

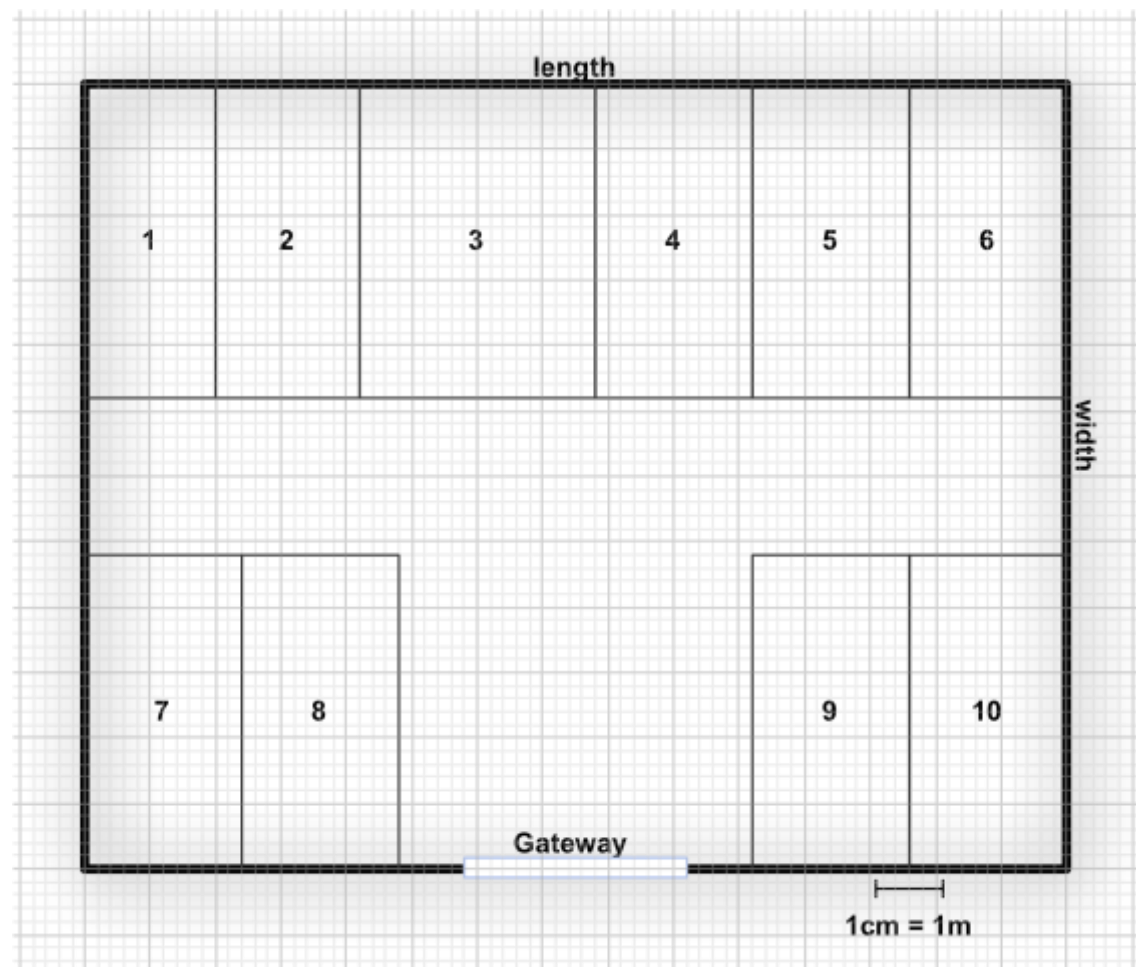
Working it out – Perimeter from scale drawing

This example looks at tasks that require the learner to interpret a scale drawing and to calculate a perimeter. We explore where we would apply marks.

Task:

Your manager has drawn the parking plan below. You have been asked to review the plan. The car park will be surrounded by a fence.

The drawing uses a scale of 1cm to 1m.



A plan of the car park

Activity A: Enter the actual length and width of the car park.

Marks available: 2

Mark scheme used by examiners:

The table shows how the examiners will apply the marks for the activity.

Activity A		Marks	Comments
	15 m (+/- 0.5)	1	1 mark max if both 15 and 12 seen with no units or cm
	12 m (+/- 0.5)	1	

Learner responses

Learner A:

Length	=15 m.....	✓
Width	=12 m.....	✓

2 marks awarded

1 mark awarded for 15 m

1 mark awarded for 12 m

Learner responses

Learner B:

Length	=15 m.....	✓
Width	=12 m.....	✓

2 marks awarded

1 mark awarded for 15 m

1 mark awarded for 12 m

Learner responses

Learner C:

Length =15 m..... ✓

Width =12 m..... ✓

2 marks awarded

1 mark awarded for 15 m

1 mark awarded for 12 m

Learner responses

Learner D:

Length =15 ✓

Width =12 ✗

1 mark awarded

1 mark awarded for 15 and 12

0 marks awarded as no units shown

Learner responses

Learner E:

Length =16 m..... ✗

Width =13 m..... ✗

0 marks awarded

0 marks awarded as incorrect length

0 marks awarded as incorrect width

Activity B: What is the total length of the perimeter fence if the gateway is 3.5m wide?

Marks available: 3

Mark scheme used by examiners:


The table shows how the examiners will apply the marks for the activity.

Activity B		Marks	Comments
	50.5 (FT: perimeter and -3.5 required)	1	
	2 (15+12) or equivalent (perimeter) FT	1	
	Subtract 3.5 from their perimeter	1	

FT = Follow Through

Learner responses

Learner A:

15 +15 + 12 +12 =54m – 3.5m= 50.5 m 

3 marks awarded

1 mark awarded for perimeter method

1 mark awarded for subtracting 3.5

1 mark awarded for correct answer

Examiner comment:

Activity B, permits follow through (FT) so that if a learner responds incorrectly at Activity A it doesn't limit their chance of being awarded full marks at Activity B.

The task requires the learner to calculate the perimeter of the car park, including the necessary subtraction of the gate width (3.5 metres). The marks at this task are essentially: a perimeter method mark, a mark for the subtraction of 3.5m, and a mark for the correct answer following both steps.

Learner responses

Learner B:

Total length – gateway

 $15\text{m} - 3.5\text{m}$ ✓

✗

 $=11.5\text{ m}$ ✗

1 mark awarded

0 marks awarded for perimeter method

1 mark awarded for subtracting 3.5

0 marks awarded for correct answer

Examiner comment:

Learner B didn't calculate the perimeter so the perimeter method and answer mark couldn't be awarded. However, 1 mark has been achieved by displaying the subtraction of 3.5m.

Learner responses

Learner C:

 $(12 + 15) \times 2 = 42\text{m}$ ✗ ✓ $42 - 3.5 = 38.5\text{ m}$ ✓

2 marks awarded

1 mark awarded for perimeter method

1 mark awarded for subtracting 3.5

0 marks awarded for correct answer

Examiner comment:

Learner C was awarded the perimeter method mark and the mark for subtracting 3.5m. The perimeter answer mark wasn't awarded due to the calculation error (the first calculation should have resulted in 54 rather than 42).

Learner responses

Learner D:

$$15 \times 3.5 = 52.5 \text{ m} \text{ xxx}$$

0 marks awarded

0 marks awarded for perimeter method

0 marks awarded for subtracting 3.5

0 marks awarded for correct answer

Examiner comment:

Learner D attempted area rather than perimeter, and there was no subtraction of 3.5m, so no marks could be awarded.

Learner responses

Learner E:

$$\text{Length} = 16\text{m}^2$$

$$16 - 3.5 = 12.5 \text{ m}^2 \checkmark$$

$$12.5 + 16 = 28.5 \text{ m}^2$$

$$\text{Width} = 13 + 13 = 26 \text{ m}^2$$

$$\text{Width all the way round the fence would} = 54.5 \text{ m}^2 \checkmark \checkmark$$

3 marks awarded

1 mark awarded for perimeter method

1 mark awarded for subtracting 3.5

1 mark awarded for correct answer

Examiner comment:

Learner E had values of 16m and 13m at the previous task, so follow through could be applied. The perimeter of **their** values, including the subtraction of 3.5m, is accurate, so full marks could be awarded.

Overall examiner comment:

Activity B reflects the fairness of follow through and the benefit of learners displaying their calculations to maximise their marks (for example, learner B gained a mark for the subtraction of 3.5).

It is worth noting that learner E didn't lose any marks at this task for displaying perimeter with metres squared. However, learners should be advised that area, perimeter and volume should always be displayed with the appropriate units, as the final display of their answer could affect marks awarded (M sq, metres squared and m² are all acceptable area displays).