	A **Kindergarten** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:	• Know number names and the count sequence
	• Count to tell the number of objects
• **Make sense of problems and persevere in solving them**	• Compare numbers
	• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
• **Reason abstractly and quantitatively**	• Work with numbers 11-19 to gain foundations for place value
• **Construct viable arguments and critique the reasoning of others**	• Describe and compare measurable attributes
	• Classify objects and count the number of objects in categories
	• Identify and describe shapes
• **Model with mathematics**	• Analyze, compare, create, and compose shapes
• **Use appropriate tools strategically**	
• **Attend to precision**	
• **Look for and make use of structure**	
• **Look for and express regularity in repeated reasoning**	
21st Century Skills	**Link to Additional Resource:** Colorado Academic Standards

21st **Century Skills**

Link to Additional Resource:
Colorado Academic Standards

	A **First Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

- Represent and solve problems involving addition and subtraction
- Understand and apply properties of operations and the relationship between addition and subtraction
- Add and subtract within 20
- Work with addition and subtraction equations
- Extend the counting sequence
- Understand place value
- Use place value understanding and properties of operations to add and subtract
- Measure lengths indirectly and by iterating length units
- Tell and write time
- Represent and interpret data
- Reason with shapes and their attributes

21st Century Skills

Link to Additional Resource:

Colorado Academic Standards

	A **Second Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

21st Century Skills

- Represent and solve problems involving addition and subtraction
- Add and subtract within 20
- Work with equal groups of objects to gain foundations for multiplication
- Understand place value
- Use place value understanding and properties of operations to add and subtract
- Measure and estimate lengths in standard units
- Relate addition and subtraction to length
- Work with time and money
- Represent and interpret data
- Reason with shapes and their attributes

Link to Additional Resource:
Colorado Academic Standards

A **Third Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

21st Century Skills

- Represent and solve problems involving multiplication and division
- Understand properties of multiplication and the relationship between multiplication and division
- Multiply and divide within 100
- Solve problems involving the four operations, and identify and explain patterns in arithmetic
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Develop understanding of fractions as numbers
- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects
- Represent and interpret data
- Geometric measurement:
  o Understand concepts of area and relate area to multiplication and addition
  o Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures
- Reason with shapes and their attributes

Link to Additional Resource:

Colorado Academic Standards

A **Fourth Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

21st Century Skills

- Use the four operations with whole numbers to solve problems
- Gain familiarity with factors and multiples
- Generate and analyze patterns
- Generalize place value understanding for multi-digit whole numbers
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Extend understanding of fraction equivalence and ordering
- Build fractions from unit fractions by applying and extending previous understandings of operations of whole numbers
- Understand decimal notation for fractions, and compare decimal fractions
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit
- Represent and interpret data
- Geometric measurement:
  - Understand concepts of angle and measure angle
- Draw and identify lines and angles, and classify shapes by properties of their lines and angles

Link to Additional Resource:
Colorado Academic Standards

	A **Fifth Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

- Write and interpret numerical expressions
- Analyze patterns and relationships
- Understand the place value system
- Perform operations with multi-digit whole numbers and with decimals to hundredths
- Use equivalent fractions as a strategy to add and subtract fractions
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions
- Convert like measurement units within a given measurement system
- Represent and interpret data
- Geometric measurement:
  - Understand concepts of volume and relate volume to multiplication and to addition
- Graph points on the coordinate plane to solve real-world and mathematical problems
- Classify two-dimensional figures into categories based on their properties

Link to Additional Resource:

Colorado Academic Standards

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

21st Century Skills

- Understand ratio concepts and use ratio reasoning to solve problems
- Apply and extend previous understanding of multiplication and division to divide fractions by fractions
- Compute fluently with multi-digit numbers and find common factors and multiples
- Apply and extend previous understandings of numbers to the system of rational numbers
- Apply and extend previous understandings of arithmetic to algebraic expressions
- Reason about and solve one-variable equations and inequalities
- Represent and analyze quantitative relationships between dependent and independent variables
- Solve real-world and mathematical problems involving area, surface area and volume
- Develop understanding of statistical variability
- Summarize and describe distributions

Link to Additional Resource:

Colorado Academic Standards

	A **Seventh Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

21st Century Skills

- Analyze proportional relationships and use them to solve real-world and mathematical problems
- Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers
- Use properties of operations to generate equivalent expressions
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations
- Draw, construct and describe geometrical figures and describe the relationships between them
- Solve real-life and mathematical problems involving angle measure, area, surface area and volume
- Use random sampling to draw inferences about a population
- Draw informal comparative inferences about two populations
- Investigate chance processes and develop, use and evaluate probability models

Link to Additional Resource:

Colorado Academic Standards

	An **Eighth Grade** student in the Littleton Public Schools will engage with the following big ideas in **Mathematics:**

Mathematically Proficient Students:

- **Make sense of problems and persevere in solving them**

- **Reason abstractly and quantitatively**

- **Construct viable arguments and critique the reasoning of others**

- **Model with mathematics**

- **Use appropriate tools strategically**

- **Attend to precision**

- **Look for and make use of structure**

- **Look for and express regularity in repeated reasoning**

- Know that there are numbers that are not rational, and approximate them by rational numbers
- Work with radicals and integer exponents
- Understand the connections between proportional relationships, lines and linear equations
- Analyze and solve linear equations and pairs of simultaneous linear equations
- Define, evaluate and compare functions
- Use functions to model relationships between quantities
- Understand congruence and similarity using physical models, transparencies or geometry software
- Understand and apply the Pythagorean Theorem
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres
- Investigate patterns of association in bivariate data

21st Century Skills

Link to Additional Resource:

Colorado Academic Standards