

Pine Hill Public Schools

Content Area:		Mathematics	
Course Title/ Grade Level:		Math/Grade 7	
Unit 1:	Ratios and Proportional Relationships	Duration:	25 days
Unit 2:	Rational Numbers	Duration:	31 days
Unit 3:	Expressions and Equations	Duration:	23 days
Unit 4:	Geometry	Duration:	45 days
Unit 5:	Statistics	Duration:	19 days
Unit 6:	Probability	Duration:	23 days
BOE Approval Date:		August 28, 2012	

Pine Hill Public Schools Mathematics Curriculum	
Unit Title: Ratios and Proportional Relationships	Unit 1

Course or Grade Level: 7	Length of Time: 25 days
Pacing	Battery Pre-Assessment administration: 1 day Ratios and Rates: 5 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Proportional Relationships: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Percents: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment
Essential Questions	<ul style="list-style-type: none"> • How do you distinguish the different kinds of rates? • What kinds of real-world relationships are rates? • How can you distinguish relationships that are proportional from relationships that are not proportional? • When is it most convenient to use percentages?
Content	<ul style="list-style-type: none"> • Proportional relationships • Equivalent ratios • Constant of proportionality (unit rate); tables, graphs, equations, diagrams, verbal descriptions • Multi-step problems (ratio, percent) • Scale Drawings • Interest • Markups and markdowns, percent of change
Skills	<ul style="list-style-type: none"> • Recognize proportional relationship • Represent proportional relationships in a variety of ways • Decide (proportional relationships) • Identify constant of proportionality • Explain location of a point (x,y) • Solve (multi-step problems) • Compute unit rates, actual lengths/areas for scale drawings • Reproduce a scale drawing (at a different scale)
Assessments	<ul style="list-style-type: none"> • Homework • Classwork • Quizzes • Battery Pre-Assessment • Topic Tests # 1-3
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Readiness assessments to generate study plans, as necessary • Readiness lessons to address weaknesses in prior knowledge, as necessary • Lesson interventions to address weaknesses throughout the units, as necessary • “Help Me Solve This” in MathXL • Lesson materials available online in both English and Spanish • Homework-Individualized to needs of student • Enrichment activities available as needed
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy
Global Awareness , Cultural Diversity & 21st Century Skills	Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21 st Century Skills: Problem Solving <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability

Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMthUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)
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Common Core State Standards

Domain: Ratios and Proportional Relationships

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

[CCSS.Math.Content.7.RP.A.1](#) Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*

[CCSS.Math.Content.7.RP.A.2](#) Recognize and represent proportional relationships between quantities.

- [CCSS.Math.Content.7.RP.A.2a](#) Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- [CCSS.Math.Content.7.RP.A.2b](#) Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- [CCSS.Math.Content.7.RP.A.2c](#) Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.*
- [CCSS.Math.Content.7.RP.A.2d](#) Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

[CCSS.Math.Content.7.RP.A.3](#) Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Domain: The Number System

Cluster: Apply and extend previous understandings of operations with fractions.

[CCSS.Math.Content.7.NS.A.3](#) Solve real-world and mathematical problems involving the four operations with rational numbers.

Domain: Geometry

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

[CCSS.Math.Content.7.G.A.1](#) Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Math 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.

**Pine Hill Public Schools
Mathematics Curriculum**

Unit Title: Rational Numbers		Unit 2
Course or Grade Level: 7		Length of Time: 31 Days
Pacing	Adding and Subtracting Rational Numbers: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Multiplying and Dividing Rational Numbers: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Decimals and Percent: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Benchmark I Review: 1 day Benchmark I administration: 1 day	
Essential Questions	<ul style="list-style-type: none"> • What are the different types of rational numbers? • What kinds of problems can you solve by adding and subtracting the different types of rational numbers? • What models and relationships help you make sense of multiplying and dividing positive and negative rational numbers? • Fractions, decimals, and percents – when is it most helpful to use which representation? 	
Content	<ul style="list-style-type: none"> • All operations of positive and negative numbers • Equivalent forms (rational numbers and expressions) • Opposite quantities • Absolute value • Properties of operations • Mental computation strategies • Estimation strategies • Terminating and repeating decimals • Mental computation strategies 	
Skills	<ul style="list-style-type: none"> • Add, subtract, multiply and divide rational numbers • Describe opposite quantities • Understand positive or negative direction • Show and understand additive inverse • Interpret sums in context • Show and apply absolute value in context • Understand and develop rules for multiplying and dividing signed numbers • Apply properties of operations as strategies • Solve with and without context • Assess reasonableness of answers 	
Assessments	<ul style="list-style-type: none"> • Homework • Classwork • Quizzes • Topics Tests # 4-6 • Benchmark Test I 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Readiness assessments to generate study plans, as necessary • Readiness lessons to address weaknesses in prior knowledge, as necessary • Lesson interventions to address weaknesses throughout the units, as necessary • “Help Me Solve This” in MathXL • Lesson materials available online in both English and Spanish • Homework-Individualized to needs of student • Enrichment activities available as needed 	

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy
Global Awareness , Cultural Diversity & 21st Century Skills	<p>Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21st Century Skills: Problem Solving</p> <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability
Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMathUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)

Common Core State Standards

Domain: The Number System

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

[CCSS.Math.Content.7.NS.A.1](#) Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

- [CCSS.Math.Content.7.NS.A.1a](#) Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*
- [CCSS.Math.Content.7.NS.A.1b](#) Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
- [CCSS.Math.Content.7.NS.A.1c](#) Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- [CCSS.Math.Content.7.NS.A.1d](#) Apply properties of operations as strategies to add and subtract rational numbers.

[CCSS.Math.Content.7.NS.A.2](#) Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

- [CCSS.Math.Content.7.NS.A.2a](#) Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
- [CCSS.Math.Content.7.NS.A.2b](#) Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
- [CCSS.Math.Content.7.NS.A.2c](#) Apply properties of operations as strategies to multiply and divide rational numbers.
- [CCSS.Math.Content.7.NS.A.2d](#) Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

[CCSS.Math.Content.7.NS.A.3](#) Solve real-world and mathematical problems involving the four operations with rational numbers.

Domain: Expressions and Equations

Cluster: Use properties of operations to generate equivalent expressions. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

[CCSS.Math.Content.7.EE.A.2](#) Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”*

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

[CCSS.Math.Content.7.EE.B.3](#) Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $1/10$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

Domain: Ratios and Proportional Relationships

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

[CCSS.Math.Content.7.RP.A.3](#) Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Math 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.

**Pine Hill Public Schools
Mathematics Curriculum**

Unit Title: Expressions and Equations

Unit 3

Course or Grade Level: 7

Length of Time: 23 Days

Pacing

Equivalent Expressions: 5 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment
 Equations: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment
 Inequalities: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment
 Benchmark II review/re-teaching: 1 day
 Benchmark II administration: 1 day

Essential Questions

- How does rewriting an expression help you think about a situation in a new way?
- When is it useful to model a relationship with an equation? How does rewriting an equation help you think about the relationship in a new way?
- How can you represent relationships in a world where equations don't always work?

Content

- Variables
- Simple equations
- Simple inequalities
- Algebraic solution
- Arithmetic solution
- Solution set of an inequality
- Properties of operations
- Linear expressions
- Rational coefficients
- Expressions in different forms
- Quantities in a problem are related

Skills

- Use variables
- Construct simple equations and inequalities
- Solve problems in context, simple equations, simple inequalities
- Reason about quantities
- Compare solutions
- Graph and interpret inequalities
- Apply properties of operations
- Factor and extend linear expressions with rational coefficients
- Write an expression in different forms and understand how the quantities in a problem are related

Assessments

- Homework
- Classwork
- Quizzes
- Topics Tests #7-9
- Benchmark Test II

Interventions / differentiated instruction

- Readiness assessments to generate study plans, as necessary
- Readiness lessons to address weaknesses in prior knowledge, as necessary
- Lesson interventions to address weaknesses throughout the units, as necessary
- “Help Me Solve This” in MathXL
- Lesson materials available online in both English and Spanish
- Homework-Individualized to needs of student
- Enrichment activities available as needed

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy
Global Awareness , Cultural Diversity & 21st Century Skills	<p>Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21st Century Skills: Problem Solving</p> <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability
Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMathUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)

Common Core State Standards

Domain: Expressions and Equations

Cluster: Use properties of operations to generate equivalent expressions

[CCSS.Math.Content.7.EE.A.1](#) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

[CCSS.Math.Content.7.EE.A.2](#) Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”*

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

[CCSS.Math.Content.7.EE.B.3](#) Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

[CCSS.Math.Content.7.EE.B.4](#) Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

- [CCSS.Math.Content.7.EE.B.4a](#) Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*
- [CCSS.Math.Content.7.EE.B.4b](#) Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Math 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.
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8. Look for and express regularity in repeated reasoning.

**Pine Hill Public Schools
Mathematics Curriculum**

Unit Title: Geometry		Unit 4
Course or Grade Level: 7		Length of Time: 37 Days
Pacing	<p>Angles: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment</p> <p>Circles: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment</p> <p>2- and 3-Dimensional shapes: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment</p> <p>Surface Area and Volume: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment</p> <p>Benchmark III review/re-teaching: 1 day</p> <p>Benchmark III administration: 1 day</p>	
Essential Questions	<ul style="list-style-type: none"> • Intersecting lines form angles. How can you best describe relationships between those angles? Are some relationships more useful than others in certain situations? • What makes a circle a circle? What does it mean to talk about the size of a circle? • How much information do you need to be able to draw a unique figure? • In what ways can you measure a three-dimensional figure? Are some measurements more useful in certain situations than others? 	
Content	<ul style="list-style-type: none"> • Formulas – area of a circle, circumference of a circle • Relationship between circumference and area of a circle • Geometric conditions (points, line segments, angles, parallelism, congruence, and perpendicularity) • Plane sections of three-dimensional figures • Angle relationships – supplementary, complementary, vertical, adjacent • Area – triangles, quadrilaterals, polygons • Volume – cubes, right prisms • Surface Area – Cubes, right prisms 	
Skills	<ul style="list-style-type: none"> • Know and develop formulas • Solve problems using formulas • Give/derive informally the relationship between circumference and area of a circle • Solve with and without context • Draw and construct geometric shapes with given conditions • Use a ruler, protractor, and technology • Describe two-dimensional figures that result from plane sections of three-dimensional figures • Write and solve problems using equations to find an unknown angle in a figure 	
Assessments	<ul style="list-style-type: none"> • Homework • Classwork • Quizzes • Topic Tests #10-13 • Benchmark Test III 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Readiness assessments to generate study plans, as necessary • Readiness lessons to address weaknesses in prior knowledge, as necessary • Lesson interventions to address weaknesses throughout the units, as necessary • “Help Me Solve This” in MathXL • Lesson materials available online in both English and Spanish • Homework-Individualized to needs of student • Enrichment activities available as needed 	

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy
Global Awareness , Cultural Diversity & 21st Century Skills	<p>Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21st Century Skills: Problem Solving</p> <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability
Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMathUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)

Common Core State Standards

Domain: Expressions and Equations

Cluster: Use properties of operations to generate equivalent expressions

[CCSS.Math.Content.7.EE.A.1](#) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

[CCSS.Math.Content.7.EE.A.2](#) Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”*

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

[CCSS.Math.Content.7.EE.B.3](#) Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

[CCSS.Math.Content.7.EE.B.4](#) Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

- [CCSS.Math.Content.7.EE.B.4a](#) Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

[CCSS.Math.Content.7.EE.B.4b](#) Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Math 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.
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8. Look for and express regularity in repeated reasoning.

Pine Hill Public Schools Mathematics Curriculum	
Unit Title: Statistics	Unit 5
Course or Grade Level: 7	Length of Time: 19 Days
Pacing	Sampling: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Comparing Two Populations : 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment
Essential Questions	<ul style="list-style-type: none"> • How can you make conclusions about a large group of people or things without checking every member of the group?
Content	<ul style="list-style-type: none"> • Statistics • Populations (representative) • Samples (representative and random) • Measures of Center • Measures of Variability • Inferences (informal and comparative) • Data • Variation • Data Distribution (variability, center, mean absolute deviation)
Skills	<ul style="list-style-type: none"> • Understand/Use statistics • Examine a sample of a population • Generalize information about a population • Determine if a sample is representative/valid • Use measures of center and measures of variability for numerical data from random samples • Draw informal comparative inferences • Use data from a random sample • Draw inferences about a population • Generate multiple samples of the same size • Gauge the variation in estimates or predictions • Express/Calculate the difference between the centers of two numerical data distributions
Assessments	<ul style="list-style-type: none"> • Homework • Classwork • Quizzes • Topic Tests #14-15
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Readiness assessments to generate study plans, as necessary • Readiness lessons to address weaknesses in prior knowledge, as necessary • Lesson interventions to address weaknesses throughout the units, as necessary • “Help Me Solve This” in MathXL • Lesson materials available online in both English and Spanish • Homework-Individualized to needs of student • Enrichment activities available as needed
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy

Global Awareness , Cultural Diversity & 21st Century Skills	Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21 st Century Skills: Problem Solving <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability
Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMathUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)

Common Core State Standards

Domain: Statistics and Probability

Cluster: Use random sampling to draw inferences about a population

[CCSS.Math.Content.7.SP.A.1](#) Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

[CCSS.Math.Content.7.SP.A.2](#) Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Cluster: Draw informal comparative inferences about two populations

[CCSS.Math.Content.7.SP.B.3](#) Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*

[CCSS.Math.Content.7.SP.B.4](#) Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book*

Math Practices:

1. Make sense of problems and persevere in solving them.
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Unit Title: Probability		Unit 6
Course or Grade Level: 7		Length of Time: 23 Days
Pacing	Probability Concepts: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Compound Events: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Benchmark IV review/re-teaching: 1 day Benchmark IV administration: 1 day End of Year Battery Assessment review/re-teaching: 1 day End of Year Battery Assessment administration: 1 day	
Essential Questions	<ul style="list-style-type: none"> • How do you measure the probability of an event? Can you use probability to predict future events? • How confident can you be in your predictions? • How do you measure the probability of more than one event? Can you use probability to predict future events? How confident can you be in your predictions? 	
Cont	<ul style="list-style-type: none"> • Probability Models (uniform and non-uniform) • Compound Events • Frequencies • Outcomes • Probability of a chance event • Relative Frequency • Organized List • Tables • Tree Diagram • Simulation • Sample Space 	
Skills	<ul style="list-style-type: none"> • Develop/Use uniform and non-uniform probability models • Find probabilities of simple events and compound events • Find frequencies for compound events • Compare probabilities from a model to observed frequencies • Explain possible sources of the discrepancy between the model and observed frequencies • Observe frequencies in data • Understand probability of a chance event is a number between 0 and 1 • Understand probability of a compound event is the fraction of outcomes in the sample space • Predict approximate relative frequency • Represent sample spaces for compound events using various methods • Design/Use simulation 	
Assessments	<ul style="list-style-type: none"> • Homework • Classwork • Quizzes • Topic Tests #16-17 • Benchmark Test IV • End of Year Battery Assessment 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Readiness assessments to generate study plans, as necessary • Readiness lessons to address weaknesses in prior knowledge, as necessary • Lesson interventions to address weaknesses throughout the units, as necessary • “Help Me Solve This” in MathXL • Lesson materials available online in both English and Spanish 	

	<ul style="list-style-type: none"> • Homework-Individualized to needs of student • Enrichment activities available as needed
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Online Technology Tools • Math Literacy-“Close and Check” in Student Companion Journal • Financial Literacy
Global Awareness , Cultural Diversity & 21st Century Skills	<p>Global Awareness: Word Problems related to global topics when applicable</p> <p>Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse</p> <p>21st Century Skills: Problem Solving</p> <ul style="list-style-type: none"> • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration • Flexibility and Adaptability
Lesson resources / activities	<ul style="list-style-type: none"> • www.MyMathUniverse.com • Online tools/Manipulatives • Student Companion Book • Homework Book and Assessments(Math XL)

Common Core State Standards

Domain: Statistics and Probability

Cluster: Investigate chance processes and develop, use, and evaluate probability models.

[CCSS.Math.Content.7.SP.C.5](#) Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

[CCSS.Math.Content.7.SP.C.6](#) Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

[CCSS.Math.Content.7.SP.C.7](#) Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

- [CCSS.Math.Content.7.SP.C.7a](#) Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*
- [CCSS.Math.Content.7.SP.C.7b](#) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

[CCSS.Math.Content.7.SP.C.8](#) Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

- [CCSS.Math.Content.7.SP.C.8a](#) Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
- [CCSS.Math.Content.7.SP.C.8b](#) Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.
- [CCSS.Math.Content.7.SP.C.8c](#) Design and use a simulation to generate frequencies for compound events. *For example,*

use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

Math Practices:

Make sense of problems and persevere in solving them.

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.

Revised: August 27, 2013