

BOX IT UP Research on Sample Packages

Read the *Box It Up* scenarios online and select a scenario.

Scenario: _____ Volume Needed: _____

Find sample packages that have volumes similar to the package you must design. Measure the dimensions of at least four packages with similar volumes, and use the data to complete the table below. Record all measurements and results in units that match those given in the scenario. Provide at least four sample packages.

Sample Package Product	Package Length	Package Width	Package Height	Package Volume

Determine at least three different sets of measurements that will produce a rectangular prism with the volume that your client requests.

Length	Width	Height	Volume

Use the information from your tables to answer the following questions.

1. How does the volume change if you increase only the height, width, or length of the container? What happens if you manipulate two dimensions at the same time? How can you manipulate all three dimensions in any combination and still stay within the requested volume range?
2. How can you keep the volume consistent if you decide to change a dimension of the container?
3. How are the numbers that represent the dimensions of the rectangular prism related to the volume?
4. Write a paragraph that summarizes your findings. Use mathematical vocabulary to explain the relationship between the height, width, and length measurements of a rectangular prism and its volume. Discuss the effect of changing one measurement on the volume of the rectangular prism, and describe how to change the measurements and maintain the same volume.