

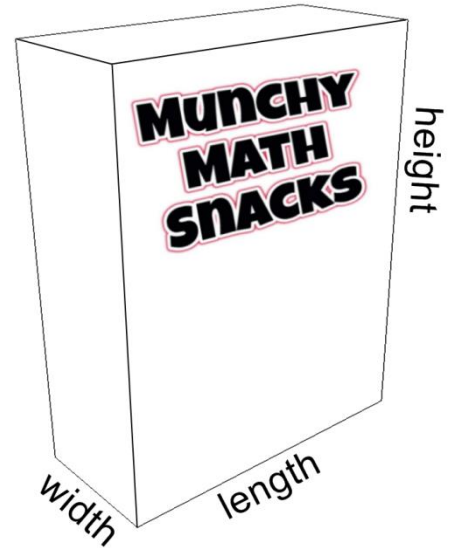
VOLUME OF MUNCHY MATH SNACKS

You have been hired to design 3 different boxes for a new brand of food. You can choose the type of food, as long as it is sold in a box.

Ideas include: granola bars, crackers, cookies, popcorn, fruit snacks, cereal, & frozen foods.

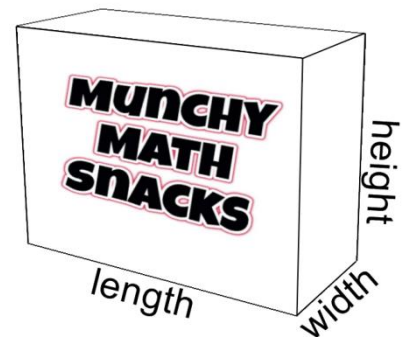
Design each of the following:

- A regular size box
- A mini-size box, which is $\frac{1}{2}$ as tall, $\frac{3}{4}$ as wide, and $\frac{1}{2}$ as long as the regular size.
- A large value size box, which is $1\frac{1}{2}$ times as tall, $1\frac{1}{2}$ times as wide, and $1\frac{1}{4}$ times as long as the regular size.



On a separate piece of paper:

- Draw each box.
- Label each box regular, mini, or large.
- Label the dimensions.
- Also label the volume of each box.
- If you finish early, add artwork to the boxes.



Example:

Regular size dimensions:

$$\begin{array}{ccc}
 h = 9 & w = 2\frac{1}{2} & l = 6 \\
 \times \frac{1}{2} & \times \frac{3}{4} & \times \frac{1}{2}
 \end{array}$$

Mini size dimensions:

$$\begin{array}{ccc}
 h = 4\frac{1}{2} & w = 1\frac{7}{8} & l = 3
 \end{array}$$

EXTENSION ACTIVITIES

- Use a ruler to measure the dimensions of an actual box of food that you have in your house. Record the dimensions and calculate the volume. What would the dimensions and volume be if you created a larger size box, using the same multipliers listed on the front of this paper? What would the dimensions and volume be for a mini box?
- Use a ruler to measure the dimensions of 2 boxes of food that you have in your house. Record the dimensions and calculate the volume of each box. Which item had the larger volume? By how many cubic inches/centimeters?
- Use construction paper or cardboard to actually build the regular, mini, and large size boxes that you designed! Decorate the boxes and record the volume of each box.
- Decide on the price you would charge for one regular size box that you designed. Record this price. Now calculate the unit rate for 1 cubic inch/centimeter of your food. Repeat these steps for the mini and large boxes. Which box costs the least per cubic unit? Which box costs the most per cubic unit?
- Calculate the surface area of the regular size box that you designed. Describe the difference between surface area and volume.

