Unit II – Decimals (2)

I Make a whole
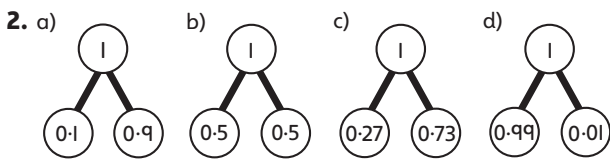
→ **pages 8–11**

Discover

1. a) Jamie needs another 0·3 kg of strawberries.
b) Alex needs another 0·54 kg of strawberries.

Think together
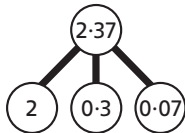
1. a) 0·**4**
b) 0·**2**
c) 0·**17**

2. a)

3. a) Jamilla needs 0·3 l more.
b) Luis needs 0·44 l more.
c) Various answers are possible, for example:
0·1 + 0·9, 0·2 + 0·8 and so on (tenths add to 10).
0·25 + 0·75, 0·45 + 0·55 and so on
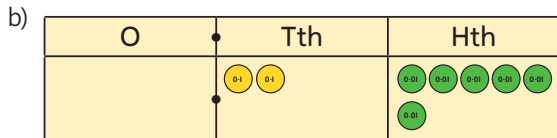(hundredths add to 100).

2 Partition decimals

→ **pages 12–15**

Discover

1. a) The ones and tenths are correct, but Lexi has only 6 hundredths instead of 7.
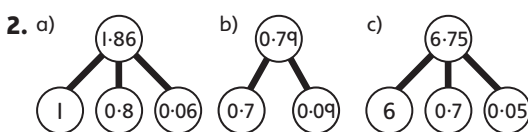b) 2·37 = 2 + 0·3 + 0·07

Think together

1. a) 5·49 is equal to **5** ones, **4** tenths and **9** hundredths.
5·49 = 5 + 0·**4** + 0·0**9**
b)

O	Tth	Hth
	0·1 0·1	0·01 0·01 0·01 0·01 0·01 0·01

0·26 is equal to **0** ones **2** tenths and **6** hundredths.
0·26 = **0·2** + **0·06**

2. a)

3. There are many possible answers, including whole numbers, for example:
50, 5, 41, 14, 32, 23
40·1, 40·01, 30·2, 30·02
20·3, 20·03, 20·12, 20·21
31·1, 31·01, 30·11, 3·11
22·1, 22·01, 21·2, 21·02
12·11, 12·2, 12·02
0·5, 4·1, 1·4, 3·2, 2·3
0·05, 0·41, 0·14, 0·32, 0·23
4·01, 1·04, 3·02, 2·03
10·22, 10·13, 10·31, 10·4, 10·04
11·12, 11·21, 13·1, 13·01
1·31, 1·13, 2·21, 2·12

3 Flexibly partition decimals

→ **pages 16–19**

Discover

1. a)

T	O	Tth	Hth
	🔴🔴🔴🔴	🟡🟡🟡	🟢🟢🟢🟢🟢 🟢
	4	3	6

b)

Think together

1. a)
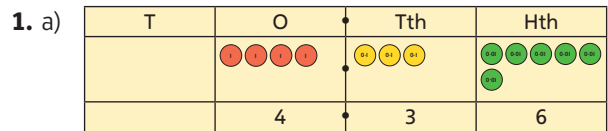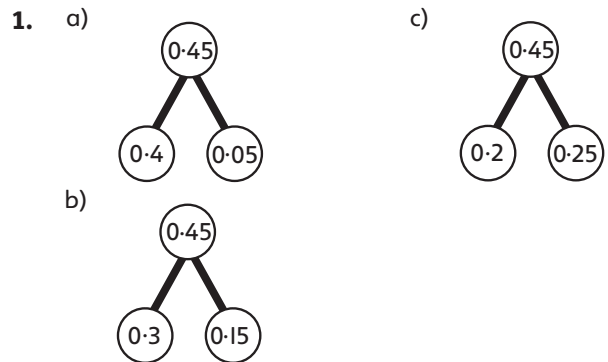
2. Children should draw part-whole models to show a correct partitioning of 5·26, for example:
5 + 0·26   5 + 0·2 + 0·06
4 + 1·26   4 + 1·2 + 0·06
5·2 + 0·06   3·2 + 2·06

3. Set A
0·89 = 0·8 + **0·09**
0·89 = 0·7 + **0·19**
0·89 = 0·6 + **0·29**
0·89 = 0·4 + **0·49**
0·89 = 0·1 + **0·79**

Set B
3·42 = 3 + 0·4 + **0·02**
3·42 = 3 + 0·3 + **0·12**
3·42 = 3 + 0·2 + **0·22**
3·42 = 3 + **0·42**
3·42 = 2 + **1·4** + 0·02

4 Compare decimals

→ **pages 20–23**

Discover

1. a) 0·67 m < 0·76 m
Zac is correct.
b) 0·79 is greater than 0·76.
Zac is correct.

Think together

1. a) **<**
b) **<**
c) **>**

2. a) 0·68 **>** 0·65
b) 0·38 **<** 0·45
c) 2·08 **<** 3·24
d) 16·81 **>** 6·79

3. a) Holly jumps further each time.
b) Place value grid with 2 counters in the ones and 4 in the tenths.
Place value grid with 2 counters in the ones and 7 in the tenths.
c) 2·4 **<** 2·7

5 Order decimals

→ **pages 24–27**

Discover

1. a) 1·25 kg   2·11 kg   2·15 kg
Lily   Bob   Molly
b) Flopsy's mass could be 2·12 kg, 2·13 kg or 2·14 kg.

Think together

1. 1·2, 1·9, 2·1

2. a) 1·43, 1·53, 2·33
b) 15·62, 19·07, 25·31

3. a) 9·82 is the largest, so should be first.
b) Various answers are possible, for example:
5·3**2**, 5·**3**3, **5**·54, 6·**0**9
5·3**9**, 5·**4**3, **6**·54, 6·**7**9

6 Round to the nearest whole

→ **pages 28–31**

Discover

1. a) Mo is correct. The amount of sugar, 6·8 g, is closer to 7 g than 6 g.
b) The smallest possible amount of salt is 0·5 g.

Think together

1. a) 4
b) 6
c) 13

2.

Previous		Next
3	3·2	**4**
4	4·5	**5**
0	0·7	**1**
11	11·8	**12**

3. a) Jamilla is not correct.
7·5, 7·7 and 7·9 round up to 8, as all the tenths are 5 or above and 7 is less than 8.
8·1 rounds down to 8, as 1 < 5.
8·5 rounds up to 9, 5 and above rounds up.
b) 8·2, 8·3 and 8·4 round down to 8.
7·6, 7·8 round up to 8.
Children may suggest numbers with 2 decimal places.
The smallest is 7·5, the largest is 8·49.

7 Halves and quarters as decimals

→ **pages 32–35**

Discover

1. a) Ebo is correct, $\frac{1}{2}$ is equivalent to 0·5.
b) $\frac{3}{4}$ is equivalent to 0·75.

Think together

1. $\frac{1}{4}$ = 0·25

2. $\frac{1}{2}$ is equivalent to **50** hundredths.
$\frac{1}{2}$ is equivalent to **5** tenths.
$\frac{1}{2}$ = 0·**5**

3. a) 3·4 does not show $\frac{1}{2}$.
b) 1·25, 1·5, 1·75

End of unit check

1. D

2. C

3. B

4. C

5. A

6.

Fraction	Decimal
$\frac{1}{4}$	0·25
$\frac{1}{2}$	0·5
$\frac{3}{4}$	0·75
$1\frac{1}{2}$	1·5
$1\frac{3}{4}$	1·75
$2\frac{1}{2}$	2·5
$3\frac{1}{4}$	3·25

Unit 12 – Money

1 Write money using decimals

→ **pages 40–43**

Discover

1. a) Emma has 100 pence = £1·00.
b) Danny has 43 pence = £0·43.

Think together

1. a) £0·55 b) £0·20

2. a) £3·30   c) £0·03
b) £3·03   d) £0·35

3. £0·50: 50p or 20p + 20p + 5p + 5p
£1·50: £1 + 50p or £1 + 20p + 20p + 5p + 5p
£2·30: £1 + 50p + 50p + 20p + 5p + 5p
£1·05: 50p + 50p + 5p or £1 + 5p

2 Convert between pounds and pence

→ **pages 44–47**

Discover

1. a) Bella has 236p in total.
b) Bella has £2·36 in total.

Think together

1. a) 114p
b) £1·14

2. £1·50   £3·03
£2·99   £0·90

3. a) 1p = £0·01   2p = £0·02   5p = £0·05
10p = £0·10 20p = £0·20 50p = £0·50
£1 = £1·00   £2 = £2·00   £5 = £5·00
£10 = £10·00   £20 = £20·00
b) Neither child is correct, as money is written with
2 decimal places.
1p = £0·**0**1 and 10p = £0·1**0**

3 Compare amounts of money

→ **pages 48–51**

Discover

1. a) The football is more expensive than the
colouring pencils.
b) Isla could buy any items that cost £5·00 or 500p
or less.
Isla could buy the football or both the colouring
pencils and the notepad.

Think together

1. a) The dinosaur comic is the cheapest.
b) The engine is the most expensive.
c) 59p   £0·99   595p   £5·99   9 pounds 95 pence
comic   car   movie   doll   engine

2. Alec has £6·50, so could buy everything except
the engine.

3. Max has not taken into account the value of the rest
of his coins.
Richard does have the most money, but not because
he has more coins. Someone with fewer coins could
have more than Richard has, for example, four £2
coins = £8·00 is more than Richard's nine coins which
total £6·70.

4 Estimate with money

→ **pages 52–55**

Discover

1. a) Each item has 99p in the pence part of the price.
But they all have different numbers of pounds in
the pounds part of the price.
b) £1 + £2 + £3 = £6
A good estimate is £6.

Think together

1. The cap costs approximately £5. Accept answers that
the sunglasses are approximately £5 but children
should be able to explain their reasoning for choosing
this item.

2. Various responses are possible for both individual
items and combined totals, for example:
50p + £19 + £50 + £50 = £119·50
50p + £20 + £50 + £50 = £120·50

3. a) £1·50 + £4 + £2·50 = £8
b) Over estimate as all the prices have been
rounded up.
If children have rounded to the nearest pound,
their estimate will be £1 + £4 + £2 = £7, which is an
under estimate, as two prices have been rounded
down quite significantly.

5 Calculate with money

→ **pages 56–59**

Discover

1. a) The total cost is £4·25.
   b) Alex will get 75p change.

Think together

1. a) £4·95
   b) £4·15

2. £7·65

3. Both questions involve subtraction from £5.
   Ambika's question is about how much change she gets, given the amount she spends (£2·32).
   Bella's question is about the amount spent, given the change she gets (£1·54).

6 Solve problems with money

→ **pages 60–63**

Discover

1. a) £1·95 > £1·50 so it is cheaper for Kate to buy the pack of 3 buns.
   b) 6 single buns = £3·90
      2 packs of 3 buns = £3
      £3 < £3·50, Max could have had a better deal.

Think together

1. 3 × 60p = **180**p
   3 × 9p = **27**p
   3 × 69p = **207**p
   Kate receives £**2·93** change from £5.

2. a) £3·50
   b) 35p

3. 4 for £2·40 = 60p each
   6 × 60p = £3·60
   £3·60 > £3·36
   Lee is not correct, 6 for £3·36 is the better deal.
   Some children may be able to work out that 6 for £3·36 = 56p each.
   12 cookies from each bag method:
   4 for £2·40 = 12 for £7·20
   6 for £3·36 = 12 for £6·72, which is the better deal.

End of unit check

→ **pages 64–65**

1. D

2. D

3. A

4. A

5. D

6. B

7. £3·47

8. apple = 35p (pear = 20p)

Unit 13 – Time

1 Years, months, weeks and days

→ pages 68–71

Discover

1. a) The new play area will open in 28 days.
   b) Max's dog is 5 years and 3 months old.

Think together

1. a) Andy is 9 years and 2 months old.
   b) Mo is 10 years and 9 months old.

2. 35 ÷ 7 = **5**
   5 weeks are the same as 35 days.

3. Amelia is wrong because she thinks that the number of years and months are the same as tens and ones. 4 years are worth 4 × 12, not 4 × 10. 4 years and 3 months = 51 months.

2 Hours, minutes and seconds

→ pages 72–75

Discover

1. a) 1 minute is equal to 60 seconds.
   b) 3 minutes 20 seconds = 200 seconds, so both timers show the same time until launch.

Think together

1. 2 minutes = 2 × 60 seconds = 120 seconds
   120 seconds + 50 seconds = 170 seconds
   The two timers do not show the same time.

2. 280 seconds is the same as 4 minutes + 40 seconds. The timer on the left should show 4 minutes 40 seconds.

3. 5 hours and 10 minutes = **310** minutes
   This is similar to converting minutes into seconds because there are the same number of minutes in 1 hour as there are seconds in 1 minute (60).

3 Convert between analogue and digital times

→ pages 76–79

Discover

1. a) The time on the watch should say 3:07 pm.

   b)

   Analogue: Digital: 4:37 pm

Think together

1. a) Twenty to 9 is the same as **forty** minutes past **8**.

   Analogue: Digital: 8:40 am

2. a) 7:51 pm, b) 5:21 pm, c) 8:10 am, d) 4:05 am

3. a) Alex's clock face matches the digital time.
   b) Jamilla thinks 6:10 am means six minutes past 10 and has drawn this time instead.
   Bella has mixed up the minute and the hour hands.

4 Convert to the 24-hour clock

→ pages 80–83

Discover

1. a) The first two digits show the hour (from 00 up to 23). The last two digits show the number of minutes past (from 00 up to 59).
   b) The correct watch shows 15:52.

Think together

1. a) The clock shows **twelve** minutes past **8**.
   As a 12-hour time, this is written as **8:12** am.
   As a 24-hour time, this is written as **08:12**.
   b) The clock shows **thirteen** minutes to **12**.
   As a 12-hour time, this is written as **11:47** pm.
   As a 24-hour time, this is written as **23:47**.

2. Quarter to 5 is the same as forty-five minutes past 4.

   Analogue: 24-hour digital: 04:45
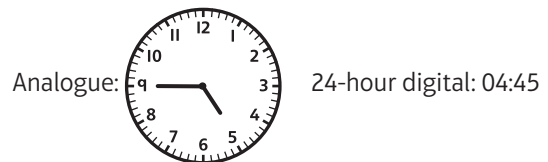
3. a) Mo's watch would show 06:35.

   b) Mo's watch would show 18:35.

4. Isla has treated it as a pm time. It is the morning, so she does not need to add 12 to the number of hours. To convert 7:28 am into a 24-hour time, Isla needs to write a 0 at the start of the time so it has four digits and remove the letters 'am' as these are not needed. The 24-hour time is 07:28.

5 Problem solving – convert units of time

Discover

1. a) The explorers have been training for $2\frac{1}{2}$ years.
b) Toshi does have enough socks to make it to the North Pole, because three weeks (or 21 days) of socks is greater than the 20 days left of travelling.

Think together

1. $(3 \times 60) + 14 = 180 + 14 = 194$ seconds
194 seconds < 203 seconds
3 minutes 14 seconds is a quicker time than 203 seconds.
Jen is quicker than Toshi.

2. a) Tin A = Use by 4 weeks 2 days
Tin B = Use by 4 weeks
Tin B needs to be used first.
b) Tin A = Use by 30 days
Tin B = Use by 28 days
Tin B needs to be used first.

3. Children's answers will vary but should involve converting one of the given measurements so that the unit of time is the same.
a) 3 hours and 45 minutes is 225 minutes, so it is longer than 200 minutes.
b) $4\frac{1}{2}$ years is 54 months, so it is longer than 50 months.

End of unit check

1. D

2. A

3. C

4. B

5. B

6. 1 minute 19 seconds

Unit 14 – Geometry – angles and 2D shapes

1 Identify angles

→ **pages 92–95**

Discover

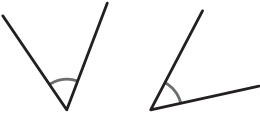**1.** a) The bench can fit in corners **a** and **b**.
 b) Same: All of the angles measure the turn between two hedges of the garden.
 Different: Angle **a** is a quarter turn or a right angle.
 Angle **b** is larger than a right angle.
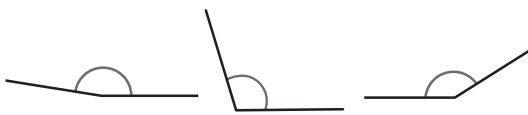 Angle **c** is smaller than a right angle.

Think together

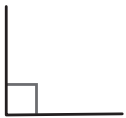**1.** The bench will fit in corners b, c and d.

2. a)

 b)

 c) The right angle is in **a)**.

3. a) i) Numbers 1, 2, 10 and 11 will show an acute turn.
  ii) Numbers 3 and 9 will show a right angle turn.
  iii) Numbers 4, 5, 6, 7 and 8 will show an obtuse turn.
 b) The top angle is a right angle, the two side angles are obtuse angles, and the bottom angle is an acute angle.
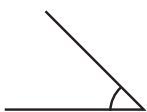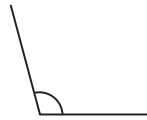
2 Compare and order angles

→ **pages 96–99**

Discover

1. a) Emma's ramp will allow for the highest jump.
 b) A ramp set at a right angle would not work.
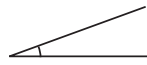
Think together

1. a) The first angle is the smallest angle.

 b) The second angle is the largest angle.

 c) The first angle is the smallest angle.

2. d, a, c, b

3. a) Fewest to most acute angles: C, A, B
 Fewest to most right angles: C, B, A
 Fewest to most obtuse angles: B, A, C
 b) Bottom left angle, top angle, right angle

3 Triangles

→ **pages 100–103**

Discover

1. a) Ambika and Lee have made triangles.
 b) Same: Both triangles have a right angle.
 Different: When folded, the square makes a triangle that has two equal sides and two equal angles (an isosceles triangle) and the rectangle makes a triangle that has three unequal sides and three unequal angles (a scalene triangle).
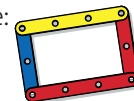
Think together

1. C is a scalene triangle.

2. A, C and E have three acute angles.

3. a) There are 8 different triangles that can be made. Each triangle should be different in size or angles and/or length of sides, not just in orientation.
 b) Discuss suggestions for how they know as a class. The easiest way would be to draw a number of 3×3 geoboards on squared paper and draw one triangle on each, until it is not possible to find any more.

4 Quadrilaterals

→ **pages 104–107**

Discover

1. a) Olivia's shapes all have four sides but each has different angles.
 b) A regular quadrilateral with four sides and four angles is a square. The only regular quadrilateral Olivia has is this rectangle:

Think together

1. A, C and D are parallelograms.

2. Children should accurately draw a different trapezium.

3. a) Children should be able to create all the quadrilaterals they have studied so far.
 b) The quadrilaterals the children have created in part a) should be sorted correctly into the sorting circles.

5 Polygons

→ **pages 108–111**

Discover

1. a) The tent Richard remembers could have been either tent C or D.
   b) The two hexagons are similar as they both have six sides and six angles. They are different because their side lengths and interior angles are different sizes. One is an irregular hexagon and one is a regular hexagon.

Think together

1. The irregular polygons are the isosceles triangle and the rectangle.

2. The triangles (all equilateral) and the hexagon are regular. The rectangle and parallelograms are irregular.

3. Alex has mistakenly put the isosceles triangle (not regular) and the rectangle (not regular) in the wrong places in the table. Other shapes that could go in each section:
A four-sided shape:
   Irregular: trapezoid
   Regular: square
Not a four-sided shape:
   Irregular: circle
   Regular: hexagon

6 Reason about polygons

→ **pages 112–115**

Discover

1. a) Bella's shape cannot be a regular hexagon as the angles and sides are unequal. Bella could make shapes such as a rectangle, an irregular heptagon and an irregular octagon.
   b) Bella could make a hexadecagon which has 16 corners.

Think together

1. Different answers are possible, for example:

   Raj used a square and a parallelogram; Raj used a rectangle and a parallelogram.

2. Ruby could make: a rhombus, an equilateral triangle, a trapezium, an irregular heptagon, an irregular hexagon, a parallelogram or an irregular pentagon. Ask children to check their working by using physical 2D shapes.

3. a)

Quadrilateral	Can it be made?
Square	Yes
Rectangle	Yes
Rhombus	Yes (as a square)
Trapezium	No
Kite	Yes (as a square)
Arrowhead	No

7 Lines of symmetry

→ **pages 116–119**

Discover

1. a) The square has four lines of symmetry.
   b) There are three lines of symmetry in an equilateral triangle.
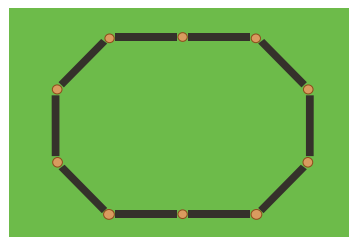
Think together

1. Dominic is not correct as the two halves are not mirror images of each other.

2. Hexagon A has no lines of symmetry.

   Hexagon B has six lines of symmetry (because it is regular).

3. The kite has one line of symmetry.

   The parallelogram has no lines of symmetry.

   The reflex kite has one line of symmetry.

   The isosceles trapezium has one line of symmetry.

   The rectangle has two lines of symmetry.

   The rhombus has two lines of symmetry.

   The square has four lines of symmetry.

   The right-angled trapezium has no lines of symmetry.
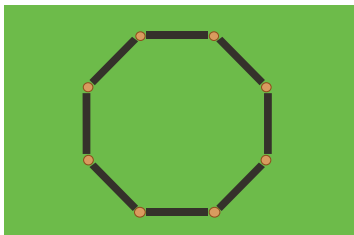
8 Complete a symmetric figure

→ **pages 120–123**

Discover

1. a) Isla's chicken pen will look like this once it has been completed with five more pieces of fence. Isla's chicken pen is an irregular octagon.

The pen will have two lines of symmetry.

b) Isla can complete a symmetrical pattern using only three pieces of fence.

This regular octagon has 8 lines of symmetry.

Think together

1. a) Children should complete the shape correctly using 5 lolly sticks.
   b) Children should complete the shape correctly using 5 lolly sticks.

2. a) Children should complete the shape correctly using 6 lolly sticks.
   b) Children should complete the shape correctly using 6 lolly sticks.

3. 1. True: you can draw a right-angled trapezium, for example.

   2. False: it will depend on where the line of symmetry is.

   3. False: it will depend on where the line of symmetry is.

   If the line of symmetry meets a side of the shape at right angles, then the reflected side will form part of the same side. The shapes in question **1** will not have double the number of sides when after reflection, but the shapes in question **2** will have double the number of sides.

End of unit check

→ **pages 124–125**

1. B

2. B

3. B

4. D

5. B

6. a) A, B, D

   b) A, C

Unit 15 – Statistics

1 Interpret charts

→ pages 128–131

Discover

1. a) Class 4T made 45 cookies.
Class 4A made 55 cookies.
   b) Class 4A made the most cupcakes.
They made 60 cupcakes.

Think together

1. a) Class 5T sold 28, Class 5A sold 45.
   b) 36

2. Class 4C (£36 compared to £28 for Class 4B)

3. a) £650
   b) Olivia is not correct. Year 6 raised £675 and so the bar should be three-quarters of the way between £600 and £700.
   c) £650 (Year 3) + £525 (Year 4) + £350 (Year 5) + £675 (Year 6) = £2,200

2 Solve problems with charts (1)

→ pages 132–135

Discover

1. a) The farm park sold 19 more child tickets on Saturday.
   b) 55 + 60 = 115
The farm park sold 115 adult tickets altogether over the weekend.

Think together

1. a) 16 (42 − 26)
   b) 75 (51 + 24)

2. a) £600 (£225 + £375)
   b) £75 (£300 − £225)

3. a) 33 (69 − 36, accept 34)
   b) Saturday

3 Solve problems with charts (2)

→ pages 136–139

Discover

1. a) Years 3 and 4 raised £30 more than Years 5 and 6.
   b) Year 4 sold 60 cards in total.

Think together

1. a) £60 more (£240 compared to £180)
   b) £420 (£240 + £180)
   c) 23 (£115 ÷ £5)

2. a) lions and owls
   b) £100 (£70 + £30 or 20 × £5)

3.

Maple	£**24**
Ash	£**36**
Oak	£42
Willow	£**30**

4 Interpret line graphs (1)

→ pages 140–143

Discover

1. a) The temperature at 11 am was 14 °C.
   b) The temperature decreased by 6 °C between 12 pm and 3 pm.

Think together

1. a) 24 °C
   b) 25 °C
   c) 25 °C; it is only an estimate because the temperature was not actually measured at this time. It is the value that is half-way between the values taken at 2 pm and 3 pm.
   d) 2 pm
   e) 10:15 am

2. 2 hours 15 minutes (from 12:45 pm to 3 pm)

3. a) 11 °C
   b) 2 °C (9 − 7)
   c) Same: Both temperatures are the coldest at 8 am, are the warmest at 12 pm and then cool so they have similarly shaped line graphs
Different: All the temperatures are warmer in October (colder in December). There is a similar gap between the temperatures until 2 pm, when the October temperature drops at a faster rate than the December temperature.

5 Interpret line graphs (2)

→ pages 144–147

Discover

1. a) Sofia cycled 25 km between 11 am and 12 pm.
   b) It took Sofia 1 hour and 15 minutes to cycle the next 40 km.

Think together

1. a) 25 km (110 − 85)
   b) 50 km (90 − 40)
   c) 9:30 am
   d) Yes, the race started at the same time and was the same distance.

**2.** 1 hour and 30 minutes (from 10:30 am to 12 pm)

3. a) After 60 minutes, Ian had run **16** km and Jo had run **14** km.
It took Jo **140** minutes and Ian **130** minutes to run 34 km.
Before the end of a race, Ian and Jo had both run exactly the same distance after **180** minutes.
b) Children's answers will vary; look for clear comparisons involving the words listed.
For example:
Ian was the fastest for the first 26 miles compared to Jo.
Jo was the slowest for the first 26 miles compared to Ian.
Ian completed the first 12 km in less time compared to Jo.
Jo took more time to run 16 km compared to Ian.
At 140 minutes Jo was the slowest and had run fewer miles.
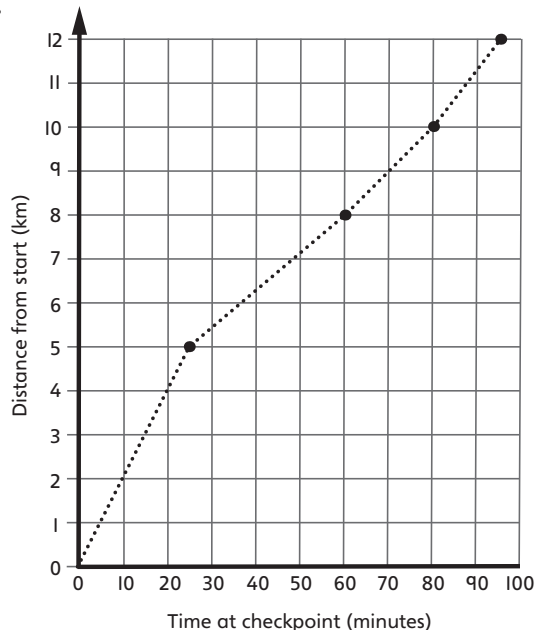
6 Draw line graphs

→ pages 148–151

Discover

1. a) Time goes on the horizontal axis. It will go from 1930 to 2020. The population will go on the vertical axis.
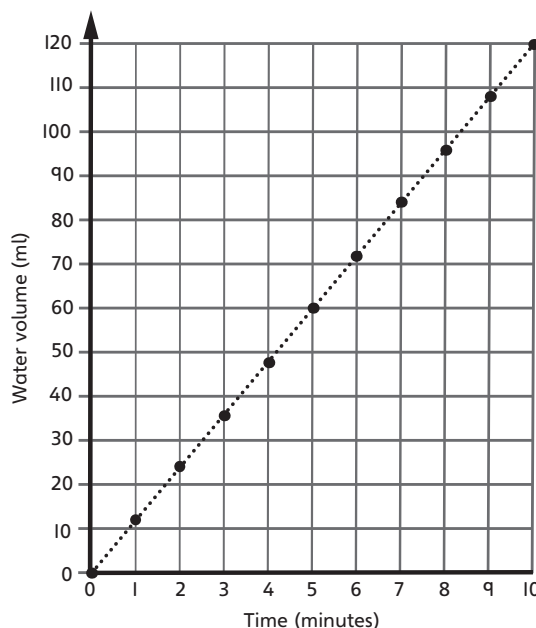b)
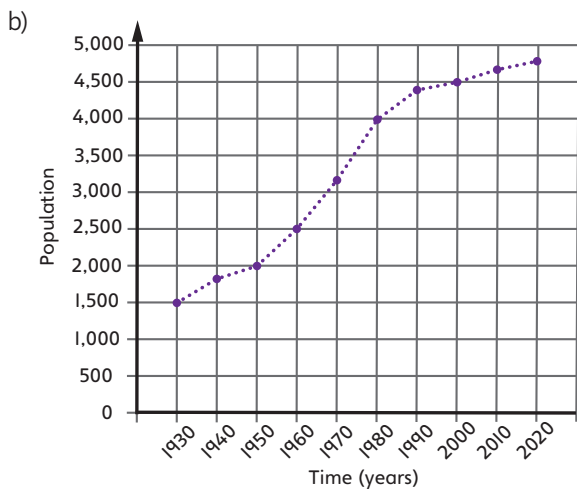
Think together

1.

2. a) 5·5 km
b) 36 minutes (accept between 35 and 37 minutes)
c) The values are estimates because they are between the points on the graph.

3. Children's answers will vary depending on the size of the hole in the yoghurt pot. Look for axes clearly and accurately labelled.
For example:

End of unit check

→ pages 152–153

1. B   **4.** C
2. D   **5.** D
3. C   **6.** 9 °C

Unit 16 – Geometry – position and direction

1 Describe position

→ **pages 156–159**

Discover

1. a) Bella is looking for the roller coaster.
   b) The roller coaster is half-way between the log flume and the dropzone ride.

Think together

1. a) Café (or toilets)
   b) Lake
   c) Gift shop
   d) Roller coaster

2. a) Near the log flume; left of the picnic spot and playground.
   b) Near the coach park, above the gift shop.
   c) Between the first-aid post and the roller coaster.
   d) Near the top of the map, close to the dropzone ride.

3. a) Log flume
   b) Toilets
   c) Gift shop

2 Describe position using coordinates

→ **pages 160–163**

Discover

1. a) The sword was found at position (2,2).
   b) The gold cup was found at position (2,1).

Think together

1. a) Blue pot
   b) Statue
   c) Spear

2. a) (1,1)
   b) i) (0,3)
      ii) (4,0)
      iii) (5,1)

3. C (4,1) because this is in the river, not in the middle of trees.
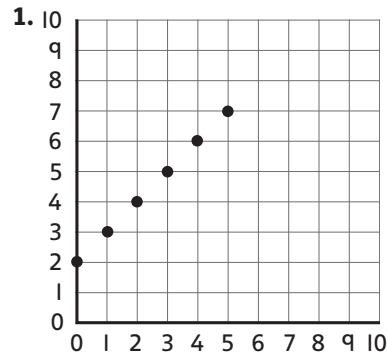
3 Plot coordinates

→ **pages 164–167**

Discover

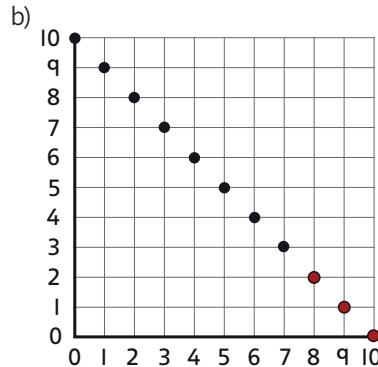**1.** a) Plot a point at (3,5).
   b) Reena should plot the points (4,4), (5,3), (6,2) and (7,1) to continue the dots in a straight line.

Think together

1.

2. a) (8,2) (9,1), (10,0)
   b)

   (7,3), (6,4), (5,5), (4,6), (3,7), (2,8), (1,9), (0,10)
   c) The first part of the coordinate decreases by 1 and the second part increases by 1 each time.

3. (3,3), (1,3), (1, $2\frac{1}{2}$), (2, $2\frac{1}{2}$), (2, $1\frac{1}{2}$), (1, $1\frac{1}{2}$), (1,1), (3,1), (3,0), (0,0)

4 Draw 2D shapes on a grid

→ **pages 168–171**

Discover

1. a) Draw a line to (4,4).
   b) Draw a line to (1,4).

Think together

1. (7,5)

2. (2,7) and (8,7)

3. (4,9) and (8,9) or (4,1) and (8,1)

4. (1,2), (2,1), (5,2), (6,1)

5 Translate on a grid

→ **pages 172–175**

Discover

1. a) Sofia wants to look at the jetty.
   b) Sofia sent the drone to the castle.

2. 3 left, 1 down: Q to P
    4 right, 3 down: P to R
    4 left, 3 up: R to P
    1 left, 4 up: R to Q
    1 right, 4 down: Q to R
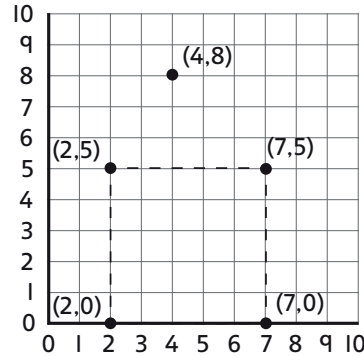
3. B: (7,7), C: (11,7), D: (11,4)

Think together

1. B

    D

    C

    E

    A

2. Q to P

    P to R

    R to P

    R to Q

    Q to R

3. B: (7,7), C: (11,7), D: (11,4)

6 Describe translation on a grid

→ **pages 176–179**

Discover

1. a) Jamilla could write her journey as '2 left, 1 up'.
    b) The journeys are the same: both are correct.

Think together

1. a) 1 right, 2 down
    b) The journeys are the same: both are correct.
    c) 2 right, 1 down or 1 down, 2 right
    d) 1 up

2. A to B: 5 left, 2 up   B to A: 5 right 2 down

    A to C: 3 left, 3 down   C to A: 3 right, 3 up

    B to C: 2 right, 5 down   C to B: 2 left, 5 up

3. A: 2 right, 3 up

    B: 4 right

    C: 1 left, 2 down

End of unit check

→ **pages 180–181**

1. C

2. C

3. B

4. B

5. A

6. You could move (4,8) to (2,0) to make a square.