Content Area or Department	Red Clay Consolidated School District - Mathematics
Overview:	The Red Clay Consolidated School District's mathematics program is based upon the philosophy that all students can learn mathematics at high levels. A rigorous pathway of college and career readiness standards requires mathematically proficient students to gain a deep understanding of the mathematics and apply their understanding to real-world situations.
Desired Outcomes:	Mathematically proficient students engage in the following eight practices: 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with Mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Topics to be Covered:	
Kindergarten	**Counting and Cardinality** Know number names and the count sequence. Count to tell the number of objects. Compare numbers. **Operations and Algebraic Thinking** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. **Number and Operations in Base Ten** Work with numbers 11 – 19 to gain foundations for place value.

	Measurement and Data Describe and compare measurable attributes. Classify objects and count the number of objects in categories. **Geometry** Identify and describe shapes. Analyze, compare, create, and compose shapes.
First Grade	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. Understand and apply properties of operations and the relationship between addition and subtraction. Add and subtract within 20. Work with addition and subtraction equations. Number and Operations in Base Ten Extend the counting sequence. Understand place value. Use place value understanding and properties of operations to add and subtract. Measurement and Data Measure lengths indirectly and by iterating length units. Tell and write time. Represent and interpret data. Geometry Reason with shapes and their attributes.
Second Grade	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. Add and subtract within 20. Work with equal groups of objects to gain foundations for multiplication. Number and Operations in Base Ten

	Understand place value.
	Use place value understanding and properties of operations to add and subtract.
	Measurement and Data
	Measure and estimate lengths in standard units.
	Relate addition and subtraction to length.
	Work with time and money.
	Represent and interpret data.
	Geometry
	Reason with shapes and their attributes.
Third Grade	Operations and Algebraic Thinking
	Represent and solve problems involving multiplication and division.
	Understand properties of multiplication and the relationship between multiplication and division.
	Multiply and divide within 100.
	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
	Number and Operations in Base Ten
	Use place value understanding and properties of operations to perform multi-digit arithmetic.
	Number and Operations – Fraction
	Develop understanding of fractions as numbers.
	Measurement and Data
	Solve problems involving measurement and estimation of intervals of time, liquid volume, and masses of objects.
	Represent and interpret data.
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
	Geometry

	Reason with shapes and their attributes.
Fourth Grade	**Operations and Algebraic Thinking** Use the four operations with whole numbers to solve problems. Gain familiarity with factors and multiples. Generate and analyze patterns. **Number and Operations in Base Ten** Generalize place value understanding for multi-digit whole numbers. Use place value understanding and properties of operations to perform multi-digit arithmetic. **Number and Operations – Fraction** Extend understanding of fraction equivalence and ordering. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. Understand decimal notation for fractions, and compare decimal fractions. **Measurement and Data** Solve problems involving measurement and conversions of measurements from a larger unit to a smaller unit. Represent and interpret data. Geometric measurement: understand concepts of angle and measure angles. **Geometry** Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
Fifth Grade	Operations and Algebraic Thinking Write and interpret numerical expressions. Analyze patterns and relationships. Number and Operations in Base Ten Understand the place value system. Perform operations with multi-digit whole numbers and with decimals

	to hundredths.
	Number and Operations – Fraction
	Use equivalent fractions as a strategy to add and subtract fractions.
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
	Measurement and Data
	Convert like measurement units within a given measurement system.
	Represent and interpret data.
	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
	Geometry
	Graph points on the coordinate plane to solve real-world and mathematical problems
Sixth Grade	**Ratios and Proportional Relationships**
	Understand ratio concepts and use ratio reasoning to solve problems.
	The Number System
	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
	Compute fluently with multi-digit numbers and fins common factors and multiples.
	Apply and extend previous understandings of numbers to the system of rational numbers.
	Expressions and Equations
	Apply and extend previous understandings of arithmetic to algebraic expressions.
	Reason about and solve one-variable equations and inequalities.
	Represent and analyze quantitative relationships between depend and independent variables.
	Geometry
	Solve real-world and mathematical problems involving area, surface area, and volume.

	Statistics and Probability

Develop understanding of statistical variability.

Summarize and describe distributions. |
| Seventh Grade | Ratios and Proportional Relationships

Analyze proportional relationships and use them to solve real-world and mathematical problems.

The Number System

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Expressions and Equations

Use properties of operations to generate equivalent expressions.

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Geometry

Draw, construct and describe geometrical figures and describe the relationships between them.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Statistics and Probability

Use random sampling to draw inferences about a population.

Draw informal comparative inferences about two populations.

Investigate chance processes and develop, use, and evaluate probability models. |
| Eighth Grade | **The Number System**

Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations

Work with radicals and integer exponents.

Understand the connections between proportional relationships, lines, and linear equations.

Analyze and solve linear equations and pairs of simultaneous linear |

	equations.
	Functions
	Define, evaluate, and compare functions.
	Use functions to model relationships between quantities.
	Geometry
	Understand congruence and similarity using physical models, transparencies, or geometry software.
	Understand and apply the Pythagorean Theorem.
	Solve real-life and mathematical
	Statistics and Probability
	Investigate patterns of association in bivariate data.
Algebra I	Number and Quantity
	Extend the properties of exponents to rational exponents.
	Use properties of rational and irrational numbers.
	Quantities
	Reason quantitatively and use units to solve problems.
	Algebra
	Interpret the structure of an expression.
	Write expressions in equivalent forms to solve problems.
	Perform arithmetic operations on polynomials.
	Understand the relationship between zeros and factors of polynomials.
	Create equations that describe numbers or relationships.
	Understand solving equations as a process of reasoning and explain the reasoning.
	Solve equations and inequalities in one variable.
	Solve systems of equations.
	Represent and solve equations and inequalities graphically.
	Functions
	Understand the concept of a function and use function notation.

	Interpret functions that arise in applications in terms of the context.
	Analyze functions using different representations.
	Build a function that models a relationship between two quantities.
	Build new functions from existing functions.
	Construct and compare linear, quadratic and exponential models and solve problems.
	Interpret expressions for functions in terms of the situation they model.
	Statistics and Probability
	Summarize, represent, and interpret data on a single count or measurement variable.
	Summarize, represent, and interpret data on two categorical and quantitative variables.
	Interpret linear models.
Geometry	**Number and Quantity**
	Reason quantitatively and use units to solve problems.
	Geometry
	Experiment with transformations in the plane.
	Understand congruence in terms of rigid motions.
	Prove geometric theorems.
	Make geometric constructions.
	Understand similarity in terms of similarity transformations.
	Prove theorems involving similarity.
	Define trigonometric ratios and solve problems involving right triangles.
	Understand and apply theorems about circles.
	Find arc length and areas of sectors of circles.
	Translate between the geometric description and the equation of a conic section.
	Use coordinates to prove simple geometric theorems algebraically.
	Explain volume formulas and use them to solve problems.
	Visualize relationships between two-dimensional objects.

	Apply geometric concepts in modeling situations.
	Understand independence and conditional probability and use them to interpret data.
	Use the rules of probability to compute probabilities of compound events in a uniform probability model.
Algebra 2	Number and Quantity
	Extend the properties of exponents to rational exponents.
	Reason quantitatively and use units to solve problems.
	Perform arithmetic operations with complex numbers.
	Use complex numbers in polynomial identities and equations.
	Algebra
	Interpret the structure of expressions.
	Write expressions in equivalent forms to solve problems.
	Understand the relationship between zeros and factors of polynomials.
	Use polynomial identities to solve problems.
	Rewrite rational expressions.
	Create equations that describe numbers or relationships.
	Understand solving equations as a process of reasoning and explain the reasoning.
	Solve equations and inequalities in one variable.
	Solve systems of equations.
	Represent and solve equations and inequalities graphically.
	Functions
	Understand the concept of a function and use function notation.
	Interpret functions that arise in applications in terms of the context.
	Analyze functions using different representations.
	Build a function that models a relationship between two quantities.
	Build new functions from existing functions.
	Construct and compare linear, quadratic and exponential models and

	solve problems.
	Interpret expressions for functions in terms of the situation they model.
	Extend the domain of trigonometric functions using the unit circle.
	Model periodic phenomena with trigonometric functions.
	Prove and apply trigonometric identities.
	Statistics and Probability
	Summarize, represent, and interpret data on a single count or measurement variable.
	Understand and evaluate random processes underlying statistical experiments.
	Make inferences and justify conclusions from sample surveys, experiments, and observational studies.
Link to Standards:	These standards can be found by clicking the following link: http://goo.gl/8u2CNz.
Additional Resources:	Additional resources are available through the Delaware Department of Education and can be found by clicking following link: http://goo.gl/guhaHL.