

**Correlation of Glencoe TechCONNECT to
California Content Standards: Mathematics
Grades 6, 7, and 8**

Mathematics: Grade Six

Content Standard	TechCONNECT Activities
Number Sense	
1.0 Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:	AC016, AC033, AC038, AC042, AC045, AC065, AC080, AC110, AC111, AC113, AC114, AC117, AC120, AC123
1.1 Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.	AC080
1.2 Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b , a to b , $a:b$).	AC016, AC117, AC033, AC038, AC042, AC045, AC111, AC120, AC123,
1.3 Use proportions to solve problems (e.g., determine the value of N if $4/7 = N/21$, find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.	AC016, AC033, AC038, AC042, AC065, AC110, AC111, AC112, AC113, AC114, AC117, AC123
1.4 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	AC042, AC045, AC113, AC114, AC117, AC123
2.0 Students calculate and solve problems involving addition, subtraction, multiplication, and division:	AC016, AC033, AC038, AC045, AC049, AC053, AC065, AC071, AC082, AC087, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC119, AC120, AC122, AC123
2.1 Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.	AC016, AC065, AC111, AC117, AC120, AC123
2.2 Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., $5/8 \div 15/16 = 5/8 \times 16/15 = 2/3$).	AC016, AC111, AC117, AC120, AC123
2.3 Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.	AC016, AC033, AC038, AC042, AC045, AC049, AC053, AC065, AC071, AC082, AC087, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC119, AC120, AC122, AC123
Algebra and Functions	

Content Standard	TechCONNECT Activities
1.0 Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results:	AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123
1.1 Write and solve one-step linear equations in one variable.	AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123
1.2 Write and evaluate an algebraic expression for a given situation, using up to three variables.	AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123
1.3 Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.	AC065, AC110, AC111, AC112, AC114, AC117, AC123, AC120, AC122
2.0 Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:	AC016, AC033, AC034, AC065, AC111, AC122, AC123
2.1 Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).	AC034, AC065, AC111, AC122
2.2 Demonstrate an understanding that <i>rate</i> is a measure of one quantity per unit value of another quantity.	AC016, AC033, AC065, AC111, AC122, AC123
2.3 Solve problems involving rates, average speed, distance, and time.	AC033, AC065, AC111, AC122, AC123
3.0 Students investigate geometric patterns and describe them algebraically:	AC112
3.2 Express in symbolic form simple relationships arising from geometry.	AC112
Measurement and Geometry	
1.0 Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:	AC112
2.0 Students identify and describe the properties of two-dimensional figures:	AC112
Statistics, Data Analysis, and Probability	
1.0 Students compute and analyze statistical measurements for data sets:	AC033, AC082
1.1 Compute the range, mean, median, and mode of data sets.	AC033, AC082

Content Standard	TechCONNECT Activities
1.4 Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.	AC033, AC082
2.0 Students use data samples of a population and describe the characteristics and limitations of the samples:	AC041, AC042, AC043
2.1 Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample.	AC041, AC043
2.2 Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population.	AC041
2.4 Identify data that represent sampling errors and explain why the sample (and the display) might be biased.	AC041
2.5 Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.	AC041, AC043
3.0 Students determine theoretical and experimental probabilities and use these to make predictions about events:	
3.2 Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven).	AC155
3.5 Understand the difference between independent and dependent events.	AC122
Mathematical Reasoning	
1.0 Students make decisions about how to approach problems:	AC016, AC033, AC038, AC039, AC041, AC042, AC043, AC065, AC078, AC082, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	AC016, AC033, AC038, AC039, AC041, AC042, AC043, AC065, AC078, AC082, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.	AC110, AC111, AC112, AC122
1.3 Determine when and how to break a problem into simpler parts.	AC033, AC038, AC111, AC113, AC114, AC123

Content Standard	TechCONNECT Activities
2.0 Students use strategies, skills, and concepts in finding solutions:	AC016, AC038, AC110, AC111, AC112, AC113, AC114, AC117, AC123
2.1 Use estimation to verify the reasonableness of calculated results.	AC110
2.2 Apply strategies and results from simpler problems to more complex problems.	AC038, AC039, AC111, AC113, AC114, AC117, AC123
2.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	AC016, AC038, AC111, AC112, AC113, AC114, AC117, AC123
2.5 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.	AC016, AC033, AC038, AC043, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
2.7 Make precise calculations and check the validity of the results from the context of the problem.	AC033, AC038, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
3.0 Students move beyond a particular problem by generalizing to other situations:	AC033, AC038, AC039, AC042, AC043, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
3.1 Evaluate the reasonableness of the solution in the context of the original situation.	AC033, AC038, AC110, AC111, AC112, AC113, AC114, AC117, AC123
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	AC033, AC038, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
3.3 Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.	AC033, AC038, AC039, AC042, AC043, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123

Mathematics: Grade Seven

Content Standard	TechCONNECT Activities
Number Sense	
1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms:	AC016, AC033, AC038, AC042, AC045, AC049, AC053, AC071, AC082, AC087, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC119, AC120, AC122
1.2 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.	AC016, AC033, AC038, AC045, AC049, AC053, AC065, AC071, AC082, AC087, AC101, AC110, AC111, AC112, AC113, AC114, AC117, AC119, AC120, AC122
1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.	AC117
1.7 Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.	AC113, AC114
2.0 Students use exponents, powers, and roots and use exponents in working with fractions:	AC038
2.3 Multiply, divide, and simplify rational numbers by using exponent rules.	AC038
Algebra and Functions	
1.0 Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs:	AC016, AC033, AC038, AC039, AC048, AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123, AC155
1.1 Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A).	AC033, AC038, AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123
1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)^2$.	AC038, AC114, AC123
1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.	AC033, AC038, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123
1.4 Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.	AC038, AC122

1.5 Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by the graph.	AC009, AC016, AC034, AC037, AC039, AC049, AC059, AC087, AC100, AC101, AC102, AC117, AC123, AC145, AC155
2.0 Students interpret and evaluate expressions involving integer powers and simple roots:	AC038
2.1 Interpret positive whole-number powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents.	AC038
2.2 Multiply and divide monomials; extend the process of taking powers and extracting roots to monomials when the latter results in a monomial with an integer exponent.	AC038, AC123
4.0 Students solve simple linear equations and inequalities over the rational numbers:	AC038, AC110, AC111, AC112, AC114, AC122, AC123
4.1 Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of the results.	AC038, AC110, AC111, AC112, AC114, AC122, AC123
4.2 Solve multistep problems involving rate, average speed, distance, and time or a direct variation.	AC038, AC122, AC123
Measurement and Geometry	
1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:	AC034, AC038, AC065, AC110, AC111, AC112, AC119, AC120, AC122
1.1 Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).	AC065, AC111, AC112, AC119, AC120
1.2 Construct and read drawings and models made to scale.	AC112, AC119
1.3 Use measures expressed as rates (e.g., speed, density) and measures expressed as products (e.g., person-days) to solve problems; check the units of the solutions; and use dimensional analysis to check the reasonableness of the answer.	AC038, AC110, AC111, AC112, AC120, AC122

2.0 Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale:	AC112, AC119
2.1 Use formulas routinely for finding the perimeter and area of basic two-dimensional figures and the surface area and volume of basic three-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms, and cylinders.	AC112
2.4 Relate the changes in measurement with a change of scale to the units used (e.g., square inches, cubic feet) and to conversions between units (1 square foot = 144 square inches or $[1 \text{ ft}^2] = [144 \text{ in}^2]$, 1 cubic inch is approximately 16.38 cubic centimeters or $[1 \text{ in}^3] = [16.38 \text{ cm}^3]$).	AC112, AC119
3.0 Students know the Pythagorean theorem and deepen their understanding of plane and solid geometric shapes by constructing figures that meet given conditions and by identifying attributes of figures:	AC078
3.2 Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflections.	AC078, AC080, AC124
Statistics, Data Analysis, and Probability	
1.0 Students collect, organize, and represent data sets that have one or more variables and identify relationships among variables within a data set by hand and through the use of an electronic spreadsheet software program:	AC039, AC041, AC042, AC043, AC048, AC082, AC122, AC123
1.1 Know various forms of display for data sets, including a stem-and-leaf plot or box-and-whisker plot; use the forms to display a single set of data or to compare two sets of data.	AC039, AC041, AC042, AC043, AC049, AC082, AC123
1.2 Represent two numerical variables on a scatterplot and informally describe how the data points are distributed and any apparent relationship that exists between the two variables (e.g., between time spent on homework and grade level).	AC122
1.3 Understand the meaning of, and be able to compute, the minimum, the lower quartile, the median, the upper quartile, and the maximum of a data set.	AC049, AC082

Mathematical Reasoning	
1.0 Students make decisions about how to approach problems:	AC016, AC033, AC038, AC039, AC041, AC042, AC043, AC065, AC078, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	AC016, AC033, AC038, AC039, AC041, AC042, AC043, AC065, AC078, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.	AC110, AC111, AC112, AC122
1.3 Determine when and how to break a problem into simpler parts.	AC033, AC038, AC042, AC111, AC112, AC113, AC114, AC117, AC123
2.0 Students use strategies, skills, and concepts in finding solutions:	AC033, AC038, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
2.1 Use estimation to verify the reasonableness of calculated results.	AC110
2.2 Apply strategies and results from simpler problems to more complex problems.	AC033, AC038, AC039, AC111, AC112, AC113, AC114, AC117, AC123
2.4 Make and test conjectures by using both inductive and deductive reasoning.	AC071
2.5 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	AC033, AC038, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
2.6 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.	AC033, AC038, AC110, AC111, AC112, AC113, AC114, AC117, AC123
2.7 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	AC110
2.8 Make precise calculations and check the validity of the results from the context of the problem.	AC033, AC038, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC123
3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations:	AC033, AC038, AC042, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123

3.1 Evaluate the reasonableness of the solution in the context of the original situation.	AC038, AC042, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	AC038, AC042, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123
3.3 Develop generalizations of the results obtained and the strategies used and apply them to new problem situations.	AC033, AC038, AC039, AC042, AC065, AC082, AC110, AC111, AC112, AC113, AC114, AC117, AC122, AC123

Mathematics: Grade Eight

Content Standard	TechCONNECT Activities
<p>Algebra I (Grades 8 through 12)</p> <p>Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.</p>	
<p>1.0 Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable:</p>	<p>AC033, AC038, AC045, AC049, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123</p>
<p>2.0 Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents.</p>	<p>AC038</p>
<p>3.0 Students solve equations and inequalities involving absolute values.</p>	<p>AC033, AC038, AC045, AC065, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123</p>
<p>4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.</p>	<p>AC038, AC112</p>
<p>5.0 Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.</p>	<p>AC033, AC038, AC110, AC111, AC112, AC114, AC117, AC122, AC123</p>
<p>10.0 Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.</p>	<p>AC033, AC038, AC045, AC049, AC071, AC087, AC110, AC111, AC112, AC114, AC117, AC119, AC120, AC122, AC123</p>
<p>13.0 Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.</p>	<p>AC033, AC038, AC045, AC087, AC110, AC111, AC112, AC114, AC117, AC119, AC120, AC122, AC123</p>
<p>15.0 Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.</p>	<p>AC033, AC038, AC042, AC045, AC065, AC087, AC110, AC111, AC112, AC114, AC117, AC120, AC122, AC123</p>
<p>16.0 Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.</p>	<p>AC122</p>

Content Standard	TechCONNECT Activities
18.0 Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.	AC122
24.0 Students use and know simple aspects of a logical argument:	AC122
24.2 Students identify the hypothesis and conclusion in logical deduction.	AC122
25.0 Students use properties of the number system to judge the validity of results, to justify each step of a procedure, and to prove or disprove statements:	AC033, AC038, AC065, AC110, AC111, AC112, AC117, AC123
25.2 Students judge the validity of an argument according to whether the properties of the real number system and the order of operations have been applied correctly at each step.	AC033, AC038, AC065, AC110, AC111, AC112, AC117, AC123
Geometry (Grades 8 though 12)	
The geometry skills and concepts developed in this discipline are useful to all students. Aside from learning these skills and concepts, students will develop their ability to construct formal, logical arguments and proofs in geometric settings and problems.	
22.0 Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.	AC078, AC080, AC124
Algebra II (Grades 8 though 12)	
This discipline complements and expands the mathematical content and concepts of algebra I and geometry. Students who master algebra II will gain experience with algebraic solutions of problems in various content areas, including the solution of systems of quadratic equations, logarithmic and exponential functions, the binomial theorem, and the complex number system.	
1.0 Students solve equations and inequalities involving absolute value.	AC033, AC038, AC045, AC65, AC110, AC111, AC112, AC114, AC117, AC120, AC123
7.0 Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator.	AC033, AC038, AC045, AC87, AC110, AC111, AC112, AC120, AC122, AC123
Probability and Statistics (Grades 8 through 12)	
This discipline is an introduction to the study of probability, interpretation of data, and fundamental statistical problem solving. Mastery of this academic content will provide students with a solid foundation in probability and facility in processing statistical information.	

Content Standard	TechCONNECT Activities
5.0 Students determine the mean and the standard deviation of a normally distributed random variable.	AC033 , AC037 , AC082
6.0 Students know the definitions of the mean, median, and mode of a distribution of data and can compute each in particular situations.	AC082
8.0 Students organize and describe distributions of data by using a number of different methods, including frequency tables, histograms, standard line and bar graphs, stem-and-leaf displays, scatterplots, and box-and-whisker plots.	AC037 , AC039 , AC042 , AC043 , AC049 , AC059 , AC082 , AC087 , AC100 , AC102 , AC145 , AC155