

**Oklahoma Grade 8 with CORD Bridges, 2<sup>nd</sup> Edition**

**Priority Academic Student Skills**

**MATHEMATICS CONTENT STANDARDS**

**Grade 8**

The following concepts and skills are required by all students completing eighth grade. The **Major Concepts** should be taught in depth using a variety of methods and applications so that all students have accessibility to and an understanding of these concepts. **Maintenance Concepts** have been taught previously and are a necessary foundation for success in mathematics at this level.

<b>MAJOR CONCEPTS</b>	<b>MAINTENANCE CONCEPTS</b>
<b>Algebraic Reasoning</b> <b>Equations, Inequalities</b>	Algebraic Reasoning Number Properties, Equations
<b>Number Sense -</b> <b>Rational Numbers, Exponents</b>	Number Sense - Integers, Ratio, Proportion, Percent
<b>Geometry and Measurement -</b> <b>Surface Area, Volume, Ratio and</b> <b>Proportion, Formulas</b>	Geometry - Geometric Figures, Rectangular Coordinate System
<b>Data Analysis and Statistics -</b> <b>Graphical Representations, Sampling,</b> <b>Measures of Central Tendency</b>	Measurement - Area, Perimeter, Customary & Metric Measurements  Data Analysis and Probability - Predictions from Data, Simple Probabilities

**Standard 1: Algebraic Reasoning - The student will graph and solve linear equations and inequalities in problem-solving situations.**

1. Equations
  - a. Model, write, and solve 2-step linear equations using a variety of methods.  
**Pages or Location:** 198-202, 211-216, 222-223, 232, 240, 252, 265, 271, 298, 309, 366, 371, 425
  - b. Graph and interpret the solution to linear equations on a number line with one variable and on a coordinate plane with two variables.  
**Pages or Location:** 400-404, 405-412
  - c. Predict the effect on the graph of a linear equation when the slope changes (e.g., make predictions from graphs, identify the slope in the equation  $y = mx + b$  and relate to a graph).  
**Pages or Location:** 413-418, 419-427, 439-448
2. Inequalities
  - a. Model, write, and solve 1-step and 2-step linear inequalities with one variable.  
**Pages or Location:** 273-277, 278-284, 288-289

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- b. Graph the solution to linear inequalities with one variable on a number line.

**Pages or Location:** 273-277, 278-284

**Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.**

1. Rational Numbers and Proportional Reasoning

- a. Compare and order rational numbers (positive and negative integers, fractions, decimals) in real-life situations.

**Pages or Location:** 4-10, 15, 22, 23, 32, 48, 56, 75, 79, 83, 90, 107, 133, 134-137, 173, 182, 191, 240, 247-253

- b. Use the basic operations on rational numbers to solve problems in real-life situations (e.g., describe the effect of multiplying whole numbers by a fraction or a decimal less than 1).

**Pages or Location:** 236-240, 241-246, 247-253, 254-260, 261-265, 266-272, 273-277, 278-284, 290-291

- c. Apply ratios and proportions to solve problems.

**Pages or Location:** 294-298, 299-303, 304-310, 311-315, 338-339, 354-361, 367-373, 374-380, 410, 418, 472, 500

2. Exponents

- a. Use the rules of exponents to solve problems (e.g.,  $7^2 \cdot 7^3 = 7^5$ ,  $\frac{a^m}{a^n} = a^{m-n}$ ).

**Pages or Location:** 524-529, 530-535, 536-542

- b. Represent and interpret large numbers and numbers less than one in exponential and scientific notation.

**Pages or Location:** 536-542, 543-550, 568-570, 574-575, 603, 656

- c. Use estimation strategies (e.g., rounding) to describe the magnitude of large numbers and numbers less than one.

**Pages or Location:** 11-15, 21, 28, 30-32, 34, 35, 56-58, 59-60, 61-63, 63-65, 66, 75, 97, 113, 139, 173, 196, 202, 240, 252, 277, 282, 335, 404

**Standard 3: Geometry and Measurement - The student will use geometric properties and measurement to solve problems in a variety of contexts.**

1. Construct models, sketch (from different perspectives), and classify solid figures such as rectangular solids, prisms, cones, cylinders, pyramids, and combined forms (e.g., draw a figure that could result from making 1, 2, or 3 cuts in a given solid).

**Pages or Location:** 642-649, 650-656, 657-663, 664-665, 671-672, 687-689, 689-690

2. Estimate and find the surface area and volume in real world settings (e.g., unwrap a box to explore surface area; use rice, 1-inch cubes, centimeter cubes, cups . . . to estimate the volume of boxes, irregular shaped objects, containers).

**Pages or Location:** 650-656, 657-663, 664-670, 671-679

3. Apply knowledge of ratio and proportion to solve relationships between similar geometric figures (e.g., build a model of a 3-dimensional object to scale).

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**Pages or Location:** 584-592, 599-604, 615-621, 629, 680-686, 691-692

4. Formulas

a. Select and apply appropriate formulas for given situations:

I. an equation (e.g.,  $d = rt$ ,  $i = prt$ )

II measurement problems (e.g.,  $p = 2l + 2w$ ,  $v = lwh$ )

**Pages or Location:** 50-51, 61-63, 63-65, 67, 217-223, 224-226, 228-231, 233, 538-539, 557-565, 605-614, 615-621, 622-629, 650-656, 657-663, 664-670, 671-678, 687-689, 689-690, 691-692, 693-694

b. Find the area of a “region of a region” for simple composite figures (e.g., area of a rectangular picture frame).

**Pages or Location:** 590, 611-614, 626-629, 678

\*5. Develop the Pythagorean theorem and apply the formula.

**Pages or Location:** 557-565, 574-575, 598, 649, 670

**Standard 4: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.**

1. Select and apply appropriate formats (e.g., line plots, bar graphs, stem-and-leaf plots, scatter plots, histograms, circle graphs) to display collected data.

**Pages or Location:** 76-79, 80-84, 85-90, 91-99, 100-107, 108-116, 117-118, 120-121, 122-125, 133, 159, 167, 191, 221, 246, 265, 309, 357-359, 385, 404, 487, 563, 614,

2. Find the range and measures of central tendency (mean, median and mode) of a set of data.

**Pages or Location:** 70-75, 76-79, 80-84, 91-99, 118-120, 122-125, 133, 145, 159, 167, 191, 221, 246, 265, 309, 326, 332, 385, 556, 583, 602, 685,

\*3. Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population (e.g., is the average height of a men’s college basketball team a good representative sample for height predictions?).

**Pages or Location:** 108-116