

Course Title: Honors Geometry
Board Approval Date: 04/14/14
Credit / Hours: 1 credit
Reviewed Annually

Course Description:

Geometry Honors is a course offered to students who have completed Algebra II Honors with a 90 average or better, or teacher recommendation. The course is taught at an accelerated pace and covers material in more depth. This course is designed to help the student gain a better understanding of the nature of a mathematical system and to appreciate the detailed structure of geometry. Geometry Honors has a strong emphasis on application, projects, and theory.

Learning Activities / Modes of Assessment:

Large group instruction	Tests and Quizzes (Formative and Summative)
Checklists / Teacher Observation	Small group work
Projects with Rubrics	Journals / Write-ups
Note-Taking	Homework

Instructional Resources:

Geometry (Prentice Hall 2004)
Geometer's Sketchpad V4
ExamView

Course Pacing Guide

Course: **Honors Geometry and Geometry**

Course Unit (Topic)	Length of Instruction (Days/Periods)	
1. Tc1 Basic Terms and Definitions	10 days	
2. Tc2 Reasoning and Proofs	10 days	
3. Tc3 Parallel Lines and Planes	12 days	
4. Tc4 Triangle Properties	12 days	
5. Tc5 Triangle Congruence	15 days	
6. Tc6 Polygons	5 days	
7. Tc7 Quadrilaterals	10 days	
8. Tc8 Coordinate Geometry	12 days	
9. Tc9 Similarities and Ratios	12 days	
10. Tc10 Right Triangles	18 days	
11. Tc11 Circles	15 days	
12. Tc12 Area	15 days	
13. Tc13 Surface Area and Volume	15 days	
14. Tc14 Enrichment-Constructions and Transformations	9 days	
15. Tc15 Pre-Calculus Preview	10 days	Total: 180 Days

Topic: T1 Basic Terms and Definitions

Days: 10

Subject(s): Math

Grade(s): 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

Points, Lines and Planes

Segments and Their Measurements

Angles and their Measurements

Angle Pairs

2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate

In plane geometry all definitions are based upon three basic terms.

Measurements are used to classify angles and segments.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.

Topic: T1 Basic Terms and Definitions

Days:1

Subject(s): Math

Grade(s): 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p>		

Topic: T1 Basic Terms and Definitions

Days: 9

Subject(s): Math

Grade(s): 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:


Topic: T1 Basic Terms and Definitions

Days: 9

Subject(s): Math

Grade(s): 9th, 10th, 11th, 12th

Key Learning:
In plane geometry, all definitions are based upon three basic terms. Measurements are used to classify angles and segments.



Unit Essential Question(s):
How are the basic terms, points, lines and planes used to establish definitions, postulates and theorems in geometry?

<p>Concept: Points, Lines, & Planes (Pg 10 - 12) <small>2.5.G.B</small></p>	<p>Concept: Segments & Their Measurements (Pg 17, 25-26) <small>2.5.G.B, 2.9.G.A</small></p>	<p>Concept: Angles & Their Measurements (Pg 27 - 28) <small>2.5.G.B, 2.9.G.A</small></p>
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<p>Lesson Essential Question(s): What are the basic terms and their importance to geometry? (A)</p>	<p>Lesson Essential Question(s): How do you compare and contrast lines, segments, rays and angles? (A)</p>	<p>Lesson Essential Question(s): How are angles classified and used in geometry? (A)</p>
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<p>Vocabulary: geometry, point, line, plane, space, collinear, coplanar</p>	<p>Vocabulary: line segment, ray, congruent</p>	<p>Vocabulary: vertex, sides of angles, angle, acute angle, right angle, obtuse angle, straight angle</p>
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Concept:
Angle Pairs (Pg 96 - 99)
2.9.G.A

Lesson Essential Question(s):
 How are the pairs of angles classified? (ET)

Vocabulary:
 complementary angles, supplementary angles, vertical angles, linear pairs, adjacent angles

Topic: T1 Basic Terms and Definitions

Days: 9

Subject(s): Math

Grade(s): 9th, 10th, 11th, 12th

Additional Information:

ruler, protractor, graph/number line paper, dynamic geometric software

Attached Document(s):

Vocab Report for Topic: T1 Basic Terms and Definitions

Subject(s): Math

Days: 9

Grade(s): 9th, 10th, 11th, 12th

Concept:

Points, Lines, & Planes

(Pg 10 - 12)

geometry -
point -
line -
plane -
space -
collinear -

points contained in the same line

coplanar - points and lines in the same plane

Concept:

Segments & Their Measurements

(Pg 17, 25-26)

line segment -
ray -
congruent -

Concept:

Angles & Their Measurements

(Pg 27 - 28)

vertex -
sides of angles -
angle -
acute angle -
right angle -
obtuse angle -
straight angle -

Concept: Angle Pairs (Pg 96 - 99)

complementary angles -
supplementary angles -
vertical angles -

Curriculum: CCSD CURRICULUM

Course: Honors Geometry

Date: 6/2022

Vocab Report for Topic: T1 Basic Terms and Definitions

Subject(s): Math

Days: 9

Grade(s): 9th, 10th, 11th, 12th

Topic: T2 - Reasoning and Proofs

Days:10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Topic: T2 - Reasoning and Proofs

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>Proofs</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.</p> <p>2.5.G.B - COMMUNICATION -</p>		

Topic: T2 - Reasoning and Proofs

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.</p>		
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Topic: T2 - Reasoning and Proofs

Days: 9

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T2 - Reasoning and Proofs
 Subject(s): Math

Days: 9
 Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: There are direct and indirect ways of coming to a conclusion or proving something (the deductive logic).



Unit Essential Question(s):

On what strategies can we base conclusions in geometry?



Concept:

Statements of Logic (Pgs. 68-80, 264-265)

2.5.G.B, 2.4.G.B, 2.8.G.B



Concept:

Types of Reasoning (Pgs. 4-8, 82-93, 265-269)

2.5.G.B



Concept:

Constructing Proofs (Pgs. 117, 212 - 213)

2.4.G.A, 2.8.G.B



Lesson Essential Question(s):

What are the different types of conditional statements? (A)



Lesson Essential Question(s):

What is the difference between inductive and deductive reasoning? (A)



Lesson Essential Question(s):

Why are justifications necessary when constructing a proof? (A)



Vocabulary:

hypothesis, conclusion, converse, inverse, contrapositive, bi-conditional

Vocabulary:

inductive reasoning, deductive reasoning, proof, direct proof, indirect proof, counter-example

Vocabulary:

given, postulate, theorems, corollary

Additional Information:

Attached Document(s):

Vocab Report for Topic: T2 - Reasoning and Proofs

Days: 9

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Statements of Logic (Pgs. 68-80, 264-266)

hypothesis -
conclusion -
converse -
inverse -
contrapositive -
bi-conditional -

Concept: Types of Reasoning (Pgs. 4-8, 82-93, 265-269)

inductive reasoning -
deductive reasoning -
proof -
direct proof -
indirect proof -
counter-example -

Concept: Constructing Proofs(Pgs.117, 212-218)

given -
postulate -
theorems -
corollary -

Topic: T4 Triangle Properties

Days:12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.4.G.A – Essential REASONING - Write formal proofs (direct proofs, indirect proofs/ proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.

2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

Classification and properties of triangles can be determined by their distinct characteristics.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

Topic: T4 Triangle Properties

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.9.G.A – Essential
DEFINITIONS,
PROPERTIES AND
RELATIONS - Identify
and use properties and
relations of geometric
figures; create
justifications for
arguments related to
geometric relations.

Triangle Classifications

Segments of Triangles

Proofs of Triangle
CongruenceApplications of
Congruent Triangles

Triangle Angle Sums

Triangle Inequalities

2.5.G.B -
COMMUNICATION -
Use symbols,
mathematical
terminology, standard
notation, mathematical
rules, graphing, and
other types of
mathematical
representations to
communicate
observations,
predictions, concepts,
procedures,
generalizations, ideas,
and results.

2.5.G.A - PROBLEM
SOLVING - Develop a
plan to analyze a
problem, identify the
information needed to
solve the problem, carry

Topic: T4 Triangle Properties

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations,</p>		
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Topic: T4 Triangle Properties

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p>		
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Topic: T4 Triangle Properties

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T4 Triangle Properties

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Classification and properties of triangles can be determined by their distinct characteristics.



Unit Essential Question(s):

What special properties exist for the segments and angles of each type of triangle?



Concept:

Classifying Triangles (Pgs. 133)

2.5.G.B, 2.5.G.A, 2.9.G.A



Concept:

Triangle Angle Sums (Pgs. 131-133)

2.5.G.A, G.1.3.2.1



Concept:

Segments of Triangles Pgs. 243-245, 249, 255-259)

2.5.G.B, 2.5.G.A



Lesson Essential Question(s):

LEQ: How are triangles classified and what theorems can be applied to special triangles? (A)



Lesson Essential Question(s):

LEQ: What are the relationships between the interior and the exterior angles of a triangle? (A)



Lesson Essential Question(s):

LEQ: What are the special segments of a triangle and what are their properties? (A)



Vocabulary:

acute triangle, right triangle, obtuse triangle, scalene triangle, isosceles triangle, equilateral triangle, equiangular triangle, regular triangle

Vocabulary:

interior angle sum, remote interior angles, exterior angle, exterior angle sum

Vocabulary:

median, altitude, perpendicular bisector, angle bisector, midsegment, centroid, altitude, concurrent, point of concurrency, incenter, orthocenter, circumcenter

Concept:

Triangle Inequalities (Pgs. 273-276)

2.5.G.A, G.1.3.2.1



Lesson Essential Question(s):

LEQ: What can inequalities tell us about triangles (A)



Vocabulary:

inequality, maximum, minimum, comparison property

Topic: T4 Triangle Properties

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Additional Information:
rulers, protractors, manipulatives

Attached Document(s):

Vocab Report for Topic: T4 Triangle Properties

Subject(s): Math

Days: 15

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept:

Classifying Triangles (Pgs. 133)

acute triangle -
right triangle -
obtuse triangle -
scalene triangle -
isosceles triangle -
equilateral triangle -
equiangular triangle -
regular triangle -

Concept: Triangle Angle Sums (Pgs. 131-133)

interior angle sum -
remote interior angles -
exterior angle -
exterior angle sum -

Concept:

Segments of Triangles Pgs. 243-245, 249, 255-259)

median -
altitude -
perpendicular bisector -
angle bisector -
midsegment -
centroid -
altitude, concurrent, point of concurrency, incenter, orthocenter, circumcenter -

Concept: Triangle Inequalities (Pgs. 273-276)

inequality -
maximum -
minimum -
comparison property -

Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.A -- Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B -- Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.8.G.B -- Essential ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.

2.4.G.A -- Essential REASONING - Write formal proofs (direct proofs, indirect proofs/ proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.

Parallel and perpendicular lines and planes have proven properties based on their slopes.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.11 - Apply coordinate geometry to prove simple geometric theorems algebraically.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.11 - Apply coordinate geometry to prove simple geometric theorems algebraically.

Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>Parallel lines and Transversals</p> <p>Properties and Proofs of Parallel and Perpendicular lines and planes.</p> <p>Slopes of Lines on a Coordinate plane</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve</p>		

Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>problems using coordinate geometry.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.</p>		
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Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.		
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Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning:

Parallel and perpendicular lines and planes have proven properties based on their slopes.



Unit Essential Question(s):

What relationships exist between the angles formed by parallel lines and a transversal?



Concept:

**Parallel Lines and Transversals
(Pgs. 115-118)**

[2.5.G.A. G.2.2.1.1](#), [2.8.G.B](#)

Concept:

**Properties and Proofs of Parallel
and Perpendicular Lines and Planes
(Pgs. 117, 122-125)**

[2.5.G.A. G.2.2.1.1](#), [2.4.G.A](#)

Concept:

**Slopes of Lines on a Coordinate
Plane (Pgs. 158-161)**

[2.5.G.A. G.2.2.1.1](#), [2.8.G.B](#)



Lesson Essential Question(s):

How do we classify pairs of angles formed by two lines and a transversal? (A)

Lesson Essential Question(s):

How can lines be proven parallel or perpendicular? (A)

Lesson Essential Question(s):

How can slope be used to determine if lines are parallel or perpendicular on a coordinate plane? (A)



Vocabulary:

corresponding angles, alternate-interior angles, same-side interior angles, alternate-exterior angles, transversal, parallel, skew

Vocabulary:

proof, given, definition, theorem, hypothesis, conclusion, coplanar, space, intersection

Vocabulary:

slope, linear equations, system of linear equations

Additional Information:

manipulatives, geometric software

Attached Document(s):

Vocab Report for Topic: T3 Parallel Lines and Planes

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Parallel Lines and Transversals

corresponding angles -
alternate-interior angles -
same-side interior angles -
alternate-exterior angles -
transversal -
parallel -
skew -

Concept: Properties and Proofs of Parallel and Perpendicular Lines and Planes

proof-
given -
definition -
theorem -
hypothesis -
conclusion -
coplanar, space, intersection -

Concept: Slopes of Lines on a Coordinate Plane slope, linear

equations, system of linear equations -

Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.4.G.A – Essential REASONING - Write formal proofs (direct proofs, indirect proofs/ proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.

2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

Classification and properties of triangles can be determined by their distinct characteristics.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.

Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

Triangle Classifications

Segments of Triangles

Proofs of Triangle Congruence

Applications of Congruent Triangles

Triangle Angle Sums

Triangle Inequalities

2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry

Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations,</p>		

Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p>		
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Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T5 Triangle Congruence

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Classification and properties of triangles can be determined by their distinct characteristics.



Unit Essential Question(s):

How can triangle congruency be determined?



Concept:

Proving Triangles Congruent (Pgs. 180-182, 186-188, 194-196, 217-218)

2.5.G.B, 2.5.G.A, 2.4.G.A, 2.9.G.B, 2.9.G.A, G.1.2.1.1, G.1.3.1.1, G.1.3.2.1



Lesson Essential Question(s):

LEQ: When are triangles congruent? (A)



Vocabulary:

congruent triangles, SAS, SSS, ASA, AAS, HL, corresponding parts

Concept:

Using Congruent Triangles (Pgs. 203-204, 224-226, 210 - 212)

2.4.G.A, 2.5.G.B, G.1.2.1.3, G.1.2.1.1



Lesson Essential Question(s):

LEQ: What is CPCTC and how is it used to relate triangles? (A)



Vocabulary:

corresponding angles, corresponding sides, CPCTC (corresponding parts of congruent triangles are congruent), overlapping

Additional Information:

rulers, protractors, manipulatives

Attached Document(s):

Vocab Report for Topic: T5 Triangle Congruence

Subject(s): Math

Days: 15

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Proving Triangles Congruent

congruent triangles -

SAS -

SSS -

ASA -

AAS -

HL -

corresponding parts -

Concept: Using Congruent Triangles

corresponding angles-

corresponding sides-

CPCTC(corresponding parts of congruent triangles are congruent)-

overlapping-

Topic: T6 Polygons

Days: 5

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

2.4.G.A – Essential REASONING - Write formal proofs (direct proofs, indirect proofs/ proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.

The number of sides of a polygon determines its name and its angle sum.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

Topic: T6 Polygons

Days: 5

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

Know:	Understand:	Do:
<p>Polygon Classifications</p> <p>Interior and Exterior Angle Sums</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by</p>		

Topic: T6 Polygons

Days: 5

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by</p>		
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Topic: T6 Polygons

Days: 5

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.		
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Topic: T6 Polygons

Days: 8

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T6 Polygons

Days: 8

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: The number of sides of a polygon determines its name and its angle sum.



Unit Essential Question(s): **What differences exist among the different types of polygons?**



Concept:
Classification of Polygons (Pg 143-144)
2.9.G.B, 2.5.G.B

Concept:
Interior and Exterior Angle Sums of Polygons(Pg 145-146)
2.4.G.A, 2.5.G.B, 2.5.G.A



Lesson Essential Question(s):
What information is needed to classify a polygon? (ET)
What information is needed to classify a polygon (ET)

Lesson Essential Question(s):
What is special about the interior and exterior angle sums of any polygon? (A)



Vocabulary:
regular, convex, concave, quadrilateral, pentagon, hexagon, octagon, n-gons

Vocabulary:
Interior Angle Sum, Exterior Angle Sum, Diagonal

Additional Information:
manipulatives, calculators

Attached Document(s):

Vocab Report for Topic: T6 Polygons

Days: 8

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Classification of Polygons

regular -
convex -
concave -
quadrilateral -
pentagon -
hexagon -
octagon -
n-gons -

Concept: Interior and Exterior Angle Sums of Polygons

Interior Angle Sum -
Exterior Angle Sum -
Diagonal -

Topic: T7 Quadrilaterals

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.4.G.B – Essential CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

Each type of quadrilateral has its own set of specialized properties.

CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.

Topic: T7 Quadrilaterals

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for</p>		
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Topic: T7 Quadrilaterals

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>arguments related to geometric relations.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric</p>		
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Topic: T7 Quadrilaterals

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

figures; create justifications for arguments related to geometric relations.		
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Topic: T7 Quadrilaterals

Days: 14

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T7 Quadrilaterals

Subject(s): Math

Days: 14

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Each type of quadrilateral has its own set of special properties.



Unit Essential Question(s): Which of the quadrilaterals is the most specialized?

<p>Concept: Classification of Quadrilaterals (Pg 288-290) <small>2.5.G.B, 2.9.G.A</small></p>	<p>Concept: Parallelograms (Pg 294-297) <small>2.5.G.A, 2.9.G.A</small></p>	<p>Concept: Special Parallelograms (Rhombi, Rectangles, and Squares) (Pg 312-315) <small>2.5.G.B, 2.9.G.A</small></p>
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<p>Lesson Essential Question(s): What properties distinguish one quadrilateral from another? (A)</p>	<p>Lesson Essential Question(s): What are the properties of parallelograms? (A)</p>	<p>Lesson Essential Question(s): What are the properties of the special parallelograms? (A)</p>
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<p>Vocabulary: quadrilateral, parallelogram, rectangle, rhombus, square, trapezoid, kite</p>	<p>Vocabulary: diagonal, opposite sides, opposite angles, consecutive angles, consecutive sides</p>	<p>Vocabulary: square, rhombus, diagonals, rectangle</p>
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<p>Concept: Trapezoids and other Quadrilaterals (Pg 320-322, 332) <small>2.5.G.B, 2.9.G.A</small></p>	<p>Concept: Quadrilateral Proofs (Pg 303-306, 314) <small>2.5.G.A, 2.4.G.B</small></p>
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<p>Lesson Essential Question(s): What are the properties of a trapezoid and kite that make them distinct from parallelograms? (A)</p>	<p>Lesson Essential Question(s): How can you use properties to determine what type of quadrilateral it is? (A)</p>
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<p>Vocabulary: base, median, base angles, legs, trapezoid, isosceles trapezoid, midsegment</p>	<p>Vocabulary:</p>
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Topic: T7 Quadrilaterals

Days: 14

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Additional Information:

manipulatives, geo-boards, geometric software

Attached Document(s):

Vocab Report for Topic: T7 Quadrilaterals

Days: 14

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Classification of Quadrilaterals (Pg 288-290)

quadrilateral -
parallelogram -
rectangle -
rhombus -
square -
trapezoid -
kite -

Concept: Parallelograms (Pg 294-297)

diagonal -
opposite sides -
opposite angles -
consecutive angles -
consecutive sides -

Concept: Special Parallelograms (Rhombi, Rectangles, and Squares) (Pg 312-315)

square -
rhombus -
diagonals -
rectangle -

Concept: Trapezoids and other Quadrilaterals (Pg 320-322, 332)

base -
median -
base angles -
legs -
trapezoid -
isosceles trapezoid -
midsegment -

Know:	Understand:	Do:
<p>2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.1.G.C – Important CONCEPTS OF NUMBERS AND RELATIONSHIPS - Use ratio and proportion to model relationships between quantities.</p> <p>2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p>	<p>Similar figures can be used to model real-world applications.</p>	<p>CC.2.3.HS.A.1 - Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.6 - Verify and apply theorems involving similarity as they relate to plane figures. CC.2.3.HS.A.5 - Create justifications based on transformations to establish similarity of plane figures. CC.2.3.HS.A.2 - Apply rigid transformations to determine and explain congruence. CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools. CC.2.3.HS.A.1 - Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.6 - Verify and apply theorems involving similarity as they relate to plane figures. CC.2.3.HS.A.5 - Create justifications based on transformations to establish similarity of plane figures. CC.2.3.HS.A.2 - Apply rigid transformations to determine and explain congruence. CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.</p>

Topic: T9 Similarities and Ratios

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

Problem Solving with Ratios and Proportions

Similar Polygons

Proofs of Similar Triangles

Theorems Involving Proportions

Perimeters and Areas of Similar Figures

2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry

Know:

Understand:

Do:

<p>out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.1.G.C - CONCEPTS OF NUMBERS AND RELATIONSHIPS - Use ratio and proportion to model relationships between quantities.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas,</p>		
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Know:

Understand:

Do:

<p>and results.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.1.G.C - CONCEPTS OF NUMBERS AND RELATIONSHIPS - Use ratio and proportion to model relationships between quantities.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p>		
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Topic: T9 Similarities and Ratios

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Key Learning:
Similar figures can be used to model real-world applications.



Unit Essential Question(s):
How can you use a scale drawing to determine actual measurements of an object?



<p>Concept: Problem Solving with Ratios & Proportions Pg 416 - 418 <small>2.5.G.A, 2.1.G.C, 2.9.G.A</small></p>	<p>Concept: Similar Polygons Pgs 423 - 425 <small>2.5.G.B, 2.9.G.A, G.1.3.1.1</small></p>	<p>Concept: Proving Triangles Similar Pgs 432 - 435 <small>2.5.G.B, 2.9.G.B, 2.9.G.A, G.1.3.1.1, G.1.3.2.1</small></p>
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<p>Lesson Essential Question(s): How are ratios and proportions used to find missing values? (A)</p>	<p>Lesson Essential Question(s): What are the properties of similar polygons? (A)</p>	<p>Lesson Essential Question(s): What methods can be used to prove triangles are similar? (A)</p>
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<p>Vocabulary: ratio, proportion</p>	<p>Vocabulary: corresponding angles, corresponding sides, similar, scale factor</p>	<p>Vocabulary: AA, SAS, SSS</p>
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<p>Concept: Theorems Using Proportions Pages 446 - 448</p>	<p>Concept: Perimeters and Areas of Similar Figures Pages 454 - 456</p>
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<p>Lesson Essential Question(s): What theorems are used to find proportional relationships formed by parallel segments and angle bisectors? (A)</p>	<p>Lesson Essential Question(s): How do we use a similarity ratio to compare perimeters and areas of similar figures? (ET)</p>
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<p>Vocabulary:</p>	<p>Vocabulary:</p>
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Topic: T9 Similarities and Ratios

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Additional Information:

manipulatives, calculators, rulers, scale drawings, maps

Attached Document(s):

Vocab Report for Topic: T9 Similarities and Ratios

Subject(s): Math

Days: 10

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept:

Problem Solving with Ratios & Proportions

(Pg 416–418)

ratio -
proportion -

Concept:

Similar Polygons

(Pg 423–425)

corresponding angles -
corresponding sides -
similar -
scale factor -

Concept:

Proving Triangles Similar

(Pg 432–435)

AA -
SAS -
SSS-

Course: Honors Geometry

Topic: T8 Coordinate Geometry

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.8.G.B – Essential ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.

2.9.G.C – Essential COORDINATE GEOMETRY - Use techniques from coordinate geometry to establish properties of lines, 2-dimensional shapes.

2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

Coordinate geometry provides a framework for connecting geometry to algebra.

CC.2.3.HS.A.7 - Apply trigonometric ratios to solve problems involving right triangles.
 CC.2.3.HS.A.11 - Apply coordinate geometry to prove simple geometric theorems algebraically.
 CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.
 CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.

Topic: T8 Coordinate Geometry

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

Midpoints on a Coordinate Plane

Distance on a Coordinate Plane

Figures in the Coordinate Plane

2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.

2.9.G.C - COORDINATE GEOMETRY - Use techniques from coordinate geometry to

Topic: T8 Coordinate Geometry

Days: 12

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>establish properties of lines, 2-dimensional shapes.</p> <p>2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.</p> <p>2.9.G.C - COORDINATE</p>		
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Know:

Understand:

Do:

<p>GEOMETRY - Use techniques from coordinate geometry to establish properties of lines, 2-dimensional shapes. 2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes. 2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p>		
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Topic: T8 Coordinate Geometry

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: T8 Coordinate Geometry

Days: 10

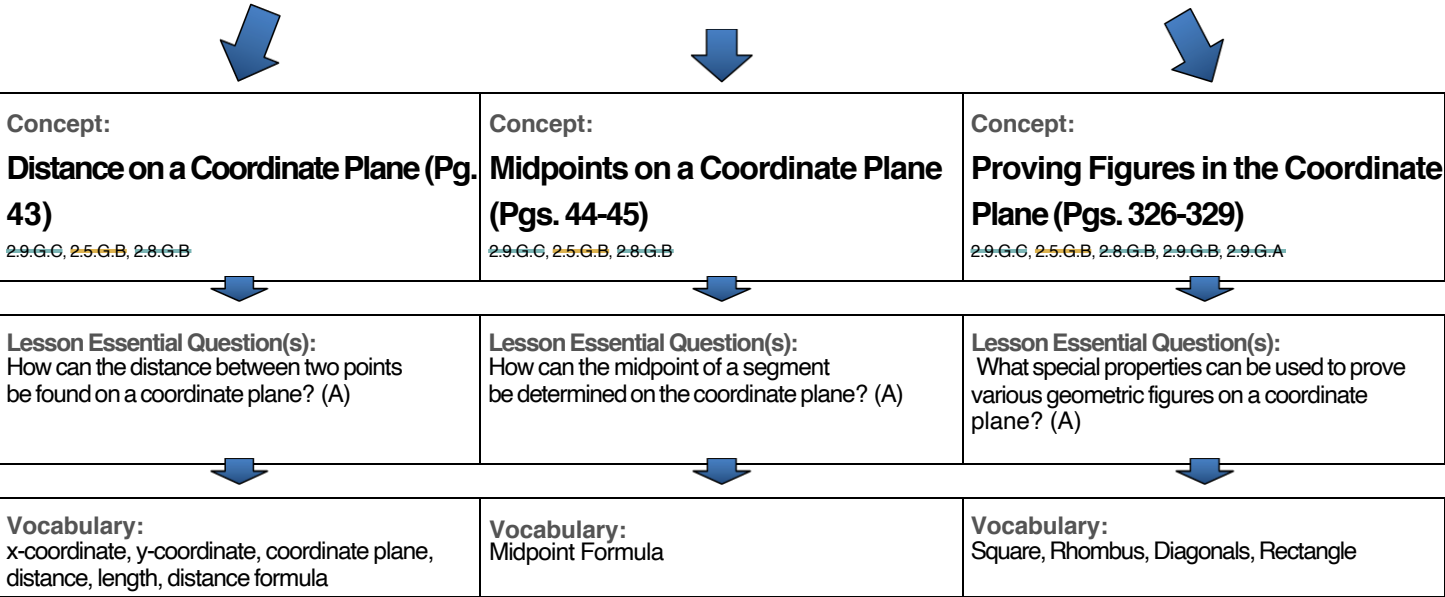
Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Coordinate geometry provides a framework for connecting geometry to algebra.



Unit Essential Question(s): How can you use coordinate geometry to prove that a quadrilateral is a rhombus?



Additional Information:
manipulatives, geometric software, protractor, ruler, calculator, graph paper, geo-board

Attached Document(s):

Vocab Report for Topic: T8 Coordinate Geometry

Subject(s): Math

Days: 10

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Distance on a Coordinate Plane (Pg 43)

x-coordinate -

y-coordinate -

coordinate plane, distance, length, distance formula -

Concept: Midpoints on a Coordinate Plane (Pg 44-45)

Midpoint Formula -

Concept: Proving Figures in the Coordinate Plane (Pg 326-329)

Square, Rhombus, Diagonals, Rectangle -

Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.4.G.A – Essential REASONING - Write formal proofs (direct proofs, indirect proofs/ proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.

2.4.G.B – Essential CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.

Right triangles have a broad range of relationships that lead to many applications and uses.

CC.2.3.HS.A.7 - Apply trigonometric ratios to solve problems involving right triangles.
 CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.
 CC.2.3.HS.A.7 - Apply trigonometric ratios to solve problems involving right triangles.
 CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.

Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.10.G.B – Essential TRIGONOMETRIC FUNCTIONS - Intentionally Blank</p> <p>2.10.G.A – Essential RIGHT TRIANGLES CONCEPTS AND APPLICATIONS - Identify, create, and solve practical problems involving right triangles using the trigonometric ratios and the Pythagorean Theorem.</p> <p>Review of Radicals</p> <p>Pythagorean Theorem/ Converse</p> <p>Special Right Triangles</p> <p>Trigonometric Ratios</p> <p>Applications of Right Triangles</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and</p>		

Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.A - REASONING - Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for</p>		
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Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>arguments related to geometric relations.</p> <p>2.10.G.B - TRIGONOMETRIC FUNCTIONS - Intentionally Blank</p> <p>2.10.G.A - RIGHT TRIANGLES CONCEPTS AND APPLICATIONS - Identify, create, and solve practical problems involving right triangles using the trigonometric ratios and the Pythagorean Theorem.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.4.G.A - REASONING</p>		

Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>- Write formal proofs (direct proofs, indirect proofs/proofs by contradiction, use of counter-examples, truth tables, etc.) to validate conjectures or arguments.</p> <p>2.4.G.B - CONNECTIONS - Use statements, converses, inverses, and contrapositives to construct valid arguments or to validate arguments relating to geometric theorems.</p> <p>2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.</p> <p>2.10.G.B - TRIGONOMETRIC FUNCTIONS - Intentionally Blank</p> <p>2.10.G.A - RIGHT TRIANGLES CONCEPTS AND APPLICATIONS - Identify, create, and solve practical problems involving right triangles using the trigonometric ratios and the Pythagorean Theorem.</p>		

Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Key Learning: Right triangles have a broad range of relationships that lead to many applications and uses.



Unit Essential Question(s):

What are the special trigonometric relationships and how are they used to solve Real Life Situations?



<p>Concept: Review of Radicals (Radical Packet & pg 355) 2.5.G.B</p>	<p>Concept: Pythagorean Theorem and its Converse (Pgs. 357-360) 2.5.G.A, 2.4.G.A, 2.4.G.B, 2.9.G.A</p>	<p>Concept: Special Right Triangles (Pgs. 366-369) 2.5.G.A, 2.5.G.B, 2.9.G.A, G.1.2.1.1, G.1.2.1.3</p>
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<p>Lesson Essential Question(s): How do you write a square root in simplest radical form? (A)</p>	<p>Lesson Essential Question(s): What can the Pythagorean Theorem tell us about a triangle? (A)</p>	<p>Lesson Essential Question(s): How do we determine the ratios of the sides in the two special right triangles?</p> <ul style="list-style-type: none"> • 45-45-90 • 30-60-90 (A)
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<p>Vocabulary: radical, perfect square, square root, principle root</p>	<p>Vocabulary: legs, hypotenuse, converse, Pythagorean Theorem</p>	<p>Vocabulary: 30-60-90, 45-45-90</p>
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<p>Concept: Trigonometric Ratios (Pg. 470-478) 2.10.G.B, 2.5.G.A</p>	<p>Concept: Applications of Right Triangles (Pg. 439-441, 482-483) 2.10.G.B, 2.5.G.A</p>
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<p>Lesson Essential Question(s): How do we use the trigonometric ratios to solve right triangles? (A)</p>	<p>Lesson Essential Question(s): How do you use the trigonometric ratios and similar triangles to solve real-life application problems? (ET)</p>
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<p>Vocabulary: sine, cosine, tangent, opposite, adjacent, hypotenuse</p>	<p>Vocabulary: Geometric Mean, Angle of Elevation, Angle of Depression</p>
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Topic: Tc10 Right Triangles

Days: 18

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Additional Information:
rulers, manipulatives, calculators

Attached Document(s):

Vocab Report for Topic: Tc10 Right Triangles

Subject(s): Math

Days: 18

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept:

Review of Radicals (Radical Packet & pg 355)

radical -
perfect square -
square root -
principle root -

Concept: Pythagorean Theorem and its Converse (Pgs. 357-360)

legs -
hypotenuse -
converse -
Pythagorean Theorem -

Concept: Special Right Triangles(Pgs. 366-369)

30-60-90 -
45-45-90 -

Concept: Trigonometric Ratios (Pg. 470-478)

sine -
cosine -
tangent -
opposite -
adjacent -
hypotenuse -

Concept: Applications of Right Triangles (Pg. 439-441, 482-483)

Geometric Mean -
Angle of Elevation -
Angle of Depression -

Topic: Tc11 Circles

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.9.G.A – Essential DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

2.8.G.B – Essential ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.

Terms Related to Circles

Central and Inscribed Angles

Properties of Arcs and Chords

Properties of Tangents and Secants

Many relationships exist between a circle and its segments.

CC.2.3.HS.A.8 - Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9 - Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.

CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.

CC.2.3.HS.A.8 - Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9 - Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.

CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.

Topic: Tc11 Circles

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

Segment Lengths of
Intersecting Chords

2.5.G.B -
COMMUNICATION -
Use symbols,
mathematical
terminology, standard
notation, mathematical
rules, graphing, and
other types of
mathematical
representations to
communicate
observations,
predictions, concepts,
procedures,
generalizations, ideas,
and results.

2.9.G.A -
DEFINITIONS,
PROPERTIES AND
RELATIONS - Identify
and use properties and
relations of geometric
figures; create
justifications for
arguments related to
geometric relations.

2.8.G.B - ALGEBRAIC
MANIPULATIONS -
Use algebraic
representations to solve
problems using
coordinate geometry.

2.5.G.B -
COMMUNICATION -
Use symbols,
mathematical
terminology, standard
notation, mathematical
rules, graphing, and
other types of
mathematical

Topic: Tc11 Circles

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.9.G.A - DEFINITIONS, PROPERTIES AND RELATIONS - Identify and use properties and relations of geometric figures; create justifications for arguments related to geometric relations.

2.8.G.B - ALGEBRAIC MANIPULATIONS - Use algebraic representations to solve problems using coordinate geometry.

Topic: Tc11 Circles

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: Tc11 Circles

Subject(s): Math

Days: 15

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Many relationships exist between a circle and its segments.



Unit Essential Question(s):

What are the relationships between line segments, angles, and circles?



Concept:
Tangent Lines (Pgs.582-585)

2.5.G.B

Concept:
Properties of Arcs & Chords (Pgs 386-389, 590- 593)

2.9.G.A, 2.8.G.B

Concept:
Circle Angle Types (Pgs.598-601, 607-608)

2.5.G.B, 2.9.G.A, 2.8.G.B

Lesson Essential Question(s):
How is the tangent of a circle related to the circle's radius at the point of tangency? (A)

Lesson Essential Question(s):
What are the different properties of chords and arcs inside a circle and how are they related? (A)

Lesson Essential Question(s):
How do I use the measures of intercepted arcs to find the measure of angles inside and outside of circles? (A)

Vocabulary:
radius, diameter, chord, tangent, point of tangency, inscribed, circumscribed

Vocabulary:
arc length, arc measure, minor arc, major arc, semicircle, chord

Vocabulary:
inscribed angle, central angle, intercepted arc, secant

Concept:
Segment Lengths (Pg. 609)

2.8.G.B

Lesson Essential Question(s):
How do you find the various lengths of segments found in a circle between chords, tangents, and secants? (A)

Vocabulary:
intersection

Additional Information:
manipulatives, geometric software, protractor, ruler, calculator

Attached Document(s):

Vocab Report for Topic: Tc11 Circles

Subject(s): Math

Days: 15

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Tangent Lines (Pgs.582-585)

radius -
diameter -
chord -
tangent -
point of tangency, inscribed, circumscribed -

Concept: Properties of Arcs & Chords

(Pg 386-389, 590-593)

arc length-
arc measure -
minor arc -
major arc -
semicircle -
chord -

Concept: Circle Angle Types (Pgs.598-601, 607-608)

inscribed angle, central angle, intercepted arc, secant -

Concept:

Segment Lengths (Pg. 609)

intersection -

Topic: Tc12 Area

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.7.G.A – Essential CALCULATION OF PROBABILITIES - Use geometric figures and the concept of area to calculate probability.

Perimeter

Area of Triangles

Area of Quadrilaterals

Areas of Other Polygons

Areas of Circles and Sectors

Area of geometric figures are determined by properties of the figures.

CC.2.3.HS.A.8 - Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9 - Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

CC.2.3.HS.A.8 - Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9 - Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.

Topic: Tc12 Area

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

<p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.7.G.A - CALCULATION OF PROBABILITIES - Use geometric figures and the concept of area to calculate probability.</p> <p>2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem</p>		
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Topic: Tc12 Area

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:	Understand:	Do:
<p>was solved in grade appropriate contexts.</p> <p>2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.</p> <p>2.7.G.A - CALCULATION OF PROBABILITIES - Use geometric figures and the concept of area to calculate probability.</p>		

Topic: Tc12 Area

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: Tc12 Area

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: Area of geometric figures are determined by properties of the figures.



Unit Essential Question(s):

How is the area of a triangle used to derive the area formulas of other polygons?

<p>Concept: Perimeter (Pg 51 - 53) 2.5.G.A, 2.5.G.B</p>	<p>Concept: Area of Triangles (Pg 350-351) 2.5.G.A</p>	<p>Concept: Area of Quadrilaterals (Pg 348-349) 2.5.G.A</p>
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<p>Lesson Essential Question(s): What is perimeter and how is it determined for different geometric figures? (A)</p>	<p>Lesson Essential Question(s): What facts are needed to find the area of a triangle? (A)</p>	<p>Lesson Essential Question(s): In which quadrilaterals can triangles be used to determine a specific area formula? (ET)</p>
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<p>Vocabulary: perimeter, circumference</p>	<p>Vocabulary: altitude, base, height</p>	<p>Vocabulary: diagonal</p>
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<p>Concept: Area of Other Polygons (Pg 373 -375, 380) 2.5.G.A</p>	<p>Concept: Area of Circles & Sectors (Pg. 396-397) 2.5.G.A</p>	<p>Concept: Geometric Probability (Pg 402 - 404) 2.7.G.A, 2.5.G.B</p>
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<p>Lesson Essential Question(s): What is a regular polygon and how do we find its area? (A) How can the area of any polygon be determined? (ET)</p>	<p>Lesson Essential Question(s): How is the area of a circle determined? (ET) What is the relationship between the area of a circle and a sector of that circle? (A)</p>	<p>Lesson Essential Question(s): How can I use segment length and area to model probabilities of events (ET)</p>
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<p>Vocabulary: apothem, regular polygon</p>	<p>Vocabulary: sector</p>	<p>Vocabulary: geometric probability</p>
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Additional Information:

manipulatives, calculator

Attached Document(s):

Vocab Report for Topic: Tc12 Area

Subject(s): Math

Days: 15

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Perimeter (Pg 51 - 5)

perimeter -
circumference -

Concept: Area of Triangles (Pg 350-351)

altitude -
base -
height -

Concept: Area of Quadrilaterals (Pg 348-349)

diagonal -

Concept: Area of Other Polygons (Pg 373 -375, 380)

apothem -
regular polygon -

Concept: Area of Circles & Sectors (Pg. ~~363~~37)

sector -

Concept: Geometric Probability (Pg 402 - 404)

geometric probability - a model in which you let points or areas represent outcomes.

Topic: TE14 Enrichment - Constructions and Transformations

Days: 9

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.B -- Important COMMUNICATION -
Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A – Essential PROBLEM SOLVING -
Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.9.G.B – Essential TRANSFORMATIONS AND SYMMETRY -
Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

Constructions of Geometric Figures

Translations, Rotations, and Reflections (and Possibly Dilations)

2.5.G.B - COMMUNICATION -

Basic tools help in the creation of copies or scale drawings of known figures.

CC.2.3.HS.A.1 - Use geometric figures and their properties to represent transformations in the plane.
CC.2.3.HS.A.2 - Apply rigid transformations to determine and explain congruence.
CC.2.3.HS.A.1 - Use geometric figures and their properties to represent transformations in the plane.
CC.2.3.HS.A.2 - Apply rigid transformations to determine and explain congruence.

Topic: TE14 Enrichment - Constructions and Transformations

Days: 9

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A - PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.9.G.B - TRANSFORMATIONS AND SYMMETRY - Use arguments based on transformations to establish congruence or similarity of 2-dimensional shapes.

2.5.G.B - COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate

Topic: TE14 Enrichment - Constructions and Transformations

Days: 9

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

observations,
predictions, concepts,
procedures,
generalizations, ideas,
and results.

2.5.G.A - PROBLEM
SOLVING - Develop a
plan to analyze a
problem, identify the
information needed to
solve the problem, carry
out the plan, check
whether an answer
makes sense, and
explain how the problem
was solved in grade
appropriate contexts.

2.9.G.B -
TRANSFORMATIONS
AND SYMMETRY -
Use arguments based on
transformations to
establish congruence or
similarity of 2-
dimensional shapes.

Topic: TE14 Enrichment - Constructions and Transformations

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: TE14 Enrichment - Constructions and Transformations

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning:
 By using basic tools, you can create copies or scale drawings of known figures.



Unit Essential Question(s):

How do we create isometric and non-isometric translations?

How can transformations be used to create tessellations?



<p>Concept: Constructions of Geometric Figures (Pg 662-663) <u>2.5.G.B</u></p>	<p>Concept: Translations, Rotations, and Reflections (And Possibly Dilations) (Pg 634-636, 641-643, 647-649, 667-669) <u>2.5.G.A, 2.9.G.B</u></p>
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<p>Lesson Essential Question(s): How can you determine the number of lines of symmetry of a polygon? (A)</p>	<p>Lesson Essential Question(s): What are the four types of transformations and how are they different? (A)</p>
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<p>Vocabulary: Symmetry (reflectional, line, rotational, point)</p>	<p>Vocabulary: tessellation(tiling), rotation, translation, reflections, dilation, transformation</p>
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Additional Information:
 manipulatives, geometric software, protractor, ruler, calculator, compass, patty paper

Attached Document(s):

Vocab Report for Topic: TE14 Enrichment - Constructions and Transformations

Days: 10

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Constructions of Geometric Figures (Pg 662-663)

Symmetry (reflectional, line, rotational, point) -

Concept:

Translations, Rotations, and Reflections
634-636, 641-643, 647-649, 667-669)

(And Possibly Dilations)

(Pg

tesselation(tiling) -

rotation -

translation -

reflections -

dilation -

transformation -

Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

2.5.G.A – Essential PROBLEM SOLVING - Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B – Important COMMUNICATION - Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

Surface Nets and Polyhedrons

Surface Area and Volume of Prisms and Cylinders

Surface Area and Volume of Pyramids and Cones

Surface Area and Volume of a Sphere

Ratios of Area and Volume

2.5.G.A - PROBLEM SOLVING - Develop a

The surface area and volume of solids are determined by their properties.

CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.8.A.1 - Apply the concepts of volume of cylinders, cones, and spheres to solve realworld and mathematical problems.
 CC.2.3.HS.A.12 - Explain volume formulas and use them to solve problems.
 CC.2.3.HS.A.14 - Apply geometric concepts to model and solve real world problems.
 CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.
 CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.
 CC.2.3.8.A.1 - Apply the concepts of volume of cylinders, cones, and spheres to solve realworld and mathematical problems.
 CC.2.3.HS.A.12 - Explain volume formulas and use them to solve problems.
 CC.2.3.HS.A.14 - Apply geometric concepts to model and solve real world problems.

Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B -

COMMUNICATION -

Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.

2.5.G.A - PROBLEM

SOLVING - Develop a

plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.

2.5.G.B -

COMMUNICATION -

Use symbols, mathematical terminology, standard notation, mathematical rules, graphing, and

Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Know:

Understand:

Do:

other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas, and results.		
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Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Common Assessments on what students should know and do in this unit:

Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Key Learning: The surface area and volume of solids are determined by their properties.



Unit Essential Question(s): What area formulas can be used to derive surface areas and volumes of solids?

<p>Concept: Surface Nets & Polyhedra (Pg. 512-513) 2.5.G.B</p>	<p>Concept: Surface Area and Volume of Prisms & Cylinders Pg 528-531 (surface area) Pg. 544-547 (volume) 2.5.G.A</p>	<p>Concept: Surface Area and Volume of Pyramids & Cones Pg 537- 540 (surface area) Pg 551-554 (volume) 2.5.G.A</p>
<p>Lesson Essential Question(s): How can you derive the formulas for a pyramid and a cone? (A)</p>	<p>Lesson Essential Question(s): What is the difference between a prism and a pyramid; a cone and a cylinder? (A)</p>	<p>Lesson Essential Question(s): How is the base of a prism or cylinder used to determine its surface area and volume? (A)</p>
<p>Vocabulary: cube, edges, base, vertices, face, polyhedron, net</p>	<p>Vocabulary: lateral area, surface area, volume, Prism, Cylinder</p>	<p>Vocabulary: slant height, Pyramid, Cone</p>

<p>Concept: Surface Area & Volume of a Sphere (Pg 558 - 560) 2.5.G.A</p>	<p>Concept: Ratios of Area & Volume (Pg 566-568) 2.5.G.A</p>
<p>Lesson Essential Question(s): What information is needed to find the surface area and volume of a sphere? (A)</p>	<p>Lesson Essential Question(s): How can you determine the algebraic relationships between perimeters, areas, and volumes of similar solids? (A)</p>
<p>Vocabulary: Sphere</p>	<p>Vocabulary:</p>

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Additional Information:
manipulatives, geometric software, protractor, ruler, calculator

Attached Document(s):

Vocab Report for Topic: Tc13 Surface Area and Volume

Days: 15

Subject(s): Math

Grade(s): 7th, 8th, 9th, 10th, 11th, 12th

Concept: Surface Nets & Polyhedra (Pg. 512-513)

- cube -
- edges -
- base -
- vertices -
- face -
- polyhedron -
- net -

Concept:

Surface Area and Volume of Prisms & Cylinders

Pg 528-531 (surface area)

Pg. 544-547 (volume)

- lateral area -
- surface area -
- volume -
- Prism -
- Cylinder -

Concept:

Surface Area and Volume of Pyramids & Cones

Pg 537- 540 (surface area)

Pg 551-554 (volume)

- slant height -
- Pyramid -
- Cone -

Concept:

Surface Area & Volume of a Sphere

(Pg 558 - 560)

- Sphere -

Know-Understand-Do

Course:	Geometry Honors	Topic:	Unit 15: PreCalculus Preview
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Days: 10
Grade: 9th

Know	Understand	DO
<ul style="list-style-type: none"> • Definition of Sine Cosine • Radian Measure • Arc Length • Unit Circle • Law of Sines • Law of Cosines • Graphs of Sine and Cosine 	<ul style="list-style-type: none"> • Measuring angles in degrees and radians • Conversions between degrees and radians • Evaluating inverse trigonometric functions • Solving triangles for missing parts • Evaluating values of trigonometric functions • Interpreting graphs of Sine and Cosine 	<ul style="list-style-type: none"> • C.C.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. • CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable. • F.TF.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. • F.TF.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. • F.TF.3 Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosines, and tangent for x, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number. • F.TF.4 Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

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| | | <ul style="list-style-type: none">• F.TF.5
Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.• G.SRT.11
Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). |
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