



MATH WITH MR DJ

GRADE 7 • GEOMETRY

VOLUME OF COMPOSITE SOLIDS

Today's goal: I can determine the volume of three-dimensional objects composed of cubes and right prisms in mathematical problems.



Tan



Digit



Blaze



Pi



A triangular prism

- 1 Triangular base: base 4, height 3. Prism length 10.

TURN & TALK

is the volume 60 or 120?



WATCH OUT!

B is an AREA, not a length

- 1 Find the base area first: $(4 \times 3) \div 2 = 6$ square units.
- 2 Then $V = Bh = 6 \times 10 = 60$ cubic units.



WATCH OUT!

Why 120 is wrong

- 1 $4 \times 3 \times 10$ treats the base as a RECTANGLE.
- 2 The triangular base is half that, so the volume is half.

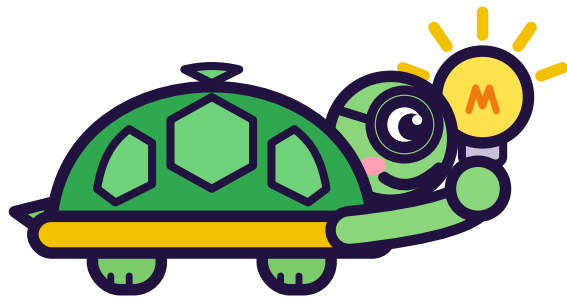
DON'T FALL FOR IT

Exactly double the right answer? A halving was missed.



Composite solids: add the pieces

- 1 Split into prisms $\rightarrow$ find each volume $\rightarrow$ add.
- 2 Same footprint stacked? You can also treat it as one taller prism.



BIG IDEA 2

Holes SUBTRACT

1 $6 \times 4 \times 5$ box = 120. A $2 \times 2 \times 5$ hole = 20.

2 Remaining: $120 - 20 = 100$ cubic units.

REMEMBER

An answer bigger than the whole solid is impossible. Check before you compute.



SPOT THE SLIP!

Turn & talk

Digit found a slip...

THE PROBLEM

Find the volume of a box 6 by 3 by 4.

WHAT A STUDENT DID

Used square units.

YOUR MISSION

What went wrong? What's the right answer?



Find the volume of a box 6 by 3 by 4.

1 $6 \times 3 \times 4 = 72.$

Answer: 72 cubic units



YOUR TURN

Whiteboards up!

Pick your pepper!



🌶️ MILD

Find the volume of a box 6 by 3 by 2.

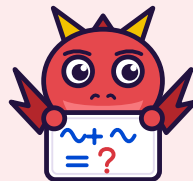
#1 on your practice sheet



🌶️🌶️ MEDIUM

Those two boxes are stacked, matching 6 by 3 faces. Find the total volume.

#2 on your practice sheet



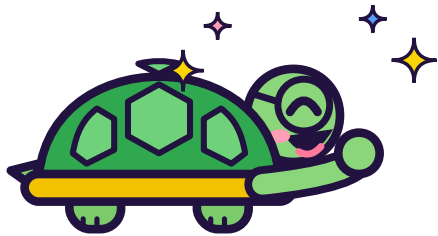
🌶️🌶️🌶️ SPICY

Find the volume of a single box 6 by 3 by 6. What do you notice?

#6 on your practice sheet



How's it going?



3 • Got it!

I could teach it



2 • Almost

One more example, please



1 • Not yet

I need some help



MATH WITH MR DJ

NOW YOU!

Practice sheet: everyone does Mild & Medium, then climb the peppers.

Stuck? Look back at Mr DJ's example at the top of the sheet.

Need it again? Step-by-step videos on YouTube @MathWithMrDJ

Brain break: 3 new daily puzzles at puzzles.mathwithmrdj.com

