



BROWNELL TALBOT

Pre-Algebra Prioritized Math Standards

The prioritized standards listed align with both the NCTM (National Council for Teachers of Mathematics) and the Nebraska State Standards. The NCTM also includes a set of Process Standards for grades preschool through 12 that highlight mathematical processes that students draw on to acquire and use their content knowledge (see the link on the next page).

Number & Operations

Understand numbers, ways of representing numbers, relationships among numbers, and number systems	<p>Use factors, multiples, prime factorization, and relatively prime numbers to solve problems</p> <p>Develop meaning for integers and represent and compare quantities with them</p> <p>Develop an understanding of large numbers and recognize and appropriately use exponential, scientific, and calculator notation</p>
Understand meanings of operations and how they relate to one another	<p>Use the associative and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions, and decimals</p>
Compute fluently and make reasonable estimates	<p>Develop and analyze algorithms for computing fractions, decimals, and integers and develop fluency in their use</p> <p>Develop and use strategies to estimate the results of rational-number computations and judge the reasonableness of the results</p>

Algebra

Understand patterns, relations, & functions	<p>Relate and compare different forms of representation for relationship</p>
Represent and analyze mathematical situations and structures using algebraic symbols	<p>Explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of intercept and slope</p>

Geometry

Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships	<p>Precisely describe, classify, and understand relationships among types of two and three dimensional objects using their defining properties</p>
Use visualization, spatial reasoning, and geometric modeling to solve problems	<p>Draw geometric objects with specified properties, such as side lengths or angle measures</p>

Measurement

Apply appropriate techniques, tools, and formulas to determine measurements

Develop and use formulas to determine the circumference of circles and the area of triangles, parallelograms, trapezoids, and circles and develop strategies to find the area of more complex shapes

Develop strategies to determine the surface area and volume of selected prisms, pyramids, and cylinders

Data Analysis & Probability

Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots

Select and use appropriate statistical methods to analyze data

Discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatterplots

Develop and evaluate inferences and predictions that are based on data

Make conjectures about possible relationships between two characteristics of a sample on the basis of scatterplots of the data and approximate lines of fit

Use conjectures to formulate new questions and plan new studies to answer them

Understand and apply basic concepts of probability

Understand and use appropriate terminology to describe complementary and mutually exclusive events

Use proportionality and a basic understanding of probability to make and test conjectures about the results of experiments and simulations

Compute probabilities for simple compound events, using such methods as organized lists, tree diagrams, and area models

NCTM Process Standards: brownell.edu/nctm