A Parent's Guide to:

First Grade Mathematics Standards

Parents and schools working together for student achievement.

There has been a lot of discussion about "academic standards" and student achievement over these past few years. Standards set the target or the end result of teaching and learning for students at each grade level in reading, math, and other subject areas. The mathematics standards have five different strands – Algebra, Geometry, Measurement, Number Sense, and Statistics and Probability. This comes as a surprise to many parents who are amazed to hear that their elementary child is learning Algebra or Geometry or Statistics – areas of math many parents were not taught until high school. Each of these strands provides instruction on specific skills that can be used to solve problems and gain information. These skills continue to build on each other from basic learning in the elementary years through more complex applications of knowledge in high school.

The following guide presents the "performance descriptors" or expectations for mathematics at the grade level and provides an explanation or example of the skills. Most importantly, this guide has some fun activities for you and your child to do at home. This guide is a start. If you want additional information about how your child is doing and what your child is learning at school, talk to your child's teacher. For other learning at home ideas, visit the South Dakota Parent Resource Network online at www.sdprn.org or call toll free at 800-219-6247.

The Mathematics standards for First Grade have five different strands – Algebra, Geometry, Measurement, Number Sense, Statistics and Probability. Each strand could contain several proficiency statements. Each proficiency statement is printed in **bold** print.

ALGEBRA
By the end of First Grade children will –
- **Solve addition and subtraction number sentences 0-10.**
  This means children. . .
  o For example: 3 + __ = 5, or __ + 5 = 6, or 5 – 3 = __, or __ - 2 = 1.
  o Write and solve simple story problems using **+** or **-** and **=** symbols. For example, Mary had 8 cookies. She gave 2 to Bob. How many does she have left? The number sentence is *8-2=6.* Jane has 5 cookies. Jim has 2 cookies. How many cookies do they have together? The number sentence is *5+2=7.*)
- **Compare numbers and sets 1-20.**
  This means children. . .
  o Know the meaning of "equal to," "greater than," and "less than" using numbers up to 20. For example, 18 is greater than 5; 10 is less than 17; 7 is equal to 7.
  o Identify one more and one less using numbers to 20. For example, 15 is one more than 14 and 9 is one less than 10.
- **Identify and extend repeating patterns.**
  This means children. . .
  o Demonstrates or says what comes next in a pattern using colors, shapes, or rhythms (red, green, yellow, red, green, (yellow), red; or circle, triangle, circle, (triangle), circle; or clap, clap, stomp, clap, (clap), stomp.

GEOMETRY
By the end of First Grade children –
- **Describe characteristics of plane figures.**
  This means children. . .
  o Describe shapes. For example, a circle is round or a triangle has three straight lines.
  o A plane figure is flat - a circle is a flat object different from a ball which is a solid object and would be called a sphere
- **Sort solid figures.**
  This means children. . .
  o Can arrange three dimensional shapes such as spheres, cubes, or cones.
- **Describe proximity of objects in space.**
  This means children. . .
  o Use words such as near or far, up or down, below or above, or beside to describe where an object is located.

MEASUREMENT
By the end of First Grade children will -
- **Create different combinations of equal value using dimes, nickels, and pennies.**
  This means children. . .
  o Identify coins and their value and use different combinations of coins to show equal value. For example, a quarter is equal to 25 cents, but 2 dimes and a nickel also equals 25 cents.
- **Use calendars to locate dates and sequence events and tell time to the half hour.**
  This means children. . .
  o Tells time to the nearest half an hour using both a digital clock and a regular clock.

- o List events in order according to time. For example, 8:00 - I eat breakfast, at 8:30 - I go to school and at 10:00 I have recess.
  - o Locate a date on a calendar. For example, a child is able to find his/her birthday on the calendar.
- **Estimate weight using non-standard units and choose appropriate measurement tools to solve problems.**
  This means children. . .
  - o Guess the weight of an item by using non-standard measurements such as the doll weighs about the same as a bag of blocks.
  - o Determine which tool is best to use to measure length, weight, capacity, and temperature. For example, choose a ruler or yardstick to measure length, a measuring cup to measure capacity or amount, a scale to measure weight, or a thermometer to measure temperature.
- **Compare and order concrete objects by temperature and capacity.**
  - o Temperatures (hotter or colder) – the hot dog is hotter than an ice cube. Capacity (which holds more or holds less) – the cup holds less than the bucket.

## NUMBER SENSE
By the end of First Grade children –

- **Use various strategies to solve addition and subtraction problems up to 20.**
  This means children. . .
  - o Know several different ways to solve addition and subtraction problems using numbers 0-20. For example, addition and subtraction problems can be written either vertically (up and down) or horizontally (across); 15+3 = 18 and be the same. They can add in their head up to 20.
  - o Chooses the right "operation" to solve a story problem. For example, Jane had 10 pieces of candy, gave 2 to Susan, how many pieces does she have left? The correct operation is to subtract. The problem is 10 – 2 = 8 Answer: Jane has 8 pieces of candy left.)
- **Read, write, count, and sequence numerals to 50.**
  This means children. . .
  - o Can say the numbers in order to 50, in reverse order from 50, and can say the number before or after a given number from 0-50.
  - o Knows the names of numbers up to 50. For example, when a child sees the numeral 49, they can say it.) They can count objects and then write the correct numeral.
  - o Identifies the right order or the "ordered position" of items - 1st, 2nd, 3rd, through 20th.
- **Create fractional parts of a whole using unit fractions.**
  This means children. . .
  - o Divide shapes into equal parts such as fourths, halves and thirds.

STATISTICS AND PROBABILITY
By the end of First Grade children will –

- **Determine whether an outcome is possible or impossible.**
  This means children. . .

- o Decide if something could happen. For example, a coin is blue on one side and yellow on the other. If this coin is flipped is, it possible to land on a green side? Is it possible to land on yellow?
- **Organize and display data and answer questions from collected data.**
  This means children. . .
  - o Use simple (in units of one) picture graphs or bar graphs. For example, a bar graph or picture graph could be used to show the different ways students in a class get to school – walk, rides from family, bus, bikes, etc. Are able to answer questions by using the information found on the graph, for example, how many students walk to school? How many students ride their bikes?

How Students Get to Class
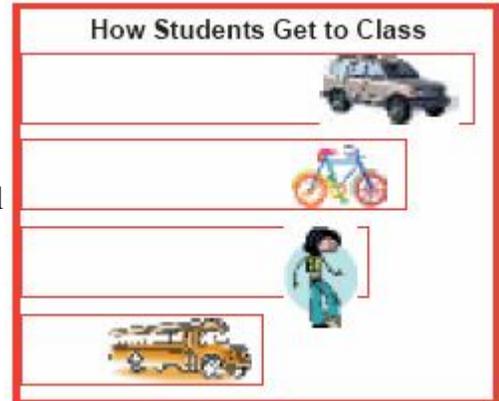
HOME LEARNING ACTIVITIES

- Find patterns in wall paper, clothing, jewelry, music, or clapping and stamping out a beat.
- Ask your child to help solve a problem. I have 8 glasses, but we only need 4 – how many should I put away? Give them time to figure in their head or write the numbers down. Let them learn to solve problems by doing it.
- Go on a shape scavenger hunt. See how many shapes your child can find in their bedroom. Identify shapes by name as you encounter them like our table is a circle, the door is a rectangle, etc.
- Play a game with your child by saying – I have 7 cents and 3 coins in my pocket. What coins do I have? (1 nickel and 2 pennies)
- Cooking is a great way to work on fractions! (Measure 1½ cups of chocolate chips.)
- Point out time on a watch and say, "It is 7:30, and it takes 15 minutes to get to school. Are you going to get there before school starts at 7:40?"
- Collect some household data such as – "How many times does the phone ring after supper until bedtime? How many times does the refrigerator open during breakfast?" or any other fun thing that will attract a first graders attention. They will enjoy collecting and interpreting the data over a few days time. (We had more calls on Monday night than on Tuesday.)
- Have your child ask family members what is their favorite ice cream flavor. Make a bar graph to show the favorite ice cream flavor of family members. Extend the graph to include uncles, grandmas, grandpas, and cousins.
- Ask your child questions such as "Which is cheaper, this package of two tomatoes for $1.50 or three of these tomatoes at 60 cents each?" Have child estimate and check their estimate with the calculator.