9- 10 Mathematics
High Priority Standards

9	10
Numeration	
A1.4.1 - read, write, model, order, and count with real number system; define the real number system and its subsets, selecting the appropriate one as possible set for given situations	A1.4.1 - read, write, model, order, and count with real number system; define the real number system and its subsets, selecting the appropriate one as possible set for given situations
A1.4.7 - identify properties of real numbers and apply to situations involving variables	A1.4.7 - identify properties of real numbers and apply to situations involving variables
Estimation and Computation	
A3.4.1 - use estimations to check the reasonableness of solutions	A3.4.1 - use estimations to check the reasonableness of solutions
A3.4.6 - use ratios and proportions to model and solve problems	A3.4.6 - use ratios and proportions to model and solve problems
A3.4.6 - solve fractions and percent problems using variables (e.g., linear models, now-next, exponential growth and decay, and compound growth)	A3.4.6 - solve fractions and percent problems using variables (e.g., linear models, now-next, exponential growth and decay, and compound growth)
Functions and Relationships	
A4.4.1 - describe relationships between graphs, tables, and equations of linear and exponential functions	A4.4.1 - describe relationships between graphs, tables, and equations of linear and exponential functions
A4.4.2 - create and solve linear equations and inequalities	A4.4.2 - create and solve linear equations and inequalities
A4.4.3 - solve systems of two equations graphically	A4.4.3 - solve systems of two equations graphically
A4.4.4 - use finite graphs, sequences, and iterations to analyze patterns	A4.4.4 - use finite graphs, sequences, and iterations to analyze patterns
A4.4.5 - write rational expressions to model situations and then add, subtract, multiply, divide, and simplify the expressions	A4.4.5 - write rational expressions to model situations and then add, subtract, multiply, divide, and simplify the expressions
Measurement	
A2.4.2 - convert measurements between different systems	A2.4.2 - convert measurements between different systems
A2.4.3 - use various measurement systems in real world applications	A2.4.3 - use various measurement systems in real world applications
A2.4.4 - use Pythagorean Theorem to find a missing leg or hypotenuse on a rigid triangle	A2.4.4 - use Pythagorean Theorem and trigonometric ratios to find missing angles or sides of a right triangle
Geometry	
A5.4.1 - visualize and understand properties of space shapes including symmetry, area, volume, and angles	A5.4.1 - visualize and understand properties of space shapes including symmetry, area, volume, and angles
A5.4.1 - investigate and use the properties of polygons to solve problems	A5.4.1 - investigate and use the properties of polygons to solve problems
A5.4.1 - use the Pythagorean Theorem to find the leg or hypotenuse of a right triangle in a given situation	A5.4.1 - use the Pythagorean Theorem to find the leg or hypotenuse of a right triangle in a given situation
A5.4.2 - use isometric drawing to represent 3-D shapes based on given descriptions or nets	A5.4.2 - use isometric drawing to represent 3-D shapes based on given descriptions or nets
A5.4.2 - draw front, side, and top views of 3-D shapes	A5.4.2 - draw front, side, and top views of 3-D shapes
A5.4.3 - identify shapes that are congruent and similar and use information to solve problems	A5.4.3 - identify shapes that are congruent and similar and use information to solve problems
A5.4.6 - identify linear functions, slope of a line, rate of change, and intercepts in graphs, tables, and equations	A5.4.6 - identify linear functions, slope of a line, rate of change, and intercepts in graphs, tables, and equations

Statistics and Probability	
A6.4.1 - create graphical displays with and without technology to summarize real world situations	A6.4.1 - create graphical displays with and without technology to summarize real world situations
A6.4.2 - apply the line of best fit to make predictions about data and with technology find linear regression and exponential regression equations	A6.4.2 - apply the line of best fit to make predictions about data and with technology find linear regression and exponential regression equations
A6.4.5 - compare theoretical and experimental probability in a variety of situations and analyze similarities and differences in results	A6.4.5 - compare theoretical and experimental probability in a variety of situations and analyze similarities and differences in results
Problem Solving	
B1.4.1 - use all mathematical topics in real world situations	B1.4.1 - use all mathematical topics in real world situations
B1.4.2 - apply a variety of problem solving strategies	B1.4.2 - apply a variety of problem solving strategies
B1.4.3 - determine the reasonableness of a solution by estimating or using different strategies	B1.4.3 - determine the reasonableness of a solution by estimating or using different strategies
Communication	
C1.4.2 - show steps when solving problems to illustrate strategy used	C1.4.2 - show steps when solving problems to illustrate strategy used
C1.4.2 - use graphs to illustrate mathematical ideas	C1.4.2 - use graphs to illustrate mathematical ideas
C1.4.3 - present solutions to small groups and whole classes, justifying and explaining strategy used	C1.4.3 - present solutions to small groups and whole classes, justifying and explaining strategy used
Reasoning	
D1.4.2 - investigate situations, develop and discuss conjectures, and develop situations to test conjectures	D1.4.2 - investigate situations, develop and discuss conjectures, and develop situations to test conjectures
Connections	
E1.4.1 - apply math skill in a variety of subject areas and situations	E1.4.1 - apply math skill in a variety of subject areas and situations

Typical Classroom Assessments	
9	***10***
• Teacher Observations of Individual and Team Work • Homework reviews***** • Lesson Quizzes***** • Unit Exams***** • Individual or Team Projects*****	• Teacher Observations of Individual and Team Work • Homework reviews* • Lesson Quizzes* • Unit Exams* • Individual or Team Projects*
*written work assessed using Sitka School District Math Rubric *oral presentations assessed using Sitka School District Oral Presentation Rubric	*written work assessed using Sitka School District Math Rubric *oral presentations assessed using Sitka School District Oral Presentation Rubric

Formal School District and State Assessments	
9	***10***
• Terra Nova	• High School Graduation Qualifying Exam

Major Thematic Strands and/or Instructional Units	
9	***10***
Statistics: • Exploring Data • Shapes and Centers • Variability • Relationships and Trends **Algebra and Functions:** • Related Variables • Variables and Rules • Linear and Non-linear Patterns • Predicting from Data • Linear Graphs, Tables and Rules • Linear Equations and Inequalities **Discrete Mathematics:** • Planning • Managing Conflicts • Scheduling Large Projects **Geometry and Trigonometry:** • The Shapes of Things • The Size of Things • The Shapes of Plane Figures **Algebra and Functions:** • Exponential Growth • Exponential Decay • Compound Growth • Modeling Exponential Patterns in Data **Statistics and Probability:** • Simulating Chance Situations • Frequency Tables • Estimating Expected Values and Probabilities • Simulation and the Law of Large Numbers	**Algebra and Functions:** • Matrix Models • Properties of Matrices **Geometry and Trigonometry:** • Size Transformations • Equations of Line • Methods of Solving Linear Systems **Statistics:** • Modeling Data Patterns • Least Squares Regression Lines • Rank Correlation Coefficient • Correlation matrices • Cause and Effect Relationships **Algebra and Functions:** • Laws of Exponents • Roots and Radicals • Operations with Radicals • Power Models **Discrete Mathematics:** • Vertex-Edge Graph Models • Minimal Spanning Trees • Hamiltonian Path and Circuit • Network Optimization **Geometry and Trigonometry:** • Triangular and Quadrilateral Linkages • Angular and Linear Velocity • Trigonometric ratios and Functions • Circular and Periodic Motion **Statistics and Probability:** • Empirical and Theoretical Probabilities • Independent events • Multiplication Rule • Conditional Probability

Integration of Technology	
9	***10***
• TI-82 or TI-83 Graphing Calculators • View-screen Overhead Projector • Access to Internet	• TI-82 or TI-83 Graphing Calculators • View-screen Overhead Projector • Access to Internet

9-10 Integrated Math
ASSESSMENT DIMENSIONS

PROCESS	CONTENT	ATTITUDE
Problem Solving	Concepts	Beliefs
Reasoning	Applications	Perseverance
Communication	Representational Strategies	Confidence
Connections	Procedures	Enthusiasm

9-10 Integrated Math
GENERAL SCORING RUBRIC

4 points	Contains complete response with clear, coherent, and unambiguous explanation; includes clear and simple diagram, if appropriate; communicates effectively to identified audience; shows understanding of question's mathematical ideas and processes; identifies all important elements of question; includes examples and counter examples; gives strong supporting arguments
3 points	Contains good solid response with some, but not all, of the characteristics above; explains less completely; may include minor error of execution but not of understanding
2 points	Contains complete response, but explanation is muddled; presents incomplete arguments; includes diagrams that are inappropriate or unclear, or fails to provide a diagram when it would be appropriate; indicates some understanding of mathematical ideas, but in an unclear way; shows clear evidence of understanding some important ideas while also making one or more fundamental, specific errors
1 point	Omits parts of question and response; has major errors; uses inappropriate strategies
0 points	No response; frivolous or irrelevant response

Contemporary Mathematics in Context, CPMP