Groton Public Schools
Curriculum Map

INTRODUCTION

Course Title: College Readiness Math
Curriculum Area and Grade: Mathematics 12

Course Purpose:
This course is targeted for students who are not yet "college ready" in mathematics or simply need some additional instruction in content to prepare them for success in college level mathematics.   This course incorporates the Common Core Standards for Mathematical Practices. Topics covered include Expressions and Equations, The Number System, Functions, Algebra, Geometry, Statistics and Probability. The course offers student activities in a range of applied contexts and helps students develop college and career readiness skills.

Major Learning Goals and Understandings:
The goal of the course is to prepare students for success in a college level math course. The topics included on the college entrance assessment *Accuplacer* are as follows: - Operations with whole numbers and fractions. Topics include addition, subtraction, multiplication, division, recognizing equivalent fractions and mixed numbers, and estimating.   - Operations with decimals and percents. Topics include addition, subtraction, multiplication, and division with decimals; percent problems; recognition of decimals; percent equivalencies; and estimating   - Applications and problem solving. Topics include rate, percent and measurement problems; simple geometry problems; and distribution of a quantity into its fractional parts.   - Numbers and quantities. Topics include integers and rational numbers, computation with integers and negative rationals, absolute value, and ordering   - Algebraic expressions. Topics include evaluation of simple formulas and expressions, adding and subtracting monomials and polynomials, multiplying and dividing monomials and polynomials, evaluating positive rational roots and exponents, simplifying algebraic fractions, and factoring   - Problem solving. Topics include translating written phrases into algebraic expressions, solving linear equations and inequalities, quadratic equations (by factoring), and verbal problems presented in an algebraic context.   - Algebraic operations. Topics include simplifying rational algebraic expressions, factoring and expanding polynomials, and manipulating roots and exponents.   - Solutions of equations and inequalities. Topics include solving linear and quadratic equations and inequalities, systems of equations and other algebraic equations.   - Coordinate geometry. Topics include plane geometry, the coordinate plane, straight lines, conics, sets of points in the plane, and algebraic function graphs   - Functions. Topics include polynomial, algebraic and exponential functions.

Units/Theme/Concept and # of Weeks	
Quarter = 9 weeks, Semester=18 weeks, Trimester= 12 weeks, Year=36 weeks --- usually spread over 40 weeks	
1. **Building Number Sense**	2. **Data Analysis, Statistics and Probability**
3. **Solving Linear Equations and Inequalities**	4. **Graphs and Linear Functions**
5. **Geometry and Measurement**	6. **Exponents and Roots**
7. **Polynomials**	8. **Solving Quadratic Equations and Inequalities**
9. **Exponential Functions**	

Mappers/Authors: Matthew Brown

Date Approved:

Unit 1 Building Number Sense

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards
7.NS.A.1a, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d, 5NBT.A.4, 5NBT.A.1, 6.NS.C.6, 8.EE.A.2, 6.NS.A.1, 3.NF.A.2, 5.NF.A.1, 6.NS.C.7c, 7.EE.A.1
Supporting Standards
Connecticut State Standards

Unit 1 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: • Integers (Whole Numbers) • Rational Numbers (Fractions) • Real world application • Decimals • Place Value • Percent • Real Numbers • Square roots • Absolute Value • Order of Operations • Expressions	The students will be able to: • Add, subtract, multiply, and divide integers • Add, subtract, multiply and divide rational numbers • Apply integers and rational numbers in real world settings • Round Decimals to differing place values • Classify and use real numbers • Approximate square roots • Describe the meaning of percent • Convert between decimals, percentages and fractions • Solve percent problems • Find and apply absolute value • Use Order of Operations to evaluate and/or simplify expressions	Evaluate Apply Round Approximate Classify Use Find Simplify Solve Convert Describe

Big Idea and Essential Questions
• **Big Ideas:**   • There are many ways to represent a number.

- Number sense develops through experience.
- Operations create relationships between numbers.
- The relationships among the operations and their properties promote computational fluency.
- In certain situations, an estimate is as useful as an exact answer.

- **Essential Questions**
  - How do I determine the best numerical representation (pictorial, symbolic, objects) for a given situation?
  - How does finding the common characteristics among similar problems help me to be a more efficient problem solver?
  - What kinds of experiences help develop number sense?
  - Why do I need mathematical operations?
  - How do mathematical operations relate to each other?
  - How do I know which mathematical operation (+, -, x, ÷, exponents, etc.) to use?
  - How do I know which computational method (mental math, estimation, paper and pencil, and calculator) to use?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 1 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment .

Khan Academy- The following link will let students utilize Khan Academy to help them become college ready in math. The chart at the end of the curriculum can also be used to sequence Khan Academy lessons and activities with the Unit 1 topics.

https://www.khanacademy.org/educator/higher-ed/developmental-math/a/case-studies-boot-camp-and-lab-programs

Accuplacer Web Based Study App
Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:
The Locker Problem

Number Rules

Never Prime

Divisibility Problem

Adding and Subtracting Signed Numbers

Multiplying Fractions Word Problems

Dividing Fractions Word Problems

Fair Shares- Open-Ended Word Problem

Fractions Jigsaw

Adding and Subtracting Decimals Word Problems (Khan)

More Adding and Subtracting Decimals Word Problems

Money Word Problems

Another Money Word Problem

Working with Irrational Numbers

Part 1 – Unit 2 Statistics and Probability

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards S.ID.2, S.ID.1, S.ID.3, S.ID.5
Supporting Standards
Connecticut State Standards

Part 2 unit – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: • Tree diagrams • Fundamental Counting Principle • Problems involving probabilities of events	The students will be able to: • Count outcomes using a tree diagram or the Fundamental Counting Principle. Use Determine Solve Explore Predict

		Apply
• Concepts of conditional probability in real world contexts • Theoretical and experimental probabilities • Graphical representations of data including histograms and box-and-whisker plots • Measures of spread and central tendency	• Determine outcomes and solve problems involving the probabilities of events. • Explore the concepts of conditional probability in real world contexts. • Apply theoretical and experimental probabilities appropriately to solve problems and predict results. • Collect real data and create meaningful graphical representations of the data through histograms and box-and-whisker plots. • Determine and use measures of spread and central tendency to describe and compare sets of data.	Collect Create Describe

Big Idea and Essential Questions

- **Big Ideas:**
  - The way that data is collected, organized and displayed influences interpretation
  - Probability of an event's occurrence can be predicted with varying degrees of confidence
- **Essential Questions:**
  - Why is data collected and analyzed?
  - How do people use data to influence others?
  - How can predictions be made based on data?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 2 Test

Part 4 – Common/Assured Learning Experiences

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Accuplacer Web Based Study App

Unit 3 Solving Linear Equations and Inequalities			
Grade:	**Subject:**	**Course:**	**Length of Unit:**
12	Mathematics	College Readiness Math	3 weeks

Common Core State Standards A.CED.1, A.REI.3, A.REI.1, N.Q.2, N.Q.1, A.CED.4
Supporting Standards
Connecticut State Standards

Unit 3 – Standards		
Key (GLE) Content Knowledge and Concepts/Skills		**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know:	The students will be able to:	
- Equations - Multi-step Equations - Ratios - Proportions - Variables - Real-world Problems - Inequalities - Solutions	- Translate verbal sentences into equations and vice versa. - Solve equations by using addition, subtraction, multiplication and division. - Solve problems by working backward. - Solve multi step equations - Determine whether two ratios form a proportion. - Solve proportions. - Solve equations for given variables. - Use formulas to solve real-world problems. - Solve and apply inequalities - Graph solutions to an inequality	Translate Solve Determine Use Apply Graph

Big Idea and Essential Questions
Big Ideas: - A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence.   - There can be different strategies to solve a problem, but some are more effective and efficient than others are.   - The context of a problem determines the reasonableness of a solution.   - The ability to solve problems is the heart of mathematics.   - Algebraic expressions and equations generalize relationships from specific cases.

- **Essential Questions:**
  - How is thinking algebraically different from thinking arithmetically?
  - How do I use algebraic expressions to analyze or solve problems?
  - How do the properties contribute to algebraic understanding?
  - What is meant by equality?
  - How do I know when a result is reasonable?
  - What is the relationship between solving problems and computation?
  - Why is the ability to solve problems the heart of mathematics?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 3 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.

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Accuplacer Web Based Study App

Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:

Predicting Sports Records

Sky High Scrapers

Ratios Game
Math in Special Effects: Ratios Problem

Unit 4 Graphs and Linear Functions

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	3 weeks

Common Core State Standards
F.IF.7a, S.ID.7, F.BF.3, F.BF.1, F.LE.2, S.ID.6,S.ID.9
Supporting Standards
Connecticut State Standards

Unit 4 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: - Slope - Line - Slope-intercept form - Real-world data - Equation - Scatterplot - Lines of fit	The students will be able to: - Find the slope of a line - Write and graph equations in slope-intercept form. - Model real-world data with an equation in slope-intercept form. - Write an equation of a line when given two characteristics of it - Write an equation of a line given two points on the line. - Interpret points on a scatter plot. - Write equations for lines of fit.	Find Write Graph Model Interpret

Big Idea and Essential Questions

- **Big Ideas:**
  - Patterns and relationships can be represented numerically, graphically, symbolically, and verbally.
  - Patterns provide insights into potential relationships.
  - Real world situations can be represented symbolically and graphically.
- **Essential Questions:**
  - What is a pattern?
  - How do I describe a pattern?
  - How do I express a pattern to show a relationship?
  - How can patterns be used to make predictions?

Part 3 – Common Unit Assessments
SAT practice tests Accuplacer practice tests Unit 4 Test

Part 4 – Common/Assured Learning Experiences
Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.

Khan Academy- The following link will let students utilize Khan Academy to help them become college ready in math. The chart at the end of the curriculum can also be used to sequence Khan Academy lessons and activities with the Unit 1 topics.

Accuplacer Web Based Study App

Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:

Restaurant Management Problem

Temperature Equation

Unit 5 Geometry and Measurement

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards 3.MD.B.3, 5.MD.A.1, HSG-MG.A.1, 8.G.B.7
Supporting Standards
Connecticut State Standards

Unit 5 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: • Scaled Drawings • Area • Perimeter • Polygons • Volume • Triangles • Side length • Angle Measures • Radius • Circumference	The students will be able to: • Interpret and construct Scaled Drawings • Find the area and perimeter of polygons • Determine the volume of a shape • Use perimeter, area and volume in problem solving • Apply properties of triangles to determine side length or angle measure • Use radius, circumference and area of circle to solve problems • Apply the Pythagorean Theorem in problem solving	Interpret Construct Find Determine Problem-solve Apply Use Solve

• Area • Pythagorean Theorem			

Big Idea and Essential Questions

- **Big Ideas:**
  - Measurement describes the attributes of objects and events.
  - Standard units of measure enable people to interpret results or data.
  - All measurements have some degree of uncertainty
  - Geometry and spatial sense offer ways to interpret and reflect on our physical environment.
  - Analyzing geometric relationships develops reasoning and justification skills.
- **Essential Questions:**
  - Why do I measure?
  - Why do I need standardized units of measurement?
  - How do geometric models describe spatial relationships?
  - How are geometric shapes and objects classified?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 5 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.

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Accuplacer Web Based Study App

Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:

Geometry Word Problems from fi.edu

Popcorn: Volume of Cylinders

Fruit Boxes: Area and Volume Problem

Unit 6 Exponents and Roots

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards 8.EE.A.1, HSN-RN.A.1, A.SSE.2, F.IF.8b, A.SSE.2
Supporting Standards
Connecticut State Standards

Unit 5 – Standards		
Key (GLE) Content Knowledge and Concepts/Skills		**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know:	The students will be able to:	
- Expressions - Properties of Exponents - Quotients - Monomials - Negative Exponenents - Scientific Notation - Rational Exponents - Roots of expressions	- Simplify expressions using properties of exponents - Simplify expressions involving the quotient of monomials. - Simplify expressions containing negative exponents. - Express numbers in scientific notation and standard notation. - Find products and quotients of numbers expressed in scientific notation. - Evaluate rational exponents/roots	Simplify Express Find Evaluate

Big Idea and Essential Questions
Big Ideas: - There can be different strategies to solve a problem, but some are more effective and efficient than others are.   - Patterns provide insights into potential relationships.   - It is much more important to understand why the properties of exponents work rather than memorizing the properties themselves.   **Essential Questions:**   - What are the properties of exponents and how can they be used to solve problems quicker?

- What can you do to help remember the some of the properties of exponents?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 6 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.
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https://www.khanacademy.org/educator/higher-ed/developmental-math/a/case-studies-boot-camp-and-lab-programs
Accuplacer Web Based Study App
Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:
Ponzi Schemes Problem

Big and Small Numbers in the Physical World

Negative Power

Unit 7 Polynomials			
Grade:	**Subject:**	**Course:**	**Length of Unit:**
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards A.APR.A.1, SSE.B.3a
Supporting Standards
Connecticut State Standards

Unit 7 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels**

	Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: • Operations • Polynomials • Unlike terms • Distributive Property • FOIL method	**The students will be able to:** • Add, subtract and multiply polynomials with unlike terms • Use the Distributive property to explain how FOIL method works • Factor Polynomials

| | Evaluate
 Use
 Explain
 Factor |

Big Idea and Essential Questions

- **Big Ideas:**
  - Factors are a subset of a product and with the distributive property allow options in solving polynomials.
  - Multiplying and factoring polynomials are related.
  - Solving polynomials involves the reversal of operations, the distributive property and rules of exponents.
- **Essential Questions:**
  - How can polynomials be simplified and applied to solve problems?
  - Can two algebraic expressions that appear to be different be equivalent?
  - How are the properties of real numbers related to polynomials?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 7 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.

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Accuplacer Web Based Study App

Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:

Finding Factors

Difference of Squares Exploration (Plus/Minus)

Roots of Polynomials (Poly Fibs) Polynomial Relations

Unit 8 Solving Quadratic Equations and Inequalities

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards A.SSE.2, A.SSE.3a, A.REI.4b, A.REI.1
Supporting Standards
Connecticut State Standards

Unit 8 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: - Zero-product rule - Factoring - Quadratic equations/problems - Quadratic Formula - Square root principle - Graphing - Completing the square - Quadratic Function - Axis of Symmetry - Vertex - Intercepts	The students will be able to: - Use zero-product rule and factoring to solve quadratic equations and problems - Use quadratic formula, square root principal, graphing or completing square to solve or predict roots (Zeros, x-intercepts) - Write quad functions given zeros - Recognize a perfect square quadratic - Graph a quadratic function and identify the axis of symmetry, vertex and intercepts	Use Solve Predict Write Recognize Graph Identify

Big Idea and Essential Questions

- **Big Ideas:**
    - Quadratic procedures extend beyond quadratics.
    - Numbers extend beyond the real.
- **Essential Questions:**
    - How can quadratic equations model real world situations?
    - Why are imaginary numbers necessary?
    - How can the solution be reached?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 8 Test

Part 4 – Common/Assured Learning Experiences

Important components of the course should include the use of technology, projects and laboratories, cooperative group problem-solving, and writing, as a part of concept-oriented instruction and assessment.

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Accuplacer Web Based Study App

Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:

Kitchen Paraboloids (Quadratics Problem)

Agile Algebra: Challenging Equations

Unit 9 Exponential Functions

Grade:	Subject:	Course:	Length of Unit:
12	Mathematics	College Readiness Math	4 weeks

Common Core State Standards
A.REI.11, F.IF.8b, F.LE.2, A.SSE.3c, F.IF.8b, F.BF.2
Supporting Standards
Connecticut State Standards

Unit 9 – Standards	
Key (GLE) Content Knowledge and Concepts/Skills	**Bloom's Taxonomy Levels** Creating, Evaluating, Analyzing, Applying, Understanding and Remembering
The students will know: • Exponential Functions • Exponential Behavior • Growth and Decay • Real world problems • Rate of growth • Percentage • Beginning point	The students will be able to: • Model real world data with Exponential Functions • Graph exponential functions • Identify data that displays exponential behavior • Model and solve problems involving exponential growth and decay by identifying the rate of growth (as a percentage) and beginning point Use Graph Identify Solve Model

Big Idea and Essential Questions

- **Big Ideas:**
  - When comparing an exponential model with a linear model, the question is not *if* the exponential model will generate very large or very small inputs, but rather *when*.
  - Exponential Functions increase or decrease by the same percentage.
- **Essential Questions:**
  - What characterizes exponential growth and decay?
  - What are real world models of exponential and logarithmic growth and decay?
  - What are the limitations of exponential growth models?
  - How can one differentiate an exponential model from a linear model given a real world data set?

Part 3 – Common Unit Assessments

SAT practice tests
Accuplacer practice tests
Unit 9 Test

Part 4 – Common/Assured Learning Experiences

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Accuplacer Web Based Study App
Use Applied Tasks from the Accuplacer Alignment Chart or click on the links below:
Use state curriculum activities at http://sde-cthsmoodle.cthss.cen.ct.gov/moodle/course/category.php?id=50

Alignment of Accuplacer Math Topics with Khan Academy and the Common Core

Course Topic	Khan Videos	Khan Practice Sets	Core Standard(s)	Applied Tasks
Arithmetic				
Adding/Subtracting Integers	Adding Integers With Different Signs Adding Negative Numbers	Adding Negative Numbers Adding and Subtracting Negative Numbers	CCSS.Math.Content.7.NS.A.1c CCSS.Math.Content.7.NS.A.1d	The Locker Problem Number Rules Never Prime Divisibility Problem Adding and Subtracting Signed Numbers
Multiplying/Dividing Integers	Multiplying Positive and Negative Numbers Dividing Positive and Negative Numbers Multiplying Numbers With Different Signs	Multiplying and Dividing Negative Numbers Negative Number Word Problems	CCSS.Math.Content.7.NS.A.2a CCSS.Math.Content.7.NS.A.2b	
Rounding Numbers	Rounding Decimals	Rounding Numbers	CCSS.Math.Content.5.NBT.A.4	
Number Line	Points on a Number Line Positive and Negative Decimals on a Number Line	Decimals on the Number Line 1 Decimals on the Number Line 2 Decimals on the Number Line 3	CCSS.Math.Content.6.NS.C.6	
Square Roots	Approximating Square Roots	Square Roots Estimating Square Roots	CCSS.Math.Content.8.EE.A.2	
Fractions	Identifying Fraction Parts Understanding Fractions as Division **(conceptual help)**	Recognizing Fractions Fraction Word Problems **(conceptual help)**		
Ordering Fractions	Plotting Fractions on the Number Line	Fractions on the Number Line	CCSS.Math.Content.3.NF.A.2	Multiplying Fractions Word Problems Dividing Fractions Word Problems
Adding/Subtracting Fractions	Adding and Subtracting Fractions Adding Fractions with Different Signs	Adding and Subtracting Fractions	CCSS.Math.Content.5.NF.A.1	
Multiplying Fractions	Multiplying Fractions	Multiplying Fractions	CCSS.Math.Content.5.NF.B.4	

	Multiplying Negative and Positive Fractions			Fair Shares- Open-Ended Word Problem
Dividing Fractions	Dividing Fractions Example Dividing Fractions by Fractions	Dividing Whole Numbers by Fractions Dividing Fractions by Fractions	CCSS.Math.Content.6.NS.A.1	Fractions Jigsaw
Decimals and Percents				
Place Value	Decimal Place Value Comparing Decimal Place Value	Understanding Decimal's Place Value Comparing Decimal Place Value	CCSS.Math.Content.5.NBT.A.3	Adding and Subtracting Decimals Word Problems (Khan) More Adding and Subtracting Decimals Word Problems Money Word Problems Another Money Word Problem Ratios Game Math in Special Effects: Ratios Problem
Adding/Subtracting Decimals	Adding Decimals 1 Adding Decimals 2 Adding Decimals 3 Subtracting Decimals	Adding Decimals 1 Adding Decimals 2 Subtracting Decimals 1 Subtracting Decimals 2	CCSS.Math.Content.6.NS.B.3	
Multiplying/Dividing Decimals	Multiplying Decimals Multiplying Decimals- More Involved Dividing Decimals Dividing Decimal Numbers	Multiplying Decimals 1 Multiplying Decimals 2 Multiplying Decimals 3 Dividing Decimals 1 Dividing Decimals 2 Dividing Decimals 3	CCSS.Math.Content.6.NS.B.3	
Solving Percent Problems	Describing the Meaning of Percent Taking Percentages Percent Word Problems	Percentage Word Problems 1	CCSS.Math.Content.6.RP.A.3c	
Equating Decimals, Percents, Fractions	Representing a Number as a Decimal, Percent, and Fraction	Converting Decimals to Fractions 1 Converting Decimals to Percents Converting Percents to Decimals	CCSS.Math.Content.6.NS.A.1	
Writng and Solving Proportions	Writing Proportions Finding an Unknown in a Proportion Using Proportions to Solve Problems	Writing Proportions Solving Proportions 1 Using Proportions to Solve Problems	CCSS.Math.Content.7.RP.A.2a CCSS.Math.Content.7.RP.A.2c	
Simplifying Rates and Ratios	Simplifying Rates and Ratios	Ratio Word Problems	CCSS.Math.Content.7.RP.A.2a CCSS.Math.Content.7.RP.A.2b	
Real Numbers				
Absolute Value	Absolute Value and Number Lines Absolute Value Word Problems	Finding Absolute Value Absolute Value Word Problems	CCSS.Math.Content.6.NS.C.7c	Working with Irrational Numbers
Order of Operations/Simplifying Exp.	Order of Operations 1 Order of Operations- More Complicated	Order of Operations Order of Operations with Negative Numbers	CCSS.Math.Content.7.EE.A.1	
Exponents and Roots				

Multiplying/Dividing Monomials	Multiplying and Dividing Monomials 1 Multiplying and Dividing Monomials 2 Multiplying and Dividing Monomials 3	Simplifying Rational Expressions 1	CCSS.Math.Content.8.EE.A.1	Ponzi Schemes Problem Big and Small Numbers in the Physical World Negative Power
Evaluating Rational Exponents/Roots	Radical Equivalent to Rational Exponents Simplifying with Exponent Properties Negative Fractional Exponent Examples	Understanding Fractional Exponents Manipulating Fractional Exponents Negative Fractional Exponents	CCSS.Math.Content.HSN-RN.A.1	
Polynomials				
Adding/Subtracting Polynomials	Adding and Subtracting Polynomials 1 Adding Polynomials With Multiple Variables	Adding and Subtracting Polynomials	CCSS.Math.Content.HSA-APR.A.1	Finding Factors Difference of Squares Exploration (Plus/Minus) Roots of Polynomials (Poly Fibs) Polynomial Relations
Multiplying Polynomials	Multiplying Binomials Multiplying Polynomials	Multiplying Polynomials Multiplying Binomials 1 Multiplying Binomials 2	CCSS.Math.Content.HSA-APR.A.1	
Distributive Property	Multiplying Monomials by Polynomials		CCSS.Math.Content.HSA-APR.A.1	
Factoring Polynomials	Factoring Quadratic Expressions Factoring Polynomials 1 Factoring Trinomials With a Common Factor Factoring Difference of Squares	Factoring Polynomials 1 Factoring Polynomials With Two Variables Factoring Difference of Squares 2	CCSS.Math.Content.HSA-SSE.B.3a	
Solving Equations and Inequalities				
Solving Linear Equations	Solving One-Step Equations Two-Step Equations Multi-Step Equation Example Solving Equations With the Distributive Property	One-Step Equations 2-step Equations Multi-Step Equations With Distribution	CCSS.Math.Content.HSA-CED.A.1 CCSS.Math.Content.HSA-REI.A.2 CCSS.Math.Content.HSA-REI.B.3	Predicting Sports Records Sky High Scrapers Kitchen Paraboloids (Quadratics Problem) Agile Algebra: Challenging Equations
Solving Linear Inequalities	One-Step Inequalities Interpreting Inequalities with Examples Multi-Step Inequalities 3	One-Step Inequalities Multi-Step Linear Inequalities	CCSS.Math.Content.HSA-CED.A.1 CCSS.Math.Content.HSA-REI.B.3	
Solving Quadratics by Factoring	Solving a Quadratic by Factoring Recognizing a Perfect Square Quadratic	Solving Quadratics by Factoring Solving Quadratics by Factoring 2	CCSS.Math.Content.HSA-SSE.B.3a CCSS.Math.Content.HSA-CED.A.1 CCSS.Math.Content.HSA-REI.B.4	
Graphing Quadratics	Graphing a Quadratic Function Graphs of Quadratic Functions	Graphs of Quadratic Functions Graphing Parabolas in Vertex Form	CCSS.Math.Content.HSA-APR.B.3	

Graphs and Linear Functions

Word Problems with Linear Equations	Basic Linear Equation Word Problems	Linear Equation Word Problems	CCSS.Math.Content.HSA-CED.A.1	Restaurant Management Problem Temperature Equation

Geometry and Measurement

Scale and Measurement	Interpreting Scale Drawings Constructing Scale Drawings	Interpreting Scale Drawings Constructing Scale Drawings	CCSS.Math.Content.3.MD.B.3 CCSS.Math.Content.5.MD.A.1	Geometry Word Problems from fi.edu Popcorn: Volume of Cylinders Fruit Boxes: Area and Volume Problem
Area, Perimeter, Circumference	Perimeter and Area Basics Finding Dimensions from Area and Perimeter Radius, Diameter and Circumference Area of a Circle	Area of Triangles 1 Area of Triangles 2 Area of Squares and Rectangles Perimeter 1 Perimeter of Squares and Rectangles Radius, Diameter and Circumference Area of a Circle Shaded Areas	CCSS.Math.Content.HSG-MG.A.1	
Pythagorean Theorem	The Pythagorean Theorem Intro Pythagorean Theorem 2	Pythagorean Theorem	CCSS.Math.Content.8.G.B.7	