

IKM-Manning Curriculum
Mathematics Standards / Benchmarks / Indicators
January 2008

Standards:

The students will demonstrate understanding of number and operations

The students will demonstrate understanding of algebra

The students will demonstrate understanding of geometry and measurement

The students will demonstrate understanding of data analysis and probability

Course Benchmarks:

- 7.1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems
 - 7.1.2 Compute with positive rational numbers (whole numbers, fractions, decimals)
 - 7.1.3 Understand and apply estimation strategies
 - 7.1.4 Apply appropriate computational techniques in a problem solving situation
 - 7.2.1 Write, solve, and evaluate simple algebraic expressions and equations
 - 7.2.2 Represent and generalize patterns
 - 7.2.3 Apply concepts of algebra in a problem solving situation
 - 7.3.1 Understands characteristics and properties of plane and spatial shapes
 - 7.3.2 Demonstrate appropriate techniques, tools, and formulas to determine measurements
 - 7.3.3 Use coordinate geometry to describe location
 - 7.3.4 Apply the concepts of geometry and measurement in a problem solving situation
 - 7.4.1 Apply basic statistical concepts
 - 7.4.2 Apply basic probability concepts
 - 7.4.3 Apply concepts of data analysis and probability in a problem solving situation
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7th Grade

7.1 Numbers and Operations

- 7.1.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

7.1.1.A Read and write rational numbers in scientific notation (positive and negative powers of 10)

7.1.1.B Convert fractions to decimals and percents and use in estimation and applications

- 7.1.2 *Compute with positive rational numbers (whole numbers, fractions, decimals)*

7.1.2.A Apply properties of rational numbers (identity, inverse, distributive, commutative)

7.1.2.B Determine the square root of perfect square integers

- 7.1.3 *Understand and apply estimation strategies*

7.1.3.A Compare and estimate using addition, subtraction, multiplication and division of rational numbers

7.1.3.B Estimate sums, differences, products, and quotients of fractions

7.1.3.C Estimate square roots

7.1.4 Apply appropriate computational techniques in a problem solving situation

- 7.1.4.A Solve problems that involve discounts, simple interest and percent of increase/decrease

7.2 Algebra

7.2.1 Write, solve, and evaluate simple algebraic expressions and equations

- 7.2.1.A Use algebraic terminology (variable, equation, term, coefficient, expression) to represent a verbal description (three less than a number)
7.2.1.B Write and evaluate simple algebraic expressions using order of operations correctly
7.2.1.C Simplify and evaluate expressions that include exponents

7.2.2 Represent and generalize patterns

- 7.2.2.A Recognize and extend a pattern for sequences
7.2.2.B Formulate and solve linear equations.

7.2.3 Apply concepts of algebra in a problem solving situation

- 7.2.3.A Support solutions using mathematical language
7.2.3.B Make connections between mathematical solutions, concepts, and the real world

7.3 Geometry and Measurement

7.3.1 Understands characteristics and properties of plane and spatial shapes

- 7.3.1.A Use formulas to determine perimeter and area of two-dimensional figures and surface area and volume of three-dimensional figures
7.3.1.B Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor
7.3.1.C Identify and construct basic elements of geometric figures (midpoints, diagonals, angle and perpendicular bisectors, radii, diameters and chords of circles)
7.3.1.D Demonstrate an understanding of congruence
7.3.1.E Construct two-dimensional patterns for three-dimensional models (cylinders and rectangular prisms)
7.3.1.F Identify elements of three-dimensional geometric objects

7.3.2 Demonstrate appropriate techniques, tools, and formulas to determine measurements

- 7.3.2.A Compare weights, capacities, geometric measures, times and temperatures within measurement systems (miles per hour/feet per second, cubic inches/cubic cm)
7.3.2.B Construct and read scale drawings

7.3.3 Use coordinate geometry to describe location

- 7.3.3.A Graph points on a coordinate plane

7.3.4 Apply the concepts of geometry and measurement in a problem solving situation

7.3.4.A Use measures expressed as rates to solve problems

7.3.4.B Apply Pythagorean relationship

7.4 Data Analysis and Probability

7.4.1 Apply basic statistical concepts

7.4.1.A Know various forms of display for data sets (stem and leaf plot/box and whisker plot) use them to display a single set of data or compare two sets of data

7.4.1.B Understand the meaning of and be able to compute the minimum, the lower quartile, the median, the upper quartile and the maximum of a data set

7.4.2 Apply basic probability concepts

7.4.2.A Calculate the probability from sample data

7.4.2.B Calculate the probability from geometric models

7.4.2.C Predict outcomes and make reasonable estimates

7.4.3 Apply concepts of data analysis and probability in a problem solving situation

7.4.3.A Analyze problems by identifying relationships, discriminating relevant from irrelevant information, identifying missing information, and observing patterns

*Coding for Infusion Topics covered in curriculum:

Higher Order Thinking Skills (H), Vocational/Career Education (V), Global Education (G), Multi-Cultural/Gender Fair (MCGF), Learning Skills (L), Communication Skills (C), Technology (T)