

Mini-Lesson

Scale Drawings and Scale Models

Vocabulary

scale drawing: proportional two-dimensional drawing of an object (smaller or larger than the actual object)

scale model: proportional three-dimensional model of an object (smaller or larger than the actual object)

scale factor: a ratio of dimensions to the actual dimensions in simplest form

scale model

Examples



toy car

Example Scale Drawing



Area and Circumference of a Circle



Area of a Circle

$$A = \pi r^2$$

Talk with a partner

Circumference of a Circle

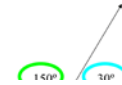
$$C = \pi d \text{ or } C = 2\pi r$$

In order to find angles, you must know complementary, supplementary, vertical, and adjacent angles.

Examples of Supplementary Angles



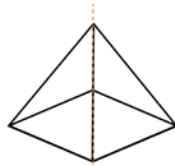
Examples of Vertical Angles



Examples of Adjacent Angles



Cross-Sections of 3D Figures



Unknown Angles

Examples of Complementary Angles



Surface Area and Volume



THINK-PAIR-SHARE

How would you solve a problem like this?

On a scale drawing of a horse, the scale is 1 mm: 10 mm. If the real horse is 1,500 mm tall, how tall is the horse in the scale drawing?

Cross-Section

- Can I get a rectangular cross-section from a triangular prism?
- Cuts made parallel to the base will produce a shape of the same shape as the base.
- Cuts made perpendicular to the base will produce a right rectangular prism.

THINK-PAIR-SHARE

True or False?: You can get a rectangular cross-section from a triangular prism.



Talk with a partner

How do you find the surface area of a 3-D figure?

Volume Formulas

Volume of Prisms:

$$V = Bh$$

Volume = (area of the base) x height

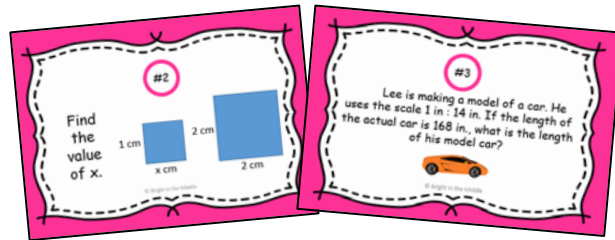
Volume of Pyramids:

$$V = Bh \div 3$$












Volume = (area of the base) x height

4 Math Centers

Scale Drawings and Scale Models Task Cards Mini Set (8 cards)



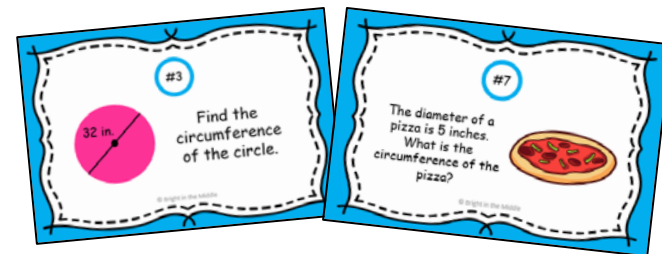
7th Grade Math Geometry Memory/Match Game (82 Words)

scale model	scale drawing	perimeter	area	scale
proportional three-dimensional model of an object 	proportional two-dimensional drawing of an object 	add all sides  $2 + 2 + 2 + 2 = 8$	 space taken up by a 2-D object 	ratio between two sets of measurement 
scale factor	reflex angle	interior angle	exterior angle	adjacent angles
ratio of model or drawing dimensions to the actual object's dimensions 	angle that is greater than 180 but less than 360 			angles that share a side 

Surface Area of Prisms and Pyramids Cut-and-Glue Mini (6 problems)



Area and Circumference of Circles Task Cards Mini Set (8 cards)



Homework

Name _____

Geometry Review

Directions: Match the following vocabulary words with their definitions.

1) _____ scale drawing	a. proportional three-dimensional object
2) _____ scale model	b. amount of space taken up by a 2-D shape
3) _____ scale factor	c. angles that are across from each other and are equal
4) _____ scale	d. amount of space taken up by a 3-D object
5) _____ area	e. ratio between two sets of measurements
6) _____ circumference	f. the perimeter of a circle
7) _____ complementary	g. proportional two-dimensional object
8) _____ supplementary	h. angles that add to be 180°
9) _____ vertical	i. ratio of model/drawing dimensions to the actual object's dimensions
10) _____ adjacent	j. area of the surface of a 3-D object
11) _____ surface area	k. angles that share a common side
12) _____ volume	l. angles that add to be 90°

13) On a road map with a scale of 1 cm. : 110 mi., the distance between two cities measures 4.5 cm. What is the actual distance between these two cities?

14) You walk around a circle that has a diameter of 95 m. How far have you walked? - 298.3 m

15) The surface area of a cube is 24 in². What is the volume of the cube? - 8in³

Name _____
Date _____

Geometry Review

Directions: Match the following vocabulary words with their definitions.

1) g scale drawing	a. proportional three-dimensional model of an object
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10) k adjacent	j. area of the surface of a 3-D object
11) j surface area	k. angles that share a common side
12) d volume	l. angles that add to be 90°

13) On a road map with a scale of 1 cm. : 110 mi., the distance between two cities measures 4.5 cm. What is the actual distance between these two cities? - 495 miles

14) You walk around a circle that has a diameter of 95 m. How far have you walked? - 298.3 m

15) The surface area of a cube is 24 in². What is the volume of the cube? - 8in³

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