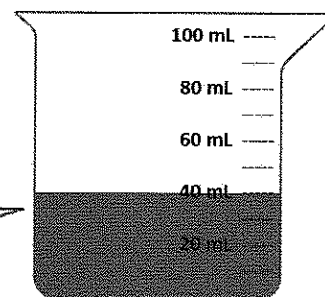## G5-M5-Lesson 5

1. Kevin filled a container with 40 centimeter cubes. Shade the beaker to show how much water the container will hold. Explain how you know.

    It will hold 40 milliliters of water. I know that $1 \text{ cm}^3 = 1 \text{ mL}$.
    Therefore, 40 cm^3 is equal to 40 mL.

    > I know $1 \text{ cm}^3 = 1 \text{ mL}$, so $40 \text{ cm}^3 = 40 \text{ mL}$.
    > I will shade the water level to 40 milliliters.

    100 mL ----
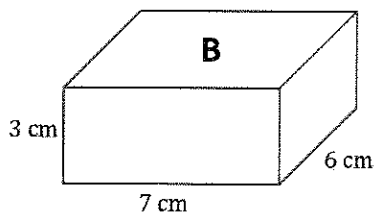   80 mL ----
    60 mL ----
    40 mL

2. A beaker contains 200 mL of water. Joe wants to pour the water into a container that will hold the water. Which of the containers pictured below could he use? Explain your choices.
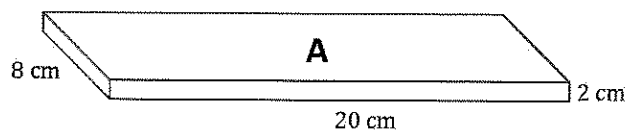
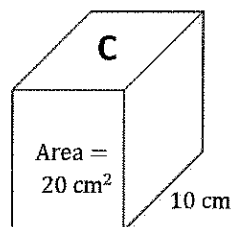   > I will find the volume of container A. It is 320 cm^3.

    A
    8 cm
    20 cm
    2 cm

    $$V_A = 20 \text{ cm} \times 8 \text{ cm} \times 2 \text{ cm}$$
    $$= 320 \text{ cm}^3$$

    > Since $320 \text{ cm}^3 = 320 \text{ mL}$, this container can hold 200 mL of water.

    B
    3 cm
    7 cm
    6 cm

    $$V_B = 7 \text{ cm} \times 6 \text{ cm} \times 3 \text{ cm}$$
    $$= 126 \text{ cm}^3$$

    > Since $126 \text{ cm}^3 = 126 \text{ mL}$, this container cannot hold 200 mL of water.

EUREKA MATH   Lesson 5:   Use multiplication to connect volume as *packing* with volume as *filling*.   9

> I can find the volume of container C by multiplying the area of the front face by the width.

C

Area = $20\ \text{cm}^2$

$10\ \text{cm}$

$$V_C = 20\ \text{cm}^2 \times 10\ \text{cm}$$
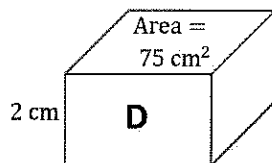$$ = 200\ \text{cm}^3$$

> Since $200\ \text{cm}^3 = 200\ \text{mL}$, this container can hold $200\ \text{mL}$ of water.

> I can find the volume of container D by multiplying the area of the top face by the height.

Area = $75\ \text{cm}^2$

$2\ \text{cm}$ **D**

$$V_D = 75\ \text{cm}^2 \times 2\ \text{cm}$$
$$ = 150\ \text{cm}^3$$

> Since $150\ \text{cm}^3 = 150\ \text{mL}$, this container will not be able to hold $200\ \text{mL}$ of water.

Joe will be able to use container A because the volume is $320\ \text{cm}^3$. He will also be able to use container C because the volume is $200\ \text{cm}^3$. He will not be able to use containers B and D because they are too small.

Lesson 5:   Use multiplication to connect volume as *packing* with volume as *filling*.

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