SAU 16 MATH LEARNING PROGRESSION
Graduation Competencies

Symbolic Expression
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.

Numbers and Number Systems
Students will expand their understanding of number systems, thinking flexibly and attending to precision and reasonableness, when solving problems using complex numbers.

Reasoning and Computational Strategies
Students will expand the use of computational strategies and algorithms, using evidence to support authentic application.

Metacognitive Skills and Communication
Students will use reasoning and metacognitive skills to develop mathematical arguments to justify the reasonableness of conjectures and outcomes and to support formal proofs.

Measurement
Students will explain reasoning when applying and modeling geometric measurement formulas.

Algebraic Functions, Patterns, and Relations
Students will make use of patterns, relations, and functions to interpret, compare, and analyze pure and applied situations, using the information to make conjectures and support conclusions.

Geometry
Students will solve problems involving spatial reasoning using properties of 2- and 3-dimensional figures to analyze, represent, and model geometric relationships in pure/theoretical and authentic, applied contexts.

Data Analysis, Probability, and Statistics
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 determine the likelihood of a given outcome or to make decisions.

Grades K-2 Math Learning Progressions Toward Graduation Competencies	
GRADUATION STRAND	**GRADE SPAN COMPETENCY**
Symbolic Expression	● Students will reason abstractly and quantitatively, recognizing and making appropriate use of mathematical symbols and expressions for different purposes.
Numbers and Number Systems	● Students will demonstrate an understanding of the nature of numbers, thinking flexibly and attending to precision and reasonableness when solving problems using whole numbers.
Reasoning and Computational Strategies	● Students will apply additive reasoning using multiple strategies (algorithms, models, manipulatives) to solve authentic applied problems.
Metacognitive Skills and Communication	● Students will use reasoning and self-monitoring to analyze and explain a solution pathway.
Measurement	● 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.
Algebraic Functions, Patterns, and Relations	● Students will make use of structure to represent, interpret, and analyze change or patterns in various contexts using models, rules, and explanations.
Geometry	● Students will recognize and use attributes of two- and three-dimensional figures to solve problems.
Data Analysis, Probability, and Statistics	● Students will gather, represent, and interpret data related to a particular/single unit scale, including authentic applications.

Grades 3-5 Math Learning Progressions Toward Graduation Competencies	
GRADUATION STRAND	**GRADE SPAN COMPETENCY**
Symbolic Expression	**3-4** ● Students will reason abstractly and quantitatively, recognizing and making appropriate use of mathematical symbols and expressions for a variety of purposes, including variables. **5-6** ● *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.*
Numbers and Number Systems	**3-4** ● 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. **5-6** ● *Students will expand their understanding of number systems, thinking flexibly and attending to precision and reasonableness when solving problems using rational numbers.*
Reasoning and Computational Strategies	**3-4** ● Students will apply additive, multiplicative, and fractional reasoning using multiple strategies (algorithms, models, manipulatives) to solve authentic applied problems. **5-6** ● *Students will expand the use of computational strategies, algorithms, and proportional*

	reasoning to rational numbers.
Metacognitive Skills and Communication	**3-4** ● Students will use reasoning and self-monitoring to analyze and justify one or more solution pathways. ***5-6*** ● *Students will use reasoning and metacognitive skills through making conjectures, justifying, and communicating mathematical solutions and arguments.*
Measurement	**3-4** ● Students will use measurement tools, units, and attributes to describe and compare objects, situations, or events, and to solve authentic applied measurement problems. ***5-6*** ● *Students will use measurement tools, units, and attributes to describe and compare objects, situations, or events, and to solve authentic applied measurement problems.*
Algebraic Functions, Patterns, and Relations	**3-4** ● Students will make use of structure to represent, analyze, and generalize change or patterns in various contexts using models and justification. ***5-6*** ● *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.*

Geometry	**3-4** ● Students will use attributes of two- dimensional shapes and complex figures to solve authentic applied problems. ***5-6*** ● *Students will solve problems involving reasoning using properties of 2- and 3-dimensional shapes to analyze, represent, and model geometric relationships in authentic applied contexts.*
Data Analysis, Probability, and Statistics	**3-4** ● Students will gather, represent, and interpret data related to a particular/single context, including authentic applications. ***5-6*** ● *Students will design investigations and gather data involving populations (data sets).*