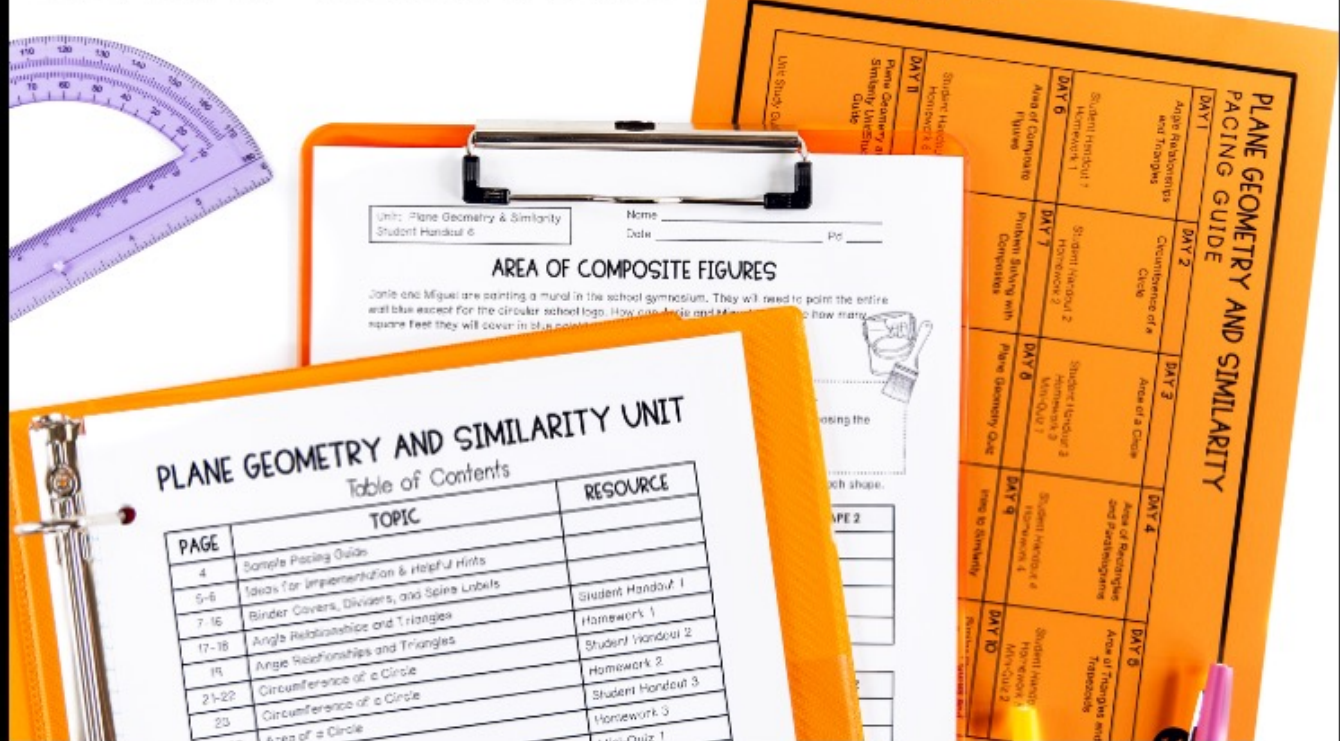


learning focus:

- ✓ solve mathematical and real-world problems involving similar shapes and scale drawings
- ✓ find circumference and area of circles
- ✓ determine the area of composite figures in mathematical and real-world situations

PLANE GEOMETRY & SIMILARITY UNIT

12 DAY TEKS-ALIGNED UNIT



A MANEUVERING THE MIDDLE® RESOURCE

PLANE GEOMETRY & SIMILARITY



a 12 day TEKS-aligned unit

TEKS: 7.5A, 7.5B, 7.5C, 7.8C, 7.9B, 7.9C, 7.11C

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

PLANE GEOMETRY AND SIMILARITY UNIT

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PLANE GEOMETRY & SIMILARITY



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student friendly + real-world application


scaffolded concepts

Unit: Plane Geometry & Similarity
Student Handout 5

Name _____
Date _____ Pd _____

AREA OF TRIANGLES AND TRAPEZOIDS

Two triangles are formed when a _____ is cut in _____.

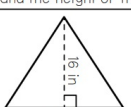


Therefore, the formula for the area of a trapezoid is _____.

The height of the trapezoid is _____.

AREA OF TRIANGLES

Label the base and the height of the triangle below.

1. 

Formula: _____

Plug in Values: _____

Area: _____

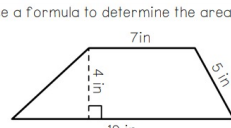
AREA OF TRAPEZOIDS

A trapezoid is one _____.

To find the area, _____.

- b_1 is the _____
- b_2 is the _____
- h is the _____

3. Use a formula to determine the area of the trapezoid below.

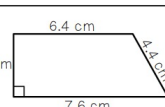


Unit: Plane Geometry & Similarity
Homework 5

Name _____
Date _____ Pd _____

AREA OF TRIANGLES AND TRAPEZOIDS

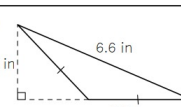
Use your understanding of area to answer questions 4-9.

4. 

Formula: _____

Plug in Values: _____

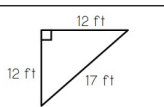
Area: _____

5. 

Formula: _____

Plug in Values: _____

Area: _____

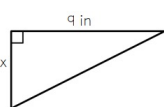
6. 

Formula: _____

Plug in Values: _____

Area: _____

7. A flag banner was created out of square paper. Eight flags were used to create a banner which has a total area of 108 in². What is the height of each flag?



9. Small tiles are used to create a mosaic. Determine whether the statement is true or false.

_____ a. The area of one tile can be 108 in².

_____ b. The area of one tile is 132 in².

_____ c. In order to create the mosaic, the area of the tiles must be 108 in².

self-checking practice

Unit: Plane Geometry & Similarity
Homework 5

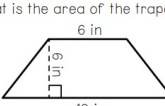
Name _____
Date _____ Pd _____

AREA OF TRIANGLES AND TRAPEZOIDS

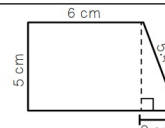
Match each correct answer to a letter and complete the riddle below. Not all choices will be used.

1. What is the area of a right triangle with a height of 8.9 cm and a base of 14.3 cm?

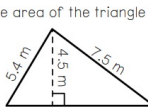
2. What is the area of the trapezoid?



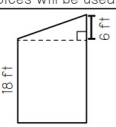
3. Find the area of the trapezoid at the right.



4. Find the area of the triangle below.

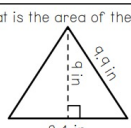


5. Find the area of the trapezoid at the right by decomposing it into familiar shapes.

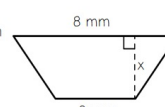


6. A triangle has an area of 38.4 cm². The height of the triangle is 12.8 centimeters. What is the length of the base of the triangle?

7. What is the area of the triangle?



8. A trapezoid has an area of 35 mm². What is the height of the trapezoid?



L: 36	T: 5	F: 12.15	H: 56	A: 37.8	I: 127.5
R: 50.4	C: 12	E: 20.25	S: 35	G: 108	M: 168
H: 63.64	E: 3	W: 35.4	T: 6	A: 54	N: 24

WHAT IS BLACK AND WHITE AND HAS LOTS OF PROBLEMS?

2 5 7 6 1 8 4 3 6

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PLANE GEOMETRY & SIMILARITY



a 12 day TEKS-aligned unit

TEKS: 7.5A, 7.5B, 7.5C, 7.8C, 7.9B, 7.9C, 7.11C

streamline your planning process with unit overviews

PLANE GEOMETRY AND SIMILARITY OVERVIEW



READINESS STANDARDS

- 7.5C** Solve mathematical and real-world problems involving similar shape and scale drawings.
- 7.9B** Determine the circumference and area of circles.
- 7.9C** Determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles.

SUPPORTING STANDARDS

- 7.5A** Generalize the critical attributes of similarity, including ratios within and between similar shapes.
- 7.5B** Describe π as the ratio of the circumference of a circle to its diameter.
- 7.8C** Use models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas.
- 7.11C** Write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.

BIG IDEAS

- A triangle is a three-sided polygon.
- Angles are related in such a way that they can be used to solve problems.
- A similar shape has proportional dimensions.
- A figure can be reduced or enlarged.

ESSENTIAL QUESTIONS

- How are the interior angles of a triangle related?
- What is the relationship between the angles of a triangle and the exterior angles?
- How can a formula help you find the area of a shape?
- Why do certain shapes have specific properties?

PLANE GEOMETRY AND SIMILARITY PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Angle Relationships and Triangles	Circumference of a Circle	Area of a Circle	Area of Rectangles and Parallelograms	Area of Triangles and Trapezoids
Student Handout 1 Homework 1	Student Handout 2 Homework 2	Student Handout 3 Homework 3	Student Handout 4	Student Handout 5 Homework 5
DAY 6	DAY 7			
Area of Composite Figures	Problem Solving with Composites			
Student Handout 6 Homework 6	Student Handout 7 Homework 7			
DAY 11	DAY 12			
Plane Geometry and Similarity Unit Study Guide	Plane Geometry and Similarity Unit Test			
Unit Study Guide	Unit Test			

PLANE GEOMETRY AND SIMILARITY OVERVIEW



TOPIC	TEACHING TIPS
Angle Relationships and Triangles	<ul style="list-style-type: none">This is one of my most favorite topics! Have students work in groups of three. Give them a long piece of string that has been tied to form a circle. Each student will hold the string and form a vertex. Call out the various triangle classifications and have students move to create that type of triangle. Stop to discuss and make any corrections.
Circles	<ul style="list-style-type: none">Collect various circular items and have students practice finding the area and circumference of each item. Consider setting up stations where students use a string or a sewing measurement tape to measure and solve.In the event a problem does not have a picture, I always required students to sketch a picture and label the parts.
Area of Polygons	<ul style="list-style-type: none">I love teaching area as a covering of a 2D object. This could be as simple as using graph paper to color various shapes with various dimensions. Students could create a picture with various shapes or even spell out their name.Cheez-Its® are also great ways for students to physically cover an object. Consider giving students a specific number of Cheez-Its® and then ask them the various dimensions that can be created with that area.
Composite Figures	<ul style="list-style-type: none">Consider having students draw the various shapes independent of each other with the measurements. Then, ask them to find the area of each shape. Finally, have them add or subtract based on the situation. By breaking these down into separate images, students tend to do better and use the appropriate measurements.
Similarity	<ul style="list-style-type: none">Project an image onto the board. Then, use the computer to resize the image both by reduction and enlargement. Help students connect the change in size to being proportional.Students can experience a scale drawing by using graph paper and sketching figures, then reducing or enlarging the figures based on the scale factor.

teaching ideas



✓ key vocabulary
✓ vertical alignment



sample
pacing
calendar

PLANE GEOMETRY & SIMILARITY



a 12 day TEKS-aligned unit

TEKS: 7.5A, 7.5B, 7.5C, 7.8C, 7.9B, 7.9C, 7.11C

unit study guide + assessments



quizzes



editable unit test

Unit: Plane Geometry & Similarity
Quiz 1

Name _____
Date _____ Pd _____

QUIZ: PLANE GEOMETRY
Calculate the area of the shapes below.

1.

2.

3.

Read the problems below. Sketch a picture.

5. A standard size volleyball court has an area of 1,800 square feet. The length of the court is 60 feet. What is the width of the court?

Unit: Plane Geometry & Similarity
Review

Name _____
Date _____ Pd _____

PLANE GEOMETRY AND SIMILARITY UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN SOLVE EQUATIONS INVOLVING ANGLES AND TRIANGLES. 7.11C

1. Determine the missing angle.

Equation: _____

Angle measures: _____

3. A right triangle has an angle measure of 18.4° . What is the value of x , the missing angle?

Equation: _____

$x =$ _____

5. Complete the table below to determine the missing angle measures.

$m\angle R = 102^\circ$
$m\angle S = 73^\circ$
$m\angle T = 41.5^\circ$

I CAN USE MODELS AND FORMULAS

6. Describe how the circumference and diameter of a circle are related.

SEVENTH GRADE CURRICULUM

**PLANE GEOMETRY
& SIMILARITY**

UNIT FIVE: ANSWER KEYS

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answer keys
included

