Tools and Topics

Inspiring Connections Course 3, Chapter 9

Spotlight On: Language

How many languages are spoken in your student's household? Do you ever discuss what your student is learning at school in multiple languages? There is research to show that activating a student's full linguistic repertoire, including nonverbal forms of communication, has benefits across school subjects, including math. For students who know multiple languages, it can be helpful to think about vocabulary words and their representations in other languages in addition to English.

The Big Picture

Growing From

Exponents;
Cross sections;
Volume;
Surface area

Working On

Scientific notation;
Volume

Growing To

Operations with exponents;
Volume formulas

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

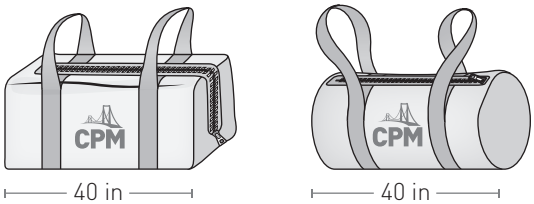
9.1.3: Volume of a Cylinder
9.1.5: Volume of a Pyramid and a Cone
9.2.1: Volume of a Sphere
9.2.3: Scientific Notation

Current Topics

In previous courses, students calculated the volumes and surface areas of prisms using the lengths of the sides. In this course, students use cube roots to reverse the process and determine the side lengths of cubes when they are given the volume, and they continue their investigations of the volume of solids from Chapter 8. Lastly, students work with scientific notation.

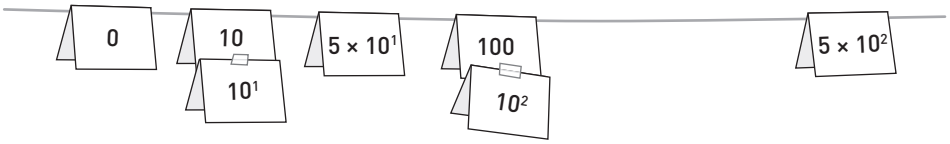
Volume (Section 9.1)

Throughout this section, students compare the volumes of everyday objects and generalize formulas for calculating the volume of cylinders, pyramids, cones, and spheres. This will prepare them for future work in high school when they will explain these volume formulas.



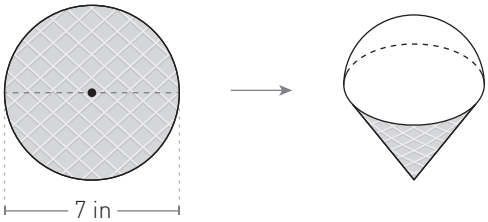
Scientific Notation (Section 9.2)

In this section, students explore scientific notation. Using number lines, students make sense of and compare very large and very small numbers written in both decimal and scientific notation. The last lesson of this section transitions from concrete, real-world scenarios that require operating with numbers written in scientific notation to abstract representations through Dakabibi puzzles.



Applications of Volume (Section 9.3)

The chapter concludes with students using multiple representations to explore whether various volume functions have linear or nonlinear relationships. Then, students work to maximize the volumes of cones, compare the sector angles and volumes using scatter plots, and estimate the dimensions of a closet provided with various irregularly shaped objects.



Try This at Home!

With your student, find containers around the house that look to be different sizes and compare their volumes. You could do this by filling each container with water or rice and comparing the amounts they hold. Then, discuss how the volume changes when different aspects, such as the height or width of an object, change.