

Dear Family,

Your child is learning about volume.

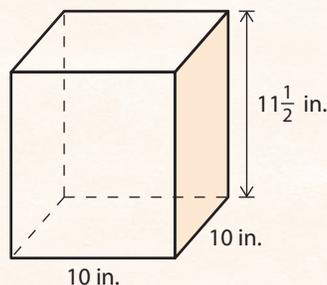


Your child has already learned about volume as the amount of space inside a solid figure. He or she has counted cubes or used a formula to find the volume of rectangular prisms. Now your child is going to find the volume of rectangular prisms whose edges have fractional measurements.

You can use the volume formula to find the volume of the prism at the right. The length is 10 inches, the width is 10 inches, and the height is $11\frac{1}{2}$ inches.

Volume = length \times width \times height

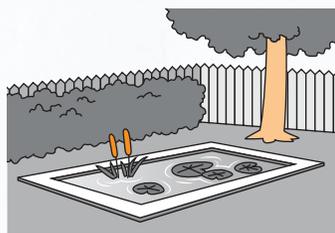
$$\begin{aligned} V &= \ell \times w \times h \\ &= 10 \times 10 \times 11\frac{1}{2} \\ &= 1,150 \end{aligned}$$



The volume of the rectangular prism is 1,150 cubic inches.

Consider the following example:

Marissa has a rectangular fish pond in her yard. The pond is 6 feet long, 3 feet wide, and 2 feet deep. Marissa fills the pond so that the water is $1\frac{1}{2}$ feet deep. What is the volume of the water in the fish pond?



On the next page you will see two ways your child may find the volume of water in the fish pond.



Volume: Sample Solution

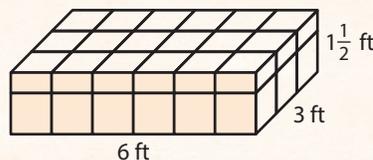


Marissa fills a rectangular fish pond with water to a depth of $1\frac{1}{2}$ feet. The pond is 6 feet long and 3 feet wide. What is the volume of water in the fish pond.

One way:

Model the volume of water in the pond with 1-foot unit cubes.

You can think of the water in the pond as a rectangular prism. Fill the prism with 1-foot unit cubes.



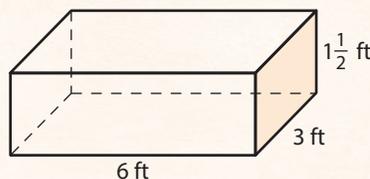
Each cube on the top layer is half the height of a 1-foot unit cube.

The bottom layer has 18 cubes. The top layer has 18 half cubes, or 9 whole cubes. The prism has $18 + 9 = 27$ one-foot unit cubes, so it has a volume of 27 cubic feet.

Another way:

Make a sketch of the water in the pond and label it with the information in the problem.

Use the volume formula to find the volume of the rectangular prism.



$$\begin{aligned} V &= \ell \times w \times h \\ &= 6 \times 3 \times 1\frac{1}{2} \\ &= 18 \times 1\frac{1}{2} \\ &= 27 \end{aligned}$$

The volume of the rectangular prism is 27 cubic feet.

Answer: Both methods show that the volume of the rectangular prism is 27 cubic feet, which means that there is 27 cubic feet of water in Marissa's fish pond.

