YOUR School

6th Grade Mathematics Curriculum Overview

Introduction

In Grade 6, the focus of mathematics content will be on four critical areas:

1. **Using rates and ratios to solve problems**

   Students will use reasoning about multiplication and division to solve ratio and rate problems.

   Students will use simple drawings to make sense of rate and ratio comparisons.

   Students will find connections between equivalent ratios and familiar quantities in multiplication tables.

2. **Fluently dividing fractions and beginning to develop understanding of negative numbers**

   Students will connect their understanding of fractions with their understanding of multiplication and division to make sense of the process for dividing fractions, using words and pictures as well as numbers.

   Students will solve problems involving fraction division.

   Students will extend their understanding of numbers to include negative numbers.

3. **Writing, understanding, and using expressions and equations**

   Students will use variables to represent quantities in expressions and equations.

   Students will rewrite expressions in different forms using what they know about numbers and operations. (For example, 2x + 3x can be rewritten as 5x.)

   Students will use formulas and solve simple one-step equations.

4. **Developing a beginning understanding of statistical thinking**

   Students will summarize and describe sets of data using statistical concepts such as measures of center (mean, median, mode) and measures of variability (interquartile range and mean absolute deviation).

   Students will collect data, analyze the data with statistical reasoning, and represent and interpret the data in the context in which it was collected.

Quarterly Overview

While many of the mathematics topics are related and will be integrated throughout the school year, mathematics lesson topics will generally follow the schedule outlined below:

First Quarter

- Fluently add, subtract, multiply, and divide multi-digit numbers, including decimals
- Find common factors and multiples of pairs of numbers, and use the distributive property to represent numbers in a variety of ways

Second Quarter

- Divide fractions using words, pictures, calculations and solve word problems with fraction division
- Understand ratios and rates and use appropriate ratio/rate vocabulary
- Use pictures, diagrams, tables, and calculations to solve real-world ratio and rate problems

Third Quarter

- Understand negative numbers and extend the number line into negative values
- Solve problems by graphing on the coordinate plane
- Use variables to represent quantities in expressions and equations

Fourth Quarter

- Write and solve simple equations
- Investigate 2-dimensional and 3-dimensional shapes using formulas
- Analyze data using statistical methods

Eight Mathematical Practices

Mathematics class is about much more than just "getting the right answer." The goal is not to turn students into human computers. Rather, the goal is to help shape students (eventually) into fully-functioning adults who can think critically, communicate effectively, use resources wisely, and problem-solve creatively. The eight Mathematical Practices are "habits of mind" that help students form a deep understanding of mathematics concepts, but also extend far beyond the walls of the math classroom.

Therefore, in our math class, your student will have many opportunities to:

1. Be a good problem-solver, and not give up when something doesn't work perfectly the first time.
2. Think about problems in lots of different ways.
3. Communicate effectively to show and explain their thinking and learn from the way others think.
4. Understand how the concepts they learn relate to the world around them.
5. Use mathematical tools skillfully and wisely to help in the problem-solving process.
6. Pay attention to important details, but also keep the big picture in mind.
7. Analyze complicated problems and break them down into simpler parts.
8. Identify helpful patterns and find effective shortcuts to be more efficient in problem-solving.

Students who enjoy and are successful in mathematics are those who embrace being creative problem-solvers and who approach mathematics with a sense of curiosity and adventure.

How to Support Student Learning at Home

You can help your student by reinforcing mathematical concepts at home. Sometimes that might mean going through flash cards for a few minutes a day, but the best mathematical support happens by highlighting the math that is already around you.

Play card games, Monopoly, and Scrabble. Have your student be the scorekeeper or banker.	**Children should drink 5-8 cups of water per day. Track how much water you drink for a week (in terms of cups, pints, and quarts).**	**On birthdays, figure out how many months (or weeks, or days) old the person is.**
Estimate how many M&Ms (or similar) will fit into a cup. Then fill it up and count to find out.	**Estimate how long something is. Then measure to find out.**	**Estimate how long something will take. Then test it out to see.**
Give your student an allowance or pay them for chores. Talk about pay rates, saving money, and spending money.	**Talk about meanings of percentages when you see "% off" sales or check the weather or track progress in computer games, ebooks, etc.**	**Talk about what decimals mean in the context of money. What's the difference between 1 cent and 0.01 cent?**
Highlight fractions everywhere. "What fraction of the people here are wearing hats?"	**Make recipes together and measure ingredients creatively. "We need 1 ½ cups of flour, but only have a ¼ cup measuring cup. What can we do?"**	**Make recipes. Double or halve the recipe. Have your student be in charge of reading the recipe and giving directions.**
Craft or scrapbook together. Measure lengths in fractions of inches.	**Build a project that requires measuring and cutting boards or other material.**	**Plant a garden. Discuss number of plants, spacing of plants, height and width of plants. Track rainfall with a rain gauge.**

Be relaxed and positive in these interactions, and your student will learn to relax and think positively about mathematics. Don't put too much emphasis on speed or correct answers. Instead, ask questions about how they thought about the topic and share your thoughts. Try to think about things in different ways. (And don't be surprised if you start to enjoy doing math with them too!)