Course Description

Subject: PRE-ALGEBRA **Grade: 8**

Overview: Eighth grade pre-algebra fills in gaps in knowledge in the use of integers, fractions and decimals; it then moves on to key algebra skills in solving single variable equations and graphing linear equations.

Primary Biblical Integration: Mathematics allows us to see the design in God's universe; it also helps us to understand being parts of a whole as demonstrated in the Body of Christ. We learn in addition the constancy of God.

Unit Description:
Chapter 3 Operations with Integers
Chapter 1 Operations with Numbers
Chapter 2 Operations in Algebra
Chapter 4 Algebra and Problem Solving
Chapter 5 Rational Numbers and Percents
Chapter 7 Proportional Reasoning
Chapter 10 Geometry and Measurement
Chapter 8 Geometry Concepts
Chapter 11 Graphing Linear Equations

Student Materials:
Mathematics: Concepts and Skills, Course 2 by McDougal and Littell

Teacher Materials:
Mathematics: Concepts and Skills (Teacher's Edition), Course 2 by McDougal and Littell

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COURSE OUTLINE

Teacher's Name: Lehman	Subject: Pre-Algebra 8th grade	# of Quarters: 4
Text (if any): Mathematics: Concepts and Skills Course 2 (McDougal Littell)	Other Materials:	

Recurring Themes, Principles, Skills or Concepts:	1) Order of the world created by God	2) Solving Equations	3) Problem Solving	4) Working with Rational Numbers	5) Geometric Figures

Unit Title & Expected Start Date	Theme	Biblical Application	Key Concepts
1) Classroom rules and outlines	Same	Community	HW policy; procedures for a successful class; textbooks
2) Ch. 3 Operations with Integers	Same	Light vs. Darkness	Add, subtract, multiply, divide with integers
3) Ch.1 Operations with Numbers	Same	Relationships	Order of operations, exponetns, commutative, associative and distributive properties
4) Ch. 2 Operations in Algebra	Same	Love the Lord your God with all your mind	Solving single variable equations, translating sentences into equations
5) Ch. 4 Algebra and Problem Solving	Same	Love the Lord your God with all your mind	Solving multi-step equations
6) Ch. 5 Rational Numbers and Percents	Same	The Body of Christ, parts of a whole	Factoring, GCF, LCM, percents to fractions to decimals
7) Ch. 7 Proportional Reasoning	Same	The Body of Christ, parts of a whole	Probability, discounts, percent increase and decrease
8) Ch. 10 Geometry and Measurement	Same	Design in God's handiwork	Area and circumference of circles, volume and surface area of three dimensional figures
9) Ch. 8 Geometry Concepts	Same	Design in God's handiwork	Triangles and quadrilaterals, area of polygons, parallel and perpendicular lines
10) Ch. 11 Graphing Linear Equations	Same	Be faithful in both the ups and down	Graphing linear equations, slope, intercepts

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 1	Dates - Starting: Ending:	Total Instructional Days:
Unit Title: Class intro		
Theme: Expectations, organization, orientation and discipline		
Biblical Application: Col. 3:17 Do all for the glory of God; Romans 13:1 Submit/respect for authority		

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Rules		Talons	Discussion; citizenship grade	2b; 4d
2)Organizer			classroom checks	3b
3)Classroom and school policies		Grade on parent signed regarding classroom policies	Discussion; citizenship and work habit grades	2b
4)Treatment of others		Talons	Verbal encouragment and challenge; citizenship grade	4bc
5)Care of textbook			Homework grade for covering it	4d

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name:	Lehman	Subject:	8th grade Pre-Algebra	Period(s):	1
Unit #:	2	Dates - Starting:	Ending:	Total Instructional Days:	

Unit Title: Chapter 3 Operations with Integers

Theme: same

Biblical Application: Light vs. Darkness

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Adding integers	7NS1	Notes and homework	Worksheets, homework, quizzes	3a
2)Subtract integers	7NS1	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Multiplying integers	7NS1	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Dividing integers	7NS1	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 3	Dates - Starting: Ending:	Total Instructional Days:
Unit Title: Chapter 1 Operations with Numbers		
Theme: same		
Biblical Application: Relationships		

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Order of operations	7MR1	Notes and homework	Worksheets, homework, quizzes	3a
2)Exponents	7NS2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Commutative and associative properties	7AF1, 2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Distributive property	7AF1, 2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 4	Dates - Starting: Ending:	Total Instructional Days:
Unit Title: Chapter 2 Operations in Algebra		
Theme: same		
Biblical Application: Love the Lord your God with all your mind		

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Solving single variable equations	7AF4, 7MG2, 7MR1	Notes and homework	Worksheets, homework, quizzes	3a
2)Translating sentences into equations	7MG3, 7MR2, 7MR3	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)				
4)				
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 5	Dates - Starting: Ending:	Total Instructional Days:
Unit Title: Chapter 4 Algebra and Problem Solving		
Theme: same		
Biblical Application: Love the Lord your God with all your mind		

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1) Solving multistep equations	7NS1, 7NS2, 7MR3	Notes and homework	Worksheets, homework, quizzes	3a
2)				
3)				
4)				
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 6	Dates - Starting: Ending:	Total Instructional Days:
Unit Title: Chapter 5 Rational Numbers and Percents		
Theme: same		
Biblical Application: The Body of Christ; parts of a whole		

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Factoring	7AF1, 7AF4	Notes and homework	Worksheets, homework, quizzes	3a
2)GCF	7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)LCM	7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Percents to fractions to decimals	7NS1, 7NS2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name:	Lehman	Subject:	8th grade Pre-Algebra	Period(s):	1
Unit #:	7	Dates - Starting:	Ending:	Total Instructional Days:	

Unit Title: Chapter 7 Proportional Reasoning

Theme: same

Biblical Application: The Body of Christ; parts of a whole

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Probability	7MR1, 7MR3, 7NS1, 7NS2	Notes and homework	Worksheets, homework, quizzes	3a
2)Discounts	7AF4, 7NS1, 7NS2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Percent increase	7MR2, 7NS1, 7NS2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Percent decrease	7NS1, 7NS2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name:	Lehman	Subject:	8th grade Pre-Algebra	Period(s):	1
Unit #:	8	Dates - Starting:	Ending:	Total Instructional Days:	

Unit Title: Chapter 10 Geometry and Measurement

Theme: same

Biblical Application: Design in God's handiwork

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Area of circles	7MG2	Notes and homework	Worksheets, homework, quizzes	3a
2)Circumference of circles	7MG2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Volume of three dimensional figures	7MG3, MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Surface area of three dimensional figures	7MG3, MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name:	Lehman	Subject:	8th grade Pre-Algebra	Period(s):	1
Unit #:	9	Dates - Starting:	Ending:	Total Instructional Days:	

Unit Title: Chapter 8 Geometry Concepts

Theme: same

Biblical Application: Design in God's handiwork

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Triangles	7MG3, 7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	3a
2)Quadrilaterals	7MG2, 7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Area of polygons	7MG2, 7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)Parallel and perpendicular lines	7MG2, 7AF3	Notes and homework	Worksheets, homework, quizzes	2b, 3a
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

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UNIT PLANNER

Teacher's Name: Lehman	Subject: 8th grade Pre-Algebra	Period(s): 1
Unit #: 10	Dates - Starting: Ending:	Total Instructional Days:

Unit Title: Chapter 11 Graphing Linear Equations

Theme: same

Biblical Application: Be faithful in both the ups and downs

Key Concepts	Standards/Sub-Strands	Outcomes	Assessment	ESLRs
1)Graphing linear equations	7AF1, 7MR1, 7MR2	Notes and homework	Worksheets, homework, quizzes	3a
2)slope	7AF4	Notes and homework	Worksheets, homework, quizzes	2b, 3a
3)Intercepts	7AF4, 7MR3	Notes and homework	Worksheets, homework, quizzes	2b, 3a
4)				
5)				

Key Activities and Methods: Discussion, graded homework, mimio examples

PACING GUIDE

Subject:Pre-Algebra **Grade:___8th_** **Total number of standards:_13___**

Quarter	Units Taught	Standards Taught	Standards Assessed
1	**Chapter 3** (Operations with Integers); **Chapter 1** (Operations with Numbers); begin **Chapter 2** (Operations in Algebra)	MR1,2,3; NS1,2; AF1,2,4: MG2,3	AF1, MR1
2	**Chapter 2; Chapter 4** (Algebra and Equation Solving); **Chapter 5** (Rational Numbers and Percent)	NS1,2; AF1; MR1,2,3; AF4	NS1,2, MR3
3	**Chapter 7** (Proportional Reasoning); **Chapter 10** (Geometry and Measurement)	NS1,2; AF4; MG2,3; MR1,2,3	MR2, MG3, AF4
4	**Chapter 8** (Geometry Concepts); **Chapter 11** (Graphing Linear Equations and Inequalities)	MG2,3; AF1,3,4; MR1,2,3	AF3, MG2
Omitted Standards and why	TIME		AF2, SDP1, MG1

HEIGHTS CHRISTIAN JUNIOR HIGH SCHOOL

Mission Statement

"Our mission is to educate students to know Christ personally, excel academically, think biblically, and positively impact their community for Christ."

Expected Schoolwide Learning Results (ESLRs)

1. Biblical World View

Graduates of HCJH are expected to be individuals who . . .

a) know how to study the Bible.
b) recognize that all people are created in the image of the one true God.
c) acknowledge the Bible as the infallible Word of God.
d) use God's Word to discern truth.

2. Effective Communicators

Graduates of HCJH are expected to be effective communicators who . . .

a) listen objectively and critically.
b) understand and follow directions.
c) write and speak clearly and accurately.
d) express and support opinions using objective evidence.
e) utilize various modalities effectively.
f) can demonstrate a personal relationship with Jesus Christ verbally and in writing.

3. Proficient Learners

Graduates of HCJH are expected to be proficient learners who . . .

a) demonstrate grade appropriate skills in reading, writing, and mathematics.
b) have effective work habits and study skills.
c) are self-directed and able to produce cooperatively and independently.
d) can utilize technology.
e) have a firm grasp of scripture and are able to apply it to life situations.

4. Personal Responsibility

Graduates of HCJH are expected to be responsible individuals who . . .

a) show patriotism through respect for flag, country, leaders and laws.
b) demonstrate self-control based on biblical standards.
c) exhibit respect for others.
d) accept the consequences and benefits of their actions.
e) are aware of career opportunities.
f) practice goal setting with a biblical perspective.
g) are involved in serving the community.
h) have a personal relationship with Jesus Christ.
i) have the tools to share their faith.
j) demonstrate an urgency to share their faith.

5. Problem Solvers

Graduates of HCJH are expected to be perceptive thinkers and problem solvers who . . .

a) evaluate current topics using a biblical perspective.
b) use available technology to obtain, access and integrate relevant information.
c) think analytically and creatively.
d) are well-informed and open-minded.
e) apply academic learning to life.

6. Well-Rounded

Graduates of HCJH are expected to be well-rounded individuals who . . .

a) have been exposed to a variety of elective opportunities and experiences.
b) are challenged beyond academics through a variety of extracurricular activities.
c) lead lives that are balanced intellectually, spiritually, physically and emotionally.
d) develop an appreciation for teamwork during school activities.
e) understand God's involvement in every area of their lives.

Grade Seven

Number Sense

1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms:

1.1 Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.
1.2 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.
1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.
1.4 Differentiate between rational and irrational numbers.
1.5 Know that every rational number is either a terminating or repeating decimal and be able to convert terminating decimals into reduced fractions.
1.6 Calculate the percentage of increases and decreases of a quantity.
1.7 Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.

2.0 Students use exponents, powers, and roots and use exponents in working with fractions:

2.1 Understand negative whole-number exponents. Multiply and divide expressions involving exponents with a common base.
2.2 Add and subtract fractions by using factoring to find common denominators.
2.3 Multiply, divide, and simplify rational numbers by using exponent rules.
2.4 Use the inverse relationship between raising to a power and extracting the root of a perfect square integer; for an integer that is not square, determine without a calculator the two integers between which its square root lies and explain why.
2.5 Understand the meaning of the absolute value of a number; interpret the absolute value as the distance of the number from zero on a number line; and determine the absolute value of real numbers.

Algebra and Functions

1.0 Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs:

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).
1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)^2$.
1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.
1.4 Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.
1.5 Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by the graph.

Advanced I

Mathematics Problem Solving

Number Sense and Operations

- Demonstrate understanding of the meaning and use of numbers, the various representations of numbers, number systems, and the relationships between and among numbers.
- Demonstrate understanding of the meaning of operations, the relationship between operations, and the practical settings in which a specific operation or set of operations is appropriate.

Patterns, Relationships, and Algebra

- Describe, complete, continue, and demonstrate understanding of patterns involving numbers and figures.
- Patterns with numbers include those found in lists, function tables, ratios and proportions, and matrices.
- Demonstrate understanding of algebraic principles through interaction with expressions, equations, algebraic notation, and other representations of mathematical relationships.

Data, Statistics, and Probability

- Describe, interpret, and make predictions based on the analysis of data presented in a variety of ways, including graphs, plots, tables, and lists.
- Demonstrate an understanding of probability concepts through interaction with simple events, compound events, and experimental probability.

Geometry and Measurement

- Demonstrate understanding of the characteristics and properties of plane and solid figures, coordinate geometry, and spatial reasoning.
- Demonstrate understanding of the meaning and use of various measurement systems, the tools of measurement, and the integral role of estimation in measurement.

2.0 Students interpret and evaluate expressions involving integer powers and simple roots:

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.

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.

3.0 Students graph and interpret linear and some nonlinear functions:

3.1 Graph functions of the form $y = nx^2$ and $y = nx^3$ and use in solving problems.

3.2 Plot the values from the volumes of three-dimensional shapes for various values of the edge lengths (e.g., cubes with varying edge lengths or a triangle prism with a fixed height and an equilateral triangle base of varying lengths).

3.3 Graph linear functions, noting that the vertical change (change in *y*- value) per unit of horizontal change (change in *x*- value) is always the same and know that the ratio ("rise over run") is called the slope of a graph.

3.4 Plot the values of quantities whose ratios are always the same (e.g., cost to the number of an item, feet to inches, circumference to diameter of a circle). Fit a line to the plot and understand that the slope of the line equals the quantities.

4.0 Students solve simple linear equations and inequalities over the rational numbers:

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.

4.2 Solve multistep problems involving rate, average speed, distance, and time or a direct variation.

Measurement and Geometry

1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:

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).

1.2 Construct and read drawings and models made to scale.

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.

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:

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.

2.2 Estimate and compute the area of more complex or irregular two-and three-dimensional figures by breaking the figures down into more basic geometric objects.

2.3 Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.

2.4 Relate the changes in measurement with a change of scale to the units used (e.g., square

Process

Communication and Representation

- Demonstrate an understanding of the symbols and terms utilized in mathematics, and correctly interpret alternative representations of numbers, expressions, and data.

Estimation

- Apply estimation strategies in problem solving and determine the reasonableness of results.

Mathematical Connections

- Demonstrate an understanding of the interrelatedness of mathematical concepts, procedures, and processes both among different mathematical topics and with other content areas.

Reasoning and Problem Solving

- Demonstrate the ability to apply inductive, deductive, or spatial reasoning and to make valid inferences and draw valid conclusions.
- Demonstrate the ability to apply strategies to solve conventional and nonroutine problems.

Mathematics Procedures

Computation with Whole Numbers
Computation with Decimals
Computation with Fractions
Computation with Integers

Process

Computation in Context

- Demonstrate the ability to solve everyday problems requiring addition, subtraction, multiplication, and division.

Computation with Symbolic Notation

- Demonstrate the ability to solve addition, subtraction, multiplication, and division problems represented by the symbols and notation of arithmetic.

inches, cubic feet) and to conversions between units (1 square foot = 144 square inches or [1 ft^2] = [144 in^2], 1 cubic inch is approximately 16.38 cubic centimeters or [1 in^3] = [16.38 cm^3]).

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:

3.1 Identify and construct basic elements of geometric figures (e.g., altitudes, mid-points, diagonals, angle bisectors, and perpendicular bisectors; central angles, radii, diameters, and chords of circles) by using a compass and straightedge.

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.

3.3 Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement.

3.4 Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.

3.5 Construct two-dimensional patterns for three-dimensional models, such as cylinders, prisms, and cones.

3.6 Identify elements of three-dimensional geometric objects (e.g., diagonals of rectangular solids) and describe how two or more objects are related in space (e.g., skew lines, the possible ways three planes might intersect).

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:

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.

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).

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.

Mathematical Reasoning

1.0 Students make decisions about how to approach problems:

1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.

1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.

1.3 Determine when and how to break a problem into simpler parts.

2.0 Students use strategies, skills, and concepts in finding solutions:

2.1 Use estimation to verify the reasonableness of calculated results.

2.2 Apply strategies and results from simpler problems to more complex problems.

2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and

arithmetic and algebraic techniques.
2.4 Make and test conjectures by using both inductive and deductive reasoning.
2.5 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
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.
2.7 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.
2.8 Make precise calculations and check the validity of the results from the context of the problem.

3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations:

3.1 Evaluate the reasonableness of the solution in the context of the original situation.
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.
3.3 Develop generalizations of the results obtained and the strategies used and apply them to new problem situations.