

# Pine Hill Public Schools

<b>Content Area:</b>		<b>Mathematics</b>	
<b>Course Title/ Grade Level:</b>		<b>Math/Grade 6</b>	
<b>Unit 1:</b>	<b>Expressions and Equations</b>	<b>Duration:</b>	<b>40 days</b>
<b>Unit 2:</b>	<b>Number System Part 1</b>	<b>Duration:</b>	<b>16 days</b>
<b>Unit 3:</b>	<b>Number System Part 2</b>	<b>Duration:</b>	<b>30 days</b>
<b>Unit 4:</b>	<b>Ratios and Proportional Relationships</b>	<b>Duration:</b>	<b>28 days</b>
<b>Unit 5:</b>	<b>Geometry</b>	<b>Duration:</b>	<b>18 days</b>
<b>Unit 6:</b>	<b>Statistics</b>	<b>Duration:</b>	<b>22 days</b>
<b>Date Created or Revised:</b>		<b>6/18/13</b>	
<b>BOE Approval Date:</b>		<b>8/27/2013</b>	

**Pine Hill Public Schools  
Mathematics Curriculum**

**Unit Title:** Expressions and Equations

**Unit 1**

**Course or Grade Level:** 6

**Length of Time:** 40 days

<b>Pacing</b>	<p>Battery Pre-Assessment review/re-teaching: 1 day            Battery Pre-Assessment administration: 1 day            Variables and Expressions: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment            Equivalent Expressions: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment            Equations and Inequalities: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment            Two-Variable Relationships: 5 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment            Benchmark I review/re-teaching: 1 day            Benchmark I administration: 1 day</p>
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>• What is the power of mathematical expressions?</li> <li>• Why are properties useful?</li> <li>• How can you represent numerical relationships, and what is the purpose of doing so?</li> <li>• Why is it necessary to have more than one variable in an expression?</li> </ul>
<b>Content</b>	<ul style="list-style-type: none"> <li>• Expressions</li> <li>• Mathematical terms (sum, term, product, factor, quotient, coefficient)</li> <li>• Order of Operations</li> <li>• Properties of Operations</li> <li>• Equivalent Expressions</li> <li>• Problems</li> <li>• Equations</li> <li>• Variables</li> <li>• Dependent and Independent Variable</li> <li>• Graph/Table</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Write expressions and equations</li> <li>• Read expressions</li> <li>• Evaluate expressions</li> <li>• Identify mathematical terms</li> <li>• Perform order of operations</li> <li>• Apply properties of operations</li> <li>• Generate equivalent expressions</li> <li>• Solve equations</li> <li>• Solve real-world and mathematical problems</li> <li>• Use variables</li> <li>• Represent dependent and independent variables</li> <li>• Use graphs and tables</li> </ul>
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Classwork</li> <li>• Quizzes</li> <li>• Battery Pre-Assessment</li> <li>• Topics Tests # 1-4</li> <li>• Benchmark Test I</li> </ul>

<b>Interventions / differentiated instruction</b>	<ul style="list-style-type: none"> <li>• Readiness assessments to generate study plans, as necessary</li> <li>• Readiness lessons to address weaknesses in prior knowledge, as necessary</li> <li>• Lesson interventions to address weaknesses throughout the units, as necessary</li> <li>• “Help Me Solve This” in MathXL</li> <li>• Lesson materials available online in both English and Spanish</li> <li>• Homework-Individualized to needs of student</li> <li>• Enrichment activities available as needed</li> </ul>
<b>Inter-disciplinary Connections</b>	<ul style="list-style-type: none"> <li>• Online Technology Tools</li> <li>• Math Literacy-“Close and Check” in Student Companion Journal</li> <li>• Financial Literacy</li> </ul>
<b>Global Awareness , Cultural Diversity &amp; 21<sup>st</sup> Century Skills</b>	<p>Global Awareness: Word Problems related to global topics when applicable  Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse  21<sup>st</sup> Century Skills: Problem Solving</p> <ul style="list-style-type: none"> <li>• Creativity and Innovation</li> <li>• Critical Thinking and Problem Solving</li> <li>• Communication and Collaboration</li> <li>• Flexibility and Adaptability</li> </ul>
<b>Lesson resources / activities</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.MyMathUniverse.com">www.MyMathUniverse.com</a></li> <li>• Online tools/Manipulatives</li> <li>• Student Companion Book</li> <li>• Homework Book and Assessments(Math XL)</li> </ul>

### Common Core State Standards

#### Domain: Expressions and Equations

#### Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions

[CCSS.Math.Content.6.EE.A.1](#) Write and evaluate numerical expressions involving whole-number exponents.

[CCSS.Math.Content.6.EE.A.2](#) Write, read, and evaluate expressions in which letters stand for numbers.

- [CCSS.Math.Content.6.EE.A.2a](#) Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation “Subtract y from 5” as  $5 - y$ .*
- [CCSS.Math.Content.6.EE.A.2b](#) Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression  $2(8 + 7)$  as a product of two factors; view  $(8 + 7)$  as both a single entity and a sum of two terms.*
- [CCSS.Math.Content.6.EE.A.1,2c](#) Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas  $V = s^3$  and  $A = 6s^2$  to find the volume and surface area of a cube with sides of length  $s = 1/2$ .*

[CCSS.Math.Content.6.EE.A.3](#) Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression  $3(2 + x)$  to produce the equivalent expression  $6 + 3x$ ; apply the distributive property to the expression  $24x + 18y$  to produce the equivalent expression  $6(4x + 3y)$ ; apply properties of operations to  $y + y + y$  to produce the equivalent expression  $3y$ .*

[CCSS.Math.Content.6.EE.A.4](#) Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions  $y + y + y$  and  $3y$  are equivalent because they name the same number regardless of which number  $y$  stands for..*

### **Cluster: Reason about and solve one-variable equations and inequalities**

[CCSS.Math.Content.6.EE.B.5](#) Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

[CCSS.Math.Content.6.EE.B.6](#) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

[CCSS.Math.Content.6.EE.B.7](#) Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

[CCSS.Math.Content.6.EE.B.8](#) Write an inequality of the form  $x > c$  or  $x < c$  to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form  $x > c$  or  $x < c$  have infinitely many solutions; represent solutions of such inequalities on number line diagrams

### **Cluster: Represent and analyze quantitative relationships between dependent and independent variables.**

[CCSS.Math.Content.6.EE.C.9](#) Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation  $d = 65t$  to represent the relationship between distance and time.

### **Domain: The Number System**

#### **Cluster: Compute fluently with multi-digit numbers and find common factors and multiples.**

[CCSS.Math.Content.6.NS.B.4](#) Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express  $36 + 8$  as  $4(9 + 2)$ .*

#### **Cluster: Apply and extend previous understandings of numbers to the system of rational numbers.**

[CCSS.Math.Content.6.NS.C.8](#) Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate

#### **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**

<b>Unit Title:</b> Number System, Part 1		<b>Unit 2</b>
<b>Course or Grade Level:</b> 6		<b>Length of Time:</b> 16 Days
<b>Pacing</b>	Multiplying Fractions: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Dividing Fractions: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment	
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>• What is a fraction of a fraction? Why does it matter?</li> <li>• How is dividing by a fraction like dividing by a whole number? How is it different?</li> <li>• How can the meaning of division be extended from whole numbers to fractions?</li> </ul>	
<b>Content</b>	<ul style="list-style-type: none"> <li>• Multiplication of Fractions</li> <li>• Division of Fractions</li> </ul>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Compute products of fractions</li> <li>• Interpret products of fractions</li> <li>• Compute quotients of fractions</li> <li>• Interpret quotients of fractions</li> <li>• Solve word problems involving multiplication and division of fractions</li> <li>• Represent problems using models</li> </ul>	
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Classwork</li> <li>• Quizzes</li> <li>• Topics # 5-6 Tests</li> </ul>	
<b>Interventions / differentiated instruction</b>	<ul style="list-style-type: none"> <li>• Readiness assessments to generate study plans, as necessary</li> <li>• Readiness lessons to address weaknesses in prior knowledge, as necessary</li> <li>• Lesson interventions to address weaknesses throughout the units, as necessary</li> <li>• “Help Me Solve This” in MathXL</li> <li>• Lesson materials available online in both English and Spanish</li> <li>• Homework-Individualized to needs of student</li> <li>• Enrichment activities available as needed</li> </ul>	
<b>Inter-disciplinary Connections</b>	<ul style="list-style-type: none"> <li>• Online technology tools</li> <li>• Math literacy-“Close and Check” in Student Companion Journal</li> <li>• Financial Literacy</li> </ul>	
<b>Global Awareness , Cultural Diversity &amp; 21<sup>st</sup> Century Skills</b>	Global Awareness: Word Problems related to global topics when applicable Cultural Diversity: Understanding by Design Hosts/Characters in Word Problems are diverse 21 <sup>st</sup> Century Skills: Problem Solving <ul style="list-style-type: none"> <li>• Creativity and Innovation</li> <li>• Critical Thinking and Problem Solving</li> <li>• Communication and Collaboration</li> <li>• Flexibility and Adaptability</li> </ul>	
<b>Lesson resources / activities</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.MyMathUniverse.com">www.MyMathUniverse.com</a></li> <li>• Online tools/Manipulatives</li> <li>• Student Companion Book</li> <li>• Homework Book and Assessments(Math XL)</li> </ul>	

## Common Core State Standards

### Domain: The Number System (6.NS)

**Cluster:** Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

**CCSS.Math.Content.6.NS.A.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for  $(2/3) \div (3/4)$  and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that  $(2/3) \div (3/4) = 8/9$  because  $3/4$  of  $8/9$  is  $2/3$ . (In general,  $(a/b) \div (c/d) = ad/bc$ .) How much chocolate will each person get if 3 people share  $1/2$  lb of chocolate equally? How many  $3/4$ -cup servings are in  $2/3$  of a cup of yogurt? How wide is a rectangular strip of land with length  $3/4$  mi and area  $1/2$  square mi?*

### Domain: Expressions and Equations (6.EE)

**Cluster:** Reason about and solve one-variable equations and inequalities.

**CCSS.Math.Content.6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

#### 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:** Number System, Part 2

**Unit 3**

**Course or Grade Level:** 6

**Length of Time:** 30 Days

**Pacing**

Fluency with Decimals: 8 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment  
 Integers: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment  
 Rational Numbers: 7 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 can you extend the use of place value to decimal operations?
  - How is working with decimals easier than working with fractions?
  - What does it mean to have less than nothing?
  - Why do we need numbers other than positive whole numbers?
  - How do you know when to use positive numbers and when to use negative numbers?

- Content**
- Decimal Operations
  - Multi-digit Number Division
  - Decimals and Fractions
  - Integers
  - Absolute Value
  - Rational Numbers
  - Coordinate Plane
  - Polygons in the Coordinate Plane

- Skills**
- Use a standard algorithm to add, subtract, multiply, and divide multi-digit decimals
  - Understand rational numbers as points on numbers lines, ordered pairs as locations in the coordinate plane, and absolute value as distance on the number line
  - Represent points on number lines and the coordinate plane
  - Recognize opposites
  - Find/Position points on number lines and coordinate planes
  - Order rational numbers
  - Write and explain statements of order/real world context
  - Interpret relative position on number line

- Assessments**
- Homework
  - Classwork
  - Quizzes
  - Topics # 7-9 Tests
  - 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

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

### Common Core State Standards

#### Domain: The Number System (6.NS)

#### Cluster: Compute fluently with multi-digit numbers and find common factors and multiples.

[CCSS.Math.Content.6.NS.B.2](#) Fluently divide multi-digit numbers using the standard algorithm.

[CCSS.Math.Content.6.NS.B.3](#) Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

#### Cluster: Apply and extend previous understandings of numbers to the system of rational numbers.

[CCSS.Math.Content.6.NS.C.5](#) Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

[CCSS.Math.Content.6.NS.C.6](#) Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

- [CCSS.Math.Content.6.NS.C.6a](#) Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g.,  $-(-3) = 3$ , and that 0 is its own opposite.
- [CCSS.Math.Content.6.NS.C.6b](#) Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
- [CCSS.Math.Content.6.NS.C.6c](#) Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

[CCSS.Math.Content.6.NS.C.7](#) Understand ordering and absolute value of rational numbers.

- [CCSS.Math.Content.6.NS.C.7a](#) Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret  $-3 > -7$  as a statement that  $-3$  is located to the right of  $-7$  on a number line oriented from left to right.*

- [CCSS.Math.Content.6.NS.C.7b](#) Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write  $-3^{\circ}\text{C} > -7^{\circ}\text{C}$  to express the fact that  $-3^{\circ}\text{C}$  is warmer than  $-7^{\circ}\text{C}$ .*
- [CCSS.Math.Content.6.NS.C.7c](#) Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of  $-30$  dollars, write  $|-30| = 30$  to describe the size of the debt in dollars.*
- [CCSS.Math.Content.6.NS.C.7d](#) Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than  $-30$  dollars represents a debt greater than 30 dollars.*

[CCSS.Math.Content.6.NS.C.8](#) Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

**Domain: Expressions and Equations (6.EE)**

**Cluster: Reason about and solve one-variable equations and inequalities.**

[CCSS.Math.Content.6.EE.B.7](#) Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

**Domain: Geometry(6.G)**

**Cluster: Solve real-world and mathematical problems involving area, surface area, and volume.**

[CCSS.Math.Content.6.G.A.3](#) Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

**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**

<b>Unit Title:</b> Ratios and Proportional Relationships		<b>Unit 4</b>
<b>Course or Grade Level:</b> 6		<b>Length of Time:</b> 28 Days
<b>Pacing</b>	Ratios: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Rates: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Ratio Reasoning: 6 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Benchmark III review/re-teaching: 1 day Benchmark III administration: 1 day	
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>• What math models can you use for making comparisons?</li> <li>• Which models are helpful in which situations?</li> </ul>	
<b>Content</b>	<ul style="list-style-type: none"> <li>• Ratios</li> <li>• Equivalent Ratios</li> <li>• Ratios as Fractions</li> <li>• Ratios as Decimals</li> <li>• Unit Rate</li> <li>• Speed</li> <li>• Measurement units</li> <li>• Proportionality</li> <li>• Percent</li> </ul>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Understand the concept of a ratio and a unit rate</li> <li>• Describe ratio relationship</li> <li>• Use ratio and rate reasoning language</li> <li>• Solve ratio and rate problems</li> <li>• Make tables of equivalent ratios</li> <li>• Apply concepts of ratios to speed</li> <li>• Plot pairs of values on the coordinate grid</li> <li>• Find the percent of a quantity as a rate per 100</li> <li>• Solve problems find the whole, given a part and a percent</li> <li>• Convert measurement units</li> <li>• Recognize proportionality</li> </ul>	
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Classwork</li> <li>• Quizzes</li> <li>• Topics #10-12 Tests</li> <li>• Benchmark Test III</li> <li>•</li> </ul>	
<b>Interventions / differentiated instruction</b>	<ul style="list-style-type: none"> <li>• Readiness assessments to generate study plans, as necessary</li> <li>• Readiness lessons to address weaknesses in prior knowledge, as necessary</li> <li>• Lesson interventions to address weaknesses throughout the units, as necessary</li> <li>• “Help Me Solve This” in MathXL</li> <li>• Lesson materials available online in both English and Spanish</li> <li>• Homework-Individualized to needs of student</li> <li>• Enrichment activities available as needed</li> </ul>	

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

### Common Core State Standards

#### Domain: Ratios and Proportional Relationships(6.RP)

**Cluster: Understand ratio concepts and use ratio reasoning to solve problems.**

[CCSS.Math.Content.6.RP.A.1](#) Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”*

[CCSS.Math.Content.6.RP.A.2](#) Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship. *For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is  $3/4$  cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”<sup>1</sup>*

[CCSS.Math.Content.6.RP.A.3](#) Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

- [CCSS.Math.Content.6.RP.A.3a](#) Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- [CCSS.Math.Content.6.RP.A.3b](#) Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*
- [CCSS.Math.Content.6.RP.A.3c](#) Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
- [CCSS.Math.Content.6.RP.A.3d](#) Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

#### Domain: Expressions and Equations

**Cluster: Represent and analyze quantitative relationships between dependent and independent variables.**

[CCSS.Math.Content.6.EE.C.9](#) Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent

variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation  $d = 65t$  to represent the relationship between distance and time.

**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**

<b>Unit Title:</b> Geometry		<b>Unit 5</b>
<b>Course or Grade Level:</b> 6		<b>Length of Time:</b> 18 Days
<b>Pacing</b>	Area: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment Surface Area and Volume: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment	
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>• How can you rearrange shapes to make other shapes, and why would you want to?</li> <li>• What is the relationship between the net of a 3-D figure and the figure itself?</li> <li>• How do changes in a figure's surface area impact its volume?</li> </ul>	
<b>Content</b>	<ul style="list-style-type: none"> <li>• Area of Polygons</li> <li>• Triangles</li> <li>• Quadrilaterals</li> <li>• Three-Dimensional Figures</li> <li>• Nets</li> <li>• Surface Area</li> <li>• Volume</li> </ul>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Determine area of polygons</li> <li>• Compose shapes into rectangles</li> <li>• Decompose shapes into triangles and other shapes</li> <li>• Apply formulas to solve problems</li> <li>• Analyze the nets of 3-D figures</li> <li>• Calculate surface area based on nets of given figures</li> <li>• Calculate volume of 3-D shapes</li> </ul>	
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Classwork</li> <li>• Quizzes</li> <li>• Topics #13-14 Tests</li> </ul>	
<b>Interventions / differentiated instruction</b>	<ul style="list-style-type: none"> <li>• Readiness assessments to generate study plans, as necessary</li> <li>• Readiness lessons to address weaknesses in prior knowledge, as necessary</li> <li>• Lesson interventions to address weaknesses throughout the units, as necessary</li> <li>• "Help Me Solve This" in MathXL</li> <li>• Lesson materials available online in both English and Spanish</li> <li>• Homework-Individualized to needs of student</li> <li>• Enrichment activities available as needed</li> </ul>	
<b>Inter-disciplinary Connections</b>	<ul style="list-style-type: none"> <li>• Online technology tools</li> <li>• Math literacy-"Close and Check" in Student Companion Journal</li> <li>• Financial Literacy</li> </ul>	
<b>Global Awareness , Cultural Diversity &amp; 21<sup>st</sup> Century</b>	<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>21<sup>st</sup> Century Skills: Problem Solving</p> <ul style="list-style-type: none"> <li>• Creativity and Innovation</li> <li>• Critical Thinking and Problem Solving</li> <li>• Communication and Collaboration</li> </ul>	

<b>Skills</b>	<ul style="list-style-type: none"> <li>• Flexibility and Adaptability</li> </ul>
<b>Lesson resources / activities</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.MyMathUniverse.com">www.MyMathUniverse.com</a></li> <li>• Online tools/Manipulatives</li> <li>• Student Companion Book</li> <li>• Homework Book and Assessments(Math XL)</li> </ul>
<b>Common Core State Standards</b>	
<b>Domain: Geometry</b>	
<b>Cluster: Solve real-world problems and mathematical problems involving area, surface area, and volume.</b>	
<p><a href="#">CCSS.Math.Content.6.G.A.1</a> Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p>	
<p><a href="#">CCSS.Math.Content.6.G.A.2</a> Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas <math>V = l w h</math> and <math>V = b h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p>	
<p><a href="#">CCSS.Math.Content.6.G.A.4</a> Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	
<p><b>Math Practices:</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively.</li> <li>3. Construct viable arguments and critique the reasoning of others.</li> <li>4. Model with mathematics.</li> <li>5. Use appropriate tools strategically.</li> <li>6. Attend to precision.</li> <li>7. Look for and make use of structure.</li> <li>8. Look for and express regularity in repeated reasoning.</li> </ol>	

**Pine Hill Public Schools  
Mathematics Curriculum**

**Unit Title:** Statistics

**Unit 6**

**Course or Grade Level:** 6

**Length of Time:** 22 Days

**Pacing**

Data Displays: 7 instructional days + 1 day for re-teaching/enrichment + 1 day for summative assessment  
 Measures of Center and Variation: 7 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**

- What kinds of data displays show how things vary?
- What kinds of data displays hide how things vary?
- When would you use each kind of data display?
- What can you do with data to make it more useful?
- How does what you are looking for determine how data is best used and represented?

**Content**

- Statistical questions
- Dot Plots
- Histograms
- Box Plots
- Displays of data
- Central tendency (mean, median)
- Variability
- Interquartile Range
- Absolute Deviation

**Skills**

- Recognize measure of center and measure of variation
- Summarize numerical data sets
- Report observations
- Describe attributes
- Give/Find measure of center and measure of variation
- Describe overall pattern
- Relate choice of measure to shape of the data
- Recognize a statistical question
- Understand data distribution is described by its center, spread, and overall shape
- Display numerical data

**Assessments**

- Homework
- Classwork
- Quizzes
- Topics #15-16 Tests
- Benchmark Test IV
- End of Year Battery Assessment

**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
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<b>Inter-disciplinary Connections</b>	<ul style="list-style-type: none"> <li>• Online technology tools</li> <li>• Math literacy-“Close and Check” in Student Companion Journal</li> <li>• Financial Literacy</li> </ul>
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<b>Lesson resources / activities</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.MyMathUniverse.com">www.MyMathUniverse.com</a></li> <li>• Online tools/Manipulatives</li> <li>• Student Companion Book</li> <li>• Homework Book and Assessments(Math XL)</li> </ul>

### Common Core State Standards

#### Domain: Statistics and Probability

#### Cluster: Develop understanding of statistical variability

[CCSS.Math.Content.6.SP.A.1](#) Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.*

[CCSS.Math.Content.6.SP.A.2](#) Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

[CCSS.Math.Content.6.SP.A.3](#) Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

#### Cluster: Summarize and describe distributions.

[CCSS.Math.Content.6.SP.B.4](#) Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

[CCSS.Math.Content.6.SP.B.5](#) Summarize numerical data sets in relation to their context, such as by:

- [CCSS.Math.Content.6.SP.B.5a](#) Reporting the number of observations.
- [CCSS.Math.Content.6.SP.B.5b](#) Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
- [CCSS.Math.Content.6.SP.B.5c](#) Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
- [CCSS.Math.Content.6.SP.B.5d](#) Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

#### Math Practices:

Make sense of problems and persevere in solving them.

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