

Answers

Answers



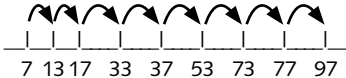
Pupil Book 3A

Unit 1, Week 1: Number - Number and place value

Lesson 1: 2-digit numbers

- Challenge 1**
- | | |
|------|------|
| a 15 | e 25 |
| b 24 | f 18 |
| c 29 | g 36 |
| d 12 | h 43 |

- Challenge 2**
- | | |
|--------|------|
| 1 a 41 | c 79 |
| b 57 | d 68 |
| 2 a 54 | f 83 |
| b 39 | g 50 |
| c 47 | h 63 |
| d 79 | i 59 |
| e 22 | j 98 |

- Challenge 3**
- 1 7 13 17 33 37 53 73 77 97
- 2 
- 3 Answers will vary.
- 4 Answers will vary.

Lesson 2: Partitioning 2-digit numbers

- Challenge 1** These answers drawn as Base 10:
- | | |
|-----------------|-----------------|
| a $10 + 4 = 14$ | f $30 + 1 = 31$ |
| b $10 + 9 = 19$ | g $20 + 9 = 29$ |
| c $20 + 8 = 28$ | h $10 + 8 = 18$ |
| d $30 + 5 = 35$ | i $30 + 4 = 34$ |
| e $20 + 3 = 23$ | j $40 + 6 = 46$ |

- Challenge 2** These numbers partitioned:

- | | |
|------|------|
| a 35 | f 39 |
| b 37 | g 59 |
| c 46 | h 63 |
| d 53 | i 44 |
| e 48 | j 57 |

- Challenge 3**
- 1 These numbers partitioned:
- | | |
|------|------|
| a 57 | d 88 |
| b 68 | e 95 |
| c 71 | |

- 2 Answers will vary.

- 3
- | | |
|------------------|------------------|
| a $40 + 13 = 53$ | f $30 + 46 = 76$ |
| b $20 + 25 = 45$ | g $50 + 39 = 89$ |
| c $40 + 31 = 71$ | h $60 + 14 = 74$ |
| d $40 + 28 = 68$ | i $20 + 37 = 57$ |
| e $50 + 42 = 92$ | |

Lesson 3: 3-digit numbers

- Challenge 1**
- | | |
|-------|-------|
| a 125 | d 121 |
| b 116 | e 145 |
| c 132 | f 157 |

- Challenge 2**
- | | |
|---------|-------|
| 1 a 263 | d 562 |
| b 327 | e 663 |
| c 451 | f 744 |

- | | |
|---------|-------|
| 2 a 264 | c 403 |
| b 398 | d 653 |

- Challenge 3**
- | | |
|---------|-------|
| 1 a 747 | c 575 |
| b 921 | d 163 |

- 2 Answers will vary.

Lesson 4: Ordering numbers to 1000

- Challenge 1**
- | |
|--------------------------|
| 1 a 21, 39, 54, 87 |
| b 12, 25, 66, 93 |
| c 14, 17, 41, 47, 74 |
| d 95, 100, 101, 105, 107 |

- 2 Answers will vary.

- Challenge 2**
- | |
|-----------------------------|
| 1 a 102, 142, 204, 214, 241 |
| b 214, 223, 254, 256 |
| c 218, 265, 327, 376 |
| d 155, 237, 284, 362 |
| e 207, 271, 301, 317, 377 |
| f 241, 314, 354, 412, 413 |

- 2 Answers will vary.

- Challenge 3**
- | |
|-----------------------------|
| 1 a 603, 634, 701, 751, 792 |
| b 638, 701, 739, 811, 822 |
| c 219, 293, 903, 912, 921 |
| d 578, 875, 919, 987, 998 |

- 2
- | |
|--|
| a 679, 697, 769, 796, 967, 976, 467, 476, 647, 674, 746, 764, 479, 497, 749, 794, 947, 974, 469, 496, 649, 694, 946, 964 |
| b 467, 469, 476, 479, 496, 497, 647, 649, 674, 679, 694, 697, 746, 749, 764, 769, 794, 796, 946, 947, 964, 967, 974, 976 |

Unit 1, Week 2: Number - Addition and subtraction

Lesson 1: Adding 2-digit numbers

- Challenge 1**
- | |
|--------------------------------|
| 1 a $23 + 10 + 10 + 1 = 44$ |
| b $27 + 10 + 10 + 2 = 49$ |
| c $34 + 10 + 10 + 5 = 59$ |
| d $37 + 10 + 10 + 10 + 1 = 68$ |

- | | |
|--------|------|
| 2 a 58 | c 68 |
| b 76 | d 64 |

- Challenge 2**
- | | |
|--------|-------|
| 1 a 63 | e 93 |
| b 81 | f 91 |
| c 79 | g 115 |
| d 81 | h 117 |

- | | |
|---------|-------|
| 2 a 132 | c 120 |
| b 142 | d 131 |

- Challenge 3**
- | | |
|---------|-------|
| 1 a 132 | e 151 |
| b 148 | f 127 |
| c 165 | g 151 |
| d 159 | h 168 |

- | | |
|--------|------|
| 2 a 29 | d 47 |
| b 41 | e 53 |
| c 46 | f 72 |

Lesson 2: Adding to 3-digit numbers

- Challenge 1**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |

- Challenge 2**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |

- Challenge 3**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |
| 3 Answers will vary. |

Lesson 3: Subtracting 2-digit numbers

- Challenge 1**
- | | |
|--------|------|
| 1 a 22 | c 13 |
| b 13 | d 16 |

- | | |
|--------|------|
| 2 a 12 | c 16 |
| b 21 | d 27 |

- Challenge 2**
- | | |
|--------|------|
| 1 a 23 | e 36 |
| b 17 | f 38 |
| c 28 | g 36 |
| d 25 | h 37 |

- | | |
|--------|------|
| 2 a 38 | c 41 |
| b 29 | d 63 |

- Challenge 3**
- | | |
|--------|------|
| 1 a 43 | d 82 |
| b 36 | e 91 |
| c 36 | f 93 |

- 2 Answers will vary.

Lesson 4: Subtracting from 3-digit numbers

- Challenge 1**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |

- Challenge 2**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |

- Challenge 3**
- | |
|----------------------|
| 1 Answers will vary. |
| 2 Answers will vary. |
| 3 Answers will vary. |

Unit 1, Week 3: Geometry - Properties of shape

Lesson 1: Naming 3-D shapes

- Challenge 1**
- | | |
|------------|------------|
| 1 cube | 6 cone |
| 2 cone | 7 sphere |
| 3 sphere | 8 cylinder |
| 4 cuboid | 9 cuboid |
| 5 cylinder | 10 cube |

- Challenge 2**
- | |
|--|
| 1 cube, sphere, hexagonal prism, cylinder, cone and triangular prism |
|--|

- | |
|--------------------|
| 2 A cuboid |
| B triangular prism |
| C cone |

Challenge 3 Open

Lesson 2: Making models of 3-D shapes

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: Classifying and describing 3-D shapes

3-D shape	A	B	C	D	E	F	G	H
Prism	•	•		•	•	•	•	
Not a prism			•					•

Challenge 2 1 a A, H c B, D, F
b F, G, H d C, E

2

Prism end face	Number of sides of end face	Total number of edges
Triangle	3	9
Square	4	12
Pentagon	5	15
Hexagon	6	18

3 a 24 c 36
b 30

Challenge 3 1 Number of edges of a prism = number of vertices + number of sides of end face
Number of vertices of a prism = number of edges – number of sides of end face

Lesson 4: Building models with cubes

Challenge 1 1, 2

3-D model	Number of square faces		
	Red	Blue	Yellow
A	5	5	4
B	4	5	5
C	5	4	5
D	5	5	4

Challenge 2 1, 2

3-D model	Number of square faces			
	Red	Green	Blue	Yellow
A	5	4	5	4
B	3	5	5	5
C	4	5	5	4
D	4	4	4	4

Challenge 3 1, 2, 3

Shape	1	2	3	4	5	6
Number of cubes	3	5	7	9	11	13

Pattern goes up in 2s because 2 more cubes are added each time
10th model has $(2 \times 10) + 1$ cubes = 21 cubes

Unit 2, Week 1: Number – Multiplication and division, incl. Number and place value

Lesson 1: Counting in 2s, 3s, 5s and 10s

Challenge 1 6, 8, 10, 12, 14, 16, 18, 20, 22, 24
6, 9, 12, 18, 21, 24, 27, 30, 33, 36
10, 15, 20, 25, 30, 35, 40, 45, 55, 60
20, 30, 40, 50, 60, 80, 90, 100

Challenge 2 4, 6, 8, 10, 20, 30, 40, 50, 60, 55, 50, 45,
40, 35, 30, 27, 24, 21, 18, 15, 10, 5, 0

Challenge 3 Answers will vary.

Lesson 2: 2s, 5s and 10s

Challenge 1 1 40, 80, 70, 30, 90
2 12, 18, 8, 14, 16
3 45, 25, 40, 30, 35

Challenge 2 a $5 \times 5 = 25$ j $7 \times 10 = 70$
b $8 \times 2 = 16$ k $4 \times 5 = 20$
c $3 \times 2 = 6$ l $60 \div 12 = 5$
d $24 \div 2 = 12$ m $40 \div 5 = 8$
e $7 \times 5 = 35$ n $6 \times 5 = 30$
f $9 \times 5 = 45$ o $20 \div 4 = 5$
g $100 \div 10 = 10$ p $9 \times 3 = 27$
h $30 \div 6 = 5$ q $25 \div 5 = 5$
i $5 \times 3 = 15$ r $3 \div 3 = 1$

Challenge 3 a $7 \times 5 = 35$ d $12 \times 5 = 60$
 $5 \times 7 = 35$ $5 \times 12 = 60$
 $35 \div 7 = 5$ $60 \div 12 = 5$
 $35 \div 5 = 7$ $60 \div 5 = 12$
b $9 \times 5 = 45$ e $10 \times 8 = 80$
 $5 \times 9 = 45$ $8 \times 10 = 80$
 $45 \div 9 = 5$ $80 \div 10 = 8$
 $45 \div 5 = 9$ $80 \div 8 = 10$
c $7 \times 2 = 14$ f $9 \times 2 = 18$
 $2 \times 7 = 14$ $2 \times 9 = 18$
 $14 \div 7 = 2$ $18 \div 9 = 2$
 $14 \div 2 = 7$ $18 \div 2 = 9$

Lesson 3: 3 multiplication table

Challenge 1 1 a 2 c 10
b 4 d 20
2 a 5 c 25
b 10 d 50
3 a 10 c 50
b 20 d 100
4 a 3 c 15
b 6 d 30
Challenge 2 1 a 4 g 7
b 3 h 9
c 3 i 3
d 12 j 15
e 3 k 3
f 5 l 4

2 a $3 \times 6 = 18$ d $3 \times 12 = 36$
 $6 \times 3 = 18$ $12 \times 3 = 36$
 $18 \div 6 = 3$ $36 \div 12 = 3$
 $18 \div 3 = 6$ $36 \div 3 = 12$
b $3 \times 7 = 21$ e $1 \times 3 = 3$
 $7 \times 3 = 21$ $3 \times 1 = 3$
 $21 \div 7 = 3$ $3 \div 1 = 3$
 $21 \div 3 = 7$ $3 \div 3 = 1$
c $3 \times 8 = 24$ f $3 \times 9 = 27$
 $8 \times 3 = 24$ $9 \times 3 = 27$
 $24 \div 8 = 3$ $27 \div 9 = 3$
 $24 \div 3 = 8$ $27 \div 3 = 9$

Challenge 3 a 24 c 30
b 24

Lesson 4: Solving word problems (1)

Challenge 1 1 a 12 b 120
2 a 9 b 90
3 a 6 b 60
4 a 15 b 150
5 a 20 b 200
6 a 30 b 300
7 a 21 b 210
8 a 27 b 270

Challenge 2 1 Josh earns £36 per year
2 There are 21 wheels altogether
3 Mari has 18 balloons
4 There are 8 children
5 £270 is collected
6 They need to collect £39
7 18 bicycles are still in the playground
8 There are 9 slices in the pizza
9 48 cakes are sold at the weekend

Challenge 3 Answers will vary.

Unit 2, Week 2: Number – Fractions

Lesson 1: Finding fractions

Challenge 1 1 a $\frac{1}{2}$ of 8 = 4 children
b $\frac{1}{2}$ of 4 = 2 apples
c $\frac{1}{2}$ of 12 = 6 balls
d $\frac{1}{2}$ of 10 = 5 shoes
e $\frac{1}{2}$ of 14 = 7 oranges
f $\frac{1}{2}$ of 20 = 10 pencils
2 Answers will vary.

- Challenge 2**
- $\frac{1}{4}$ of 12 = 3 children
 - $\frac{1}{4}$ of 40 = 10 bananas
 - $\frac{1}{4}$ of 20 = 5 socks
 - $\frac{1}{4}$ of 16 = 4 bottles
 - $\frac{1}{4}$ of 24 = 6 lemons
 - $\frac{1}{4}$ of 4 = 1 cup

2 Answers will vary.

- Challenge 3**
- $\frac{1}{3}$ of 12 = 4 leaves
 - $\frac{1}{3}$ of 6 = 2 plums
 - $\frac{1}{3}$ of 15 = 5 birds
 - $\frac{1}{3}$ of 9 = 3 books
 - $\frac{1}{3}$ of 18 = 6 children
 - $\frac{1}{3}$ of 24 = 8 cups
 - $\frac{1}{3}$ of 27 = 9 sweets
 - $\frac{1}{3}$ of 21 = 7 teddies
 - $\frac{1}{5}$ of 20 = 4 cups
 - $\frac{1}{5}$ of 25 = 5 oranges
 - $\frac{1}{5}$ of 15 = 3 books
 - $\frac{1}{5}$ of 30 = 6 pencils

3 Answers will vary.

Lesson 2: Solving fraction problems (1)

- Challenges 1, 2** 1, 2, 3 Answers will vary.

- Challenge 3** 1, 2, 3, 4 Answers will vary.

Lesson 3: Solving fraction problems (2)

- Challenge 1**
- $\frac{1}{3}$ are orange $\frac{2}{3}$ are red
 - $\frac{2}{6}$ are yellow $\frac{4}{6}$ are red
 - $\frac{2}{6}$ are red $\frac{2}{6}$ are pink
 - $\frac{2}{6}$ are yellow

2 Answers will vary.

- Challenge 2**
- $\frac{4}{7}$ are pink $\frac{1}{7}$ are brown
 - $\frac{2}{7}$ are orange
 - $\frac{1}{7}$ are orange $\frac{2}{7}$ are red
 - $\frac{2}{7}$ are green $\frac{2}{7}$ are blue
 - $\frac{3}{10}$ are red $\frac{5}{10}$ are orange
 - $\frac{2}{10}$ are green
 - $\frac{4}{10}$ are pink $\frac{4}{10}$ are green
 - $\frac{2}{10}$ are yellow

- Challenge 3**
- Answers will vary.
 - $\frac{5}{8}$ yellow $\frac{2}{8}$ blue $\frac{1}{8}$ orange
 - $\frac{4}{8}$ blue $\frac{2}{8}$ yellow $\frac{2}{8}$ red
 - Answers will vary.
 - Answers will vary.

Lesson 4: Adding fractions

- Challenge 1** 1, 2, 3, 4 Answers will vary.

- Challenge 2**
- $\frac{2}{6} + \frac{4}{6} = \frac{6}{6}$
 - $\frac{3}{6} + \frac{3}{6} = \frac{6}{6}$
 - $\frac{5}{6} + \frac{1}{6} = \frac{6}{6}$
 - $\frac{4}{6} + \frac{2}{6} = \frac{6}{6}$
 - $\frac{5}{8} + \frac{3}{8} = \frac{8}{8}$
 - $\frac{2}{8} + \frac{6}{8} = \frac{8}{8}$
 - $\frac{1}{8} + \frac{7}{8} = \frac{8}{8}$
 - $\frac{4}{8} + \frac{4}{8} = \frac{8}{8}$
 - $\frac{6}{8} + \frac{2}{8} = \frac{8}{8}$
 - $\frac{7}{8} + \frac{1}{8} = \frac{8}{8}$

2 Answers will vary.

- Challenge 3**
- $\frac{1}{4} + \frac{3}{4} = \frac{4}{4}$
 - $\frac{2}{5} + \frac{3}{5} = \frac{5}{5}$
 - $\frac{1}{5} + \frac{4}{5} = \frac{5}{5}$
 - $\frac{4}{6} + \frac{2}{6} = \frac{6}{6}$
 - $\frac{3}{6} + \frac{3}{6} = \frac{6}{6}$
 - $\frac{4}{7} + \frac{3}{7} = \frac{7}{7}$

2 Answers will vary.

- $\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$
 - $\frac{2}{5} + \frac{3}{5} = \frac{5}{5}$
- $\frac{3}{8} + \frac{5}{8} = \frac{8}{8}$

Unit 2, Week 3: Measurement (mass)

Lesson 1: Fruit stall kilograms and grams

- Challenge 1**
- 250 g
 - 500 g
 - 750 g
 - 3500 g
 - 4750 g
 - 1900 g
 - 6600 g
 - 1500 g
 - 1750 g
 - 2500 g
 - 7500 g
 - 8750 g
 - 4250 g
 - 6250 g

2

Child	Grapes	Strawberries	Cherries
Beth	1	2	1
Colin	1	1	3
Diana	0	4	2
Ellen	0	3	4
Fred	0	2	6
Grace	0	5	0

- Challenge 3**
- 3 packs of grapes, 1 pack of strawberries and 1 pack of cherries
 - 3 packs of grapes and 3 packs of cherries

Lesson 2: Market stall scales

- Challenge 1**
- 4 kg
 - $2\frac{1}{2}$ kg
 - 600 g
 - 200 g
 - $5\frac{1}{2}$ kg, 5500 g
 - $3\frac{1}{4}$ kg, 3250 g
 - $6\frac{3}{4}$ kg, 6750 g
 - $9\frac{1}{4}$ kg, 9250 g
 - 8 kg
 - $6\frac{1}{2}$ kg
 - 800 g
 - 500 g
- Challenge 2**
- B = 550 g
 - C = 1100 g
 - D = 1450 g

Lesson 3: Puppy masses

- Challenge 1**
- 2300 g
 - 5000 g
 - Jack
 - Mac
- Challenge 2**
- Mack
 - Tack
 - Jack 19400 g
 - Mac 4600 g

- 3400 g
- Zack
- Tack
- Jack
- Zack
- Tack 10000 g
- Zack 7350 g

- Challenge 3**
- 6 days
 - 2

Puppy food	Buy 1	Buy 2	Buy 5	Buy 10
Puppy Complete	3 kg	6 kg	15 kg	30 kg
Chews	200 g	400 g	1000 g	2000 g

Lesson 4: Mass on the menu

- Challenges 1, 2**
- A 2600 g
 - B 1100 g
 - 50 g
- Challenge 2**
- 950 g
 - 500 g + 100 g
 - 2×200 g
 - 500 g + 200 g + 50 g
 - 4×500 g
- Challenge 3**
- 10 kg + 4 kg + 6 kg = 20 kg
 - 8 kg + 7 kg + 5 kg = 20 kg
 - 3 kg + 7 kg + 8 kg = 18 kg
 - 12 kg + 6 kg = 18 kg

b Not possible

Unit 3, Week 1: Number - Addition and subtraction

Lesson 1: Adding 1s

- Challenge 1**
- 129
 - 161
 - 191
 - 5
 - 4
 - 7
 - 8
 - 6

2 Answers will vary.

- Challenge 2**
- 5
 - 8
 - 9
 - 7 stickers
 - 9 apples

Lesson 2: Adding 10s

- Challenge 1**
- 154
 - 177
 - 235
 - 264
 - 342
 - 386

- Challenge 2**
- | | |
|--------|------|
| 1 a 30 | f 50 |
| b 60 | g 40 |
| c 30 | h 70 |
| d 60 | i 80 |
| e 60 | |

2 Answers will vary.

- Challenge 3**
- | | |
|--------|------|
| 1 a 50 | d 80 |
| b 50 | e 90 |
| c 70 | f 60 |

2 a 90 hops b 50 cm

3 Answers will vary.

Lesson 3: Adding 100s

- Challenge 1**
- | | |
|---------|-------|
| 1 a 224 | d 369 |
| b 176 | e 581 |
| c 253 | f 493 |
- 2 a 252 f 404
- b 264 g 695
- c 286 h 712
- d 369 i 575
- e 357

- Challenge 2**
- | | |
|---------|-------|
| 1 a 343 | f 801 |
| b 575 | g 943 |
| c 681 | h 987 |
| d 649 | i 865 |
| e 764 | |

2 a 300 f 300

b 300 g 200

c 400 h 800

d 400 i 300

e 400

3 Answers will vary.

- Challenge 3**
- | | |
|---------|-------|
| 1 a 431 | d 112 |
| b 403 | e 27 |
| c 136 | f 454 |

2 Answers will vary.

3 Answers will vary.

Lesson 4: Solving word problems (2)

- Challenge 1**
- | | |
|--------------|--------------|
| a 101 people | c 113 apples |
| b 88 ml | d 144p |

- Challenge 2**
- | | |
|-----------------|--------------|
| a 326p | d 345 people |
| b 56 chocolates | e 46 books |
| c 433 copies | |

- Challenge 3**
- | | |
|-----------------|------------------|
| a 71 chocolates | c 12 pencil pots |
| b 79 cards | d 300 minutes |

Unit 3, Week 2: Number - Addition and subtraction

Lesson 1: Subtracting 1s

- Challenge 1**
- | | |
|-------|-------|
| a 124 | d 231 |
| b 134 | e 278 |
| c 126 | f 342 |

- Challenge 2**
- | | |
|-------|-----|
| 1 a 4 | f 7 |
| b 6 | g 7 |
| c 8 | h 8 |
| d 8 | i 9 |
| e 6 | |

2 Answers will vary.

- Challenge 3**
- | | |
|-------|-----|
| 1 a 6 | d 8 |
| b 9 | e 9 |
| c 7 | f 6 |

2 a 8 m c 8 stickers

b 6 ml

Lesson 2: Subtracting 10s

- Challenge 1**
- | | |
|-------|-------|
| a 118 | d 139 |
| b 132 | e 137 |
| c 134 | f 181 |

- Challenge 2**
- | | |
|--------|------|
| 1 a 50 | f 50 |
| b 60 | g 80 |
| c 60 | h 90 |
| d 50 | i 65 |
| e 50 | |

2 Answers will vary.

- Challenge 3**
- | | |
|--------|------|
| 1 a 50 | d 50 |
| b 50 | e 80 |
| c 80 | f 20 |

2 a 40 children b £70

3 Answers will vary.

Lesson 3: Subtracting 100s

- Challenge 1**
- | | |
|---------|-------|
| 1 a 145 | d 361 |
| b 167 | e 295 |
| c 228 | f 321 |

2 a 67 d 282

b 128 e 229

c 162 f 308

- Challenge 2**
- | | |
|---------|-------|
| 1 a 145 | f 426 |
| b 297 | g 247 |
| c 206 | h 52 |
| d 242 | i 243 |
| e 226 | |

2 a 400 f 400

b 400 g 500

c 300 h 900

d 500 i 303

e 600

3 Answers will vary.

- Challenge 3**
- | | |
|---------|--------|
| 1 a 951 | d 895 |
| b 822 | e 966 |
| c 863 | f 1506 |

2 Answers will vary.

3 Answers will vary.

Lesson 4: Solving word problems (3)

- Challenge 1**
- | | |
|--------------|---------------|
| a 33 bananas | c 145 pencils |
| b 59 apples | d 85 people |

- Challenge 2**
- | | |
|----------------|----------------|
| a 942 children | c 377 children |
| b 52 g | d £76 |

- Challenge 3**
- | | |
|----------------|--------------|
| a 545 children | c 7 children |
| b 592 g | d 400 points |

Unit 3, Week 3: Geometry - Properties of shape

Lesson 1: Finding the right angles

Challenge 1 1, 2, 3

Shape	A	B	C	D	E	F
Number of right angles	4	0	2	4	1	3

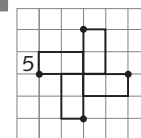
Challenge 2 1, 2, 3

Shape	A	B	C	D	E	F
Number of right angles	4	1	2	4	2	1

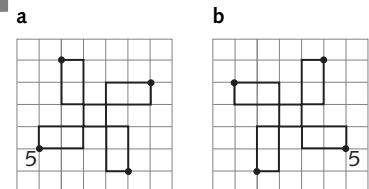
Challenge 3 1, 2 Open

Lesson 2: Turning patterns

Challenge 1 1, 2, 3



Challenge 2 1, 2, 3



Challenge 3 1, 2, 3 Open

Lesson 3: Giving and following directions

- Challenge 1**
- | | |
|------------|-------------|
| 1 a church | c duck pond |
| b shop | |

2 a garage c shop

b church

Challenge 2 1

I face the	I turn	I now face the
church	$\frac{1}{2}$ turn right	duck pond
shop	$\frac{1}{4}$ turn right	duck pond
duck pond	$\frac{3}{4}$ turn right	shop
garage	$\frac{3}{4}$ turn right	duck pond

2

I face the	I turn	I now face the
church	$\frac{1}{4}$ turn right	shop
shop	$\frac{1}{2}$ turn right/left	garage
duck pond	$\frac{1}{2}$ turn right/left	church
garage	$\frac{1}{4}$ turn left	duck pond

Challenge 3

- 1 a duck pond c duck pond
b garage
- 2 Answers will vary.

Lesson 4: All sorts of angles

Challenge 1

1, 2

Less than a right angle	About a right angle	Greater than a right angle
b, c, e	d	a, f

Challenge 2

1, 2, 3

Less than a right angle	About a right angle	Greater than a right angle
b, f, h	g	a, c, d, e, i, j, k

Challenge 3

Open

Unit 4, Week 4: Number - Multiplication and division, incl. Number and place value

Lesson 1: Counting in 4s

Challenge 1

4	8	12	16
20	24	28	32
36	40	44	48

Challenge 2

- 1 a 4 d 12
b 20 e 16
c 28
- 2 a 44 d 40
b 16 e 32
c 28
- 3 a 12 d 16
b 28 e 36
c 40
- 4 a 8 d 4
b 16 e 28
c 32

Challenge 3

- a 20 e 28
b 12 f 48
c 36 g 32
d 8

Lesson 2: 4 multiplication table

Challenge 1

- 1 a 36 d 24
b 16 e 32
c 12 f 28
- 2 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

Challenge 2

- 1 a $4 \times 6 = 24$ d $16 \div 4 = 4$
 $6 \times 4 = 24$ $16 \div 4 = 4$
 $24 \div 4 = 6$ $4 \times 4 = 16$
 $24 \div 6 = 4$ $4 \times 4 = 16$
- b $4 \times 7 = 28$ e $4 \times 9 = 36$
 $7 \times 4 = 28$ $9 \times 4 = 36$
 $28 \div 4 = 7$ $36 \div 4 = 9$
 $28 \div 7 = 4$ $36 \div 9 = 4$
- c $1 \times 4 = 4$ f $4 \times 8 = 32$
 $4 \times 1 = 4$ $8 \times 4 = 32$
 $4 \div 4 = 1$ $32 \div 4 = 8$
 $4 \div 1 = 4$ $32 \div 8 = 4$

- 2 a 3 f 4
b 9 g 4
c 7 h 12
d 20 i 9
e 40

Challenge 3

- 1 I am 24
2 I am 40

Lesson 3: Doubling to find the 4 multiplication table

Challenge 1

- 1 a 8 e 16
b 18 f 6
c 14 g 10
d 12

- 2 a 40 e 140
b 100 f 180
c 120 g 80
d 60

Challenge 2

- 1 2 2 4
4 8
6 12
8 16
10 20
12 24
14 28
16 32
18 36
20 40
22 44
24 48

Challenge 3

- 1 a $40 \times 2 = 80$ d $30 \times 2 = 60$
b $60 \times 2 = 120$ e $70 \times 2 = 140$
c $90 \times 2 = 180$
- 2 a $40 \times 4 = 160$ d $30 \times 4 = 120$
b $60 \times 4 = 240$ e $70 \times 4 = 280$
c $90 \times 4 = 360$

Lesson 4: Multiplication and division

Challenge 1

- a 5 g 3
b 3 h 5
c 9 i 10
d 28 j 24
e 5 k 5
f 8 l 4

Challenge 2

- 1 a $20 \div 4 = 5$ g $24 \div 3 = 8$
b $21 \div 3 = 7$ h $45 \div 9 = 5$
c $36 \div 9 = 4$ i $80 \div 8 = 10$
d $28 \div 7 = 4$ j $24 \div 6 = 4$
e $25 \div 5 = 5$ k $15 \div 5 = 3$
f $32 \div 8 = 4$ l $16 \div 4 = 4$
- 2 a 6 b 12
 $6 \times 4 = 24$ $12 \times 4 = 48$
 $4 \times 6 = 24$ $4 \times 12 = 48$
 $24 \div 4 = 6$ $48 \div 4 = 12$
 $24 \div 6 = 4$ $48 \div 12 = 4$
c 8 d 9
 $8 \times 2 = 16$ $9 \times 3 = 27$
 $2 \times 8 = 16$ $3 \times 9 = 27$
 $16 \div 2 = 8$ $27 \div 3 = 9$
 $16 \div 8 = 2$ $27 \div 9 = 3$
e 4 f 3
 $7 \times 4 = 28$ $6 \times 3 = 18$
 $4 \times 7 = 28$ $3 \times 6 = 18$
 $28 \div 4 = 7$ $18 \div 6 = 3$
 $28 \div 7 = 4$ $18 \div 3 = 6$

Challenge 3

- a $7 \times 4 = 28$ d $36 \div 4 = 9$
 $28 \div 4 = 7$ $9 \times 4 = 36$
b $70 \div 7 = 10$ e $16 \div 4 = 4$
 $7 \times 10 = 70$ $4 \times 4 = 16$
c $8 \times 4 = 32$
 $32 \div 4 = 8$

Unit 4, Week 2: Number - Multiplication and division, incl. Number and place value

Lesson 1: Counting in 8s

Challenge 1

8	16	24	32
40	48	56	64
72	80	88	96

Challenge 2

- 1 a 8 d 72
b 40 e 16
c 56
- 2 a 48 d 80
b 16 e 64
c 40
- 3 a 24 d 64
b 48 e 80
c 88
- 4 a 8 d 40
b 64 e 80
c 24
- 1 a 64 e 48
b 16 f 56
c 88 g 40
d 24

Lesson 2: 8 multiplication table

Challenge 1

- 1 a 72 d 48
b 56 e 24
c 32 f 64

Challenge 2

- 2 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

- 1 a 3**
 $3 \times 8 = 24$
 $8 \times 3 = 24$
 $24 \div 8 = 3$
 $24 \div 3 = 8$
- b 2**
 $16 \div 8 = 2$
 $16 \div 2 = 8$
 $2 \times 8 = 16$
 $8 \times 2 = 16$
- c 56**
 $7 \times 8 = 56$
 $8 \times 7 = 56$
 $56 \div 8 = 7$
 $56 \div 7 = 8$
- d 72**
 $9 \times 8 = 72$
 $8 \times 9 = 72$
 $72 \div 8 = 9$
 $72 \div 9 = 8$
- e 4**
 $4 \times 8 = 32$
 $8 \times 4 = 32$
 $32 \div 8 = 4$
 $32 \div 4 = 8$
- f 8**
 $8 \times 8 = 64$
 $8 \times 8 = 64$
 $64 \div 8 = 8$
 $64 \div 8 = 8$

- 2 a 5**
b 3
c 9
d 4
e 8
- f 6**
g 7
h 88
i 8

- Challenge 3** **1** I am 24
2 We are 24 and 32

Lesson 3: Doubling to find the 8 multiplication table

- Challenge 1** **1 a 24**
b 12
c 36
d 20
- 2 a 200**
b 80
c 320
d 240
- Challenge 2** **1 4**
8
12
16
20
24
28
32
36
40
44
48
- e 28**
f 16
g 32
- e 280**
f 160
g 360
- 2 8**
16
24
32
40
48
56
64
72
80
88
96

- Challenge 3** **1 a** $30 \times 4 = 120$
b $60 \times 4 = 240$
c $70 \times 4 = 280$
- 2 a** $30 \times 8 = 240$
b $60 \times 8 = 480$
c $70 \times 8 = 560$
- d** $40 \times 4 = 160$
e $90 \times 4 = 360$
- d** $40 \times 8 = 320$
e $90 \times 8 = 720$

Lesson 4: Solving word problems (4)

- Challenge 1** **a 20**
b 4
c 4
d 8
e 8
- f 48**
g 3
h 5
i 9

- Challenge 2** **1** £16
2 4 rows of biscuits
3 They buy 3 cakes each
4 56 slices of cake
5 36 cupcakes altogether
6 320p or £3.20
7 £12
8 Year 3 spent £28 at the bake sale
9 £88

- Challenge 3** Answers will vary.

Unit 4, Week 3: Measurement (time)

Lesson 1: Up to the minute

- Challenge 1** **1 a** Fifteen minutes past nine
b Five minutes past ten
c Twenty-six minutes past eight
d Three minutes to one
- Challenge 2** **1** Open
2 a 38 min past 2, 22 min to 3
b 41 min past 4, 19 min to 5
c 19 min past 6, 41 min to 7

Challenge 3 **1**

	10 min ago	20 min ago	2 hr ago
a	2:28	2:18	12:38
b	4:31	4:21	2:41
c	6:09	5:59	4:19

2

	In 15 min	In 25 min	In 2 hr
a	2:53	3:03	4:38
b	4:56	5:06	6:41
c	6:34	6:44	8:19

Lesson 2: Using a time line

- Challenge 1** **1** 2005, 2009, 2012
2 Open
- Challenge 2** **1 a** 2:30
b 3:15
c 2:45
- 2 a** playing crazy golf
b rowing a boat
c playing football
- 3 a** 30 min
b 30 min
- Challenge 3** Open

Lesson 3: Roman numerals and 24-hour times

- Challenge 1** Open
- Challenge 2** **1 a** 16 min past 8, 44 min to 9
b 22 min past 4, 38 min to 5
c 3 min past 11, 57 min to 12
- 2 a** 11:15, 23:15
b 7:42, 19:42
c 3:54, 15:54
- Challenge 3** **1** 8:28 a.m.
2 Open

Lesson 4: Timing tasks

- Challenge 1** **1, 2** Open
- Challenge 2** **1, 2** Open
- Challenge 3** **1, 2** Open

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Unit 5, Week 1: Number - Number and place value

Lesson 1: 3-digit numbers

- Challenge 1**
- 1 a 163 c 159
b 171
- 2 These numbers drawn as Base 10
a 126 d 237
b 164 e 242
c 119 f 266
- Challenge 2**
- 1 a 361 c 382
b 206 d 426
- 2 a 219 d 629
b 455 e 773
c 579 f 808
- Challenge 3**
- 1 a 583 d 939
b 834 e 874
c 511 f 786
- 2 Answers will vary.

Lesson 2: Ordering numbers to 1000

- Challenge 1**
- a 168 254 429 517
b 103 266 381 572
c 236 351 423 467
d 109 218 377 541
e 180 276 317 441
f 125 288 371 452
g 124 132 151 169
h 137 142 183 193
i 227 231 258 263
j 207 238 254 286
k 213 243 253 283
l 362 376 384 390
- Challenge 2**
- 1 a 163 265 322 589 832
b 187 276 529 538 831
c 254 276 433 723 945
d 312 352 376 512 589
e 319 382 408 478 492
f 821 855 903 962 965
g 402 414 444 476 490
h 809 819 843 856 899
- 2 Answers will vary.
- Challenge 3**
- 1 Answers will vary.
2 Answers will vary.

Lesson 3: Using money to show 3-digit numbers

- Challenge 1**
- a 34p f 123p
b 43p g 133p
c 51p h 231p
d 25p i 227p
e 47p
- Challenge 2**
- 1 a 233p d 442p
b 245p e 550p
c 324p f 613p

- 2 a $245p = £1 + £1 + 10p + 10p + 10p + 10p + 1p + 1p + 1p + 1p + 1p$
b $316p = £1 + £1 + £1 + 10p + 1p + 1p + 1p + 1p + 1p + 1p$
c $453p = £1 + £1 + £1 + £1 + 10p + 10p + 10p + 10p + 1p + 1p + 1p$
d $507p = £1 + £1 + £1 + £1 + £1 + 1p + 1p + 1p + 1p + 1p + 1p$
e $732p = £1 + £1 + £1 + £1 + £1 + £1 + £1 + £1 + 10p + 10p + 10p + 1p + 1p$
f $663p = £1 + £1 + £1 + £1 + £1 + £1 + 10p + 10p + 10p + 10p + 10p + 1p + 1p$

Challenge 3 Answers will vary.

Lesson 4: Get the order

- Challenge 1** No answers.
Challenge 2 No answers.
Challenge 3 No answers.

Unit 5, Week 2: Number - Addition and subtraction, Incl. Measurement (money)

Lesson 1: Café totals

- Challenge 1**
- a 76p d 83p
b 62p e 79p
c 79p f 70p
- Challenge 2**
- a 139p d 124p
b 152p e 152p
c 115p f 122p
- Challenge 3**
- 1 a 185p d 218p
b 169p e 191p
c 179p f 201p
- 2 Egg sandwich, milkshake and carrot cake

Lesson 2: Café change

- Challenge 1**
- a 16p d 29p
b 25p e 5p
c 8p f 13p
- Challenge 2**
- 1 a 58p d 28p
b 35p e 26p
c 16p f 66p
- 2 Answers will vary.

- Challenge 3**
- 1 a 108p d 116p
b 163p e 72p
c 104p f 127p
- 2 a 35p c 35p
b 20p

Lesson 3: Buying fruit

- Challenge 1**
- a 63p f 42p
b 25p g 34p
c 58p h 16p
d 8p i 26p
e 21p
- Challenge 2**
- a 54p e 79p
b 95p f 64p
c 121p g 17p
d 50p h 20p
- Challenge 3**
- a 290p e 390p
b 317p f 316p
c 303p g 374p
d 208p h 275p

Lesson 4: Furniture shopping

- Challenge 1**
- a £91 c £45
b £146 d £82
- Challenge 2**
- a £160 c £173
b £266 d £146
- Challenge 3**
- a £290 c £82
b £112 d No

Unit 5, Week 3: Geometry - Properties of shape

Lesson 1: Drawing and naming shapess

- Challenge 1**
- 1 A circle E octagon
B hexagon F semi-circle
C triangle G square
D pentagon H heptagon
- 2 Open
- Challenge 2**
- 1 A square D octagon
B pentagon E triangle
C rectangle F hexagon
- 2 Open
- Challenge 3** Open

Lesson 2: Matching 2-D shapes

- Challenge 1** 1, 2 Open
- Challenge 2** Open
- Challenge 3**
- | Property | Shape |
|-------------------------------|------------------|
| has one right angle | D, F, G, J |
| has more than one right angle | A, B, C, E, H, I |
- Open

Lesson 3: Paper shapes

- Challenges 1, 2, 3** 1 Open

Lesson 4: Properties of 2-D shapes

- Challenge 1**
- regular pentagon
 - right-angled triangle
 - square
 - regular hexagon

- Challenge 2**
- 1 Answers will vary but will be named.
 A pentagon D hexagon
 B trapezium E hexagon
 C hexagon

- 2 a trapezium b D

- Challenge 3**
- Yes. 4 small squares and 1 large square



Unit 6, Week 1: Number - Multiplication and division, incl. Number and place value

Lesson 1: Counting in steps of 2, 4 and 8

- Challenge 1**
- a 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24
 b 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
 c 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

- Challenge 2**
- 1 a 2, 4, 6, 10, 14, 18
 b 4, 12, 16, 20, 32, 36
 c 8, 24, 32, 48, 56, 72

- 2 a 10 d 24
 b 14 e 30
 c 16 f 38

- Challenge 3**
- a We are 24, 32, 40, 48.
 b I am 32.
 c I am 24.

Lesson 2: Halving to find the division facts for the 4 multiplication table

- Challenge 1**
- a 12 h 9
 b 23 i 31
 c 19 j 16
 d 32 k 24
 e 44 j 20
 f 8 l 22
 g 18

- Challenge 2**
- a $16 \div 4 = 4$ e $32 \div 4 = 8$
 b $12 \div 4 = 3$ f $44 \div 4 = 11$
 c $20 \div 4 = 5$ g $28 \div 4 = 7$
 d $24 \div 4 = 6$ h $36 \div 4 = 9$

- Challenge 3**
- a 15 d 14
 b 18 e 19
 c 16 f 23

Lesson 3: Halving to find the division facts for the 8 multiplication table

- Challenge 1**
- a 4 f 8
 b 12 g 5
 c 6 h 9
 d 10 i 7
 e 3 j 20

- Challenge 2**
- a $16 \div 8 = 2$ e $32 \div 8 = 4$
 b $80 \div 8 = 10$ f $56 \div 8 = 7$
 c $24 \div 8 = 3$ g $48 \div 8 = 6$
 d $88 \div 8 = 11$

- Challenge 3**
- a 14 d 15
 b 16 e 18
 c 13 f 21

Lesson 4: Solving word problems

- Challenge 1**
- a 32 f 9
 b 24 g 9
 c 8 h 72
 d 12 i 7
 e 36

- Challenge 2**
- a $7 \times 3 = £21$
 b $3 \times 4 + 1 = 13$
 c $16 \div 8 = 2$. Each cup costs £2.
 d $2 \times £16 = £32$; $3 \times £3 = £9$;
 $£32 + £9 = £41$. She pays £41.
 e $3 \times 8 = 24$ cups, therefore
 $3 \times £16 = £48$;
 $1 \times £3 = £3$; $£48 + £3 = £51$. He does
 not have enough money. He needs £1
 more.
 f 4×2 -cup trays = 8 cups therefore
 $4 \times £4 = £16$; 1×8 -cup tray = 8 cups
 therefore $1 \times £16 = £16$. Both cost the
 same amount.

- Challenge 3**
- Answers will vary.

Unit 6, Week 2: Number - Fractions

Lesson 1: Fractions and division

- Challenge 1**
- a 4 e 13
 b 2 f 12
 c 5 g 6
 d 8

- Challenge 2**
- 1 a $14 \div 2 = 7$ Half of 14 = 7
 b $18 \div 2 = 9$ Half of 18 = 9
 c $24 \div 2 = 12$ Half of 24 = 12
 d $28 \div 2 = 14$ Half of 28 = 14
 e $34 \div 2 = 17$ Half of 34 = 17
 f $36 \div 2 = 18$ Half of 36 = 18
 g $40 \div 2 = 20$ Half of 40 = 20
 h $46 \div 2 = 23$ Half of 46 = 23
 i $42 \div 2 = 21$ Half of 42 = 21
 j $54 \div 2 = 27$ Half of 54 = 27

- 2 a $12 \div 4 = 3$ Quarter of 12 = 3
 b $20 \div 4 = 5$ Quarter of 20 = 5
 c $24 \div 4 = 6$ Quarter of 24 = 6
 d $32 \div 4 = 8$ Quarter of 32 = 8
 e $40 \div 4 = 10$ Quarter of 40 = 10
 f $48 \div 4 = 12$ Quarter of 48 = 12

- 3 a $18 \div 3 = 6$ Third of 18 = 6
 b $27 \div 3 = 9$ Third of 27 = 9
 c $36 \div 3 = 12$ Third of 36 = 12
 d $21 \div 3 = 7$ Third of 21 = 7
 e $42 \div 3 = 14$ Third of 42 = 14
 f $48 \div 3 = 16$ Third of 48 = 16

- 4 Answers will vary.

- Challenge 3**
- 1 Answers will vary.
 2 Answers will vary.

Lesson 2: Fraction snakes

- Challenge 1**
- 1 a $\frac{1}{5}$ and $\frac{4}{5}$ d $\frac{4}{5}$ and $\frac{1}{5}$
 b $\frac{2}{5}$ and $\frac{3}{5}$ e $\frac{1}{6}$ and $\frac{5}{6}$
 c $\frac{3}{5}$ and $\frac{2}{5}$ f $\frac{2}{6}$ and $\frac{4}{6}$

- 2 Answers will vary.

- Challenge 2**
- 1 a $\frac{1}{8}$ and $\frac{7}{8}$ f $\frac{6}{8}$ and $\frac{2}{8}$
 b $\frac{2}{8}$ and $\frac{6}{8}$ g $\frac{7}{8}$ and $\frac{1}{8}$
 c $\frac{3}{8}$ and $\frac{5}{8}$ h $\frac{3}{9}$ and $\frac{6}{9}$
 d $\frac{4}{8}$ and $\frac{4}{8}$ i $\frac{5}{9}$ and $\frac{4}{9}$
 e $\frac{5}{8}$ and $\frac{3}{8}$

- 2 Answers will vary.

- Challenge 3**
- 1, 2 Answers will vary.

Lesson 3: Ordering fractions

- Challenge 1**
- 1 a $\frac{3}{5}$ b $\frac{1}{5}$ c $\frac{4}{5}$ d $\frac{2}{5}$
 2 a $\frac{2}{6}$ b $\frac{5}{6}$ c $\frac{3}{6}$ d $\frac{1}{6}$
 3 a $\frac{4}{8}$ b $\frac{2}{8}$ c $\frac{8}{8}$ d $\frac{5}{8}$
 4 a $\frac{4}{10}$ b $\frac{7}{10}$ c $\frac{5}{10}$ d $\frac{9}{10}$
 5 a $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ c $\frac{2}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{8}{8}$
 b $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{5}{6}$ d $\frac{4}{10}$ $\frac{5}{10}$ $\frac{7}{10}$ $\frac{9}{10}$

- Challenge 2**
- 1 a $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ d $\frac{2}{6}$ $\frac{4}{6}$ $\frac{5}{6}$ $\frac{6}{6}$
 b $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{6}{8}$ e $\frac{2}{7}$ $\frac{3}{7}$ $\frac{4}{7}$ $\frac{6}{7}$
 c $\frac{2}{9}$ $\frac{4}{9}$ $\frac{5}{9}$ $\frac{8}{9}$

- 2 Answers will vary.

- 3 Answers will vary.

- Challenge 3**
- 1 a $\frac{1}{10}$ $\frac{1}{5}$ $\frac{1}{4}$ $\frac{1}{2}$
 b $\frac{1}{7}$ $\frac{1}{6}$ $\frac{1}{3}$ $\frac{1}{2}$
 c $\frac{1}{12}$ $\frac{1}{9}$ $\frac{1}{6}$ $\frac{1}{4}$
 d $\frac{1}{17}$ $\frac{1}{11}$ $\frac{1}{5}$ $\frac{1}{3}$

- 2 Answers will vary.

- 3 Answers will vary.

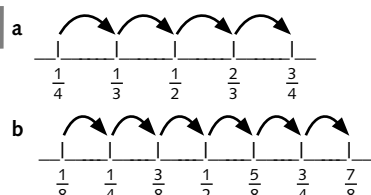
Lesson 4: Fractions on number lines

- Challenge 1**
- a 0, $\frac{1}{2}$, 1
 b 0, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, 1
 c 0, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, 1
 d 0, $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, $\frac{5}{6}$, 1
 e 0, $\frac{1}{7}$, $\frac{2}{7}$, $\frac{3}{7}$, $\frac{4}{7}$, $\frac{5}{7}$, $\frac{6}{7}$, 1
 f 0, $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, 1

- Challenge 2**
- 1 a 0, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, 1
 b 0, $\frac{1}{3}$, $\frac{2}{3}$, 1
 c 0, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, 1
 d 0, $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, 1

- 2 a $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{2}{4}$, $1\frac{3}{4}$, 2
 b $\frac{4}{6}$, $\frac{5}{6}$, 1, $1\frac{1}{6}$, $1\frac{2}{6}$, $1\frac{3}{6}$, $1\frac{4}{6}$
 c $\frac{6}{8}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{2}{8}$, $1\frac{3}{8}$, $1\frac{4}{8}$
 d $\frac{2}{3}$, 1, $1\frac{1}{3}$, $1\frac{2}{3}$, 2, $2\frac{1}{3}$
 e $\frac{8}{10}$, $\frac{9}{10}$, 1, $1\frac{1}{10}$, $1\frac{2}{10}$, $1\frac{3}{10}$, $1\frac{4}{10}$
 f $\frac{7}{9}$, $\frac{8}{9}$, 1, $1\frac{1}{9}$, $1\frac{2}{9}$, $1\frac{3}{9}$, $1\frac{4}{9}$

Challenge 3



Unit 6, Week 3: Measurement (length)

Lesson 1: Measuring in centimetres

Challenges 1, 2

Line	A	B	C	D	E
Length in cm	4	7	13	11	14

2, 3 Open

Challenge 3

- a Yes b 79 cm

Lesson 2: Measuring in millimetres

Challenge 1

1 Open

- 2 a 15 mm c 21 mm
b 35 mm

Challenge 2

- 1 a = 85 mm d = 91 mm
b = 47 mm e = 74 mm
c = 100 mm

2 Open

Challenge 3

15 mm

Lesson 3: Measuring and comparing lengths

Challenge 1

Open

Challenge 2

1 Open

2

	2 boxes	4 boxes	5 boxes	10 boxes
Box A	40 cm	80 cm	100 cm	200 cm
Box B	50 cm	100 cm	125 cm	250 cm
Box C	84 cm	168 cm	210 cm	420 cm

Challenge 3

Open

Lesson 4: Adding and subtracting lengths

Challenge 1

- a 6 cm c 10 cm 5 mm
b $7\frac{1}{2}$ cm d 2 cm 5 mm

Challenge 2

- 1 Truck R: 6 m 10 cm
Truck T: 8 m 90 cm

2 23 m 40 cm

3 4 m 20 cm

Challenge 3

- a Truck A c Truck D
b Truck E d 33 cm

Unit 7, Week 1: Number - Addition and subtraction

Lesson 1: Expanded addition

Challenge 1

- a 78 e 296
b 78 f 398
c 87 g 499
d 279 h 598

Challenge 2

- 1 Answers will vary.
2 a 702 f 703
b 689 g 804
c 699 h 705
d 758 i 763
e 863

Challenge 3

- 1 Answers will vary.
2 a 795 e 1010
b 895 f 993
c 994 g 987
d 942 h 1040
3 Answers will vary.

Lesson 2: Column addition (1)

Challenge 1

- 1 a 376 d 289
b 379 e 499
c 399 f 579
2 a 385 d 597
b 488 e 588
c 597 f 585

Challenge 2

- 1 Answers will vary.
2 a 696 e 889
b 689 f 798
c 689 g 798
d 799 h 899
3 a 673 e 791
b 694 f 892
c 734 g 781
d 784 h 692

Challenge 3

- 1 Answers will vary.
2 Answers will vary.
3 a 896 e 982
b 891 f 993
c 795 g 995
d 986 h 890

Lesson 3: Column addition (2)

Challenge 1

- a 299 g 678
b 288 h 769
c 389 i 778
d 459 j 886
e 578 k 887
f 589 l 998

Challenge 2

- 1 a 591 e 884
b 685 f 892
c 762 g 885
d 867 h 996

- 2 a 737 e 937
b 926 f 846
c 948 g 917
d 918 h 977

Challenge 3

- 1 a 765 e 955
b 936 f 946
c 919 g 964
d 790 h 878

- 2 a 622 c 763
b 721 d 834

Lesson 4: Mental addition

Challenge 1

Answers will vary.

Challenge 2

Answers will vary.

Challenge 3

Answers will vary.

Unit 7, Week 2: Number - Addition and subtraction, Incl. Measurement (money)

Lesson 1: Column subtraction (1)

Challenge 1

- a 23 g 134
b 13 h 132
c 23 i 111
d 32 j 122
e 144 k 223
f 122 l 134

Challenge 2

- 1 a 221 e 352
b 232 f 225
c 235 g 262
d 336 h 332
2 a 237 e 246
b 233 f 336
c 116 g 228
d 324 h 308

Challenge 3

- 1 Answers will vary.
2 Answers will vary.
3 a 316 e 407
b 517 f 338
c 338 g 346
d 326 h 239

Lesson 2: Column subtraction (2)

Challenge 1

- a 122 f 135
b 154 g 232
c 135 h 133
d 125 i 321
e 252

Challenge 2

- 1 a 128 c 128
b 134 d 237
2 a 184 e 144
b 182 f 262
c 77 g 275
d 184 h 331

- Challenge 3**
- 1 a 183 e 233
b 165 f 471
c 437 g 329
d 227 h 367
- 2 a 276 e 561
b 279 f 378
c 268 g 279
d 378 h 176

Lesson 3: Mental subtraction

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Sports shop spending

- Challenge 1**
- a £32 c £136
b £158 d £378

- Challenge 2**
- a £158 c £132
b £152 d £50

- Challenge 3**
- a £131
b £99
c £60
d Answers will vary.

Unit 7, Week 3: Statistics

Lesson 1: Tally charts

Challenge 1

Vehicle	Number	Total
car		14
bus		12
bicycle		9
lorry or van		11
motorbike		7

2 a

Vehicle	Number	Total
car		14
bus		12
bicycle		9
lorry or van		11
motorbike		7

- 2 b 16 c 2

Challenge 2

1 a

Location	Tally	Frequency
supermarket		23
corner shop		11
market stall		14
greengrocer		12

- b supermarket
c corner shop
d 9 e 60

Challenge 3

1 a

Bread	Tally	Frequency
white		18
brown		21
crusty		10
bloomer		6
naan		5

- b brown c 8

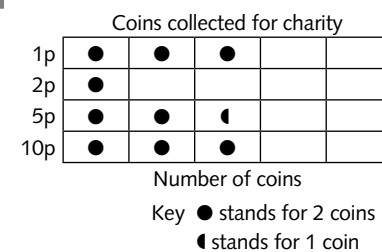
2 Answers will vary.

3 Less traffic on the road therefore less data to collect

Lesson 2: Charity pictograms

Challenge 1

1

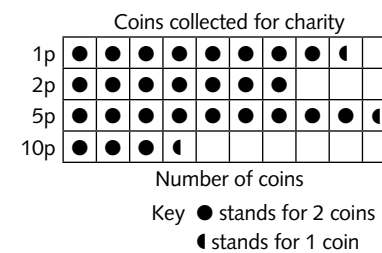


- 2 a 5 c 19
b 2p d (i) 11 (ii) 8

Challenge 2

1 a

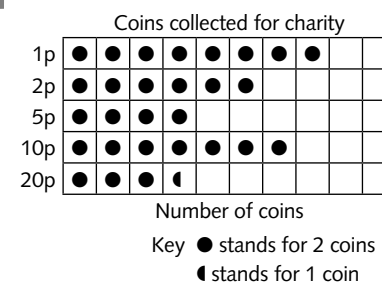
Coin	Number
1p	17
2p	14
5p	19
10p	7



- 2 a 19 c 57
b 10p d 7

Challenge 3

1



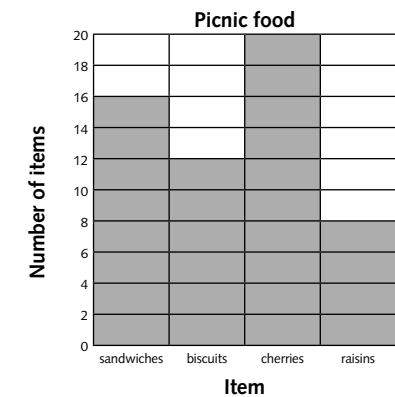
2 Answers will vary.

Lesson 3: Picnic bar charts

Challenge 1

Item	Tally	Frequency
sandwiches		16
biscuits		12
cherries		20
raisins		8

2



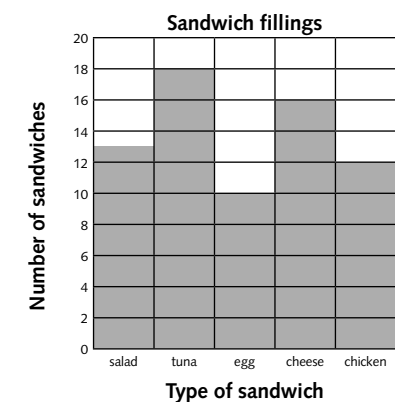
- 3 a Number of cherries is 20
b i 4 ii 8

Challenge 2

1

Sandwich	Frequency
salad	13
tuna	18
egg	10
cheese	16
chicken	12

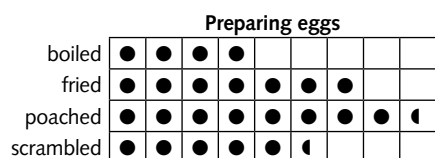
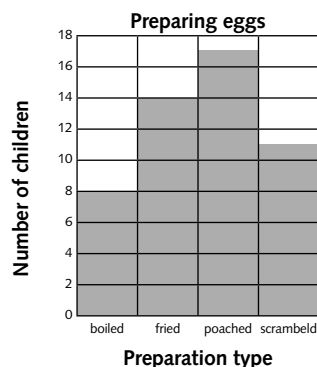
2



- 3 a tuna b egg

- 4 a 5 c 6
b 2 d 8

Challenge 3 a



Number of children

Key ● stands for 2 children
◐ stands for 1 child

b Answers will vary.

Lesson 4: Pictograms and bar charts

Challenge 1

Day	Number
Monday	3
Tuesday	2
Wednesday	4
Thursday	6
Friday	13
Saturday	8
Sunday	4

- 2 a Tuesday
b Wednesday and Sunday
c 10

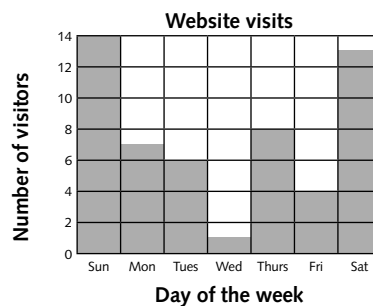
3 Answers may vary.

Challenge 2

Day	Number
Sun	14
Mon	7
Tues	6
Wed	1
Thurs	8
Fri	4
Sat	11

- 2 a 51
b Wednesday
c Sunday, Thursday and Saturday
d 4

Challenge 3 1



- 2 10
3 Saturday and Sunday. People have more time at weekends to plan holidays.
4 Open

Number - Multiplication and division, Incl. Number and place value

Lesson 1: Counting in steps of 50 and 100

Challenge 1

a	55	60	65	70	75	80	85	90	95	100	105	110
b	110	120	130	140	150	160	170	180	190	200	210	220
c	50	100	150	200	250	300	350	400	450	500	550	600
d	100	200	300	400	500	600	700	800	900	1000	1100	1200

Challenge 2

0, 50, 100, 150, 200, 100, 150, 200, 250, 300, 350, 250, 300, 350, 400, 450, 500, 400, 450, 500, 550, 600, 650, 550

Challenge 3

- 1 Answers depend on children's choices.
2 Answers depend on children's choices.

Lesson 2: Revising multiplication facts

Challenge 1

- a 24, 12, 28, 16, 36
b 27, 15, 24, 9, 18
c 40, 48, 72, 32, 56

Challenge 2

- 1 a 7 g 6
b 7 h 8, 4
c 4 i 2, 4
d 4 j 5, 5
e 3 k 8, 4
f 4 l 4, 6

Challenge 3

- 1 a 1010 c 940
b 910
2 Dartboard a scored the most points.

Lesson 3: Revising division facts

Challenge 1

- a 12, 4, 9, 8, 3 c 3, 9, 5, 11, 8
b 3, 7, 6, 4, 2

Challenge 2

- a < d >
b = e <
c > f <

Challenge 3

- 1 a 4 f 1, 8
b 4 g 5, 5
c 36 h 0, 5
d 7 i 2, 4
e 6

- 2 a 90 f 4
b 70 g 8
c 270 h 8
d 70 i 5
e 40

Lesson 4: Solving problems

Challenge 1

- a $4 \times 4 = 16$ c $5 \times 5 = 25$
 $16 \div 4 = 4$ $25 \div 5 = 5$
b $5 \times 4 = 20$ d $7 \times 3 = 21$
 $20 \div 5 = 4$ $21 \div 3 = 7$

Challenge 2

- a 48 f 45
b 20 g 16
c 120 h 11
d 32 i 36
e 4

Challenge 3

- a 8 times more
b 28 cars
c 20 slices
d He needs 320 biscuits.
e 3 cakes each. Each child pays £1.20.

Unit 8, Week 2: Number - Fractions

Lesson 1: Pizza puzzle

Challenge 1

- 1 5 Pizzas in different combinations.

2 $\frac{4}{4}, \frac{3}{4}, \frac{2}{4}, \frac{1}{4}$

Challenge 2

- 1 9 pizzas in different combinations.

2 $\frac{8}{8}, \frac{7}{8}, \frac{6}{8}, \frac{5}{8}, \frac{4}{8}, \frac{3}{8}, \frac{2}{8}, \frac{1}{8}$

Challenge 3

- 1 11 pizzas in different combinations.

2 $\frac{10}{10}, \frac{9}{10}, \frac{8}{10}, \frac{7}{10}, \frac{6}{10}, \frac{5}{10}, \frac{4}{10}, \frac{3}{10}, \frac{2}{10}, \frac{1}{10}$

- 3 a $\frac{1}{10} + \frac{9}{10} = 1$ f $\frac{6}{10} + \frac{4}{10} = 1$
b $\frac{2}{10} + \frac{8}{10} = 1$ g $\frac{7}{10} + \frac{3}{10} = 1$
c $\frac{3}{10} + \frac{7}{10} = 1$ h $\frac{8}{10} + \frac{2}{10} = 1$
d $\frac{4}{10} + \frac{6}{10} = 1$ i $\frac{9}{10} + \frac{1}{10} = 1$
e $\frac{5}{10} + \frac{5}{10} = 1$

Lesson 2: Subtracting fractions

Challenge 1

Answers will vary.

Challenge 2

- 1 a $\frac{8}{8} - \frac{5}{8} = \frac{3}{8}$ d $\frac{8}{8} - \frac{4}{8} = \frac{4}{8}$
b $\frac{8}{8} - \frac{2}{8} = \frac{6}{8}$ e $\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$
c $\frac{8}{8} - \frac{1}{8} = \frac{7}{8}$ f $\frac{4}{4} - \frac{1}{4} = \frac{3}{4}$

2 Answers will vary.

Challenge 3

- 1 a $\frac{4}{4} - \frac{1}{4} = \frac{3}{4}$ d $\frac{8}{8} - \frac{3}{8} = \frac{5}{8}$
b $\frac{5}{5} - \frac{4}{5} = \frac{1}{5}$ e $\frac{10}{10} - \frac{3}{10} = \frac{7}{10}$
c $\frac{6}{6} - \frac{1}{6} = \frac{5}{6}$
2 Answers will vary.
3 a $\frac{3}{3} - \frac{2}{3} = \frac{1}{3}$ c $\frac{6}{6} - \frac{1}{6} = \frac{5}{6}$
b $\frac{5}{5} - \frac{4}{5} = \frac{1}{5}$ d $\frac{8}{8} - \frac{3}{8} = \frac{5}{8}$

Lesson 3: Equivalent fractions

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

- Challenge 3**
- Answers will vary.
 - Answers will vary.

Lesson 4: Fractions wall

- Challenge 1**
- No answers.
 - No answers.

$$3 \quad \frac{2}{4} = \frac{1}{2} \quad \frac{4}{8} = \frac{1}{2}$$

$$\frac{2}{8} = \frac{1}{4} \quad \frac{6}{8} = \frac{3}{4}$$

- Challenge 2**
- No answers.
 - No answers.

$$3 \quad \frac{2}{4} = \frac{1}{2} \quad \frac{4}{8} = \frac{1}{2}$$

$$\frac{3}{6} = \frac{1}{2} \quad \frac{6}{8} = \frac{3}{4}$$

$$\frac{2}{8} = \frac{1}{4} \quad \frac{5}{10} = \frac{1}{2}$$

Challenge 3

- $\frac{2}{4} = \frac{1}{2}$
 $\frac{4}{8} = \frac{1}{2}$
 $\frac{6}{8} = \frac{3}{4}$
 $\frac{2}{6} = \frac{1}{3}$

b Answers will vary.

Unit 8, Week 3: Measurement (perimeter)

Lesson 1: Perimeters of rectangles

- Challenge 1**
- 14 cm
 - 12 cm
- Challenge 2**
- 12 cm
 - 18 cm
- 30 m
 - 36 m
- 28 m
 - 26 m
- 32 m

- Challenge 3**
- 36 m
 - 40 m

Lesson 2: Drawing and calculating perimeters

Challenge 1 Open

- Challenges 1, 2**
- (1×1) cm
 - (2×2) cm, (3×1) cm
 - (3×3) cm, (4×2) cm, (5×1) cm
 - (4×4) cm, (5×3) cm, (6×2) cm, (7×1) cm
 - (5×5) cm, (6×4) cm, (7×3) cm, (8×2) cm, (9×1) cm

Challenge 3

Side of square	Perimeter of square	No. of rectangles: same perimeter	Total no. squares and rectangles
1 cm	4 cm	0	1
2 cm	8 cm	1	2
3 cm	12 cm	2	3
4 cm	16 cm	3	4
5 cm	20 cm	4	5

Lesson 3: Regular perimeters

- Challenge 1**
- 12 cm
 - 10 cm
- Challenge 2**
- 6 cm
 - 8 cm
 - 10 cm
 - 12 cm
 - 14 cm
 - 16 cm

Challenge 3

Number of sides of shape	3	4	5	6	7	8
Perimeter in centimetres	6	8	10	12	14	16

- 2 a 20 cm b 24 cm

Lesson 4: Perimeters of 2-D shapes

- Challenge 1**
- 10 cm
 - 10 cm
- Challenge 2**
- 10 cm
 - 8 cm
- Challenge 3**
- a to g all perimeters = 12 cm
 - F-shape, I-shape, P-shape, S-shape and V-shape all have perimeters = 12 cm.

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Unit 9, Week 1: Number - Number and place value

Lesson 1: Raffle tickets

- Challenge 1**
- 34 35 36
 - 66 67 68
 - 47 48 49
 - 78 79 80
 - 58 59 60
 - 89 90 91

- 20 21 22
- 61 62 63
- 32 33 34
- 69 70 71
- 44 45 46
- 85 86 87

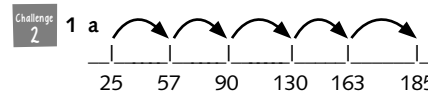
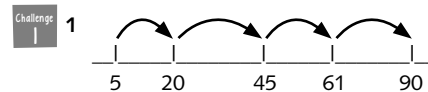
- Challenge 2**
- 163 164 165 166
 - 299 300 301 302
 - 307 308 309 310
 - 383 384 385 386
 - 548 549 550 551
 - 685 686 687 688

- 299 300 301
- 424 425 426
- 500 501 502
- 634 635 636
- 743 744 745

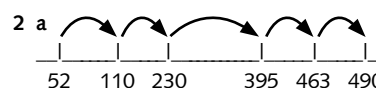
- 477
 - 839
- c 503

- Challenge 3**
- 417 418 419 420
 - 298 299 300 301
 - 500 501 502 503
 - 774 775 776 777
 - 847 848 849 850
 - 897 898 899 900

Lesson 2: Number lines



b Answers will vary.



b Answers will vary.



b Answers will vary.

- 409 411 413 415
- 299 301 303 305
- 555 557 559 561
- 667 669 671 673
- 701 703 705 707
- 919 921 923 925

Lesson 3: Partitioning 3-digit numbers

- Challenge 1**
- 100 + 20 + 8
 - 300 + 40 + 1
 - 100 + 50 + 2
 - 300 + 9
 - 100 + 70 + 7
 - 400 + 50 + 8
 - 200 + 10 + 6
 - 400 + 70 + 3
 - 200 + 50 + 8
 - 500 + 10 + 4

- Challenge 2**
- These numbers partitioned:
 - 356
 - 372
 - 484
 - 447
 - 563
 - 592
 - 642
 - 684

2 Answers will vary.

- Challenge 3**
- $400 + 120 + 6 = 526$
 - $400 + 350 + 9 = 759$
 - $400 + 460 + 15 = 875$
 - $200 + 250 + 13 = 463$
 - $300 + 430 + 63 = 793$
 - $300 + 260 + 27 = 587$
 - $300 + 400 + 62 = 762$
 - $500 + 400 + 47 = 947$

Lesson 4: What's my number?

Open

Unit 9, Week 2: Number - Addition and subtraction**Lesson 1: Adding and subtracting mentally**

- Challenge 1**
- 81
 - 79
 - 98
 - 134
 - 153
 - 192
 - 337
 - 643
 - 57
 - 43
 - 97
 - 116
 - 224
 - 269
 - 261
 - 276
- Challenge 2**
- 436
 - 776
 - 351
 - 395
 - 321
 - 395
 - 162
 - 38
 - 633
 - 40
 - 7
 - 80
 - 400
 - 60
 - 79
 - 49
 - 25
 - 50
- Challenge 3**
- 70
 - 7
 - 300
 - 90
 - 500
- 90
 - 431
 - 436
 - 783

Lesson 2: Column addition (3)**Challenge 1** Open**Challenge 2** Open**Challenge 3** Open**Lesson 3: Column subtracting on (3)****Challenge 1** Open**Challenge 2** Open**Challenge 3** Open**Lesson 4: Fowl problems**

- Challenge 1**
- 123 eggs
 - 225 eggs
- Challenge 2**
- 26 eggs
 - 5 boxes
- Challenge 3**
- 168 eggs
 - 275 eggs
- 499 g
 - 172 eggs
- £283
 - 272 eggs
- 218 chickens
 - 922 eggs

Unit 9, Week 3: Geometry - Properties of shape**Lesson 1: Horizontal and vertical lines**

- Challenge 1**
- V
 - H
- Challenge 2** Open
- Challenge 3** Open

Lesson 2: Perpendicular and parallel lines

- Challenge 1**
- CD
 - AC or BD
- Challenge 2**
- $BA \perp AE$ $AE \perp ED$
 - $AB \parallel ED$
 - Open.
 - First shape: 1 pair of // lines, no $\perp$ lines
Second shape: pair of // lines, 2 pairs of $\perp$ lines
Third shape: 2 pairs of // lines, no $\perp$ lines
Fourth shape: 1 pair of // lines, 3 pairs of $\perp$ lines
- Challenge 3**
- AD and BC
 - AB and DC

Lesson 3: Pick and choose shapes

- Challenge 1**
- D
 - A, B, D, F, G
- Challenge 2**
- G, H
 - A, B, D, F
 - A, B, D
- Challenge 3** Open
- A, C, F, G, H, I
 - E, I
 - C, H, I
 - A, F, I
 - D

Lesson 4: More about 3-D shapes

- Challenges 1, 2, 3**
- A, C, D
 - B, C
 - A, C, D
 - D
- Challenges 2, 3**
- triangular prism
 - cuboid
 - cuboid
 - triangular prism

Skeletal cube	Number of horizontal cubes	Number of vertical cubes	Total
3 by 3 by 3	16	12	28
4 by 4 by 4	24	16	40
5 by 5 by 5	32	20	52

Unit 10, Week 1: Number - Multiplication and division**Lesson 1: Multiplication using partitioning**

- Challenge 1**
- $25 = 20 + 5$
 $34 = 30 + 4$
 - $68 = 60 + 8$
 $71 = 70 + 1$
 - $54 = 50 + 4$
 $87 = 80 + 7$
- $76 = 70 + 6$
 - $43 = 40 + 3$
 - $16 = 10 + 6$
 - $46 = 40 + 6$
 - $39 = 30 + 9$
 - $23 = 20 + 3$

- Challenge 2**
- 235
 - 128
 - 192
 - 265
 - 104
- 222
 - 152
 - 728
 - 255

- Challenge 3**
- 216 birthday cards
 - 156 candles
 - 144 metres of wrapping paper
 - 11 May is the last day for ordering the cake

Lesson 2: Multiplication using partitioning and the grid method

- Challenge 1** Approximate the answer to each calculation
- 150
 - 200
 - 200
 - 480
- 160
 - 280
 - 640
 - 400
- Challenge 2**
- 135
 - 180
 - 216
 - 496
- 148
 - 272
 - 664
 - 390

Challenge 3 Game**Lesson 3: Multiplication: Introducing the expanded written method**

- Challenge 1**
- 80
 - 120
 - 150
 - 480
- 150
 - 320
 - 200
 - 560
- 96
 - 132
 - 147
 - 448
- 141
 - 304
 - 190
 - 536

Challenge 3 78×2 , 53×4 , 54×5 are the odd ones out because 3 of the numbers multiply to give an answer of 176 and another three numbers multiply to give an answer of 108, whereas these calculations have an answer which does not match with any other calculations

Lesson 4: Solving problems

- Challenge 1**
- 1 a 21 b 210
 - 2 a 24 b 240
 - 3 a 24 b 240
 - 4 a 27 b 270
 - 5 a 35 b 350
 - 6 a 48 b 480
 - 7 a 28 b 280
 - 8 a 18 b 180

Challenge 2 Game

- Challenge 3**
- 1 129 scissors
 - 2 111 colour pencils
 - 3 192 glue-sticks
 - 4 14 paintbrushes are missing
 - 5 63 more colour pencils
 - 6 552 glue-sticks are ordered
 - 7 £86 for a box of scissors
 - 8 $3 \times 54 = 162$; $320 - 162 = 158$; 158 more pens are needed.

Unit 10, Week 2: Number - fractions

Lesson 1: Investigate fractions

- Challenge 1** Open
- Challenge 2** Open
- Challenge 3** Open

Lesson 2: Fraction problems

- Challenge 1**
- 1 £3
 - 2 4 hrs
 - 3 6 minutes
 - 4 10 grams
- Challenge 2**
- 1 £9
 - 2 40 minutes
 - 3 2kg
 - 4 20 minutes
- Challenge 3**
- 1 £25
 - 2 40mins
 - 3 $\frac{3}{4}$

Lesson 3: Equivalent fraction puzzle

- Challenge 1** Open
- Challenge 2** Open
- Challenge 3** Open

Lesson 4: Tenths

- Challenge 1**
- 1 a $0, \frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \frac{4}{10}, \frac{5}{10}, \frac{6}{10}, \frac{7}{10}, \frac{8}{10}$
 - b $3, 3\frac{1}{10}, 3\frac{2}{10}, 3\frac{3}{10}, 3\frac{4}{10}, 3\frac{5}{10}, 3\frac{6}{10}, 3\frac{7}{10}$
 - c $5, 5\frac{1}{10}, 5\frac{2}{10}, 5\frac{3}{10}, 5\frac{4}{10}, 5\frac{5}{10}, 5\frac{6}{10}, 5\frac{7}{10}$
- Challenge 2**
- 1 a $4, 4\frac{1}{10}, 4\frac{2}{10}$ to 5
 - b $6, 6\frac{1}{10}, 6\frac{2}{10}$ to 7
 - c $7, 7\frac{1}{10}, 7\frac{2}{10}$ to 8
- Challenge 3**
- 1 a $3, 3\frac{1}{10}, 3\frac{2}{10}$ to 4
 - b $14, 14\frac{1}{10}, 14\frac{2}{10}$ to 15
 - c $23, 23\frac{1}{10}, 23\frac{2}{10}$ to 24

Unit 10, Week 3: Measurement (volume and capacity)

Lesson 1 Fractions of 1 litre

- Challenge 1**
- a 500 ml
 - b 250 ml
 - c 100 ml
- Challenge 2**
- 1 a true
 - b false
 - c true
- Challenge 3**
- 1 a 1000 ml
 - b 4 glasses
- Challenge 1**
- d 250 ml
 - e 250 ml
 - f 500 ml
- Challenge 2**
- d false
 - e true
 - f false
- Challenge 3**
- c 5 mugs
- Challenge 1**
- 2 a 2500 ml
 - b 4250 ml
 - c 4250 ml
 - d 8600 ml
 - e 7500 ml
- Challenge 2**
- 2 a 2000 ml
 - b 8 glasses
- Challenge 3**
- c 10 mugs

Lesson 2: Millilitres more or less

Challenges 1, 2

	Liquid in cylinder	Amount added	Total amount
a	600 ml	300 ml	900 ml
b	250 ml	450 ml	700 ml
c	500 ml	250 ml	750 ml
d	750 ml	150 ml	900 ml
e	350 ml	400 ml	550 ml
f	850 ml	150 ml	1000 ml

Challenge 2

- Challenge 3**
- Fill jug B (700 ml). Fill jug A (400 ml) from jug B.
 Pour remaining 300 ml into jug C.
 Refill jug B (700 ml) and pour into jug C.
 Jug C now holds 1 litre (300 ml + 700 ml).

Lesson 3: Shopping litres

- Challenge 1**
- 1 a shampoo, cola, juice, sauce, salad dressing.
 - b sauce, shampoo, salad dressing, cola, juice.
- Challenge 2** Open
- Challenge 2**
- | | |
|----------------|---------|
| tomato sauce | 300 ml |
| olive oil | 1000 ml |
| salad dressing | 500 ml |
| orange drink | 1500 ml |
| shower gel | 600 ml |
| toothpaste | 200 ml |
| shampoo | 800 ml |

Challenge 3

Item	Buy 2	Get 2	Total
shower gel	600 ml	600 ml	1200 ml
toothpaste	200 ml	200 ml	400 ml
shampoo	800 ml	800 ml	1600 ml

Lesson 4: Adding and subtracting capacities

Challenge 1

Number of litres	1	2	4	5	10
Number of cups	5	10	20	25	50

- Challenge 2**
- 1 a 600 ml b 400 ml
 - 2 a 180 ml b 20 ml
 - 3 a cola b orange juice
- Challenge 3**
- a 7 l 850 ml c 150 ml
 - b 1 l 610 ml d 4 l 890 ml

Unit 11, Week 1: Addition and subtraction incl. Measurement (money)

Lesson 1: Estimating and checking the formal written method of addition

- Challenge 1**
- | | |
|-------|-------|
| a 397 | e 497 |
| b 389 | f 493 |
| c 489 | g 385 |
| d 489 | h 472 |

Challenge 2 1 Answers will vary.

- Challenge 2**
- | | |
|---------|-------|
| 2 a 581 | e 748 |
| b 728 | f 773 |
| c 692 | g 834 |
| d 697 | h 887 |

Challenge 3 1 Answers will vary.

- Challenge 3**
- | | |
|---------|-------|
| 2 a 926 | d 983 |
| b 917 | e 947 |
| c 964 | f 786 |

3 Answers will vary.

Lesson 2: Addition target answers

Challenge 1 Open

Challenge 2 Open

Challenge 3 Open

Lesson 3: Adding and subtracting money

Challenge 1 1 a £83 e £150
b £103 f £175
c £95 g £197
d £113 h £223

2 a £43 e £56
b £68 f £17
c £32 g £76
d £133 n £137

Challenge 2 1 a £425 e £623
b £462 f £559
c £587 g £563
d £567 h £715

2 a £146 e £321
b £133 f £347
c £304 g £381
d £273 h £286

Challenge 3 1 a £553 e £704
b £229 f £663
c £281 g £192
d £958 h £516

2 a £70 d £571
b £90 e £623
c £400 f £664

Lesson 4: School shopping

Challenge 1 a £24 c £36
b £156 d £64

Challenge 2 a £216 c £124
b £148 d £72

Challenge 3 a £127 c Open
b £70

Unit 12, Week 2: Addition and subtraction incl. Measurement (money)

Lesson 1: Estimating and checking the formal written method of subtraction

Challenge 1 a 142 e 155
b 132 f 217
c 242 g 236
d 123 h 166

Challenge 2 1 Answers will vary.

2 a 236 e 154
b 218 f 237
c 154 g 167
d 226 h 309

Challenge 3 1 Answers will vary.

2 a 355 d 325
b 367 e 462
c 393 f 707

3 Answers will vary.

Lesson 2: Subtraction target answers

Challenge 1 Open

Challenge 2 Open

Challenge 3 Open

Lesson 3: Jumping forward to the target

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Jumping back to the target

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 12, Week 3: Measurement (time)

Lesson 1: Just a minute

Challenge 1 a 26 min past 8
b 42 min past 11
c 58 min past 4
d 34 min past 3
e 17 min past 5
f 3 min past 7

Challenge 2 1 a 6:13 d 6:46
b 8:05 e 9:50
c 1:38 f 12:42

2 a 3:36 d 1:32
b 8:28 e 11:44
c 9:56 f 11:02

Challenge 3 a 1:37 c 11:55
b 12:07 d 12:25

Lesson 2: Race times

Challenge 1 a 5 minutes c 30 minutes
b 15 seconds d 9 hours

Challenge 2 1 Fly: 1 min 11 sec
Rex: 1 min 2 sec
Jenny: 1 min 6 sec

2 23 seconds

Challenge 3 1 Alan 3:20 Flo 3:32 Pat 3:17
Jan 3:34 Kit 3:28 Ian 3:25

2 Pat

3 Jan

4 14 min

5 15 min

Lesson 3: Using a calendar

Challenge 1 1 a 7 days in 1 week
b 12 months in 1 year
c 365 days in 1 year

2 a Apr, Jun, Sep, Nov
b Jan, Mar, May, Jul, Aug, Oct, Dec
c Feb

Challenge 2 1 a Tuesday e Wednesday
b Thursday f Saturday
c Monday g Tuesday
d Sunday

2 a 2000, 2004, 2008, 2012, 2016, 2020
b 1 March 2015

Challenge 3 1 Brian: 6 July Clare: 10 July
Darren: 18 July Emma: 29 July

2 a 4 days c 11 days
b 8 days

Lesson 4: Cycle race times

Challenge 1 a 7:45 c 8:38
b 8:20 d 9:13

Cyclist	1	2	3	4	5	6
Finish time	4:59	4:40	5:04	4:49	4:42	5:03

Cyclist	Time taken
1	2 h 10 min
2	1 h 55 min
3	1 h 59 min
4	2 h 6 min
5	1 h 50 min
6	1 h 53 min

2 Finishing order: 5, 6, 2, 3, 4, 1

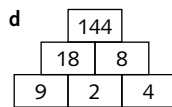
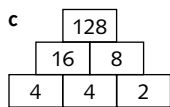
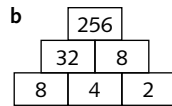
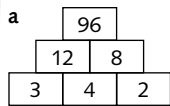
Unit 12, Week 1: Number - Multiplication and division

Lesson 1: Multiplication using the expanded written method

Challenge 1 Children's choice of numbers will vary
80←85→90, 30←34→40, 60←63→70,
70←78→80, 90←92→100, 50←56→60,
40←49→50, 20←21→30, 10←17→20,
70←71→80, 40←43→50, 60←65→70,
20←29→30, 30←36→40

Challenge 2 Answers dependent upon children's choice. Answers will vary.

Challenge 3



Lesson 2: Multiplication: introducing the formal written method (1)

Challenges 1, 2

- a 160
b 200
c 210
d 240
e 240
- f 200
g 300
h 720
i 240
j 450

Challenge 2

- a 148
b 216
c 207
d 272
e 228
- f 192
g 275
h 704
i 228
j 435

Challenge 3

- a 4
b 4
c 8
- d 8
e 4
f 5

Lesson 3: Multiplication: Introducing the formal written method (2)

Challenge 1

- a £1.80
b £5
c £2.40
d £1.60
- e £1.40
f £2.40
g £4
h £1.50

Challenge 2

Open

Challenge 3

- 1 360 apples, 365 oranges; 5 more oranges are sold
- 2 6 watermelons
- 3 648 lemons and bunches of grapes altogether
- 4 212 bananas

Lesson 4: Solving word problems (7)

Challenge 1

- a ×
b ÷
c ×
d +
- e ×
f −
g −
h ÷

Challenge 2

- a £76
b £36
c £54
- d £74
e £105
f £172

Challenge 3

- 1 £1050
- 2 £5
- 3 £60
- 4 £4
- 5 £48
- 6 £304
- 7 3 basketballs cost £114, he only has £100 so he cannot buy 3.

Unit 12, Week 2: Multiplication and division

Lesson 1: Division using partitioning

Challenge 1

- a 30: 60, 150, 120, 210, 300, 320, 240,
b 40: 120, 200, 160, 80, 440, 280, 320
c 50: 150, 50, 200, 100, 350, 400,
d 80: 240, 80, 160, 400, 640, 560, 320

Challenge 2

- 1 a 3
2 a 2
3 a 4
4 a 5
5 a 2
6 a 3
7 a 1
8 a 4
9 a 3
10 a 4
11 a 6
12 a 6
13 a 5
14 a 2
15 a 5
16 a 5
- b 30
b 20
b 40
b 50
b 20
b 30
b 10
b 40
b 30
b 40
b 60
b 60
b 50
b 20
b 50
b 50

Challenge 3

- a 44
b 21
c 21
d 24
e 22
- f 43
g 22
h 32
i 34
j 19

Lesson 2: Division using the expanded written method

Challenge 1

Answers will vary.

Challenge 2

- 1 15, 24, 16, 25, 18, 27
2 13, 16, 12, 15, 18, 17
3 17, 39, 28, 19, 25, 46
4 Answers will vary.

Challenge 3

- 1 a $85 \div 5$ is odd one out as other answers equal 24
b $95 \div 5$ is odd one out as other answers have a 7 in the units or ones place

Lesson 3: Division using the formal written method

Challenge 1

- 1 12, 6, 7, 8, 9
2 8, 7, 6, 3, 4
3 8, 6, 6, 9, 4

Challenge 2

- a 20
b 10
c 20
d 10
e 10
- f 10
g 20
h 30
i 20
j 30

Challenge 3

- 1 a 17
b 12
c 19
d 15
e 14
- f 14
g 23
h 27
i 18
j 29
- 2 a $17 \times 3 = 51$
b $12 \times 8 = 96$
c $19 \times 4 = 76$
d $15 \times 5 = 75$
e $14 \times 3 = 42$
- f $14 \times 4 = 56$
g $23 \times 4 = 92$
h $27 \times 3 = 81$
i $18 \times 4 = 72$
j $29 \times 3 = 87$

Lesson 4: Solving word problems (8)

Challenge 1

- $66 \div 2$ and 33
 $64 \div 8$ and 8
 $36 \div 3$ and 12
 $84 \div 4$ and 21
 $24 \div 4$ and 6
 $69 \div 3$ and 23

Challenge 2

- 1 a 24 sandwiches per group.
b 17 samosas per group.
c 34 cartons per class.
d 243 slices altogether.
e 288 more sandwiches.
f 24 children in each class received ice-cream.
g 28 children did not receive a carton of fruit juice.

2 Answers will vary.

Challenge 3

Open

Unit 12, Week 3: Statistics

Lesson 1: School disco pictograms

Challenge 1

Colour	Tally	Frequency
red	HHH HHH HHH I	16
orange	HHH HHH	10
green	HHH	5
yellow	HHH HHH II	12
blue	HHH II	7

2

Balloon colours	
red	○ ○ ○ ○ ○ ○ ○ ○ ○
orange	○ ○ ○ ○ ○ ○ ○ ○ ○
green	○ ○ ○ ○ ○ ○ ○ ○ ○
yellow	○ ○ ○ ○ ○ ○ ○ ○ ○
blue	○ ○ ○ ○ ○ ○ ○ ○ ○

Number of balloons

Key ○ = 2 balloons

- 3 a 10 balloons
b 12 balloons
- c 7 balloons
- 4 a red
b green
- 5 50 balloons

Progress Guide 3

Challenges
2, 3

1

Note / Coin	Frequency
£10	30
£5	35
£2	15
£1	20
50p	10

2

Coins and notes									
£10	○	○	○	○	○	○	○	○	○
£5	○	○	○	○	○	○	○	○	○
£2	○	○	○	○	○	○	○	○	○
£1	○	○	○	○	○	○	○	○	○
50p	○	○	○	○	○	○	○	○	○

Number of notes or coins

Key ○ = 5 notes or coins

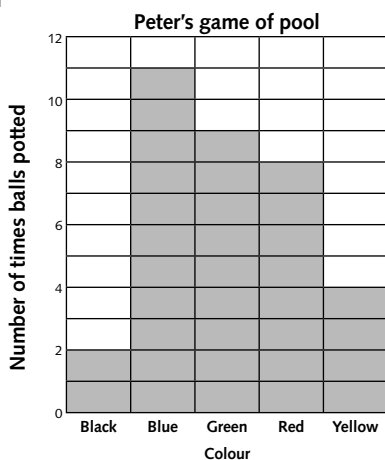
- 3 a 65 notes c 5 notes
b 45 coins d 5 coins

Challenge
3

£530

Lesson 2: Activities bar charts

Challenge
1

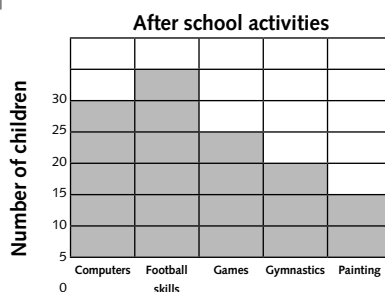


- 2 a blue b black
3 a 9 balls c 3 balls
b 2 balls d 7 balls

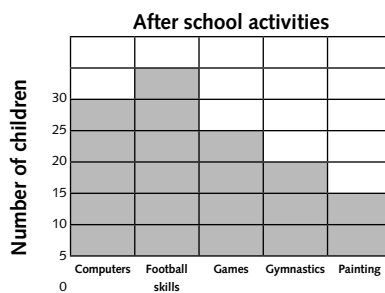
4 34 balls

Challenge
2

1



Activity



Activity

- 2 Football skills
3 a Football skills b Games
4 a 10 children b 5 children
5 100 children

Challenge
3

Open

Lesson 3: On the menu pictograms

Challenge
1

Drink	Number
Water	40
Juice	20
Milk	30
Nothing	15

2 water

- 3 a 20 children c 15 children
b 30 children

- 4 a 20 children b 10 children

5 105 children

Challenges
2, 3

- 1 a 25 children c 30 children
b 40 children d 10 children

- 2 a 15 children b 10 children

3 5 children

4 105 children

Challenge
3

1 Open

2 Open

3 Open

Lesson 4: Off to Italy bar charts

Challenges
1, 2, 3

- 1 a 30 flights c 15 flights
b 5 flights d 35 flights

2 Monday and Thursday

- 3 a Saturday b Wednesday

4 Open

5 125

Challenge
2

- 1 a red c white
b black d black

- 2 a 40 cars b 10 cars

3 270 cars

4 Open

Challenge
3

Open

Progress Guide 3

Unit 1, Week 1: Number - Number and place value

Lesson 1, Support: 10s and 1s

Answers will vary.

Lesson 1, Extension: What's my number?

Answers will vary.

Lesson 3, Support: Counting to 200

- 1 Numbers 101 to 200 inserted in hundred square.

Lesson 4, Extension: Finding all the 3-digit numbers

- 1 370 379 307
309 390 397
709 703 793
790 739 730
970 973 930
937 907 903

2 Arranging them systematically will vary.

Unit 1, Week 2: Number - Addition and subtraction

Lesson 1, Support: Adding on a number line

- 1 a 29 c 37
b 29 d 40
2 a 38 c 48
b 38 d 48

Lesson 2, Extension: 1s and 10s race

Game

Lesson 3, Support: Subtracting 10s

- 1 Answers will vary.
- 2 Answers will vary.
- 3 a 6 d 21
b 14 e 28
c 17 f 37
- 4 a 8 d 33
b 22 e 17
c 9 f 46

Lesson 3, Extension: What's the calculation?

All answers will vary.

Unit 1, Week 3: Geometry – Properties of shape**Lesson 2, Support: Building 3-D shapes**

- 1 Open
- 2 triangular prisms green
square prisms yellow
rectangular prisms red
hexagonal prisms blue

Lesson 2, Extension: 3-D spreadsheet

- 1 a 2 triangles, 3 rectangles
b 6 squares
c 2 pentagons, 5 rectangles
d 4 rectangles, 2 squares
e 2 hexagons, 6 rectangles
f 6 rectangles

- 2 Open

Lesson 3, Support: Describing sweet shapes

Peppermint prisms A, B, D, E, G, H
Fruity five faces E
Raspberry rectangles B, D, E, H
Caramel curves d C, F, G, I

Lesson 3, Extension: Properties of pyramids

1

Pyramid base	Number of sides of base	Number of faces of pyramid
Triangle	3	4
Square	4	5
Pentagon	5	6
Hexagon	6	7
Heptagon	7	8
Octagon	8	9

- 2 a 10 sides – 11 faces
b 12 sides – 13 faces

3

Pyramid base	Number of sides of base	Number of edges of pyramid
Triangle	3	6
Square	4	8
Pentagon	5	10
Hexagon	6	12
Heptagon	7	14
Octagon	8	16

- 4 a 10 sides- 20 edges
b 12 sides – 24 edges

5

Pyramid base	Number of sides of base	Number of vertices of pyramid
Triangle	3	4
Square	4	5
Pentagon	5	6
Hexagon	6	7
Heptagon	7	8
Octagon	8	9

10 sides – 11 vertices
12 sides – 13 vertices

Unit 2, Week 1: Number – Multiplication and division**Lesson 2, Support: 2s, 5s and 10s**

- 1 a 2 g 25
b 4 h 50
c 10 i 10
d 20 j 20
e 5 k 50
f 10 l 100
- 2 a 18 l 60
b 12 m 40
c 22 n 15
d 16 o 60
e 6 p 90
f 24 q 30
g 14 r 110
h 30 s 80
i 20 t 40
j 45 u 120
k 35

Lesson 3, Support: 3 multiplication table

Game

Lesson 3, Extension: What's my number?

- 1 a 8×3 d 3
b 14 e 8×5
c 30 f 4
- 2 Answers will vary

Lesson 4, Extension: 3 in a row

- 1 20 sets of numbers circled.
- 2 Answers will vary.

Unit 2, Week 2: Number – Fractions**Lesson 1, Support: Finding halves**

- 1 a $\frac{1}{2}$ of 10 = 5
b $\frac{1}{2}$ of 6 = 3
c $\frac{1}{2}$ of 12 = 6
d $\frac{1}{2}$ of 8 = 4
e $\frac{1}{2}$ of 16 = 8
f $\frac{1}{2}$ of 4 = 2
g $\frac{1}{2}$ of 14 = 7
h $\frac{1}{2}$ of 18 = 9
- 2 Answers will vary.

Lesson 2, Extension: Quarter it

Answers will vary.

Lesson 3, Support: Practical fractions

Answers will vary.

Lesson 4, Extension: How many ways?

Answers will vary.

Unit 2, Week 3: Measurement (mass)**Lesson 2, Support: On the scales**

- 1 Open
- 2 a 700 g c 500 g
b 400 g d 900 g
- 3 a 1 kg 500 g, 1500 g
b 2 kg 500 g, 2500 g
c 3 kg 500 g, 3500g

Lesson 2, Extension: Reading scales

- 1 a 200 g, 400 g, 800 g
b 350 g, 700 g, 1400 g
c 425 g, 850 g, 1700 g
- 2 a 600 g c 250 g
b 900 g
- 3 retriever, 25 kg
spaniel, 10 kg
terrier, 15 kg

Lesson 4, Support: More or less mass

Game

Lesson 4, Extension: Pick your own strawberries

1

	John	Ellen	Hassan	Mina	Kayden	Lexi
Weight in grams	3300 g	2800 g	2600 g	2500 g	2200 g	1900 g

- 2 a trays Ellen + Kayden = 5 kg
 b trays Hassan + Lexi = 4 kg 500 g
 c trays John + Nina = 5 kg 800 g
- 3 a 5000 g b 5100 g
- 4 Ellen + Nina + Kayden
- 5 John had 3150 g left
 Ellen had 2650 g left
 Hassan had 2450 g left

Unit 3, Week 1: Number - Addition and subtraction

Lesson 1, Support: Adding 1s

- 1 81 6 129
- 2 91 7 145
- 3 96 8 151
- 4 112 9 173
- 5 122 10 185

Lesson 2, Extension: Missing numbers (1)

- 1 a 191 f 524
 b 247 g 698
 c 432 h 762
 d 319 i 861
 e 513 j 909

2 Answers will vary.

Lesson 3, Support: Counting on in 100s

- 1 42, 142, 242, 342, 442, 542, 642, 742, 842, 942
- 2 38, 138, 238, 338, 438, 538, 638, 738, 838, 938
- 3 51, 151, 251, 351, 451, 551, 651, 751, 851, 951
- 4 49, 149, 249, 349, 449, 549, 649, 749, 849, 949
- 5 68, 168, 268, 368, 468, 568, 668, 768, 868, 968
- 6 77, 177, 277, 377, 477, 577, 677, 777, 877, 977
- 7 13, 113, 213, 313, 413, 513, 613, 713, 813, 913
- 8 94, 194, 294, 394, 494, 594, 694, 794, 894, 994
- 9 80, 180, 280, 380, 480, 580, 680, 780, 880, 980
- 10 99, 199, 299, 399, 499, 599, 699, 799, 899, 999

Lesson 4, Extension: Shopping problems

Example: 245 g
 Other answers will vary.

Unit 3, Week 2: Number - Addition and subtraction

Lesson 1, Support: Subtracting 1s

- 1 63 6 131
- 2 68 7 133
- 3 82 8 146
- 4 109 9 156
- 5 119 10 176

Lesson 2, Extension: Missing numbers (2)

- 1 a 405 f 708
 b 461 g 839
 c 612 h 906
 d 549 i 895
 e 666 j 983

2 Answers will vary.

Lesson 3, Support: Counting back in 100s

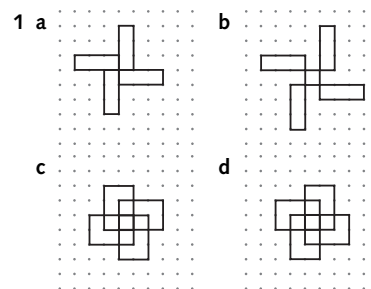
- 1 915, 815, 715, 615, 515 415, 315, 215, 115, 15
- 2 962, 862, 762, 662, 562, 462, 362, 262, 162, 62
- 3 981, 881, 781, 681, 581, 481, 381, 281, 181, 81
- 4 933, 833, 733, 633, 533, 433, 333, 233, 133, 33
- 5 947, 847, 747, 647, 547, 447, 347, 247, 147, 47
- 6 963, 863, 763, 663, 563, 463, 363, 263, 163, 63
- 7 985, 885, 785, 685, 585, 485, 385, 285, 185, 85
- 8 980, 880, 780, 680, 580, 480, 380, 280, 180, 80
- 9 904, 804, 704, 604, 504, 404, 304, 204, 104, 4
- 10 977, 877, 777, 677, 577, 477, 377, 277, 177, 77

Lesson 4, Extension: Swimming problems

Example: 130p
 Other answers will vary.

Unit 3, Week 3: Geometry - Properties of shape

Lesson 2, Extension: More robot patterns



2 They are reflections of one another.

Lesson 3, Support: Turning the hands

- 1 a 1 d 3
 b 3 e 2
 c 2 f 2
- 2 a 9 o'clock d 11 o'clock
 b 11 o'clock e 9 o'clock
 c 11 o'clock f 9 o'clock

Lesson 3, Extension: Taking turns

Game

Lesson 4, Support: All sorts of fans

- 1, 2 Open
- 3 Less than a right angle b, c, d
 More than a right angle a, e, f

Unit 4, Week 1: Number - Multiplication and division, incl. Number and place value

Lesson 2, Support: 4 multiplication table

Game

Lesson 3, Support: Doubling to find the 4 multiplication table

- 1 a 8, 16, 32, 64
 b 6, 12, 24, 48, 96
 c 10, 20, 40, 80
- 2 a $5 \times 2 = 10$ → $5 \times 4 = 20$
 b $3 \times 2 = 6$ → $6 \times 4 = 24$
 c $6 \times 2 = 12$ → $8 \times 4 = 32$
 d $7 \times 2 = 14$ → $3 \times 4 = 12$
 e $8 \times 2 = 16$ → $7 \times 4 = 28$
 f $9 \times 2 = 18$ → $9 \times 4 = 36$

Lesson 3, Extension: Speedy multiplication tables

Game

Lesson 4, Extension: Multiplication and division of 4

- | | |
|-----------------------|-------------------|
| 1 $60 \times 4 = 240$ | $240 \div 4 = 60$ |
| 2 $8 \times 4 = 32$ | $32 \div 4 = 8$ |
| 3 $40 \times 4 = 160$ | $160 \div 4 = 40$ |
| 4 $9 \times 4 = 36$ | $36 \div 4 = 9$ |
| 5 $80 \times 4 = 320$ | $320 \div 4 = 80$ |
| 6 $7 \times 4 = 28$ | $28 \div 4 = 7$ |
| 7 $70 \times 4 = 280$ | $280 \div 4 = 70$ |
| 8 $10 \times 4 = 40$ | $40 \div 4 = 10$ |
| 9 $50 \times 4 = 200$ | $200 \div 4 = 50$ |
| 10 $5 \times 4 = 20$ | $20 \div 4 = 5$ |

Unit 4, Week 2: Number - Multiplication and division, incl. Number and place value**Lesson 2, Support: 8 multiplication table**

Game

Lesson 3, Support: Doubling to find the 8 multiplication tables

- | | |
|-----------------------|-------------------|
| 1 a $5 \times 4 = 20$ | $5 \times 8 = 40$ |
| b $3 \times 4 = 12$ | $3 \times 8 = 24$ |
| c $6 \times 4 = 24$ | $6 \times 8 = 48$ |
| d $7 \times 4 = 28$ | $7 \times 8 = 56$ |
| e $8 \times 4 = 32$ | $8 \times 8 = 64$ |
| f $9 \times 4 = 36$ | $9 \times 8 = 72$ |

- 2 8, 32, 40, 56, 64, 72, 88, 96

Lesson 3, Extension: Doubling to find the 4 and 8 multiplication tables

- | | |
|--------|---------|
| 1 3, 8 | 4 8, 8 |
| 2 5, 8 | 5 12, 8 |
| 3 6, 4 | 6 4, 12 |

Lesson 4, Extension: All things 8: solving word problems

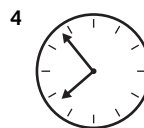
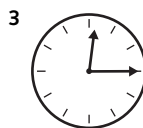
- $3 \times 8 = 24$
She needed 24 pipe cleaners.
- $32 \div 8 = 4$
4 spiders could be made.
 $2 \times 8 = 16$
16 more pipe cleaners are needed.
- $36 \div 4 = 9$
9 webs were needed.
- $30 \times 8 = 240$
240 pipe cleaners would be used.
- $60 \times 8 = 480$
 $20 \times 8 = 160$
 $480 + 160 = 640$
640 pipe cleaners were used altogether.

- $60 \times 2 = 120$
 $20 \times 2 = 40$
 $120 + 40 = 160$
There were 160 eyes altogether.

7 Answers will vary.

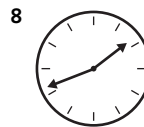
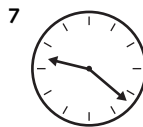
Unit 4, Week 3: Measurement (time)**Lesson 1, Support: Time to the minute**

- 25 min to 3
- 9 min past 10



- 5 27 min past 3

- 6 4 min to 6



- 9 28 min past 1

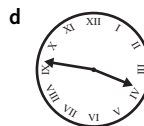
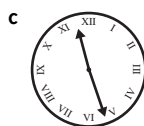
- 10 17 min to 11

Lesson 2, Extension: Olympics time line

- 1984 USA
1988 South Korea
1992 Spain
1996 USA
2000 Australia
2004 Greece
2008 China
2012 UK
- Moscow, Soviet Union
- a Rio de Janeiro, Brazil
b Drawing of flag
- Timeline for Winter Olympics

Lesson 3, Support: Roman dials and station clocks

- a 15 min past 12
b 5 min to 8



- 3 Clock A 18:16

Clock B 15:40

Lesson 3, Extension: Station times

1

	24-hour clock	12-hour clock
a	14:39	2:39
b	14:54	2:54
c	14:24	2:24
d	15:04	3:04
e	14:04	2:04
f	11:34	11:34
g	19:34	7:34

- 2 16 minutes

- a 11:53 d 6:45 p.m.
b 12:22 p.m. e 22:05
c 15:10

Unit 5, Week 1: Number - Number and place value**Lesson 1, Support: Making 3-digit numbers**

Answers will vary.

Lesson 1, Extension: Larger number wins

Game

Lesson 3, Extension: How much money?

Open

Lesson 4, Support: Find your way

Answers will vary.

Unit 5, Week 2: Number - Addition and subtraction incl. Measurement (money)**Lesson 1, Support: Amounts of money**

- $14p = 10p + 2p + 2p$
- $28p = 20p + 5p + 2p + 1p$
- $35p = 20p + 10p + 5p$
- $43p = 20p + 20p + 2p + 1p$
- $72p = 50p + 20p + 2p$
- $65p = 50p + 10p + 5p$
- $57p = 50p + 5p + 2p$

Lesson 2, Extension: How much change?

- a 73p d 53p
b 49p e 36p
c 45p f 73p
- Tuna roll, yoghurt and juice

Lesson 3, Support: Calculating change

- 27p 4 36p
- 34p 5 20p
- 23p

Lesson 4, Extension: Furniture shop

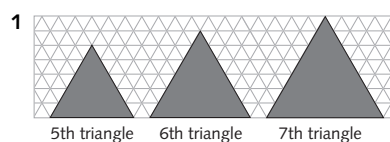
Answers will vary.

Unit 5, Week 3: Geometry - Properties of shape

Lesson 2, Support: New shapes from old

Open

Lesson 2, Extension: Triangles in a row



2

Triangle	1	2	3	4	5	6	7
Number of small triangles	1	4	9	16	25	36	49

- 3 You need to multiply the number of triangle by itself to find out the number of small triangles the pattern, for example, to find out the number of small triangles in the 2nd triangle, you need to do 2×2 .

- 4 a 64 b 100

Lesson 3, Support: Exploring shapes

Open

Lesson 3, Extension: Exploring shapes

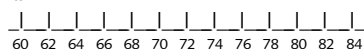
1-3 Open

Unit 6, Week 1: Number - Multiplication and division incl. Number and place value

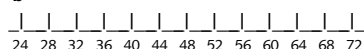
Lesson 1, Extension: Counting in steps of 2, 4 and 8

- 1 2: 46, 58, 44, 76, 92, 60, 100, 120
 4: 48, 80, 24, 120, 32, 240, 84
 8: 16, 80, 640, 32, 160, 64, 320, 56, 88, 168

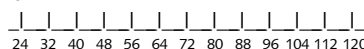
2 a



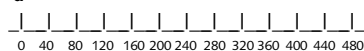
b



c



d



- 3 a 40, 80, 120, 160, 200, 240, 280, 320, 360, 400, 440, 480
 b 20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240
 c 80, 160, 240, 320, 400, 480, 560, 640, 720, 800, 880, 960

Lesson 3, Support: Halving to find the division facts (1)

- 1 8, 20, 32, 40, , 36, 24, 28,
 2 a $36 \div 2 = 18$; $18 \div 2 = 9$
 $36 \div 4 = 9$
 b $16 \div 2 = 8$; $8 \div 2 = 4$
 $16 \div 4 = 4$
 c $24 \div 2 = 12$; $12 \div 2 = 6$
 $24 \div 4 = 6$
 d $28 \div 2 = 14$; $14 \div 2 = 7$; $28 \div 4 = 7$
 e $32 \div 2 = 16$; $16 \div 2 = 8$
 $32 \div 4 = 8$

Lesson 3, Support: Halving to find the division facts (2)

- 1 $80 \div 8 = 10$
 2 $24 \div 8 = 3$
 3 $48 \div 8 = 6$
 4 $56 \div 8 = 7$
 5 $72 \div 8 = 9$

Lesson 4, Extension: Solving word problems

- 1 a 8 stamps in each row
 b $3 \times 8 = 24$ She buys 24 stamps altogether
 c $6 \times 8 = 48$ She buys 48 stamps altogether. 16 stamps are left
 d $2 \times 24 = 48$; $2 \times 40 = 80$;
 $48 + 80 = 128$ I have 128 stamps altogether

2 Answers will vary.

- a 9 c 26
 b 48

Unit 6, Week 2: Number - Fractions

Lesson 1, Support: Finding quarters

- 1 $\frac{1}{4}$ of 8 = 2 4 $\frac{1}{4}$ of 28 = 7
 2 $\frac{1}{4}$ of 12 = 3 5 $\frac{1}{4}$ of 16 = 4
 3 $\frac{1}{4}$ of 20 = 5 6 $\frac{1}{4}$ of 24 = 6

Lesson 2, Extension: Non-unit fractions

- 1 $\frac{2}{3}$ of 18 = 12
 2 $\frac{2}{5}$ of 10 = 4
 3 $\frac{3}{5}$ of 20 = 12
 4 $\frac{2}{4}$ of 16 = 8

5 $\frac{2}{6}$ of 12 = 4

6 $\frac{4}{6}$ of 24 = 16

7 $\frac{2}{3}$ of 33 = 22

8 $\frac{4}{10}$ of 40 = 16

Lesson 3, Extension: Fraction diagrams

- 1 Answers will vary.
 2 Answers will vary.
 3 Answers will vary.

Lesson 4, Support: Shading number lines

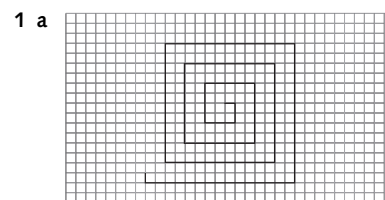
Open

Unit 6, Week 3: Measurement (length)

Lesson 2, Support: Millimetres of bracelets

- 1 [Allow for rounding up or down]
 a = 9 cm d = 8 cm
 b = 15/16 cm e = 12 cm
 c = 13/14 cm
 2 [Accept +/- 1 mm]
 a = 93 mm, d = 79 mm
 b = 155 mm e = 117 m
 c = 135 mm

Lesson 2, Extension: Spirals in millimetres



b Answers may vary



b Answers may vary

Lesson 3, Support: Comparing lengths

Open

Lesson 3, Extension: Skateboard jumps

- 1 a D e E
 b C f G
 c G g F
 d A h H
 2 a 30 cm 3 Open
 b 80 cm

Unit 7, Week 1: Number - Addition and subtraction incl. Measurement (money)

Lesson 1, Support: Adding 1s and 10s

- 1 81
- 2 67
- 3 78
- 4 79
- 5 99
- 6 98
- 7 89
- 8 99
- 9 97

Lesson 2, Extension: Addition instructions

- 1 Answers will vary.

- 2 A = 8 D = 5
I = 0 K = 1
M = 4

Lesson 3, Extension: Addition puzzle

Answers will vary.

Lesson 4, Support: Add numbers mentally

- 1 a 64 d 71
b 68 e 95
c 77
- 2 a 236 d 362
b 348 e 585
c 471

Unit 7, Week 2: Number - Addition and subtraction incl. Measurement (money)

Lesson 1, Support: Subtracting 1s and 10s

- 1 44
- 2 33
- 3 23
- 4 25
- 5 23
- 6 43
- 7 42
- 8 42
- 9 42
- 10 64
- 11 51
- 12 56

Lesson 2, Extension: Subtraction instructions

- 1 Answers will vary.

2

a	b	c
1	5	3
2	6	3
3	7	3
4	8	3
5	9	3

Lesson 3, Support: Subtracting 10s and 100s

- 1 a 44 d 35
b 22 e 47
c 51
- 2 a 228 d 128
b 181 e 85
c 157

Lesson 4, Extension: Sports problems

Answers will vary

Unit 7, Week 3: Statistics

Lesson 1, Support: Fruit and vegetable charts

1, 2

Item	Frequency
apples	3
bananas	5
carrots	7
mushrooms	8
pears	2

- 3 a 2 b 3
- 4 a 10 c 5
b 15

Lesson 2, Support: Counters pictogram

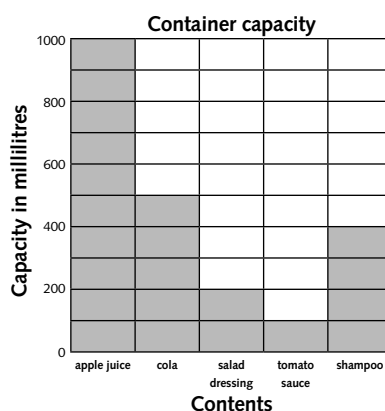
Game

Lesson 2, Extension: Dice pictograms

Game

Lesson 3, Extension: Capacity bar chart

1



- 2 a tomato sauce
- b apple juice

3 shampoo

4 a apple juice b shampoo

5 a 4 b 10

Unit 8, Week 1: Number - Multiplication and division incl. Number and place value

Lesson 2, Support: Revising multiplication facts

Game

Lesson 2, Extension: Revising multiplication facts

1

x	5	4	3
3	15	12	9
6	30	24	18
9	45	36	27
12	60	48	36

2

x	2	3	5	10	12
2	4	6	10	20	24
4	8	12	20	40	48
6	12	18	30	60	72
8	16	24	40	80	96
10	20	30	50	100	120

3

x	2	3	4	5	8	10
7	14	21	28	35	56	70
3	6	9	12	15	24	30
9	18	27	36	45	72	90
4	8	12	16	20	32	40
11	22	33	44	55	88	110

4

x	2	4	8
6	12	24	48
9	18	36	72
7	14	28	56
30	60	120	240
50	100	200	400
80	160	320	640

5

x	5	3	8	10	4
8	40	24	64	80	32
4	20	12	32	40	16
30	150	90	240	300	120
50	250	150	400	500	200
80	400	240	640	800	320

Lesson 3, Support: Revising division facts

Game

Lesson 4, Extension: Solving problems

- 1 108 pencils
- 2 60 flowers
- 3 180 wheels

- 4 48 biscuits
- 5 180 wheels
- 6 480 seats
- 7 72 plants
- 8 7 biscuits
- 9 320 sweets
- 10 30 octopuses

Unit 8, Week 2: Number - Fractions

Lesson 1, Extension: Pizza problem

- 1 Answers will vary.
- 2 Variations of $\frac{1}{6} + \frac{2}{6} + \frac{3}{6}$ and $\frac{2}{6} + \frac{2}{6} + \frac{2}{6}$.

Lesson 2, Support: Subtracting snakes

- 1 a $\frac{2}{3}$ b $\frac{3}{5}$
- 2 a $\frac{1}{5}$ d $\frac{5}{8}$
- b $\frac{5}{6}$ e $\frac{2}{8}$
- c $\frac{2}{6}$ f $\frac{8}{10}$

- 3 Answers will vary.

Lesson 2, Extension: Subtracting beyond 1 whole

- 1 $\frac{3}{5}$ 5 $\frac{5}{8}$
- 2 $\frac{4}{6}$ 6 $\frac{6}{9}$
- 3 $\frac{5}{7}$ 7 1
- 4 $\frac{4}{8}$ 8 $1\frac{2}{4}$

Lesson 4, Support: Building fractions

- 1 Open
- 2 They all equal $\frac{1}{2}$

Unit 8, Week 3: Measurement (perimeter)

Lesson 2, Support: Perimeters of rectangles

- 1 12 cm 6 12 cm
- 2 14 cm 7 16 cm
- 3 16 cm 8 10 cm
- 4 16 cm 9 16 cm
- 5 14 cm 10 8 cm

Lesson 2, Extension: Predicting perimeters

- 1 Open
- 2

Rectangle	1	2	3	4	5	6	7
Perimeter	6 cm	8 cm	10 cm	12 cm	14 cm	16 cm	18 cm

- 3 Pattern increases by 2 each time. Rule is: 2 times the rectangle number plus 4.

- 4 a 10th rectangle: 24 cm
- b 12th rectangle: 28 cm

Lesson 3, Support: Perimeter patterns

- 1 A 4 cm G 9 cm
- B 8 cm H 12 cm
- C 12 cm I 6 cm
- D 16 cm J 12 cm
- E 3 cm K 18 cm
- F 6 cm

Lesson 4, Extension: Hexagonal hunt

- 1 Both 18 cm
- 2 Open
- 2 Open

Unit 9, Week 1: Number - Number and place value

Lesson 1, Extension: Digit sum tickets

Answers will vary.

Lesson 2, Support: On the number line

Answers will vary.

Lesson 3, Extension: Find my number

Answers will vary.

Lesson 4, Support: Circle the numbers

- 1 Answers will vary.
- 2 The number is 56 or 58.
- 3 Answers will vary.

Unit 9, Week 2: Number - Addition and subtraction

Lesson 1, Support: Mental addition and subtraction

- 1 a 327 d 321
- b 458 e 403
- c 749 f 782
- 2 a 246 d 396
- b 181 e 215
- c 228 f 59

Lesson 2, Extension: Challenge your partner (1)

- 1 Answers will vary.

Lesson 3, Extension: Challenge your partner (2)

- 1 Answers will vary.

Lesson 4, Support: Word problems

16 eggs were broken
9 eggs were left
138 eggs altogether
250 g is left
488 eggs altogether
133 eggs were left

Unit 9, Week 3: Geometry - Properties of shape

Lesson 1, Extension: Drawing spirals

Open

Lesson 2, Support: Pairs of lines

Open

Lesson 2, Extension: Lines on a 9-dot grid

Open

Lesson 3, Support: Shape shopping list

- 1 A Its only edge is curved.
- B All the sides and angles are equal.
- C It has 5 equal sides.
- D Its 4 sides are all different lengths.
- E It has 3 sides and 1 right angle.
- F It is half of a circle.
- G It has 4 sides and 1 right angle.
- H It has 6 vertices and no right angles.

2

All right angles	Some right angles	No right angles
B	E, G	A, C, D, F, H

Unit 10, Week 1: Number - Multiplication and division

Lesson 1, Support: Multiplication using partitioning

- 1 135 5 116
- 2 208 6 256
- 3 170 7 195
- 4 87

Lesson 2, Support: Multiplication using partitioning and the grid method

- 1 128 5 192
- 2 129 6 171
- 3 156 7 184
- 4 325

Lesson 3, Extension: Multiplication: Introducing the expanded written method

- 1 348
- 2 237

3 240

4 752

Lesson 4, Extension: Solving problems

- 1 $448 + 128 = 576$ pieces of fruit altogether.
- 2 12 bags of oranges can be made.
- 3 $249 - 35 = 214$ strawberries left.
- 4 $312 + 608 = 920$ pieces of fruit altogether.
- 5 £312
- 6 $76 + 48 + 64 + 56 + 39 + 83 = 366$ pieces of fruit altogether.
- 7 $304 - 168 = 136$ more apples.
- 8 228 apples; 224 pears; there are 4 more apples.

Unit 10, Week 2: Number - Fractions**Lesson 1, Support: Finding fractions**

- Halves ✓ 6, 6
- Thirds ✓ 4, 4, 4
- Quarters ✓ 3, 3, 3, 3
- Sixths ✓ 2, 2, 2, 2, 2, 2

Lesson 2, Extension: Pound fractions

- 1 15p
- 2 30p
- 3 Answers will vary.

Lesson 3, Extension: Equivalent patterns

Answers will vary.

Lesson 4, Support: Tenths on number lines

- 1 The following fractions coloured:

- | | |
|------------------|------------------|
| a $\frac{5}{10}$ | d $\frac{8}{10}$ |
| b $\frac{2}{10}$ | e $\frac{4}{10}$ |
| c $\frac{6}{10}$ | f $\frac{9}{10}$ |

- 2 a-d $\frac{1}{10} - \frac{9}{10}$ filled in on number lines

Unit 10, Week 3: Measurement (volume and capacity)**Lesson 1, Support: Measuring cylinders**

- 1, 2 a line to 500 ml
- b line to 250 ml
- c line to 200 ml
- d line to 750 ml
- e line to 250 ml
- f line to 800 ml

Lesson 1, Extension: Fractions full or empty

- | | |
|---------------------------|-------------------------|
| 1 a $\frac{9}{10}$ 900 ml | b $\frac{1}{10}$ 100 ml |
| $\frac{8}{10}$ 800 ml | $\frac{1}{4}$ 250 ml |
| $\frac{3}{4}$ 750 ml | $\frac{3}{10}$ 300 ml |
| $\frac{5}{10}$ 500 ml | $\frac{4}{10}$ 400 ml |
| $\frac{3}{10}$ 300 ml | $\frac{6}{10}$ 600 ml |
| $\frac{1}{4}$ 250 ml | $\frac{3}{4}$ 750 ml |
| $\frac{2}{10}$ 200 ml | $\frac{9}{10}$ 900 ml |

Lesson 2, Support: Go-kart millilitres

1, 2

Go-kart	Fuel in ml	Fuel in litres
Mercury	600 ml	$\frac{6}{10}$ l
Jupiter	400 ml	$\frac{4}{10}$ l
Mars	100 ml	$\frac{1}{10}$ l
Neptune	900 ml	$\frac{9}{10}$ l
Uranus	200 ml	$\frac{2}{10}$ l
Saturn	800 ml	$\frac{8}{10}$ l
Asteroid	500 ml	$\frac{5}{10}$ l

Lesson 3, Extension: Measuring in millilitres

- 1 blueberry 700 ml
lemon 300 ml
lime 150 ml
orange 450 ml
raspberry 800 ml
strawberry 250 ml
- 2 a 1000 ml, 1 l strawberry
b 1500 ml, 1 l 500 ml lemon
c 2400 ml, 2 l 400 ml raspberry
d 1500 ml, 1 l 500 ml lime
e 3500 ml, 3 l 500 ml blueberry
f 1800 ml, 1 l 800 ml orange

- 3 a 600 ml
- b 900 ml

Unit 11, Week 1: Number - Addition and subtraction incl. Measurement (money)**Lesson 1, Support: Estimating**

1 a and b

- | | | |
|-------|-----|-------|
| 60 | 67 | (70) |
| (80) | 84 | 90 |
| (170) | 172 | 180 |
| 260 | 269 | (270) |
| 340 | 346 | (350) |
| 370 | 378 | (380) |

- 2 a 566
- b 461
- c 494
- d 549
- e 724

Lesson 2, Extension: Make 900

Answers will vary.

Lesson 4, Support: School shopping

- 1 £24
- 2 £161
- 3 £495
- 4 £340

Lesson 4, Extension: Kitting out Thomas

Answers will vary.

Unit 11, Week 2: Number - Addition and subtraction incl. Measurement (money)**Lesson 1, Support: Break it down**

- | | |
|-------|-------|
| a 121 | d 153 |
| b 144 | e 222 |
| c 226 | f 242 |

Lesson 2, Extension: Make 600

Answers will vary.

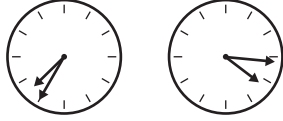
Lesson 3, Extension: Clever jumping

Answers will vary.

Lesson 4, Support: Jumping backwards

- | Tens | Units |
|----------|-------|
| 1 74-44 | 44-37 |
| 2 89-49 | 49-48 |
| 3 104-54 | |
| 4 136-76 | 76-72 |
| 5 152-92 | 92-89 |

Unit 11, Week 3: Measurement (time)**Lesson 1, Support: Digital and wall clocks**

- 1 

2:05
6:51



5:38
3:49

Lesson 3, Support: Days of the month

- 1 30 days has September, April June and November. All the rest have 31 except February alone which has 28 days and 29 days in each leap year.
- 2 a 4 days c 4 days
b 4 days d 5 days
- 3 a Tuesday c Friday
b Thursday d Friday

Lesson 3, Extension: Calendar counting

- 1 a Mon - Thurs
b Sunday
c i 6 months ii 12 months
- 2 Open
- 3 Open on 3, 15, 18, 22 and 30 November.

Lesson 4, Extension: Measuring time

Open

Unit 12, Week 1: Number - Multiplication and division**Lesson 1, Support: Multiplication using the expanded written method**

- 1 135 3 252
- 2 195 4 228

Lesson 2, Support: Multiplication: Introducing the formal written method

- 1 135 6 335
- 2 240 7 188
- 3 222 8 201
- 4 236 9 432
- 5 292

Lesson 3, Extension: Multiplication: Introducing the formal written method

- 1 a 348 d 744
b 608 e 395
c 192 f 544
- 2 a 3 c 3, 8
b 6

Lesson 4, Extension: Solving problems

Game

Unit 12, Week 2: Number - Multiplication and division**Lesson 1, Support: Division using partitioning**

- 1 3: 9, 3, 6, 30, 60, 90,
2: 2, 20, 40, 80, 60, 4, 8, 6,
4: 4, 8, 40, 80,
- 2 a 23 e 32
b 21 f 22
c 31 g 22
d 12

Lesson 3, Support: Division using the formal written method

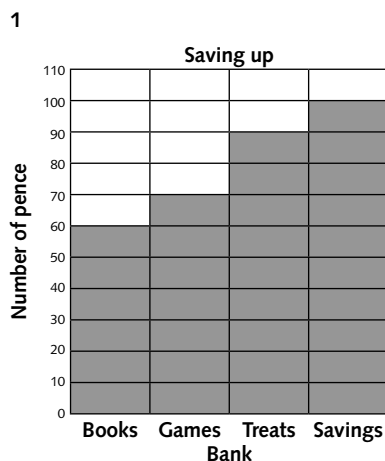
- 1 15 4 15
- 2 16 5 14
- 3 28

Lesson 3, Extension: Division using the formal written method

- 1 a 23 d 12
b 27 e 15
c 18
- 2 Answers will vary.
- 3 Answers will vary.

Lesson 4, Extension: Solving word problems

- 1 19 bags of red peppers altogether.
- 2 208 pieces of sweet corn can be made from 1 box.
- 3 512 florets in one box of broccoli.
- 4 24 bags of carrots, 27 bags of onions. There are more bags of onions.
- 5 190 vegetables altogether.
- 6 16 broccoli, 27 onions, 12 carrots are needed one quarter.

Unit 12, Week 3: Statistics**Lesson 2, Support: Savings bar chart**

- 2 a Savings c Treats
b Books d Games
- 3 a Books: 80p c Treats: £1.10
b Games: 90p d Savings: £1.20

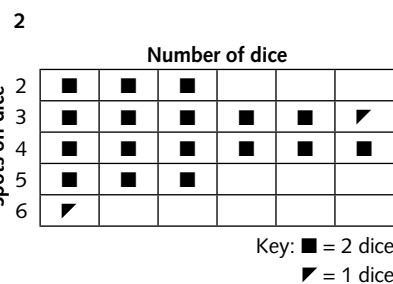
Lesson 2, Extension: Racing game bar chart

Open

Lesson 3, Support: Dice spots pictogram

1

Spots	Tally	Total
2		6
3		11
4		12
5		6
6		1



- 3 a 6 b 4
- 4 a 7 b 17

Lesson 4, Extension: Bags of fruit bar chart

- 1 apples oranges, bananas, melons.
- 2 a oranges b melons
- 3 a 5 b 20
- 4 Bar to 40
- 5 10
- 6 30 apples, 48 oranges, 26 bananas, 14 melons, 37 pears.

18/02/2014 12:20

Unit 3, Week 2: Number - Addition and subtraction

Lesson 1: Missing number subtractions

- Challenge 1**
- | | |
|-------|-------|
| a 122 | e 148 |
| b 131 | f 157 |
| c 143 | g 163 |
| d 146 | h 168 |

- Challenge 2**
- | | |
|-----|-----|
| a 9 | e 6 |
| b 4 | f 9 |
| c 4 | g 6 |
| d 7 | h 7 |

- Challenge 3**
- | | |
|-----|-----|
| a 7 | e 8 |
| b 9 | f 4 |
| c 6 | g 8 |
| d 6 | h 5 |

Lesson 3: Subtracting 1s, 10s and 100s

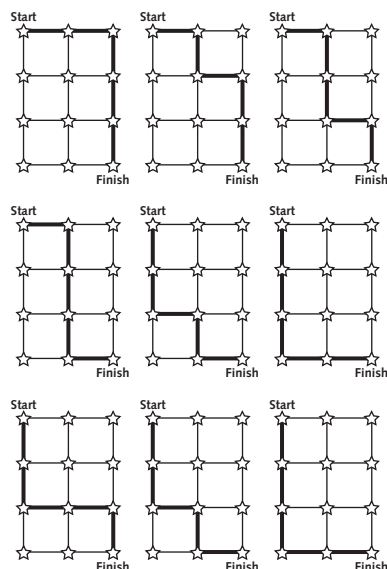
- Challenge 1**
- | | |
|-------|-------|
| a 122 | f 122 |
| b 164 | g 147 |
| c 171 | h 186 |
| d 125 | i 191 |
| e 149 | j 282 |

- Challenge 2**
- | | |
|-------|-------|
| a 145 | f 517 |
| b 277 | g 442 |
| c 236 | h 283 |
| d 265 | i 293 |
| e 365 | j 299 |

- Challenge 3**
- | | |
|------|-------|
| a 9 | f 70 |
| b 5 | g 80 |
| c 50 | h 700 |
| d 50 | i 900 |
| e 80 | j 600 |

Unit 3, Week 3: Geometry - Properties of shape

Lesson 2: Investigating robot routes



Lesson 4: Check out the angles

Challenges 1, 2	Angle is less than a right angle	b, c, f
	Angle is a right angle	a, g
	Angle is greater than a right angle	d, e, h

Challenges 2, 3	a At least two angles less than a right angle	b, c, e, f, h
	b At least two angles greater than a right angle	b, c, d, e, f, g

- Challenge 3**
- a d
b b, c, e, f

Unit 4, Week 1: Number - Multiplication and division incl. Number and place value

Lesson 1: Counting in 4s

- Challenge 1**
- 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

- Challenge 2**
- | | |
|--------|------|
| 1 a 20 | d 32 |
| b 4 | e 36 |
| c 12 | f 8 |

- | | |
|--------|------|
| 2 a 48 | d 16 |
| b 36 | e 28 |
| c 24 | f 12 |

- Challenge 3**
- 1 a 24, 12, 8, 26, 32, 6, 30, 4
b 4, 6, 8, 12, 24, 26, 30, 32

- 2 a 28, 4, 24, 12, 32, 8, 16, 36
b 4, 8, 12, 16, 24, 28, 32, 36

- 3 Yes. Because multiples of 4 are also multiples of 2.

Lesson 2: Using the key facts to find the 4 multiplication table

- Challenge 1**
- | | |
|-----|------|
| 1 8 | 5 10 |
| 2 3 | 6 44 |
| 3 6 | 7 4 |
| 4 9 | 8 28 |
- Challenge 2**
- | | |
|------|------|
| 1 4 | 6 11 |
| 2 24 | 7 9 |
| 3 9 | 8 4 |
| 4 5 | 9 4 |
| 5 10 | |

- Challenge 3**
- Children's choices will vary
Answers as follows:

$8 \times 4 = 32$; $4 \times 8 = 32$; $32 \div 4 = 8$;
 $32 \div 8 = 4$; $3 \times 4 = 12$; $4 \times 3 = 12$;
 $12 \div 4 = 3$; $12 \div 3 = 4$; $6 \times 4 = 24$;
 $4 \times 6 = 24$; $24 \div 4 = 6$; $24 \div 6 = 4$;
 $9 \times 4 = 36$; $4 \times 9 = 36$; $36 \div 4 = 9$;
 $36 \div 9 = 4$; $10 \times 4 = 40$; $4 \times 10 = 40$;
 $40 \div 4 = 10$; $40 \div 10 = 4$; $11 \times 4 = 44$;
 $4 \times 11 = 44$; $44 \div 4 = 11$; $44 \div 11 = 4$;
 $4 \times 4 = 16$; $4 \times 4 = 16$; $16 \div 4 = 4$;
 $16 \div 4 = 4$; $7 \times 4 = 28$; $4 \times 7 = 28$;
 $28 \div 4 = 7$; $28 \div 7 = 4$

Unit 4, Week 2: Number - Multiplication and division incl. Number and place value

Lesson 2: Using the key facts to find the 8 multiplication table

- Challenge 1**
- 1 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

- 2 See highlighted numbers in Q1

- Challenge 2**
- | | |
|--------------------|-------------------|
| $3 \times 8 = 24$ | $7 \times 8 = 56$ |
| $12 \times 8 = 96$ | $9 \times 8 = 72$ |
| $4 \times 8 = 32$ | $8 \times 8 = 64$ |
| $11 \times 8 = 88$ | $6 \times 8 = 48$ |

- Challenge 3**
- 1 $3 \times 8 = 24$ $24 \div 8 = 3$
 2 $5 \times 8 = 40$ $40 \div 8 = 5$
 3 $4 \times 8 = 32$ $32 \div 8 = 4$

Lesson 4: All things 8: solving word problems

- Challenge 1**
- a $7 \times 8 = 56$ legs
 b $4 \times 8 = 32$ oars
 c $9 \times 8 = 72$ legs
 d $6 \times 8 = 48$ sides
 e $5 \times 8 = 40$ people

- Challenge 2**
- a $64 \div 8 = 8$ spiders
 b $32 \div 8 = 4$ octopuses
 c $32 \div 8 = 4$ octagons
 $32 \div 4 = 8$ squares
 $32 \div 3 = 10$ triangles and 2 sides left over
 d $28 \div 4 = 7$; 7 teams of 4 can be made

- Challenge 3**
- Answers will vary.

Unit 4, Week 3: Measurement (time)

Lesson 1: Right on time

- Challenge 1**
- 1 21 min past 10, 39 min to 11
 2 52 min past 8, 8 min to 9
- Challenge 2**
- 1 3 min past 5, 57 min to 6
 2 24 min past 5, 36 min to 6
- Challenge 3**
- 1 9:10
 2 3:21
 3 7:16

Lesson 2: Puzzle time

Challenge 1 Open

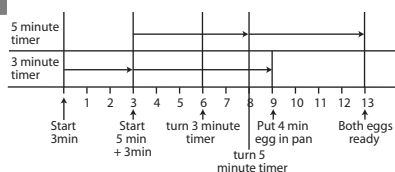
Challenge 2

1 Get up, 6:30 am
Taxi to airport, 8:00 am
Flight departs, 11:30 am
Flight lands, 2:30 pm
Arrive hotel, 4:00 pm
In the pool, 5:30 pm

2 30 minutes

3 1 hour 30 minutes

Challenge 3



Unit 5, Week 1: Number - Number and place value

Lesson 2: Make the larger number

Game

Lesson 3: Making amounts of money

Game

Unit 5, Week 2: Addition and subtraction incl. Measurement (money)

Lesson 1: The café

Open

Lesson 3: Fruit stall

Answers will vary.

Unit 5, Week 3: Geometry - Properties of shape

Lesson 2: Make and match shapes

Challenge 1

Shape	Four-sided	Sides same length
B	✓	✗
C	✓	✓
D, A	✗	✗

Shape	5 vertices	1 or more right angles
A, D	✓	✓
B	✗	✓
C	✗	✗

Challenge 2

Answers must show equal sides marked in blue and right angles circled in red

Challenge 3

Answers will vary.

Lesson 3: Four-way fit

Open

Unit 6, Week 1: Number - Multiplication and division incl. Number and place value

Lesson 1: Counting in steps of 2, 4 and 8

Challenge 1 2: 12, 32, 16, 34, 4

4: 16, 24, 28, 36, 40,

8: 72, 56, 48, 16, 64,

Challenge 2

2 → 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

4 → 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

8 → 8, 16, 24, 32, 40, 48, 56, 64, 72, 56, 64, 72, 80, 88, 96

Challenge 3

x	3	9	6	10	8	5	7
2	6	18	12	20	16	10	14
4	12	36	24	40	32	20	28
8	24	72	48	80	64	40	56

Lesson 2: Halving to find division facts

Challenge 1

a 24 e 20
b 12 f 16
c 6 g 8
d 10 h 4

Challenge 2

1 $36 \div 4 = 9$

3 $28 \div 4 = 7$ 4 $24 \div 4 = 6$

Challenge 3

1 6 3 8
2 7

Unit 6, Week 2: Number - Fractions

Lesson 2: First to 1

Challenges 1, 2 Game

Challenge 3

1 $\frac{8}{16}$ 3 $\frac{2}{16}$
2 $\frac{4}{16}$

Lesson 4: Jump in quarters

Game

Unit 6, Week 3: Measurement (length)

Lesson 1: Lengths and lines in centimetres

Challenges 1, 2, 3

A to B = 4 cm A to C = 7 cm
A to D = 8 cm A to E = 7 cm
A to F = 4 cm

Challenges 2, 3

1 Line AC is the same length as line AE.
2 Line AD is twice as long as line AB or AF.

Challenge 3

All measurements from 1 cm to 25 cm are possible.

Lesson 2: Lines in circles

Challenges 1, 2, 3

1, 2 Allow differences of ± 1 mm

Line	Length in mm
1 to 2	22 mm
1 to 3	42 mm
1 to 4	56 mm
1 to 5	60 mm
1 to 6	56 mm
1 to 7	42 mm
1 to 8	22 mm

Challenges 2, 3

Open

Challenge 3

Open

Unit 7, Week 1: Number - Addition and subtraction incl. Measurement (money)

Lesson 2: Practising the column method for addition

Challenge 1

a 289 e 399
b 289 f 489
c 379 g 467
d 484 h 589

Challenge 2

a 579 e 876
b 597 f 675
c 775 g 745
d 787 h 682

Challenge 3

a 977 e 863
b 956 f 994
c 894 g 882
d 1000 h 983

Lesson 4: Spinning addition

Open

Unit 7, Week 2: Number - Addition and subtraction incl. Measurement (money)

Lesson 2: Practising the column method for subtraction

Challenge 1

1 132 e 154
b 132 f 122
c 232 g 222
d 231 h 142

Challenge 2

a 235 e 225
b 206 f 327
c 227 g 349
d 223 h 208

Challenge 3

a 384 e 307
b 228 f 248
c 272 g 638
d 293 h 173

Lesson 3: Spinning subtraction

Open

Unit 7, Week 3: Statistics

Lesson 1: Keeping a tally

Challenges
1, 2, 3

Popular words	Frequency
the	18
was	11
and	20
to	12
from	7
they	13

Challenges
2, 3

Answers will vary.

Challenge
3

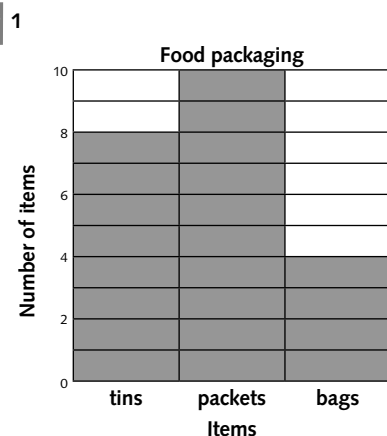
Answers will vary.

Lesson 3: Tins, packets and bags

Challenges
1, 2, 3

Item	Number
tins	8
packets	10
bags	4

- 2 a There are more packets than tins.
b There are 4 fewer bags than tins.

Challenges
2, 3

2

Item	Food packaging				
tins	○	○	○	○	
packets	○	○	○	○	○
bags	○	○			

Key ○ = 2 items

Challenge
3

Open

Unit 8, Week 1: Number - Multiplication and division incl. Number and place value

Lesson 2: Revising multiplication facts

Challenge
1

- 1 20, 32, 24, 12, 36
2 21, 18, 9, 27, 24
3 48, 32, 64, 56, 72

Challenge
2

- 1 $4 \times 3 = 12$ $3 \times 4 = 12$
2 $6 \times 5 = 30$ $5 \times 6 = 30$
3 $9 \times 3 = 27$ $3 \times 9 = 27$

Challenge
3

x	2	3	4	5	8	10
7	14	21	28	35	56	70
3	6	9	12	15	24	30
9	18	27	36	45	72	90
11	22	33	44	55	88	110
60	120	180	240	300	480	600

Lesson 3: Revising division facts

Challenge
1

- 6 8 48 24
7 42 28 4
9 72 8 63

Challenge
2

- $56 \div 8 = 7$; $56 \div 7 = 8$
 $32 \div 8 = 4$; $32 \div 4 = 8$
 $21 \div 7 = 3$; $21 \div 3 = 7$

Challenge
3

- 1 7
12
8
90
50
2 6
8
9
30
70
3 7
6
4
50
90

Unit 8, Week 2: Number - Fractions

Lesson 1: Making pizzas

Open

Unit 8, Week 2: Number - Fractions

Lesson 3: Fraction snakes

Game

Unit 8, Week 3: Measurement (perimeter)

Lesson 3: Perimeter search

Challenge
1

- 1 to 4 all perimeters = 7 cm

Challenge
2

- 1 to 4 all perimeters = 8 cm

Challenge
3

- Answers will vary.

Lesson 4: Join up the rectangles

Challenges
1, 2

- a 22 cm e 28 cm
b 24 cm f 22 cm
c 24 cm g 18 cm
d 18 cm

Challenge
2

- a 22 cm c 30 cm
b 24 cm d 28 cm

Unit 9, Week 1: Number - Number and place value

Lesson 1: Raffle raffle

Challenge
1

- a 53 54 55
b 65 66 67
c 105 106 107
d 124 125 126

Challenge
2

- a 178 179 180 181 182 183
184 185
b 599 600 601 602 603 604
605 606
c 768 769 770 771 772 773
774 775
d 917 918 919 920 921 922
923 924

Challenge
3

Answers will vary.

Lesson 4: Secret numbers

Game

Unit 9, Week 2: Number - Addition and subtraction

Lesson 1: Mental jumps

Answers will vary.

Lesson 3: Practising the column method for subtraction

Challenge
1

- a 211 e 263
b 113 f 212
c 232 g 213
d 164 h 221

Challenge
2

- a 245 e 319
b 242 f 326
c 449 g 332
d 318 h 327

Challenge
3

- a 318 e 471
b 374 f 562
c 453 g 483
d 386 h 438

Unit 9, Week 3: Geometry - Properties of shape

Lesson 1: Capital letters

Challenges
1, 2, 3

- 1, 2 Letters A, E, F, H, I, K, L, M, N, T, V, W, X, Y, Z on a square dot grid with horizontal lines in blue, vertical lines in red and diagonal lines in green.

Challenges
2, 3

- Set A E, F, H, L, T
Set B V, W, X
Set C A, Z
Set D K, M, N, W, Y

Challenge
3

- a Capital letter I
b Has a vertical line only

Lesson 3: Pin board puzzles

Open

Unit 10, Week 1: Number - Multiplication and division

Lesson 1: Multiplication using partitioning

Challenge 1	1	27	270
	2	24	240
	3	24	240

Challenge 2	1	150	3	280
	2	150	4	720

Challenge 3	1	162	3	292
	2	145	4	736

Lesson 3: Multiplication: Introducing the expanded written method

Challenge 1	a	7	f	4
	b	7	g	6
	c	4	h	8, 4
	d	4	i	2, 4
	e	3		

Challenge 2	a	200	c	120
	b	500	d	210

Challenge 3	a	180	c	111
	b	480	d	204

Unit 10, Week 2: Number - Fractions

Lesson 2: Home fractions

Answers will vary.

Lesson 3: Fraction wall equivalents

Answers will vary.

Unit 10, Week 3: Measurement (volume and capacity)

Lesson 3: Multiples of millilitres

Challenge 1	Amount in millilitres	100 ml	200 ml	400 ml	800 ml
	500 ml	1		1	
	600 ml		1	1	
	700 ml	1	1	1	
	800 ml				1

Challenge 2	Size of jug	2 times	3 times	5 times
	100 ml	200 ml	300 ml	500 ml
	200 ml	400 ml	600 ml	1000 ml
	400 ml	800 ml	1200 ml	2000 ml
	800 ml	1600 ml	2400 ml	4000 ml

Challenge 3

Amount in millilitres	100 ml	200 ml	400 ml	800 ml
900 ml	1			1
1100 ml	1	1		1
1300 ml	1		1	1
1500 ml	1	1	1	1

Lesson 4: Kitchen capacities

- Challenges 1, 2
- a vase 1570 ml
b jar 1000 ml
c bowl 1730 ml
d pan 1800 ml
 - a 230 ml
b 800 ml
c 70 ml

Challenge 3 Answers will vary.

Unit 11, Week 1: Number - Addition and subtraction incl. Measurement (money)

Lesson 2: Meet my addition target

Answers will vary.

Lesson 3: Finding change

Answers will vary.

Unit 11, Week 2: Number - Addition and subtraction incl. Measurement (money)

Lesson 2: Meet my subtraction target

Answers will vary.

Lesson 4: Jumping forward and backwards

Answers will vary.

Unit 11, Week 3: Measurement (time)

Lesson 3: Calendar patterns

AUGUST						
M	T	W	Th	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

- Challenges 2, 3
- a, b Open
c 6, 12, 18, 24, 30

- Challenge 3
- Even numbers on every second diagonal line.
 - Multiples of 3 on every third diagonal line.

Lesson 4: Today's TV Guide

Open

Unit 12, Week 1: Number - Multiplication and division

Lesson 2: Multiplication: Introducing the formal written method

- Challenge 1
- 60
 - 80
 - 30
 - 80
 - 60
 - 100

- Challenge 2
- 200
 - 500
 - 120
 - 640
 - 210
 - 400

Lesson 4: Solving problems

- Challenge 1
- 24
15
21
232
72
56
 - 9
18
24
48

- Challenge 2
- 232 people.
 - 392 pencils.
 - 18 more biscuits.
 - 201 wheels.
 - 47 cakes.
 - 390 flowers.

Challenge 3 Answers will vary.

Unit 12, Week 2: Number - Multiplication and division

Lesson 1: Division using partitioning

- Challenge 1
- 4: 36, 24, 20, 48, 28, 12.
 - 8: 72, 40, 96, 80, 64, 24.
 - 3: 30, 9, 36, 18, 27, 24, 33.

- Challenge 2
- 40
 - 10
 - 20
 - 30

- Challenge 3
- 42
 - 12
 - 22
 - 32

Lesson 3: Division using the formal written method

- Challenge 1**
- 1 4 40
 - 2 4 40
 - 3 6 60
 - 4 7 70
 - 5 7 70
 - 6 2 20

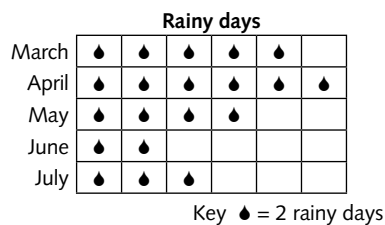
- Challenge 2**
- 1 27 18 25
15 29 16
 - 2 7 15 24
23 14
16 18

Challenge 3 Answers will vary.

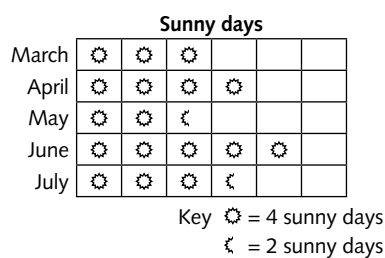
Unit 12, Week 3: Statistics

Lesson 1: Weather pictograms

Challenges 1, 2, 3



Challenges 2, 3



Challenge 3

Month	Cloudy days
March	9
April	2
May	13
June	6
July	11

Lesson 4: Coins bar chart

Open