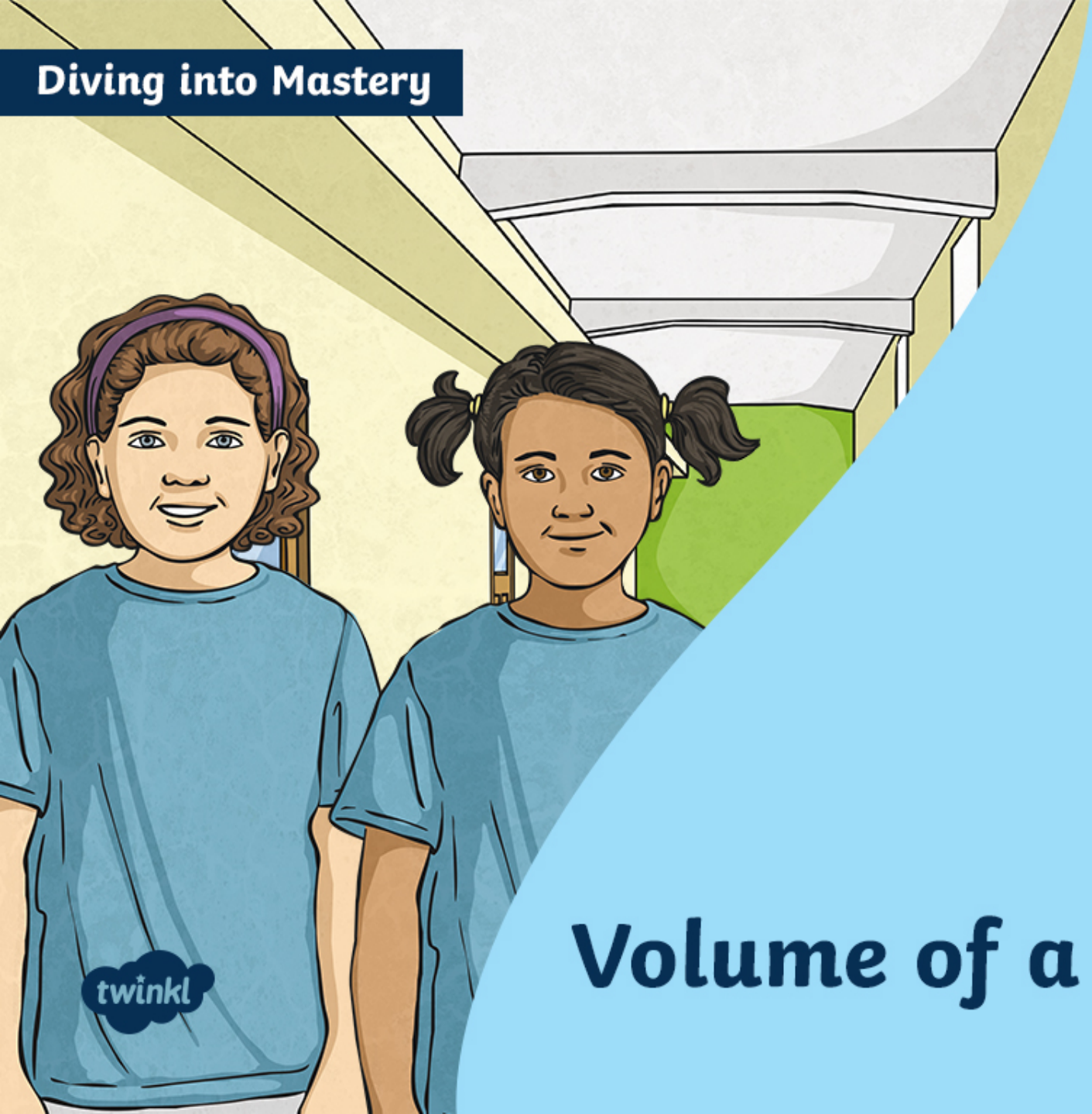
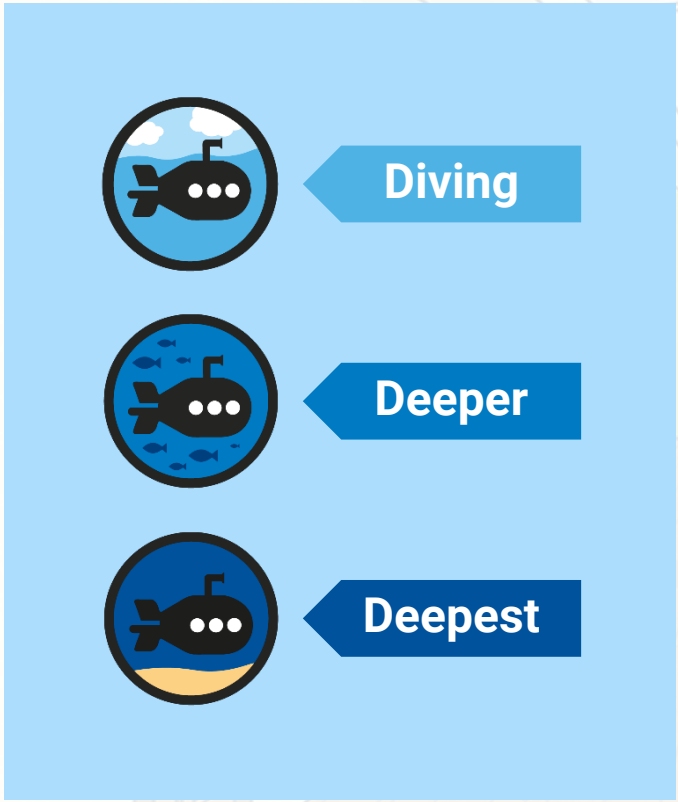
Diving into Mastery



Volume of a Cuboid

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

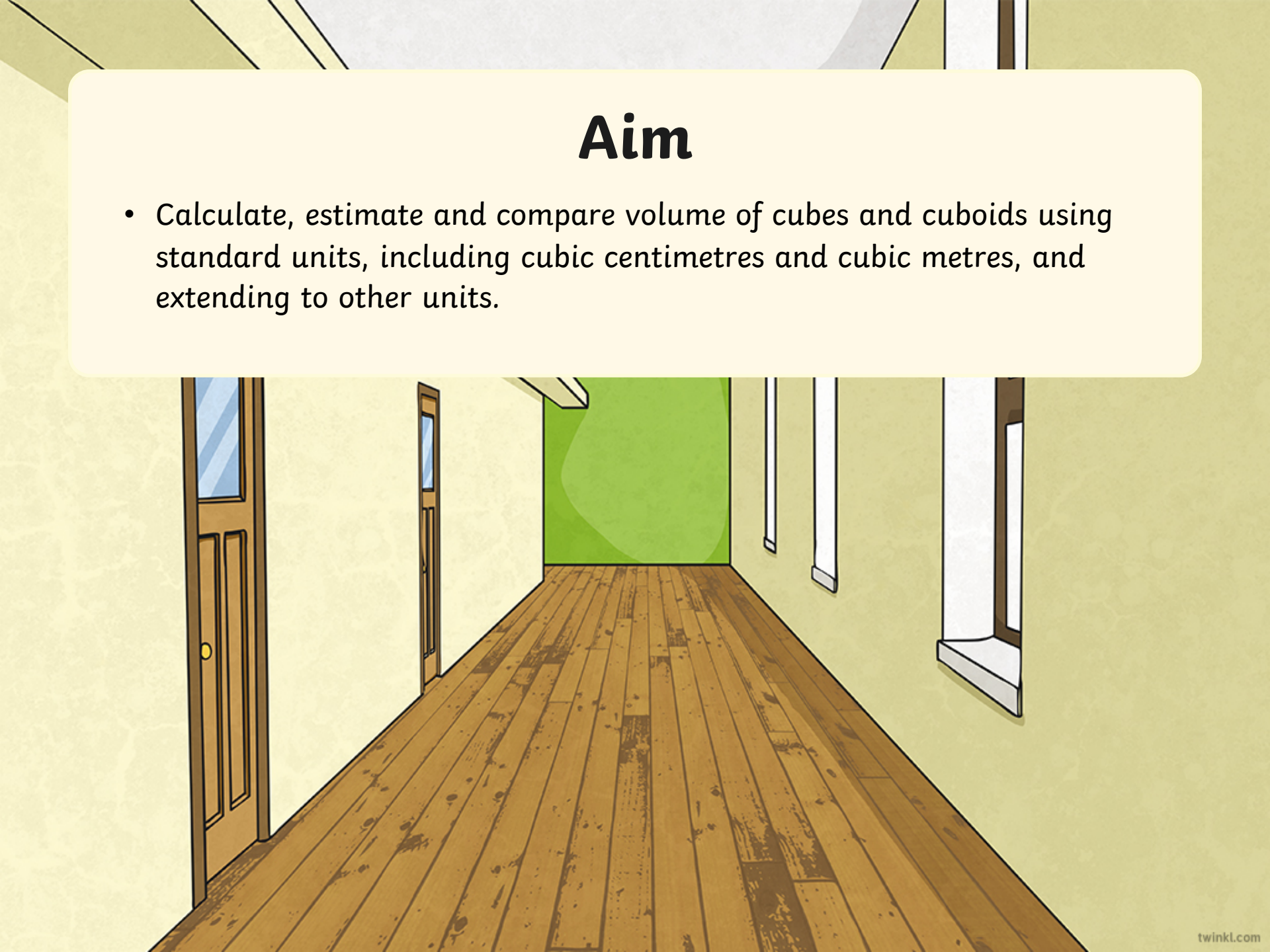


These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units.

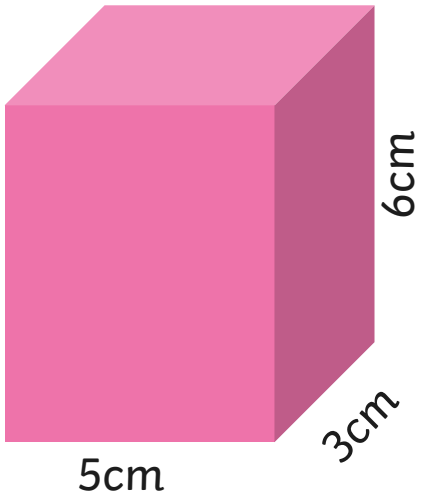


Volume of a Cuboid | **Diving**

Use the formula length × width × height to calculate the volume of a cuboid.

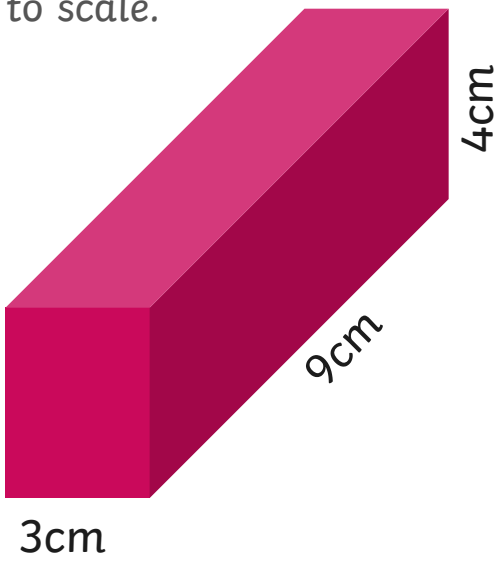
Calculate the volume for each of these cuboids.

Not drawn to scale.



5 × 3 × 6 = 90 cm^3

Not drawn to scale.



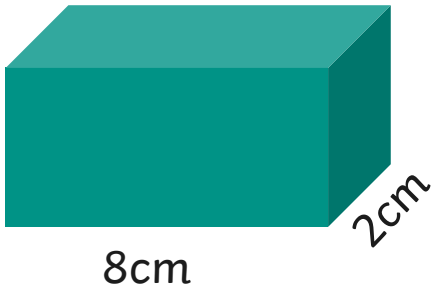
3 × 9 × 4 = 108 cm^3

Volume of a Cuboid | **Diving**

Use the formula length × width × height to calculate the volume of a cuboid.

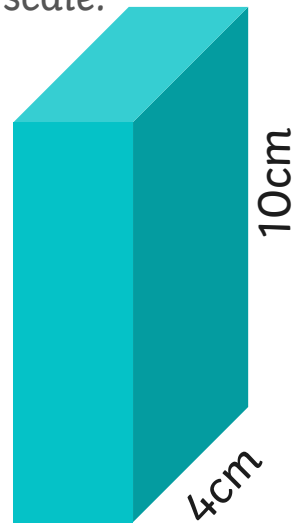
Calculate the missing values for each of these cuboids

Not drawn to scale.



$8 \times 2 \times \boxed{4} = 64\,cm^3$

Not drawn to scale.



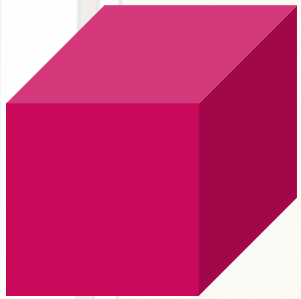
$\boxed{3} \times 4 \times 10 = 120\,cm^3$

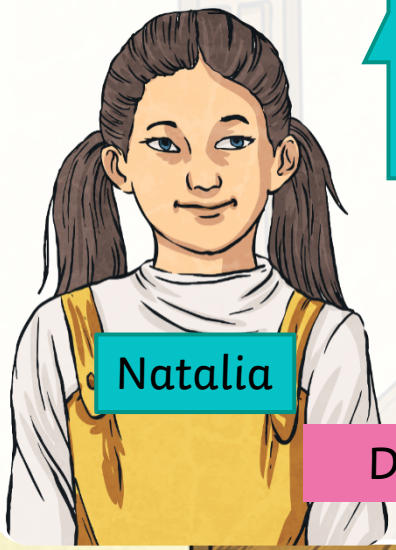
Volume of a Cuboid | **Deeper**

Use the formula length × width × height to calculate the volume of a cuboid.

Lily is correct. If all of Natalia's side measurements were odd numbers then the answers cannot be an even number. This is because an odd number × odd number × odd number = an odd number.
For example:
$3 \times 5 \times 3 = 45cm^3$

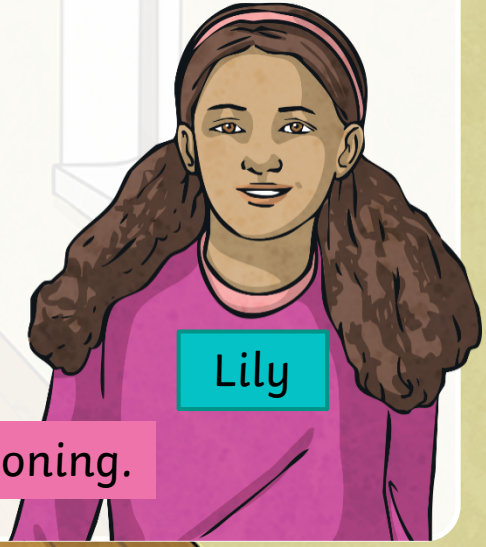
Not drawn to scale.





All of the sides are odd numbers. I calculated that the volume of my shape was $26cm^3$.

If all of the sides were odd numbers, I don't think Natalia's answer can be correct.



Do you agree with Lily? Explain your reasoning.

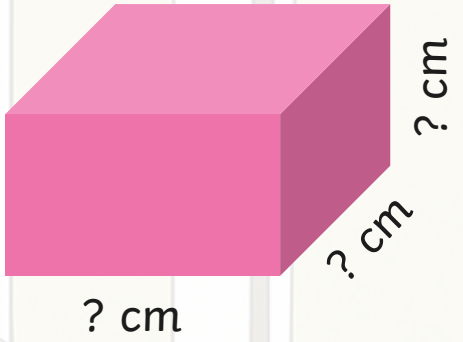
Volume of a Cuboid | **Deepest**

Use the formula length × width × height to calculate the volume of a cuboid.

A cuboid has sides that are whole numbers. No side is smaller than 3cm or longer than 10cm. It has a volume between 80cm^3 and 85cm^3.

Give the possible dimensions for the cuboid.

Find two more different sets of answers. (Rearranging the order of the measurements is not accepted as a different answer.)



Possible answers:

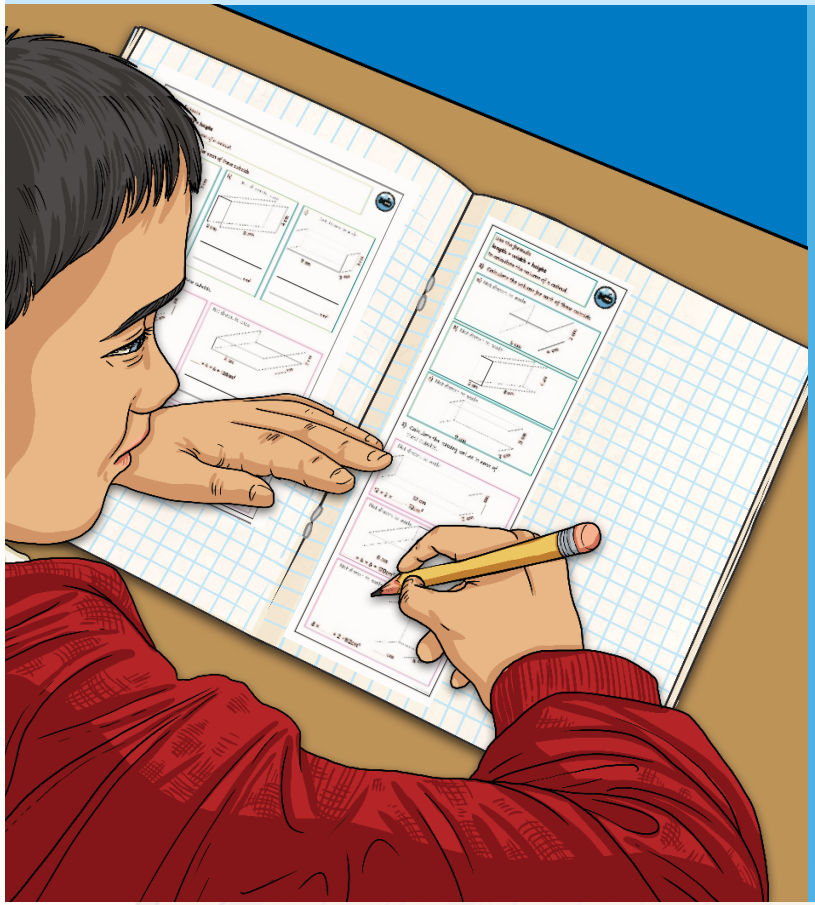
length = 3cm
width = 4cm
height = 7cm
3 × 4 × 7 = 84cm^3
volume = 84cm^3

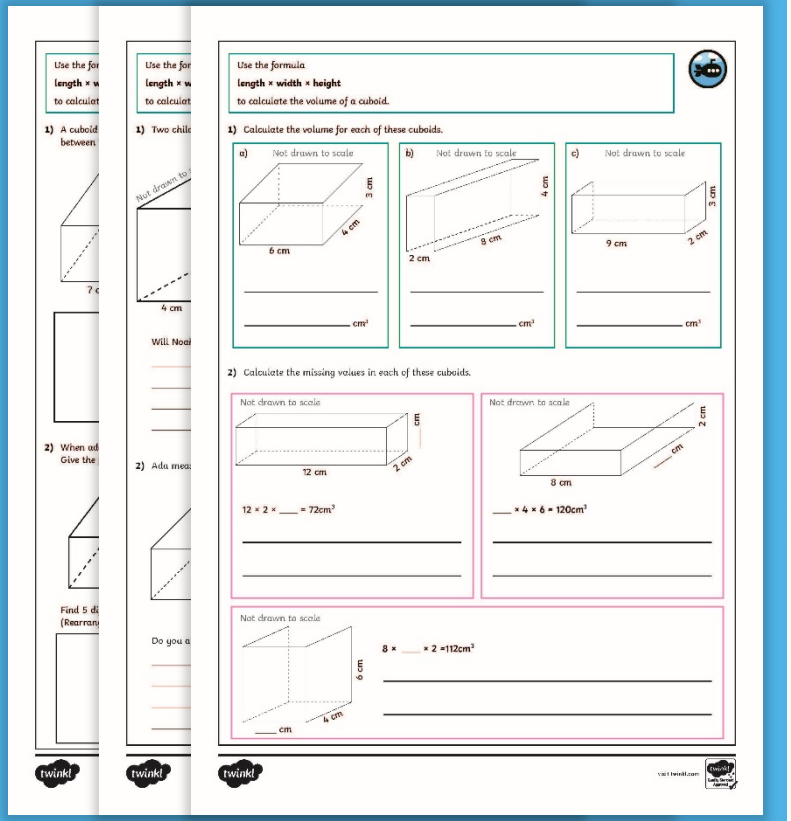
length = 3cm
width = 3cm
height = 9cm
3 × 3 × 9 = 81cm^3
volume = 81cm^3

length = 4cm
width = 5cm
height = 4cm
4 × 4 × 5 = 80cm^3
volume = 80cm^3

Volume of a Cuboid

Dive in by completing your own activity!



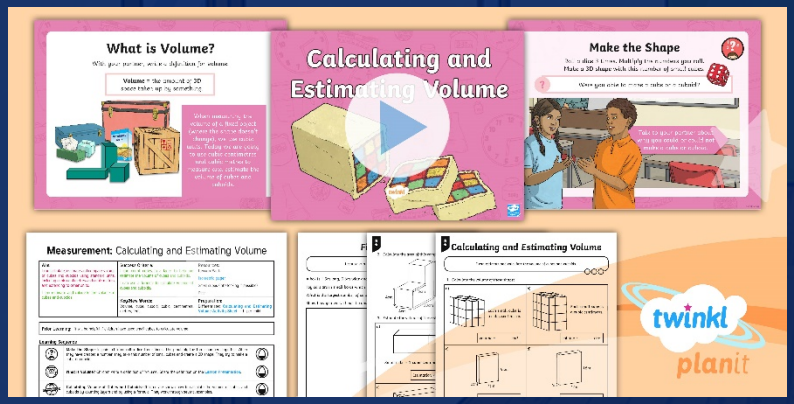


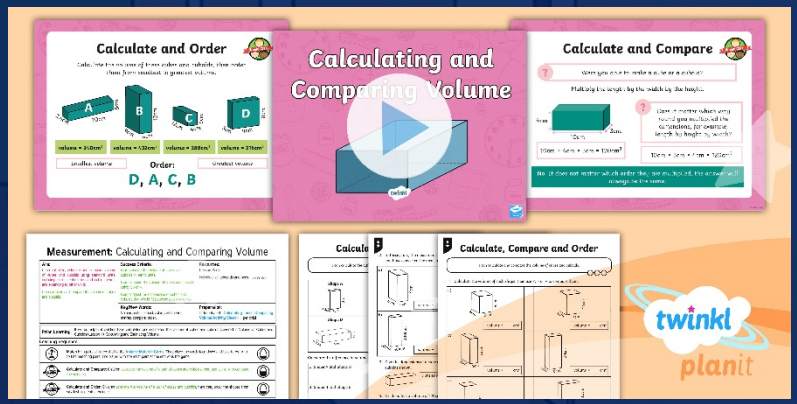
Need Planning to Complement this Resource?

National Curriculum Aim

Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units

For more planning resources to support this aim, [click here](#).





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