

# Volume of a Rectangular Prism

Volume can be defined as the amount of space occupied by an object.

- How would I describe and measure the space occupied by the object shown here?



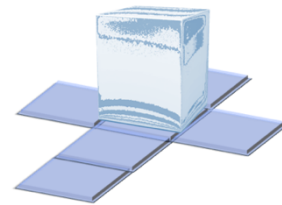
A 3-dimensional container is filled with water.



Next, the water inside the container is frozen.



The container is then unfolded to reveal a block of ice inside.



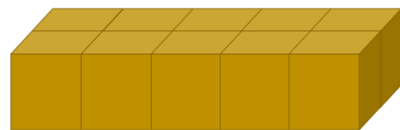
- How could I use the images to compare *volume* to *surface area*?

Volume can be described as the amount of 3-dimensional space inside an object.

- How would I describe and measure the amount of 3-dimensional space inside this shipping box?



- How would I explain cubic units?

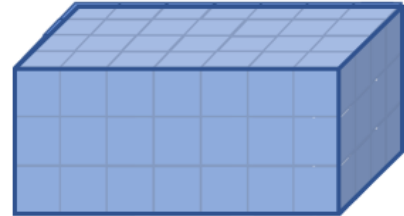


- How would I illustrate using cubic units to determine the volume of this rectangular prism?

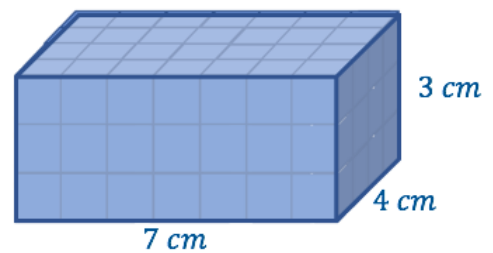


If each unit cube used to fill the rectangular prism was a centimetre cube...

- How would I use the centimetre cubes to determine the dimensions of the prism?

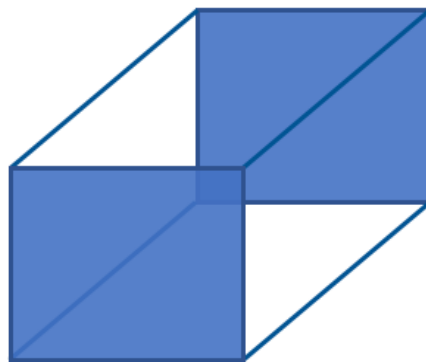


- How does my illustration using cubic units allow me to develop a formula for calculating volume?



I could also describe calculating volume as...

*Calculating a 2-D area, then extending that area along the length of a 3-D prism.*



- How would I demonstrate this approach for calculating the volume of my rectangular prism?

# Volume of a Rectangular Prism

Which statements do I feel confident explaining and demonstrating?

Which statements do I not feel confident explaining and demonstrating?

- ✓ I can explain and illustrate why volume is a three-dimensional quantity
- ✓ I can compare volume to the two-dimensional quantity surface area
- ✓ I can explain and illustrate a cubic unit
- ✓ I can explain how cubic units are used to determine the volume of a 3-dimensional object
- ✓ I can illustrate how I use cubic units to determine the dimensions of a 3-dimensional object
- ✓ I can explain how volume is calculated using the dimensions of a 3-dimensional object
- ✓ I can explain and illustrate how volume is calculated by extending the area of a 2-D shape along the length of a 3-D prism