# Summary and questions

Part 3 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

14 Give three reasons why is it important to know what types of forces act on structures?

15 Name five well-planned steps you can follow when you are trying to find a solution to a problem.

16 Name five important properties of building materials.

17 Where will corrosion of metal be grouped? Choose the correct group: physical, mechanical or chemical.

18 Make a free-hand sketch of the paper outlay for a first angle orthographic projection.

19 Study the figure on page 58 alongside. Is this a user-friendly entrance for everyone? Defend your view by answering the following questions:

- a Is the ramp design sensible and user friendly? Why?
- b For what reasons are the steps not a user-friendly and safe design?
- c Are both designs safe to use, even when it rains?

**ANSWERS**

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LIVEWORKSHEETS

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