**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit Transformations and Congruence<br>Module 1 Tools of Geometry | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** August 2019 |

**Summary of unit:**

Students will learn about segments and angles, reasoning and proof, translations, reflections, and rotations, symmetry, corresponding parts of congruent figures.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
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| G-CO.A.1 Know precise definitions of ... line segment, based on the undefined notions of ... distance along a line, … .<br><br>G-CO.D.12 Perform geometric constructions with a compass and straightedge. including copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines/segments, constructing a line parallel to a given line through a point not on the line.<br><br>G-GPE.B.4 Use coordinates to prove geometric relationships algebraically.<br><br>G-CO.A.1 Know precise definitions of angle … based on the undefined notions of … distance around a circular arc.<br><br>G-CO.A.2 Represent transformations in the plane …; describe transformations as functions … . Compare transformations that preserve distance and angle to those that do not … .<br><br>G-CO.C.9 Prove theorems about lines and angles. | How do you draw a segment and measure its length?<br><br>How is measuring an angle similar to and different from measuring a line segment?<br><br>How can you describe transformations in the coordinate plane using algebraic representations and using words?<br><br>How do you go about proving a statement? |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
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| Work with a small group to match pictures to "geometry term cards." | MP.4 Focus on Modeling | 1.2 MP.4 Suggest that students use a straightedge, such as an index card, to extend the rays of an angle before they use a protractor to |

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| Work with a partner to play "angle charades."<br><br>Students work together to give oral, verbal and pictorial clues and justify transformations drawn from clues. | | measure the angle. If the angle is smaller than the distance from the center mark to the edge of the protractor, this will make it easier to accurately measure the angle. Encourage students to estimate an angle measure before measuring to make sure the measurement is reasonable. |
| | MP.6 Precision | 1.3 This lesson provides an opportunity to address Mathematical Practice MP.6, which calls for students to "attend to precision." Students are already familiar with transformations in the plane and, in this lesson, students use graph paper to draw transformations. They use protractors, rulers, and coordinates to determine whether length and angle measure have been preserved. They also use concepts about functions to write the rules that express transformations algebraically. |
| | MP.3 Construct Arguments | This lesson provides an opportunity to address Mathematical Practice MP.3, which calls for students to "construct viable arguments." Students use deductive reasoning, and explain steps logically from definite premises to a definite general conclusion. They use inductive reasoning to make a conjecture about what is true in general by examining several cases, and they justify the falsehood of a conclusion by citing a counterexample. |
| **Vocabulary** | | **Differentiation** |
| Point<br>Line<br>Plane<br>Line Segment<br>Endpoints | Preimage<br>Conjecture<br>Inductive Reasoning<br>Deductive Reasoning<br>Theorem | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete |

**Corsica Stickney Curriculum Map**

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| Ray<br>Transformations<br>Image | Counterexample<br>Conditional statement<br>Linear pair | worksheets or tests in an alternate setting. |

**Stage 2 – Assessment Evidence**

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| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests |

**Stage 3 – Learning Plan**

- Learning Activities: procedures/topics
- Reading and discussing lesson with class as lecture time.
- Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.
- Students take notes and use notes to complete homework assignments.
- Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts.

**Lesson Descriptions**

LESSON 1.1 Segment Length and Midpoints
LESSON 1.2 Angle Measures and Angle Bisectors
LESSON 1.3 Representing and Describing Transformations
LESSON 1.4 Reasoning and Proof

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 1 Transformations and Congruence<br>Module 2 Transformations and Symmetry<br>Module 3 Congruent Figures | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** September 2019 |
| **Summary of unit:**<br><br>Students will learn about segments and angles, reasoning and proof, translations, reflections, and rotations, symmetry, corresponding parts of congruent figures. | |
| **Stage 1 – Desired Results** | |
| **Standards**<br>G-CO.A.4 Develop definitions of ... translations in terms of ... parallel lines, and line segments.<br><br>G-CO.A.1 State and apply precise definitions of angle, circle, perpendicular, parallel, ray, line segment, and distance based on the undefined notions of point, line, and plane.<br><br>G-CO.A.2 Represent transformations in the plane. (e.g., using transparencies and/or geometry software); a. Describe transformations as functions that take points in the plane as inputs and give other points as outputs. b. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus dilation).<br><br>G-CO.A.4 Develop definitions of ... reflections ... in terms of ... perpendicular lines … .<br><br>G-CO.D.12 Perform geometric constructions with a compass and straightedge. including copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines/segments, constructing a line parallel to a given line through a point not on the line | **Essential Questions:**<br><br>How do you draw the image of a figure under a translation?<br><br>How do you draw the image of a figure under a reflection?<br><br>How do you draw the image of a figure under a rotation?<br><br>How do you determine whether a figure has line symmetry or rotational symmetry?<br><br>What happens when you apply more than one transformation to a figure?<br><br>How can you determine whether two figures are congruent?<br><br>What can you conclude about two figures that are congruent? |

**Corsica Stickney Curriculum Map**

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| G-MG.A.3 Apply geometric concepts 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).<br><br>G-CO.A.4 Develop definitions of rotations ... in terms of angles, circles, ... and line segments.<br><br>G-CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.<br><br>G-CO.A.5 ... Specify a sequence of transformations that will carry a given figure onto another<br><br>G-CO.B.6 ... given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent<br><br>G-CO.B.7 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. | |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
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| Work with a partner to identify examples and non-examples of translations.<br><br>Work with a partner to discuss how to determine if a transformation is a reflection.<br><br>Students work in small groups or pairs to identify and label the transformation shown on a coordinate plane and if a | MP.7 Make use of structure | 2.1 This lesson provides an opportunity to address Mathematical Practice MP.7, which calls for students to "look for and make use of structure." Students are already familiar with translating a figure in the plane; in this lesson, they explore translations using tracing paper, and then describe translations using vectors, both in the plane and in the coordinate plane. Students use vector notation to describe the translation vector in component form, and then relate |

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| rotation, identify the point of rotation.<br><br>Have students work with a partner to give clues about a figure, and identify whether figures have line symmetry, rotational symmetry, or both and draw the line(s) of symmetry.<br><br>Explain to a partner why a transformation or sequence of transformations is rigid or nonrigid.<br><br>Have students work in pairs to label congruent and noncongruent figures.<br><br>Have students fill in sentence stems to explain why figures are congruent or noncongruent. | MP.5 Using Tools | the vector to the associated algebraic rule used to transform the preimage figure in the coordinate plane.<br><br>2.2 This lesson provides an opportunity to address Mathematical Practice MP.5, which calls for students to "use appropriate tools." Students are already familiar with reflecting a figure in the plane; in this lesson, students use the tools of tracing paper, ruler, and protractor to explore reflections. Students draw perpendicular bisectors on graph paper to draw reflected images and find midpoints to determine the line of reflection. |
| **Vocabulary** | | **Differentiation** |
| Vector<br>Initial point<br>Terminal point<br>Perpendicular lines<br>Perpendicular bisector<br>reflection | Rotation<br>Center of rotation<br>Angle of rotation<br>Symmetry<br>Line of symmetry<br>Rotational symmetry<br>Angle of rotational symmetry | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments. | | |

**Corsica Stickney Curriculum Map**

- Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts.

**Lesson Descriptions**

LESSON 2.1 Translations
LESSON 2.2 Reflections
LESSON 2.3 Rotations
LESSON 2.4 Investigating Symmetry
LESSON 3.1 Sequences of Transformations
LESSON 3.2 Proving Figures Are Congruent Using Rigid Motions
LESSON 3.3 Corresponding Parts of Congruent Figures Are Congruent

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 2 Lines, Angles and Triangles<br>Module 4 Lines and Angles<br>Module 5 Triangle Congruence Criteria | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** October 2019 |

**Summary of unit:**

Students will learn about parallel lines, transversals, and angle relationships, perpendicular lines and bisectors, slopes and equations of parallel and perpendicular lines, congruence of triangles, geometric constructions, special triangles and triangle inequalities, and special segments of triangles.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| G-CO.C.9 Prove theorems about lines and angles<br><br>G-CO.D.12 Perform geometric constructions with a compass and straightedge. including copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines/segments, constructing a line parallel to a given line through a point not on the line.<br><br>G-GPE.B.5 … find the equation of a line parallel or perpendicular to a given line that passes through a given point … .<br><br>G-CO.B.7 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.<br><br>G-CO.B.8 Explain how the criteria for triangle congruence (ASA … ) follow from the definition of congruence in terms of rigid motions.<br><br>G-CO.C.10 Prove theorems about triangles. Theorems must include but not limited to: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are | How can you find the measures of angles formed by intersecting lines?<br><br>How can you prove and use theorems about angles formed by transversals that intersect parallel lines?<br><br>How can you prove that two lines are parallel?<br><br>What are the key ideas about perpendicular bisectors of a segment?<br><br>How can you find the equation of a line that is parallel or perpendicular to a given line?<br><br>How can you show that two triangles are congruent?<br><br>What does the ASA Triangle Congruence Theorem tell you about triangles?<br><br>What does the SAS Triangle Congruence Theorem tell you about triangles?<br><br>What does the SSS Triangle Congruence Theorem tell you about triangles? |

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| congruent; the mid segment of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.<br><br>G-SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.<br><br>G-CO.B.8 Explain how the criteria for triangle congruence (… SAS ...) follow from the definition of congruence in terms of rigid motions.<br><br>G-CO.B.8 Explain how the criteria for triangle congruence (... SSS) follow from the definition of congruence in terms of rigid motions. | |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
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| Explain to a partner the differences among complementary angles, supplementary angles, linear pairs, and vertical angles.<br><br>Explain to a partner how to identify the angles formed by two parallel lines cut by a transversal.<br><br>Explain to a partner whether the angles formed by two lines cut by a transversal determine parallel lines.<br><br>Explain to a partner why a pair of lines is or is not perpendicular.<br><br>Explain to a partner how to use the slope of a line to find the equation of a parallel or perpendicular line. | MP.5 Using Tools<br><br>MP.3 Logic | This lesson provides an opportunity to address Mathematical Practice MP.5, which calls for students to "use appropriate tools." They begin the lesson by constructing the perpendicular bisector of a segment; they may also use paper folding or reflective devices to construct the perpendicular bisector. Students also construct the perpendicular to a line through a point not on the line. For each construction, they must be able to use the tools in a variety of ways in order to obtain accurate results and to understand the underlying mathematical relationships.<br><br>This lesson provides an opportunity to address Mathematical Practice MP.3, which calls for students to "construct viable arguments and critique the reasoning of others." As students explore congruent triangles, ask |

**Corsica Stickney Curriculum Map**

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| Have students explain to a partner why a pair of triangles is congruent or noncongruent.<br><br>Have students work in pairs to label and color code congruent angles and a side in pairs of triangles.<br><br>Have students work in pairs to find an example in the lesson and write out a step-by-step explanation of how the SAS Triangle Congruence Theorem works.<br><br>Have small groups of students complete a triangle congruence chart. | | them to share their observations and conclusions with the class. As they share their findings, ask if anyone got different results. Discuss the differences. Promoting this type of dialogue in the classroom is an essential aspect of the standard. |
| **Vocabulary** | | **Differentiation** |
| Vertical angles<br>Flow proof<br>Complementary angles<br>Supplementary angles<br>Transversal<br>Corresponding angles<br>Same-side interior angles | Alternate interior angles<br>Alternate exterior angles<br>Converse<br>Indirect proof<br>Biconditional<br>Contrapositve | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments.<br>• Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts. | | |

**Corsica Stickney Curriculum Map**

| **Lesson Descriptions** |
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| LESSON 4.1 Angles Formed by Intersecting Lines |
| LESSON 4.2 Transversals and Parallel Lines |
| LESSON 4.3 Proving Lines Are Parallel |
| LESSON 4.4 Perpendicular Lines |
| LESSON 4.5 Equations of Parallel and Perpendicular Lines |
| LESSON 5.1 Exploring What Makes Triangles Congruent |
| LESSON 5.2 ASA Triangle Congruence |
| LESSON 5.3 SAS Triangle Congruence |
| LESSON 5.4 SSS Triangle Congruence |

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 2 Lines, Angles and Triangles<br>Module 7 Properties of Triangles<br>Module 8 Special Segments in Triangles | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** November 2019 |
| **Summary of unit:**<br><br>Students will learn about parallel lines, transversals, and angle relationships, perpendicular lines and bisectors, slopes and equations of parallel and perpendicular lines, congruence of triangles, geometric constructions, special triangles and triangle inequalities, and special segments of triangles. | |
| **Stage 1 – Desired Results** | |
| **Standards**<br>G-CO.C.10 Prove theorems about triangles.<br><br>G-SRT.B.5 Use congruence ... criteria for triangles to solve problems and to prove relationships in geometric figures.<br><br>G-C.A.3 Construct the … circumscribed circles of a triangle … .<br><br>G-CO.D.12 . Perform geometric constructions with a compass and straightedge. including copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines/segments, constructing a line parallel to a given line through a point not on the line.<br><br>G-GPE.B.4 Use coordinates to prove geometric relationships algebraically.<br><br>G-GPE.B.5 Define and use the slope criteria for parallel and perpendicular lines.<br><br>G-C.A.3 Construct the inscribed ... circles of a triangle … .<br><br>G-CO.C.9 Prove theorems about lines and angles. Theorems must include but not limited to: vertical angles are congruent; when a transversal intersects parallel lines, alternate interior angles are | **Essential Questions:**<br><br>What can you say about the interior and exterior angles of a triangle and other polygons?<br><br>What are the special relationships among angles and sides in isosceles and equilateral triangles?<br><br>How can you use inequalities to describe the relationships among side lengths and angle measures in a triangle?<br><br>How can you use perpendicular bisectors to find the point that is equidistant from all the vertices of a triangle?<br><br>How can you use angle bisectors to find the point that is equidistant from all the sides of a triangle?<br><br>How can you find the balance point or center of gravity of a triangle?<br><br>How are the segments that join the midpoints of a triangle's sides related to the triangle's sides? |

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| congruent and same side interior angles are supplementary (using corresponding angles postulate); points on a perpendicular bisector of a line segment are equidistant from the segment's endpoints. | |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
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| Work in small groups to play angle jeopardy.<br><br>Explain to a partner what you can deduce about a triangle if it has two sides with the same length.<br><br>Explain to a partner how to show the three inequalities generated for a triangle with side lengths a, b, and c.<br><br>Work in small groups to match terms to picture cards.<br><br>Students work in pairs to complete a compare/contrast chart for circumscribed and inscribed circles.<br><br>With a partner, label the orthocenter, medians, and altitudes of triangles drawn on coordinate planes.<br><br>Explain to a partner why a drawn segment in a triangle is or is not a midsegment. | MP.8 Patterns<br><br>MP.5 Using Tools | 7.1 This lesson provides an opportunity to address Mathematical Practice MP.8, which calls for students to "look for and identify patterns." Throughout the lesson, students use hands-on investigations or geometry to predict patterns and relationships for the interior and exterior angles of a triangle or polygon. They prove the Triangle Sum Theorem, the Polygon Angle Sum Theorem, and the Exterior Angle Theorem. The hands-on investigations give students a chance to use inductive reasoning to make a conjecture. This is followed by a proof in which students use deductive reasoning to justify their conjectures.<br><br>This lesson provides an opportunity to address Mathematical Practice MP.5, which calls for students to "use appropriate tools." Throughout the lesson, students use paper and pencil, protractors and rulers, and algebraic rules to predict and draw the indicated segments related to triangles. They must be able to use the tools in a variety of ways to explore concepts, do measurements of segments and subsegments related to triangles, and to solve problems that involve segments of triangles. |
| **Vocabulary** | | **Differentiation** |

**Corsica Stickney Curriculum Map**

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| Interior angle<br>Auxiliary line<br>Exterior angle<br>Remote interior angles<br>Isosceles triangle<br>legs<br>vertex angle<br>base<br>base angles<br>equilateral triangle<br>equiangular triangle<br>circumscribed<br>circumcircle<br>circumcenter | concurrent<br>point of concurrency<br>distance from a point to a line<br>inscribed<br>incircle<br>inscribed circle<br>incenter<br>median<br>centroid<br>altitude<br>orthocenter<br>midsegment | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |

**Stage 2 – Assessment Evidence**

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|---|---|
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests |

**Stage 3 – Learning Plan**

- Learning Activities: procedures/topics
- Reading and discussing lesson with class as lecture time.
- Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.
- Students take notes and use notes to complete homework assignments.
- Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts.

**Lesson Descriptions**

LESSON 7.1 Interior and Exterior Angles
LESSON 7.2 Isosceles and Equilateral Triangles
LESSON 7.3 Triangle Inequalities
LESSON 8.1 Perpendicular Bisectors of Triangles
LESSON 8.2 Angle Bisectors of Triangles
LESSON 8.3 Medians and Altitudes of Triangles
LESSON 8.4 Midsegments of Triangles

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 2 Lines, Angles and Triangles<br>Module 6 Application of Triangle Congruence<br>Unit 2 Test | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** December 2019 |

**Summary of unit:**

Students will learn about parallel lines, transversals, and angle relationships, perpendicular lines and bisectors, slopes and equations of parallel and perpendicular lines, congruence of triangles, geometric constructions, special triangles and triangle inequalities, and special segments of triangles.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| G-SRT.B.5 Use congruence ... criteria for triangles to solve problems and to prove relationships in geometric figures. | What does the AAS Triangle Congruence Theorem tell you about two triangles?<br><br>What does the HL Triangle Congruence Theorem tell you about two triangles? |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
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| Explain in your own words the difference between the AAS and ASA congruence theorems.<br><br>Explain the HL Congruence Theorem in your own words. | MP.3 Logic | This lesson provides an opportunity to address Mathematical Practice MP.3, which calls for students to "construct viable arguments and critique the reasoning of others." Students learn to justify the Angle-Angle-Side Congruence Theorem by using a paragraph proof. Mathematical proofs must use precise language to ensure their validity. As students continue to explore congruent triangles, ask them to justify their conclusions and communicate them with the class. Promoting this type of dialogue in the classroom is an essential aspect of the standard. |
| | MP.7 Using Structure | This lesson provides an opportunity to address Mathematical Practice MP.7, which calls for students to "look for and make use of structure." Students |

**Corsica Stickney Curriculum Map**

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| | | look at pairs of triangles that have two congruent sides and congruent non-included angles. They analyze these relationships to determine that this information is sufficient only to prove right triangles congruent. |
| **Vocabulary** | | **Differentiation** |
| Hypotenuse<br>legs | | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments.<br>• Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts. | | |
| **Lesson Descriptions**<br><br>LESSON 6.2 AAS Triangle Congruence<br>LESSON 6.3 HL Triangle Congruence | | |

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 3 Quadrilaterals and Coordinate Proof<br>Module 9: Properties of Quadrilaterals<br>Module 10: Coordinate Proof Using Slope and Distance | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** January 2020 |
| **Summary of unit:**<br><br>Students will learn about properties of parallelograms, rectangles, rhombuses, and squares, theorems about parallelograms, properties of kites and trapezoids, coordinate proofs with slopes and lines that are parallel and perpendicular, the distance and midpoint formulas, perimeter and area on the coordinate plane, and finding areas of composite figures | |
| **Stage 1 – Desired Results** | |
| **Standards**<br>G-CO.C.11 Prove theorems about parallelograms<br><br>G-CO.C.10 Prove theorems about triangles. Theorems must include but not limited to: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the mid segment of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.<br><br>G-SRT.B.5 Use congruence ... criteria for triangles to solve problems and to prove relationships in geometric figures.<br><br>G-GPE.B.5 Prove the slope criteria for parallel ... lines and use them to solve geometric problems …<br><br>G-GPE.B.5 Prove the slope criteria for ... perpendicular lines and use them to solve geometric problems … .<br><br>G-GPE.B.4 Use coordinates to prove simple geometric theorems.<br><br>G-GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. | **Essential Questions:**<br><br>What can you conclude about the sides, angles, and diagonals of a parallelogram?<br><br>What criteria can you use to prove that a quadrilateral is a parallelogram?<br><br>What are the properties of rectangles, rhombuses, and squares?<br><br>How can you use given conditions to show that a quadrilateral is a rectangle, a rhombus, or a square?<br><br>What are the properties of kites and trapezoids?<br><br>How can you use slope to solve problems involving parallel lines?<br><br>How can you use slope to solve problems involving perpendicular lines?<br><br>How do you write a coordinate proof?<br><br>How can you use slope and the distance formula in coordinate proofs? |

**Corsica Stickney Curriculum Map**

| Language objective | Mathematical practices | Integrate mathematical practices |
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| Explain to a partner why pictures of quadrilaterals are or are not parallelograms.<br><br>Explain to a partner how to identify the opposite sides, opposite angles, and consecutive angles and sides of a quadrilateral.<br><br>Explain to a partner how to classify different types of quadrilaterals as rectangles, rhombuses, or squares.<br><br>Explain to a partner how to distinguish between a condition for a quadrilateral to be a rectangle, rhombus, or square, and a property of a rectangle, rhombus, or square.<br><br>Explain to a partner how to describe the properties of kites and trapezoids.<br><br>Explain to a partner how to use slopes to find missing vertices and classify quadrilaterals.<br><br>Work in small groups to draft an explanation for students beginning to study geometry of how you can use slope to solve problems involving perpendicular lines.<br><br>Describe to a partner how to prove the Concurrency of Medians Theorem. | MP.7 Using Structure | 9.4 This lesson provides an opportunity to address Mathematical Practice MP.7, which calls for students to "look for and make use of structure." Students are already familiar with the properties of rectangles, rhombuses, and squares, but in this lesson they must analyze the conditions that would be sufficient to make a parallelogram a more special figure. Each theorem in the lesson presents a single condition that leads to a broader conclusion that a figure is a special quadrilateral. For example, it is sufficient for one angle of a parallelogram to be a right angle to conclude that the parallelogram has four right angles (it is a rectangle). |

**Corsica Stickney Curriculum Map**

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| Explain in your own words how to prove that a quadrilateral on a coordinate plane is a rectangle.<br>Work in small groups to develop a series of written steps to explain how to calculate perimeter and area in the coordinate plane. | | |
| **Vocabulary** | | **Differentiation** |
| Quadrilateral<br>Parallelogram<br>Diagonal<br>Rectangle<br>Rhombus<br>Square<br>Kite | Trapezoid<br>Isosceles trapezoid<br>Midsegment of a trapezoid<br>Coordinate proof<br>Composite figure | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments.<br>• Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts. | | |
| **Lesson Descriptions**<br><br>LESSON 9.1 Properties of Parallelograms<br>LESSON 9.2 Conditions for Parallelograms<br>LESSON 9.3 Properties of Rectangles, Rhombuses, and Squares<br>LESSON 9.4 Conditions for Rectangles, Rhombuses, and Squares<br>LESSON 9.5 Properties and Conditions for Kites and Trapezoids<br>LESSON 10.1 Slope and Parallel Lines<br>LESSON 10.2 Slope and Perpendicular Lines<br>LESSON 10.3 Coordinate Proof Using Distance with Segments and Triangles<br>LESSON 10.4 Coordinate Proof Using Distance with Quadrilaterals<br>LESSON 10.5 Perimeter and Area on the Coordinate Plane | | |

# Corsica Stickney Curriculum Map

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 4 Similarity<br>Module 11 Similarity and Transformations<br>Module 12 Using Similar Triangles | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** February 2020 |

**Summary of unit:**

Students will learn about, similarity and dilations, similarity of circles, corresponding parts of similar figures, proving triangles similar, the triangle proportionality theorem, dividing segments in a given ratio, geometric means theorems, and proving the Pythagorean Theorem.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| G-SRT.A.1a, G-SRT.A.1.b Verify experimentally the properties of dilations given by a center and a scale factor … .<br><br>G-SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar …<br><br>G-C.A.1 . Prove that all circles are similar.<br><br>G-SRT.A.2 … explain using similarity transformations the meaning of similarity for triangles …<br><br>G-SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.<br><br>G-CO.C.10 Prove theorems about triangles. Theorems must include but not limited to: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the mid segment of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.<br><br>G-CO.D.12 Perform geometric constructions with a compass and | How does a dilation transform a figure?<br><br>How can similarity transformations be used to show two figures are similar?<br><br>If you know two figures are similar, what can you determine about measures of corresponding angles and lengths?<br><br>How can you show that two triangles are similar?<br><br>When a line parallel to one side of a triangle intersects the other two sides, how does it divide those sides?<br><br>How do you find the point on a directed line segment that partitions the given segment in a given ratio?<br><br>How can you use similar triangles to solve problems?<br><br>How does the altitude to the hypotenuse of a right triangle help you use similar right triangles to solve problems? |

**Corsica Stickney Curriculum Map**

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| straightedge. including copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines/segments, constructing a line parallel to a given line through a point not on the line<br><br>G-GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.<br><br>G-SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.<br><br>G-SRT.B.4 Prove theorems about triangles involving similarity. | |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
|---|---|---|
| Work with a partner to identify the center of dilation and scale factor in a dilation.<br><br>Work with a partner to list the essential components needed to prove a figure is similar to another.<br><br>Play "similar or not" with a partner given pairs of figures on coordinate planes.<br><br>Explain to a partner how to use the Angle-Angle criterion to show similarity in triangles.<br><br>Work with a partner to describe the triangle proportionality theorem and its converse. | MP.1 Focus on Math Connections<br><br>MP.4 Focus on Modeling<br><br>MP.3 Focus on Communication | 11.2 MP.1 Have students discuss the various approaches to defining similarity, including the intuitive approach (same shape, may be different size); meeting the conditions of congruent angles and proportional sides; and the transformational approach–if one can be obtained from the other by similarity transformations.<br><br>11.3 MP.4 Use drawings to discuss how similar triangles can be used to find the heights of buildings or trees that are difficult to measure directly. The objects' shadows, measured at the same time of day, are proportional to the heights of the objects.<br><br>12.3 MP.3 Have students name the corresponding parts of similar figures before they begin to solve for any lengths. |

**Corsica Stickney Curriculum Map**

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| Work in groups to find ratios of subdivided segments.<br><br>Explain the difference between direct and indirect measurement to a partner.<br><br>Explain to a partner how to use the Angle/Angle criterion to show similarity in triangles | | |
| **Vocabulary** | | **Differentiation** |
| Dilation<br>Center of dilation<br>Similarity transformation<br>Similar<br>Indirect measurement | Geometric mean | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments.<br>• Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts. | | |
| **Lesson Descriptions**<br><br>LESSON 11.1 Dilations<br>LESSON 11.2 Proving Figures Are Similar Using Transformations<br>LESSON 11.3 Corresponding Parts of Similar Figures<br>LESSON 11.4 AA Similarity of Triangles<br>LESSON 12.1 Triangle Proportionality Theorem<br>LESSON 12.2 Subdividing a Segment in a Given Ratio<br>LESSON 12.3 Using Proportional Relationships<br>LESSON 12.4 Similarity in Right Triangles | | |

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 5 Trigonometry<br>Module 13 Trigonometry with Right Triangles<br>Unit 6 Properties of Circles<br>Module 15 Angles and Segments in Circles | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** March 2020 |

**Summary of unit:**

Students will learn about ratios in right triangles, using tangents, using sine and cosine, special right triangles, Pythagorean triples, solving right triangles, inverse trigonometric ratios.

Students will learn about, central and inscribed angles, chords, secants, tangent lines, and arcs, segment lengths in circles, angles formed by intersecting lines of a circle, formulas for circumference and area of a circle, area of a sector, the equation of a circle

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| 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 | How do you find the tangent ratio for an acute angle? |
| G-SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles | How can you use the sine and cosine ratios, and their inverses, in calculations involving right triangles? |
| G-SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. | What do you know about the side lengths and the trigonometric ratios in special right triangles? |
| G-C.A.2 Identify and describe relationships among inscribed angles, radii, and chords. | How can you solve a right triangle? |
| G-C.A.3 Construct the incribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. | How can you determine the measures of central angles and inscribed angles of a circle? |
| | What can you conclude about the angles of a quadrilateral inscribed in a circle? |
| | What are the key theorems about tangents to a circle? |
| | What are the relationships between the segments in circles? |
| | What are the relationships between angles formed by lines that intersect a circle? |

**Corsica Stickney Curriculum Map**

| Language objective | Mathematical practices | Integrate mathematical practices |
|---|---|---|
| Explain to a partner how to find the tangent of an angle given a diagram of a right triangle with given angle measure and leg lengths<br><br>Explain to a partner how to find the sine and cosine of an angle given a diagram of a right triangle with given angle measure and opposite or adjacent leg and hypotenuse lengths.<br><br>Explain to a partner how to solve a right triangle, and how to solve a right triangle in the coordinate plane.<br>Explain to a partner how to find the sine, cosine, and tangent of a 30° -60° - 90° triangle or a 45° -45° - 90° triangle.<br><br>Work with a partner to compare and contrast central angles and inscribed angles.<br><br>Work with a small group to decide whether statements about inscribed quadrilaterals are true or false.<br><br>Work in pairs to identify tangents and points of tangency.<br><br>Explain to a partner how to interpret the Chord-Chord Product Theorem. | MP.2 Reasoning | 13.3 This lesson provides an opportunity to address Mathematical Practice MP.2, which calls for students to "reason abstractly and quantitatively." Students investigate the relationships among the side lengths and angles of the special right triangles, and use them to find the trigonometric ratios and angle measures associated with these relationships. This recognition can often provide a quicker solution to a problem involving a special triangle.<br><br>13.4 This lesson provides an opportunity to address Mathematical Practice MP.2, which calls for students to "reason abstractly and quantitatively." Students derive the formula for the area of a triangle by recognizing the relationships that occur within the triangle when the altitude is constructed. They apply this formula to a variety of triangles. As students solve a right triangle, they must identify relationships that can be used to find missing measures, and they can often choose which of the three inverse trigonometric ratios to apply.<br><br>15.3This lesson provides an opportunity to address Mathematical Practice MP.2, which calls for students to "reason abstractly and quantitatively." Students begin by making a conjecture about the relationship between a tangent line to a circle and the radius at the point of tangency, and then provide a proof. In addition to proving the Tangent- |

**Corsica Stickney Curriculum Map**

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|---|---|---|
| Explain to a partner how to find the measure of an angle formed by intersecting chords if the measures of the intercepted arcs are known. | | Radius Theorem and its converse, students construct a tangent to a circle from a given point outside the circle using the Converse of the Tangent-Radius Theorem. Finally, students prove the Circumscribed Angle Theorem, which depends upon the Tangent-Radius Theorem and the Quadrilateral Sum Theorem. |
| | MP.4 Modeling | 15.2 This lesson provides an opportunity to address Mathematical Practice MP.4, which calls for students to "model with mathematics." Students create and use representations to extend their understanding of the Inscribed Angle Theorem to prove the Inscribed Quadrilateral Theorem. They recognize that the theorem is bi-conditional and implies that an inscribed parallelogram must be a rectangle and an inscribed rhombus must be a square. They use these ideas to find missing angle measures in quadrilaterals inscribed in circles and to inscribe a square in a circle. |
| | MP.3 Logic | 15.5 This lesson provides an opportunity to address Mathematical Practice MP.3, which calls for students to "construct viable arguments." Students must recognize angle relationships that occur based on intersections of specific segment relationships in circles. They must justify their choices of theorems to use based on the segment relationships. Students then apply the theorem (or theorems) to find missing measures in circles. |
| **Vocabulary** | | **Differentiation** |

**Corsica Stickney Curriculum Map**

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|---|---|---|
| Inverse Tangent<br>Trigonometric Ratio<br>Sine<br>Cosine<br>Inverse trigonometric ratios<br>Chord<br>Central angle<br>Inscribed angle<br>arc<br>minor arc<br>major arc | semicircle<br>adjacent arcs<br>intercepted arcs<br>tangent<br>point of tangency<br>secant<br>secant segment<br>external secant segment<br>tangent segment | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |

**Stage 2 – Assessment Evidence**

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|---|---|
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests |

**Stage 3 – Learning Plan**

- Learning Activities: procedures/topics
- Reading and discussing lesson with class as lecture time.
- Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.
- Students take notes and use notes to complete homework assignments.
- Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts.

**Lesson Descriptions**

LESSON 13.1 Tangent Ratio
LESSON 13.2 Sine and Cosine Ratios
LESSON 13.3 Special Right Triangles
LESSON 13.4 Problem Solving with Trigonometry
LESSON 15.1 Central Angles and Inscribed Angles
LESSON 15.2 Angles in Inscribed Quadrilaterals
LESSON 15.3 Tangents and Circumscribed Angles
LESSON 15.4 Segment Relationships in Circles
LESSON 15.5 Angle Relationships in Circles

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 6 Properties of Circles<br>Module 16 Arc Length and Sector Area<br>Module 17 Equations of Circles and Parabolas<br>Unit 7 Measurement and Modeling in Two and Three Dimensions<br>Module 18 Volume Formulas<br>Module 19 Visualizing Solids | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** April 2020 |

**Summary of unit:**

Students will learn about, central and inscribed angles, chords, secants, tangent lines, and arcs, segment lengths in circles, angles formed by intersecting lines of a circle, formulas for circumference and area of a circle, area of a sector, the equation of a circle

Students will learn about formulas for the volume of a prism, cylinder, pyramid, cone, and sphere, cross sections and solids of rotation, formulas for the surface area of a prism, cylinder, pyramid, cone, and sphere, scale factor, and calculating densities.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| G-GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.<br><br>G-C.A.1 Prove that all circles are similar.<br><br>G.C.B.5a Define the radian measure of the angle as the constant of proportionality.<br><br>G-C.B.5b Derive … the formula for the area of a sector.<br><br>G-GPE.A.1 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.<br><br>G-GMD.A.3 Know and apply volume and surface area formulas for cylinders, pyramids, cones, and spheres for composite figures to solve problems. | How can you justify and use the formulas for the circumference and area of a circle?<br><br>How do you find the length of an arc?<br><br>How do you find the area of a sector of a circle?<br><br>How can you write the equation of a circle if you know its radius and the coordinates of its center?<br><br>How do the formulas for the volume of a prism and cylinder relate to area formulas that you already know?<br><br>How do you find the volume of a pyramid?<br><br>How do you calculate the volumes of composite figures that include cones?<br><br>How can you use the formula for the volume of a sphere to calculate the volumes of composite figures?<br><br>What tools can you use to visualize solid figures accurately? |

**Corsica Stickney Curriculum Map**

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| G-MG.A.2 Apply concepts of density based on area and volume in modeling situations<br><br>G-GMD.A.2(+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.<br><br>G-GMD.B.4 Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.<br><br>G-MG.A.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). | How can you find the surface area of a prism or cylinder? |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
|---|---|---|
| Explain to a partner how to justify the circumference and area formulas for a circle.<br><br>Explain to a partner how to convert the measure of an arc from degrees to radians.<br><br>Explain to a partner how to find the area of a sector of a circle.<br><br>Explain to a partner how to find the equation of a circle given its radius and the coordinates of its center.<br><br>Explain to a partner how to apply the formulas for the volume of a prism and a cylinder. | MP.6 Precision<br><br>MP.2 Reasoning | 17.1 This lesson provides an opportunity to address Mathematical Practice MP.6, which calls for students to "communicate with precision." In this lesson, students analyze the conditions that would be sufficient to write the equation of a circle in the coordinate plane. The equation of a circle with center (h, k) and radius r is (x – h)2 + ( y – k)2 = r2 . This equation follows immediately from the Distance Formula. In addition, squaring and simplifying show that every circle is the graph of an equation of the form x2 + y2 + Ax + By + C = 0. Given an equation in this form, the center and radius of the circle may be found by completing the square.<br><br>18.4 This lesson provides an opportunity to address Mathematical Practice MP.2, which calls for students to "reason abstractly and quantitatively." |

**Corsica Stickney Curriculum Map**

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|---|---|---|
| Explain to a partner how to apply the formulas for the volume of a pyramid.<br><br>Explain to a partner how to apply the formulas for the volume of a cone.<br><br>Explain to a partner how to apply the formula for the volume of a sphere.<br><br>Explain to a partner how to identify the three-dimensional objects generated by rotating two-dimensional shapes about a line.<br><br>Explain to a partner how to find the surface area of prisms and cylinders. | MP.2 Reasoning | Students are already familiar with Cavalieri's Principle but, in this module, a surprising application of this principle is used. The argument is based on showing that a hemisphere and a cylinder from which a cone has been removed have the same cross-sectional area at every level and therefore must have the same volume. A bit of algebra shows that the volume of a sphere is equal to __4 3 π r 3<br><br>19.2 This lesson provides an opportunity to address Mathematical Practice MP.2, which calls for students to "reason abstractly and quantitatively." In this lesson, students analyze three-dimensional figures to determine how they "decompose" into two-dimensional faces, each with its own area, and to find that the sum of the areas of the faces is equal to the surface area of the figure. Since the faces of the figures are polygons or circles, the combined areas generate the lateral area and surface area formulas students will use in this lesson. |
| **Vocabulary** | | **Differentiation** |
| Arc<br>Arc length<br>Radian measure<br>Sector<br>Circle<br>Right prism<br>Right cylinder | net | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |

**Corsica Stickney Curriculum Map**

- Learning Activities: procedures/topics
- Reading and discussing lesson with class as lecture time.
- Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.
- Students take notes and use notes to complete homework assignments.
- Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts.

**Lesson Descriptions**

LESSON 16.1 Justifying Circumference and Area of a Circle
LESSON 16.2 Arc Length and Radian Measure
LESSON 16.3 Sector Area
LESSON 17.1 Equation of a Circle
LESSON 18.1 Volume of Prisms and Cylinders
LESSON 18.2 Volume of Pyramids
LESSON 18.3 Volume of Cones
LESSON 18.4 Volume of Spheres
LESSON 19.1 Cross Sections and Solids of Rotation
LESSON 19.2 Surface Area of Prisms and Cylinders

**Corsica Stickney Curriculum Map**

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|---|---|
| **Subject:** Geometry<br>**Grade:** 9th /10th<br>Unit 7 Module 19 Visualizing Solids<br>Module 20 Modeling and Problem Solving | **Teacher:** Mrs. Jacque Boyle<br>**Duration:** May 2020 |

**Summary of unit:**

Students will learn about formulas for the volume of a prism, cylinder, pyramid, cone, and sphere, cross sections and solids of rotation, formulas for the surface area of a prism, cylinder, pyramid, cone, and sphere, scale factor, and calculating densities.

**Stage 1 – Desired Results**

| **Standards** | **Essential Questions:** |
|---|---|
| G-MG.A.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).<br><br>G-MG.A.2 Apply concepts of density based on area and volume in modeling situations<br><br>G-GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.<br><br>G-GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems | How is the formula for the lateral area of a regular pyramid similar to the formula for the lateral area of a right cone?<br><br>How can you use the formula for the surface area of a sphere to calculate the surface areas of composite figures?<br><br>How does multiplying one or more of the dimensions of a figure affect its attributes? |

| **Language objective** | **Mathematical practices** | **Integrate mathematical practices** |
|---|---|---|
| Explain to a partner how to find the surface area of pyramids and cones.<br><br>Explain to a partner how to find the surface area of a sphere.<br><br>Explain to a partner the effect of a proportional dimension change on the area and perimeter of a geometric figure. | | |

**Corsica Stickney Curriculum Map**

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| | | |
| **Vocabulary** | | **Differentiation** |
| Regular pyramid | | Students who need extra help receive help from teacher one on one for independent working time. If appropriate, they complete worksheets or tests in an alternate setting. |
| **Stage 2 – Assessment Evidence** | | |
| Performance Tasks:<br>Homework quizzes, worksheet, Tests. | Unit Pre-Assessment:<br>Assign ready-made or customized practice tests to prepare students for high-stakes tests | |
| **Stage 3 – Learning Plan** | | |
| • Learning Activities: procedures/topics<br>• Reading and discussing lesson with class as lecture time.<br>• Giving students examples to be completed in class. Most times using the Think, Pair, and Share to keep students active in their learning individually and together.<br>• Students take notes and use notes to complete homework assignments.<br>• Sometimes activities used to present things in multiple ways or for extra practice on struggling concepts. | | |
| **Lesson Descriptions**<br><br>LESSON 19.3 Surface Area of Pyramids and Cones<br>LESSON 19.4 Surface Area of Spheres<br>LESSON 20.1 Scale Factor<br>LESSON 20.2 Modeling and Density | | |