**Geometry CPM**

**Instructional Plan 2014-2015**

**Mathematics Instructional Plan Writing Committee**

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| |  |  |  |  | | --- | --- | --- | --- | | **School Board Members:**  Karen Almond  Tina Calderone, Ed.D.  Amy Lockhart  Dede Schaffner  **Superintendent:**  Dr. Walt Griffin  **Deputy Superintendent:**  Dr. Anna-Marie Cote  **Secondary Executive Directors:**  Dr. Michael Blasewitz  Dr. Robin Dehlinger  **Department of Teaching and Learning**  Dr. Corbet Wilson  Diana Barnett | **Middle School Contributors:**  Sandy Baldorossi – TWMS  Jennifer Bennett – MKMS  Patty Bouington – SMS  Allison Child – SMS  Diane Firios – SSMS  Mary Ellen Freeman – MMMS  Sara Gibbs – MWMS  Kelly Goodearl – ITMS  Kim Hamilton – ITMS  LeeAnn Heldmyer – TWMS  Joni Hudson – SMS  Stephanie Johnson – MMMS  Beth Karnes – ITMS  Adam Kiefer – SSMS  Elena Lugo – RLMS  Jennifer Manwaring – TWMS  Stuart Milchman – MMMS  Lisa Morris – MMMS  Michelle Mouton – JHMS  Misty Naran – LCMS | Triscia Panarello – SMS  Sabrina Robinson – MWMS  Robyn Smith – MKMS  Erica Sowpel – SMS  Kristen Springfield – MKMS  Jennifer Stickle – MMMS  Deborah Velez – LCMS  Dennis Whalen – ITMS  Barbie Wigen – MMMS  Agnes Wong – SMS | **High School Contributors:**  Ryan Beasley – LMHS  Susan Brown – LHS  Brittany Campbell – HHS  Aglaia Christodoulides - HHS  Katie Donoghue - LMHS  Lauren Fedi - OHS  Matt Guglielmello – OHS  David Hiller – LMHS  Saida Hussien – OHS  Amy Jones – LBHS  Mia Keyeser – LMHS  Angela-Mia Kilmer – OHS  Jeffrey Miller – LBHS  Karen Neukamm – LBHS  Laura Pollard – LHS  Jonathan Rodriguez – HHS  Kristina Rudich – LMHS  Lesley Schmidt – WSHS  Erica Segrest – OHS  Sharon Shyrock – LHS  Lynn Webb – LHHS  Betty Westhelle – OHS | |  |  |  |

We would like to express our appreciation for the time, effort and expertise contributed to the writing of the secondary Mathematics Instructional Plans by our team of Seminole County math teachers.

**Purpose:**

The purpose of the Seminole County Public Schools Instructional Plan is to present an organized, responsible strategy of Benchmark presentation that incorporates Mathematics Formal Standards (MAFS) standards. This document will serve as a guide for teachers of mathematics. Latitude in the execution of this document shall be determined by a school rather than by an individual teacher.

**Goals:**

* To establish a classroom environment that values mathematical student discourse
* To engage students in cognitively challenging mathematical tasks
* To promote discussions that focus on student thinking, reasoning, problem solving and student presentation
* To build on student thinking while ensuring the discussion remains focused on the mathematical ideas of the lesson
* Employ questioning techniques that require students to justify, defend and support their ideas

**Instructional Plan Caveats:**

* Suggested practice corresponds to the associated lesson and left at the discretion of the instructor to be used as additional practice or assignment. Problems within the suggested pages may be exhausted or selected for targeted skills.
* Descriptions of the Mathematical Practices can be found on pages 3 – 4. Teachers are encouraged to embed the Questions to Develop Mathematical Thinking on pages 5 – 6 in their daily lessons.
* Learning goals and scales can be accessed through the hyperlinks within the Instructional Plan.
* Each learning scale will include links for formative assessment tasks that teachers are encouraged to use while students are progressing through the learning scale.
* Teachers are encouraged to use appropriate questioning strategies to fully address the instructional standards and expectations, by paying attention to the recommended caveats included throughout the IP to include discussion that may not be included as part of the textbook.
* Please look ahead and plan accordingly for time and copy needs that may arise throughout this year so that all MAFS standards are thoroughly addressed.
* Due to the fact that we do not have Test Item Specifications at this time the targeted Mathematical Practices for each unit are a projection.
* **Common Assessments need to be readdressed by PLCs to fit the new units and fully address the standards.**
* **Each unit will include at least one learning goal listed under the unit heading. The learning goals and scales correspond to the grade/level specific clusters as defined by the MAFS.**
* **The learning goals and scales are a work in progress and may be modified as needed. They are meant to be a starting point for PLCs to use as they customize the learning goals and scales to best demonstrate student learning.**

**Test Items Specifications:** [fsassessments.org](http://fsassessments.org/)

**STANDARDS FOR MATHEMATICAL PRACTICE**

1. **(MAFS.K12.MP.1.1) Make sense of problems and persevere in solving them.**

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

1. **(MAFS.K12.MP.2.1) Reason abstractly and quantitatively.**

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

**3. (MAFS.K12.MP.3.1) Construct viable arguments and critique the reasoning of others.**

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

**4. (MAFS.K12.MP.4.1) Model with mathematics.**

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

**5. (MAFS.K12.MP.5.1) Use appropriate tools strategically.**

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

**6. (MAFS.K12.MP.6.1) Attend to precision.**

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, student’s give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

**7. (MAFS.K12.MP.7.1) Look for and make use of structure.**

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 × 8 equals the well-remembered 7 × 5 + 7 × 3, in preparation for learning about the distributive property. In the expression *x*2 + 9*x* + 14, older students can see the 14 as 2 × 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see 5 – 3(*x* – *y*) 2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers *x* and *y*.

**8. (MAFS.K12.MP.8.1) Look for and express regularity in repeated reasoning.**

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation (*y* – 2)/(*x* – 1) = 3. Noticing the regularity in the way terms cancel when expanding (*x* – 1)(*x* + 1), (*x* – 1)(*x*2 + *x* + 1), and (*x* – 1)(*x*3 + *x*2 + *x* + 1) might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

| **Summary of Standards for Mathematical Practice** | **Questions to Develop Mathematical Thinking** |
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| **1. Make sense of problems and persevere in solving them.** | |
| * Interpret and make meaning of the problem to find a starting point. Analyze what is given in order to explain to them the meaning of the problem. * Plan a solution pathway instead of jumping to a solution. * Monitor their progress and change the approach if necessary. * See relationships between various representations. * Relate current situations to concepts or skills previously learned and connect mathematical ideas to one another. * Continually ask them, “Does this make sense?” Can understand various approaches to solutions. | * How would you describe the problem in your own words? * How would you describe what you are trying to find? * What do you notice about...? * What information is given in the problem? * Describe the relationship between the quantities. * Describe what you have already tried. What might you change? * Talk me through the steps you’ve used to this point. * What steps in the process are you most confident about? * What are some other strategies you might try? * What are some other problems that are similar to this one? * How might you use one of your previous problems to help you begin? * How else might you organize...represent... show...? |
| **2. Reason abstractly and quantitatively.** | |
| * Make sense of quantities and their relationships. * Decontextualize (represent a situation symbolically and manipulate the symbols) and contextualize (make meaning of the symbols in a problem) quantitative relationships. * Understand the meaning of quantities and are flexible in the use of operations and their properties. * Create a logical representation of the problem. * Attends to the meaning of quantities, not just how to compute them. | * What do the numbers used in the problem represent? * What is the relationship of the quantities? * How is \_\_\_\_\_\_\_ related to \_\_\_\_\_\_\_\_? * What is the relationship between \_\_\_\_\_\_and \_\_\_\_\_\_? * What does\_\_\_\_\_\_\_mean to you? (e.g. symbol, quantity, diagram) * What properties might we use to find a solution? * How did you decide in this task that you needed to use...? * Could we have used another operation or property to solve this task? Why or why not? |
| **3. Construct viable arguments and critique the reasoning of others.** | |
| * Analyze problems and use stated mathematical assumptions, definitions, and established results in constructing arguments. * Justify conclusions with mathematical ideas. * Listen to the arguments of others and ask useful questions to determine if an argument makes sense. * Ask clarifying questions or suggest ideas to improve/revise the argument. * Compare two arguments and determine correct or flawed logic. | * What mathematical evidence would support your solution? * How can we be sure that...? / How could you prove that...? * Will it still work if...? * What were you considering when...? * How did you decide to try that strategy? * How did you test whether your approach worked? * How did you decide what the problem was asking you to find? (What was unknown?) * Did you try a method that did not work? Why didn’t it work? Would it ever work? Why or why not? * What is the same and what is different about...? * How could you demonstrate a counter-example? |
| **4. Model with mathematics.** | |
| * Understand this is a way to reason quantitatively and abstractly (able to decontextualize and contextualize). * Apply the mathematics they know to solve everyday problems. * Are able to simplify a complex problem and identify important quantities to look at relationships. * Represent mathematics to describe a situation either with an equation or a diagram and interpret the results of a mathematical situation. * Reflect on whether the results make sense, possibly improving/revising the model. * Ask them, “How can I represent this mathematically?” | * What number model could you construct to represent the problem? * What are some ways to represent the quantities? * What is an equation or expression that matches the diagram, number line..., chart..., table..? * Where did you see one of the quantities in the task in your equation or expression? * How would it help to create a diagram, graph, and table...? * What are some ways to visually represent...? * What formula might apply in this situation? |

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| **5. Use appropriate tools strategically.** | |
| * Use available tools recognizing the strengths and limitations of each Unit * Use estimation and other mathematical knowledge to detect possible errors. * Identify relevant external mathematical resources to pose and solve problems. * Use technological tools to deepen their understanding of mathematics. | * What mathematical tools could we use to visualize and represent the situation? * What information do you have? * What do you know that is not stated in the problem? * What approach are you considering trying first? * What estimate did you make for the solution? * In this situation would it be helpful to use...a graph..., number line..., ruler..., diagram..., calculator..., manipulative? * Why was it helpful to use...? * What can using a \_\_\_\_\_\_ show us that \_\_\_\_\_may not? * In what situations might it be more informative or helpful to use...? |
| **6. Attend to precision.** | |
| * Communicate precisely with others and try to use clear mathematical language when discussing their reasoning. * Understand the meanings of symbols used in mathematics and can label quantities appropriately. * Express numerical answers with a degree of precision appropriate for the problem context. * Calculate efficiently and accurately. | * What mathematical terms apply in this situation? * How did you know your solution was reasonable? * Explain how you might show that your solution answers the problem. * What would be a more efficient strategy? * How are you showing the meaning of the quantities? * What symbols or mathematical notations are important in this problem? * What mathematical language...,definitions..., properties can you use to explain...? * How could you test your solution to see if it answers the problem? |
| **7. Look for and make use of structure.** | |
| * Apply general mathematical rules to specific situations. * Look for the overall structure and patterns in mathematics. * See complicated things as single objects or as being composed of several objects. | * What observations do you make about...? * What do you notice when...? * What parts of the problem might you eliminate.., simplify..? * What patterns do you find in...? * How do you know if something is a pattern? * What ideas that we have learned before were useful in solving this problem? * What are some other problems that are similar to this one? * How does this relate to...? * In what ways does this problem connect to other mathematical concepts? |
| **8. Look for and express regularity in repeated reasoning.** | |
| * See repeated calculations and look for generalizations and shortcuts. * See the overall process of the problem and still attend to the details. * Understand the broader application of patterns and see the structure in similar situations. * Continually evaluate the reasonableness of their intermediate results | * Explain how this strategy works in other situations? * Is this always true, sometimes true or never true? * How would we prove that...? * What do you notice about...? * What is happening in this situation? * What would happen if...? * Is there a mathematical rule for...? * What predictions or generalizations can this pattern support? * What mathematical consistencies do you notice? |

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| **FIRST QUARTER (August 11 – October 9)** | | **42 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Topic/Assessment** |
| Unit 1: Shapes and Transformations |  | 16 |
| Unit 2: Angles and Measurement |  | 15 |
| Unit 3: Similarity |  | 8 |
| District Assessment (1 day), 9 Weeks Exams (2 days) |  | 3 |
|  | | |
| **SECOND QUARTER (October 13 – December 18)** | | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Topic/Assessment** |
| Unit 3: Justification and Similarity (cont.) |  | 13 |
| Unit 4: Trigonometry |  | 8 |
| Unit 5: Trigonometry and Triangle Tool Kit |  | 14 |
| Unit 6: Congruent Triangles |  | 7 |
| PSAT (1 day); District Assessment (1 day); 9 Weeks Exams (3 days) |  | 5 |
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| **THIRD QUARTER (January 6 – March 12)** | | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Topic/Assessment** |
| Unit 6: Congruent Triangles (cont.) |  | 4 |
| Unit 7: Proof and Quadrilaterals |  | 18 |
| Unit 8: Polygons and Circles |  | 15 |
| Unit 9: Constructions |  | 6 |
| District Assessment (1 day); 9 Weeks Exams (2 days) |  | 3 |
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| **FOURTH QUARTER (March 23 – May 27)** | | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Topic/Assessment** |
| Unit 10: Solids |  | 17 |
| Unit 11: Circles |  | 17 |
| Unit 12: Coordinate Geometry and Euler’s Formula |  | 2 |
| FSA Tests (7 days) 9 Weeks Exams (3 days) |  | 10 |

*\*Please note that the suggested number of instructional days per unit and quarter are designed to be a guide. Teachers are encouraged to work within their schools and their PLCs to make the most appropriate timing decisions for their students.\**

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| **FIRST QUARTER 42 Days** | | | | | | | | |
| **Unit 1: Shapes and Transformations** | | | | | | | | |
| **Learning**  **Goals** | **G01:** Experiment with transformations in the plane. | | | | | | **# Days** | **16** |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G.CO.1.2  G. CO.1.5  G-GMD.2.4  G-CO.1.3  G-CO.1.4  G-GPE.2.5  G-CO.1.1 | Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).  Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.  Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three dimensional objects generated by rotations of two-dimensional objects.  Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.  Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.  Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.  Know precise definitions of angle, ~~circle~~, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, ~~and distance around a circular arc.~~ | | | | 1. Make sense of problems and persevere in solving them  3. Construct viable arguments and critique the reasoning of others  5. Use appropriate tools strategically  6. Attend to precision | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 2 | 1.1.1 Creating a Quilt Using Symmetry | | Core Problem: 1-1  Additional Problem: 1-2  Homework: 1-3 through 1-7 | 12-15 | 3-6 | 1.1.1A Resource Page  1.1.1B Resource Page | | |
| 1 | 1.1.2 Making Predictions and Investigating Results | | Core Problems: 1-9 through 1-11  Additional Problems: 1-12 and 1-13  Homework: 1-14 through 1-18 | 20-23 | 7-11 | Copy Paper Cut in Strips 4  1.1.2A Resource Page  1.1.2B Resource Page | | |
| 1+ | 1.1.3 Perimeter and Area of Enlarging Tile Patterns | | Core Problem: 1-19 through 1-23  Additional Problem: 1-24  Homework: 1-25, 1-26, and 1-28 | 29-32 | 12-16 | Graph Paper  1.1.3 Resource Page | | |
| 1- | 1.1.4 Logical Arguments | | Core Problems: 1-30 and 1-31  Homework: 1-33, 1-35, and 1-36 | 37-39 | 16-20 | 1.1.4 Resource Page | | |
| 2 | 1.1.5 Building a Kaleidoscope | | Core Problems: 1-37 through 1-39, and 1-40 (a,b,c)  Additional Problems: 1-40d and 1-41  Homework: 1-42 through 1-46 | 44-46 | 21-25 | Hinged mirrors  1.1.5 Resource Page OR Protractor  Colored Paper | | |
| 1 | 1.2.1 Spatial Visualization and Reflections | | Core Problems: 1-50 and 1-51  Additional Problems: 1-52 and 1-53  Homework: 1-55, 1-56, and 1-58 | 52-53 | 26-30 | 1.2.1 Resource Page | | |
| 1 | 1.2.2 Rigid Transformations: Rotation and Translations | | Core Problems: 1-59 through 1-61  Additional Problem: 1-62  Homework: 1-63 through 1-66 | 59-61 | 31-35 | 1.2.2 Resource Page  Patty Paper | | |
| 1 | 1.2.3 Using Transformations | | Core Problems: 1-69 through 1-72  Homework: 1-73, 1-75, and 1-76 | 67-68 | 36-39 | 1.2.3 Resource  Patty Paper | | |
| 1 | 1.2.4 Using Transformations to Create Shapes | | Core Problem: 1-79 and 1-80  Additional Problem: 1-81  Homework: 1-83 through 1-86 | 73-75 | 40-43 | Patty Paper | | |
| 1 | 1.2.5 Symmetry | | Core Problems: 1-87 through 1-89 plus p. 47  Additional Problem: 1-90  Homework: 1-92 through 1-96 | 80-81 | 44-49 | Patty Paper | | |
| 1 | 1.3.1 Attributes and Characteristics of Shapes | | Core Problems: 1-97 and 1-98  Homework: 1-99, 1-101, and 1-102 | 87-89 | 49-53 | 1.3.1A, B, C Resource Pages  Small Sticky Notes | | |
| 1 | 1.3.2 More Characteristics of Shapes | | Core Problems: 1-104 through 1-107  Additional Problems: 1-108 and 1-109  Homework: 1-110, 1-112, 1-113, and 1-114 | 94-95 | 53-56 | 1.3.2A, B Resource Pages  Shape Bucket  Venn Diagrams | | |
| 1 | Unit Closure | | Review Problems: CL 1-126 through CL 1-130 and CL 1-133  Homework: 1-121 and 1-124 | 107-116 | 62-67 | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | |  |  |  |  | | |

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| **Unit 2: Angles and Measurements (part 1)** | | | | | | | | |
| **Learning Goals** | **G03:** Prove geometric theorems. | | | | | | **# Days** | 6 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-CO.3.9  G-CO.3.10 | Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent~~.~~  Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent~~.~~ | | | | 3. Construct viable arguments and critique the reasoning of others.  5. Use appropriate tools strategically.  8. Look for and express regularity in repeated reasoning. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 2 | 2.1.1 Complementary, Supplementary, and Vertical Angles | | Core Problems: 2-1 through 2-6  Additional Problems: 2-4 through 2-7  Homework: 2-8, 2-10, 2-11, and 2-12 | 146-148 | 73-78 | Hinged Mirrors  Laser Pointer(optional)  Household Cornstarch OR Flour | | |
| 1 | 2.1.2 Angles Formed by Transversals | | Core Problems: 2-14 through 2-17  Homework: 2-18, 2-19, 2-20, and 2-22  *When using “if…, then…” statements as at the end of section 2.2.3, you will need to introduce symbolic logic p→q* | 154-157 | 78-83 | Patty Paper  PowerPoint Presentation  2.1.2 Resource Page  *Prentice Hall Geometry section 2-2 page 97* | | |
| 1 | 2.1.3 More Angles Formed by Transversals | | Core Problems: 2-23 through 2-25, and 2-28  Additional Problems: 2-26 and 2-27  Homework: 2-30 through 2-33 | 163-165 | 83-89 | Patty Paper  2.1.3 Resource Page  Laser Pointer & Hinged Mirror  Chalkboard Erasers or Household Flour | | |
| 1 | 2.1.4 Angles in a Triangle | | Core Problems: 2-34 through 2-36  Additional Problem: 2-37  Homework: 2-38, 2-40, and 2-41 | 172-175 | 89-92 | Colored Pencils  2.1.4 Resource Page  Patty Paper  Dynamic Geometry Tool | | |
| 1 | 2.1.5 Applying Angle Relationships | | Core Problems: 2-43 through 2-45, and 2-49  **\*Be sure to teach page 96**  Additional Problems: 2-46, 2-47, 2-48, and 2-50  Homework: 2-51 through 2-55 | 179-181 | 93-97 | Hinged Mirrors | | |

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| **Unit 2: Angles and Measurements (part 2)** | | | | | | | | |
|  | **G07:** Use coordinates to prove simple geometric theorems algebraically. | | | | | | **# Days** | 4 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-GPE.2.7 | Use coordinates to compute perimeter of polygons and areas of triangles and rectangles. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| Lesson 2.2.1 is an optional lesson | | | | | | | | |
| 2 | 2.2.2 Areas of Triangles and Composite Shapes | | Core Problems: 2-66 through 2-68, and 2-72  Additional Problem: 2-69  Homework: 2-61 through 2-65, 2-71, and 2-73 | 195-198 | 102-105 | Hinged Mirrors  Laser Pointer(optional)  Household Cornstarch OR Flour | | |
| 1+ | 2.2.3 Areas of Parallelograms and Triangles | | Core Problems: 2-75, 2-76, 2-78, and 2-79  Additional Problems: 2-77 and 2-80  Homework: 2-82 through 2-84 | 203-205 | 105-109 | Shapes from Shape Bucket  Patty Paper | | |
| 1- | 2.2.4 Heights and Area | | Core Problems: 2-86, 2-88, and 2-89  Additional Problem: 2-87  Homework: 2-90, 2-93, 2-102, and 2-103 | 210-212 | 110-113 | 2.2.4A, B Resource Pages  Metric Ruler; Index Card | | |

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| **Unit 2: Angles and Measurements (part 3)** | | | | | | | | |
| **Learning Goals** | **G12:** Define trigonometric ratios and solve problems involving right triangles. | | | | | | **# Days** | 5 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.3.8 | Use the Pythagorean Theorem to solve right triangles in applied problems. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 2.3.2 Triangle Inequality | | Core Problems: 2-106 and 2-107  Additional Problems: 2-108  Homework: 2-111 through 2-113 | 223-226 | 117-120 | Dynamic Geometry Tool OR Sticks of Linguini | | |
| 2 | 2.3.3 The Pythagorean Theorem | | Core Problems: 2-96, 2-97, and 2-114 through 2-116  Additional Problems: 2-105 and 2-117  Homework: 2-119 through 2-122 | 230-231 | 121-124 | Dynamic Geometry Tool  2.3.3 Resource Page  Scissors | | |
| 1 | Unit Closure | | Review Problems: CL 2-124, CL 2-125, CL 2-127, and CL 2-130 | 236-238 | 125-130 | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | |  |  |  |  | | |

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| **Unit 3: Similarity (part 1)** | | | | | | | | |
| **Learning Goals** | **G10:** Understand similarity in terms of similarity transformations. | | | | | | **# Days** | 8 (3) |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.1.1  G-SRT.1.2 | Verify experimentally the properties of dilations given by a center and  a scale factor: (a). A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged; (b) The dilation of a line segment is longer or shorter in the ratio given by the scale factor.  Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. | | | | 1. Make sense of problems and persevere in solving them.  3. Construct viable arguments and critique the reasoning of others.  8. Look for and express regularity in repeated reasoning. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 3.1.1 Similarity | | Core Problems: 3-1, 3-2, 3-3, and Distance Formula  Additional Problem: 3-4  Homework: 3-5 through 3-9 | 267-276 | 135-139 | 3.1.1 Resource Page  Small Rubber Bands  Patty Paper  Poster Paper and Color Pencils  *\*Distance Formula problems in Prentice Hall Lesson 1-7 Part 2* | | |
| 2 | 3.1.2 Proportional Growth and Ratio | | Core Problems: 3-10 through 3-15  Additional Problem: 3-16  Homework: 3-17, 3-18, 3-20, and 3-21 | 277-284 | 139-143 | Graph Paper  Straight Edge  Digital Picture (optional) | | |
| 1 | 3.1.3 Using Ratios of Similarity | | Core Problems: 3-22, 3-23, 3-25, and 3-26  Additional Problem: 3-24  Homework: 3-27, 3-28, 3-29, 3-30b, and 3-31 | 285-290 | 144-146 | Graph Paper | | |
| 2 | 3.1.4 Applications and Notations | | Core Problems: 3-32 through 3-36  Additional Problems: 3-37  Homework: 3-38, 3-39, and 3-42 | 290-296 | 147-151 | Rulers or Measuring Tape | | |
| 1 | Review | | Review Problems: CL 3-101, CL 3-103, CL 3-104, CL 3-105, and CL 3-108 | 336-343 | 176-181 | Closure Resource Pages/teacher discretion | | |
| 1 | Assessment | |  |  |  |  | | |
|  | **District Assessment** (1 day) | | | | | | | |
|  | **9 Week Review/Exams** (2 days) | | | | | | | |

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| **SECOND QUARTER 45 Days** | | | | | | | | | |
| **Unit 3: Similarity (part 2)** | | | | | | | | | |
| **Learning Goals** | **G10:** Understand similarity in terms of similarity transformations. | | | | | | | **# Days** | 12 (1) |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | | |
|  | G-SRT.1.2  G-SRT.1.3 | Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.  Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. | | | | 1. Make sense of problems and persevere in solving them.  3. Construct viable arguments and critique the reasoning of others.  8. Look for and express regularity in repeated reasoning. | | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** | |
| 2 | 3.2.1 Conditions for Triangle Similarity | | Core Problems: 3-44 through 3-46  Additional Problems: 3-43 and 3-47  Homework: 3-48 through 3-52 | 297-302 | 152-157 | | 3.2.1 Resource Page  Protractor; Ruler  TI-84 Cabri or Straws; Protractors | | |
| 1 | 3.2.2 Creating a Flowchart | | Core Problems: 3-53, 3-54, 3-55, and 3-57  Additional Problem: 3-56 and 3-58  Homework: 3-59 through 3-63 | 305-310 | 157-161 | |  | | |
| 2 | 3.2.3 Triangle Similarity and Congruence | | Core Problems: 3-64 through 3-66  Additional Problem: 3-67  Homework: 3-69 through 3-72 | 311-315 | 161-165 | |  | | |
| 1 | 3.2.4 More Conditions for Triangle Similarity | | Core Problems: 3-73 through 3-75  Additional Problems: 3-76 and 3-77  Homework: 3-78, 3-80, 3-81, & 3-82 | 316-323 | 165-168 | | 3.2.4 Resource Page  TI-84 Capri or Straws, Protractors, Rulers | | |
| 2 | 3.2.5 Determining Similarity | | Core Problems: 3-83 through 3-86  Additional Problem: 3-87  Homework: 3-88 through 3-92 | 324-330 | 169-172 | |  | | |
| 2 | 3.2.6 Applying Similarity | | Core Problems: 3-93 through 3-94  Additional Problem: 3-95  Homework: 3-96 through 3-99 | 331-335 | 173-175 | | Small Flat Mirror  Meter Sticks  Measuring Tape or Masking Tape | | |
| **Unit 3: Justification and Similarity (part 3)** | | | | | | | | | |
| 1 | Unit Closure | | Review Problems: CL 3-102, CL 3-106, CL 3-107, and CL 3-109 | 336-343 | 176-181 | | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | |  |  |  | |  | | |
|  | **PSAT** (1 day) | | | | | | | | |

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| **Unit 4: Trigonometry** | | | | | | | | |
| **Learning Goals** | **G12:** Define trigonometric ratios and solve problems involving right triangles. | | | | | | **# Days** | 8 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.3.6 | Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 4.1.1 Constant Ratios in Triangles | | Core Problems: 4-1 through 4-4  Additional Problem: 4-5  Homework: 4-6 through 4-9 | 361-363 | 187-191 | 4.1.1 Resource Page  4.1.1 work will be used in 4.1.2 | | |
| 1 | 4.1.2 Connecting Slope Ratios to Specific Angles | | Core Problems: 4-11, 4-12, 4-13, and 4-15  Additional Problem: 4-14  Homework: 4-16, 4-17, 4-18, and 4-20 | 369-371 | 192-195 | 4.1.2 Resource Page  Patty Paper  Student Work from 4.1.1 | | |
| 1 | 4.1.3 Expanding the Trigonometry Table | | Core Problems: 4-21 through 4-23  Additional Problem: 4-24  Homework: 4-25, 4-26, 4-27, and 4-29 | 375-377 | 195-198 | 4.1.2 Resource Page  Graphing Calculators  Display Graphing Calculator | | |
| 2 | 4.1.4 The Tangent Ratio | | Core Problems: 4-30 through 4-34  Additional Problem: 4-35  Homework: 4-36, 4-37, 4-38, & 4-40 | 381-382 | 198-201 | Trig Table Developed in Previous Lessons  Scientific Calculators  Patty Paper | | |
| 2 | 4.1.5 Applying the Tangent Ratio | | Core Problems: 4-41 and 4-42  Homework: 4-43 through 4-47 | 387-388 | 202-203 | 4.1.5A Resource Page  Meter Sticks or Tape Measures  Clinometers | | |
| 1 | Unit Assessment | |  |  |  |  | | |

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| **Unit 5: Trigonometry and Triangle Tool Kit** | | | | | | | | |
| **Learning Goals** | **G12:** Define trigonometric ratios and solve problems involving right triangles. | | | | | | **# Days** | 14 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.3.6  G-SRT.3.7  G-SRT.3.8 | Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.  Explain and use the relationship between the sine and cosine of complementary angles.  Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 2 | 5.1.1 Sine and Cosine Ratios | | Core Problems: 5-1 through 5-6  Homework: 5-7, 5-8, and 5-10 | 452-453 | 235-238 | 5.1.1 Resource Page | | |
| 2 | 5.1.2 Selecting a Trigonometry Tool | | Core Problems: 5-12 through 5-14  Additional Problem: 5-15  Homework: 5-16, 5-17, 5-19, and 5-20 | 458-459 | 239-242 | 5.1.2 Resource Page | | |
| 1 | 5.1.3 Inverse Trigonometry | | Core Problems: 5-21 through 5-23  Additional Problems: 5-24 and 5-25  Homework: 5-29 + Parent Guide problems | 464-465 | 243-245 | Scientific Calculator  CPM Unit 5.1 Parent Guide | | |
| 2 | 5.1.4 Trigonometry Applications | | Core Problems: 5-31 through 5-33  Additional Problems: 5-34 and 5-35  Homework: 5-36, 5-38, and 5-40 | 469-470 | 246-249 | Scientific Calculator | | |
| 1 | Review | | Review Problems: CL 4-96, CL 4-99, CL 5-126, CL 5-127, CL 5-130, and CL 5-131 |  |  | Closure Resource Pages/teacher discretion | | |
| 1 | Assessment | | \*Unit 4.1 and 5.1 |  |  |  | | |
| 2 | 5.2.1 Special Right Triangles | | Core Problems: 5-41 through 5-44  Additional Problem: 5-45  Homework: 5-46 through 5-50 | 475-476 | 250-254 | Patty Paper | | |
| 1 | 5.2.2 Pythagorean Triples | | Core Problems: 5-53 through 5-55  Additional Problems: 5-51 and 5-52  Homework: 5-56, 5-57, 5-58, and 5-59 | 481-482 | 254-257 |  | | |
| 2 | Unit Assessment | | \*Unit 5.2 and 5.3 |  |  |  | | |

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| **Unit 6: Congruent Triangles** | | | | | | | | |
| **Learning Goals** | **G02:** Understand congruence in terms of rigid motions. | | | | | | **# Days** | 7 (4) |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-CO.2.6  G-CO.2.7  G-CO.2.8  G-SRT.2.4 | Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.  Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.  Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.  Prove theorems about triangles. | | | | 3. Construct viable arguments and critique the reasoning of others.  6. Attend to precision.  7. Look for and make use of structure. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 6.1.1 Congruent Triangles | | Core Problems: 6-1 through 6-2  Additional Problem: 6-3  Homework: 6-4, 6-5, 6-6, 6-7, and 6-9 | 544-545 | 289-292 |  | | |
| 1 | 6.1.2 Conditions for Triangle Congruence | | Core Problems: 6-10 and 6-12  Homework: 6-13 through 6-18 | 550-551 | 293-296 | 6.1.2 Resource Page | | |
| 1 | 6.1.3 Flowcharts for Congruence | | Core Problems: 6-19, 6-20, and 6-22(a, d)  Additional Problems: 6-21, 6-22 (b, c), and 6-23  Homework: 6-24, 6-27, 6-28, and 6-29 | 555-556 | 297-301 |  | | |
| 2 | 6.1.4 Converses | | Core Problems: 6-33 and 6-34  Homework: 6-35 through 6-40  \*Include Inverse, Contrapositive, and Logical Equivalence | 560-561 | 301-305 | Inverse and Contrapositive Supplements From: www.cpm.org/teachers/supplements\_FL.htm  Prentice Hall Geometry section 2-2 | | |
| 2 | Assessment | | \*Recommend quiz only |  |  |  | | |
|  | **District Assessment** (1 day) | | | | | | | |
|  | **9 Week Review/Exams** (3 days) | | | | | | | |

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| **THIRD QUARTER** 46 Days | | | | | | | | |
| **Unit 6: Congruent Triangles (part 2)** | | | | | | | | |
| **Learning Goals** | **G09:** Apply geometric concepts in modeling situations. | | | | | | **# Days** | 4 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-MG.1.1  G-MG.1.3 | Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).  Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). | | | | 1. Make sense of problems and persevere in solving them.  4. Model with mathematics.  8. Look for and express regularity in repeated reasoning. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 6.2.1 Angles on a Pool Table | | Core Problem: 6-41  Homework: 6-43, 6-44, 6-45, 6-46, and 6-48 | 544-545 | 289-292 |  | | |
| 1 | 6.2.3 Creating a Mathematical Model | | Core Problems: 6-56 through 6-59  Additional Problem: 6-60  Homework: 6-61 through 6-65 | 576-578 | 297-301 |  | | |
| 2 | 6.2.5 Using a Transformations and Symmetry to Create a Snowflake | | Core Problems: 6-77 through 6-80  Additional Problem: 6-81  Homework: 6-82 through 6-86 | 588, 589 | 318-323 | Scissors  6.2.5 Resource Page | | |
| Lesson 6.2.2 is an optional lesson | | | | | | | | |

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| **Unit 7: Proof and Quadrilaterals** | | | | | | | | |
| **Learning Goals** | **G09:** Apply geometric concepts in modeling situations. | | | | | | **# Days** | 4 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-MG.1.1  G-MG.1.3 | Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).  Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). | | | | 1. Make sense of problems and persevere in solving them.  4. Model with mathematics.  8. Look for and express regularity in repeated reasoning. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 7.1.2 Building a Tetrahedron | | Core Problems: 7-11, 7-12, and 7-13a  Additional Problem: 7-13(b, c)  Homework: 7-14 through 7-18 | 627-629 | 339-342 | 7.1.1A Resource Page or Paper Plates  Scissors  Clear Tape | | |
| 2 | 7.1.3 Shortest Distance Problems | | Core Problems: 7-19, 7-20, 7-21. and 7-22  Additional Problem: 7-25  Homework: 7-26 through 7-29 and 7-31 through 7-34 | 634-636 | 343-348 | 7.1.3 Resource Page  Soup Cans  String or Yarn  Patty Paper | | |
| 1 | 7.1.4 Using Symmetry to Study Polygons | | Core Problems: 7-36 and 7-37  Additional Problem: 7-38  Homework: 7-39 through 7-43 | 643, 644 | 349-351 | Hinged Mirror  Colored Paper  Protractor | | |

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| **Unit 7: Proofs and Quadrilaterals** | | | | | | | | |
| **Learning Goals** | **G03:** Prove geometric theorems. | | | | | | **# Days** | 9 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-CO.3.11 | Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.* | | | | 2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  5. Use appropriate tools strategically. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 7.2.1 Special Quadrilaterals and Proof | | Core Problems: 7-44, 7-45, 7-47, and 7-48  Additional Problems: 7-46  Homework: 7-49 through 7-53 | 648-650 | 352-356 | 7.2.1A, B Resource Pages  Masking Tape  Patty Paper | | |
| 1 | 7.2.2 Properties of Rhombi | | Core Problems: 7-54 and 7-55  Additional Problem: 7-56 and 7-57  Homework: 7-58 through 7-61 | 656-657 | 356-359 | Hinged Mirrors, Poster Paper, Markers(optional) | | |
| 2 | 7.2.3 More Proof with Congruent Triangles | | Core Problems: 7-63, 7-64 (a, b), and 7-65  Additional Problem: 7-64 (c, d)  Homework: 7-66 through 7-70 | 662-664 | 359-362 |  | | |
| 1 | 7.2.4 More Properties of Quadrilaterals | | Core Problems: 7-71  Homework: 7-72 through 7-76 | 668-669 | 363-365 | Poster Paper  Markers | | |
| 2 | 7.2.5 Two-Column Proofs | | Core Problems: 7-77, 7-78, 7-79, 7-80 (pick one), and 7-81  Additional Problems: 7-80 and 7-82  Homework: 7-83 through 7-87 | 673-674 | 365-368 | Posters from 7-71 and 7.2.4 for Problem 7-80 | | |
| 2 | 7.2.6 Explore-Conjecture-Proof | | Core Problems: 7-88, 7-89, 7-90, 7-91, and 7-92  Homework: 7-94 through 7-96 | 685-687 | 369-373 |  | | |

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| **Unit 7: Proofs and Quadrilaterals** | | | | | | | | |
| **Learning Goals** | **G07:** Use coordinates to prove simple geometric theorems algebraically. | | | | | | **# Days** | 5 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-GPE.2.4  G-GPE.2.6 | Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle.*  Find the point on a directed line segment between two given points that partitions the segment in a given ratio. | | | | 2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  5. Use appropriate tools strategically. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **50-Min Per** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 7.3.1 Studying Quadrilaterals on a Coordinate Grid | | Core Problems: 7-99 and 7-100  Additional Problem: 7-98 and 7-101  Homework: 7-102 through 7-106 | 571-572 | 373-376 | Homework Problem 7-93 from Section 7.2.5  Graph Paper | | |
| 1 | 7.3.2 Coordinate Geometry and Midpoints | | Core Problems: 7-107 through 7-109 (a, b, c)  Further problems: 7-109 (d) and 7-110  Homework: 7-112 through 7-116 | 691-692 | 376-379 | Graph Paper | | |
| 1 | 7.3.3 Quadrilaterals on a Coordinate Plane | | Core Problem: 7-118  Additional problem: 7-117  Homework: 7-119, 7-122, and 7-123 | 697-698 | 380-382 | Graph Paper | | |
| 1 | Unit Closure | | Review Problems: CL 7-124 through CL 7-131 | 702-704 | 383-387 | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | |  |  |  |  | | |

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| **Unit 8: Polygons and Circles** | | | | | | | | |
| **Learning Goals** | **G11:** Prove theorems involving similarity. | | | | | | **# Days** | 7 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.2.5 | Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 8.1.1 Pinwheels and Polygons | | Core Problems: 8-1, 8-3, 8-4, and 8-5  Additional Problem: 8-2  \*Add Vocabulary: Dodecagon  Homework: 8-6 through 8-11 | 728-735 | 393-397 | Scissors  Construction Paper  Pattern Blocks (optional) | | |
| 1 | 8.1.2 Interior Angles of a Polygon | | Core Problems: 8-12 through 8-15  Homework: 8-16 through 8-21 | 736-741 | 398-401 | 8.1.2 Resource Page | | |
| 2 | 8.1.3 Angles of a Regular Polygon | | Core Problems: 8-22 through 8-24  Additional Problems: 8-25 and 8-26  Homework: 8-27 through 8-32 | 742-747 | 402-405 | 8.1.3 Resource Page  Patty Paper OR Dynamic Geometry Tool | | |
| 1 | 8.1.4 Regular Polygons and Angle Connections | | Core Problems: 8-33, 8-34, and 8-35  Additional Problems: 8-36  Homework: 8-37 and 8-41 | 748-752 | 405-408 |  | | |
| 2 | 8.1.5 Finding the Area of a Regular Polygon | | Core Problems: 8-43, 8-45, 8-46, 8-47, and 8-48  Homework: 8-49 through 8-52, 8-54 through 8-58, and 8-60 | 753-760 | 408-412 | Poster Paper  Overhead Transparencies  Overhead Pens | | |

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| **Unit 8: Polygons and Circles** | | | | | | | | |
| **Learning Goals** | **G11:** Prove Theorems Involving Similarity | | | | | | **# Days** | 2 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-SRT.2.5 | Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 8.2.1 Area Ratios of Similar Figures | | Core Problems: 8-61 through 8-63  Additional Problem: 8-64  Homework: 8-65, 8-66, 8-67, 8-69, and 8-70 | 761-766 | 413-416 | 8.2.1 Resource page  8.2.1B Resource page | | |
| 1 | 8.2.2 Ratios of Similarity | | Core Problems: 8-71 through 8-74  Additional Problems: 8-75  Homework: 8-76 through 8-80 | 767-771 | 417-420 |  | | |

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| **Unit 8: Polygons and Circles** | | | | | | | | |
| **Learning Goals** | **G06:** Find arc lengths and areas of sectors of circles. Derive the equation of a circle on a coordinate plane. | | | | | | **# Days** | 6 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-C.2.5 | Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 8.3.1 A Special Ratio | | Core Problems: 8-82 and 8-83  Additional Problem: 8-84  Homework: 8-85, 8-86, 8-87, 8-88, 8-89 (a, c), and 8-90 | 772-775 | 421-423 |  | | |
| 1 | 8.3.2 Area and Circumference of a Circle | | Core Problems: 8-91, 8-92, and 8-94  Homework: 8-96 through 8-101 | 776-780 | 424-427 |  | | |
| 2 | 8.3.3 Circles in Context | | Core Problems: Any 3 of the 4 problems  Homework: 8-107 through 8-109 and 8-111 through 8-117 | 781-789 | 428-433 | Box with String or One String Per Team to Simulate Problem 8-104 | | |
| 1 | Unit Closure | | Review Problems: CL 8-118 through CL 8-123 | 702-704 | 383-387 | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | |  |  |  |  | | |

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| **Unit 9: Constructions** | | | | | | | | |
| **Learning Goals** | **G04:** Make geometric constructions. | | | | | | **# Days** | 6 (3) |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| **G-CO.4.12**  **G-CO.4.13** | Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*  Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. | | | | 2. Reason abstractly and quantitatively.  4. Model with mathematics.  5. Use appropriate tools strategically. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 9.2.1 Introduction to Construction | | Core Problems: 9-54 through 9-57  Homework: 9-58, 9-60, and 9-61 | 838-844 | 459-462 | Patty Paper  Compasses and Straight Edges  9.2.1 Resource Page | | |
| 1 | Constructing Bisectors | | Core Problems: 9-64 through 9-66  Additional Problem: 9-67  Homework: 9-69 through 9-72 | 845-850 | 463-465 | Patty Paper  Compasses  Straight Edges  9.2.2 Resource Page | | |
| 1 | More Exploration with Construction | | Core Problems: 9-74 through 9-77  Additional Problems: 9-78  Homework: 9-80, 9-81, 9-83, and 9-84 | 851-856 | 466-469 | Square Tracing Paper  Compasses, Straight Edges  9.2.3 Resource Page | | |
| 1 | Finding a Centroid | | Core Problems: 9-85 through 9-87  Additional Problem: 9-88  Homework: 9-90 through 9-94 | 863-870 | 470-473 | Compasses, Straight Edges, Cardboard, Scissors, Glue, Copy Paper | | |
| 2 | Assessment | | \*Recommend quiz only |  |  |  | | |
|  | **District Assessment** (1 day) | | | | | | | |
|  | **9 Week Review/Exams** (2 days) | | | | | | | |

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| **FOURTH QUARTER** 46 Days | | | | | | | | | |
| **Unit 10: Solids** | | | | | | | | | |
| **Learning Goals** | **G08:** Explain volume formulas and use them to solve problems. Visualize relationships between 2D and 3D objects. | | | | | | | **# Days** | 17 |
| **Standards** | **FL Coding** | **Standards** | | | | | **Mathematical Practices** | | |
| G-GMD.1.1  G-GMD.1.3  G-MG.1.2 | Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone  Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.  Apply concepts of density based on area and volume in modeling situations(e.g. persons per square mile) | | | | | 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 9.1.1 Three-Dimensional Solids | | Core Problems: 9-1 through 9-5  Additional Problems: 9-6  Homework: 9-7 through 9-10 and 9-12 | 812-817 | 443-446 | Multi Link Cubes  Index Cards  Graph Paper | | | |
| 1 | 9.1.2 Volume and Surface Area of Prisms | | Core Problems: 9-13 through 9-15  Additional Problems: 9-16, 9-17, and 9-18  Homework: 9-19 through 9-24 | 818-824 | 446-450 | Multi Link Cubes,  Index Cards  9.1.2 Resource Page  Scissors | | | |
| 2 | 9.1.3 Prisms and Cylinders | | Core Problems: 9-25 through 9-28  Homework: 9-29 through 9-31, 9-33, and 9-34 | 825-827 | 450-453 | Multilink Cubes  Deck of Cards  Ream of Paper  Poster/paper | | | |
| 1 | 9.1.4 Volumes of Similar Solids | | Core Problems: 9-35 and 9-36  Additional Problems: 9-37 and 9-38  Homework: 9-39 through 9-42 and 9-44 | 828-833 | 453-455 | 9.1.4 Resource Page  Graph Paper  Scissors, Tape  Multilink Cubes (optional) | | | |
| 1 | 9.1.5 Ratio and Similarity | | Core Problems: 9-45 and 9-46  Additional Problem: 9-47  Homework: 9-48 through 9-51, and 9-53 | 834-837 | 456-459 | Tetrahedron from Problems  7-13 (optional) | | | |

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| **Unit 10: Solids** | | | | | |
| **Suggested** | **Lesson Objective** | **Suggested** | **Pages** | | **Supplementary Materials** |
| **Days** | **(Instructional Resources)** | **Assignments / Assessments** | **TE** | **SE** |
| 2 | 11.1.1 Platonic Solids | Core Problems: 11-1 through 11-5  Additional Problems: 11-6 through 11-7  Homework: 11-8 through 11-19 | 961-972 | 527-532 | 11.1.1 Resource Page  Cubical Models (optional)  Computers with Internet Access |
| 1 | 11.1.2 Pyramids | Core Problem: 11-20  Additional Problems: 11-21 and 11-22  Homework: 11-24, 11-25,11-27, 11-28 | 973-978 | 533-535 | 11.1.2 Resource Page  Scissors, Tape, and Glue  Yarn or String (optional) |
| 2 | 11.1.3 Volume of a Pyramid | Core Problems: 11-29 through 11-33  Additional Problem: 11-34  Homework: 11-35, 11-36,11-37,11-38,11-39,11-42,11-45,11-46 | 979-987 | 536-541 | Models Built in 11.1.2  Poster Paper and Markers |
| 2- | 11.1.4 Surface Area and Volume of a Cone | Core Problems: 11-47 through 11-50  Additional Problem: 11-51  Homework: 11-52, 11-53, 11-54, 11-56, 11-57 | 988-993 | 541-544 | Conical Paper Party Hats  Rulers |
| 1+ | 11-1.5 Surface Area and Volume of a Sphere | Core Problems: 11-58 through 11-62  Additional Problem: 11-63  Homework: 11-64, 11-65, 11-66 | 994-999 | 545-548 | Bubbles (optional)  Globe (optional)  Models of Solids (optional) |
| 2 | Review | Review Problems: CL 9-96, CL 9-97, CL 9-99, CL 9-100, CL 9-101, CL 9-103, CL 11-109, CL 11-112, CL 11-113, CL 11-114, and CL 11-115 | 863-865  1022-1023 | 475-477  566-568 | Closure Resource Pages/teacher discretion |
| 1 | Assessment | Unit 9.1 & 11.1 |  |  |  |

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| **Unit 11: Circles** | | | | | | | | |
| **Learning Goals** | **G05:** Understand and apply theorems about circles. | | | | | | **# Days** | 17 |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-C.1.2  G-C.1.3  G-GPE.1.1  G- C.1.1 | Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*  Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle  Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.  Prove that all circles are similar. | | | | 2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 10.1.1 Introduction to Chords | | Core Problems: 10-1, 10-2, 10-3, 10-4  Additional Problem: 10-5  Homework: 10-6 through 10-11 | 891-896 | 483-486 | Patty Paper  Compasses and Straight Edges  9.2.1 Resource Page | | |
| 2 | 10.1.2 Angles and Arcs | | Core Problems: 10-12, 10-13,10-14, 10-15  Additional Problem: 10-16  Homework: 10-17, 10-18, 10-19, 10-20, 10-21, 10-22 | 897-903 | 487-491 | Patty Paper  Compasses  Straight Edges  9.2.2 Resource Page  Extra Practice Workbook Problems | | |
| 2 | 10.1.3 Chords and Angles | | Core Problems: 10-23, 10-24,10-25, and 10-26  Additional Problems: 10-27  Homework: 10-28 through 10-32 | 904-909 | 492-496 | Square Tracing Paper  Compasses, Straight Edges  9.2.3 Resource Page | | |
| 1 | 10.1.4 Tangent and Chords | | Core Problems: 10-34, 10-35, and 10-37  Additional Problem: 10-36  Homework: 10-38, 10-39, 10-41,10-42 | 910-914 | 496-499 | Compasses, Straight Edges, Cardboard, Scissors, Glue, Copy Paper | | |
| 1 | 10.1.5 Problem Solving with Circles | | Core Problems: 10-44 through 10-46  Additional Problems: 10-47  Homework: 10-48, 10-50, 10-51, 10-52, 10-53 | 915-920 | 499-502 |  | | |
| 1 | Completing the Square | | *Pearson Algebra I Textbook end of Unit 8* |  |  |  | | |
| 2 | 10.3.1 The Equation of a Circle | | Core Problems: 10-87 through 10-90  Additional Problems: 10-91  Homework: 10-93 through 10-96 | 937-942 | 514-517 | Compasses, Straight Edges, Cardboard, Scissors, Glue, Copy Paper  Extra Practice Workbook Problems | | |
| 1 | Complete the square to find the center and radius of a circle given by an equation | | Honors Geometry Prentice Hall Textbook Unit 12 |  |  |  | | |
| 1 | 11.2.1 Coordinates on a Sphere | | Core Problems: 11-70 through 11-72  Additional Problem: 11-73  Homework: 11-74 through 11-76 11-78, 11-79, | 1000-1006 | 548-553 | 11.2.1 Resource Page  Oranges or Styrofoam Balls  Colored Markers  Rubber Bands, Pushpins | | |
| 1 | 11.2.2 Tangent and Arcs | | Core Problems: 11-81 through 11-83  Homework: 11-84 through 11-89 | 1007-1011 | 553-556 | 11.2.2 Resource Page  Colored Pens or Pencils  Rulers | | |
| 2 | 11.2.3 Secant and Tangent Relationships | | Core Problems: 11-90 through 11-95  Homework: 11-96 through 11-104, 11-106,11-107 | 1012-1021 | 556-563 | Dynamic Geometry Tool | | |
| 1 | Unit Closure | | Review Problems: CL 10-98, CL 10-100, CL 10-101, CL 10-102, CL 10-103, CL 10-104, CL 10-105, CL 11-108, and CL 11-110 | 943-944  1022-1023 |  | Closure Resource Pages/teacher discretion | | |
| 1 | Unit Assessment | | Unit 10.1, 10.3, and 11.2 |  |  |  | | |

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| **Unit 12 Coordinate Geometry and Euler’s Formula** | | | | | | | | |
| **Learning Goals** | **G07:** Use coordinates to prove simple geometric theorems algebraically. | | | | | | **# Days** | 2 (10) |
| **Standards** | **FL Coding** | **Standards** | | | | **Mathematical Practices** | | |
| G-GPE.2.4 | Use coordinates to prove simple geometric theorems. | | | | 1. Make sense of problems and persevere in solving them.  3. Construct viable arguments and critique the reasoning of others.  7. Look for and make use of structure. | | |
| **Suggested** | **Lesson Objective** | | **Suggested** | **Pages** | | **Supplementary Materials** | | |
| **Days** | **(Instructional Resources)** | | **Assignments / Assessments** | **TE** | **SE** |
| 1 | 12.2.1 Using Coordinate Geometry and Construction to Explore Shapes | | Core Problems: 12-52, 12-53, 12-54, 12-55  Homework: 12-56, 12-57, 12-58, 12-59, and 12-61 |  | 591-593 | Compass, straightedge, unlined paper, graph paper | | |
| 1 | 12.2.2 Euler’s Formula for Polyhedra | | Core Problems: 12-62 and 12-63  Additional Problem: 12-64  Homework: 12-65, 12-66, 12-68, 12-69, and 12-70 |  | 594-596 |  | | |
|  | **FSA Testing** (7 days) | | | | | | | |
|  | **9 Week Review/Exams** (3 days) | | | | | | | |