Introduction: Tools for Technology

Dimensions

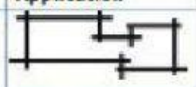
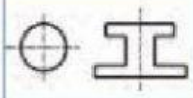
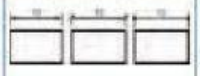
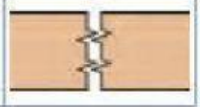
Formal drawings of a selected design idea in technology need to conform to certain conventions such as:

- the types of lines used
- the way dimensions are shown
- the way scale is shown.

These conventions have been decided by the South African Bureau of Standards (SABS).

Using different lines allows you to tell the difference between the outside of an object and the parts of an object that are hidden from view. The conventions are given in the table below.

Line conventions in technology

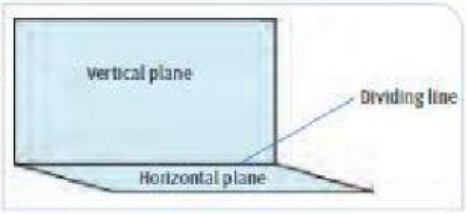
Convention	Description	Use	Application
	Darker black continuous line	Visible outlines	
	Lighter black continuous line	Construction lines Projection lines Dimension lines Bending or folding lines	
	Black broken line/ dashed line	Shows detail not visible (hidden)	
	Chain dash-dot line	Centre lines Symmetric lines	
	Dimensions	Showing dimensions	
	Continuous wavy line	Shows a short break in an object	
	Zigzag line	Shows a long break	

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First angle orthographic projections

The arrangement of the various technology drawings or views is done according to a set pattern, based on the following explanation of orthographic drawing:

- To draw the front view, you have to look straight at the plane from the front.
- Remove the other sides from your field of vision and project the picture that you see in front of you on to the plane behind the object.
- You look at the sides and top in the same way, and each time project the picture onto the plane behind it.



This arrangement used in working drawings is called first angle orthographic projection. Follow the steps of the activity, matching them to the diagrams, and you will find out why the views of this orthographic projection are arranged in this way.

Activity Materials and equipment

You will need:

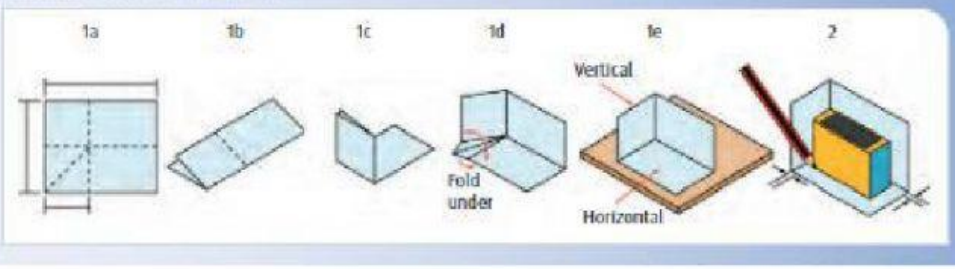
- a sheet of A4 paper
- HB pencil
- rubber
- flat surface to work on
- a ruler
- a wooden block or matchbox

Method

Step 1 Tear a sheet of drawing paper in half and fold it as shown in 1 a–e.

Step 2 Place the matchbox on the horizontal plane, slightly away from the two vertical planes.

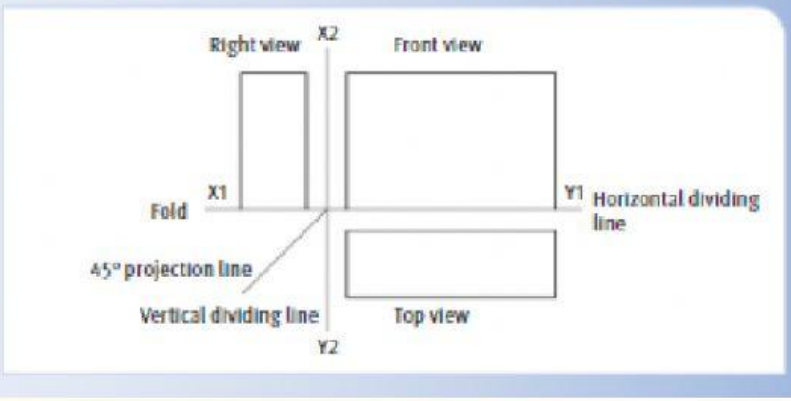
Step 3 Trace the top, front and left views. It is easy to trace the top view, but you will have to move the matchbox a little away from the 'corner' to draw the front and left view on the 'walls' of the folded paper.



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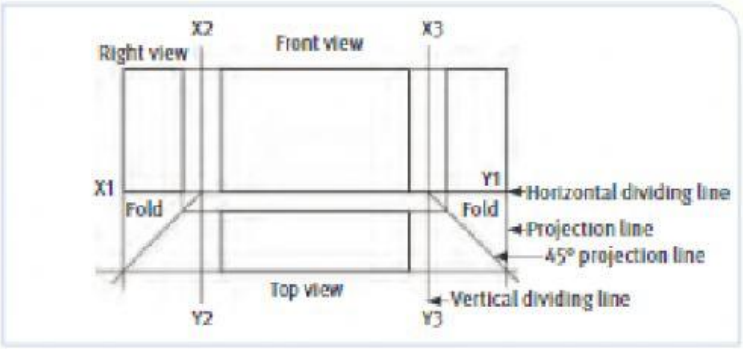
Activity Materials and equipment (continued)

Step 4 Fold the page flat to see the arrangement of the three views. You will see that the right view is now to the left of the front view, and the top view at the bottom of the front view.



Because it is not practical to fold drawing paper in this way to do drawings, lines are used to show the folds. These lines are called:

- the horizontal dividing line
- the vertical dividing line
- the 45 degree projection line.



Dimensions such as length, breadth and thickness remain the same in every view, and so the 45 degree projection line is used to transfer them from one view to the next. If you are drawing on a grid, it is convenient to follow the gridlines to transfer the dimensions.

Notice that the front view, the left view and the right view are drawn along the horizontal dividing line, but none of these views touches the vertical dividing line. This is so that the views stand out clearly.

Now you are going to follow the instructions given above and upload your drawing to the platform. Using the online geometry link for your drawing.

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