**Curriculum**

**6th Grade Mathematics**

**Course Overview**

Math 6 is the introductory middle school math course. Students are instructed in a broad range of topics in order to establish a solid foundation upon which future mathematical knowledge will build. Instruction is delivered using a variety of methods guided by current research and best practice in early adolescent education. Some content is presented with the goal of introducing the students to a particular concept or skill while other material is to be mastered. Skills to be mastered include: adding, subtracting, multiplying, and dividing whole numbers, fractions, mixed numbers, and decimals; identifying least common multiples and greatest common factors; estimating products and quotients; evaluating expressions containing variables and exponents; calculating perimeter, area, and volume; measuring length, mass, and volume in both U.S. customary units as well as metric units; creating and interpreting graphs, classifying angles and polygons; and writing and solving equations. Learning is assessed through daily homework, class activities, quizzes, and tests.

**Department Standards**

Students will be able to comprehend mathematical concepts.

Students will be able to apply mathematical procedures accurately, efficiently, and appropriately.

Students will be able to formulate, represent, and solve mathematical problems.

Students will develop logical mathematical thought and precise mathematical communication.

**Benchmarks**:

Students will be able to:

demonstrate an understanding of number sense related to patterns, rounding and estimating;

demonstrate mastery of decimal operations;

demonstrate mastery of fraction operations;

demonstrate mastery of the customary and metric system;

recognize and use ratios, proportions and percents;

demonstrate and apply statistics and data analysis through the creation and interpretation of graphs, charts and plots;

demonstrate an understanding of basic geometric elements and figures;

demonstrate and apply area and perimeter formulas for parallelograms, triangles and circles;

demonstrate and apply area and volume for rectangular prisms;

recognize and use integers and their operations;

recognize and solve single step equations; and

recognize and apply probability.

**Performance Indicators**

First Quarter

Students will be able to:

add, subtract, multiply and divide whole numbers;

round numbers to perform an estimate and compare actual with estimate;

find the value of a power;

use order of operations to find the value of an expression;

evaluate an expression with variables;

interpret a word problem and develop a problem solving plan;

read and write decimals;

compare and order decimals;

round decimals to a specific place value;

use decimal estimation to see if actual answer makes sense;

add decimal expressions;

subtract decimal expressions;

multiply decimal expressions;

recognize and use the distributive property;

divide decimal expressions;

move decimal places based on the power of ten;

write a whole number as a product of prime factors;

find the greatest common factor of two or more whole numbers;

find the least common multiple of two whole numbers;

write equivalent fractions;

simplify a fraction; and

compare and order fractions.

Second Quarter

Students will be able to:

create and interpret bar charts;

create and interpret line charts;

create a frequency table;

create a line plot from a frequency table;

describe data using mean, median, mode and range;

organize data using a stem and leaf plot;

represent data with box and whisker plots;

interpret a circle graph and make predictions;

find the sum or difference of fractions with the same denominator;

find the sum or difference of a fraction with different denominators;

find the sum or difference when the numbers are improper fractions or mixed numbers;

find the difference between two fractions that require borrowing;

find the product of two fractions;

find the product of a fraction and a mixed number;

find the quotient of two fractions;

find the quotient of a fraction and a mixed number;

use estimation to determine if actual answer makes sense;

write a decimal as a fraction;

write a fraction as a decimal;

recognize the importance of the customary and metric systems;

recognize and convert metric units of volume, mass, and length;

recognize and convert customary units of volume, weight, and length; and

find the sum or difference of customary volume, weight, and length.

Third Quarter

Students will be able to:

write ratios and equivalent ratios;

write rates, equivalent rates and unit rates;

write and solve proportions;

use proportions with scale drawings;

write percents as a decimals or fractions;

write fractions and decimals as percents;

multiply to find the percent of a number;

identify and name segments, lines and rays;

name, draw and measure angles;

classify angles and find angle measures;

classify triangles by side or angle;

classify quadrilaterals by their sides and angles

classify polygons by the number of sides

identify similar and congruent figures;

identify lines of symmetry;

find the area of a parallelogram;

find the area of a triangle;

find the area and perimeter of a circle;

breakdown a figure into multiple shapes and find the total area of the shapes;

classify solids;

find the surface area of a rectangular prism; and

find the volume of a rectangular prism.

Fourth Quarter

Students will be able to:

compare and order integers;

add two integers;

subtract two integers;

find the product of two integers;

find the quotient of two integers;

write variable expressions and equations;

solve single step addition equations;

solve single step subtraction equations;

solve single step multiplication equations;

solve single step division equations;

evaluate and graph functions;

find the probabilities of single events;

find the outcomes and probabilities;

make stem-and-leaf plots; and

make appropriate data displays.

**Assessments**

First Quarter

Daily Homework- based on daily lesson topics

Quizzes- given halfway through each chapter

Tests- one given for each chapter

Projects- Data Collection Display, Scale Drawing

Chapter Packets- collection of notes, assignments, and daily work

Second Quarter

Daily Homework- based on daily lesson topics

Quizzes- given halfway through each chapter

Tests- one given for each chapter

Projects- Fraction Operations Brochure

Cumulative Test- given on chapters covered in the first semester

Chapter Packets- collection of notes, assignments, and daily work

Third Quarter

Daily Homework- based on daily lesson topics

Quizzes- given halfway through each chapter

Tests- one given for each chapter

Projects- Polygon Valentine, Tessellation

Chapter Packets- collection of notes, assignments, and daily work

Fourth Quarter

Daily Homework- based on daily lesson topics

Quizzes- given halfway through each chapter

Tests- one given for each chapter

Projects- Probability Game

Cumulative Test- given on chapters covered in the second semester

Chapter Packets- collection of notes, assignments, and daily work

**Core Topics**

First Quarter

Number Sense and Algebraic Thinking

Measurement and Statistics

Decimal Addition and Subtraction

Decimal Multiplication and Division

Second Quarter

Number Patterns and Fractions

Addition and Subtraction of Fractions

Multiplication and Division of Fractions

Third Quarter

Ratio, Proportion, and Percent

Geometric Figures

Geometry and Measurement

Fourth Quarter

Integers

Equations and Functions

Probability and Statistics

**Specific Content**

First Quarter

Whole Number Operations

Estimation

Powers and Exponents

Order of Operations

Variables and Expressions

Mental Math

Measuring Length

Perimeter and Area

Scale Drawings

Frequency Tables and Line Plots

Bar Charts

Line Charts

Frequency Tables and Line Plots

Mean, Median and Mode

Stem and Leaf Plots

Box and Whisker Plots

Interpreting Circle Charts

Coordinate, Line, Circle, and Bar Graphs

Mean, Median, and Mode

Decimals and Place Value

Measuring Metric Lengths

Rounding, Estimating, and Ordering Decimals

Adding and Subtracting Decimals

Multiplying Decimals and Whole Numbers

The Distributive Property

Multiplying and Dividing by Powers of Ten

Mass and Capacity

Changing Metric Units

Second Quarter

Adding and Subtracting Fractions with Common Denominators

Adding and Subtracting Fractions with Different Denominators

Adding and Subtracting Mixed Numbers and Improper Fractions

Subtracting Mixed Numbers by Renaming

Multiplying Fractions

Multiplying Mixed Numbers

Dividing Fractions

Dividing Mixed Numbers

Estimating Fractions

Converting a Decimal to a Fraction

Converting a Fraction to a Decimal

Measurement System Overview

Metric System Basics

Converting and Understanding Metric Length

Converting and Understanding Customary Length

Adding and Subtracting Customary Length

Converting and Understanding Metric Volume

Converting and Understanding Customary Volume

Adding and Subtracting Customary Length

Converting and Understanding Metric Mass

Converting and Understanding Customary Weight

Adding and Subtracting Customary Weight

Third Quarter

Ratios

Rates

Solving Proportions

Proportions and Scale Drawings

Understanding Percents

Converting Percents, Decimals and Fractions

Finding Percent of a Number

Geometry Basics: Points, Segments, Lines and Rays

Angles and Angle Measurement

Classifying Angles

Classifying Triangles

Classifying Quadrilaterals

Polygons

Similar and Congruent Figures

Line Symmetry

Area of a Parallelogram

Area of a Triangle

Circumference and Area of a Circle

Area of a Composite Figure

Solid Figures

Surface Area of a Rectangular Prism

Fourth Quarter

Comparing Integers

Adding Integers

Subtracting Integers

Multiplying Integers

Dividing Integers

Expressions and Equations

Solving Addition Equations

Solving Subtraction Equations

Solving Multiplication Equations

Solving Division Equations

Finding Outcomes

Probability of Independent Events

Misleading Statistics

Stem-and-Leaf Plots

Box-and-Whisker Plots

Choosing an Appropriate Data Display

**Resources**

Textbook- McDougal Littell Middle School Math- Course 1

Web Applications (from publisher)

Section Specific Worksheets (from publisher)

Pizzazz Worksheets

SMARTBoard tools