

# Draw the Model

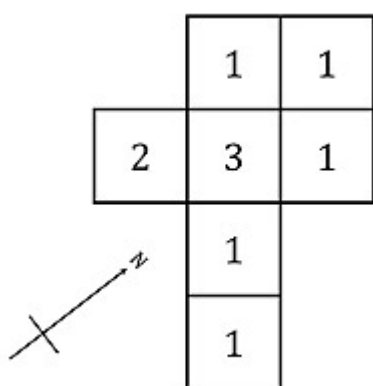
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## Annotation

Vladimir is able to view a 2-dimensional plan and draw 3-dimensional representations by hand from multiple directions without relying on a physical model. He knows the relationship between faces, edges and vertices in a 2-dimensional drawing of a 3-dimensional object. He uses mathematical language in a clear and precise way.

## Problem: Draw the Model

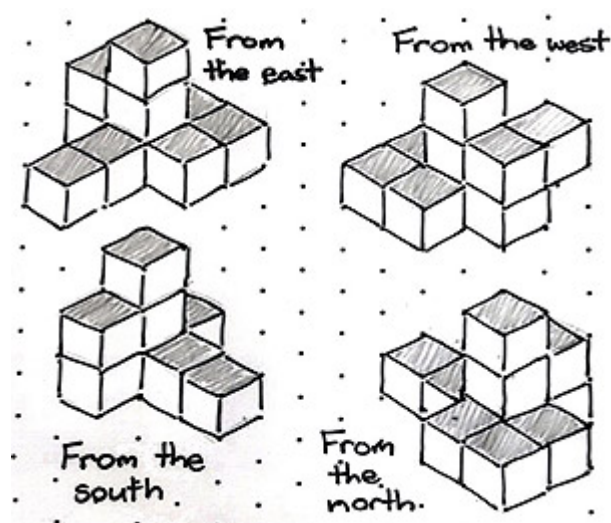
The teacher shows the student this diagram and poses this problem:



Can you draw models of this cube building to scale from the north, south, east and west perspectives? The numbers are the heights in cubes of each part of the building.

## Student response

Vladimir correctly draws these models.



Teacher: Tell me how you worked these out and why you did it that way.

I drew the four perspectives using isometric paper because it shows perspective in a consistent way when you are drawing by hand. The regular pattern of dots also helps get the scale correct. I find it the best and most realistic way to draw 2D representations of

Vladimir: 3D objects without using a tech drawing computer programme.

One issue with using isometric paper is that some cubes that are not fully visible from a particular perspective can appear to be floating. For example, looking at the most southern cube on the perspective from the west. It's not too bad and shading helps.

Teacher: What do you know that helped you?

I find following edges to be really helpful way to complete it accurately. I imagine the

Vladimir: building and follow an edge, or a face of one cube to the next cube. I visualise it continuing along the same line or plane or being perpendicular to it.