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UNIT 9 LESSON 8

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| AIM: | SWBAT measure surface area and volume |

**THINK ABOUT IT!**

Carrie is going to use the box below to wrap her mom’s present.

6 in.

12 in.

4 in.

1. How many square inches of wrapping paper will she need to wrap the box, assuming there is no overlap of the wrapping paper?
2. What is the capacity of the box in cubic inches?

* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

Key Point

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| --- |
| When covering a 3D figure, we are finding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When filling or finding the capacity of a 3D figure, we are finding \_\_\_\_\_\_\_\_\_\_\_\_\_\_. |

**Interaction with New Material**

*Ex. 1)* The figure below is a model of a tent. All of the triangles that make up this tent are congruent.

6 ft.

3.5 ft.

* + - * + Mr. Kaczorek wants to make the tent. If the cloth he needs cost $2.99 per square foot, how much will it cost him to make?
* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written
    - * + When folded, the tent takes up 2 cubic feet of space. Mr. Kaczorek has a 3’ by 0.75’ by 0.75’ box. Will the folded up tent fit in the box?
* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

**PARTNER PRACTICE**

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| *Bachelor Level* |

1. The figure below is a Tupperware container. What is the capacity of the container?

* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

6 cm

12 cm

4 cm

What concept did you apply to solve the problem above? Why?

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| *Master Level* |

The figure below is a model for a new building. The architect needs to paint the model gray. He went to Home Depot and found gray paint for $3.75 per can. Each can cover 50 square inches.

24 in

16 in

10 in

12 in

1. How many cans of paint does he need to buy?
2. How much will it cost?

**INDEPENDENT PRACTICE**

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| *Bachelor Level* |

1. The figure below is a cake in the shape of a pyramid. Elise wants to cover the entire cake with chocolate icing. How many square centimeters will she cover with icing?

* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

30cm

12cm

14cm

16cm

1. The figure below represents a slide at the park. The park staff wants to paint the entire slide blue. How many square feet will they paint blue?

* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

14 ft.

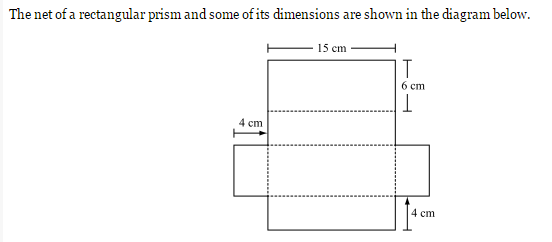
8 ft.

8 ft.

11.3 ft.

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| *Master Level* |

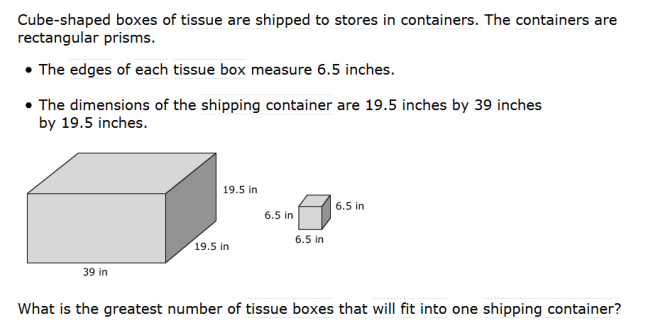
1. The net of a rectangular prism below represents the exact amount of wrapping paper needed to cover a gift box.



* 1. How much wrapping paper will be used to cover the box?

* 1. Based on the net of the prism, what is the box’s capacity?

1. Cube-shaped boxes of tissue are shipped to stores in containers. The containers are rectangular prisms.
   * The edges of each tissue box measure 6.5 inches.
   * The dimensions of the shipping container are 19.5 inches by 39 inches.



What is the greatest number of tissue boxes that will fit into one shipping container?

1. Explain when you would apply surface area to solve a problem instead of applying volume.

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| *PhD Level* |

1. A treasure chest has a length of 6 ft., a width of 2 ft., and a height of 1 ft.
2. The treasure chest is full of gold bars. Each gold bar has a length of 9 in., a width of 2 in., and a height of 1 in, and is valued at $500. How much are all the gold bars that are in the treasure chest worth?
3. The same chest needs to be repainted. How much will it cost to repaint the chest if each can of paint is $2.50 and each can of paint can cover 24 ft2?

10.5 ft

* **CFS for top quality work**
  + Problem is annotated
  + Model is drawn and labeled
  + All calculations are shown
  + Answer statement is written

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there. | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there. | You need more practice and feedback. |

1. Kelly has a fish aquarium, shown below. What is the maximum amount of water that she could put in the aquarium?

6 in.

18in.

2.5 in.

1. If Kelly wanted to put a protective covering on all six walls of the aquarium, how big does the cover have to be, in square inches?
2. What concept did you apply to solve problem 1? Why? What concept did you apply to solve problem 2? Why?

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