**Geometry – Unit 2 Plan**

**Angles, Areas, and the Pythagorean Theorem**

**Big Ideas**

We will begin this unit by investigating angles and areas of shapes. We will use the **transformations** we studied in Unit 1 to discover relationships between angles formed by transversals and angles in a triangle, and also to discover how to find the areas of shapes including triangles, parallelograms, and trapezoids.

We will also start to investigate triangles. We will discover the relationships between the sides of any triangle, and between the sides of a right triangle (the Pythagorean Theorem). Once you have studied the Pythagorean Theorem, you will be able to apply it to find the perimeter and area of more composite shapes!

**Assessments**

Classwork

Homework

Miniquizzes

Performance Task

Team Test

Unit Test

**Key Learning Targets**

* Recognize relationships between pairs of angles in a triangle
* Use the Pythagorean Theorem to solve problems
* Approximate the value of square roots
* Determine whether or not the lengths of three segments can form a triangle

**Objectives**

* Learn how to name angles and learn the three main relationships for angle measures (supplementary, complementary, congruent)
* Use translation to determine when a transversal intersects parallel lines, corresponding angles are equal
* Use angle relationships to solve for missing angles
* Apply knowledge of corresponding angles to learn about alternate interior and same-side interior angles
* Discover that the angles in a triangle add up to 180˚
* Learn how to find the area of a triangle
* Use triangles and rectangles to develop algorithms to find the area of new shapes (parallelograms and trapezoids)
* Learn how to find the area of composite shapes formed by rectangles, triangles, parallelograms, and trapezoids
* Review square roots
* Learn whether or not three given lengths can make a triangle
* Develop and prove the Pythagorean Theorem

**DAY 1 Black 9/28 / White 10/1**

Objectives:

* Use your understanding of translation to determine when a transversl intersects parallel lines, corresponding angles are equal.
* Practice using angle relationships to solve for unknown angles.

Agenda

Section 2.1.1, Complete problems

Section 2.1.2, Problem 2-14 thru 2-17

Homework

HW: 2-8, 2-9, 2-11, 2-18, 2-21

**DAY 2 Black 10/2 / White 10/3**

Objectives:

* Apply knowledge of corresponding angles to learn about alternate interior and same-side interior angles.
* Discover that the Triangle Angle Sum Theorem˚

Agenda

Section 2.1.3, Problems 2-23 thru 2-26

Section 2.1.4, Problems 2-35 and 2-36

Homework

2-19, 2-31, 2-32, 2-33

**DAY 3 White 10/4 / Black 10/5**

Objectives:

* Learn the converse of some angle conjectures and the arguments that support them.

Agenda

Warm–up 2-37

Mini Quiz 2.1

Section 2.1.5, Problems 2-43 thru 2-45 and 2-49 (extension)

Homework

2-38, 2-39, 2-51, 2-52

**DAY 4 Black 10/9 / White 10/10**

Objectives:

* Successful Assessment

Agenda

Warm–up Problem (2-62)

Performance Task

Section 2.2.1 Handout.

Homework

2-54, 2-63, 2-64, 2-65 a & b

**DAY 5 Black 10/11 / White 10/12**

Objectives:

* Learn how to find the area of a triangle
* Use triangles and rectangles to develop algorithms to find the area of new shapes (parallelograms and trapezoids)
* Learn how to find the area of composite shapes

Agenda

Mini-Quiz 2.2

Section 2.2.2, Problems 2-66 thru 2-68

Section 2.2.3, Problems 2-75, 76 and 78

Homework

2-70 a&d, 2-71, 2-72, 2-74

**DAY 6 Black 10/15 / White 10/16**

Objectives:

* Use triangles and rectangles to develop algorithms to find the area of new shapes (parallelograms and trapezoids)

Agenda

Section 2.2.3, Complete Section

Section 2.2.4, Height Lab and Area Tool Kit

Homework

2- 81, 2-82, 2-84, 2-85

**Day 7 Black 10/17 / White 10/18**

Objectives:

* Reflect on new concepts learned

Agenda

Review Angle Relationships

Review Areas of Shapes

Homework

2-90, 2-92, 2-93, 2-94

**DAY 8 Black 10/19 / White 10/22**

Objectives:

* Successful Assessment
* Review Square Roots

Agenda

Test on 2.1 and 2.2

Practice with Square Roots

Homework:

Complete Square Root Worksheet

**DAY 9 Black 10/23 / White 10/24**

Objectives:

* Review square roots
* Learn whether or not three given lengths can make a triangle

Agenda

Section 2.3.1, Problems 2-95 thru 2-97

Section 2.3.2, Problems 2-106 and 2-107

Homework:

2-101, 2-102, 2-103, 2-110,

**DAY 10 Black 10/25 / White 10/26**

Objectives:

* Develop and prove the Pythagorean Theorem

Agenda

Section 2.3.3, Problems 2-114 thru 2-116 and 2-117 (extension)

Homework:

2-111, 2-113, 2-120, 2-122

**DAY 11 Black 10/29 / White 10/30**

Objectives:

* Successful Assessment

Agenda

Team Test

Homework:

2-109, 2-112, 2-119, 2-121

**DAY 12 Black 10/31 / White 11/1**

Objectives:

* Reflect and review topics from 2.2 and 2.3

Agenda

Closure and Review

Homework:

Closure Problems 2-123 thru 2-131

**DAY 13 Black 11/2 / White 11/5**

Objectives:

* Successful Assessment

Agenda

Unit 2 Test on 2.2 and 2.3

Homework: