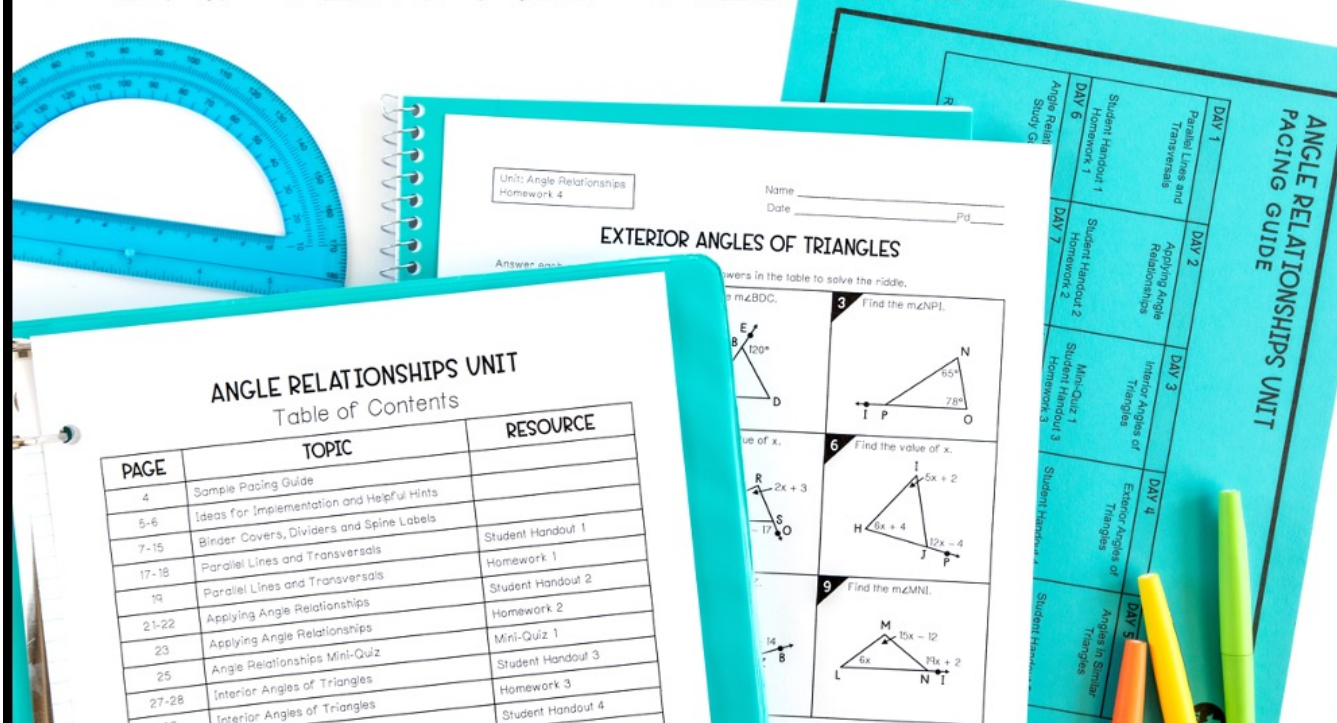


learning focus:

- ✓ use and apply angle relationships when parallel lines are cut by a transversal
- ✓ use angle-angle criterion to solve problems
- ✓ use facts about the angle sum and exterior angles of triangles

ANGLE RELATIONSHIPS UNIT

7 DAY TEKS-ALIGNED UNIT



A MANEUVERING THE MIDDLE® RESOURCE

ANGLE RELATIONSHIPS



A 7 day TEKS-aligned unit

TEKS: 8.8A, 8.8C, 8.8D

**ready-to-go, scaffolded
student materials**

ANGLE RELATIONSHIPS UNIT

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ANGLE RELATIONSHIPS



a 7 day TEKS-aligned unit
TEKS: 8.8A, 8.8C, 8.8D

student friendly + real-world application

graphic
organizers

Unit: Angle Relationships
Student Handout 2

Name _____
Date _____ Pd _____

APPLYING ANGLE RELATIONSHIPS

We can use our knowledge of the angles formed by parallel lines and transversals to find missing measurements. In the following examples, we'll write and solve _____ to help us find missing information.

1. Elm Street is parallel to Oak Street, and Elm Street cuts diagonally across the two streets. Find the measure of each marked angle.

I KNOW:

PLAN AND WORK:

2. The side view of a table is shown, and the table is parallel to the floor. Find the measure of each marked angle.

I KNOW:

PLAN AND WORK:

In 3-8, a pair of parallel lines is cut by a transversal. Set up and solve equations to find the marked angle measurements.

3.

Equation: _____

Value of x: _____

Angle measures: _____

4.

Equation: _____

Value of x: _____

Angle measures: _____

5.

Equation: _____

Value of x: _____

Angle measures: _____

6.

Equation: _____

Value of x: _____

Angle measures: _____

7.

Equation: _____

Value of x: _____

Angle measures: _____

8. Use the parallel lines cut by a transversal to find the value of x. If false, correct the statement.

a. The value of x can be found using the equation $4x - 23 = 2x + 5$.

b. The value of x = 21.

c. Each of the marked angles measures 56°.

Unit: Angle Relationships
Homework 2

Name _____
Date _____ Pd _____

APPLYING ANGLE RELATIONSHIPS

Three statements were made about the parallel lines cut by transversals below. Two are true and one is false. Mark each statement as true or false and rewrite the false statement to make it true.

1. Parallel lines A and B are cut by transversal X as shown below.

STATEMENT	T/F?
The marked angles are supplementary angles.	
The marked angles are classified as same side interior angles.	
The value of x can be found using $4x - 23 = 2x + 5$.	
REWRITE THE FALSE STATEMENT TO MAKE IT TRUE:	

2. Parallel lines A and B are cut by transversal X as shown below.

STATEMENT	T/F?
The value of x = 24.	
The marked angles are congruent angles.	
The marked angles are classified as corresponding angles.	
REWRITE THE FALSE STATEMENT TO MAKE IT TRUE:	

3. Parallel lines A and B are cut by transversal X as shown below.

STATEMENT	T/F?
The value of x can be found using $12x - 18 = 8x + 10$.	
Each of the marked angles measures 56°.	
The marked angles are classified as vertical angles.	
REWRITE THE FALSE STATEMENT TO MAKE IT TRUE:	

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error analysis

ANGLE RELATIONSHIPS



a 7 day TEKS-aligned unit

TEKS: 8.8A, 8.8C, 8.8D

streamline your planning
process with unit overviews

ANGLE RELATIONSHIPS OVERVIEW



READINESS STANDARDS

8.8C Model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants.

SUPPORTING STANDARDS

8.8A Write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants.

8.8D Use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles



key vocabulary



vertical alignment

BIG IDEAS

- Angles in parallel lines and angles can be found by several ways.
- Angles in triangles can be found by several ways.

ESSENTIAL QUESTIONS

- What is significant about the angles in parallel lines?
- When might you see parallel lines?
- How are the interior angles of a triangle related?
- How can interior angles of a triangle be used to find the exterior angles?
- What do angles measure?

ANGLE RELATIONSHIPS UNIT PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Parallel Lines and Transversals	Applying Angle Relationships	Interior Angles of Triangles	Exterior Angles of Triangles	Angles in Similar Triangles
Student Handout 1 Homework 1	Student Handout 2 Homework 2			
DAY 6	DAY 7			
Angle Relationships Study Guide	Angle Relationships Unit Test			
Review	Test			

ANGLE RELATIONSHIPS UNIT OVERVIEW



TOPIC	TEACHING TIPS
Parallel Lines and Transversals	Use masking tape or duct tape to make a large diagram of parallel lines cut by a transversal on the floor. Then have pairs of students stand on the diagram to represent different angle relationships.
Interior Angles of Triangles	Have students cut out a triangle from scratch paper. Then, students should tear one angle from the triangle off. They can then rearrange the torn piece next to the other 2 angles to show that the sum of the interior angles in a triangle is 180°, or a straight line.
Exterior Angles of Triangles	To help students remember the definition of "remote interior angles," talk about the meaning of a "remote island" being far away from anything else. This should help them remember the remote interior angles are the two farthest away from the given exterior angle.
Angle-Angle Criterion	<ul style="list-style-type: none">Have students discuss as a group if it is possible for two triangles to have <u>only</u> two pairs of congruent angles.Use an online triangle constructor (www.mathwarehouse.com offers one), to explore similar side lengths of triangles and the angles generated. For example, enter side lengths 3, 4 and 5 and observe the angle measures. Then, enter side lengths 6, 8 and 10, and the angles will be the same.

teaching
ideas



sample
pacing
calendar

ANGLE RELATIONSHIPS



a 7 day TEKS-aligned unit

TEKS: 8.8A, 8.8C, 8.8D

unit study guide + assessments



quizzes



editable unit test

Unit: Angle Relationships
Mini-Quiz 1

Name _____
Date _____ Pd _____

ANGLE RELATIONSHIPS MINI-QUIZ

Use the parallel lines cut by transversals to solve the questions below.

- $\angle 1$ and \angle _____ are alternate exterior angles.
- $\angle 8$ and \angle _____ are corresponding angles.
- $\angle 3$ and \angle _____ are vertical angles.
- $\angle 6$ and \angle _____ are alternate interior angles.

5. Find the value of x .

$(12x + 19)^\circ$ $(22x - 9)^\circ$

$x =$ _____

6. Use transversal _____

a. Find _____

b. Find _____

Unit: Angle Relationships
Mini-Quiz 1

ANGLE RELATIONSHIPS MINI-QUIZ

Use the parallel lines cut by transversals to solve the questions below.

- $\angle 1$ and \angle _____ are alternate exterior angles.
- $\angle 8$ and \angle _____ are corresponding angles.
- $\angle 3$ and \angle _____ are vertical angles.
- $\angle 6$ and \angle _____ are alternate interior angles.

5. Find the value of x .

$(12x + 19)^\circ$ $(22x - 9)^\circ$

$x =$ _____

6. Use transversal _____

a. Find _____

b. Find _____

Unit: Angle Relationships
Review

Name _____
Date _____ Pd _____

ANGLE RELATIONSHIPS STUDY GUIDE

Solve each of the problems below. Be sure to ask questions if you need more help with a topic.

I CAN IDENTIFY ANGLE RELATIONSHIPS WHEN PARALLEL LINES ARE CUT BY TRANSVERALS. 8.8D

Lines X and Y are parallel lines cut by transversal, A. In 1-5, identify the type of angle relationship shown in the following pairs of angles.

$X \leftarrow \begin{array}{c} 1 \quad 2 \\ 3 \quad 4 \end{array} \begin{array}{c} \nearrow \\ \searrow \end{array} \begin{array}{c} 5 \quad 6 \\ 7 \quad 8 \end{array} \leftarrow Y$

Using the picture above, identify what is supplementary.

6. $\angle 1$ and $\angle 5$

I CAN FIND MISSING ANGLES WHEN PARALLEL LINES ARE CUT BY TRANSVERALS.

9. Line P is parallel to Line Q. Find the $m\angle 7$ if $m\angle 2 = 75^\circ$.

$P \leftarrow \begin{array}{c} 1 \quad 3 \\ 2 \quad 4 \end{array} \begin{array}{c} \nearrow \\ \searrow \end{array} \begin{array}{c} 5 \quad 7 \\ 6 \quad 8 \end{array} \leftarrow Q$

10. Find _____

EIGHTH GRADE CURRICULUM

ANGLE RELATIONSHIPS

UNIT FOUR: ANSWER KEY

answer keys
included



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