

[MATHS PROBLEM]

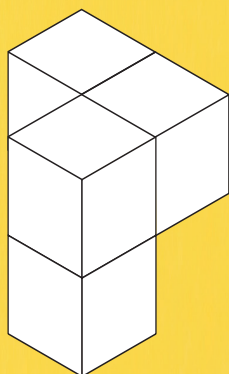
PENTACUBES

Students often find it difficult to match up an isometric drawing with its corresponding plan and elevations, says **Colin Foster**

In this lesson, students consider the possible plans and elevations corresponding to different pentacubes

THE DIFFICULTY

Look at this drawing.



How many cubes can you see?
What would it look like from different directions?

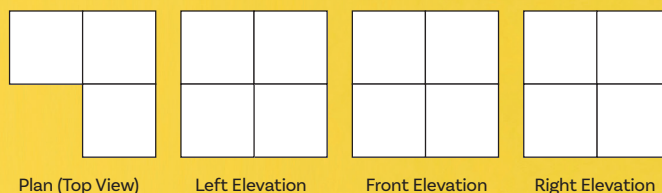
The drawing is ambiguous – there must be at least four cubes here, because we can see part of each of four cubes, but there could be more hidden – so there are different possibilities for the plan and elevations.

THE SOLUTION

We'll assume all the solids in this lesson are pentacubes – meaning they are made of exactly five cubes attached face to face.

Now you know this, how must the plan and left and right elevations look?

The answer is shown below.



Plan (Top View) Left Elevation Front Elevation Right Elevation

The left and right elevations will always just be mirror images of each other.

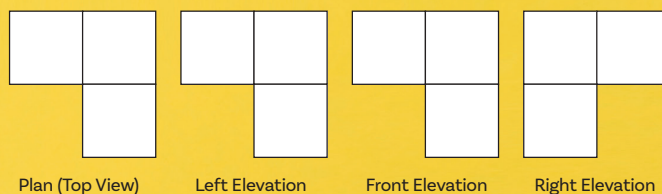
Now take five cubes and make a different pentacube. Draw the plan and any two of the three elevations for your pentacube. See if your partner can work out what your pentacube must have been, just by looking at the plan and elevations.

Checking for understanding

Go back and look at the original image.

If there are actually only **four** cubes present, how would this change the plan and elevations?

The answer is shown below.



Plan (Top View) Left Elevation Front Elevation Right Elevation



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