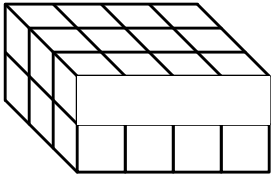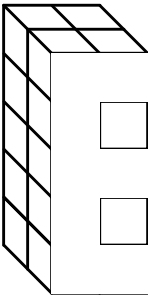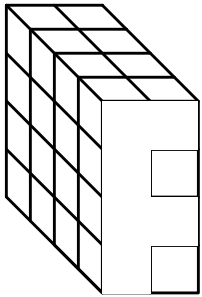NAME _____ DATE _____

Surface Area & Volume

1 Each figure below is built out of centimeter cubes. Find the surface area and volume of each one.

ex		a	
Surface Area	Volume	Surface Area	Volume
2 × 2 × 2 = 8 4 × 2 × 4 = 32 8 + 32 = 40 sq. cm.	2 × 2 × 4 = 16 cubic cm.		

b		c	
Surface Area	Volume	Surface Area	Volume

⚡ **CHALLENGE**

2 Find the volume of this triangular prism.

6 cm

5 cm

3 cm
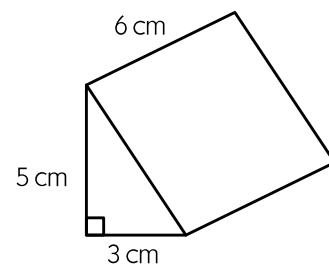
NAME _____   DATE _____
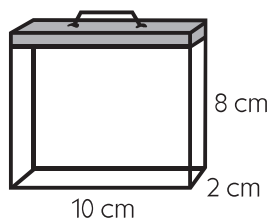
Set D2 ★ Independent Worksheet 3

INDEPENDENT WORKSHEET

Tank Volume

1 At a pet store, the volume of a tank or kennel depends on the size of the pet. Use cubes, sketches and equations to solve for the following questions.

a What is the volume (including units) of the ant farm, if each cubic unit is one centimeter cubed?
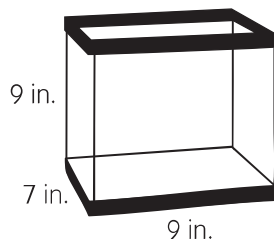
8 cm

2 cm

10 cm

Ant Farm Volume =

b What is the volume (including units) of the dog kennel, if each cubic unit is one foot cubed?
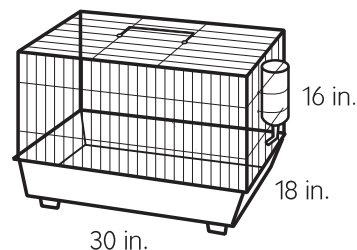
6 ft.

7 ft.   7 ft.
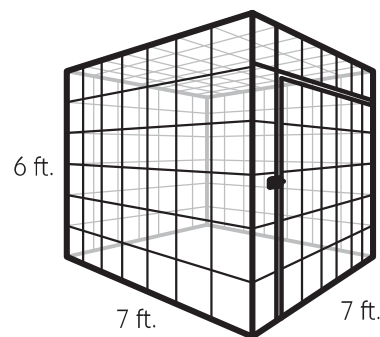
Dog Kennel Volume =

c What is the volume (including units) of the scorpion tank, if each cubic unit is one inch cubed?

9 in.

7 in.

9 in.

Scorpion Tank Volume =

c What is the volume (including units) of the Guinea Pig cage, if each cubic unit is one inch cubed?
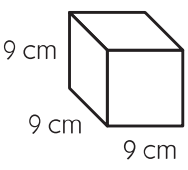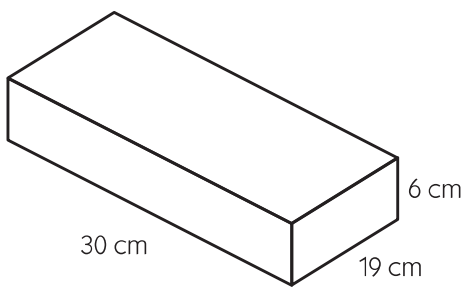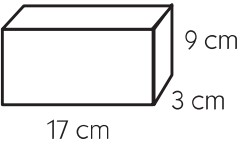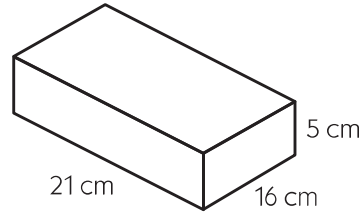
16 in.

18 in.

30 in.

Guinea Pig cage Volume =

(Continued on next page.)

NAME _____   DATE _____

Independent Worksheet 3 Tank Volumes (cont.)

Pet Food Volumes

2 The pet store sells pet food and snacks in four sizes. Determine the volume of each container and write an equation to show your thinking.

a

9 cm
9 cm
9 cm

Volume _____

Equation

b

6 cm
30 cm
19 cm

Volume _____

Equation

c

9 cm
3 cm
17 cm

Volume _____

Equation

d

5 cm
21 cm
16 cm

Volume _____

Equation

3 Answer the following questions using the infromation above.

a Which figure has a volume less than the volume of figure A?

b What are the volumes of figure A and figure B combined?

**e** List the figures in order from least to greatest.

_____ _____ _____ _____

Breaking Apart Composite Solids

Students will need two different color markers or crayons to complete this task.

John was finding the volume of this figure. He decided to break it apart into two separate rectangular prisms. John found the volume of the solid below using this expression: (4 x 4 x 1) + (2 x 4 x 2).

Decompose the figure into two rectangular prisms and shade them in different colors to show one way John might have thought about it.
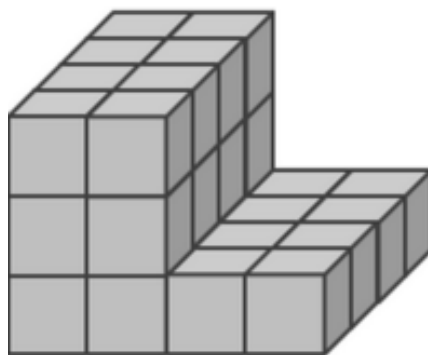
Phillis also broke this solid into two rectangular prisms, but she did it differently than John. She found the volume of the solid below using this expression: (2 x 4 x 3) + (2 x 4 x 1).

Decompose the figure into two rectangular prisms and shade them in different colors to show one way Phillis might have thought about it.
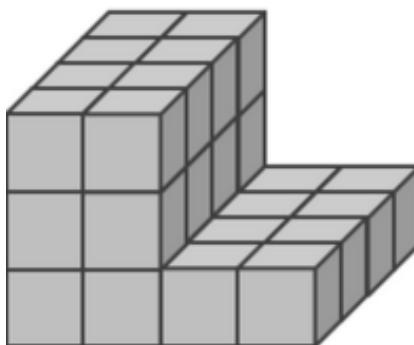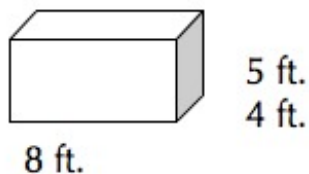
Cari's Aquarium

Cari is the lead architect for the city's new aquarium. All of the tanks in the aquarium will be rectangular prisms where the side lengths are whole numbers.

a. Cari's first tank is 4 feet wide, 8 feet long and 5 feet high. How many cubic feet of water can her tank hold?

b. Cari knows that a certain species of fish needs at least 240 cubic feet of water in their tank. Create 3 separate tanks that hold exactly 240 cubic feet of water. (*Ex: She could design a tank that is 10 feet wide, 4 feet long and 6 feet in height*.)

c. In the back of the aquarium, Cari realizes that the ceiling is only 10 feet high. She needs to create a tank that can hold exactly 100 cubic feet of water. Name one way that she could build a tank that is not taller than 10 feet.