

Clinton-Glen Gardner School District



Curriculum Management System

Mathematics

Grade 7 Pre Algebra

July 2013

*** For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy #2200.**

Board Approved: August 21, 2013

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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

**New Jersey State Department of Education
Common Core State Standards**

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) and 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 balanced 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 – Pre Algebra**

Scope and Sequence

| Quarter I | |
|---|--|
| <p>Topic: The Number System</p> <p>I. The Real Number System</p> <ul style="list-style-type: none">a. Rational and irrational numbersb. Classifying numbersc. Decimal expansiond. Integer operationse. Absolute value | <p>Topic: Expressions and Equations</p> <p>II. Evaluating Expressions and Writing/Solving Equations</p> <ul style="list-style-type: none">a. One-step linear equations<ul style="list-style-type: none">i. Single solutionii. Infinite solutionsiii. No solutionb. Multi-step linear equations<ul style="list-style-type: none">i. Rational number coefficientii. Expanding expressionsc. Substitutiond. Combining like terms |
| Quarter II | |
| <p>Topic: Geometry</p> <p>III. Geometry</p> <ul style="list-style-type: none">a. Pythagorean Theorem<ul style="list-style-type: none">i. Unknown sidesii. Right trianglesiii. Coordinate systemsb. Angle relationships<ul style="list-style-type: none">i. Supplementaryii. Complementaryiii. Verticaliv. Adjacentv. Correspondingvi. Alternate interiorvii. Alternate exterior | <p>Topic: Geometry</p> <p>IV. Transformations</p> <ul style="list-style-type: none">a. Rotations, reflections and translations<ul style="list-style-type: none">i. Propertiesii. Effectsb. Congruency |

Quarter III

Topic: Functions

- V. Functions
 - a. Create and analyze
 - b. Rate of change
 - c. Initial value
 - d. Graphing

Topic: Statistics and Probability

- VI. Bivariate Data
 - a. Linear functions
 - i. Slope
 - ii. Graph
 - b. Data patterns
 - i. Clusters
 - ii. Outliers
 - iii. Linear/nonlinear
 - iv. Correlations

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

Topic: Expressions and Equations

- VIII. Systems of Linear Equations
 - a. Simultaneous linear equations
 - i. Points of intersection
 - ii. Graphing
 - b. Substitution
 - c. Elimination

Topic: Expressions and Equations

- IX. Powers, Roots and Scientific Notation
 - a. Exponents
 - i. Comparisons
 - ii. Conversions
 - iii. Negatives
 - b. Square and cube roots

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: The Real Number System | |
| | 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 Review Order of Operations (7.EE.1) 1.1. Know and understand that there are rational and irrational numbers. (8.NS.1) 1.2. Use the real number system to classify numbers as real, rational, irrational, whole, integer, and/or natural/counting. (8.NS.1) 1.3. Show that the decimal expansion of a rational number repeats. (8.NS.1) 1.4. Convert a decimal expansion into a rational number. (8.NS.1) 1.5. Perform all four integer operations (including solutions that are undefined by division). | Essential Questions: How does the use of real world relationships help you understand integers? Can you use rational approximations to model irrational numbers accurately? Conceptual Understandings: There are different types of numbers that are not “pretty positives.” Integers, as part of a real number system, allow us to represent positive and negative whole numbers. An integer 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: rational number, irrational number, integer, absolute value, rational approximation, whole numbers, counting/natural numbers, operations Assessment Models: Teacher observations DO NOWs Word problems Integer operations quiz Math journals Unit test Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests Amount of problems to complete for homework or |

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| Suggested days of Instruction | Curriculum Management System | Topic: The Real Number System | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 1: This unit is the introduction of the real number system as well as the review of all four integer operations and application of real-life problems. | |
| | 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 |
| | <p>(7.NS.1, 7.NS.1.a, 7.NS.1.b, 7.NS.1.c, 7.NS.1.d, 7.NS.2, 7.NS.2.a, 7.NS.2.b, 7.NS.7.c)</p> <p>1.6. Solve real-world problems involving the four operations with integers. (7.NS.3)</p> <p>1.7. Determine absolute value of given numbers. (7.NS.1.b, 7.NS.1.c, 6.NS.7.c)</p> <p>1.8. Compare and order integers. (6.NS.6.a, 6.NS.7)</p> <p>1.9. Use rational approximations of irrational numbers to compare and graph on a number line and to estimate value of expressions. (8.NS.2)</p> <p>1.10. Reason abstractly and quantitatively. (MP.2)</p> | | <p>classwork Peer instruction Active learning Modeling Time allotment</p> <p>Additional Resources: Textbook Smartboard lessons Calculator Teacher-made materials Interactive number lines (SmartBoard gallery)</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: The Real Number System | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 1: This unit is the introduction of the real number system as well as the review of all four integer operations and application of real-life problems. | |
| | 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 |
| | 1.11. Model with mathematics. (MP.4) 1.12. Use appropriate tools. (MP.5) 1.13. Look for and make use of structure. (MP.7) | | |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Evaluating Expressions, and Writing and Solving 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 |
| 5 wks | <p>Review fraction operations and LCM. (5.NF.1, 5.NF.4.a, 6.NS.1, 6.NS.4)</p> <p>Review conversions (fraction, decimal, percent). (7.NS.2.d)</p> <p>2.1. Solve one-step linear equations in one variable with all four operations. (8.EE.7)</p> <p>2.2. Use variables to represent quantities when constructing equations. (7.EE.4)</p> <p>2.3. Create linear equations in one variable with a single solution, infinite solutions and no solution. (8.EE.7.a)</p> <p>2.4. Solve multi-step equations (variables on both sides, proportions, fractional equations, distributive property, etc.). (8.EE.7.b, 6.EE.3)</p> | <p>Essential Questions: How can you use an equation to represent and solve a real life problem?</p> <p>Conceptual Understandings: The process of solving an equation requires balance; any action taken on one side of the equation must also occur on the other side.</p> | <p>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.</p> <p>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.</p> <p>Unit Vocabulary: coefficient, term, constant, evaluate, expression, equation, inverse, inverse operation, opposite, base, exponent, distributing, simplify, translate</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests</p> |

| Suggested days of Instruction | Curriculum Management System | Topic: Evaluating Expressions, and Writing and Solving Equations | |
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| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 2: Solve and translate real-life situations into mathematical problems using numerical and algebraic expressions and 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 |
| | <p>2.5. Solve linear equations with rational number coefficients whose solutions require expanding expressions. (8.EE.7.b)</p> <p>2.6. Translate statements in algebraic expressions or equations. (6.EE.2.a)</p> <p>2.7. Translate algebraic equations and then solve. (6.EE.2.a)</p> <p>2.8. Use equations to solve real life word problems. (7.EE.3)</p> <p>2.9. Evaluate expressions using substitution. (6.EE.2.c)</p> <p>2.10. Rewrite expressions in various forms in solving problems. (7.EE.2)</p> <p>2.11. Combine like terms to</p> | | <p>Amount of problems to complete for homework or classwork</p> <p>Peer instruction</p> <p>Active learning</p> <p>Modeling</p> <p>Time allotment</p> <p>Additional Resources:</p> <p>Textbook</p> <p>Smartboard lessons</p> <p>Calculator</p> <p>Teacher-made materials</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Evaluating Expressions, and Writing and Solving Equations | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 2: Solve and translate real-life situations into mathematical problems using numerical and algebraic expressions and 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 |
| | <p>simplify the equation. (7.EE.1. 6.EE.3)</p> <p>2.12. Reason abstractly and quantitatively. (MP.2)</p> <p>2.13. Use appropriate tools strategically. (MP.5)</p> <p>2.14. Attend to precision. (MP.6)</p> <p>2.15. Look for and make use of structure. (MP.7)</p> | | |

| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Geometry | |
|-------------------------------|---|--|---|
| | | Goal 3: Being that every algebra course needs a review, as well as application of those previously taught geometric concepts, this unit is designed to reflect as well as apply those topics needed before Algebra 1. Pythagorean Theorem, angle relationships, polygons, formulas with 2 and 3D figures, and congruent/ similar polygons using ratios are included. Review classification/hierarchy of quadrilaterals. | |
| | 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 | <p>Review ratios/proportions. (7.RP.3)</p> <p>3.1. Solve the Pythagorean Theorem for one of the missing side lengths, given the other two lengths. (7.G.2, 8.G.6)</p> <p>3.2. Use the Pythagorean Theorem to determine unknown side lengths in right triangles. (8.G.7)</p> <p>3.3. Use the Pythagorean Theorem to solve real-life problems in 2-dimensions and 3 dimensions. (8.G.7)</p> <p>3.4. Use Pythagorean Theorem to determine if a given triangle is a right triangle. (8.G.7)</p> <p>3.5. Explain proof of Pythagorean Theorem and its converse using if, then</p> | <p>Essential Questions: How can the Pythagorean Theorem be used to find the missing side length in a right triangle and the distance between two points? 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 the volume of a figure to a real-world problem?</p> <p>Conceptual Understandings: The shortest distance between two points is a straight line. The Pythagorean Theorem can be used to calculate it.</p> <p>Angle relationships can aid understanding of congruence and similarity.</p> <p>General formulas and basic geometric principles can be applied to any polygon.</p> <p>Volume can be found for 3-dimensional figures in real-world problem using the appropriate formula.</p> | <p>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.</p> <p>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.</p> <p>Unit Vocabulary: hypotenuse, legs, transversal, complementary, supplementary, alternate exterior, alternate interior, adjacent, vertical, corresponding, acute angle, obtuse angle, right angle, straight angle, similar, congruence, cone, cylinder, sphere polygon: triangle, quadrilateral thru decagon quadrilaterals - parallelogram, rhombus, trapezoid, square, rectangle,</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment</p> |

| Suggested days of Instruction | Curriculum Management System | Topic: Geometry | |
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| | 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 |
| | statements. (8.G.6) 3.6. Use Pythagorean Theorem to calculate distance between two points in a coordinate system. (8.G.8) 3.7. Write and solve simple equations for angle relationships on a transversal diagram or in a figure such as a polygon. (8.G.5, 7.G.5) 3.8. Identify the following angle relationships: supplementary, complementary, vertical, adjacent, corresponding, alternate interior, alternate exterior. (8.G.5, 7.G.5) 3.9. Determine polygon interior angle sum using the formula $(n-2)180^\circ$. (8.G.5) 3.10. Determine sum of exterior | | Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests Amount of problems to complete for homework or classwork Peer instruction Active learning Modeling Time allotment Additional Resources: Textbook Smartboard lessons Calculator Teacher-made materials www.khanacademy.org www.studyisland.com www.aaamath.com |

| Suggested days of Instruction | Curriculum Management System | Topic: Geometry | |
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| | 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 |
| | <p>angles in a polygon. (8.G.5)</p> <p>3.11. Determine missing interior and exterior angles of in a polygon. (8.G.5)</p> <p>3.12. Use hierarchy chart for quadrilaterals to answer true/ false and sometimes, always, never statements. (5.G.4)</p> <p>3.13. Determine if given figures are similar, congruent, or neither. (8.G.5, 7.G.1)</p> <p>3.14. Find missing sides of similar figures using proportions. (8.G.5, 7.G.1)</p> <p>3.15. Use the angle-angle criterion for similarity of triangles to determine if figures are similar given two angle measurements. (Use Smartboard, software to manipulate objects.)</p> | | |

| Suggested days of Instruction | Curriculum Management System | Topic: Geometry | |
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| | 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 |
| | <p>(8.G.5, 7.G.1)</p> <p>3.16. Know and use formulas for area and circumference of a circle in solving problems. (7.G.4)</p> <p>3.17. Know and be able to use the formulas for volumes of cones, cylinders, and spheres. (Use reference sheet for formulas.) (8.G.9)</p> <p>3.18. Apply formulas for area, volume and surface area of two- and three-dimensional objects. (7.EE.6)</p> <p>3.19. Make sense of problems and persevere in solving them. (MP.1)</p> <p>3.20. 8.MP.2. Reason abstractly and quantitatively. (MP.2)</p> <p>3.21. 8.MP.3. Construct viable</p> | | |

| Suggested days of Instruction | Curriculum Management System | Topic: Geometry | |
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| | <u>Subject/Grade Level:</u> Grade 7 Mathematics – Pre Algebra | <u>Goal 3:</u> Being that every algebra course needs a review, as well as application of those previously taught geometric concepts, this unit is designed to reflect as well as apply those topics needed before Algebra 1. Pythagorean Theorem, angle relationships, polygons, formulas with 2 and 3D figures, and congruent/ similar polygons using ratios are included. Review classification/hierarchy of quadrilaterals. | |
| | Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) | Essential Questions, Conceptual Understandings | Instructional Tools / Materials / Technology / Resources / Learning Activities / Interdisciplinary Activities / Assessment Model |
| | <p>The student will be able to:</p> <p>arguments and critique the reasoning of others. (MP.3)</p> | | |

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| Suggested days of Instruction | Curriculum Management System | Topic: Transformations | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 4: This unit extends knowledge of the coordinate system using a sequence of transformations and algebraic notation. | |
| | 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 | <p>Review identifying and graphing points on a rectangular coordinate system.</p> <p>4.1. Verify properties of rotations, reflections, and translations. (8.G.1, 8.G.1.a, 8.G.1.b, 8.G.1.c)</p> <p>4.2. Determine image coordinates and how they change as a result of a transformation (translation, reflection, rotation, dilation). (8.G.3)</p> <p>4.3. Identify a transformation as a translation, reflection, rotation or dilation. (8.G.1, 8.G.2)</p> <p>4.4. Describe the transformation(s) utilized to demonstrate congruence between two figures. (8.G.2)</p> <p>4.5. Given two similar figures, describe the</p> | <p>Essential Questions: How does performing one/multiple transformations impact the ordered pairs for each vertex? Given an image and a pre-image, can you identify the sequence of transformations?</p> <p>Conceptual Understandings: Using models on a coordinate plane can aid understanding of congruence and similarity.</p> | <p>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.</p> <p>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.</p> <p>Unit Vocabulary: translation, reflection, rotation, dilation, vertex, image, preimage, congruence, similarity, rectangular coordinate system, ordered pairs, x-coordinate, y-coordinate, x-axis, y-axis, scale factor</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Transformations | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 4: This unit extends knowledge of the coordinate system using a sequence of transformations and algebraic notation. | |
| | 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 |
| | <p>transformation(s) utilized to get from figure one to figure two. Ex: $(x, y) \rightarrow (x + 3, y + 3)$ (8.G.4)</p> <p>4.6. Model with mathematics. (MP.4)</p> <p>4.7. Use appropriate tools strategically. (MP.5)</p> <p>4.8. Attend to precision. (MP.6)</p> <p>4.9. Look for and make use of structure. (MP.7)</p> | | <p>Modified and multiple tests Amount of problems to complete for homework or classwork Peer instruction Active learning Modeling Time allotment</p> <p>Additional Resources: Textbook Smartboard lessons Calculator Teacher-made materials</p> <p>www.khanacademy.org www.studyisland.com www.aaamath.com</p> |

| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Functions | |
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| | 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 | <p>5.1. Determine if a relation is a function. (8.F.1)</p> <p>5.2. Identify the domain and range of a relation. (8.F.1)</p> <p>5.3. Use the vertical line test to determine if a relation is a function.</p> <p>5.4. Complete input/output table to represent a relation. (8.F.2)</p> <p>5.5. Evaluate a function. (8.F.2)</p> <p>5.6. Determine the pattern in an input/output chart. (8.F.2, MP.7)</p> <p>5.7. Utilize the equation $y=mx+b$ to describe a linear function. (8.F.3)</p> <p>5.8. Create examples of</p> | <p>Essential Questions: What is a function? By analyzing a function, what can we determine about the relationship between the two quantities?</p> <p>Conceptual Understandings: Functions represent/describe something in the real-world. Certain relationships are described in linear functions.</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Functions | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 5: Functions represent/describe something in the real-world. Certain relationships are described in linear functions. | |
| | 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 |
| | <p>nonlinear functions. (8.F.3)</p> <p>5.9. Graph a function. (8.F.4, 8.F.5)</p> <p>5.10. Model a linear relationship by constructing a function. (8.F.4)</p> <p>5.11. Determine a function to represent a real life problem. (8.F.4)</p> <p>5.12. Construct a function graph based on a real life situation. (8.F.3)</p> <p>5.13. Determine when a function is increasing, decreasing - positive/negative correlation. (8.F.5)</p> <p>5.14. Determine rate of change and initial value in a function. (8.F.2, 8.F.4, 8.F.5)</p> | | <p>classwork Peer instruction Active learning Modeling Time allotment</p> <p>Additional Resources: Textbook Smartboard lessons Coordinate and easel/paper Graph paper/mini white boards Calculator Teacher-made materials</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Functions | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 5: Functions represent/describe something in the real-world. Certain relationships are described in linear functions. | |
| | 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 |
| | 5.15. Interpret rate of change and initial value of a linear function. (8.F.4) 5.16. Reason abstractly and quantitatively. (MP.2) 5.17. Construct viable arguments and critique the reasoning of others. (MP.3) 5.18. Model with mathematics. (MP.4) 5.19. Look for and make use of structure. (MP.7) | | |

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| Suggested days of Instruction | Curriculum Management System | Topic: Bivariate Data | |
| | Subject/Grade Level: Grade 7 | Goal 6: The student will be able to connect and investigate patterns of association between proportional relationships in bivariate data. | |
| | Mathematics – Pre Algebra | | |
| | 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 | <p>Review measures of central tendency. (7.SP.4)</p> <p>6.1. Define a linear function in the form $y = mx + b$ (8.F.3)</p> <p>6.2. Determine rate of change (slope). (8. F.4)</p> <p>6.3. Determine the equation of a line. (8.F.4)</p> <p>6.4. Sketch a graph that exhibits certain qualitative features, including proportional relationships. (7.RP.2, 8.F.5, 8.EE.5)</p> <p>6.5. Determine the existence of proportional relationships by graphing. (7.RP.2.a)</p> <p>6.6. Identify the constant of proportionality in a graph.</p> | <p>Essential Questions: How does slope help us determine the relation between two quantities?</p> <p>Conceptual Understandings: There are two types of relationships - linear and nonlinear. A relationship between two quantitative variables can be represented in various ways - equation, graph, table.</p> | <p>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.</p> <p>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.</p> <p>Unit Vocabulary: linear function, slope, coordinate plane, clusters, outliers, scatterplot and positive/negative correlation, linear and nonlinear relationships, equation</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests</p> |

| Suggested days of Instruction | Curriculum Management System | Topic: Bivariate Data | |
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| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 6: The student will be able to connect and investigate patterns of association between proportional relationships in bivariate data. | |
| | 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 |
| | <p>(7.RP.2.b)</p> <p>6.7. Explain what a point on a graph of proportional relationship means. (7.SP.2.d)</p> <p>6.8. Assess degree of visual overlap of two numerical data distributions. (7.SP.3)</p> <p>6.9. Explain why slope is same between any two distinct points given two similar figures on coordinate plane. (8.EE.6)</p> <p>6.10. Construct and investigate patterns of association between two quantities - clusters, outliers, linear/nonlinear (scatterplot), pos/neg correlation. (8.SP.1, 8.SP.2)</p> <p>6.11. Utilize straight lines to model relationships between two quantitative variables. (8.SP.2)</p> | | <p>Amount of problems to complete for homework or classwork</p> <p>Peer instruction</p> <p>Active learning</p> <p>Modeling</p> <p>Time allotment</p> <p>Additional Resources:</p> <p>Textbook</p> <p>Smartboard lessons</p> <p>Coordinate and easel/paper</p> <p>Graph paper/mini white boards</p> <p>Ti-83/Ti-83 Plus Graphing Calculators</p> <p>Teacher-made materials</p> <p>Geometer's Sketchpad</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Bivariate Data | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 6: The student will be able to connect and investigate patterns of association between proportional relationships in bivariate data. | |
| | 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 |
| | <p>6.12. Read and interpret bivariate data. (8.SP.3, 8.SP.4)</p> <p>6.13. Use equation of a linear model to solve problems related to bivariate data. (7.RP.2.c, 8.SP.3)</p> <p>6.14. Look for and make use of structure. (MP.7)</p> <p>6.15. Look for and express regularity in repeated reasoning. (MP.8)</p> | | |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Probability | |
| | 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 | <p>7.1. Understand that the probability of a chance event lies between 0 and 1. (7.SP.5)</p> <p>7.2. Approximate the probability of a chance event by collecting data. (7.SP.6)</p> <p>7.3. Develop and utilize probability models. (7.SP.7)</p> <p>7.4. Develop and utilize uniform probability models assigning equal probability to all outcomes. (7.SP.7.a)</p> <p>7.5. Observe frequencies of data generated from a chance process. (7.SP.7.b)</p> <p>7.6. Use tree diagrams to represent sample spaces for</p> | <p>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?</p> <p>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.</p> | <p>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.</p> <p>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.</p> <p>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)</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Probability | |
| | Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to: | 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. | Essential Questions, Conceptual Understandings |
| | <p>compound events. (7.SP.8.b)</p> <p>7.7. Draw inferences and conclusions about a population based on the data displayed. (7.SP.2)</p> <p>7.8. Analyze theoretical and experimental probability (7.SP.7.a, 7.SP.7.b)</p> <p>7.9. Find the probability of dependent and independent events. (7.SP.8)</p> <p>7.10. Define the probability of simple and compound events. (7.SP.8.a)</p> <p>7.11. Calculate and design a simulation for a simple and compound event. (7.SP.8.a,7.SP.8.b,7.SP.8.c)</p> | | <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests Amount of problems to complete for homework or classwork Peer instruction Active learning Modeling Time allotment</p> <p>Additional Resources: Textbook Smartboard lessons Calculators Teacher-made materials</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Probability | |
| | Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to: | 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. | Essential Questions, Conceptual Understandings |
| | 7.12. Find permutations. (7.SP.8) 7.13. Find combinations. (7.SP.8) 7.14. Use permutation and combination notation. (7.SP.8) 7.15. Use the counting principle. (7.SP.8) 7.16. Understand the meaning of factorial and how to apply it. (7.SP.8) 7.17. Construct viable arguments and critique the reasoning of others. (MP.3) 7.18. Model with mathematics. (MP.4) 7.19. Determine an individual's responsibility for personal | | |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Probability | |
| | 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 |
| | <p>actions and contributions to group activities. (9.1.8.C.1)</p> <p>7.20. Model leadership skills during classroom and extra-curricular activities. (9.1.8.C.3)</p> <p>7.21. Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills. (9.1.8.A.1)</p> | | |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Systems of Linear 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 |
| 3 wks | <p>8.1. Solve a system of linear equations and determine if there is a point of intersection and if so, how many. (8.EE.8, 8.EE.8.a)</p> <p>8.2. Solve systems of linear equations by graphing the equations. (8.EE.8.b, 8.EE.8.c)</p> <p>8.3. Solve systems of linear equations by substitution. (8.EE.8.b, 8.EE.8.c)</p> <p>8.4. Solve systems of linear equations by elimination. (8.EE.8.b, 8.EE.8.c)</p> <p>8.5. Reason abstractly and quantitatively. (MP.2)</p> <p>8.6. Look for and make use of structure. (MP.7)</p> | <p>Essential Questions: What methods can be used to solve systems of linear equations?</p> <p>Conceptual Understandings: The algebraic solution(s) to systems of equations can be used to represent and solve real-world problems. The solution of a system is any ordered pair that satisfies all equations in the system.</p> | <p>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.</p> <p>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.</p> <p>Unit Vocabulary: linear equation, systems of linear equations, substitution method, graphing method, elimination (with multiplication), point of intersection</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests Amount of problems to complete for homework or</p> |

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| Suggested days of Instruction | Curriculum Management System Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Topic: Systems of Linear Equations | |
| | | Goal 8: During this unit, students will solve a system of linear equations by graphing, using the substitution method, and using elimination method. | |
| | 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 |
| | | | classwork Peer instruction Active learning Modeling Time allotment Additional Resources: Textbook Smartboard lessons Calculators Teacher-made materials www.khanacademy.org www.studyisland.com www.aaamath.com |

| Suggested days of Instruction | Curriculum Management System | Topic: Powers/Roots & Scientific Notation | |
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| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 9: Very small or very large numbers can be written using exponents. We can also convert between standard form without exponents to scientific form that utilizes exponents. | |
| | 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 | <p>9.1. Write powers in simplest exponential form. (8.EE.1)</p> <p>9.2. Use powers and exponents in expressions and equations. (8.EE.1)</p> <p>9.3. Apply properties of integer exponents to generate equivalent numerical expressions. (8.EE.1)</p> <p>9.4. Evaluate square roots, cube roots, radicals, and approximate roots with other root indexes. (8.EE.2)</p> <p>9.5. Approximate roots.</p> <p>9.6. Identify and simplify monomials.</p> <p>9.7. Evaluate monomials.</p> <p>9.8. Simplify negative</p> | <p>Essential Questions: How is scientific notation used to write very large or very small numbers? How do you find decimal approximations of square roots that are irrational?</p> <p>Conceptual Understandings: Square roots and cube root symbols represent rational solutions to equations using variables with exponents (equations). Exponents can be used to represent very small/large quantities in real life.</p> | <p>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.</p> <p>Unit Vocabulary: power, exponent, base, exponential form, root, cube root, fourth root (etc.), radicand, root index, monomials, scientific notation, standard form expression vs. equation</p> <p>Assessment Models: Pre-assessment Teacher observations DO NOWs/daily warm-ups Word problems Math journals Unit Test</p> <p>Opportunities for Differentiation: Remediation/enrichment Whole group instruction/Small group instruction Cooperative learning groups or partner activities Hand on materials – manipulative Project based Modified and multiple tests</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Powers/Roots & Scientific Notation | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 9: Very small or very large numbers can be written using exponents. We can also convert between standard form without exponents to scientific form that utilizes exponents. | |
| | 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 |
| | <p>exponents. (8.EE.1)</p> <p>9.9. Use scientific notation to write very large or very small numbers and to express relation to another quantity. (8.EE.3)</p> <p>9.10. Convert numbers from standard form to scientific notation and vice versa. (8.EE.3)</p> <p>9.11. Perform operations on numbers written in scientific notation. (8.EE.4)</p> <p>9.12. Compare numbers written in scientific notation. (8.EE.3)</p> <p>9.13. Reason abstractly and quantitatively. (MP.2)</p> <p>9.14. Use appropriate tools strategically. (MP.5)</p> | | <p>Amount of problems to complete for homework or classwork</p> <p>Peer instruction</p> <p>Active learning</p> <p>Modeling</p> <p>Time allotment</p> <p>Additional Resources:</p> <p>Textbook</p> <p>Smartboard lessons</p> <p>Calculators</p> <p>Teacher-made materials</p> <p>www.khanacademy.org</p> <p>www.studyisland.com</p> <p>www.aaamath.com</p> |

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| Suggested days of Instruction | Curriculum Management System | Topic: Powers/Roots & Scientific Notation | |
| | Subject/Grade Level: Grade 7 Mathematics – Pre Algebra | Goal 9: Very small or very large numbers can be written using exponents. We can also convert between standard form without exponents to scientific form that utilizes exponents. | |
| | 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 |
| | <p>9.15. Attend to precision. (MP.6)</p> <p>9.16. Look for and make use of structure. (MP.7)</p> | | |