First Semester-At-A-Glance

First Quarter		**Second Quarter**	
Unit	**Days**	**Unit**	**Days**
Unit 1: Patterns & Functions	17	Unit 3: Rational Numbers	9
Unit 2: Integers	15	Unit 4: Probability	10
Unit 3: Rational Numbers	11	Unit 5: Expressions, Equations, & Inequalities	17
		Unit 6: Measurement	8
1st Benchmark	2	2nd Benchmark	2
Approximate Number of Total Days	45	***Approximate Number of Total Days***	45

Second Semester-At-A-Glance

Third Quarter		**Fourth Quarter**	
Topic	**Days**	**Topic**	**Days**
Unit 6: Measurement I(continued)	4	Unit 9 Proportional Relationships	15
Unit 7: Statistics I	9	Unit 10: Linear Relationships	17
Unit 8: Geometry (tested material must be within the 1st 10 days)	15	Unit 10 Statistics II	10
Unit 9 Proportional Relationships	15		
Approximate Number of Total Days	43	***Approximate Number of Total Days***	42

Note: There are several days built into each quarter for enrichment, re-teaching, and special projects.

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Unit 1 : Patterns and Functions

Essential Questions:

- How is a pattern analyzed and represented using algebraic symbols, function tables, and graphs?
- How do variables in a given situation change in relation to one another?
- When does it make sense to connect the points on a graph? Why or why not?
- What does each variable represent in a given situation?

Desired Outcomes

- The student will be able to write an algebraic expression to represent a real-world situation.
- The student will be able to evaluate an algebraic expression.
- The student will be able to recognize, describe, and extend patterns and functional relationships.
- The student will be able to produce rules for functional relationships.
- The student will be able to identify and describe the changes in a graph and a table of data.
- The student will be able to represent relationships between variables using tables, graphs, and equations.
- The student will be able to choose an appropriate problem-solving strategy and solve a problem.

Evidence of Learning

1. The student will write an algebraic expression to represent a real-world situation.
2. The student will evaluate an algebraic expression.
3. The student will recognize, describe, and extend patterns and functional relationships.
4. The student will produce rules for functional relationships.
5. The student will identify and describe the changes in a graph and a table of data.
6. The student will observe and describe how change in a relationship affects the table, graph, and equation.
7. The student will use tables, graphs, and equations to solve problems.
8. The student will choose an appropriate problem-solving strategy and solve a problem.

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Unit 2: Integers

Essential Questions

- What are real life situations that are represented by negative values?
- Why is the distance between two points on a number line always positive?
- When would negative integers have a greater absolute value than positive integers?
- How can inequalities be used to describe the relationship between more than two integers?
- How can models and diagrams help with solving real world integer problems?
- What generalizations can be made about the sign of a sum and the corresponding addends? What similar generalizations can be made ab

- out the other operations and integers?

Desired Outcome

- The students will be able to represent quantities and situations with integers on a number line.
- The student will be able to find the absolute value of integers and simplify absolute value expressions.
- The students will be able to compare and order integers using a number line and relational symbols.
- The students will be able to use inequalities to compare expressions, including absolute value.
- The student will be able to represent and find solutions to real world problems using integers and two models (algebra tiles/base mat and a number line/vectors).
- The students will be able to represent adding, subtracting, multiplying and dividing integers with diagrams.
- The students will be able to develop and apply the algorithms for adding, subtracting, multiplying and dividing integers.
- The students will be able to use graphing calculators for adding, subtracting, multiplying and dividing integers.
- The students will be able to make generalizations about the commutative, associative and distributive properties and integer operations.
- The students will be able to simplify and evaluate expressions with integers using order of operations and properties.
- The students will plot points on the coordinate system.

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Evidence of Learning

1. The students will accurately represent real life situations and quantities with integers.
2. The students will compare and order integers between – 100 and 100 using a number line and relational symbols.
3. The students will use the absolute value of integers to simplify expressions.
4. The students will add, subtract, multiply and divide integers.
5. The students will use the commutative properties of addition and multiplication, the associative properties of addition and multiplication, and the distributive property of multiplication over addition to simplify expressions with integers.
6. The students will simplify and evaluate expressions with integers.
7. The students will name and graph ordered pairs in all four quadrants of a coordinate plane.

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Unit 3: Rational Numbers

Essential Questions:

- What is the difference between squaring a number and finding the square root of a number?
- How are the square roots of imperfect squares estimated?
- Why is $x^o = 1$?
- What relationships exist between expanded form and place value?
- What must be true for two rational numbers to be equivalent? Why are equivalent fractions useful?
- What are some strategies for ordering rational numbers and graphing on a number line?
- What relationships exist when adding and subtracting different forms of rational numbers?
- When multiplying two factors that are proper fractions, why is the product smaller than either of the factors?
- When dividing two fractions, why is the quotient larger than the dividend?
- How can benchmark fractions be used to estimate sums, differences, products and quotients of rational numbers?

Desired Outcomes:

- The student will be able to simplify expressions with exponents using order of operations and laws of exponents.
- The student will be able to identify the square root of perfect squares and estimate square roots of imperfect squares.
- The student will be able to write numbers in expanded form using decimals or fractions to represent place value.
- The student will be able to express rational numbers in equivalent forms.
- The student will be able to compare and order rational numbers and graph on a number line.
- The student will be able to estimate sums, differences, products and quotients of problems with rational numbers
- The student will be able to accurately add, subtract, multiply and divide rational numbers.
- The student will be able to solve real-world situations with fractions and decimals.
- The student will be able to write, graph, and evaluate functions involving rational numbers.

Evidence of Learning:

1. The student will simplify expressions using order of operations and laws of exponents.
2. The student will identify the square root of perfect squares and estimate square roots of imperfect squares.
3. The student will express numbers in expanded form using decimals or fractions to represent place value.
4. The student will express rational numbers in equivalent forms.
5. The student will compare and order rational numbers and graph on a number line.
6. The student will estimate sums, differences, products and quotients of problems with rational numbers
7. The student will accurately add, subtract, multiply and divide rational numbers.
8. The student will solve real-world situations with fractions and decimals.
9. The student will write, graph, and evaluate functions involving rational numbers.

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Unit 4: Probability

Essential Questions:

- What is the difference between experimental and theoretical probability?
- How can mathematics be used to predict future outcomes?
- What is the relationship between the number of trials in an experiment and the theoretical probability of an event?
- Why is the number of trials in an experiment important?
- What is the sample space and why is it important?
- What is the difference between independent and dependent events?

Desired Outcomes:

- The student will be able to determine the theoretical probability of independent events.
- The student will be able to determine the experimental probability from a set of data.
- The student will be able to design and conduct a probability experiment and analyze the results.
- The student will be able to express probability as a fraction, decimal and/or percent.
- The student will be able to compare the experimental probability of an event to its theoretical probability.
- The student will be able to make predictions when given theoretical and experimental probability.
- The student will be able to determine the sample space of given events.

Evidence of Learning:

1. The student will determine theoretical probability of single events and two independent events.
2. The student will determine experimental probability from a given set of data displayed in a variety of ways.
3. The student will design and conduct an experiment, record the data and determine the probability based on the results.
4. The student will express probability as a fraction, decimal and/or percent.
5. The student will compare probability of actual data of an event to its theoretical probability.
6. The student will predict future outcomes using theoretical and/or experimental data.
7. The student will determine the sample space of multiple events.

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Unit 5: Expressions, Equations and Inequalities

Essential Questions:

- How can expressions, equations and inequalities be used to represent mathematical situations and relationships?
- How can expressions and equations be modeled?
- In what ways can equations and inequalities be solved?
- How can formulas be used to determine missing values?

Desired Outcomes:

- The students will be able to write one and two-step equations and inequalities that represent real life relationships.
- The students will be able to determine the unknown in a linear equation using models and the properties of mathematics.
- The students will be able to solve for the unknown in an inequality.
- The students will be able to identify or graph solutions of inequalities on a number line.
- The students will be able to apply given formulas to a problem solving situation.

Evidence of Learning:

1. Students will write and solve equations that represent real life situations.
2. Students will solve one-step equations using properties of equalities (inverse operation).
3. Students will solve two-step equations and inequalities using models and properties of mathematics.
4. Students will combine like terms to simplify algebraic expressions and solve equations.
5. Students will write inequalities to represent a situation.
6. Students will identify or graph solutions of inequalities on a number line.
7. Students will apply given formulas to problem solving situations.

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Unit 6: Measurement

Essential Questions

- How are the areas of parallelograms, triangles, and trapezoids related?
- What formulas and procedures can be used to determine the area of parallelograms and trapezoids?
- What happens to the area of a shape when one or more of the dimensions are changed?
- How does the area of two-dimensional shapes compare to the surface area of three-dimensional figures?
- How is scale useful in real-world situations?

Desired Outcomes

- The student will be able to describe the relationship between the areas of parallelograms, triangles, and trapezoids.
- The students will be able to determine and apply the area of parallelograms, triangles, and trapezoids to real world situations
- The student will be able to determine a method for finding the surface area of three-dimensional figures through the use of a model.
- The student will be able to calculate and apply the surface area for rectangular prisms to real world situations.
- The students will be able to determine the missing dimension for a figure using a scale.
- The students will be able to determine the distance between two points using a drawing and a scale.

Evidence of Learning

1. The student will determine the area of parallelograms, triangles, and trapezoids.
2. The student will use area to solve real-world problems.
3. The student will use surface area of rectangular prisms to solve problems.
4. The student will determine lengths and distances using scales.

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Unit 7: Statistics I

Essential Questions:

- What measure of central tendency best describes a data distribution?
- How are data collected and analyzed in order to answer questions?
- How can changes in data values in a distribution affect the median or the mean?
- What are some situations where graphs may be misleading?
- Why are some graphs made to be intentionally misleading?
- What types of data are best suited to stem-and-leaf plots?

Desired Outcomes:

- The student will be able to use a variety of methods to display data distributions.
- The student will be able to predict the effect of data changes in a distribution on the median or mean.
- The student will be able to accurately display and interpret data in back-to-back stem-and-leaf plots.
- The student will be able to recognize and analyze faulty interpretations or representations of data.

Evidence of Learning:

1. The student will use a variety of displays to communicate data distributions.
2. The student will predict the effect of data changes in a distribution on the median or mean.
3. The student will accurately display and interpret data in and back-to-back stem-and-leaf plots.
4. The student will recognize and analyze faulty interpretations or representations of data.

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Unit 8: Geometry

Essential Questions

- What does it mean to bisect an angle or line segment?
- How can the radius of a circle be used to construct a circle?
- How can supplementary angles be used to explain why vertical angles are congruent?
- What generalizations can be made about finding the sum of the interior angles of polygons?
- What conjecture can be made about the coordinates of a figure as they are moved about the coordinate plane?
- What is the relationship between the squares drawn on the legs and the hypotenuse of a right triangle? Does the relationship hold true for equilateral triangles drawn on the legs and the hypotenuse of a right triangle?

Desired Outcome

- The students will be able to construct geometric figures using a variety of tools.
- The students will be able to determine the measurement of angles formed by intersecting lines, segments and rays.
- The students will be able to determine the unknown angle using the sum of the interior angles of polygons.
- The students will be able to determine the congruent parts of polygons.
- The students will be able to be able to identify, describe and plot the results of one transformation on a coordinate plane.
- The students will be able to describe the relationship between the legs and the hypotenuse of a triangle.

Evidence of Learning

1. The students will construct a circle using a given radius.
2. The students will construct a line segment congruent to a given line segment.
3. The students will construct a perpendicular bisector to a given segment or a bisector to a given angle.
4. The students will calculate the measurement of complementary, supplementary, adjacent and vertical angles.
5. The students will calculate the unknown angle of a quadrilateral.
6. The students will use corresponding angles and corresponding sides to determine the congruence of polygons.
7. The students will identify and plot the results of one translation, reflection or rotation (90◦ or 180◦) around a point.
8. The students will find the length of the unknown side of a right triangle using the Pythagorean Theorem.

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Unit 9: Proportional Relationships

Essential Questions:

- What representations can be used to show proportional relationships?
- When two figures are similar – what is the same, what is different?
- When are similar polygons congruent?
- What is the difference between congruency and similarity?
- What is the relationship between ratios and percents of change, pi, similar figures, and slope?

Desired Outcomes:

- The student will be able to use proportional reasoning to solve a variety of real-world problems.
- The student will be able to determine unit rates and use them to solve problems.
- The student will be able to identify and describe similar polygons and their similar parts.
- The student will be able to calculate a missing dimension using similar figures.
- The student will be able to estimate and determine the circumference or area of a circle.
- The student will be able to solve percent problems in context in a variety of ways, demonstrating proportional reasoning.
- The student will be able to interpret data in circle graphs.
- The student will be able to organize and display data to make circle graphs.
- The student will be able to determine the slope of a line given a graph.

Evidence of Learning:

1. The student will use proportional reasoning to solve a variety of real-world problems.
2. The student will determine unit rates and use them to solve problems.
3. The students will use the corresponding sides or the corresponding angles of similar polygons to find an unknown length or angle.
4. The student will estimate and determine the circumference or area of a circle.
5. The student will solve percent problems in context in a variety of ways, demonstrating proportional reasoning.
6. The student will interpret data in circle graphs.
7. The student will organize and display data to make circle graphs.
8. The student will determine the slope of a line given a graph.

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Unit 10: Linear Relationships

Essential Questions:

- How can you determine if a relationship is a function?
- Why is a line used to represent the solutions of a linear equation?
- How is an equation used to graph a line?
- What does the solution to a system of equations illustrate?

Desired Outcomes:

- The student will be able to determine the relationship between solutions to a linear equation and the points on the graph of the equation.
- The student will be able to determine the slope of a line given a graph, a table of values, or equation.
- The student will be able to determine the intercepts of a function from a graphed line or from the equation of the line in slope-intercept form.
- The student will be able to graph a linear function given the slope-intercept form of its equation and from its data table.
- The student will be able to solve and analyze a system of equations.
- The student will be able to determine if a relationship is a function, from a variety of representations.

Evidence of Learning:

1. The student will determine the relationship between solutions to a linear equation and the points on the graph of the equation.
2. The student will determine the slope of a line from a given a graph, a table of values, or equation.
3. The student will determine the intercepts of a function from a graphed line or from the equation of the line in slope-intercept form.
4. The student will graph a linear function using the slope-intercept form of its equation and from its data table.
5. The student will solve and analyze a system of equations.
6. The student will determine if a relationship is a function, from a variety of representations.

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Unit 11: Statistics 2

Essential Questions:

- How can the process of statistical investigation be used to pose questions?
- How are data collected and analyzed in order to answer questions?
- How can changes in data values in a distribution affect the median or the mean?

Desired Outcomes:

- The student will be able to organize and display data to make scatter plots.
- The student will be able to interpret scatter plots.
- The student will be able to use a line of best fit to make predictions.
- The student will be able to organize and display data to make box and whisker plots.
- The student will be able to interpret box and whisker plots.

Evidence of Learning:

5. The student will accurately display scatter plots and box-and-whisker plots.
6. The student will accurately interpret scatter plots and box-and-whisker plots.
7. The student will predict the effect of data changes in a distribution on the median or mean.