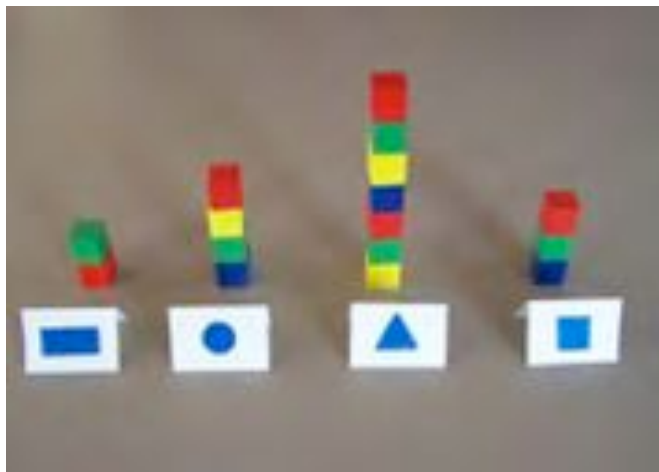
For young children, this includes...

- Understanding and using words referring to quantities: *big, little, tall, short, long, a lot, a little, hot, cold, heavy, light.*
- Understanding and using comparative words: *more than, less than, bigger than, smaller than, shorter than, longer than, heavier than, colder than.*
- Showing an awareness of and interest in measuring: imitating the use of measuring tools and measuring with non-standard units.
- Comparing objects: *Which of these two sticks is longer?*
- Beginning to use measurement words, such as *inches, feet, miles, pounds, minutes, and hours.*

Data Analysis, Statistics and Probability

For young children, this includes...

- Sorting objects to answer questions.
- Collecting data to answer a question: keeping track of simple information gathered from a group of people or over a short length of time.
- Making lists or basic graphs, with adult help, to organize collected data.



Data from our shape search: What do you notice about our block graph? Which shape did we find most frequently in our school?