

Area and Volume

Has your child ever dreamed of exploring space? By observing, measuring, and recording the amount of space everyday objects take up, he can do just that! True, it may not be what he had in mind, but this activity will give him hands-on practice with important geometry concepts he's learning about in school, and he won't have to pick up a textbook.

What You Need:

- Ruler or tape measure
- Pencil
- Paper
- Calculator (optional)



Simply stated, area and volume is all about space. Area is the amount of space taken up by 2-dimensional closed figures, while volume is the amount of space occupied by 3-dimensional objects. Below are the area and volume formulas for the basic shapes in geometry. They may look intimidating to your child, but with a little practice, these formulas will be a piece of cake.

Area Formulas

Square	side^2
Rectangle	$\text{length} \times \text{width}$
Parallelogram	$\text{base} \times \text{height}$
Triangle	$\text{base} \times \text{height} / 2$
Trapezoid	$\text{height} \times (\text{base1} + \text{base2}) / 2$
Circle	$\pi \times \text{radius}^2$ **

Volume Formulas

Cube	side^3
Rectangular Prism	$\text{side1} \times \text{side2} \times \text{side3}$
Sphere	$(4/3) \times \pi \times \text{radius}^3$
Cylinder	$\pi \times \text{radius}^2 \times \text{height}$

Cone	$(1/3) \times \pi \times \text{radius}^2 \times \text{height} *$
Pyramid	$(1/3) \times (\text{base area}) \times \text{height}$

* $\pi=3.14$

**radius=the distance from the center of the circle to the outside edge

What You Do:

1. Have your child make a list of objects around the house that he can use for finding area and volume. Encourage him to try to find at least one example of each shape. For example, a sheet of paper is an example of a rectangle, a stop sign is an octagon, a refrigerator is a rectangular prism, a soda can is a cylinder, a soccer ball is a sphere, etc.
2. Give him a ruler or tape measure to measure the objects' dimensions, rounding each measurement to the nearest inch.
3. Then have him use the formulas above to find the area and volume of each object. He can use paper and pencil to calculate his answers, or you may allow the use of a calculator, depending upon your child's familiarity with these types of equations.

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