

Exploring and Developing a Design Idea

- 1 The design for a new child's toy boat is shown in **Figure 1**.

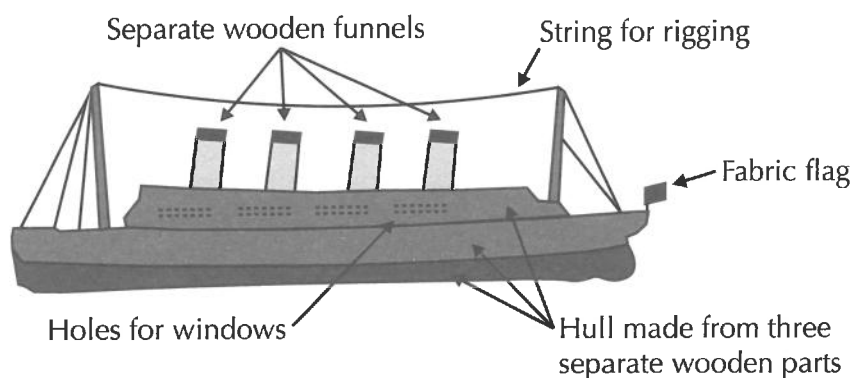


Figure 1

- a) Models are useful for visualising designs in 3D and identifying problems with a design. Give **two** other reasons why a model might be built.

1.

.....

2.

.....

[2 marks]

- b) Suggest a suitable material to model the ship in. Explain your answer.

.....

.....

[2 marks]

- c) A simple electronic circuit could be used to light up the windows of the boat. Name a piece of equipment that could be used to test this circuit.

.....

[1 mark]

- 2 A seamstress is designing a one-off dress for a client. She is in the process of making a toile.

- a) Describe how a toile could be used to improve the design of the dress.

.....

.....

.....

[2 marks]

b) i) It's important for the fabric used to make a toile to have similar properties (e.g. stretchiness) to the fabric that will be used to make the real garment. State **two** other properties that a toile fabric should have, and give a reason for each one.

1.

 2.

[4 marks]

ii) Name a material that is commonly used as a toile fabric.

.....
 [1 mark]

3 A company is designing a new milk carton aimed at young children. The carton will hold 200 ml of milk. A detailed sketch of the carton design is shown in **Figure 2**.

a) The company has made a model of the carton shown in **Figure 2**. What should this model be tested and evaluated against?

.....

 [1 mark]

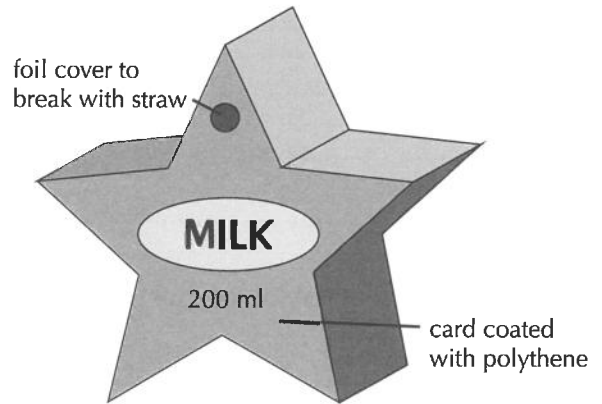


Figure 2

b) Suggest a test that could be carried out on the model.

.....

 [1 mark]

c) During the testing and evaluation of the model, the design was found to be too costly to make. Suggest why this might be the case, and give a suggestion to reduce the cost of manufacture.

.....

 [2 marks]

d) After a successful model has been made, what is the next stage in the design process?

.....
 [1 mark]

Score: / 19

Drawing Techniques

1 Isometric drawing is one way to present designs.

a) What are isometric drawings used to show?

.....
[1 mark]

b) Using the isometric grid below, produce an isometric drawing of a box that is 30 mm wide, 40 mm deep and 20 mm high.

[2 marks]

2 System diagrams and schematic diagrams are often drawn for electronic and mechanical systems.

a) What is a system diagram?

.....
[1 mark]

b) How do schematic diagrams differ from system diagrams?

.....
.....
.....
[2 marks]

c) Give **one** example of a schematic diagram.

.....
[1 mark]

d) Give **two** reasons why schematic diagrams are often simplified and not drawn to scale.

1.
 2.
- [2 marks]

3 Perspective drawing is a type of three-dimensional drawing.

a) Give **one** advantage of drawing in perspective.

.....

[1 mark]

b) **Figure 1** shows a design for a tissue box.
 Make a one-point perspective drawing of the tissue box.

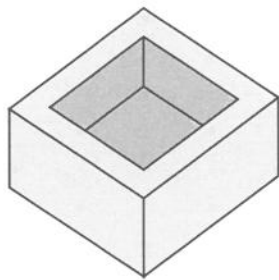


Figure 1

[2 marks]

c) **Figure 2** shows a design for a lampshade.
 Using two-point perspective, redraw the lamp shade as it would look if it was above the horizon.

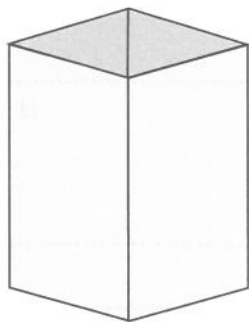


Figure 2

[3 marks]

Score: / 15

Exam Practice Tip

In the exam, you should do any drawings and sketches using a sharp pencil. It might be a good idea to draw lightly at first, as this will make it much easier to rub out any mistakes you make. Then once you're happy with your drawing, you can quickly go over it again to make sure that your final answer is clear for the examiner to see.

More on Drawing Techniques

1 The bookcase in **Figure 1** needs to be assembled at home by the consumer. Instructions are needed to help the consumer assemble it.

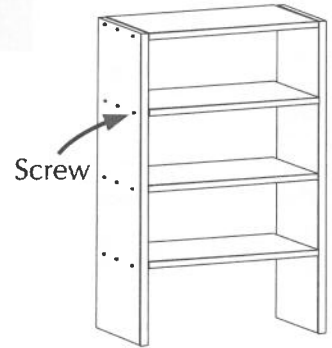


Figure 1

a) Name the style of drawing that would be most suitable for the instructions. Explain why this style of drawing is suitable.

Name:

Explanation:

.....

[2 marks]

b) Draw assembly instructions for the bookcase using this style of drawing.

[3 marks]

2 A company have produced a scale drawing of a table for a client.

a) The table will have a width of 1.25 m. The scale drawing of the table has a width of 25 cm. Calculate the scale of the drawing. Give your answer as a ratio in its simplest form.

.....

.....

.....

[2 marks]

b) The scale drawing of the table has a height of 18 cm. What will its real height be?

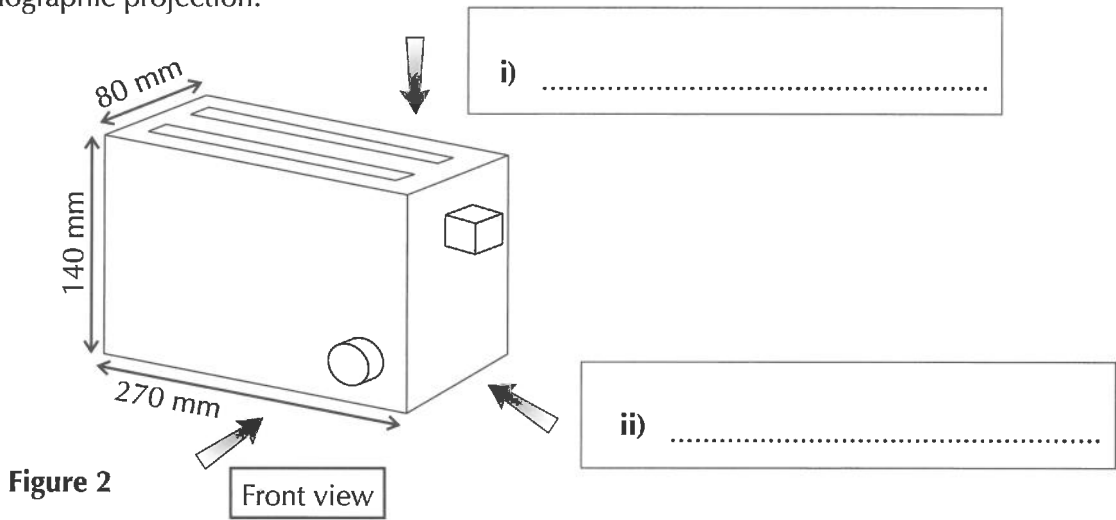
.....

.....

[1 mark]

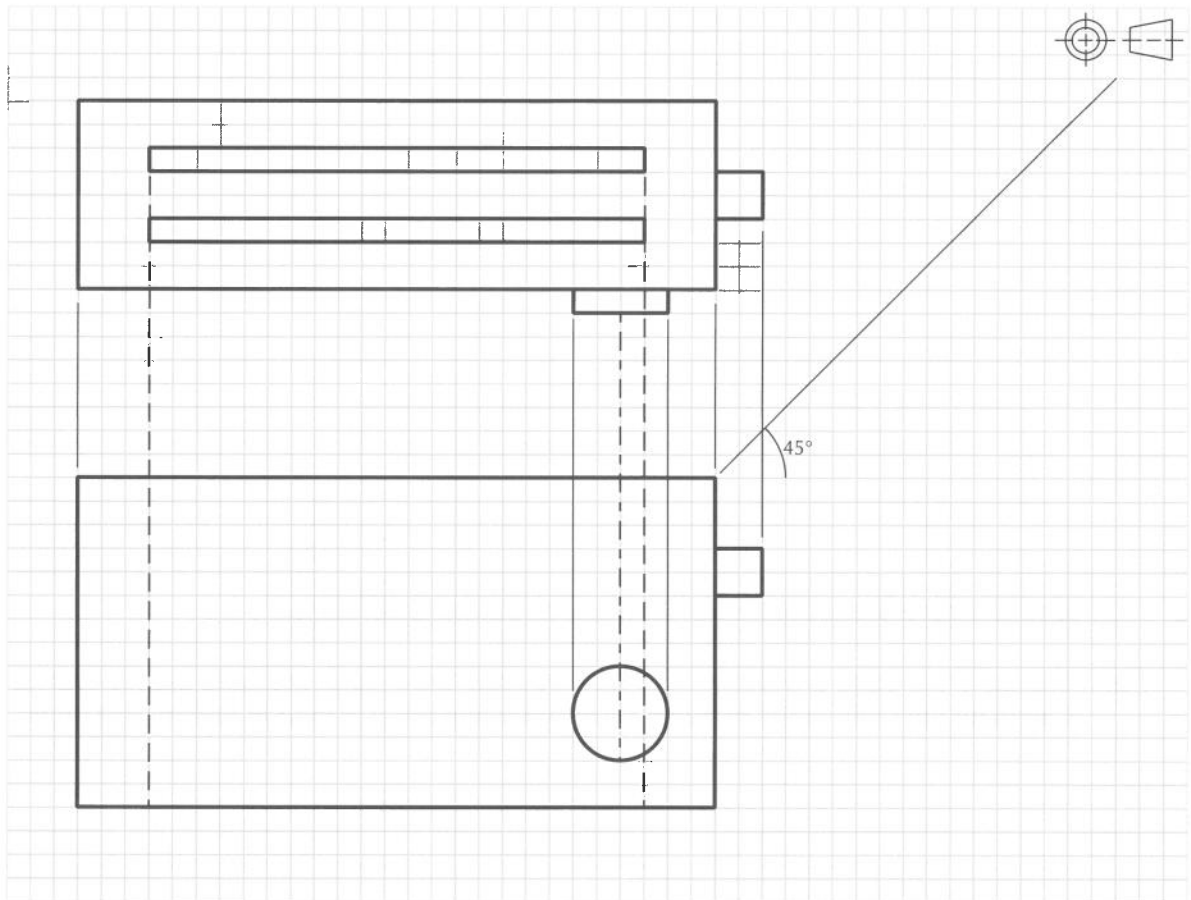
3 **Figure 2** shows a design for a toaster.

a) Complete **Figure 2** by naming the two other views that are shown in a third angle orthographic projection.



[2 marks]

b) Complete the following third angle orthographic projection of the toaster shown in **Figure 2**.



[3 marks]

Score: / 13

Exam Practice Tip

When drawing a third angle orthographic projection, you might find it useful to make a list of all of the features that you can see on the object. All of these features should be marked on each view in some way — as outlines if they can be seen, or as hidden details if they can't — so you can tick them off the list once you've finished drawing. Remember to label the drawing with dimensions too (if they're given in the question).