

Mathematics – Math 6: Syllabus 2016-2017

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Materials:

Binder with six dividers

Spiral notebook ****Math only**

Scientific Calculator ****Texas Instruments TI-30X preferred**

Pencils

Red Pens

Resources:

CMP3 Connect Math Workbooks

Homework: <http://missaileenserafin.weebly.com/>

How will students learn mathematical skills in this class?

Problem solving in real-world contexts

- Rereading to ensure understanding
- Think using logical processes
- Discuss mathematical ideas with peers
- Ask questions
- Write to explain their ideas

Use manipulatives and visual representations of problems

Reading about Math – Note taking and organizational skills

Understand and use the resources available – knowing where to go for help

How will students be assessed?

Classwork

Participation in group problem solving

Problems of the day

Quizzes and Unit Tests

Homework

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Skills Overview

6-1 Prime Time

In Prime Time, students will explore important properties of whole numbers. Many of these properties are related to multiplication and division. The Investigations will help students understand relationships among factors, multiples, divisors, and products. Students will also learn how the Distributive Property relates multiplication and addition. The Investigations in this Unit will help students understand the following ideas:

- Classify numbers as prime and composite
- Recognize which situations call for common factors, common multiples, the least common multiple, or the greatest common factor.
- Develop strategies for finding factors and multiples, least common multiples, and greatest common factors.
- Recognize and use the fact that every whole number can be written in exactly one way as a product of prime numbers.
- Use exponential notation to write repeated factors.
- Relate the prime factorization of two numbers to the least common multiple and greatest common factor of two numbers.
- Recognize that the Distributive Property relates the multiplicative and additive structures of whole numbers.
- Use the properties of operations of numbers, including the Distributive Property and the Order of Operations convention, to write equivalent numerical expressions.

6-2 Comparing Bits and Pieces

In *Comparing Bits and Pieces*, your child will develop skills in using fractions, decimals, ratios and percents to measure and to compare quantities. The Investigations in this Unit will help you understand how to:

- Use ratio language and notation to compare quantities
- Distinguish between fractions as numbers and ratios as comparisons
- Use a variety of scaling and partitioning strategies to reason proportionally
- Think of fractions and decimals as both locations and distances on the number line
- Move flexibly among fraction, decimal, and percent representations
- Find absolute values and opposites, and use them to describe real world quantities
- Use fraction, decimal, and percent benchmarks to estimate numbers
- Use context, models, drawings, or estimation to reason about situations
- Use equivalence of fractions and ratios to solve problems
- Use rate tables and unit rates to solve problems

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6-3 Let's Be Rational

In *Let's Be Rational*, your student will develop an understanding of the four basic arithmetic operations with fractions, including mixed numbers. They will also describe strategies for using these operations when solving problems involving fractions.

Your child will learn how to:

- Use benchmarks and other strategies to make reasonable estimates for results of operations with fractions, including mixed numbers
- Develop ways to model sums, differences, products, and quotients, including the use of areas, fraction strips, and number lines
- Look for rules to generalize patterns in fraction operations
- Use your knowledge of fractions, equivalence of fractions, and properties of numbers to develop algorithms for adding, subtracting, multiplying, and dividing fractions
- Recognize when addition, subtraction, multiplication, or division is the appropriate operation to solve a problem
- Write fact families to show the inverse relationship between addition and subtraction, and between multiplication and division
- Solve problems using operations on fractions, including mixed numbers
- Find values for variables by using operations on fractions, including mixed numbers

6-4 Covering and Surrounding

In *Covering and Surrounding*, your student will explore areas and perimeters of figures. Attention is given especially to quadrilaterals and triangles. Your child will also explore surface area and volume of rectangular prisms. The Investigations in this Unit will help them:

- Analyze what it means to measure area and perimeter
- Relate perimeter to surrounding a figure and area to covering a figure
- Develop strategies, procedures, and formulas, stated in words or symbols, for finding areas and perimeters of rectangles, parallelograms, and triangles
- Investigate relationships between perimeter and area, including that one can vary while the other stays fixed
- Analyze how the area of a triangle and the area of a parallelogram are related to the area of a rectangle
- Use nets that are made from rectangles and triangles to find surface areas of prisms
- Find the volume of rectangular prisms with fractional side lengths
- Use perimeter, area, surface area, and volume to solve problems.

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6-5 Decimal Ops

In *Decimal Ops*, your student will learn how to make sense of and use the four operations (+, -, x, ÷,) on decimal numbers. Your child will also improve your understanding of and skill in working with percents.

Your student will learn how to:

- Add, subtract, multiply, and divide decimals
- Estimate the results of decimal operations
- Know when to use each operation in a situation involving decimals
- Relate operations on decimals to problems involving unit rates
- Use percents to solve problems

6-6 Variable and Patterns

In *Variables and Patterns*, your child will study some basic ideas of algebra and learn some ways to use those ideas to solve problems and make decisions.

The Investigations in this Unit will help your student learn how to:

- Recognize situations in which variables are related in predictable ways
- Describe patterns of change in words, data tables, graphs, and equations
- Use data tables, graphs, equations, and inequalities to solve problems

6-7 Data About Us

In *Data About Us*, you will learn different ways to collect, organize, display, and analyze data. In this Unit your student will learn to:

- Use the process of data investigation by posing questions, collecting and analyzing data, and interpreting the data to answer questions
- Organize and represent data using tables, dot plots, line plots, bar graphs, histograms, and box-and-whisker plots
- Describe the overall shape of a distribution and identify whether or not it is symmetrical around a central value
- Compute the mean, median, and mode of a data distribution, and use these measures to indicate what is typical for the distribution
- Describe the variability of a distribution by identifying clusters and gaps, and by calculating the range, Interquartile Range (IQR), and Mean Absolute Deviation (MAD)
- Identify which statistical measures of center and spread should be used to describe a particular distribution of data
- Distinguish between categorical data and numerical data, and identify which graphs and statistics may be used to represent each type of data
- Compare two or more distributions of data, including using measures of center and spread to make comparisons