

NPUSC ESSENTIAL STANDARDS

MATH

SEVENTH GRADE

Seventh Grade Math Priority Standards

Number Sense	
Learning Outcome:	
<u>7.NS.3</u>	Use the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. (E)
<u>7.NS.4</u>	Explain that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$ for all nonzero integers. (E)
<u>7.NS.7</u>	Compute fluently with rational numbers using an algorithmic approach. (E)
Ratios and Proportional Reasoning	
Learning Outcome:	
<u>7.RP.2</u>	Use proportional relationships to solve ratio and percent problems with multiple operations (e.g., simple interest, tax, markups, markdowns, gratuities, conversions within and across measurement systems, and percent increase and decrease). (E)
<u>7.RP.3</u>	Represent real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent these proportional relationships. Apply the definition of unit rate to $y = mx$. (E)
Algebra and Functions	
Learning Outcome:	
<u>7.AF.1</u>	Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring out a common number (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process. (E)

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<u>7.AF.2</u>	Solve real-world problems with rational numbers by using one or two operations. (E)
<u>7.AF.3</u>	Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems. (E)
<u>7.AF.6</u>	Graph a line given its slope and a point on the line. Find the slope of a line given its graph. (E)
Geometry and Measurement	
Learning Outcome:	
<u>7.GM.3</u>	Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms. (E)

Data Analysis and Statistics	
Learning Outcome:	
<u>7.DSP.1</u>	Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that conclusions and generalizations about a population from a sample are valid only if the sample is representative of that population and that random sampling tends to produce representative samples and support valid inferences. (E)
<u>7.DSP.2</u>	a. Find, use, and interpret measures of central tendency (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations. (E)
<u>7.DSP.4</u>	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Understand that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. Understand that a

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	probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur. Identify probabilities of events as impossible, unlikely, equally likely, likely, or certain. (E)
<u>7.DSP.5</u>	Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the approximate relative frequency of the event based on the model. Compare probabilities from the model to observed frequencies, evaluate the level of agreement, and explain possible sources of discrepancy. (E)