A Parent's Guide to:

Second Grade Mathematics Standards

Your Child's Success in School – Begins at Home

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 http://www.sdprn.org/ or call toll free at 800-219-6247.

The Mathematics standards for Second 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

Algebra is the language of mathematics and the foundation for mathematical thinking. This begins through the understanding of patterns. Children need to learn about, understand, and use patterns in order to learn reasoning skills.

By the end of Second Grade children –

• Solve addition and subtraction number sentences from 0-20.
This means children. . .
–Write and solve number sentences from word story problems. For example, "Mary made 9 bracelets. She bought 4 more bracelets. How many bracelets does she have in all?" The number sentence would be 9 + 4 = 13 bracelets. "Bob caught 18 fish. He ate 9 for supper. How many did he have left?" The number sentence would be 18 – 9 = 9 fish.

– Can answer a problem with one number missing using numbers 0-20. For example, 8 + __ = 10; __ + 6 = 9; 7 – 3 = __; or 10 - __ = 4.
– Balance or "make even" simple equations using sums up to 20. (An equation is a number sentence that is written on either side of an equal sign such as 2 + 5 = 4 + __; 7 + 6 = 10 + __ ; or 10 – 2 = 9 – __.)

• **Compare numbers and sets (1-100).**
This means children. . .
– Use the terms equal to, greater than, and less than to compare numbers from 1 – 100. (68 is less than 87 or 45 is greater than 24)
– Identify 10 more or 10 less than a given number.
– Identify and write the words less than or greater than between two numbers. For example, 50 is less than 78 or 50 is greater than 34.)

• **Find and extend growing patterns.**
This means children. . .
– Find and continue patterns using symbols, objects, or numbers. For example, 1,1,2,1,1, (2), 1). Can recognize and continue a growing number pattern using numbers from 0 – 100. For example, 22, 24, 26, 28, (30), 32 Or 13, 16, 19, (21), 24, 27.
– Knows even numbers (2, 4, 6, 8, 10. . .) and odd numbers (1, 3, 5, 7, 9. . .).
– Identifies what is the same and what is different between groups of objects.

GEOMETRY
Geometry assists students to understand the physical environment. Children study shapes and the properties of shapes in real and in abstract form allowing them to solve problems from different perspectives.

By the end of Second Grade children –

• **Identify plane and solid figures based on attributes.**
This means children. . .
– Describe the shape of plane (flat) and solid figures shape by using the terms side and corners (vertex). For example, some flat shapes include a circle, square, triangle while some solid shapes include a sphere, cube, cone)

• **Identify geometric figures regardless of position in space.**
This means children. . .
– Recognize and name shapes no matter which direction they face. For example, a triangle pointing upward or sideways is still a triangle.

MEASUREMENT

Measurement skills involve knowing about and using different measurement tools and formulas. Children begin learning about measurement by measuring many different types of objects and comparing the different characteristics of these items (i.e. length, weight, capacity or volume. . .).

By the end of Second Grade children –

• Count collections of coins up to $1.00 and represent the value using appropriate forms.
This means children. . .
– Count coins up to a dollar. For example, 2 nickels, 4 dimes, 2 quarters totals one dollar as does 4 quarters or 10 dimes.
– Use the correct symbols when writing a number representing money. For example, $5.45 or 37 cents.

• Tell time to one minute intervals and use calendars to solve problems.
This means children. . .
– Can use either a digital or regular clock to tell time to one minute intervals.
– Relate time to daily events such as, "At 3:00 I get out of school OR at 6:00 we have supper."
– Use the calendar to figure out how long until a certain event is to occur such as, "How many days until your birthday?"

• Measure the length of concrete objects to the nearest inch or foot.
This means children. . .
– Can measure objects. For example, "How long is the table? OR How tall is the cupboard?"

• Name concrete objects of comparable dimensions.
This means children. . .
– Compare real objects that are about the same length, height or weight. For example, "The doll is about the length of my dads shoe OR The boy is the same height as the chair, etc."
– Estimate how much a container can hold using common objects. For example, "The jar holds about how many marbles? OR How many small jars of water will it take to fill this big jar?"

NUMBER SENSE

Number sense provides the basic tools for solving math problems. Number sense includes simple counting through being able to easily compute mathematical problems. Elementary children should be competent and capable of using number sense skills in all mathematical operations (i.e. addition, subtraction, multiplication, division).

By the end of Second Grade children –

• Use various strategies to solve addition and subtraction problems using one and two digit numbers.
This means children. . .
– Add and subtract problems written both horizontally (across) and vertically (up and down). For example, 14 + 23 = 37 or

$$\begin{array}{r} 14 \\ +23 \\ \hline 37 \end{array}$$

– Know and can explain what needs to be done to solve a story problem using numbers up to 100 using addition, subtraction, or both. For example, "Mom made 27 cookies and placed them on the plate. She went to the store and went she returned there were only 14 cookies left. How many cookies were eaten while she was gone?" The number sentence is 27–14 = 13
– Estimate to see if a given answer makes sense or is reasonable.

• Read, write, count, and sequence numerals to 100.
This means children. . .
– Count from 0 to 100 in order and reverse order.
– Say the number before and after a given number. For example, 48 is the number before 49 or 35 is the number after 34.
– Count forward and backward by twos, fives, and tens from 0 to 100.
– Can verbally say the name of a number; write the "word name" (twenty-two) and the "standard numeral" (22) of numbers to 100.

• Identify and represent fractional parts of a group.
This means children. . .
– Are able to understand fractions. For example, "If a pizza is cut into 4 equal slices one slice of pizza is ¼ of the pizza. 2 marbles out of 5 marbles is 2/5 of the set of marbles.

STATISTICS AND PROBABILITY
Statistics is the study of data and probability is the study of outcomes. Children will learn how to collect and study data, but also how to evaluate the usefulness of information.

By the end of Second Grade children –

• Collect and represent data using tables or graphs.
This means children. . .
– Use interviews, surveys, or observations to gather information. For example, observe the sky conditions for five days at the same time of the day. Ask each family member their favorite food. Conduct a survey of classmates' eye colors.
– Represent information in more than one way. For example, bar graphs, pictographs, pie graphs.

• Answer questions and provide explanations for a given table or graph.
This means children. . .
– Understand information found in the form of a graph or table and either answer questions or give explanations about the displayed information. For example, "How many more children in the class have blue eyes than brown eyes? OR What color is most common among the children in the classroom?"

• Make predictions and list possible outcomes that are more or less likely to occur.
This means children. . .
– Predict what might happen or might not happen based on what they have observed. For example, "The block has two blue sections, one yellow section, and one red section on which to land. Each section is the same size. On which color is the block most likely to land? OR There

are seven green and three yellow cubes in a bag. Which color cube would you be least likely to pull out?"

Second Grade Mathematics Home Activities

• Ask your child to set the table for you, but give them the wrong number of plates or cups and have them write out the problem in a number sentence. For example, you gave them 3 plates, but there are 6 in the family or 6-3 = 3

• Point out license plates on a car when in traffic. Use the individual numbers on the plate to make the largest three-digit number possible and write it down. For example, if the plate is 53-854, the largest three digit number that can be made in 855. The game can be changed by making the smallest three-digit number. Or have them add or subtract the first two and last two digits on a license plate.

• As you are putting away groceries, look at all the shapes in the boxes and cans as you unload them. Point out the top of the box is a flat rectangle, but the whole box is a rectangle solid.

• Use your calendar at home to point out the pattern of days/weeks/month. Have them find and mark upcoming family events on the calendar.

• Point out different kinds of measurements – a gallon of milk, a cup of flour. Have your child help to measure for a yard or home project. Point out the temperatures – using an oven, looking at an outside thermometer.

• Make up a game as you empty bags from the grocery store. Ask you child to group things that are alike, such as – put all the cans together or put all of the foods that are eaten for breakfast on the table.

• Show your child a grocery store coupon for a product that he likes to eat and have him count out coins to show how much money the coupon saves on the product. For example, if the coupon is for 30 cents off a jar of peanut butter, give your child nickels and dimes and tell him to count out three dimes or six nickels.

• Give your child a grocery receipt with 2 items circled (items under a dollar). Have them add or subtract these figures. They can see how much 2 cans of soup or 2 boxes of macaroni and cheese cost.