February 9, 2015

SET-UP (Activate Prior Knowledge & Connect to Challenge Question) Noise level 0

- S-Sit and organize materials for the lesson... <u>Get your journal, Springboard</u>
 <u>book and a sharpened pencil</u>.
- E-Examine and follow teacher's directions... On your next blank page, write today's date at the top. <u>Title this page ~ Lesson 15 Similar Shapes and</u> <u>Finding Missing Side Lengths</u>
- T-Take the challenge! Write the CQ in journal below the title:
 <u>Challenge Question</u>: What are the 3 characteristics of similar shapes?
- <u>Warm-Up:</u> What is the measure of angle C?



Noise level 0

LESSON 13-2 PRACTICE

10.	73°	11. 107°	
12.	107°	13. 23°	
14.	135°	15. 45°	
16.	$x = 31^\circ$. The ang	gles measure 123°	.
	29°, and 28°. Ch	eck students' wor	k.
17.	$m \angle K = 180^\circ - 10^\circ$	$m \angle G - m \angle J = 8$	0°
18.	Answers may va	ry. Sample answe	Γ:
	One measure is §	90° because it is a	L
	right triangle. M	easure of third	
	angle = $180^{\circ} - 9$	$90^{\circ} - 29^{\circ} = 61^{\circ}$	
19.	36° and 108°; Ar	nswers may vary.	
	Sample answer: !	Since the base	
	angles are equal,	the other base	
	angle also measu	ires 36°. The	
	measure of the t	hird angle is	
	$180 - 2(36^{\circ}) = 100$	108°.	

Learning Together

Noise level 2

• Warm-Up: Name the corresponding sides and angles of the two triangles below.



How long do we have to complete the activity: 3 mins

What do we do? With a partner:

Name the corresponding sides and angles of the two triangles.

Noise level 0

Congruent figures have the same size and shape. **Similar** figures have the same shape but not necessarily the same size. The two figures below are similar. They have the same shape but not the same size.



Noise level 0

Similar Figures

- Polygons that have the same shape are similar. Similar figures must have:
 - The same shape
 - Corresponding <u>angles</u> that are congruent (or equal)
 - The <u>ratio</u> of each pair of <u>corresponding sides</u> is equivalent

•<u>Corresponding</u> – Corresponding sides or angles have the same relative position in similar figures.

<u>Ratio</u> – A comparison of two quantities.



Noise level 0

A <u>ratio</u> is a comparison of two quantities by division. In the rectangles below, the ratio of shaded area to unshaded area is 1:2, 2:4, 3:6, and 4:8. All the rectangles have equivalent shaded areas. Ratios that make the same comparison are <u>equivalent ratios</u>.



Noise level 0



Noise level 0



Let's look at the two triangles we looked at earlier to see if they are similar.

Are the corresponding angles in the two triangles congruent?

Are the corresponding sides proportional? (Do they form equivalent ratios)

Noise level 0

Just as we solved for variables in earlier proportions, we can solve for variables to find unknown sides in similar figures.

Set up the corresponding sides as a proportion and then solve for x.

$$\frac{x}{12} = \frac{5}{10}$$
$$10x = 60$$
$$x = 6$$



February 11, 2015

- SET-UP (Activate Prior Knowledge & Connect to Challenge Question) **Noise level 0**
- S-Sit and organize materials for the lesson... <u>Get your journal and a sharpened</u> pencil.
- E-Examine and follow teacher's directions... On your next blank page, write today's date at the top. <u>Title this page ~ Lesson 15 Similar Shapes and</u> <u>Finding Missing Side Lengths (Day 2)</u>
- T-Take the challenge! Write the CQ in journal below the title:
 <u>Challenge Question</u>: What are the 3 characteristics of similar shapes?
 - Answer the CQ in your journal now!



Answers to the HW:

Noise level 0

Find the missing sides lengths, a and b.

(1) Write a ratio of the two sides that you know.

8

(2) Write a proportion with a side length you need to find.

$$\frac{8}{6.4} = \frac{7}{a}$$



8a = 44.8 a = 5.6



Noise level 2

Determine if the two triangles are similar and find the missing side length.



Learning Together

Noise level 2

The two windows below are similar. Find the unknown width of the larger window.



Noise level 0

Indirect Measurement Remember that similar figures have corresponding Lis that are ≡, & corresponding sides that are proportional Similar triangles (~ A's) can be used to make indirect measurements. Example: In the illustration shown, a tree casts a shadow 10ft long at the same time that a 5-ft woman casts a 4ff shadow, How tall is the tree? 10 ft 4 ft (Notice that the Dis formed are~; all L's are =) 4× 5× $\frac{41}{4} = \frac{50}{4} = (12.5 ft)$

Noise level 0



Noise level 0

In the diagram we can use proportions to determine the height of the tree.

> 5/x = 8/28 8x = 140 x = 17.5 ft.



Noise level 0

The sun's rays strike the building and the girl at the same angle, forming two similar triangles. How tall is the building if the girl is 5ft?

<u>girl's shadow</u> = <u>building's shadow</u> girl's height building's height

-3ft-

-15ft--



Learning Together **Noise level 2** h m 24 m 24 m i — 16 m →

These two buildings are similar. Find the height of the large building.

Learning Together

Noise level 2

- How long do we have to complete the activity: 20 mins
- What do we do? With a partner:

Complete the "What Do You Call a Palace Window?" activity. We will go over the correct answers in 20 minutes.

What Do You Call a Palace Window?



Wrap-up

Noise level 0

W- Write homework assignment in planner (Complete the "What Do You Call a Palace Window?" problem and study for your Lesson 15 quiz on Wednesday)

R- Return materials and organize supplies

A-Assess how well you worked in a group or individually

Did I/we maintain operating standards? Did I/we work toward learning goals? Did I/we complete tasks?

P- Praise one another for high quality work: <u>Tickets for a "P" performance overall</u>