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 CCSS-ALIGNED UNIT

8th GRADE

ANGLE RELATIONSHIPS UNIT
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ANGLE RELATIONSHIPS

a 7 day CCSS-aligned unit
CCSS: 8.G.5

ready-to-go, scaffolded student materials

ANGLE RELATIONSHIPS UNIT
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ANGLE RELATIONSHIPS

8th GRADE

a 7 day CCSS-aligned unit
CCSS: 8.G.5

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, an _____ cuts diagonally across the two streets. Fi _____ 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 _____ 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. $(3x + 7)°$ $(10x + 17)°$

Equation: _____

Value of x: _____

Angle measures: _____

4. $(11x - 9)°$ $(7x - 9)°$

Equ _____

5. $(-8x + 8)°$ $(-6x + 20)°$

6. $(5x + 6)°$ $(8x - 39)°$

Equation: _____

Value of x: _____

Angle measures: _____

7. Equa _____

9. Use the parallel lines cut by a transv _____ true or false. If false, correct the stat _____

_____ a. The value of x can be found _____

_____ b. The value of x = 21.

_____ c. Each of the marked angles _____

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.

X
$(4x - 23)°$ A
$(2x + 5)°$ B

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.

X
$(3x + 21)°$ A
$(6x - 60)°$ B

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.

X
A
$(12x - 18)°$ B
$(8x + 10)°$

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

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8th GRADE

streamline your planning process with unit overviews

ANGLE RELATIONSHIPS
OVERVIEW

STANDARDS

8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

BIG IDEAS

- Angles in parallel lines and transversals as well as triangles are related in such a way that missing angles can be found by setting up and solving equations.
- Angles in triangles can be us

ESSENTIAL QUESTION

- What is significant about the
- When might you see parallel
- How are the interior angles
- How can interior angles of a
- What do angle measures of

✓ **key vocabulary**

✓ **vertical alignment**

sample pacing calendar

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 angle 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	• Have students discuss as a group if it is possible for two triangles to have only 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

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ANGLE RELATIONSHIPS

a 7 day CCSS-aligned unit
CCSS: 8.G.5

unit study guide + assessments

✓ quizzes
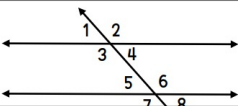
✓ editable unit test

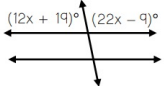Unit: Angle Relationships
Mini-Quiz 1

Name _____
Date _____ Pd _____

ANGLE RELATIONSHIPS MINI-QUIZ

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

1. ∠1 and ∠ _____ are alternate exterior angles.

2. ∠8 and ∠ _____ are corresponding angles.

3. ∠3 and ∠ _____ are vertical angles.

4. ∠6 and ∠ _____ are alternate interior angles.

5. Find the value of x.

$(12x + 19)°$ $(22x - 9)°$

6. Use t
transve

a. Find

b. Find

x = _____
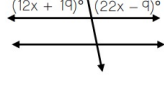
Unit: Angle Relationships
Mini-Quiz 1

ANGLE REL

Use the parallel lines cut by transversals

1. ∠1 and ∠ _____ are alternate exterio

2. ∠8 and ∠ _____ are corresponding a

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transve

a. Find

b. Find
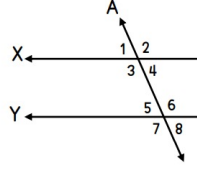
x = _____

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 TRANSVERSALS.

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.
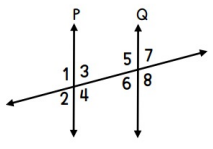
Using the picture above, identify whe
supplementary.

6. ∠1 and ∠5

_____

I CAN FIND MISSING ANGLES WHEN PAR

9. Line P is parallel to Line Q.
Find the m∠7 if m∠2 = 75°.

10.
Fi

EIGHTH GRADE CURRICULUM

ANGLE RELATIONSHIPS

UNIT EIGHT: ANSWER KEY

answer keys included

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