6-8 Mathematics

High Priority Standards

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Numeration

A1.3.4 - read/write fractions, percentages ,and decimals

A1.3.6 – use the order of operations

Estimation and Computation

A3.3.1 – practice rounding, estimation, and computation of all numbers

A3.3.3 – add and subtract fractions, decimals, and percentages

Functions and Relationships

A4.3.1 – look for simple patterns and sequences to find the next term and the next few terms (nth term)

A4.3.5 – write and solve one-step equations; begin to construct number sentences

Measurement

A2.3.2 – solve measurement conversions within a system (customary and metric)

A2.3.3 – utilize measurement instruments (rulers, yardsticks, scales, compasses, protractors)

Geometry

A5.3.4 –begin to calculate surface area

A5.3.6 – graph ordered pairs

A5.3.7 – draw, measure, and identify right, obtuse and acute angles and their parts including rays, points, and vertices

Statistics/Probability

A6.3.1 – create tables from data

A6.3.1 – use a circle, line, bar, stem and leaf graphs to display data

A6.3.2 – interpret/analyze data found in printed material and graphical displays

Problem Solving

B1.3.1 – begin to use problems to determine the relationships between known and unknown facts

B1.3.2 – use a variety of problem-solving techniques including making a list, looking for pattern, making a table, drawing a diagram, working backwards, and using concrete objects

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Numeration

A1.3.1 – use positive and negative numbers

A1.3.4 – convert among fractions, percentages, and decimals

A1.3.4 – use rational, irrational, and real numbers

A1.3.6 – apply the rules for divisibility, square numbers, prime factorization, and the property of zero using the order of operations

A1.3.7 – apply the commutative associative, and distributive properties with addition and multiplication

Estimation and Computation

A3.3.1 – practice simple interest

A3.3.2 – predict outcomes and check for reasonableness

A3.3.4 – apply addition, subtraction, multiplication, and division of fractions, decimals, and percentages to mathematical problems

A3.3.6 – solve problems using ratios and proportions

Functions and Relationships

A4.3.4 – begin to use the XY coordinate/tables and ordered pairs grouping

A4.3.5 – from a given problem, write and solve two-step equations; construct number sentences

Measurement

A2.3.2 - solve measurement conversions within a system (customary and metric)

A2.3.4 – use formulas to calculate area/perimeter, volume, and circumference

Geometry

A5.3.1 – use geometric terms, figures, and symbols; begin to sketch geometric constructions (e.g., quadrilaterals, pentagons, hexagons, and octagons)

A5.3.5 – identify and construct transformations , rotations, reflections, and scaling of plane figures

A5.3.6 – identify several points on a two-dimensional graph, and map using all four quadrant of a coordinate system

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Numeration

A1.3.4 – convert among fractions, percentages, and decimals

A1.3.4 – translate rational, irrational, and real numbers

A1.3.6 – apply properties of prime and composite numbers to mathematical problems

Estimation and Computation

A3.3.1 – practice compound interest

A3.3.4 - apply addition, subtraction, multiplication, and division of fractions, decimals, and percentages to mathematical problems

A3.3.4 – apply positive and negative numbers to mathematical problems

A3.3.5 – translate between equivalent fractions, decimals, percents, proportions, and exponential forms

A3.3.6 – apply relationships between numbers and solve selected problems using ratios and proportions

Functions and Relationships

A4.3.1 – use a graphing calculator to find a missing item in an arithmetic and geometric sequence

A4.3.2 – evaluate linear and complex functions using a table and graph

A4.3.4 – begin to calculate slope, recognize correlation in data, and apply best fit lines

A4.3.4 – begin to use mathematical patterns (discrete mathematics)

A4.3.5 – begin to use quadratic equations and exponential functions

Measurement

A2.3.2 – solve measurement conversions within a system (customary and metric)

A2.3.4 – use the concept of geometric scale to solve problems

A2.3.4 – use the concept of indirect measurement to solve problems

B1.3.3 – estimate or predict reasonableness of an answer using mental math, calculators, or drawings **Communication** C1.3.1 – begin to explain math methods of problem solving, orally and in writing C1.3.3 – begin to use math vocabulary, symbols, and notations to communicate the method(s) used for solving a math problem	**Statistics/Probability** A6.3.3 – identify and compute mean, mode, median, and range	**Geometry** A5.3.5 – apply transformational geometry to mathematical problems A5.3.6 – apply identifying several points on a two-dimensional graph, and map using all four quadrants of a coordinate system **Statistics/Probability** A6.3.1 – begin to use a graphing calculator to construct and analyze statistical problems A6.3.5 – use inferences, samplings, probabilities, chance, and predictions to estimate outcomes A6.3.6 – solve real life probability problems **Communication** C1.3.2 – represent a problem numerically, graphically, symbolically, and translate between these alternative representations C1.3.3 – begin to use appropriate technology to present information, ideas, and solutions

Typical Classroom Assessments		
6	***7***	***8***
• Daily Class Work • Daily Homework • Timed Computation Tests • Mid Chapter Reviews • Chapter Tests • Cornerstone/Skillsbank Reports • Chapter Projects	• Problem of the Week • E Squared Activities • Writing Assignments • Mid-Module Quiz • Module Test	• Problem of the Week • Class Activities • Daily Homework • Calculator Work • Tests • Quizzes • Essay Quizzes • Writing Assignments

Formal School District and State Assessments		
6	***7***	***8***
• Alaska Benchmark Exam • Mathematics Inventory • TABES(Test of Adult Basic Educational Skills-Summer School)	• CAT • Mathematics Inventory • TABES(Test of Adult Basic Educational Skills-Summer School)	• Alaska Benchmark Exam • Mathematics Inventory • 8th Grade Final Test • TABES(Test of Adult Basic Educational Skills-Summer School)

Major Thematic Strands and/or Instructional Units		
6	***7***	***8***
Problem Solving Techniques Place Value Systems and Operations Decimals and Percents Applications of Decimals and Percents Statistics and Graphs Fraction, Ratios, and Proportions Adding and Subtracting Fractions Multiplying and Dividing Fractions Geometry Patterns Geometry and Measurement Navigation Unit Chapter Projects -Travel Handbook -Survey -Building An Apartment Blueprint -Origami -Navigation Field Trip Log	**Making Choices** -informed decisions about real-world situations(statistics, probability, and algebra) **Search and Rescue** -a young boy's experience surviving a plane crash(coordinate graphing, integers, variables, functions, equations, angles and their relationships) **A Universal Language** -calendars, clocks, and math in other languages and currency(fractions, decimals, metric length, number theory, probability, geometry, constructions, and equation solving) **The Art of Motion** -animated pictures, motion photography, and art from different cultures(geometry, transformations and symmetry, evaluating expressions, solving two-step equations, and multiplying and dividing fractions, decimals, and integers **Recreation** -students will examine the mathematics related to recreational activities(areas of proportion, percents, collecting and analyzing data, and determining the probability of events **Flight of Fancy** -students will explore different aspects of flight and problems in the transporting of a whale(inequalities, similar figures, metric units, volume, probability, networks, area, and relationships between angle measures **Health and Fitness** -students see how mathematics applies to nutrition, exercise, and rest(percent of change, percents greater than 100%, box-and-whisker plots, circle graphs, quadrilaterals, volume of cylinders, solving equations, and simple inequalities, and customary capacity) **Heart of the City** -visuals such as graphs, maps, tree diagrams, scale drawings, and models are used to explore aspects of cities(two-and-three dimensional geometry, problem solving, and topics in measurement and discrete math	**Amazing Feats, Facts, and Figures** -problem solving and graphing methods are applied and developed through the use of tools of measurement, algebra with patterns and nth terms, fractions, experimental and theoretical probability, graphing calculator applications, and statistics **At The Mall** -the mall provides for a context for exploring percents, sampling and simulation in probability, transformational geometry, and integer operations **Patterns and Discoveries** -mathematical patterns in fractals, nature, music, and art provide opportunities for students to work with sequences, investigate rational and irrational numbers, solve equations, classify quadrilaterals, explore polygon angle measure, compass constructions, apply the Pythagorean Theorem, Pascal's Triangle, explore relationships among length, area, and volume of geometric solids, and area probability problems **Visualizing Change** -students use graphs, tables, equations, and transformations to model changes in the world around them with linear and quadratic functions, coordinate graphing, analysis with use of the graphing calculator, equation solving, exponential growth, and algorithms

Integration of Technology		
6	***7***	***8***
• Cornerstone/SkillsBank-Computer • Calculator	• Standard Calculator • Graphing Calculator • SkillsBank-Computer	• Graphing Calculator • Internet for Research/Data • Excel Computer Graphing • Program