



7th Grade Mathematics

Essential Skills and Knowledge

Refer to the Utah State Mathematics Standards for more detail

Mathematical Practice Standards

Students will be able to:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Ratios and Proportional Relationships

Students will be able to:

1. Compute unit rates using the constant of proportionality.
2. Identify and use proportional relationships to solve real world problems including tables, graphs, and equations.
3. Represent proportional relationships with equations.
4. Use proportional relationships to solve multi-step ratio and percent problems.

Number System

Students will be able to:

1. Apply and extend previous understandings of properties of operations including negatives, fractions, and mixed numbers.
2. Apply properties of operations as strategies to solve real world problems.
3. Convert a rational number to a decimal using long division.

Linear Expressions and Equations

Students will be able to:

1. Use properties of operations including factoring, associative, commutative, and identity to generate equivalent expressions.
2. Solve multi-step problems and assess reasonableness of answers.
3. Use variables and symbols to represent unknown quantities and construct simple equations and inequalities to solve real-life problems (\leq , \geq , $<$, $>$).
4. Solve word problems leading to equations and inequalities with rational numbers.



Geometric Reasoning

Students will be able to:

1. Solve problems involving scale drawings.
2. Construct geometric shapes with given conditions.
3. Describe the two-dimensional shapes resulting from slicing a 3-dimensional figure.
4. Know and use formulas to find circumference and area of a circle.
5. Recognize and use angle relationships to determine the unknown measure of an angle.
6. Solve problems involving area, surface area, and volume of triangles, quadrilaterals, polygons, cubes, right prisms, and pyramids.

Statistical Inference and Probability

Students will be able to:

1. Use random sampling and informal comparisons to generate characteristics of a targeted group.
2. Use measures of central tendency (mean, median, and mode).
3. Make informal visual and data-based comparisons between two groups of data such as stem-and-leaf plots, line plots, and box plots.
4. Understand the probability of a chance event can be expressed as a value between 0 and 1.
5. Understand that experimental probability of an event will approach the expected probability as the number of trials increase.
6. Develop a uniform/non-uniform probability model using data from repeated trials of a simple event.
7. Find probabilities of compound events.

Literacy Standards

Students will be able to:

1. Acquire, interpret, and accurately use grade level appropriate mathematical words and terms.
2. Engage in collaborative discussions with diverse partners on grade level concepts.

Honors

Students will be able to:

1. Use math in creating codes.
2. Recognize and appreciate mathematical patterns in nature and in art and extend those patterns to mathematics.
3. Understand and use number systems in different bases.
4. Research and analyze ancient number systems.