CPM Geometry Pacing Calendar and Standards Alignment

- Non-Math Teaching days/ Holidays

First Semester Instructional Days	1	2	3	4	5			6	7	8	9	10			11	12	13	14	15			16	17	18	19	20			21	22	23
Sept.								Chapter 1							Chapter 1							Chapter 1							Ch 1		
Oct.	Chapter 2							Chapter 2							Chapter 2							Chapter 3							Ch 3		
Nov.	Chapter 3							Ch 3	Chapter 4						Chapter 4							Chapter 4							Ch 4		
Dec.	Chapter 4			Ch5				Chapter 5							Chapter 5							Chapter 5									
Jan.			Ch 6					Chapter 6							Chapter 6							Exam		Ch 7					Chapter 7		

Chapter 1 (16 days)	Chapter 2 (15 days)	Chapter 3 (14 days)	Chapter 4 (15 days)	Chapter 5 (15 days)	Chapter 6 (13 days)
Shapes and Transformations: Welcome to Geometry! Geo means Earth (geography is mapping the Earth, for example) and metry means measurement. Geometry applies the arithmetic, algebra and reasoning skills you have learned to the objects you see all around you. During this course, you will ask and answer questions such as "How can I describe this shape?", "How can I measure this shape?", "Is this shape symmetrical?", and "How can I convince others that what I think about this shape is true?" This chapter begins with some activities that will introduce you to the big ideas of the course. Then you will apply motions to triangles and learn how to specify a particular motion. Finally, you will explore attributes of shapes that can be used to categorize and name them and find the probabilities of selecting shapes with certain properties from a "shape bucket."	**Angles and Measurement:** In Chapter 1, you studied many common geometric shapes and learned ways to describe a figure using its attributes. In this chapter, you will further investigate how to describe a complex figure by developing ways to accurately determine its angles, area, and perimeter. You will also use transformations from Chapter 1 to uncover special relationships between angles within a figure. Throughout this chapter you will be asked to solve problems, such as those involving area or angles, in more than one way. This will require you to "see" shapes in multiple ways and to gain a broader understanding of problem solving.	**Justification and Similarity:** Measuring, describing, and transforming: these are three major skills in geometry that you have been developing. In this chapter, you will focus on comparing; you will explore ways to determine if two figures have the same shape (that is, they are similar). You will also develop ways to use the information about one figure to learn more about another that has the same shape. Making logical and convincing arguments that support specific ideas about the shapes you are studying is another important skill. In this chapter you will learn how you can document facts to support a conclusion in a flowchart.	**Trigonometry and Probability:** In Chapter 3, you investigated similarity and discovered that similar triangles have special relationships. In this chapter, you will discover that the side ratios in a right triangle can serve as a powerful mathematical tool that allows you to find missing side lengths and missing angle measures for any right triangle. You will also learn how these ratios (called trigonometric ratios) can be used in solving problems. You will also develop additional prediction skills as you extend your understanding of probability. You will examine different models to represent possibilities and to assist you in calculating probabilities.	**Completing the Triangle Toolkit:** In Chapter 4, you investigated the powerful similarity and side ratio relationships in right triangles. In this chapter, you will learn about other side ratio relationships using the hypotenuse that will allow you to find missing side lengths and missing angle measures for any right triangle. In addition, you will develop tools to complete your triangle toolkit so that you can find the missing angle measures and side lengths for any triangle, provided that enough information is given. You will then explore ways to choose an appropriate tool to solve new problems in unfamiliar contexts.	**Congruent Triangles:** In Chapter 5, you completed your work with the measurement of triangles, so you can now find the missing side lengths and angles of a triangle when sufficient information is given. Earlier, you developed ways to determine if two triangles are similar, and can use the ratios of similarity to learn more about the sides and angles of similar figures. But what if two triangles are congruent? What information can congruent triangles provide? In this chapter, you will find ways to determine whether two triangles are congruent. In addition, Section 6.2 offers several projects and activities that will help you synthesize your understanding and make connections between different concepts you have learned so far. You will consolidate what you know, apply it in new ways, and identify what you still need to learn.

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Second Semester Instructional Days	1	2	3	4	5			6	7	8	9	10			11	12	13	14	15			16	17	18	19	20			21	22	23
Jan.			Ch 6					Chapter 6							Chapter 6							Exam			Ch 7				Chapter 7		
Feb.	Chapter 7							Chapter 7							Ch 7	Ch 8						Chapter 8							Chapter 8		
March	Chapter 8				Ch9			Chapter 9							Chapter 9							Chapter 10									
April	Chapter 10							Chapter 10							Chapter 10							Ch 11							Ch 11		
May	Chapter 11							Chapter 11				Ch 12			Chapter 12							Chapter 12									
June	Review/Exam																													

Chapter 7 (16 days)	Chapter 8 (14 days)	Chapter 9 (11 days)	Chapter 10 (18 days)	Chapter 11 (14 days)	Chapter 12 (12 days)
Proof and Quadrilaterals: This chapter opens with a set of explorations designed to introduce you to new geometric topics that you will explore further in Chapters 8 through 12. You will learn about the special properties of a circle, explore three-dimensional shapes, and use a hinged mirror to learn more about a rhombus. Section 7.2 then builds upon your work from Chapters 3 through 6. Using congruent triangles, you will explore the relationships of the sides and diagonals of a parallelogram, kite, trapezoid, rectangle, and rhombus. As you explore new geometric properties, you will formalize your understanding of proof. This chapter ends with an exploration of coordinate geometry.	**Polygons and Circles:** In previous chapters, you have extensively studied triangles and quadrilaterals to learn more about their sides and angles. In this chapter, you will broaden your focus to include polygons with 5, 8, 10, and even 100 sides. You will develop a way to find the area and perimeter of a regular polygon and will study how the area and perimeter changes as the number of sides increases. In Section 8.2, you will re-examine similar shapes to study what happens to the area and perimeter of a shape when the shape is enlarged or reduced. Finally, in Section 8.3, you will connect your understanding of polygons with your knowledge of the area ratios of similar figures to find the area and circumference of circles of all sizes.	**Solids and Constructions:** In your study of geometry so far, you have focused your attention on two-dimensional shapes. You have investigated the special properties of triangles, parallelograms, regular polygons and circles, and have developed tools to help you describe and analyze those shapes. For example, you have tools to find an interior angle of a regular hexagon, to calculate the length of the hypotenuse of a right triangle, and to measure the perimeter of a triangle or the area of a circle. In Section 9.1, you will turn your focus to three-dimensional shapes (called solids), such as cubes and cylinders. You will learn several ways to represent three-dimensional solids and develop methods to measure their volumes and surface areas. Then, in Section 9.2, you will learn how to use special tools to construct accurate diagrams of two-dimensional shapes and geometric relationships. During this investigation, you will revisit many of the geometric conjectures and theorems that you have developed so far.	**Circles and Conditional Probability:** In Chapter 8, you developed a method for finding the area and circumference of a circle, and in Chapter 9 you constructed many shapes using circles as a starting point. In Section 10.1, you will explore the relationships between angles, arcs, and chords in a circle. The focus of your work turns to probability in Section 10.2. As you analyze probabilities, you will develop an understanding of conditional probability and more formal mathematical definitions of independence. With that you can determine if two categorical variables are associated with each other. To calculate and display probabilities, you will add the additional tool of two-way tables to your existing tools of area models and tree diagrams.	**Solids and Circles:** In Chapter 9, you learned how to find the volume and surface area of three-dimensional solids formed with blocks. Then you extended these concepts to include prisms and cylinders. In this chapter, you will complete your study of three-dimensional solids to include pyramids, cones, and spheres. You will learn how to identify the cross-sections of a solid and will investigate a special group of solids known as Platonic Solids. As the word geometry literally means the "measurement of the Earth," it is only fitting that Section 11.2 focuses on developing the geometric tools that are used to learn more about the Earth. For example, by studying the height at which satellites orbit the Earth, you will get a chance to develop tools to work with the angle and arc measures that occur when two lines that are tangent to the same circle intersect each other.	**Conics and Closure:** As this course draws to a close, it is appropriate to reflect on what you have learned so far as you continue to see connections between topics in both algebra and geometry. For example, in Section 12.1, you will extend your geometric understanding of circles to write algebraic equations for circles. Then you will look at the cross-sections of a cone, called conic sections and learn about the geometric properties of parabolas. Then in Section 12.2, four activities offer a chance for you to apply your geometric tools in new ways. You will find new connections between familiar geometric ideas and learn more special properties of familiar shapes.

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Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 9	Chapter 10	Chapter 11	Chapter 12
Rec 14 Days	Rec 12 Days	Rec 11 Days	Rec 12 Days	Rec 13 Days	Rec 11 Days	Rec 15 Days	Rec 13 Days	Rec 10 Days	Rec 17 Days	Rec 13 Days	Rec 11 days
Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards
G-CO.2	G-CO.9	G-CO.2	G-SRT.6	G-SRT.4	G-CO.5	G-CO.1	G-SRT.5	G-CO.9	G-C.2	G-CO.12	G-GPE.1
G-CO.3	G-CO.10	G-CO.3	G-SRT.8	G-SRT.6	G-CO.6	G-CO.10	G-C.5	G-CO.10	G-C.3	G-C.2	G-GPE.2
G-CO.4	G-SRT.8	G-SRT.1a	S-CP.1	G-SRT.7	G-CO.7	G-CO.11	G-GMD.1	G-CO.12	G-C.5	G-C.4	G-GPE.4
G-CO.5	MP4	G-SRT.1b	S-CP.7	G-SRT.8	G-CO.8	G-SRT.4	G-MG.1	G-CO.13	G-MG.1	G-C.5	G-GMD.4
G-CO.6	MP5	G-SRT.2	S-MD.6	G-SRT.9	G-CO.9	G-SRT.5	G-MG.3	G-C.3	S-CP.2	G-GMD.1	G-MG.3
G-CO.10	MP6	G-SRT.3	MP1	G-SRT.10	G-CO.10	G-GPE.4	MP1	G-GMD.1	S-CP.3	G-GMD.3	S-MD.7
G-GPE.5	MP7	G-SRT.5	MP5	G-SRT.11	G-SRT.2	G-GPE.5	MP2	G-GMD.3	S-CP.4	G-GMD.4	MP5
G-GMD.4	MP8	G-C.1	MP6	G-CO.10	G-SRT.5	G-GPE.6	MP6	G-MG.1	S-CP.5	G-MG.1	MP6
MP1		MP1	MP7	MP1	G-GPE.7	G-GPE.7	MP7	G-MG.2	S-CP.6	MP1	MP7
MP3		MP3	MP8	MP4	G-MG.1	G-MG.3	MP8	MP3	S-CP.7	MP4	MP8
MP4		MP4		MP5	G-MG.3	MP1		MP5	S-CP.9	MP5	
MP5		MP5		MP6	S-MD.7	MP3		MP6	S-MD.6	MP6	
MP6		MP6		MP7	MP3	MP5			S-MD.7		
		MP7		MP8	MP4	MP6			MP3		
					MP5				MP4		
					MP6				MP5		
					MP8				MP6		

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Conceptual Categories contained within Geometry

Geometry

Congruence (G-CO)
- Experiment with transformations in the plane
- Understand congruence in terms of rigid motions
- Prove geometric theorems
- Make geometric constructions

Similarity, Right Triangles, and Trigonometry (G-SRT)
- Understand similarity in terms of similarity transformations
- Prove theorems involving similarity
- Define trigonometric ratios and solve problems involving right triangles
- Apply trigonometry to general triangles

Circles (G-C)
- Understand and apply theorems about circles
- Find arc lengths and areas of sectors of circles

Expressing Geometric Properties with Equations (G-GPE)
- Translate between the geometric description and the equation for a conic section
- Use coordinates to prove simple geometric theorems algebraically

Geometric Measurement and Dimension (G-GMD)
- Explain volume formulas and use them to solve problems
- Visualize relationships between two-dimensional and three-dimensional objects

Modeling with Geometry (G-MG)
- Apply geometric concepts in modeling situations

Statistics and Probability

Conditional Probability and the Rules of Probability (S-CP)
- Understand independence and conditional probability and use them to interpret data
- Use the rules of probability to compute probabilities of compound events in a uniform probability model

Using Probability to Make Decisions (S-MD)
- Use probability to evaluate outcomes of decisions

Mathematical Practice Standards – (MP)

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.