



Volume with fractional edges

Filling a box, not covering it

- Today: find the volume of a rectangular prism, fractions included.

A cube with edges of $\frac{1}{2}$

- What is its volume?

Turn & talk: bigger or smaller than 1 cubic unit?

$$V = l \times w \times h$$

- Volume fills three directions, so you multiply three lengths.
- That is why the unit is CUBIC.

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$$

- Smaller than a unit cube, so the volume is under 1.

Eight of these half-cubes fill one unit cube.

Packing = multiplying

- A $1\frac{1}{2} \times 1\frac{1}{2} \times 2$ box holds $3 \times 3 \times 4 = 36$ half-cubes.
- $36 \times \frac{1}{8} = 4\frac{1}{2}$ cubic units — the same as $\frac{3}{2} \times \frac{3}{2} \times 2$.

36 is a COUNT. $4\frac{1}{2}$ is the MEASURE.

Your turn

- Prism $2\frac{1}{2}$ by 3 by 2. Volume?
- Thumbs up when you have it.

Volume vs surface area

- Volume fills the inside → cubic units.
- Surface area covers the outside → square units.

Check your units before you write the answer.

Now you

- → In-class practice sheet