



GRADE 5 · MEASUREMENT & DATA · PRACTICE

VOLUME BY MULTIPLICATION

Today's goal: I can relate volume to multiplication and addition; solve real-world problems.

Pick your peppers!

Everyone does Mild & Medium. Then climb as high as you can.



Mild

Tan the Turtle



Medium

Digit the Fox



Spicy

Blaze the Dragon



Extra Spicy

Pi the Owl

WATCH MR DJ SOLVE

Find the volume of a $6 \times 4 \times 5$ prism.

- 1 $6 \times 4 = 24$ in the base layer.
- 2 5 layers, so 120 cubic units.
- 3 Worth noticing this base equals the WHOLE volume of item 1 — the numbers grow fast.

Answer: 120 cubic units



REMEMBER $l \times w$ is the area of the base; h is the number of layers. They multiply because every layer holds the same. Composite solids: split into non-overlapping prisms and add.



MILD

Tan the Turtle: Slow and steady. Warm up!

- 1 Find the volume of a $4 \times 3 \times 2$ prism.

Answer

- 2 Find the volume of a $5 \times 2 \times 3$ prism.

Answer

**OOPS ALERT**

Careful on #1! The slip Mr DJ sees most: Answered 9 — the dimensions added. 9 is smaller than one layer of this solid, which is the quickest way to see it.

**MEDIUM****Digit the Fox:** Stretch your brain.

- 3 For the $4 \times 3 \times 2$ prism, work out the volume three times, using a different face as the base each time.

Answer

- 4 A prism has a 5×4 base and volume 60 cubic units. How many layers high is it?

Answer

- 5 A prism has volume 72 and height 3. Give three different bases it could have.

Answer

- 6 A $4 \times 3 \times 2$ block has a $2 \times 3 \times 2$ block joined to one end. Find the total volume.

Answer

- 7 A fish tank is 40 cm by 25 cm by 30 cm. How many cubic centimetres of water does it hold when full?

Answer



SPICY

Blaze the Dragon: Bring the heat!

- 8 A $3 \times 3 \times 3$ block sits on a $3 \times 3 \times 1$ slab. Find the total volume, and explain why you must not count the join twice.

Answer

- 9 Explain why the three dimensions are multiplied and not added, using layers.

Answer



EXTRA SPICY

Pi the Owl: Big-brain challenge.

- 10** Why does the standard include solids made of TWO prisms? What does that question test that a single box does not?

Answer



How did this sheet feel?



Easy for me



Just right



Made me think

Stuck? Watch Mr DJ explain it

Step-by-step video lessons on YouTube: [youtube.com/
@MathWithMrDJ](https://www.youtube.com/@MathWithMrDJ)

Brain break: daily puzzles

Three new math puzzles every day, free:
puzzles.mathwithmrdj.com