



A Parent's Guide to:

Third Grade Mathematics Standards

Your Child's Success
in School –
Begins at Home

The SD Parent Resource Network is an affiliate of Black Hills Special Services Cooperative and is funded through a grant from the U.S. Department of Education, Office of Innovation and Improvement.

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 Third 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 Third Grade children –

- **Demonstrate linear patterns and number patterns.**

This means children. . .

– Continue patterns such as 4, 8, 12, (16),(20), 24. . .

- **Identify special properties of zero and one.**

This means children. . .

- Know that adding or subtracting any number with 0 does not change that number, but any number multiplied by 0 results in an answer of 0. ($15 + 0 = 15$; $49 - 0 = 49$; $55 \times 0 = 0$)
- Know that multiplying any number with 1 results in the number remaining the same value. ($24 \times 1 = 24$; $47 \times 1 = 47$)

- **Use whole numbers to solve equations involving addition and subtraction.**

This means children. . .

- Solve additional subtraction problems that are based on common experience. For example, I have four crackers, and I want ten crackers, how many more crackers do I need? ($4 + ? = 10$) ($10 - 4 = 6$). Answer: I need 6 more, because $10 - 4 = 6$.

- **Explain the relationship between repeated addition and multiplication and multiplication and division.**

This means children. . .

- Know that when a given number is repeated in addition a certain number of times, the result is the same as multiplying the given number by the number of times it is repeated in addition. For example, $5 + 5 + 5 = 3 \times 5$
- Use the relationship between multiplication and division to complete problems and to check answers. For example, since $3 \times 7 = 21$ 21 divided by $3 = 7$ and 21 divided by $7 = 3$.)

- **Select appropriate symbols to compare numbers.**

This means children. . .

- Use the = (equal) sign as well as the < (less than) sign or the > (greater than) sign. For example, $16 < 20$ or $52 > 42$ or $51 = 51$).

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 Third Grade children –

- **Identify properties of two-and three dimensional figures.**

This means children. . .

- Recognize and name plane (flat or two-dimensional) such as a square, rectangle, and triangle. Recognize and name solid (three-dimensional) geometric figures such as a cube, sphere, and cylinder.
- Name the shape and tell the number of sides and the number of corners each figure has. For example, a square has four sides and four corners. A triangle has three sides and has three corners.

- **Demonstrate similarity and congruence of simple two-dimensional figures.**

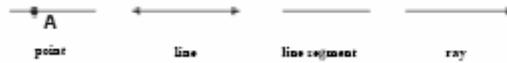
This means children. . .

- Recognize similarity of shapes in different positions and can explain why the shapes are congruent (alike in size and shape) or similar (alike in shape)



• Identify points, lines, line segments, and rays.

– Identify a point, line, line segment, or a ray.



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 Third Grade children –

• Identify time before and after the hour within 5 minute intervals.

This means children. . .

– Tell time before the hour or after the hour within 5 minute intervals. For example, five minutes after 3:00 is written 3:05 or twenty five minutes before 3:00 can be written as 2:35.

• Select the appropriate units for measurement.

This means children. . .

– Use inches, feet, miles, or yards to measure length. (The distance of a football field is measured in yards, while the length of a table top is measured in feet and inches while the distance to another town is measured in miles.)

– Use ounces, pounds, or tons to measure weight. (A dog would be weighed in pounds, but an elephant would be weighed in tons.)

– Measure capacity using cups, pints, quarts, or gallons. (The amount of sugar in a recipe would be measured in cups, while the amount of gasoline to fill the tank of a car would be measured in gallons.

• Solve money problems.

This means children. . .

– Count money using coins and bills.

– Know that a one dollar bill is less than a five dollar bill or \$45 is more than \$30.

– Solve problems using money. For example, “I had \$6 and I spent \$3.50 on a ball. How much money do I have left?” The number sentence is $\$6.00 - \$3.50 = \$2.50$.

• Measure length in U.S. customary units.

This means children. . .

– Can measure length to the nearest $\frac{1}{2}$ inch.

Note: U.S. Customary is the recognized method of measurement in the United States. For example, the height of a person is usually measured in feet and inches in the United States, but in centimeter in most other countries.

• Identify U.S. Customary units of length, capacity, weight, and temperature.

This means children. . .

– Know that inches, feet, yards, and miles are units for measuring length or distance; ounces, pounds, and tons are units for measuring weight; and cups, pints, quarts, and gallons are units for measuring capacity.

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 Third Grade children –

- **Order and compare whole numbers less than ten thousand.**

This means children. . .

- Place numbers in order up to 10,000.
- Compare numbers through 10,000 by using the correct words and symbols. For example, the $<$ symbol represents less than or $1,000 < 1,500$ or $>$ symbol means greater than or $1,200 > 1,050$, and $=$ is the equal sign or $1,032 = 1,032$.

- **Find multiples for numbers 2 through 10.**

This means children. . .

- Count in multiples up to ten. (Example: $2 \times 1 = 2$, $2 \times 2 = 4$, or 2 ,4 ,6, 8, etc., $7 \times 1 = 7$, $7 \times 2 = 14$, or 7, 14, 21, 28, etc.)

- **Name and write fractions from visual representation.**

This means children. . .

- Recognize that fractions are used to represent a part of a whole. For example, a pie is cut into eight equal pieces. If there is one piece left after the meal how much of the pie was eaten? ($7/8$) How much of the pie is left. ($1/8$)
- Name or “read” fractions. For example, $1/4$ reads one fourth, $3/8$ reads three eighths.
- Recognize that decimals are used to represent a part of a whole. For example, a pizza has eight equal pieces. After dinner there are four pieces left. What decimal represents what was eaten? ($.5$) What decimal represents what is left? ($.5$)

- **Add and subtract whole numbers up to three digits.**

This means children. . .

- Add and subtract whole numbers up to three digits. For example, $22 + 40 = 62$, or $300 + 111 = 411$, or $70 + 50 = 120$, or $45 - 10 = 35$, or $45 - 36 = 9$.

- **Know multiplication facts through the tens and are able to multiply two digits by one digit.**

This means children. . .

- Recall multiplication facts through the tens ($1 \times 1 = 1$; $1 \times 2 = 2$ $2 \times 1 = 2$, $2 \times 2 = 4$, $2 \times 3 = 6$ up to $10 \times 1 = 10$, $10 \times 2 = 20$. . .)
- Multiply two digit numbers by one digit. For example, $42 \times 4 = 168$.

- **Round whole numbers to the nearest ten and hundred.**

This means children. . .

- Round a two digit number to the nearest tens, and a three digit number to the nearest hundreds. For example, 43 is rounded to 40; 77 to 80; or 432 is rounded to 400.

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 Third Grade children –

- **Answer questions from data represented in graphs.**

This means children. . .

– Ask and answer questions from information on bar graphs, pictographs, and charts. For example, on a bar graph showing different ways of travel to school, they would be able to determine which mode of travel was used the most or the least.

- **Describe events that are certain or impossible.**

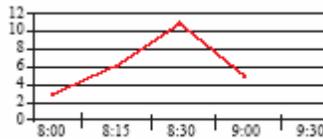
This means children. . .

– Determine the possibility that a given event is to happen. For example, there are four yellow cubes in a bag. It is a certainty that a cube pulled out of the bag would be yellow. It would be impossible to pull a blue cube out of the bag.

- **Complete a given graph.**

This means children. . .

– Gather information about a given topic and use that information to complete a labeled graph. For example, a student is able to determine what hour each person in their classroom goes to bed at night. They are able to graph and label the graph. What hour do the majority of the students go to bed?



Third Grade Mathematics Home Activities

- Ask your child to look at the gasoline pump to see how many gallons of gas you bought and the cost per gallon.
- Have your child “time” how long it takes them to dress or drive to school. Share the time of upcoming appointments or practices and discuss what time you will need to leave in order to get there on time.
- Have your child cut out grocery coupons from the paper or magazine to go along with your shopping list. They can total up the money saved by the coupons.
- Cooking is a great way to show both fractions and mixed numbers (we need $1\frac{1}{2}$ cups of flour).
- As you enter a parking lot, say something like there are 7 cars in that row. How many tires are there?
- Look through a paper or magazine and discuss what information is learned from weather charts, tables, or graphs.

South Dakota Resource Network

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