Mathematics
Geometry: Year at a Glance
2018 - 2019

Q1	Q2	Q3	Q4
Aug. 6 – Oct. 5	Oct. 16 - Dec. 19	Jan. 7 – Mar. 8	Mar. 18 – May 24 TN Ready Testing Apr. 22 – May 3
Tools of Geometry, Reasoning and Proof, Transformations and Congruence, Transformations and Symmetry, Lines and Angles	Triangle Congruence with Applications, Properties of Triangles, Special Segments in Triangles, Properties of Quadrilaterals with Coordinate Proofs	Similarity and Transformations, Using Similar Triangles, Trigonometry with Right Triangles, Trigonometry with All Triangles, Properties of Angles and Segments in Circles	Properties of Circles, Arc Length, Sector Area, and Equations of Circles, Measurement and Modeling in Two and Three Dimensions, Volume Formulas, Visualizing Solids, Trigonometry with All Triangles
G.CO.A.1	G.CO.B.7	G.CO.A.1	G.CO.D.12
G.CO.A.2	G.CO.B.8	G. SRT.A.1	G.C.A.2
G.CO.A.3	G.CO.C.10	G. SRT.A.2	G.C.A.3
G.CO.A.4	G.CO.C.11	G. SRT.A.3	G.C.B.4
G.CO.A.5	G.CO.D.12	G. SRT.B.4	G. GPE.A.1
G.CO.B.6	G. SRT.B.4	G. SRT.B.5	G. GPE.B.2
G.CO.B.7	G. SRT.B.5	G. SRT.C.6	G. GPE.B.3
G.CO.C.9	G. GPE.B.2	G. SRT.C.7	G. GPE.B.4
G.CO.D.12	G. GPE.B.5	G. SRT.C.8	G.MG.A.1
G. GPE.B.2	G.MG.A.1	G. MG.A.2	G. MG.A.2
G. GPE.B.3	G.MG.A.2	G. GMD.A.1	G. GMD.A.1
		G.C.A.1	G. GMD.A.2
		G.C.A.2	

Key: Major Content | Supporting Content

*** (asterisk) Indicates a standard with differences between the TN State Standards' numbering and/or verbiage and the standards in Eureka**

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on the needs of their students.

Introduction

Destination 2025, Shelby County Schools' 10-year strategic plan, is designed not only to improve the quality of public education, but also to create a more knowledgeable, productive workforce and ultimately benefit our entire community.

What will success look like?

In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State of Tennessee provides two sets of standards, which include the Standards for Mathematical Content and The Standards for Mathematical Practice. The Content Standards set high expectations for all students to ensure that Tennessee graduates are prepared to meet the rigorous demands of mathematical understanding for college and career. The eight Standards for Mathematical Practice describe the varieties of expertise, habits of mind, and productive dispositions that educators seek to develop in all students. The Tennessee State Standards also represent three fundamental shifts in mathematics instruction: **focus, coherence and rigor**.

Curriculum and Instruction – Mathematics

Quarter 3 Geometry

The **Standards for Mathematical Practice** describe varieties of expertise, habits of minds and productive dispositions that mathematics educators at all levels should seek to develop in their students. These practices rest on important National Council of Teachers of Mathematics (NCTM) "processes and proficiencies" with longstanding importance in mathematics education. Throughout the year, students should continue to develop proficiency with the eight Standards for Mathematical Practice. The following are the eight Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of them.
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.

This curriculum map is designed to help teachers make effective decisions about what mathematical content to teach so that ultimately our students can reach Destination 2025. Throughout this curriculum map, you will see resources as well as links to tasks that will support you in ensuring that students are able to reach the demands of the standards in your classroom. In addition to the resources embedded in the map, there are some high-leverage resources around the content standards and mathematical practice standards that teachers should consistently access. For a full description of each, click on the links below.

- Tennessee Mathematics Content Standards
- Standards for Mathematical Practice
- Literacy Skills for Mathematical Proficency

Structure of the Standards

Structure of the TN State Standards include:

- **Content Standards** - Statements of what a student should know, understand, and be able to do.
- **Clusters** - Groups of related standards. Cluster headings may be considered as the big idea(s) that the group of standards they represent are addressing. They are therefore useful as a quick summary of the progression of ideas that the standards in a domain are covering and can help teachers to determine the focus of the standards they are teaching.
- **Domains** - A large category of mathematics that the clusters and their respective content standards delineate and address. For example, Number and Operations – Fractions is a domain under which there are a number of clusters (the big ideas that will be addressed) along with their respective content standards, which give the specifics of what the student should know, understand, and be able to do when working with fractions.
- **Conceptual Categories** – The content standards, clusters, and domains in the 9th-12th grades are further organized under conceptual categories. These are very broad categories of mathematical thought and lend themselves to the organization of high school course work. For example, Algebra is a conceptual category in the high school standards under which are domains such as Seeing Structure in Expressions, Creating Equations, Arithmetic with Polynomials and Rational Expressions, etc.

How to Use the Maps

Overview
An overview is provided for each quarter and includes the topics, focus standards, intended rigor of the standards and foundational skills needed for success of those standards.

Your curriculum map contains four columns that each highlight specific instructional components. Use the details below as a guide for information included in each column.

Tennessee State Standards
TN State Standards are located in the left column. Each content standard is identified as Major Content or Supporting Content. A key can be found at the bottom of the map.

Content
This section contains learning objectives based upon the TN State Standards. Best practices tell us that clearly communicating measurable objectives lead to greater student understanding. Additionally, essential questions are provided to guide student exploration and inquiry.

Instructional Support
District and web-based resources have been provided in the Instructional Support column. You will find a variety of instructional resources that align with the content standards. The additional resources provided should be used as needed for content support and scaffolding.

Vocabulary and Fluency
The inclusion of vocabulary serves as a resource for teacher planning and for building a common language across K-12 mathematics. One of the goals for Tennessee State Standards is to create a common language, and the expectation is that teachers will embed this language throughout their daily lessons. In order to aid your planning, we have also included a list of fluency activities for each lesson. It is expected that fluency practice will be a part of your daily instruction. (Note: Fluency practice is not intended to be speed drills, but rather an intentional sequence to support student automaticity. Conceptual understanding must underpin the work of fluency.

Instructional Calendar
As a support to teachers and leaders, an instructional calendar is provided ***as a guide***. Teachers should use this calendar for effective planning and pacing, and leaders should use this calendar to provide *support* for teachers. Due to variances in class schedules and differentiated support that may be needed for students' adjustment to the calendar may be required.

Topics Addressed in Quarter

- **Similarity and Transformations**
- **Using Similar Triangles**
- **Right Triangles with Trigonometry**
- **Properties of Angles and Segments in Circles**

Overview

During the third quarter students formalize their understanding of similarity, which was informally studied prior to geometry. Similarity of polygons and triangles is explored and triangle similarity postulates and theorems are formally proven. The proportionality of corresponding sides of similar figures is applied. Similarity is extended to the side-splitting, proportional medians, altitudes, angle bisectors, and segments theorems. The geometric mean is defined and related to the arithmetic mean. The special right triangles of 30-60-90 and 45-45-90 are also studied. Students are introduced to the right-triangle trigonometric ratios of sine, cosine, and tangent, and their applications. Angles and the sine, cosine, and tangent functions are defined in terms of a rotation of a point on the unit circle. Students will end the quarter by starting their study of circles. They will quickly review circumference and then identify central angles, major and minor arcs, semicircles and find their measures. They will finish the quarter studying inscribed angles and intercepted arcs.

Content Standard	Type of Rigor	Foundational Standards
G-SRT.A.2	Procedural Skill and Fluency , Conceptual Understanding	8.G.A.1, 2,3, 4,5
G-SRT.B.4, 5	Procedural Skill and Fluency , Conceptual Understanding & Application	8.G.A.1, 2,3, 4,5
G-SRT.C.6, 7, 8	Procedural Skill and Fluency , Conceptual Understanding & Application	8.G.A.1, 2,3, 4,5
G-C.A.1, 2	Procedural Skill and Fluency , Conceptual Understanding & Application	8.G.A.5; 8.G.B.7
G-MG.A.2	Procedural Skill and Fluency , Conceptual Understanding & Application	8.G.A.5; 8.G.B.7

Curriculum and Instruction – Mathematics

Quarter 3 — Geometry

Similarity and Transformations (Allow approximately 2 weeks for instruction, review, and assessment)			
Domain: Modeling with Geometry (G.MG) **Cluster**: Apply geometric concept in modeling situations ■ **G-MG.A.2** Apply geometric methods to solve real world problems.★	**Essential Question(s)** What is the difference between a ratio and a proportion? What operations are used to solve a proportion? **Objective(s):** • Write ratios • Write and solve proportions	***Textbook Lesson*** Lesson 7.1 Ratios and Proportions pp. 457 - 464	**Vocabulary** Ratio, extended ratios, proportion, extremes, means, cross products **Activity with Discussion** Research and Report- The Fibonacci Sequence and the Golden Ratio - what are they, why are they important, and how are th related.
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Understand similarity in terms of similarity transformations ■ **G-SRT.A.2** 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.	**Essential Question(s)** How do you use proportions to find side lengths in similar polygons? How do you identify corresponding parts of similar triangles? **Objective(s):** • Use proportions to Identify similar polygons • Solve problems using the properties of similar polygons	***Textbook Lesson*** Lesson 7.2 Similar Polygons pp.465-473 ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **HS Flip Book with examples of each Standard** (Designed as a resource tool to assist teachers in deepening their understanding of what each standard means in terms of what students must know and be able to do. It outlines only a *sample* of instructional strategies and examples. Links to conceptual categories and specific standards in the document can be accessed from page 5 *Mathematics Standards for High School.*) **Task(s)** Illustrative Mathematics: Similar Quadrilaterals Illustrative Mathematics: Similar Triangles	**Vocabulary** Similar polygons, similarity ratio, scale factor **Activity with Discussion** p. 472 #54 Draw two regular pentagons that are different sizes. Are the pentagon's simila Will any two regular polygons with the same number of sides be similar? Explain **Writing in Math/Discussion** p. 472 #55 Compare and contrast congruent, similar, and equal figures.
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Understand similarity in terms of similarity transformations. ■ **G.SRT.A.1** Verify informally the properties	**Essential Question(s)** How do you show two triangles are similar? **Objective(s):**	***Textbook Lesson*** Lesson 7.6 Similarity Transformations pp. 505-511 ***Eureka Math Lessons***	**Vocabulary** dilation, similarity transformation, center of dilation, scale factor of a dilation, enlargement, reduction

of dilations given by a center and a scale factor. **Domain:** Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Understand similarity in terms of similarity transformations ■ **G-SRT.A.2** 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. **Domain:** Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Define trigonometric ratios and solve problems involving right triangles ■ **G-SRT.C.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.	• Identify similarity transformations • Verify similarity after a similarity transformation	Eureka Math Geometry Module 2, Topic A, Lesson 2 – Scale Drawings by Ratio Method Eureka Math Geometry Module 2, Topic B Lesson 6 – Dilations as Transformations of the Plane Eureka Math Geometry Module 2, Topic B, Lesson 7 – How do Dilations Map Segments? Eureka Math Geometry Module 2, Topic C, Lesson 12 – Similarity Transformations ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Eureka Math Geometry Module 2, Topic A, Lesson 3 – Scale Drawings by the Parallel Method **HS Flip Book with examples of each Standard**	**Activity with Discussion** Explain how you can use scale factor to determine whether a transformation is an enlargement, a reduction, or a congruence transformation.
Domain: Modeling with Geometry (G.MG) **Cluster**: Apply geometric concept in modeling situations ■ **G-MG.A.2** Apply geometric methods to solve real world problems.★	**Essential Question(s)** How do you use proportions to find side lengths in similar polygons? **Objective(s):** • Interpret scale models • Use scale factors to solve problems	***Textbook Lesson*** Lesson 7.7 Scale Drawings and Scale Models pp. 512-517 ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Eureka Math Geometry Module 2, Topic A, Lesson 1 – Scale Drawings	**Vocabulary** Scale model, scale drawing, scale **Writing in Math/Discussion** Compare and contrast scale and scale factor. You can produce a scale model of a certain object by extending each dimension by a constant. What must be true of the shape of t object? Explain your reasoning.

Using Similar Triangles **(Allow approximately 3 weeks for instruction, review, and assessment)**			
Cluster: Prove theorems involving similarity ■ **G-SRT.B.4** Prove theorems about triangles. **Domain:** Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.5** Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.	**Essential Question(s)** How do you use proportions to find side lengths in similar polygons? How do you show two triangles are similar? **Objective(s):** • Identify and prove similar triangles using the AA Similarity Postulate and the SSS and SAS similarity Theorems • Use similar triangles to solve problems	***Textbook Lesson*** Lesson 7.3 Similar Triangles pp. 474-483 ***Eureka Math*** Eureka Math Geometry Module 2, Topic C, Lesson 14 – Similarity Eureka Math Geometry Module 2, Topic C, Lesson 15 – AA Similarity Eureka Math Geometry Module 2, Topic C, Lesson 16 – Between-Figure and Within-Figure Ratios ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Eureka Math Geometry Module 2, Topic C, Lesson 17 – SSS & SAS Similarity **Other Resources** **HS Flip Book with examples of each Standard**	**Writing in Math/Discussion** Contrast and compare the triangle congruenc theorems with the triangle similarity theorems
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.4** Prove theorems about	**Essential Question(s)** How do you use proportions to find side lengths in similar polygons?	***Textbook Lesson*** Lesson 7.4 Parallel Lines and Proportional Parts (midsegments was previously covered in unit 2) pp. 484-492	**Vocabulary** Mid-segment of a triangle

triangles.

Domain: Similarity, Right Triangles and Trigonometry (G.SRT)

Cluster: Prove theorems involving similarity

- **G-SRT.B.5** Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.

Objective(s):

- Use proportional parts within triangles
- Use proportional parts with parallel lines

Eureka Math

Eureka Math Geometry Module 2, Topic B, Lesson 10 – Dividing a Line Segment into Equal Parts

Eureka Math Geometry Module 2, Topic C, Lesson 19 – Families of Parallel Lines and the Circumference of the Earth

Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.

Eureka Math

Eureka Math Geometry Module 2, Topic A, Lesson 4 – Comparing the Ratio Method with the Parallel Method

Task(s)

See Mathematics, Instructional Resources, Geometry, Task Arc: Investigating Coordinate Geometry

Partitioning
However You Want to Slice It
Comparing Shapes

HS Flip Book with examples of each Standard

(Designed as a resource tool to assist teachers in deepening their understanding of what each standard means in terms of what students must know and be able to do.

It outlines only a *sample* of instructional strategies and examples. Links to conceptual categories and specific standards in the document can be accessed from page 5 *Mathematics Standards for*

Activity with Discussion

Use multiple representations to explore angle bisectors and proportions. See p. 492, #47

		High School.)	
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.4** Prove theorems about triangles. **Domain:** Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.5** Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.	**Essential Question(s)** • Can the geometric mean be used in any triangle? • Why does geometric mean help us to find the missing sides in a right triangle? **Objective(s):** • Find the geometric mean between two numbers Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse	***Eureka Math*** Eureka Math Geometry Module 2, Topic D, Lesson 21 – Special Relationships within Right Triangles ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **HS Flip Book with examples of each Standard**	**Vocabulary** Geometric mean **Writing in Math/Discussion** What is an arithmetic mean and a geometric mean of two numbers? Are they ever equal? Justify your answer.
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.4** Prove theorems about triangles. **Domain:** Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Prove theorems involving similarity ■ **G-SRT.B.5** Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.	**Essential Question(s)** How might the features of one figure be useful when solving problems about a similar figure? **Objective(s):** • Recognize and use proportional relationships of corresponding angle bisectors, altitudes, and medians of similar triangles • Use the Triangle Angle Bisector Theorem	***Textbook Lesson*** Lesson 7.5 Parts of Similar Triangles pp.495-503 ***Eureka Math*** Eureka Math Geometry Module 2, Topic C, Lesson 18 – Similarity and the Angle Bisector Theorem ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **HS Flip Book with examples of each Standard** **ACT Practice** (sample problems to prepare for the ACT) Glencoe, pp.456-457	**Activity with Discussion** Find a counterexample: If the measure of an altitude and side of a triangle are proportiona to the corresponding altitude and corresponding side of another triangle, then t triangles are similar
Right Triangles and Trigonometry			

Curriculum and Instruction – Mathematics

Quarter 3 — Geometry

(Allow approximately 3 weeks for instruction, review, and assessment)t)

Domain: Similarity, Right Triangles and Trigonometry (G.SRT)
Cluster: Define trigonometric ratios and solve problems involving right triangles

- **G-SRT.C.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.

Domain: Similarity, Right Triangles and Trigonometry (G.SRT)
Cluster: Define trigonometric ratios and solve problems involving right triangles

- **G-SRT.C.7** Explain and use the relationship between the sine and cosine of complementary angles.

Domain: Similarity, Right Triangles and Trigonometry (G.SRT)
Cluster: Define trigonometric ratios and solve problems involving right triangles

- **G-SRT.C.8** G.SRT.C.8 Solve triangles. ★

  a. Know and use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

  b. Know and use the Law of Sines and Law of Cosines to solve problems in real life situations. Recognize when it is appropriate to use each.

Essential Question(s)

How do you find a side length or angle measure in a right triangle?

How do you find a side length or angle measure in a right triangle?

How do trigonometric ratios relate to similar right triangles?

Objective(s):

- Identify and apply side ratios in 45-45-90 right triangles.
- Identify and apply side ratios in 30-60-90 right triangles
- Define trigonometric ratios for acute angles in right triangles
- Use trigonometric rations and Pythagorean Theorem to solve right triangles
- Use the relationship between the sine and cosine of complementary angles.

Textbook Lesson

Lesson 8.3 Special Right Triangles pp.552-559

Lesson 8.4 Trigonometry pp.562-271

Eureka Math

Eureka Math Geometry Module 2, Topic E

Lesson 26: The Definition of Sine, Cosine, and Tangent

Eureka Math Geometry Module 2, Topic E

Lesson 27: Sine and Cosine of Complementary Angles and Special Angles

Eureka Math Geometry Module 2, Topic E

Lesson 29: Applying Tangents

Eureka Math Geometry Module 2, Topic E

Lesson 30: Trigonometry and the Pythagorean Theorem

Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.

Eureka Math

Eureka Math Geometry Module 2, Topic D, Lesson 24 - Prove the Pythagorean Theorem Using Similarity

Eureka Math Geometry Module 2, Topic E

Lesson 25: Incredibly Useful Ratios

Eureka Math Geometry Module 2, Topic E

Lesson 28: Solving Problems Using Sine and Cosine

Vocabulary

Trigonometry, trigonometry ratio, sine, cosine, tangent, inverse sine, inverse cosine, inverse tangent

Activity with Discussion

p.570 #65

Explain how you can use ratios of the side lengths to find the angle measures of the acu angles in a right triangle.

Activity with Discussion

p.559 #50

Explain how you can find the lengths of two le of a 30-60-90 triangle in radical form if you ar given the length of the hypotenuse.

		HS Flip Book with examples of each Standard **Task(s)** Discovering Trigonometric Ratio Relationships learning task p.22	
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster**: Define trigonometric ratios and solve problems involving right triangles ■ **G-SRT.C.8** G.SRT.C.8 Solve triangles. ★ a. Know and use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. b. Know and use the Law of Sines and Law of Cosines to solve problems in real life situations. Recognize when it is appropriate to use each.	**Essential Question(s)** How do you find a side length or angle measure in a right triangle? How do trigonometric ratios relate to similar right triangles? **Objective(s):** • Solve problems involving angles of elevation. • Solve problems involving angles of depression.	***Textbook Lesson*** Lesson 8.5 – Angles of Elevation and Depression pp.574-581 ***Eureka Math*** Eureka Math Geometry Module 2, Topic D, Lesson 31: Using Trigonometry to Determine Area Eureka Math Geometry Module 2, Topic D, Lesson 32: Using Trigonometry to Find Side Lengths of an Acute Triangle Eureka Math Geometry Module 2, Topic D, Lesson 33: Applying the Laws of Sines and Cosines ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Eureka Math Geometry Module 2, Topic D, Lesson 34: Unknown Angles **Task(s)** Edutoolbox: Interstate Task **ACT Practice**	**Vocabulary** Angle of elevation, angle of depression **Writing in Math/Discussion** p.580 #25 Classify the statement below as true or false. Explain. "As a person moves closer to an obj he or she is sighting, the angle of elevation increases"

		(sample problems to prepare for the ACT) Glencoe, pp.618-619 **HS Flip Book with examples of each Standard**	
Properties of Angles and Segments in Circles **(Allow approximately 1 week for instruction, review, and assessment)**			
Domain: Circles (G.C) **Cluster**: Understand and apply theorems about circles ➢ **G-C.A.1** Recognize that all circles are similar. **Domain:** Congruence (G.CO) **Cluster**: Experiment with transformations in the plane ➢ **G-CO.A.1** 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. **Domain:** Geometric Measurement and Dimension (G.GMD) **Cluster:** Explain volume formulas and use them to solve problems ➢ **G-GMD.A.1** Give an informal argument for the formulas for the circumference of a circle, and the volume and surface area of a cylinder, cone, prism, and pyramid.	**Essential Question(s)** What role do circles play in modeling the word around us? **Objective(s):** • Give an argument to justify the formula for the circumference of a circle. • Prove that all circles are similar.	***Textbook Lesson*** Lesson 10.1 – Circles and Circumference pp.683-691 ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **HS Flip Book with examples of each Standard** **Task(s)** Illustrative Math: Similar Circles Task All Circles are Similar Task	**Vocabulary** Circle, center, radius, chord, diameter, congru circles, concentric circles, circumference, pi, inscribed, circumscribed **Writing in Math/Discussion** p.690 #54 Research and write about the history of pi and its importance to the study of geometry.
Domain: Circles (G.C) **Cluster**: Understand and apply theorems about circles ➢ **G-C.A.2** Identify and describe relationships among inscribed angles,	**Essential Question(s)** When lines intersect a circle, or within a circle, how do you find the measures of resulting angles, arcs, and segments? **Objective(s):**	***Textbook Lesson*** Lesson 10.2 Measuring Angles and Arcs pp.692-700 ***Optional: Use the following resources to ensure that the intended outcome and level***	**Vocabulary** Central angle, arc, minor arc, major arc, semicircle, congruent arcs, adjacent arcs, arc length **Writing in Math/Discussion**

radii, and chords.	Identify central angles, major arcs, minor arcs, and semicircles and find their measures.	***of rigor of the standards are met.*** **HS Flip Book with examples of each Standard** **Task(s)** Circles and their Relationships among Central Angles, Arcs and Chords (p. 15) Investigating Angle Relationships in Circles (pp. 46 & 52)	p.699 #62 Describe the three different types of arcs in a circle and the method for finding the measure of each one.
Domain: Circles (G.C) **Cluster**: Understand and apply theorems about circles ❖ **G-C.A.2** Identify and describe relationships among inscribed angles, radii, and chords.	**Essential Question(s)** What are the relationships between arcs, chords, and diameters? **Objective(s):** • Recognize and use relationships between arcs and chords. • Recognize and use relationships between arcs, chords, and diameters.	***Textbook Lesson*** Lesson 10.3 Arcs and Chords pp.701-708 ***Optional: Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **HS Flip Book with examples of each Standard**	**Writing in Math/Discussion** p.708 Have students write a paragraph that explains how the lesson about angles and arcs helped them in the lesson about arcs and chords.

Curriculum and Instruction – Mathematics

Quarter 3 — Geometry

RESOURCE TOOLBOX		
Textbook Resources ConnectED Site - Textbook and Resources Glencoe Video Lessons Hotmath - solutions to odd problems Comprehensive Geometry Help: Online Math Learning (Geometry) NCTM Illuminations **Tasks** Edutoolbox (formerly TNCore) Tasks Inside Math Tasks Dan Meyer's Three-Act Math Tasks Illustrative Math Tasks UT Dana Center GSE Analytic Geometry Unit 1: Similarity, Congruence and Proofs	**Standards** Common Core Standards - Mathematics Common Core Standards - Mathematics Appendix A **HS Flip Book with examples of each Standard** http://www.ccsstoolbox.org/ http://insidemathematics.org/index.php/high-school-geometry http://www.livebinders.com/play/play/454480 https://www.livebinders.com/play/play?id=464831 http://www.livebinders.com/play/play?id=571735 Chicago Public Schools Framework and Tasks **Tennessee Academic Standards for Mathematics** **Tennessee Assessment LiveBinder**	**Videos** Math TV Videos The Teaching Channel Khan Academy Videos (Geometry) **NWEA MAP** **Resources:**https://teach.mapnwea.org/assist/help_map/ApplicationHelp.htm#UsingTestResults/MAPReportsFinder.htm - Sign in and Click the Learning Continuum Tab – this resources will help as you plan for intervention, and differentiating small group instruction on the skill you are currently teaching. (Four Ways to Impac Teaching with the Learning Continuum) https://support.nwea.org/khanrit - These Khan Academy lessons are aligned to RIT scores.