Clinton-Glen Gardner School District

Curriculum Management System

Mathematics

Grade 7

July 2013

Board Approved: August 21, 2013

Table of Contents

CLINTON-GLEN GARDNER SCHOOL DISTRICT

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Acknowledgments

During the 2012-2013 school year, the Clinton-Glen Gardner School District continued working with the curriculum consortium we developed with seven other North-Voorhees sending districts, including Califon, Clinton Township, Hampton, High Bridge, Lebanon Borough, Lebanon Township, and Union Township. This consortium represents a collaborative effort that created an opportunity to bring together math expertise from each of the participating districts. The following individuals are acknowledged for their assistance in the preparation of this Curriculum Management System:

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Clinton-Glen Gardner School District

Mission

The mission of Clinton Public School is to inspire our students to become contributing members of society who are independent, innovative, life-time learners equipped with the necessary skills to meet the demands of our ever-changing world.

Philosophy

The economy in which graduates of our schools will seek employment is more competitive than ever and is rapidly changing in response to advances in technology. To compete in today's global, information-based economy, students must be able to solve real problems, reason effectively, and make logical connections. In this changing world those who have a good understanding of mathematics will have many opportunities and doors open to them throughout their lives. Today's workforce requires mathematical knowledge and skills in areas such as data analysis, problem-solving, pattern recognition, statistics and probability; therefore, our school's curriculum must prepare students for these expectations.

The Clinton-Glen Gardner School is committed to providing all students with the opportunity and the support necessary to learn significant mathematics with depth and understanding. To that end, students will engage in a wide variety of learning activities designed to develop their ability to reason and solve complex problems. Calculators, computers, manipulatives, technology, and the Internet will be used as tools to enhance learning and assist in problem solving. Group work, projects, literature, and interdisciplinary activities will make mathematics more meaningful and aid understanding. Classroom instruction will be designed to meet the learning needs of all children and will reflect a variety of learning styles.

The math curriculum fosters students who:
- Develop computational, conceptual, problem-solving and reasoning skills
- Demonstrate their understanding of mathematical concepts based on higher levels of mathematical thought
- Use technology and other tools as an integral part of solving mathematical problems

A note about Common Core State Standards for Mathematics.

The Common Core State Standards for Mathematics were adopted in 2010. The standards referenced in this curriculum guide refer to the progress indicators in these newly adopted standards. A complete copy of the Common Core State Standards for Mathematics may be found at:

http://www.corestandards.org/the-standards/mathematics (by grade level)

http://www.corestandards.org/the-standards (in their entirety)

Mathematics: Standards for Mathematical Practice Interpreted for Kindergarten Through Second Grade

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with long standing importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately) ad productive disposition (habitual inclination to see mathematics as sensible, useful and worthwhile, coupled with a belief in diligence and one's own efficacy).

The Standards for Mathematical Practice are:

1. **MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM.**
   As you look at or read a mathematical problem, think about what it means and what it is asking you to do. Also think about what would be a good way to start solving it. Ask yourself:

- What does the problem tell me?
  - What information is given?
  - What are the relationships among parts of the problem?
  - What is the goal of solving the problem?
  - Have I seen other problems similar to this one?
- What does the problem ask me to find out (solve)?
- How should I start solving the problem?
- Can pictures or a drawing help me to figure out how to solve the problem?
- Does how I'm answering the problem make sense with what the problem is asking?
- What are some other ways to solve the problem?
- Can I use another way to check if my answer is correct?
- Does my answer make sense?

2. **REASON ABSTRACTLY AND QUANTITATIVELY.**
Understand the relationship of numbers and number problems and represent them using pictures, drawings or symbols. Talk about the parts of number problems using pictures, drawings or symbols as well as how the pictures, drawings or symbols represent and help explain the problem. Show how using different numbers or operations in the same problem changes it.

3. **CONSTRUCT VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS.**
Use objects, drawings, diagrams or actions to construct arguments about math problems with understanding and using appropriate vocabulary to explain the reasoning process. Build a local argument, communicate it with others, justify your reasoning process and respond to the reasoning process someone else uses. Express agreement if both arguments are correct and explain why an argument is flawed if it is.

4. **MODEL WITH MATHEMATICS.**
Apply mathematical skills to everyday life, society, the workplace and other situations; identify important quantities in practical situations; write an equation to describe a situation; revise solutions; use tools such as diagrams, two-way tables, graphs, flowcharts and formulas to show relationships; analyze relationships to draw conclusions, interpret results in context and reflect on whether the results make sense.

5. **USE APPROPRIATE TOOLS STRATEGICALLY.**
Identify and make decisions regarding which tool, such as paper and pencil, models, rulers, spreadsheets, etc., to use to help solve mathematical problems as well as know when a tool is not the right one to use. Use technological and other tools to deepen understanding.

6. **ATTEND TO PRECISION.**
Communicate precisely when discussing math incorporating the following:
- Use clear definitions.

- Choose, use and explain symbols correctly, consistently and appropriately.
- Specify units of measure and labels correctly.
- Avoid careless errors.
- Follow formulas to explain thinking to others.

7. **LOOK FOR AND MAKE USE OF STRUCTURE.**
   Look for and identify structure and patterns in mathematics (for example, three and seven more is the same amount as seven and three more, or sort shapes according to their number of sides) and see if the pattern or structure changes.

8. **LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING.**
   Look for repetition in calculations and numeric thinking, such as skip counting. Pay attention to the whole problem and the details and continuously evaluate the accuracy and reasonableness of both intermediate and final answers.

CONNECTING THE STANDARDS FOR MATHEMATICAL PRACTICE TO THE STANDARDS FOR MATHEMATICS CONTENT

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematical instruction. The Standards for Mathematical Content are a balances combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging the mathematical practices. In this respect those content standards, which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit time, resources, innovative energies and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development and student achievement in mathematics.

Grade 7
Mathematics

Scope and Sequence

Quarter I	

Topic: The Number System
I.   Operations with Real Numbers
    a. Integers
      i.   Operations on number line
      ii. Compare and order
      iii. Addition, subtraction, multiplication, division
      iv. Division
    b. Square root
    c. Decimal conversion
    d. Scientific notation
	Topic: Expressions and Equations
	II. Integers and Expressions
	    a. Order of operations
	    b. Algebraic expressions
	    c. Absolute value
	    d. Exponents

Quarter II	

Topic: Expressions and Equations
III. Equations and Inequalities
    a. Variables
    b. Simplifying expressions
    c. Graphing inequalities
	Topic: Ratio and Proportional Relationships
	IV. Applications of Ratio, Proportions and Percents
	    a. Simplest form
	    b. Unit rates
	    c. Proportional relationships
	      i. Test for
	      ii. Represent
	      iii. Interpret
	    d. Percents
	      i. Increase/decrease
	      ii. Mark up/discount
	    e. Interest
	      i. Simple
	      ii. Compound

Quarter III	

Topic: Geometry
V. Geometry
   a. Angles
   b. Area/surface area
   c. Circumference
   d. Volume
   e. Scale drawings
	Topic: Statistics and Probability
	VI. Statistics and Data Analysis
	   a. Measures of central tendency
	   b. Data representations
	   c. Data interpretations

Quarter IV	

Topic: Statistics and Probability
VII. Probability
   a. Events
      i. Simple
      ii. Compound
      iii. Dependent
      iv. Independent
   b. Probability models
   c. Theoretical probability
   d. Experimental probability
   e. Permutation and combination notation	

	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic:** Number Systems/Operations with Real Numbers

Suggested days of Instruction			

Goal 1: All the numbers we use on a daily basis are real numbers. Formulas that contain real numbers can be used to solve real world problems. It is essential to be able to compare, add, subtract, multiply and divide real numbersi n fraction, decimal or percent forms.

Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
5 wks		
1.1. Model operations with integers using a number line. (7.NS.1.b, 7.NS.1.c, 6.NS.6)	**Essential Questions:** How do you compare, add, subtract, multiply and divide real numbers? How can you estimate the square root of a number? What are the rules for adding, subtracting, multiplying, and dividing positive and negative integers? Why is division of "0" undefined?	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, _it must be of equal or better quality and at the same or higher cognitive levels._** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.**
1.2. Compare and order rational numbers. (7.NS.1.b)		
1.3. Add and subtract rational numbers applying properties of operations. (7.NS.1, 7.NS.1.d)	**Conceptual Understandings:** Zero is the only integer that is its own opposite. It is neither positive nor negative.	**Unit Vocabulary:**
1.4. Relate addition/subtraction of rational numbers to movement on a number line. (7.NS.1.b, 7.NS.1.c)	A number and its opposite have the same absolute value. Understanding and being able to follow the "rules" for mathematical calculations is essential to solving real-world problems.	**Assessment Models:** Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction Unit assessment
1.5. Describe circumstances when quantities combine to make 0. (7.NS.1.a)	Division by zero is undefined.	
1.6. Show a number and its opposite have a 0 sum. (7.NS.1.b)		**Opportunities for Differentiation:** Enrichment: Multiply and divide powers with the same base Multiply and divide numbers in scientific notation Raise a power to a power $(a^2)^3$ Raise a product to a power $(4abc)^{-2}$
1.7. Demonstrate the		Remedial Identify prime and composite numbers Find GCF of 2 or more numbers

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Grade 7** **Mathematics**	**Topic:** Number Systems/Operations with Real Numbers
		Goal 1: All the numbers we use on a daily basis are real numbers. Formulas that contain real numbers can be used to solve real world problems. It is essential to be able to compare, add, subtract, multiply and divide real numbersi n fraction, decimal or percent forms.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	relationship between addition and subtraction (subtraction=adding the additive inverse). (7.NS.1.c) 1.8. Multiply and divide rational numbers. (7.NS.2, 7.NS.2.c) 1.9. Apply multiplication knowledge of fractions to rational numbers. (7.NS.2.a) 1.10. Recognize that integers cannot be divided by 0. (7.NS.2.b) 1.11. Solve real-world and mathematical problems involving the four operations with rational numbers. (7.NS.3) 1.12. Find the square root of numbers. (8.EE.2) 1.13. Convert a rational number to a decimal using long		Simplify fractions Write decimals as fractions **Additional Resources:** Integer number lines Algebra tiles/counters Cards Bank registers www.brainpop.com www.khanacademy.com www.nlvm.usu.edu

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic:** Number Systems/Operations with Real Numbers
		Goal 1: All the numbers we use on a daily basis are real numbers. Formulas that contain real numbers can be used to solve real world problems. It is essential to be able to compare, add, subtract, multiply and divide real numbersi n fraction, decimal or percent forms.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	division. (7.NS.2.d)		
	1.14. Write and order numbers in standard and in scientific form. (8.EE.4)		
	1.15. Make sense of problems and persevere in solving them. (MP.1)		
	1.16. Model with mathematics. (MP.4)		
	1.17. Use appropriate tools strategically. (MP.5)		
	1.18. Attend to precision. (MP.6)		
	1.19. Look for and make use of structure. (MP.7)		
	1.20. Determine an individual's responsibility for personal actions and contributions to		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	Topic: **Number Systems/Operations with Real Numbers**
		Goal 1: All the numbers we use on a daily basis are real numbers. Formulas that contain real numbers can be used to solve real world problems. It is essential to be able to compare, add, subtract, multiply and divide real numbersi n fraction, decimal or percent forms.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	group activities. (9.1.8.C.1) 1.21. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3) 1.22. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)		

	Curriculum Management System **Subject/Grade Level:** **Grade 7** **Mathematics**	**Topic:** Integers and Expressions
Suggested days of Instruction		**Goal 2:** Understanding variables and being able to simplify and evaluate variable expressions are essential for future algebra concepts. Understanding and being able to follow the "rules" for mathematical calculations is essential to solving real-world problems. In mathematics and every day life, there are many situations where integers are used. Some examples include temperature, sports such as golf and football, and measuring the elevation of points on Earth or the depth below sea level.
	Objectives / Cluster Concepts / **Cumulative Progress Indicators (CPI's)** **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
4 wks	2.1. Develop a plan for solving a problem including rewriting an expression in different forms. (7.EE.2, 7.EE.3) 2.2. Write and evaluate algebraic expressions. (7.EE.2) 2.3. Use order of operations. (7.EE.1, 7.EE.3) 2.4. Find the absolute value of an integer. (7.EE.3) 2.5. Compare and order integers. (7.EE.3) 2.6. Add, subtract, multiply, and divide integers. (7.EE.3) 2.7. Write and simplify expressions with exponents. (7.EE.2)	**Essential Questions:** Why do we use variables and write algebraic expressions? Why is it useful to represent real-life situations algebraically? Why are multiplication/division (and addition/subtraction) evaluated at the same level? **Conceptual Understandings:** Variables are symbols that take the place of numbers or ranges of numbers. They have different meanings depending on how they are being used. Algebraic expressions can be used to represent real world. Properties are the rules of mathematics. There is an established order in which to perform the various operations (PEMDAS). Zero is the only integer that is its own opposite. It is neither positive nor negative. A number and its opposite have the same absolute value.	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model,** *it must be of equal or better quality and at the same or higher cognitive levels.* **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Unit Vocabulary:** variable, algebraic expression, order of operations (GEMS, PEMDAS), simplify, evaluate, opposites, integers, absolute value, additive inverse, factor, base, exponent, power, Commutative Property, Associative Property, Distributive Property, Identity Property, multiple **Assessment Models:** Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction Unit assessment **Opportunities for Differentiation:**

	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic:** Integers and Expressions
Suggested days of Instruction		**Goal 2:** Understanding variables and being able to simplify and evaluate variable expressions are essential for future algebra concepts. Understanding and being able to follow the "rules" for mathematical calculations is essential to solving real-world problems. In mathematics and every day life, there are many situations where integers are used. Some examples include temperature, sports such as golf and football, and measuring the elevation of points on Earth or the depth below sea level.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	2.8. Solve multi-step problems with positive/negative numbers in any form. (7.EE.3) 2.9. Covert between whole numbers, fractions, percents and decimals. (7.EE.3) 2.10. Determine reasonableness of answers using mental math and estimation. (7.EE.3) 2.11. Identify and use commutative, associative, distributive, and identity properties. (6.EE.3) 2.12. Make sense of problems and persevere in solving them. (MP.1) 2.13. Attend to precision. (MP.6)		Incorporate all real numbers (ie. fractions, decimals) to increase the complexity of the skill **Additional Resources:** Algebra tiles Integer number lines Smartboard www.khanacademy.com www.nlvm.usu.edu

Suggested days of Instruction	**Curriculum Management System** **Subject/Grade Level:** **Grade 7** **Mathematics**	**Topic:** **Integers and Expressions**	
		Goal 2: Understanding variables and being able to simplify and evaluate variable expressions are essential for future algebra concepts. Understanding and being able to follow the "rules" for mathematical calculations is essential to solving real-world problems. In mathematics and every day life, there are many situations where integers are used. Some examples include temperature, sports such as golf and football, and measuring the elevation of points on Earth or the depth below sea level.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	2.14. Look for and make use of structure. (MP.7) 2.15. Look for and express regularity in repeated reasoning. (MP.8) 2.16. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1) 2.17. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1) 2.18. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3)		

Suggested days of Instruction			

	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic: Equations and Inequalities**	
		Goal 3: An equation is a statement that two expressions are equal. Being able to write a one-step or multi-step equation for a real world situation allows one to apply mathematical principles to finding an unknown value. Unknowns exist throughout many fields. In architecture, one may need to apply many geometric formulas to identify the dimensions for constructing a building. Much information in the various science fields is unknown. In chemistry, balancing equations is commonly done. As research is performed, statistics are used to communicate information about these unknowns. Statistics require a strong understanding of mathematics, including the ability to solve one-step and multi-step equations.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
6 wks	3.1. Solve one-step equations by adding, subtracting, multiplying and dividing. (7.EE.4) 3.2. Use variables to represent quantities when constructing equations and inequalities. (7.EE.4) 3.3. Combine like terms. (6.EE.4) 3.4. Simplify algebraic expressions. (6.EE.3, 6.EE.4) 3.5. Solve equations with variables on both sides. (7.EE.3) 3.6. Solve words problems leading to equations of the form px+q=r and p(x+q)=r where p, q and r are rational numbers. (7.EE.4.a)	**Essential Questions:** How do inverse operations help us to solve equations? Why would you simplify both sides of an equation before solving? Why would you represent a real-world situation using an equation? How is solving an inequality the same as solving an equation? How is it different? How does the order of operations aid us in solving a multi-step equation? (differentiated question for enrichment) **Conceptual Understandings:** Equations can be used to represent situations and solve real-world problems. Equations must be balanced. This can be maintained by performing inverse operations to both sides of the equation. An inequality can be graphed on a number line using an open dot to show that the specific number is not included and a closed dot to show it is included. Multiplying or dividing by a negative number when solving an inequality necessitates reversing the inequality sign.	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels.*** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Unit Vocabulary:** equations, expression, solution, isolate, Inverse Operation, term, like term, inequality, graph of an inequality, compound inequality, terminology for <, >, ≤, ≥, formulas, function, coordinate plane, x-axis, y-axis, quadrants, origin, ordered pair, x-coordinate, y-coordinate, linear equation, transformations, translations, image, rotation, reflection, line of reflection, symmetry, dilations, scale factor **Assessment Models:** Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction

	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic:** Equations and Inequalities
Suggested days of Instruction		**Goal 3:** An equation is a statement that two expressions are equal. Being able to write a one-step or multi-step equation for a real world situation allows one to apply mathematical principles to finding an unknown value. Unknowns exist throughout many fields. In architecture, one may need to apply many geometric formulas to identify the dimensions for constructing a building. Much information in the various science fields is unknown. In chemistry, balancing equations is commonly done. As research is performed, statistics are used to communicate information about these unknowns. Statistics require a strong understanding of mathematics, including the ability to solve one-step and multi-step equations.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**

Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
3.7. Compare an algebraic solution to an arithmetic solution. (7.EE.4.a) 3.8. Graph and write inequalities interpreting it in the context of the original problem. (7.EE.4.b) 3.9. Solve one-step inequalities. (7.EE.4.b) 3.10. Solve word problems leading to equations of the form px+q>r or px+q<r where p, q and r are rational numbers. (7.EE.4.b) 3.11. Use formulas to solve problems. (7.EE.3, 7.EE.4.a) 3.12. Reason abstractly and quantitatively. (MP.2)		Unit assessment Cumulative review **Opportunities for Differentiation:** Incorporating all real numbers (ie. fractions, decimals) to increase the complexity of the skill Solve 2 step equations Solve equations with variables on both sides Solve and graph equations with 2 variables Solve two-step inequalities Graph translations, reflections and rotations (8.G.3) **Additional Resources:** Algebra tiles Smartboard www.khanacademy.com www.nlvm.usu.edu

<table>
<tr>
<td rowspan="3" style="writing-mode: vertical">**Suggested days of Instruction**</td>
<td colspan="2">**Curriculum Management System**
Subject/Grade Level:

Grade 7
Mathematics</td>
<td colspan="2">**Topic: Equations and Inequalities**</td>
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<tr>
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<td>**Objectives / Cluster Concepts /**
Cumulative Progress Indicators (CPI's)
The student will be able to:</td>
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<td>3.13. Construct viable arguments and critique the reasoning of others.
(MP.3)

3.14. Look for and make use of structure.
(MP.7)

3.15. Determine an individual's responsibility for personal actions and contributions to group activities.
(9.1.8.C.1)

3.16. Model leadership skills during classroom and extra-curricular activities.
(9.1.8.C.3)

3.17. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills.
(9.1.8.A.1)</td>
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<u>Subject/Grade Level</u>:

Grade 7

Mathematics</td><td colspan="2">Topic: Applications of Ratios, Proportions and Percents</td></tr>
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	Curriculum Management System <u>**Subject/Grade Level**</u>: **Grade 7** **Mathematics**	**Topic: Applications of Ratios, Proportions and Percents**
		<u>**Goal 4:**</u> Comparing and applying rates and proportional reasoning are essential real-world skills. Understanding of ratios and proportions is fundamental to higher levels of math. The application of percent of a number is applied to discount, commission, tax, tip, interest, and mark-up which are skills used in daily life, business, and other academic disciplines. Some examples are the social sciences, population increase, understanding the census, bacterial growth and decay, changing recipes, and building scale models in architecture and construction as well as making predictions based on the results of a sample.
Suggested days of Instruction	**Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's)** **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
7 wks	4.1. Write and express ratios in simplest form. (6.RP.3.a) 4.2. Find unit rates associated with ratios of fractions. (7.RP.1) 4.3. Identify unit rates in a variety of forms (tables, graphs, equations, diagrams, etc.) (7.RP.2.b) 4.4. Recognize and represent proportional relationships between quantities. (7.RP.2) 4.5. Determine proportional relationships by testing for equivalent ratios or graphing on a coordinate plane. (7.RP.2.a) 4.6. Use equations to represent proportional relationships.	**Essential Questions:** How can unit rates help us compare costs? Why is it important to understand the difference between a ratio or a rate? **Conceptual Understandings:** Proportionality involves a relationship in which the ratio of two quantities remains constant as the corresponding values of the quantities change. Unit rates are a way of comparing costs. Discount, tax, tip, commission, interest, and mark-ups require understanding of percentages.	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels.*** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Unit Vocabulary:** rate, ratio, unit rate, conversion factor, dimensional analysis, cross products, percent of change, percent of increase/mark up, percent of decrease/mark down, percent error, proportion, percent proportion, discount, simple interest, compound interest, tax, tip/gratuity, commission, scale, similar figures, constant, proportionality, mortgage, installment loans **Assessment Models:** Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction Hands-on assessment (ie. retail project)

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic:** Applications of Ratios, Proportions and Percents	
		Goal 4: Comparing and applying rates and proportional reasoning are essential real-world skills. Understanding of ratios and proportions is fundamental to higher levels of math. The application of percent of a number is applied to discount, commission, tax, tip, interest, and mark-up which are skills used in daily life, business, and other academic disciplines. Some examples are the social sciences, population increase, understanding the census, bacterial growth and decay, changing recipes, and building scale models in architecture and construction as well as making predictions based on the results of a sample.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	(7.RP.2.c) 4.7. Interpret and explain a graph point of a proportional relationship in terms of the situation. (7.RP.2.d) 4.8. Use dimensional analysis. (7.RP.3) 4.9. Use proportions to solve ratio and percent problems. (7RP.3) 4.10. Measure indirectly using similar triangles. (7.RP.3) 4.11. Identify similar figures. 4.12. Find unknown lengths in similar figures. 4.13. Locate dilation images. (8.G.3)		Unit assessment Quizzes **Opportunities for Differentiation:** Use Pythagorean Theorem to find a missing length of a right triangle (8.G.7) **Additional Resources:** Smartboard Graph paper www.khanacademy.com www.nlvm.usu.edu

	Curriculum Management System **Subject/Grade Level:** **Grade 7** **Mathematics**	**Topic:** Applications of Ratios, Proportions and Percents
Suggested days of Instruction		**Goal 4:** Comparing and applying rates and proportional reasoning are essential real-world skills. Understanding of ratios and proportions is fundamental to higher levels of math. The application of percent of a number is applied to discount, commission, tax, tip, interest, and mark-up which are skills used in daily life, business, and other academic disciplines. Some examples are the social sciences, population increase, understanding the census, bacterial growth and decay, changing recipes, and building scale models in architecture and construction as well as making predictions based on the results of a sample.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	4.14. Find the scale factor of dilation. (8.G.3)		
	4.15. Use proportions to find a part of a whole. (6.RP.3.c)		
	4.16. Use proportions to find a whole amount or a percent. (6.RP.3.c)		
	4.17. Find percent of increase and percent of decrease. (7.RP.3)		
	4.18. Solve problems involving mark-up and discount. (7.RP.3)		
	4.19. Compute simple and compound interest. (7.RP.3)		
	4.20. Construct viable arguments and critique the reasoning of others. (MP.3)		

Curriculum Management System Subject/Grade Level: Grade 7 Mathematics	Topic: Applications of Ratios, Proportions and Percents
	Goal 4: Comparing and applying rates and proportional reasoning are essential real-world skills. Understanding of ratios and proportions is fundamental to higher levels of math. The application of percent of a number is applied to discount, commission, tax, tip, interest, and mark-up which are skills used in daily life, business, and other academic disciplines. Some examples are the social sciences, population increase, understanding the census, bacterial growth and decay, changing recipes, and building scale models in architecture and construction as well as making predictions based on the results of a sample.

Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
4.21. Model with mathematics. (MP.4)		
4.22. Look for and express regularity in repeated reasoning. (MP.8)		
4.23. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1)		
4.24. Model leadership skills during classroom and extra-curricular activities (9.1.8.C.3)		
4.25. Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages) and compare the interest rates associated with each. (9.2.8.C.3)		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic:** Applications of Ratios, Proportions and Percents
		Goal 4: Comparing and applying rates and proportional reasoning are essential real-world skills. Understanding of ratios and proportions is fundamental to higher levels of math. The application of percent of a number is applied to discount, commission, tax, tip, interest, and mark-up which are skills used in daily life, business, and other academic disciplines. Some examples are the social sciences, population increase, understanding the census, bacterial growth and decay, changing recipes, and building scale models in architecture and construction as well as making predictions based on the results of a sample.

Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
4.26. Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, mortgages). (9.2.8.C.4) 4.27. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)		

	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic: Geometry**
Suggested days of Instruction		**Goal 5:** It is important for students to understand the relationships between lines and the angles that their intersections create. Additionally, the properties of 2 and 3 dimensional figures and the calculations of their area and volume are important in order to solve real world problems. The applications of geometry are utilized in fields such as surveying, navigation (aviation and nautical), and engineering.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
5 wks	5.1. Use adjacent, vertical, complementary, supplementary, alternate interior and corresponding angles in solving problems and equations. (7.G.5) 5.2. Identify congruent figures. (8.G.2) 5.3. Construct triangles given their angles or side measurements. (7.G.2) 5.4. Find the interior angle measures of a polygon (ie. dividing polygon into triangles). (7.G.2) 5.5. Find the areas of polygons (triangle, rectangle, square, trapezoid, parallelogram). (7.G.6) 5.6. Find the area and circumference of a circle. (7.G.4)	**Essential Questions:** What do the relationships between angles and sides tell us about polygons and other figures? What methods can be used to find similarity between two geometric figures? How can we apply calculating area and/or volume of a figure to a real-world problem? **Conceptual Understandings:** There are appropriate units of measurement for measuring length, volume, area, angles, temperature, etc. Area, volume, and surface area relate and connect to everyday experiences (ie. what is largest amount of area for a garden, finding the volume to fill a swimming pool, etc).	**NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels.*** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.** **Unit Vocabulary:** vertical angle, supplementary angle, complementary angle, alternate interior angle, alternate exterior angle, corresponding angle, adjacent angle, bisectors, trisectors, congruent, similar, three-dimensional figures (cylinder, cube, prism, pyramid, cone), nets, n-agon, radius, diameter, chord, circumference, pi, surface area, volume, area, ratio, parallel lines, perpendicular lines, intersecting lines, transversal, Pythagorean Theorem, hypotenuse **Assessment Models:** Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction Hands-on assessment/stations Unit assessment

	Curriculum Management System	Topic: Geometry
Suggested days of Instruction	**Subject/Grade Level:** **Grade 7** **Mathematics**	**Goal 5:** It is important for students to understand the relationships between lines and the angles that their intersections create. Additionally, the properties of 2 and 3 dimensional figures and the calculations of their area and volume are important in order to solve real world problems. The applications of geometry are utilized in fields such as surveying, navigation (aviation and nautical), and engineering.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	5.7. Understand the meaning of pi (as a ratio). (7.RP.2.a) 5.8. Construct congruent segments, angles and bisectors. (7.G.2) 5.9. Identify solids and compute surface area and volume of two- and three-dimensional objects. (7.G.6) 5.10. Identify the plane sections that result from slicing three-dimensional figures. (7.G.3) 5.11. Draw top, front and right views of solids. (7.G.2) 5.12. Identify nets of solids. (6.G.4) 5.13. Solve problems involving scale drawings of geometric		Quizzes **Opportunities for Differentiation:** Use Pythagorean Theorem to find a missing length of a right triangle (8.G.7) **Additional Resources:** Protractors Nets Geometric solids Measuring tapes Rulers Compasses Centimeter cubes Unifix blocks www.khanacademy.com www.nlvm.usu.edu

Suggested days of Instruction	Curriculum Management System **Subject/Grade Level:** **Grade 7** **Mathematics**	**Topic: Geometry**
		Goal 5: It is important for students to understand the relationships between lines and the angles that their intersections create. Additionally, the properties of 2 and 3 dimensional figures and the calculations of their area and volume are important in order to solve real world problems. The applications of geometry are utilized in fields such as surveying, navigation (aviation and nautical), and engineering.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	shapes including calculating lengths and areas from drawings. (7.G.1) 5.14. Make sense of problems and persevere in solving them. (MP.1) 5.15. Use appropriate tools strategically. (MP.5) 5.16. Attend to precision. (MP.6) 5.17. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1) 5.18. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3) 5.19. Develop strategies to reinforce positive attitudes		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic: Geometry**
		Goal 5: It is important for students to understand the relationships between lines and the angles that their intersections create. Additionally, the properties of 2 and 3 dimensional figures and the calculations of their area and volume are important in order to solve real world problems. The applications of geometry are utilized in fields such as surveying, navigation (aviation and nautical), and engineering.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)		

	Curriculum Management System	Topic: Statistics and Data Analysis
Suggested days of Instruction	**Subject/Grade Level:** **Grade 7** **Mathematics**	**Goal 6:** In today's information-based world, students need to be able to read, understand, and interpret data in order to make informed decisions. Students should be involved in collecting and organizing data, and present it using tables, charts, and graphs. They should gather data using sampling, and should increasingly be expected to analyze and make inferences from data, as well as to analyze data and inferences made by others.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
5 wks	6.1. Find measures of central tendency including mean, median, mode and range through different types of graphs. (7.SP.4)

6.2. Make and assess the degree of visual overlap for frequency tables, histograms, line plots, stem and leaf plots, box and whisker plots, and scatter plots. (7.SP.3)

6.3. Create various graphs (bar, line, circle, histogram, stem and leaf plots, box and whisker, scatterplot, Venn) and generalize correlations between two sets of data. (7.SP.1)

6.4. Draw inferences and conclusions about a population based on the data displayed. (7.SP.2)

6.5. Construct viable arguments | **Essential Questions:** What do you do to analyze sets of data? What displays can you make to interpret data? Why is data collected and analyzed? How do people use data to influence others? How can data be used to influence the decisions we make in our every day lives? How can predictions be made based on data?

Conceptual Understandings: There are different methods by which data can be organized and represented.

When you present data, the type of data and your purpose influence the type of graph you choose. | **NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels.*** **Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.**

Unit Vocabulary: frequency, frequency table, mean, median, mode, range, measures of central tendency, outlier, histogram, stem-and-leaf plot, box-and-whisker plot, quartile, scatterplot, positive correlation/trend, negative correlation/trend, line of best fit/trend, line, circle graph, central angle, distribution

Assessment Models: Observation Class discussion Homework Checkpoint for understanding Self-reflection Diagnostic test prior to instruction Unit Assessment

Opportunities for Differentiation: Level of interpretation for various graphs to increase the complexity of the skill |

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic: Statistics and Data Analysis**
		Goal 6: In today's information-based world, students need to be able to read, understand, and interpret data in order to make informed decisions. Students should be involved in collecting and organizing data, and present it using tables, charts, and graphs. They should gather data using sampling, and should increasingly be expected to analyze and make inferences from data, as well as to analyze data and inferences made by others.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**

	and critique the reasoning of others. (MP.3)		**Additional Resources:** Graph paper Compasses Protractors Rulers Venn diagram charts
	6.6. Use appropriate tools strategically. (MP.5)		
	6.7. Look for and make use of structure. (MP.7)		www.brainpop.com www.khanacademy.com
	6.8. Assess data gathered to solve a problem for which there are varying perspectives (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple solutions. (9.1.8.B.2)		
	6.9. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1)		
	6.10. Model leadership skills during classroom and extra-		

	Curriculum Management System Subject/Grade Level: Grade 7 Mathematics	Topic: Statistics and Data Analysis
		Goal 6: In today's information-based world, students need to be able to read, understand, and interpret data in order to make informed decisions. Students should be involved in collecting and organizing data, and present it using tables, charts, and graphs. They should gather data using sampling, and should increasingly be expected to analyze and make inferences from data, as well as to analyze data and inferences made by others.
Suggested days of Instruction	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
	curricular activities (9.1.8.C.3) 6.11. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)		

	Curriculum Management System Subject/Grade Level: Grade 7 Mathematics	Topic: Probability
Suggested days of Instruction		Goal 7: This unit prepares the students for understanding and finding probabilities of simple and compound events. The study of probability plays an important role in real-world applications by helping us make predictions in sports, weather, business, etc. It helps us avoid unfair games of chance, and make informed decisions about medical treatments whose success rate is provided in terms of percentages. Understanding chance makes consumers informed about choices for insurance and rates. Determining whether it's cost effective to purchase extended protection plans on new products relates the chance of the product breaking down to the cost of the plan and the replacement cost.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
4 wks	7.1. Understand that the probability of a chance event lies between 0 and 1. (7.SP.5)

7.2. Approximate the probability of a chance event by collecting data. (7.SP.6)

7.3. Develop and utilize probability models. (7.SP.7)

7.4. Develop and utilize uniform probability models assigning equal probability to all outcomes. (7.SP.7.a)

7.5. Observe frequencies of data generated from a chance process. (7.SP.7.b)

7.6. Use tree diagrams to | **Essential Questions:**
What is a sample space and how do you find one?
How do you find the probabilities of simple and compound events?
How and when do you use the counting principle?
When do you apply a permutation versus a combination formula?

Conceptual Understandings:
The probability of an event's occurrence can be predicted with varying degrees of confidence.

You can select a random sample to accurately represent the entire population.

A survey question should not influence responses by making one answer appear more attractive. | **NOTE: The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, *it must be of equal or better quality and at the same or higher cognitive levels.***

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher.

Unit Vocabulary:
outcome, event, probability, sample space, tree diagram, theoretical probability, experimental probability, counting principle, permutation, factorial, combination, independent event, dependent event, compliment of an event, odds in favor of/against, population, sample, random sample, biased question(s)

Assessment Models:
Observation
Class discussion
Homework
Checkpoint for understanding
Self-reflection
Diagnostic test prior to instruction
Unit assessment |

	Curriculum Management System Subject/Grade Level: **Grade 7 Mathematics**	**Topic: Probability**
Suggested days of Instruction		**Goal 7:** This unit prepares the students for understanding and finding probabilities of simple and compound events. The study of probability plays an important role in real-world applications by helping us make predictions in sports, weather, business, etc. It helps us avoid unfair games of chance, and make informed decisions about medical treatments whose success rate is provided in terms of percentages. Understanding chance makes consumers informed about choices for insurance and rates. Determining whether it's cost effective to purchase extended protection plans on new products relates the chance of the product breaking down to the cost of the plan and the replacement cost.

Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions, Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
represent sample spaces for compound events. (7.SP.8.b) 7.7. Analyze theoretical and experimental probability (7.SP.7.a, 7.SP.7.b) 7.8. Find the probability of dependent and independent events. (7.SP.8) 7.9. Define the probability of simple and compound events. (7.SP.8.a) 7.10. Calculate and design a simulation for a simple and compound event. (7.SP.8.a,7.SP.8.b,7.SP.8.c) 7.11. Find permutations. (7.SP.8) 7.12. Find combinations.		**Opportunities for Differentiation:** Tiered stations Use permutation and combination notation Use the counting principle **Additional Resources:** Spinners Dice Coins Manipulatives for data collection www.brainpop.com www.khanacademy.com

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic: Probability**
		Goal 7: This unit prepares the students for understanding and finding probabilities of simple and compound events. The study of probability plays an important role in real-world applications by helping us make predictions in sports, weather, business, etc. It helps us avoid unfair games of chance, and make informed decisions about medical treatments whose success rate is provided in terms of percentages. Understanding chance makes consumers informed about choices for insurance and rates. Determining whether it's cost effective to purchase extended protection plans on new products relates the chance of the product breaking down to the cost of the plan and the replacement cost.
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) **The student will be able to:**	**Essential Questions,** **Conceptual Understandings**	**Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model**
	(7.SP.8) 7.13. Use permutation and combination notation. (7.SP.8) 7.14. Use the counting principle. (7.SP.8) 7.15. Understand the meaning of factorial and how to apply it. (7.SP.8) 7.16. Construct viable arguments and critique the reasoning of others. (MP.3) 7.17. Model with mathematics. (MP.4) 7.18. Determine an individual's responsibility for personal actions and contributions to group activities. (9.1.8.C.1)		

Suggested days of Instruction	Curriculum Management System Subject/Grade Level: **Grade 7** **Mathematics**	**Topic: Probability**
		Goal 7: This unit prepares the students for understanding and finding probabilities of simple and compound events. The study of probability plays an important role in real-world applications by helping us make predictions in sports, weather, business, etc. It helps us avoid unfair games of chance, and make informed decisions about medical treatments whose success rate is provided in terms of percentages. Understanding chance makes consumers informed about choices for insurance and rates. Determining whether it's cost effective to purchase extended protection plans on new products relates the chance of the product breaking down to the cost of the plan and the replacement cost.

	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions, Conceptual Understandings	Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model
	7.19. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3) 7.20. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)		