

## Scope and Sequence: Nine-Weeks of 7<sup>th</sup> or 8<sup>th</sup> Grade Pre-algebra<sup>i</sup>

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 1 Number Theory: Identifying Factors, Primes, and Composites; Shikaku Puzzles and Deductive Reasoning	<ul style="list-style-type: none"> <li>Correctly define key terms: prime number, composite number, divisible, multiple, and factor</li> <li>Correctly classify numbers as either prime or composite given the numbers</li> <li>Correctly identify factor pairs of given numbers</li> <li>Correctly construct different rectangles from the same number of squares with each based on different set of factor pairs of that number given graph paper and the number of squares to be used</li> <li>Articulate, orally and in writing, solutions and strategies to given Shikaku puzzles using mathematical terms and language</li> <li>Adequately demonstrate deductive reasoning skills given Shikaku puzzles</li> </ul>	<ul style="list-style-type: none"> <li>Anticipatory: Students draw different rectangular arrangements using 24-squares</li> <li>Talk-through: Key terms and 24-tile problem</li> <li>Cluster work: Students work in pairs to classify numbers as either prime or composite and to list their factors in pairs.</li> <li>Cluster work: Students work in pairs to figure out the rules and strategies of Shikaku puzzles</li> <li>Talk-through: Discuss rules and strategies for Shikaku puzzles; get started on solving first puzzle</li> <li>Homework: Complete Shikaku puzzle started in class</li> </ul>	SMART™ Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper</li> <li>25 copies: Guided Notes - Key Terms</li> <li>25 copies: 2-page Shikaku puzzles</li> <li>25 copies: Deductive Puzzling Project</li> <li>25 copies: Deductive Puzzling Rubric</li> </ul> Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: 2-page 24-Tile Rectangles - Connect-the-Dots</li> </ul>
Day 2 Number Theory: The Fundamental Theorem of Arithmetic; Divisibility and Prime Factorization	<ul style="list-style-type: none"> <li>Correctly explain the Fundamental Theorem of Arithmetic</li> <li>Correctly identify the prime factorization of any given number</li> <li>Correctly list divisibility rules</li> </ul>	<ul style="list-style-type: none"> <li>Anticipatory: Shikaku puzzle</li> <li>Talk-through: Homework</li> <li>Talk-through: The Fundamental Theorem of Arithmetic, divisibility rules, prime factorization, and factor trees</li> <li>Cluster work: Students work in pairs to find the prime factorization of given numbers</li> <li>Homework: Shikaku puzzles and problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Guided Notes - Divisibility Rules</li> </ul> Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Factor Trees Template</li> </ul>

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	Students will be able to...		
Day 3 Number Theory: Greatest Common Factors	<ul style="list-style-type: none"> <li>Correctly define key terms: common factor and greatest common factor (GCF)</li> <li>Correctly identify common factors and the GCF of two given numbers</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Students create factor trees of two numbers and circle the common factors.</li> <li>Talk-through: Finding the GCF for various pairs of numbers</li> <li>Cluster work: Students work in pairs to find the GCF</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Advance Organizer – GCF Key Terms</li> <li>5 copies: Factor Trees Template</li> </ul>
Day 4 Number Theory: Least Common Multiples	<ul style="list-style-type: none"> <li>Correctly define key terms: common multiple and least common multiple (LCM)</li> <li>Correctly identify common multiples and the LCM of two given numbers</li> <li>Correctly recognize the relationship between the lowest common denominator and the LCM</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Students draw a factor tree for two different numbers, identify the prime factors of each number, and identify the highest power of each factor between both numbers</li> <li>Talk-through: Finding the LCM and its relationship to common denominators</li> <li>Cluster work: Students work in pairs to find the LCM for various pairs of numbers</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Advance Organizer – LCM Key Terms</li> <li>5 copies: Factor Trees Template</li> </ul>
Day 5 Number Theory: Life Connection	<ul style="list-style-type: none"> <li>Practice applying new knowledge to real-life scenarios given the scenarios</li> <li>Practice problem solving techniques</li> <li>Correctly recognize patterns in codes</li> <li>Adequately summarize how cryptanalysts use numbers to encipher and decipher codes</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Analyze code word problem – A group has its members sign notes with numbers that follow a code. Given the code, students determine if a particular note is from a member or a spy.</li> <li>Talk-through: Solve code word problem and discuss how cryptanalysts use numbers to encipher and decipher codes</li> <li>Cluster work: Students work in pairs to create a 4-digit number signature for yourself and signatures for each of your friends – all must be unique numbers but must follow the same divisibility code that you determine, e.g. first digit is divisible by 2, second and third digit as a number is divisible by 11, and so on for all four digits.</li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Problem worksheet</li> <li>25 copies: Problem rubric</li> </ul> Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Advance Organizer - Problem Outline</li> </ul>
Day 6 Number Theory: Technology	<ul style="list-style-type: none"> <li>Create formulas that correctly calculate GCF and LCM given spreadsheet software</li> <li>Correctly demonstrate prime factorization and finding GCF and LCM given math playground factor tree simulation software</li> </ul>	<ul style="list-style-type: none"> <li>Create spreadsheet to calculate GCF and LCM</li> <li>Students go to <a href="http://www.mathplayground.com/factortrees.html">http://www.mathplayground.com/factortrees.html</a> to practice prime factorization and finding the GCF and LCM.</li> </ul>	Computer lab with demo computer/projector and 25 student computers all with Microsoft Excel and Internet access

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 7 Number Theory: Review/Quiz	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> <li>Quiz</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Quiz</li> </ul>
Day 8 Rational Numbers: Introduction and Defining Rational Numbers	<ul style="list-style-type: none"> <li>Correctly compare and order given rational numbers</li> <li>Correctly define key terms: rational numbers, terminating decimal, and repeating decimal</li> </ul>	<ul style="list-style-type: none"> <li>Anticipatory: Convert <math>1/7</math>, <math>2/7</math>, <math>3/7</math>, <math>4/7</math>, <math>5/7</math>, <math>6/7</math> to decimals and describe the pattern</li> <li>Talk-through: Comparing fractions and decimals</li> <li>Cluster work: Students work in pairs to complete problems on terminating and repeating decimals</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector
Day 9 Rational Numbers: Add and Subtract Rational Numbers	<ul style="list-style-type: none"> <li>Correctly add and subtract given rational numbers</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Journal – Explain why having the same number of decimal places is similar to having fractions with common denominators</li> <li>Talk-through: Adding and subtracting rational numbers</li> <li>Cluster work: Students work in pairs to add and subtract rational numbers</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector
Day 10 Rational Numbers: Multiply and Divide Rational Numbers	<ul style="list-style-type: none"> <li>Correctly multiply and divide given rational numbers</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Fold paper into eighths, color 2 sections, unfold and fold again into sixths, color 2 sections. Where the sections overlap is <math>2/8 \times 2/6</math>.</li> <li>Talk-through: Multiplying and dividing rational numbers</li> <li>Cluster work: Students work in pairs to multiply and divide rational numbers</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 11 Number Systems: Algebra Concept Connection	<ul style="list-style-type: none"> <li>Correctly explain the relationship between different number systems given the systems studied: real numbers, integers, and rational numbers</li> <li>Correctly apply prime factorization, GCF, LCM to solve a word problem given all necessary information</li> <li>Adequately explain why there are no prime rational numbers given the problem above as a context starting point</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Students consider a problem and list ideas on how they might go about solving it</li> <li>Talk-through: What we know and what we are asked to find out</li> <li>Cluster work: Students work in pairs to discuss <i>primeness</i> <ul style="list-style-type: none"> <li>why is a prime integer no longer prime when it is considered within the context of real numbers instead of just integers</li> <li>are there any rational numbers that are prime</li> </ul> </li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Problem Outline</li> <li>5 copies: Advance Organizer – <i>Primeness</i></li> </ul>
Day 12 Rational Numbers: Review/Quiz	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> <li>Quiz</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Quiz</li> </ul>
Day 13 Irrational Numbers: Introduction and Perfect Squares and Square Roots	<ul style="list-style-type: none"> <li>Correctly demonstrate that they can take square roots given numbers</li> <li>Correctly identify perfect squares given square numbers</li> <li>Correctly define key terms: square root, radical sign, and perfect square</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Quiz</li> <li>Anticipatory: On graph paper, draw perfect squares – sides with whole number lengths – with area 100 or less</li> <li>Talk-through: Key terms, taking square roots, and identifying perfect squares</li> <li>Cluster work: Students work in pairs to complete problems on perfect squares and square roots</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector
Day 14 Irrational Numbers: Square Roots and Irrational Numbers	<ul style="list-style-type: none"> <li>Correctly identify square roots that are irrational numbers given the numbers</li> <li>Correctly define key terms: square root, negative square root, irrational numbers, and real numbers</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: On graph paper, draw a 9 unit<sup>2</sup> square. Inside that square, draw a 4 unit<sup>2</sup> square. Also in the 9 unit<sup>2</sup> square and with a different color pencil, draw a 7 unit<sup>2</sup> square.</li> <li>Talk-through: Key terms and identifying square roots that are irrational numbers</li> <li>Cluster work: Students work in pairs to complete problems on square roots and irrational numbers</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 15 Irrational Numbers: The Pythagorean Theorem; Geometrical, Discovery Proof of the Pythagorean Theorem	<ul style="list-style-type: none"> <li>Correctly apply the Pythagorean theorem to solve problems given problems</li> <li>Demonstrate a geometric proof of the Pythagorean theorem given grid paper and scissors</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Present an interesting problem that would require the Pythagorean theorem to solve – include formula and consistent labeling between the problem and the formula</li> <li>Talk-through: Pythagorean theorem, solution to the anticipatory problem, and solutions to other problems</li> <li>Cluster work: Students work in pairs to prove the Pythagorean theorem visually</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper – various colors</li> <li>25 scissors</li> <li>25 rulers</li> </ul>
Day 16 Irrational Numbers: Life Connection	<ul style="list-style-type: none"> <li>Practice applying new knowledge to real-life scenarios given the scenarios</li> <li>Practice problem solving techniques given problems</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Present real-life problem – how Pythagorean theorem is used in building houses</li> <li>Talk-through: Problem and how new knowledge and problem solving techniques are used to solve it</li> <li>Cluster work: Students work in pairs to discuss and solve similar problems</li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Problem worksheet</li> <li>25 copies: Problem rubric</li> </ul> Handouts for Inclusion: 5 copies: Advance Organizer - Problem Outline
Day 17 Chapter Review	<ul style="list-style-type: none"> <li>Review</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> </ul>	SMART Board with computer and projector
Day 18 Assessment	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Assessment (2 pages)</li> </ul>
Day 19 Measurement: Units of Measurement Review; Significant Digits and Precision	<ul style="list-style-type: none"> <li>Demonstrate that they can choose an appropriate and consistent unit of measurement given various items to measure and the usage of the measurement</li> <li>Demonstrate that they can convert from one unit to another and back given numbers in a variety of units</li> <li>Correctly define key terms: U.S. customary units, metric system, precision, and significant digits</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Assessment</li> <li>Anticipatory/Cluster work: Measure and record length of hands and then measure the width of desks using hand-lengths. Measure the height of desks using measuring tape and mark the height to the nearest yard, foot, and inch</li> <li>Talk-through: Units of measure, conversion, significant digits, and precision</li> <li>Cluster work: Students work in pairs to complete problems that ask them to decide how precise a measurement should be (and why) based on how the measurement will be used</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 rulers 10 measuring tapes

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 20 Measurement: Position	<ul style="list-style-type: none"> <li>Correctly locate places using map coordinates and latitude and longitude given a map</li> <li>Correctly define key terms: Absolute position and relative position</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Display coordinate system with dots and have students write the coordinates of each point</li> <li>Talk-through: Position – absolute and relative - and orientation</li> <li>Cluster work: Students work in pairs to locate places on a map and answer questions relating to each place’s absolute position and relative position</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector
Day 21 Measurement: Technology and Life Connection	<ul style="list-style-type: none"> <li>Practice applying new knowledge to real-life scenarios given the scenarios</li> <li>Practice problem solving techniques given problems</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Present real-life problem</li> <li>Talk-through: Problem and how new knowledge and problem solving techniques are used to solve it</li> <li>Cluster work: Students work in pairs to discuss and solve similar problems</li> <li>Homework: Problems in book – Review</li> </ul>	Computer lab with demo computer/projector and 25 student computers all with Internet access to maps Handouts: <ul style="list-style-type: none"> <li>25 copies: Problem worksheet</li> <li>25 copies: Problem rubric</li> </ul> Handouts for Inclusion: 5 copies: Advance Organizer - Problem Outline
Day 22 Measurement: Review/Quiz	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> <li>Quiz</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Quiz</li> </ul>

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 23 Geometry: Line and Angles; Hashiwokakero Puzzles and Deductive Reasoning	<ul style="list-style-type: none"> <li>Correctly construct, measure, and identify straight, right, acute, and obtuse angles given a worksheet</li> <li>Correctly define key terms: Angle, vertex, line, line segment, endpoints, ray, straight angle, right angle, acute angle, obtuse angle, complementary, supplementary, congruent, angle bisector.</li> <li>Adequately articulate, orally and in writing, solutions and strategies to given Hashiwokakero puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills given Hashiwokakero puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Quiz</li> <li>Anticipatory: Display Hashiwokakero puzzle with solution and have students guess the object or goal of the puzzle</li> <li>Talk-through: Hashiwokakero puzzle rules and strategies</li> <li>Talk-through: Lines and angles</li> <li>Cluster work: Students work in pairs to construct various lines and angles according to specified measurements for practice using key terms</li> <li>Homework: Hashiwokakero puzzle and problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 protractors 25 rulers Handouts: <ul style="list-style-type: none"> <li>25 copies: Angles worksheet</li> <li>25 copies: Hashiwokakero Puzzles (2-pages)</li> </ul> Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Instructions for measuring lines and angles</li> <li>5 copies: Worksheet with illustrated ruler and compass below or overlaid lines and angles for easier measurement</li> </ul>
Day 24 Geometry: Parallel and Perpendicular Lines	<ul style="list-style-type: none"> <li>Correctly recognize and construct parallel and perpendicular lines given a ruler and compass</li> <li>Correctly define key terms: parallel, perpendicular, perpendicular bisector, transversal, interior angle, exterior angle, alternate angle, corresponding angle, and vertical angle.</li> <li>Adequately articulate, orally and in writing, solutions and strategies to given Hashiwokakero puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills given Hashiwokakero puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Hashiwokakero puzzle for students to solve</li> <li>Talk-through: Parallel and perpendicular lines</li> <li>Cluster work: Students work in pairs to construct parallel and perpendicular lines and to label the angles for practice using key terms</li> <li>Talk-through: Hashiwokakero puzzle</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 rulers 25 compasses

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 25 Geometry: Polygons; Nurikabe Puzzles and Deductive Reasoning	<ul style="list-style-type: none"> <li>Correctly classify polygons given polygons</li> <li>Correctly define key terms: Polygon, vertex, triangle, quadrilateral, pentagon, hexagon, heptagon, octagon, venn diagram, equilateral triangle, isosceles triangle, scalene triangle, parallelogram, rectangle, rhombus, square, trapezoid, diagonal, regular polygon, convex polygon, and concave polygon.</li> <li>Adequately articulate, orally and in writing, solutions and strategies to given Nurikabe puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills given Nurikabe puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Display Nurikabe puzzle with solution and have students guess the object or goal of the puzzle</li> <li>Talk-through: Nurikabe puzzle rules and strategies</li> <li>Talk-through: Polygons and their distinguishing features</li> <li>Cluster work: Students work in pairs to classify polygons</li> <li>Homework: Nurikabe puzzle and problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Nurikabe Puzzles (2-pages)</li> </ul>
Day 26 Geometry: 3-D Views	<ul style="list-style-type: none"> <li>Demonstrate that they can represent 3-D shapes in a drawing given graph paper and block manipulatives</li> <li>Adequately articulate, orally and in writing, solutions and strategies to given Nurikabe puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills given Nurikabe puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Nurikabe puzzle for students to solve</li> <li>Talk-through: Representing 3-D shapes in a drawing</li> <li>Cluster work: Students work in pairs to visualize side and top views of 3-D shapes</li> <li>Talk-through: Nurikabe puzzle</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Math cubes (Legos) Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper</li> </ul>
Day 27 Geometry: Technology	<ul style="list-style-type: none"> <li>Demonstrate that they can correctly visualize side and top views of 3-D objects given Geometry software</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Construct top and side views of a square nut and hexagonal nut using Geometry software (give each student one of each nut)</li> <li>Homework: Problems in book – Review</li> </ul>	Computer lab with demo computer/projector and 25 student computers all with Geometry software 25 square nuts 25 hexagonal nuts Handouts: <ul style="list-style-type: none"> <li>25 copies: Drawing Side and Top Views Instructions and Rubric (3-pages)</li> </ul>



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Day 28 Symbolic Representation of Geometry: Algebra Concept Connection	<ul style="list-style-type: none"> <li>Calculate the slope of a line given two points on the line</li> <li>Demonstrate that two lines are parallel given two lines and two known coordinates on each line</li> <li>Demonstrate that two lines are perpendicular given a line and two known coordinates on each line</li> <li>Explain the relationship between the slopes of two parallel lines and the slopes of two perpendicular lines given the above analysis as a context starting point</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Students will be given two points for each of four lines that they will draw on a coordinate grid. They will consider whether or not the lines cross to form a rectangle.</li> <li>Talk-through: The slopes of parallel and perpendicular lines</li> <li>Cluster work: Students work in pairs to find the slopes of various lines to determine whether each line is parallel or perpendicular to any other</li> <li>Talk-through: Discuss cluster work and prove that the polygon they created at the beginning is a rectangle</li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper with coordinate grid</li> <li>25 copies: Parallel and Perpendicular lines Worksheet</li> </ul>
Day 29 Chapter Review	<ul style="list-style-type: none"> <li>Review</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> </ul>	SMART Board with computer and projector
Day 30 Assessment	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Assessment</li> </ul>
Day 31 Area: Perimeter and Area of Polygons	<ul style="list-style-type: none"> <li>Demonstrate that they can find the perimeter and area of polygons given polygons and their dimensions</li> <li>Correctly define key terms: Perimeter and area.</li> <li>Adequately articulate, orally and in writing, solutions and strategies to given Slitherlink puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills given Slitherlink puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Assessment</li> <li>Anticipatory: Display Slitherlink puzzle with solution and have students guess the object or goal of the puzzle</li> <li>Talk-through: Slitherlink puzzle rules and strategies</li> <li>Talk-through: Perimeter and area of polygons</li> <li>Cluster work: Students work in pairs to solve perimeter and area problems</li> <li>Homework: Slitherlink puzzle and problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Slitherlink Puzzles (2-pages)</li> </ul>

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	Students will be able to...		
Day 32 Area: Scale and Area; Slitherlink Puzzles and Deductive Reasoning	<ul style="list-style-type: none"> <li>Demonstrate that they can scale a polygon.</li> <li>Demonstrate that they can predict the perimeter and area of a scaled polygon.</li> <li>Adequately articulate, orally and in writing, solutions and strategies to Slitherlink puzzles using mathematical terms and language.</li> <li>Adequately demonstrate deductive reasoning skills in solving Slitherlink puzzles.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Slitherlink puzzle for students to solve</li> <li>Talk-through: Scaling a polygon and predicting the resulting perimeter and area</li> <li>Cluster work: Students work in pairs to scale polygons and predict and calculate the new perimeter and area</li> <li>Talk-through: Slitherlink puzzle</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators
Day 33 Area: Circles	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the area and circumference of circles.</li> <li>Demonstrate that they can classify polygons as either inscribed within a circle or circumscribed about a circle.</li> <li>Correctly define key terms: Center, radius, diameter, <math>\Pi</math> (pi), inscribed, and circumscribed.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Find the circumference of the largest Ferris wheel, located in Tokohama City, Japan, given its diameter of 328 feet.</li> <li>Talk-through: Calculating the area and circumference of circles and classifying polygons as inscribed and circumscribed</li> <li>Cluster work: Students work in pairs to solve area and circumference problems.</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators
Day 34 Area: Surface Area of Prisms and Cylinders	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the surface area of prisms and cylinders.</li> <li>Correctly define key terms: Polyhedron, face, edge, vertex, surface area, prism, base, and cylinder.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Make 3-D figures out of grid paper and discuss surface area. (Save for volume section) Students with less developed fine motor skills can work with a partner.</li> <li>Talk-through: Calculating the surface area of prisms and cylinders</li> <li>Cluster work: Students work in pairs to calculate the surface area of various prisms and cylinders</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators 25 scissors Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper</li> </ul>

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 35 Area: Surface Area of Pyramids and Cones	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the surface area of pyramids and cones given pyramids, cones, and their dimensions</li> <li>Correctly define key terms: Pyramid, height, slant height.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Build pyramids out of paper and discuss surface area. (Save for volume section) Students with less developed fine motor skills can work with a partner.</li> <li>Talk-through: Calculating the surface area of pyramids and cones</li> <li>Cluster work: Students work in pairs to calculate the surface area of various pyramids and cones</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 Calculators 25 scissors Handouts: <ul style="list-style-type: none"> <li>25 sheets of 8.5 x 8.5 paper</li> </ul>
Day 36 Area: Technology	<ul style="list-style-type: none"> <li>Demonstrate that they can correctly construct polygons given instructions and Geometry software</li> <li>Demonstrate that they can correctly measure the perimeter of polygons given their constructed polygons and Geometry software</li> <li>Demonstrate that they can correctly measure the area of polygons given their constructed polygons and Geometry software</li> </ul>	<ul style="list-style-type: none"> <li>Construct a triangle and determine perimeter and area using Geometry software</li> <li>Homework: Problems in book – Review</li> </ul>	Computer lab with demo computer/projector and 25 student computers all with Geometry software Handouts: <ul style="list-style-type: none"> <li>25 copies: Measuring Polygons Instructions and Rubric (3-pages)</li> </ul>
Day 37 Area: Life Connection	<ul style="list-style-type: none"> <li>Practice applying new knowledge to real-life scenarios given scenarios</li> <li>Practice problem solving techniques given problems</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Present real-life problem</li> <li>Talk-through: Problem and how new knowledge and problem solving techniques are used to solve it</li> <li>Cluster work: Students work in pairs to discuss and solve similar problems</li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Problem worksheet</li> <li>25 copies: Problem rubric</li> </ul> Handouts for Inclusion: <ul style="list-style-type: none"> <li>5 copies: Advance Organizer - Problem Outline</li> </ul>
Day 38 Area: Review/Quiz	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> <li>Quiz</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Quiz</li> </ul>

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 39 Volume: Volume of Rectangular Prisms; Scale and Volume	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the volume of rectangular prisms given the prisms and their dimensions</li> <li>Correctly define key terms: Volume.</li> <li>Demonstrate that they can scale rectangular prisms and predict the volume.</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Use previously built rectangular prisms to determine how many centimeter cubes are needed to fill the prism. Students with less developed fine motor skills can work with a partner.</li> <li>Talk-through: Calculating the volume of rectangular prisms</li> <li>Cluster work: Students work in pairs to calculate the volume of various rectangular prisms</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 calculators
Day 40 Volume: Volume of Prisms and Cylinders	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the volume of prisms and cylinders given the prisms and cylinders and their dimensions</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Build two cylinders out of paper rolling one sheet along the long side and the other along the short side. Estimate how many centimeter cubes are needed to fill each one. Students with less developed fine motor skills can work with a partner.</li> <li>Talk-through: Calculating the volume of prisms and cylinders</li> <li>Cluster work: Students work in pairs to calculate the volume of various prisms and cylinders</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 calculators
Day 41 Volume: Volume of Pyramids and Cones	<ul style="list-style-type: none"> <li>Demonstrate that they can calculate the volume of pyramids and cones given the pyramids and cones and their dimensions</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Use previously built pyramids to determine how many centimeter cubes are needed to fill the pyramid. Students with less developed fine motor skills can work with a partner.</li> <li>Talk-through: Calculating the surface area of pyramids and cones</li> <li>Cluster work: Students work in pairs to calculate the surface area of various pyramids and cones</li> <li>Homework: Problems in book – application, problem solving, connections, and reasoning</li> </ul>	SMART Board with computer and projector 25 calculators

Lesson Title	Objectives	Activities	Resources
	Students will be able to...		
Day 42 Volume: Life Connection	<ul style="list-style-type: none"> <li>Practice applying new knowledge to real-life scenarios given scenarios</li> <li>Practice problem solving techniques given problems</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework</li> <li>Anticipatory: Present real-life problem</li> <li>Talk-through: Problem and how new knowledge and problem solving techniques are used to solve it</li> <li>Cluster work: Students work in pairs to discuss and solve similar problems</li> <li>Homework: Problems in book – Review</li> </ul>	SMART Board with computer and projector Handouts: <ul style="list-style-type: none"> <li>25 copies: Problem worksheet</li> <li>25 copies: Problem rubric</li> </ul> Handouts for Inclusion: 5 copies: Advance Organizer - Problem Outline
Day 43 Chapter Review	<ul style="list-style-type: none"> <li>Review</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Homework and specific questions</li> </ul>	SMART Board with computer and projector
Day 44 Assessment	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Assessment</li> </ul>	Handouts: <ul style="list-style-type: none"> <li>25 copies: Assessment</li> </ul>
Day 45 Exploring Change and Representations of Change: Calculus Concept Connection	<ul style="list-style-type: none"> <li>Correctly analyze a given problem listing known information, the question asked for, and missing information</li> <li>Adequately develop a plan to solve a given problem</li> <li>Correctly construct an expression using variables and numeric values to represent the volume of a box given the dimensions (in variables and numeric values) of the cardboard to be transformed into a box and instructions for the transformation</li> <li>Correctly calculate the volume of a box given the dimensions including possible values for the variable</li> <li>Correctly construct a table and graph that represent the change in volume with respect to x-values given a Volume Table worksheet and graph paper</li> <li>Correctly demonstrate that they can explain and interpret results of given graphs</li> </ul>	<ul style="list-style-type: none"> <li>Talk-through: Assessment</li> <li>Anticipatory: Students consider a problem and list ideas on how they might go about solving it</li> <li>Talk-through: What we know and what we are asked to find out</li> <li>Cluster work: Students work in pairs to cut squares of a specified size from the corners of grid paper (each group is assigned a different size square). Students then fold up the sides and calculate the volume of the resulting “box.”</li> <li>Talk-through: Maximum volume problem - create a graph of all of the student “boxes” with respect to two variables, i.e. the x-value and the volume</li> <li>Talk-through: The concept of change – discuss the “stories” behind various graphs focusing on how change is represented in words, tables, and graphs</li> <li>Homework: Graphs to Stories worksheet</li> </ul>	SMART Board with computer and projector 25 scissors 25 calculators Tape Handouts: <ul style="list-style-type: none"> <li>25 sheets of graph paper</li> <li>25 copies: Volume Table worksheet</li> <li>25 copies: Graphs to Stories worksheet</li> </ul> Inclusion: Students can calculate volume by counting tiles and multiplying or by plugging x into the formula.

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<sup>i</sup> Content ideas from Foresman and Wesley, 1999