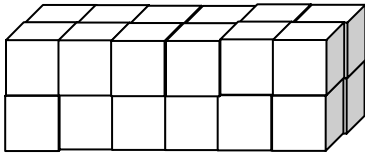


Surface Area and Volume

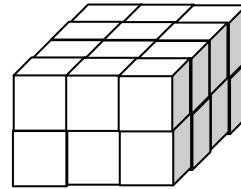
- The **SURFACE AREA** of a three-dimensional figure is equal to the sum (in square units) of the areas of all of its faces.
- The **VOLUME** of a three-dimensional figure is equal to the amount of space (in cubic units) contained inside it.

Use your set of multi-link cubes to build the two three-dimensional figures pictured below:

2 by 2 by 6 rectangular prism



2 by 3 by 4 rectangular prism



[1] Define **surface area** in terms of the multi-link cubes. How could we use them to find it?

[2] Find the **surface area** of each prism above. Show all work to support your answer.

[2a]

[2b]

[3] Define **volume** in terms of the multi-link cubes. How could we use them to find it?

[4] Find the **volume** of each prism above. Show all work to support your answer.

[4a]

[4b]

Use your set of multi-link cubes to build a rectangular prism that has a volume of 48 cubes:

[5] Determine the **surface area** of the rectangular prism you built. Show all work that you did to arrive at your answer in the space below.

[6] One way to compare the surface area to the volume is to look at their **ratio**. Determine this ratio (as a decimal rounded to the nearest hundredth) for the figure you built:

[7] Try to rebuild your rectangular prism to **reduce the surface area** while maintaining the same volume. Show all work that you did to arrive at your answer in the space below, including the ratio of its' surface area to volume.

[8] Describe what you did to your original rectangular prism to get the ratio of surface area to volume lowered. What **conclusions** can you make about how reducing this ratio affects the shape of a rectangular prism?