Summary and questions

Part 1 of 3

- You learned these essential design skills: first angle orthographic projection, the concept of drawing three different views, different line types.
- You progressed to more advanced design skills, more complex 3D objects drawn in orthographic projection with instruments. A design problem: a flight of stairs and a wheelchair ramp; a design brief: included specifications, sketches and a plan.
- You learned the following about structures: forces can be static or dynamic; loads can be even or uneven; the strength of materials under the action of forces; tension, compression and bending of beams; properties of various construction materials.
- Investigation skills: you read a scenario, identified a problem, investigated solutions and learned about bidding for a tender.
- Design skills: you sketched, evaluated and adapted your ideas, wrote a design brief and drew a flow chart.
- Making skills: you did working drawings.
- Costing: you drew up a real-life budget.
- Making skills: you made a model of a viable solution to the problem.
- Evaluation skills: you created an evaluation instrument and used it to evaluate other teams' work.
- Communication skills: you presented a tender bid.



Figure for Question 10 on page 50

LIVEWORKSHEETS

Questions



1. Illustrate, free-hand on your question paper, the different views which have to appear in a first angle orthographic projection. Use this shape as your example and fill in all the necessary detail. To be able to do this exercise you have to put in the X, Y and 45° lines.
   Length – 40 mm, Height – 30 mm, Width – 20 mm
2. Complete the following:
   a. The height of stair risers is _____.
   b. The recommended gradient for a ramp at an old age home is _____.
3. Explain what is meant by drawing to scale?
4. Name a few methods used to strengthen structures.
5. Name the action forces working on structures.
6. How can you prevent internal twisting?

ANSWERS

1.

2.

3.

4.

5.

LIVEWORKSHEETS

6.

LIVEWORKSHEETS

LIVEWORKSHEETS