Mathletics

Length, Perimeter and Area

Series F – Length, Perimeter and Area

Contents

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Series F – Length, Perimeter and Area

Pages 1–2

1a cm

b mm

c m

d cm

e m

f mm

2 Answers will vary.

3a 50

b 30

c 90

d 70

e 110

f 150

4a 5

b 2

c 22.3

d 1.5

e 15.6

f 49.5

5a 3

b 5

c 2.5

d 9

e 20

f 45.5

6a 1

b 5

c 4.5

d 0.5

Pages 3–4

1a 70

b 150

c 140

d 0.5

2 ladybird;

fridge;

door;

giraffe;

tree;

flagpole

3

Name	Height of the Clown on Stilts		
Peter	3 m 30 cm	330 cm	3.3 m
Sara	4 m 15 cm	415 cm	4.15 m
Omar	3 m 64 cm	364 cm	3.64 m
Julia	3 m 97 cm	397 cm	3.97 m
Heba	4 m 9 cm	409 cm	4.09 m

a Omar

b 6 cm

c 85 cm

d Answers will vary.

Pages 5–6

1a m

b km

c m

d km

e km

f m

2a 2

b 5

c 8

d 1.5

e 3.645

f 1.747

3a 3,000

b 7,000

c 4,000

d 500

e 3,700

f 8,200

4a (2 km) or 2,220 m

b (0.58 km) or 600 m

c 3.2 km or (3,100 m)

4d (0.75 km) or 0.79 km

e (560 m) or 0.565 km

f (5.5 km) or 5,600 m

5a (300 km) or 2,500 m

b (0.85 km) or 800 m

c 1,900 m or (2.9 km)

d 1.58 km or (1,600 m)

e 855 m or (0.875 km)

f (7.25 km) or 7,200 m

6

7a

b
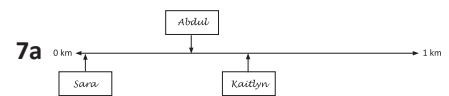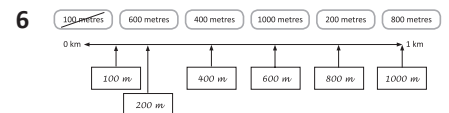
c 0.25 km + 3 km + 4 km = 7,250 m

Page 7

1a 1

b 10

c 1.8

d 16

e 4.5

f 180

2a 5 miles

b 7 pints

c 10 store

d 4 inches

Series F – Length, Perimeter and Area

Page 8

What to do

Observe students.

Page 9

a 60 × 8 mm = 480 mm or 48 cm

b 5 m = 500 cm
500 cm − 150 cm = 350 cm

c 1 m = 1,000 mm
1,000 mm ÷ 20 mm = 50 pieces

d 52 weeks in a year × 2
= 104 mm or 10.4 cm

e 0.75 m + 0.5 m + 0.75 m
= 2 m of sherbet stick
2 × £2 = £4

Pages 10–11

1a 2.123

b 4.235

c 2.245

d 5.235

e 8.145

f 8.023

g 0.835

h 0.593

2a 3,600

b 2,800

c 600

d 9,300

e 8,200

f 7,100

g 5,600

h 200

i 100

3a 0.98

b 1.572

c 0.712

d 1.962

e 2.817

4 **Day 1:** 200
Day 2: 358
Day 3: 145
Day 4: 173
Day 5: 173
Day 6: 504
Day 7: 232

5 1,785

Pages 12–13

1a 400

b 800

c 700

d 1,000

e 800

f Teacher check.

2a 3

b 8

c 8

3a–c Teacher check.

4 6, 15, 45, 12, 18, 27, 30, 24, 36, 21

5 30, 60, 90, 42, 72, 54, 66, 12, 48, 36

6a 40

b 20

c 40

d 130

Page 14

What to do

Observe students.

What to do next

Answers will vary.

Page 15

What to do

Answers will vary.

What to do

Answers will vary.

What to do next

Answers will vary.

Pages 16–17

1a 12

b 14

c Teacher check.

2a 18

b 16

c 12

d 28

e 36

3a 20

b 18

c 16

d 30

e 32

4 4 cm; 10 cm; 6 cm; 5 cm

Pages 18–19

1a 170 cm

b 440 cm

c 6.6 m

d 3.4 m

e 22 m

f 56m

g 48 m

h 28 m

2a 24

b 20

c 20

3 Playground B;
The perimeter of Playground B is smaller than the perimeter of Playground A.
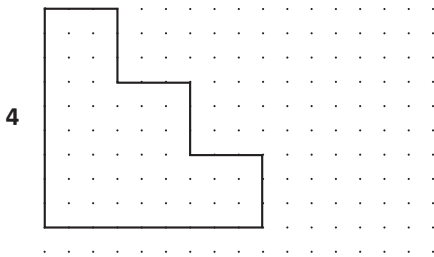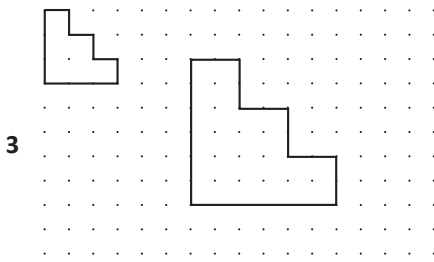Playground A = 36 m
Playground B = 33 m

Pages 20–21

1a–d Teacher check.

2a, b Teacher check.
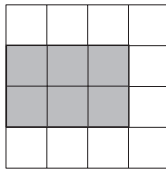
Series F – Length, Perimeter and Area

Pages 20–21

3

4

Page 22

a 1,200 cm or 12 m

b Length = 3 m
Width = 50 cm

c 1,160 m × 3 = 3.48 km

d 20 × £55.50 = £1,110

Page 23

1 Answers will vary.
Sample answer:
3 × 2 rectangle
shaded.

2a 4

b 2

c 4

3a 15

b 20

c 18

d No

Page 24

1a Answers will vary.

b Teacher check.; Yes

2a–e Answers will vary.

Page 25

1a 24

b 16

1c 4

d 10

e 32

f 6

2a 5 m

b 2 m

c 3 m

Page 26

1a 21 m²

b 70 cm²

c 2,000 m²

d 48 cm²

e 17 m²

f 112 cm²

2 Teacher check.

Page 27

1a 3

b 2.5

c 1.44

d 6

e 4.5

f 6

2 1 Ireland
2 Portugal
3 Greece
4 United Kingdom
5 Italy
6 Germany
7 Spain
8 France

Pages 28–29

1a P = 20 cm
A = 16 cm²

b P = 16 cm
A = 16 cm²

c P = 12 cm
A = 9 cm²

d P = 14 cm
A = 12 cm²

2 Answers will vary.

3 Answers will vary.

4 Teacher check.

5 Teacher check.

Page 30

a The side of each square must be 3 cm.
24 × 3 = 72
Total perimeter is 72 cm

b The side of each square must be 6 cm.
There are 34 sides.
34 × 6 = 204
Total perimeter is 204 cm.

c If the area is 336 cm², the length of
the large rectangle must be 28 cm.
The width of a small rectangle must
be 4 cm, since 2 – 12 = 16 and
16 ÷ 4 = 4

Page 31

What to do

a 32; 8

b 18

c 15

Page 32

What to do

a 50

b 18

c 63

d 50

e 84

f 101

Circle **b**

Cross **f**

What to do next

Teacher check.

Units of length

Name _____

1 **Write the measurement that the arrows are pointing to:**

```
0 cm  1    2    3    4    5    6    7    8    9   10   11   12   13   14   15
```
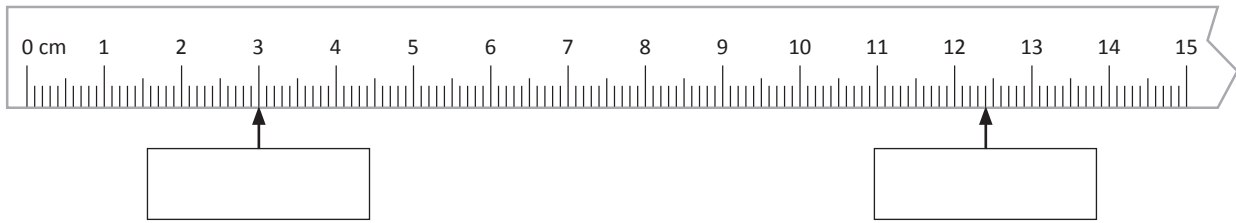
2 **Convert into centimetres:**

a 50 m = _____ cm   **b** 8 m = _____ cm   **c** 11.2 m = _____ cm   **d** 1.2 m = _____ cm

3 **Convert into millimetres:**

a 45 cm = _____ mm   **b** 7 cm = _____ mm   **c** 12 cm = _____ mm   **d** 110 cm = _____ mm

4 **Convert into metres:**

a 500 cm = _____ m   **b** 7,500 cm = _____ m   **c** 329 cm = _____ m   **d** 2,000 cm = _____ m

5 **Order these lengths from shortest to longest:**

220 mm, 200 cm, 1 m, 2.35 m, 532 cm, 2.35 cm

6 **Draw a line between the metric measurement and its approximate imperial equivalent:**

0.6 l	6.5 kg	2.5 cm	1.6 km	90 cm	30 g	30 cm	0.5 kg

1 yard	1 foot	1 inch	1 ounce	1 pint	1 pound	1 stone	1 mile

Skills	Not yet	Kind of	Got it
• Measures and records length in different units			
• Converts between cm, mm and m			
• Orders lengths of different units			
• Understands approximate equivalents of metric and imperial measurements			

Travelling far

Name _____

1 **Convert into kilometres:**

a 5,000 m = _____ km

b 80 m = _____ km

c 112 m = _____ km

d 400 m = _____ km

2 **Convert into metres:**

a 45 cm = _____ m

b 14 km = _____ m

c 7 km = _____ m

d 7.8 km = _____ m

3 Mali rode her bike 700 metres to the shops. She then rode the same distance back again. How many kilometres did she ride her bike for in total?

4 Jack walks roughly 5 km/h. He walks from school to the corner shop (1,200 m), from the shop to his friend's place (3,433 m), and then home (146 m). Assuming he stops at the shops and his mate's place only briefly, can he do this trip in less than an hour? Show your working out.

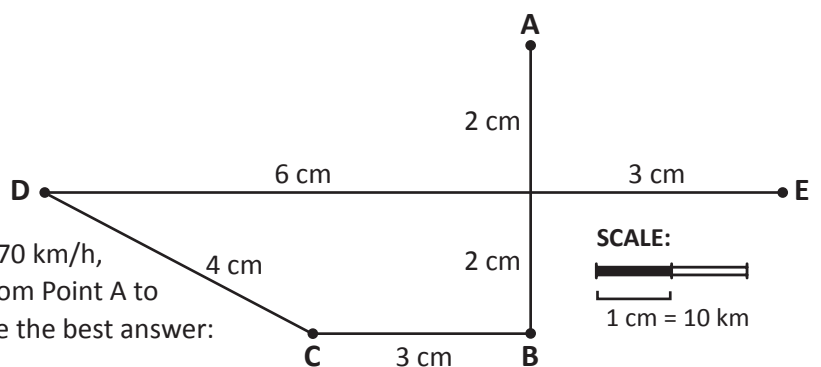**5** Round each line to the nearest cm and use the scale to calculate the following distances:

a E to B _____

b D to E _____

c C to B _____

d If you travel at an average speed of 70 km/h, how long would it take you to get from Point A to Point E (via points B, C and D)? Circle the best answer:

6 hours   2 hours   3 hours

A

2 cm

D •——— 6 cm ———•——— 3 cm ———• E

4 cm   2 cm

SCALE:

1 cm = 10 km

C   3 cm   B

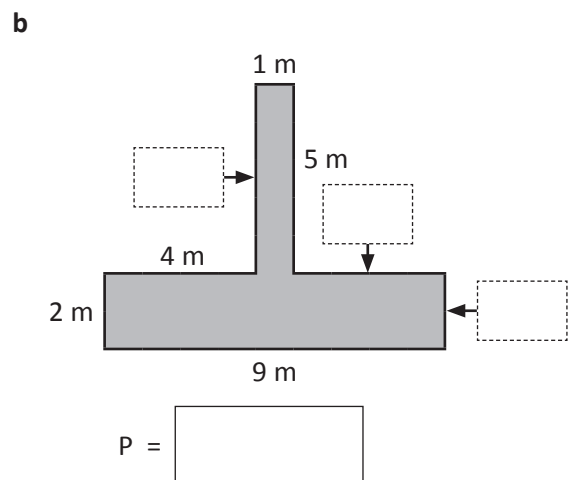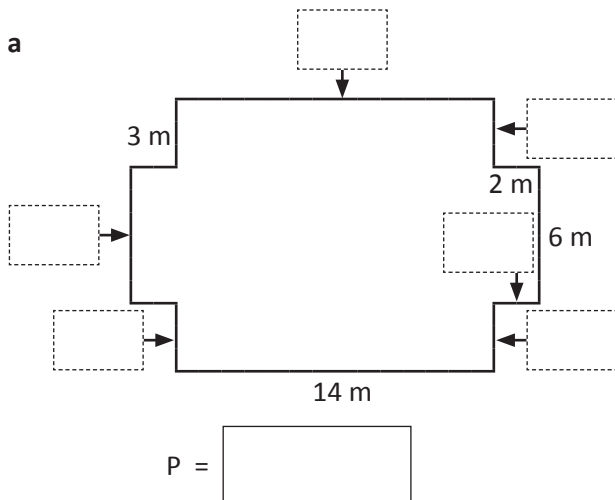| Skills	Not yet	Kind of	Got it
• Converts between metres and kilometres			
• Solves simple speed and distance problems			
• Interprets scales to calculate distances			

Perimeter

1   **Draw a square with a perimeter of 8 cm. Label the length of each side.**

Draw a rectangle with a perimeter of 12 cm. Label the length of each side.

**2**   **Fill in the missing side lengths and find the perimeters of these symmetrical shapes*:**

a

3 m

2 m

6 m

14 m

P = _____

b

1 m

5 m

4 m

2 m

9 m

P = _____

*Not drawn to scale.

---

3   **Complete this table. All shapes are regular.**

Length of each side		2.5 cm		6 cm
Perimeter	16 cm		25 cm	

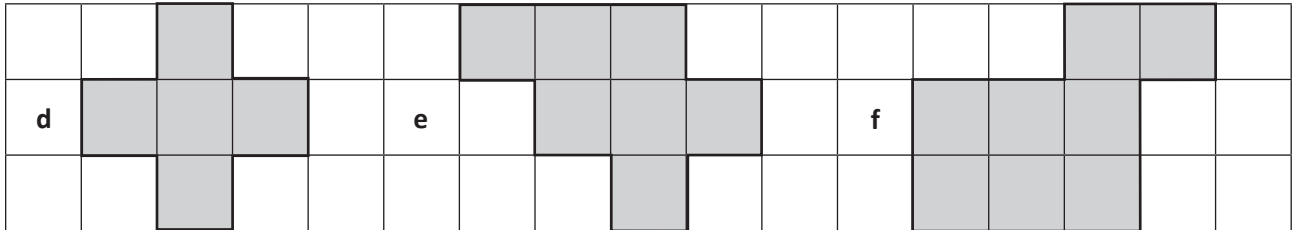| Skills	Not yet	Kind of	Got it
• Measures the perimeter of shapes			
• Creates shapes with specified perimeters			
• Uses understanding of perimeter to calculate side lengths			

Area

Name _____

1 **What is the area of each shaded shape? Each square has an area of 1 cm².**

a

Area = [   ] cm²

b

Area = [   ] cm²

c

Area = [   ] cm²

d

Area = [   ] cm²

e

Area = [   ] cm²

f
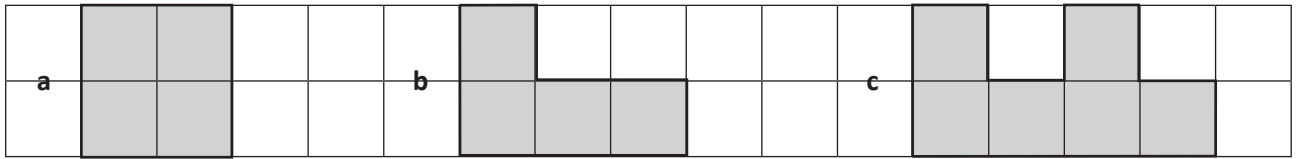
Area = [   ] cm²

....

2 **Create 2 different shapes with an area of 18 cm²:**

1 cm ↕

1 cm ↔

....
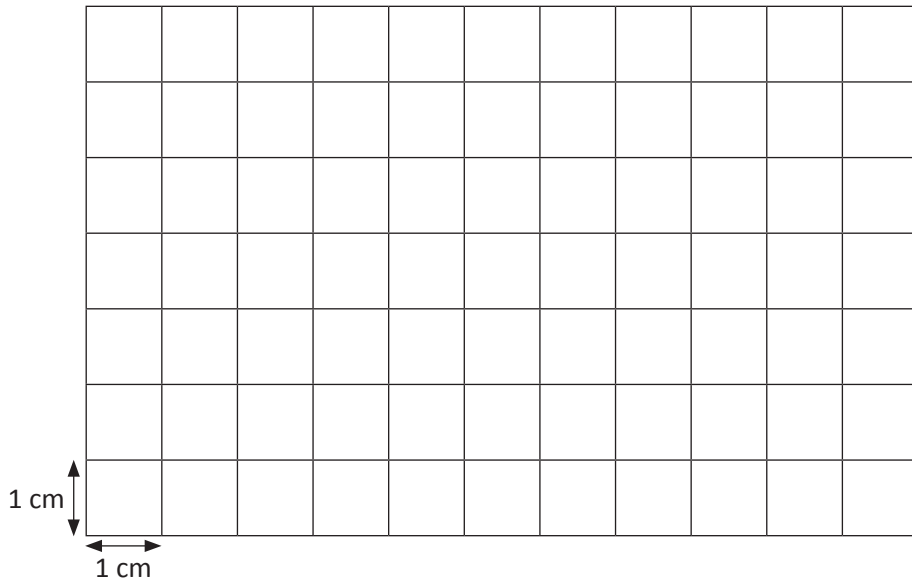
3 **Find the area of:**

a A rectangle measuring 6 cm × 5 cm [   ]

b A swimming pool measuring 25 m × 4 m [   ]

c A box measuring 12 cm × 9 cm [   ]

d A phone measuring 4.5 cm × 10 cm [   ]

Area

4   **Find the area of these composite shapes:**

a 4 m, 4 m, 3 m, 2 m   Area = ☐ m²

b 8 cm, 6 cm, 9 cm, 2 cm   Area = ☐ cm²
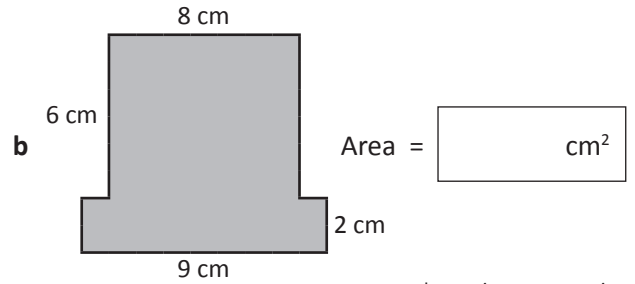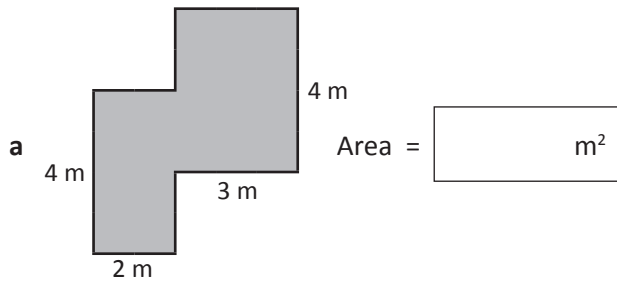
Not drawn to scale.

5   **Would you choose cm², m², ha or km² to measure the area of the following?**

a this page   ☐

b Africa   ☐

c a classroom   ☐

d an iPod   ☐

6   **Create 2 shapes each with a perimeter of 10 cm but with different areas:**

1 cm

1 cm
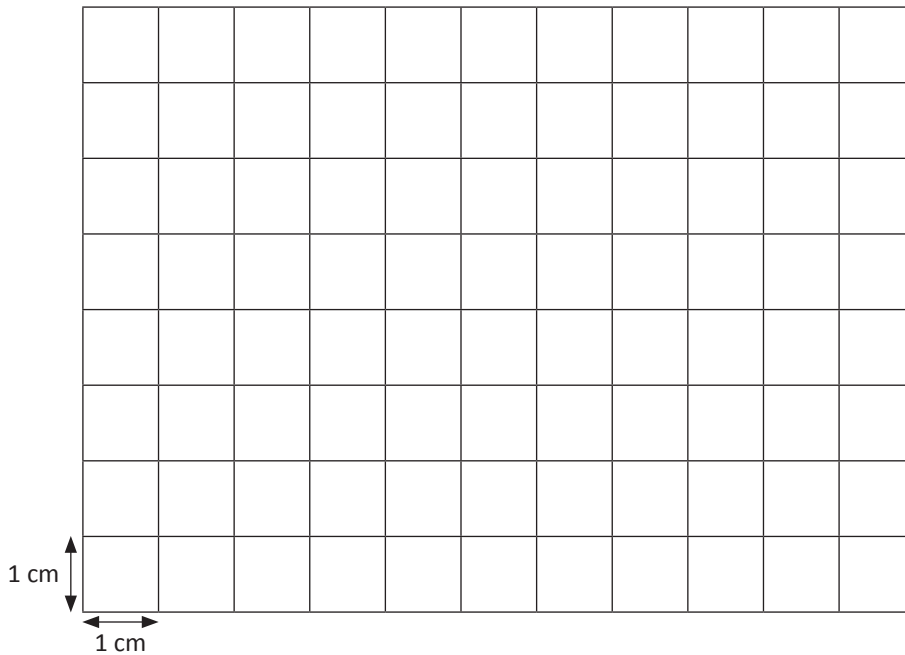
Skills	Not yet	Kind of	Got it
• Finds the area of shapes using grids			
• Uses formula L × W to find area of rectangles			
• Finds the area of irregular and composite shapes			
• Makes appropriate unit choices for measuring			
• Recognises shapes can have same perimeters but different areas			

Series F – Length, Perimeter and Area – Student Progress Record

Name_____ Class _____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

- ✂ - - -

Series F – Length, Perimeter and Area – Student Progress Record

Name_____ Class _____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

Series F – Length, Perimeter and Area

ASSESSMENT ANSWERS

Page 4

1 3 cm; 12.4 cm

2a 5,000

b 800

c 1,120

d 120

3a 450

b 70

c 120

d 1,100

4a 5

b 75

c 3.29

d 20

5 2.35 cm, 220 mm, 1 m, 200 cm, 2.35 m, 532 cm

6
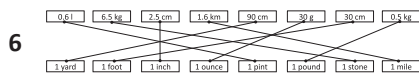
Page 5

1a 5

b 0.08

c 0.112

d 0.4

2a 0.45

b 14,000

c 7,000

d 7,800

3 0.7 km + 0.7 km = 1.4 km

4 1.2 km + 3.433 km + 0.146 km = 4.779 km, which is less than 5 km, so YES Jack can do it in less than an hour.

5a 50 km

b 90 km

c 30 km
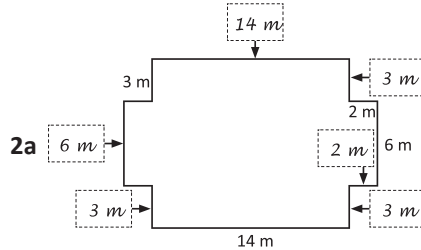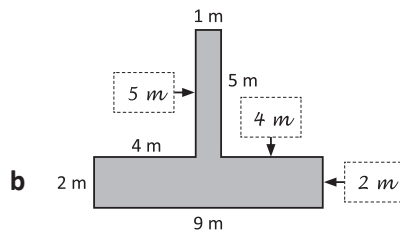
d (3 hours)

Page 6

1

Answers will vary.

2a

P = 60 m

b
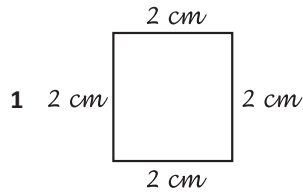
P = 32 m

3 Length of each side: 4 cm; 5 cm

Perimeter: 20 cm; 36 cm

Pages 7–8

1a 4

b 4

c 6

d 5

e 7

f 8

2 Answers will vary. Sample answers:
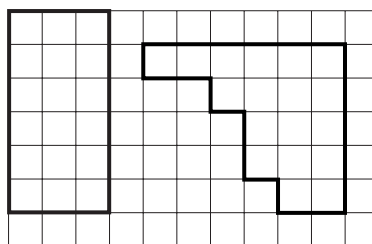
3a 30 cm²

b 100 m²

c 108 cm²

d 45 cm²

4a 20

b 60

5a cm²

b km²

c m²

d cm²

6 Answers will vary. Sample answers:
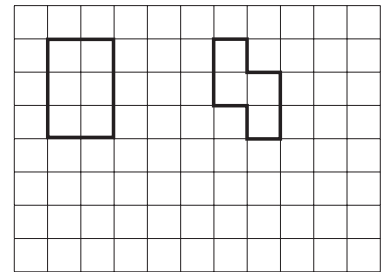
Series F – Length, Perimeter and Area

Topic	Reference	Strand	Objective
Units of Length	5M9b	Measurement	Use all four operations to solve problems involving measure (e.g. length) using decimal notation including scaling.
Travelling Far	5M9b	Measurement	Use all four operations to solve problems involving measure (e.g. length) using decimal notation including scaling.
Perimeter	5M7a	Measurement	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
Area	5M7b	Measurement	Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes.