SAU9 Math Competencies

Grades 9-12

Numbers & Number Systems	Symbolic Expression	Reasoning & Computational Strategies	Algebraic Functions, Patterns, & Relations	Data Analysis, Probability & Statistics	Geometry
Students will expand their understanding of number systems, thinking flexibly and attending to precision and reasonableness.	Students will reason abstractly and manipulate symbolic expressions and models to represent relationships and interpret expressions, equations, and inequalities in terms of a given context (including real-world phenomena) for determining unknown values.	Students will expand the use of computational strategies and algorithms, using evidence to support authentic application.	Students will make use of patterns, relations, and functions to interpret, compare and analuze pure and applied situations, using the information to make conjectures and support conculsions.	Students will apply statistical methods and reasoning to summarize, represent, analyze and interpret categorical and quantitative data, including addressing authentic, applied scenarios. Students will apply the rules of probability to determin the likelihood of a given outcome or to make decisions.	Students will solve problems involving spatial reasoning using properties of two and three dimensional figures to analyze, represent, and model geometric relationships in pure/theoretical and authentic, applied contexts.

Grades 7&8

Numbers & Number Systems	Symbolic Expression	Reasoning & Computational Strategies	Algebraic Functions, Patterns, & Relations	Data Analysis, Probability & Statistics	Geometry
Students will expand their understanding of number systems thinking flexibly and attending to precision and reasonableness when solving problems using rational and irrational numbers.	Students will reason abstractly and manipulate symbolic expressions to represent relationships and interpret expressions and equations in terms of a given context for determining an unknown value.	Students will expand the use of computational strategies, algorithms, and proportional reasoning to rational and irrational numbers.	Students will make use of structure to describe and compare situations that involve proportionality, change, or patterns and use the information to make conjectures and justify	Students will design investigations and conduct probability experiments involving populations.	Students will solve problems involving reasoning using properties of two- and three-dimensional shapes to analyze, represent, and model geometric relationships in pure/theoretical and authentic applied contexts.

Grades 5&6

Numbers & Number Systems	Symbolic Expression	Reasoning & Computational Strategies	Algebraic Func, Patterns, & Relations	Data Analysis, Probability & Statistics	Geometry
Students will expand their understanding of number systems, thinking flexibly and attending to precision and reasonableness when solving problems using rational numbers.	Students will reason abstractly and manipulate symbolic expressions to represent relationships and interpret expressions and equations in terms of a given context for determining an unknown value.	Students will expand the use of computational strategies, algorithms, and proportional reasoning to rational numbers.	Students will make use of structure to describe and compare situations that involve change or patterns and use the information to make conjectures and justify conclusions/solutions.	Students will design investigations and gather data involving data sets.	Students will solve problems involving reasoning using properties of two- and three-dimensional shapes to analyze, represent, and model geometric relationships in authentic applied contexts.

Grades 3&4

Numbers & Number Systems	Symbolic Expression	Reasoning & Computational Strategies	Algebraic Functions, Patterns, & Relations	Data Analysis, Probability & Statistics	Geometry	Measurement
Students will demonstrate an understanding of number systems, thinking flexibly and attending to precision and reasonableness when solving problems using whole numbers, fractions, and decimals.	Students will reason abstractly and quantitatively, recognizing and making appropriate use of mathematical symbols and expressions for a variety of purposes, including variables.	Students will apply additive, multiplicative, and fractional reasoning using multiple strategies (algorithms, models, manipulatives) to solve authentic applied problems.	Students will make use of structure to represent, analyze, and generalize change or patterns in various contexts using models and justifications.	Students will gather, represent, and interpret data related to particular/single context, including authentic applications.	Students will use attributes of two- and three-dimensional complex figures to solve authentic applied problems.	Students will use measurement tools, units, and attributes to describe and compare objects, situations, or events, and to solve authentic applied measurement problems.

Grades K-2

Numbers & Number Systems	Symbolic Expression	Reasoning & Computational Strategies	Data Analysis, Probability & Statistics	Geometry	Measurement
Students will demonstrate an understanding of the nature of numbers, thinking flexibly and attending to precision and reasonableness when solving problems using whole numbers.	Students will reason abstractly and quantitatively, recognizing and making appropriate use of mathematical symbols and expressions for different purposes.	Students will apply additive reasoning using multiple strategies (algorithms, models, manipulatives) to solve authentic, applied problems.	Students will gather, represent, and interpret data related to particular/single unit scale, including authentic applications.	Students will recognize and use attributes of two- and three-dimensional figures to solve problems.	Students will use standard and nonstandard measurement tools, units, and attributes to describe and compare objects, authentic applied situations, or events, and to solve measurement problems.