

2 5440  
6377  
7387  
7409

**Lesson 3: Ordering 4-digit numbers**

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

**Unit 1, Week 2: Number – Addition and subtraction**

**Lesson 1: Mental addition practice**

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

**Lesson 3: Creative problems**

- Challenge 1
  - a 127                      d 78
  - b 106                      e 208
  - c 382
- Challenge 2
  - a 54                        d 408
  - b 327                      e 204
  - c 704
- Challenge 3
  - a 663                      d 335
  - b 957                      e 447
  - c 725

**Unit 1, Week 3: Geometry – Properties of shape**

**Lesson 2: Reflecting 2-D shapes**

Challenge 1

a

b

Challenges 2, 3

a

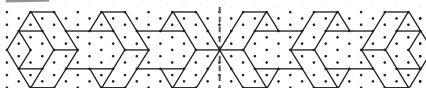
b

c

d

e

Challenge 3



**Lesson 3: 2 lines of symmetry**

Challenge 1

2a

|   |   |  |   |   |
|---|---|--|---|---|
|   | R |  | R |   |
| R | B |  | B | R |
|   |   |  |   |   |
| R | B |  | B | R |
|   | R |  | R |   |

b

|   |   |   |   |  |
|---|---|---|---|--|
|   | G |   | G |  |
| R |   |   | R |  |
| Y | R | R | Y |  |
| Y | R | R | Y |  |
|   | R |   | R |  |
|   | G |   | G |  |

c

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   | B | B |   |   |   |
| G | R | Y | Y | R | G |
|   |   |   |   |   |   |
| G | R | Y | Y | R | G |
|   | B | B |   |   |   |

Challenge 2

a

b

c

d

Challenge 3

Three different patterns each with 2 lines of symmetry

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

**Lesson 1: Using the key facts to find the 9 multiplication table**

- Challenge 1 3; 12; 6; 4; 10; 11; 2; 63; 45
- Challenge 2
  - 1 9
  - 2 5
  - 3 54
  - 4 10
  - 5 9
  - 6 54
  - 7 6
  - 8 4
  - 9 11

Challenge 3

Answers dependent upon child's choice

**Lesson 4: The 6 Multiplication table**

Challenge 1

- Before
- a 30                        c 18
  - b 6                        d 48
- After
- a 72                        c 42
  - b 54                        d 24

Challenge 2

- 1 a 24                        b 54
- 2 a 48                        b 42
- 3 a 48                        b 54

Challenge 3

- 480 ÷ 6 = 80; 80 × 6 = 480
- 360 ÷ 6 = 60; 60 × 6 = 360
- 420 ÷ 6 = 70; 70 × 6 = 420
- 540 ÷ 6 = 90; 90 × 6 = 540

**Unit 2, Week 2: Number – Fractions**

**Lesson 1: Fraction wheel**

- Challenge 1  $\frac{3}{6}$      $\frac{2}{6}$      $\frac{4}{6}$
- Challenge 2  $\frac{2}{8}$      $\frac{4}{8}$      $\frac{6}{8}$
- Challenge 3  $\frac{3}{12}$      $\frac{6}{12}$      $\frac{9}{12}$

**Lesson 3: Fractions of amounts**

- Challenge 1**
- 1 8
  - 2 17
  - 3 25
  - 4 6
  - 5 10
  - 6 20
  - 7 6
  - 8 9

- Challenge 2**
- 1 18
  - 2 27
  - 3 33
  - 4 14
  - 5 18
  - 6 24
  - 7 21
  - 8 30

- Challenge 3**
- 1 48
  - 2 28
  - 3 33
  - 4 22
  - 5 64
  - 6 36
  - 7 60
  - 8 27

**Unit 2, Week 3: Geometry – Position and direction**

**Lesson 3: Plot the shapes**

- Challenge 1**
- a triangle
  - b rectangle

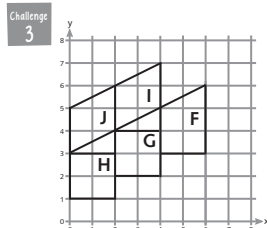
- Challenges 2, 3**
- 1 (6, 7)
  - 2 (9, 3)

- Challenge 3**
- 1 (4, 4)
  - 2 (5, 4)

**Lesson 4: Translating shapes**

- Challenge 1**
- 2 shape B (4, 2) (5, 4) (6, 2)

- Challenge 2**
- 2 a shape D (2, 3) (2, 6) (4, 4)
  - b shape E (2, 0) (2, 3) (4, 1)



**Unit 3, Week 1: Number – Addition and subtraction**

**Lesson 1: Mental jumping – addition**

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

**Lesson 3: Written method for addition**

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

**Unit 3, Week 2: Number – Decimals**

**Lesson 2: Decimal ordering**

- Challenge 1** 1.2 1.3 2.1 2.3 3.1 3.2
- Challenge 2** 1.2, 1.3, 1.4, 2.1, 2.3, 2.4, 3.1, 3.2, 3.4, 4.1, 4.2, 4.3
- Challenge 3** 1.2, 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5, 4.1, 4.2, 4.3, 4.5, 5.1, 5.2, 5.3, 5.4

**Lesson 3: Decimal rounding**

- Challenge 1**
- 1.2 → 1
  - 1.3 → 1
  - 1.4 → 1
  - 2.1 → 2
  - 2.3 → 2
  - 2.4 → 2
  - 3.1 → 3
  - 3.2 → 3
  - 3.4 → 3
  - 4.1 → 4
  - 4.2 → 4
  - 4.3 → 4
- Challenge 2**
- 3.4 → 3
  - 3.5 → 4
  - 3.6 → 4
  - 4.3 → 4
  - 4.5 → 5
  - 4.6 → 5
  - 5.3 → 5
  - 5.4 → 5
  - 5.6 → 6
  - 6.3 → 6
  - 6.4 → 6
  - 6.5 → 7
- Challenge 3**
- 5.6 → 6
  - 5.7 → 6
  - 5.8 → 6
  - 5.9 → 6
  - 6.5 → 7
  - 6.7 → 7
  - 6.8 → 7
  - 6.9 → 7
  - 7.5 → 8
  - 7.6 → 8
  - 7.8 → 8
  - 7.9 → 8
  - 8.5 → 9
  - 8.6 → 9
  - 8.7 → 9
  - 8.9 → 9
  - 9.5 → 10
  - 9.6 → 10
  - 9.7 → 10
  - 9.8 → 10

**Unit 3, Week 3: Measurement (mass)**

**Lesson 3: Collecting shells**

**Challenges 1, 2, 3**

| Bag of shells                 | A     | B     | C     | D     | E     | F     |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Mass in grams                 | 930 g | 820 g | 660 g | 570 g | 480 g | 340 g |
| Mass rounded to nearest 100 g | 900 g | 800 g | 700 g | 600 g | 500 g | 300 g |

- Challenges 2, 3**
- 1 a C + F
  - b A + D
  - 2 a 3800 g
  - b 3.8 kg
  - c 3800 g
  - d identical answers for 2a and c.

- Challenge 3**
- 1 650 g
  - 2 740 g

**Lesson 4: Packets, tins and jars**  
Answers will vary.

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

**Lesson 2: The 7 multiplication table**

- Challenge 1**
- 5 × 0 = 0, 8 × 0 = 0, 6 × 0 = 0,
  - 3 × 0 = 0, 9 × 0 = 0
  - 7 × 1 = 7, 6 × 1 = 6, 3 × 1 = 3,
  - 9 × 1 = 9, 8 × 1 = 8
  - 6 × 7 = 42, 4 × 7 = 28, 8 × 7 = 56,
  - 7 × 7 = 49, 9 × 7 = 63
- Challenge 2**
- a 4
  - b 42
  - c 8
  - d 12
  - e 5
  - f 10
  - g 11
  - h 42
  - i 9
  - j 7
  - k 3
  - l 8

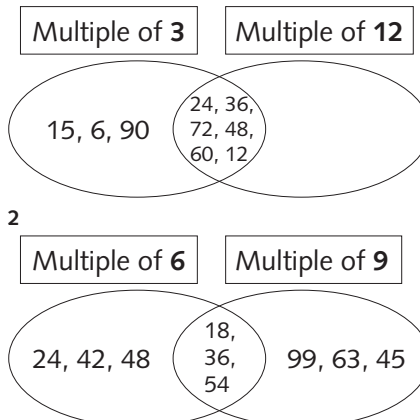
**Challenge 3**

| × | 0 | 3  | 4  | 6  | 7  | 9  | 20  | 30  | 70  |
|---|---|----|----|----|----|----|-----|-----|-----|
| 3 | 0 | 9  | 12 | 18 | 21 | 27 | 60  | 90  | 210 |
| 9 | 0 | 27 | 36 | 54 | 63 | 81 | 180 | 270 | 630 |
| 6 | 0 | 18 | 24 | 36 | 42 | 54 | 120 | 180 | 420 |
| 8 | 0 | 24 | 32 | 48 | 56 | 72 | 160 | 240 | 560 |
| 7 | 0 | 21 | 28 | 42 | 49 | 63 | 140 | 210 | 490 |

**Lesson 4: Solving problems: using multiples**

- Challenge 1**
- 1 36, 24, 15, 12, 6
  - 2 18, 36, 24, 42, 48, 54
  - 3 18, 54, 99, 63, 36, 45
  - 4 24, 72, 48, 36, 60
- Challenge 2**
- a 60
  - b 108
  - c 72
  - d 84
  - e 144
  - f 132

- Challenge 3**
- 1



### Unit 4, Week 2: Number – Multiplication and division

#### Lesson 1: Multiplication using partitioning

- Challenge 1**
- |   |    |     |
|---|----|-----|
| 1 | 36 | 360 |
| 2 | 24 | 240 |
| 3 | 54 | 540 |
| 4 | 49 | 490 |

- Challenge 2**
- |   |     |   |     |
|---|-----|---|-----|
| a | 240 | d | 800 |
| b | 480 | e | 400 |
| c | 320 | f | 420 |

- Challenge 3**
- |   |     |   |     |
|---|-----|---|-----|
| a | 252 | d | 784 |
| b | 456 | e | 368 |
| c | 316 | f | 399 |

#### Lesson 2: Multiplication using partitioning and the grid method

- Challenge 1**
- |   |      |   |      |
|---|------|---|------|
| a | 4    | g | 8, 4 |
| b | 6    | h | 7, 6 |
| c | 6    | i | 4    |
| d | 8, 2 | j | 9    |
| e | 7    | k | 2, 6 |
| d | 6    | l | 9, 1 |

- Challenge 2**
- |   |     |   |     |
|---|-----|---|-----|
| a | 350 | e | 400 |
| b | 540 | f | 300 |
| c | 560 | g | 560 |
| d | 630 | h | 630 |

- Challenge 3**
- |   |     |   |     |
|---|-----|---|-----|
| a | 340 | e | 384 |
| b | 513 | f | 282 |
| c | 544 | g | 532 |
| d | 621 | h | 623 |

### Unit 4, Week 3: Measurement (time)

#### Lesson 1: Dates and times

**Challenges 1, 2, 3** Answers will depend on the time chosen.

**Challenges 2, 3** Answers will depend on the time and date chosen.

- Challenge 3**
- 3 months
  - 219 days
  - 13 weeks

#### Lesson 4: Clydeside times

- Challenges 1, 2**
- 378 months
  - 475 months
  - 97 months

- Challenges 2, 3**
- 27/9/1938
  - a 1 year 8 months  
b 1 year 7 months

- Challenge 3**
- 19 hours 40 minutes
  - 4/9/1939 at 09:40

### Unit 5, Week 1: Number – Number and place value

#### Lesson 1: Ordering numbers

- Challenge 1** 2387, 3712, 4632, 5431, 5879, 6881, 7021, 8664

- Challenge 2** 5244, 5315, 5531, 5899, 5901, 6448, 6721, 6822

- Challenge 3** 7182, 7218, 7281, 7812, 7812, 7821, 8217, 8721

#### Lesson 3: Round up or round down

- Challenge 1**
- |     |     |     |
|-----|-----|-----|
| 260 | 261 | 270 |
| 280 | 287 | 290 |
| 330 | 336 | 340 |
| 370 | 372 | 380 |
| 380 | 385 | 390 |
| 410 | 418 | 420 |
| 420 | 422 | 430 |
| 450 | 454 | 460 |
| 480 | 483 | 490 |
| 490 | 499 | 500 |

- Challenge 2**
- |      |      |      |
|------|------|------|
| 530  | 537  | 540  |
| 640  | 642  | 650  |
| 620  | 625  | 630  |
| 770  | 773  | 780  |
| 910  | 916  | 920  |
| 1180 | 1181 | 1190 |
| 1170 | 1173 | 1180 |
| 1380 | 1389 | 1390 |
| 1430 | 1435 | 1440 |
| 1570 | 1574 | 1580 |

- Challenge 3**
- |      |      |      |
|------|------|------|
| 1680 | 1683 | 1690 |
| 1520 | 1527 | 1530 |
| 2150 | 2151 | 2160 |
| 2360 | 2365 | 2370 |
| 2580 | 2582 | 2590 |
| 2880 | 2884 | 2890 |
| 3410 | 3418 | 3420 |
| 3590 | 3591 | 3600 |
| 4200 | 4206 | 4210 |
| 4770 | 4779 | 4780 |

### Unit 5, Week 2: Number – Addition and subtraction

#### Lesson 1: Mental jumping – subtraction

**Challenge 1** Answers will vary.

**Challenge 2** Answers will vary.

**Challenge 3** Answers will vary.

#### Lesson 3: Estimate, calculate, check – subtraction

- Challenge 1**
- |   |     |   |     |
|---|-----|---|-----|
| a | 283 | c | 482 |
| b | 337 | d | 436 |

- Challenge 2**
- |   |     |   |     |
|---|-----|---|-----|
| a | 627 | c | 468 |
| b | 574 | d | 427 |

- Challenge 3**
- |   |     |   |     |
|---|-----|---|-----|
| a | 284 | c | 855 |
| b | 166 | d | 766 |

### Unit 5, Week 3: Geometry – Properties of shape

#### Lesson 1: Angles in the snow

**Challenge 1** acute angles: a, b, d, f  
obtuse angles: c, e, g

**Challenges 2, 3** acute angles: a, c, d, f, i, j  
obtuse angles: b, e, g, h, k

**Challenge 3** h + i and j + k

#### Lesson 3: Angles in order

**Challenges 1, 2, 3** Order 1 2 3 4 5 6 7 8 9  
Angle h b a f e i c g d

**Challenges 2, 3** h + d, b + g, a + c, f + i

**Challenge 3** 2 circles. The angles used will vary.

### Unit 6, Week 1: Number – Number and place value

#### Lesson 1: Multiples of 25, 100 and 1000

- Challenge 1**
- |   |  |
|---|--|
| a | 25: 125, 325, 275, 25, 375, 650, 400       |
| b | 100: 300, 400, 600, 800, 1000, 1800, 2400, |
| c | 1000: 5000, 2000, 8000, 6000, 9000         |

- Challenge 2**
- 25 → 25, 125, 275, 325, 375, 400, 650,
  - 100 → 300, 400, 600, 800, 1000, 1800, 2400,
  - 1000 → 2000, 5000, 6000, 8000, 9000

- Challenge 3**
- 2500
  - 925
  - 725
  - 200
  - 575
  - 350

#### Lesson 4: Solving word problems

- Challenge 1**
- |    |    |    |
|----|----|----|
| 48 | 36 | 21 |
| 30 | 81 | 63 |
| 42 | 63 | 42 |
| 18 | 27 | 56 |
| 36 | 54 | 49 |

- Challenges 1, 2**
- 272 people
  - 39 biscuits
  - 712 legs
  - 702 flowers

**Challenge 3** Answers will vary.

### Unit 6, Week 2: Number – Fractions

#### Lesson 1: Fraction number lines

**Challenge 1**  $0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 1\frac{3}{4}, 2$

**Challenge 2**

- $0, \frac{1}{6}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{5}{6}, 1, 1\frac{1}{6}, 1\frac{1}{3}, 1\frac{1}{2}, 1\frac{2}{3}, 1\frac{5}{6}, 2$
- $0, \frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}, 1, 1\frac{1}{8}, 1\frac{1}{4}, 1\frac{3}{8}, 1\frac{1}{2}, 1\frac{5}{8}, 1\frac{3}{4}, 1\frac{7}{8}, 2$

Challenge 3  $0, \frac{1}{10}, \frac{1}{5}, \frac{3}{10}, \frac{2}{5}, \frac{5}{10}, \frac{3}{5}, \frac{7}{10}, \frac{4}{5}, \frac{9}{10}, 1, \frac{1}{10}, \frac{1}{5}, 1\frac{3}{10}, 1\frac{2}{5}, 1\frac{5}{10}, 1\frac{3}{5}, \frac{7}{10}, 1\frac{4}{5}, 1\frac{9}{10}, 2$

**Lesson 3: Fraction practice**

Challenge 1  
 a 4                      f 4  
 b 5                      g 7  
 c 5                      h 9  
 d 7                      i 10  
 e 9                      j 10

Challenge 2  
 a 54                     f 84  
 b 30                    g 132  
 c 77                    h 45  
 d 8                     i 2520  
 e 52                    j 153

Challenge 3  
 a 574                  f 424  
 b 156                  g 592  
 c 258                  h 132  
 d 205                  i 954  
 e 326                  j 142

**Unit 6, Week 3: Measurement (length)**

**Lesson 1: Out and about distances**

|             |        |        |        |        |        |        |        |
|-------------|--------|--------|--------|--------|--------|--------|--------|
| Challenge 1 |        |        |        |        |        |        |        |
| kilometres  | 0.3 km | 0.7 km | 0.9 km | 1.5 km | 1.2 km | 2.4 km | 2.6 km |
| metres      | 300 m  | 700 m  | 900 m  | 1500 m | 1200 m | 2400 m | 2600 m |

Challenge 2  
 1 a 1900 m    b 3500 m    c 3400 m  
          d 2100 m    e 2800 m    f 200 m  
 2 a 4.1 km    b 0.2 km    c 1.7 km

Challenge 3  
 200 m

**Lesson 4: Measurement round-up**

Challenges 1, 2, 3  
 1 460 cm  
 2 560 cm  
 3 470 cm  
 4 650 cm  
 5 550 cm  
 6 650 cm

Challenges 2, 3  
 Answers will vary according to what children have chosen to measure.

Challenge 3  
 Answers will vary according to what children have chosen to measure.

**Unit 7, week 1: Number – Addition and subtraction**

**Lesson 2: Jump to the target**

Challenge 1  
 No answers  
 Challenge 2  
 No answers  
 Challenge 3  
 No answers

**Lesson 4: Estimate, calculate and check: addition**

Challenge 1  
 a 624                    d 672  
 b 585                   e 836  
 c 537                   f 887

Challenge 2  
 a 3641                  d 5565  
 b 4165                  e 6924  
 c 5346                  f 7057

Challenge 3  
 a 6262                  d 8162  
 b 5130                  e 9131  
 c 7202                  f 9402

**Unit 7, Week 2: Number – Addition and subtraction**

**Lesson 3: Column subtraction**

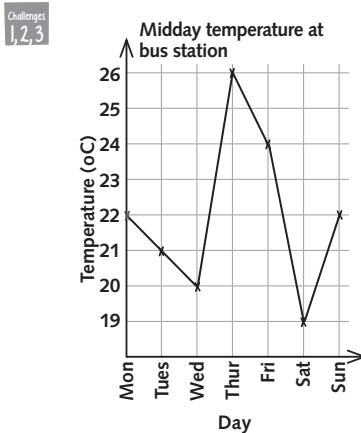
Challenge 1  
 Answers will vary.  
 Challenge 2  
 Answers will vary.  
 Challenge 3  
 Answers will vary.

**Lesson 4: Writing 2-step problems**

Challenge 1  
 1 3196  
 2 485  
 Challenge 2  
 1 1009  
 2 1464  
 Challenge 3  
 1 3877  
 2 7080

**Unit 7, Week 3: Statistics**

**Lesson 2: Bus station time graphs**



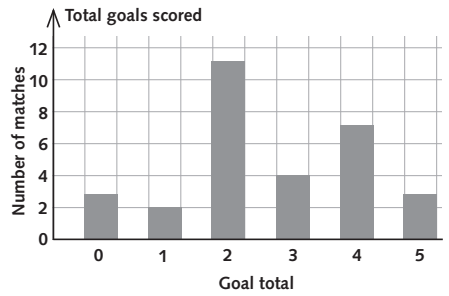
Challenges 2, 3  
 1 a Thursday            b Saturday  
 2 a Thursday            b Saturday  
 Challenge 3  
 1 a 21 °C                b 20 °C  
 2 a 12:00                b 6 °C

**Lesson 3: Football scores bar chart**

Challenges 1, 2, 3  
 1, 2

| Goal total | Frequency |
|------------|-----------|
| 0          | 3         |
| 1          | 2         |
| 2          | 11        |
| 3          | 4         |
| 4          | 7         |
| 5          | 3         |

Challenges 2, 3  
 1



2 a 7 matches  
 b 16 matches  
 c 14 matches

Challenge 3  
 1 10 matches  
 2 27 matches

**Unit 8, Week 1: Number – Multiplication and division**

**Lesson 1: Multiplication HTO × O using Partitioning**

Challenge 1  
 1 28    280    2800  
 2 48    480    4800  
 3 42    420    4200  
 4 81    810    8100

Challenges 2, 3  
 1 a 5400                  c 4200  
          b 3000                  d 1600  
 2 a 564 × 9 = 5076  
          b 612 × 5 = 3060  
          c 743 × 6 = 4458  
          d 211 × 8 = 1688

Challenge 3  
 1 3000, 3060  
 2 5400, 5076

**Lesson 3: Multiplication HTO × O using the expanded written method**

Challenge 1  
 1 6  
 2 4  
 3 2, 6  
 4 7  
 5 9  
 6 5, 5  
 7 6  
 8 6  
 9 9, 3

Challenges 2, 3  
 1 1600  
 2 4900  
 3 9000  
 4 6400  
 5 2400  
 6 6300

- Challenge 3**
- 1556  
4823  
8604  
6120  
2202  
6237

2 Answers will vary.

### Unit 8, Week 2: Number – Decimals

#### Lesson 2: Decimal ordering (2)

- Challenge 1**
- 2.34    3.24    4.23  
2.43    3.42    4.32
  - 2.34, 2.43, 3.24, 3.42, 4.23, 4.32

- Challenge 2**
- 3.45    4.35    5.34  
3.54    4.53    5.35  
3.55    4.55    5.43  
5.45  
5.53  
5.54

- 2 3.45, 3.54, 3.55, 4.35, 4.53, 4.55, 5.34, 5.35, 5.43, 5.45, 5.53, 5.54

- Challenge 3**
- 1, 2    5.67    6.57    7.56  
5.68    6.58    7.58  
5.76    6.75    7.65  
5.78    6.78    7.68  
5.86    6.85    7.85  
5.87    6.87    7.86

#### Lesson 4: Dividing by 10 and 100

- Challenge 1**
- 0.6  
0.8  
0.2  
0.5  
4.5
- Challenge 2**
- 0.07  
0.02  
0.08  
0.27  
0.51
- Challenge 3**
- 0.83  
0.97  
0.66  
1.58  
1.62

### Unit 8, Week 3: Measurement (perimeter and area)

#### Lesson 3: Areas of shapes

**Challenges 1, 2, 3**

| Shape             | A | B | C | D | E | F | G | H  |
|-------------------|---|---|---|---|---|---|---|----|
| Area in square cm | 7 | 8 | 8 | 5 | 9 | 7 | 6 | 12 |

- Challenges 2, 3**
- 1 a d    b h    c b    d h  
2 a f and d    b 12 sq cm

- Challenge 3**
- a, b 8 cm by 6 cm = 48 sq cm,  
10 cm by 8 cm = 80 sq cm,  
12 cm by 10 cm = 120 sq cm

#### Lesson 4: Area in action

**Challenges 1, 2, 3**

|   | Squares per row | Number of rows | Area in square cm |
|---|-----------------|----------------|-------------------|
| A | 4               | 2              | 8                 |
| B | 3               | 6              | 18                |
| C | 2               | 5              | 10                |
| D | 4               | 3              | 12                |
| E | 3               | 5              | 15                |

- Challenges 2, 3** Three rectangles, each with area 24 squares, e.g.  $1 \times 24$ ,  $2 \times 12$ ,  $3 \times 8$ ,  $4 \times 6$

- Challenge 3** A about 10 sq cm    B about 18 sq cm

### Unit 9, Week 1: Number – Number and place value

#### Lesson 1: Keep the order

No answers

#### Lesson 4: Roman numerals

- Challenge 1** Roman numerals from 1 to 30
- Challenge 2** Roman numerals from 31 to 60
- Challenge 3** Roman numerals from 61 to 100

### Unit 9, Week 2: Number – Addition and subtraction, incl. Measurement (money)

#### Lesson 2: Mental or written

- Challenge 1**
- 745    d 751
  - 698    e 621
  - 1899    f 1001
- Challenge 2**
- 2892    d 4288
  - 2578    e 3301
  - 2006    f 4600
- Challenge 3**
- 3879    d 5495
  - 3602    e 5858
  - 4588    f 6206

#### Lesson 3: Teeth investigation

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

### Unit 9, Week 3: Geometry – Properties of shape

#### Lesson 1: Triangle search

- Challenges 1, 2, 3** Eight different triangles drawn on the  $3 \times 3$  pin boards with any equal sides marked, each with its name written below

- Challenges 2, 3**
- Triangles with a right angle from Challenge 1, 2, 3 identified
  - Triangles with one line of symmetry from Challenge 1, 2, 3 identified

- Challenge 3** Answers will vary.

#### Lesson 4: Quadrilaterals

- Challenges 1, 2, 3** Children's attempts to find all the 16 possible quadrilaterals that can be made on a  $3 \times 3$  pin board

- Challenges 2, 3**
- Quadrilaterals that have at least one line of symmetry from Challenge 1, 2 and 3 identified
  - Quadrilaterals that have no pairs of parallel lines from Challenge 1, 2 and 3 identified

- Challenge 3** Quadrilaterals that have at least one obtuse angle from Challenge 1, 2 and 3 identified

### Unit 10, Week 1: Number – Multiplication and division

#### Lesson 2: HTO $\times$ O using the formal written method

**Challenge 1**

|     |         |     |     |     |      |
|-----|---------|-----|-----|-----|------|
| 600 | ← 623 → | 700 | 900 | 981 | 1000 |
| 700 | 768     | 800 | 500 | 555 | 600  |
| 800 | 834     | 900 | 900 | 917 | 1000 |

- Challenge 2**
- a 2000    c 3600  
b 5000    d 4800
  - a 1860    c 4880  
b 3483    d 4608

- Challenge 3** Answers will vary.

#### Lesson 4: Solving word problems

- Challenge 1**
- 1    2  
480    3600  
3000    810  
420    6300  
1800    720

- Challenge 2**
- 2856 passengers  
3112 passengers  
4536 passengers  
84 passengers  
2692 passengers

- Challenge 3** Answers will vary.

### Unit 10, Week 2: Number – Fractions

#### Lesson 2: Add the fractions

- Challenge 1**
- $\frac{3}{5}$     e  $\frac{6}{8}$
  - $\frac{5}{10}$     f  $\frac{2}{8}$
  - $\frac{5}{6}$     g  $\frac{5}{7}$
  - $\frac{5}{6}$     h 1

- Challenge 2**  
 a  $\frac{5}{9}$  e  $\frac{5}{7}$   
 b  $1\frac{2}{10}$  f  $1\frac{1}{3}$   
 c  $\frac{7}{10}$  g  $\frac{10}{12}$   
 d  $1\frac{3}{9}$  h  $1\frac{7}{12}$
- Challenge 3**  
 a  $1\frac{3}{11}$  e  $1\frac{4}{14}$   
 b  $\frac{14}{15}$  f  $1\frac{9}{17}$   
 c  $1\frac{5}{18}$  g  $\frac{55}{100}$   
 d  $1\frac{7}{10}$  h 1

**Lesson 4: Cake fractions**

- Challenge 1**  
 1  $\frac{2}{5}$   
 2  $\frac{1}{4}$
- Challenge 2**  
 1  $\frac{1}{6}$   
 2 a  $\frac{3}{10}$   
 b 60p
- Challenge 3**  
 1  $\frac{2}{7}$   
 2 a  $\frac{1}{4}$   
 b 75p

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

**Lesson 3: Estimating contents of containers**  
 Answers will depend on the items the children choose.

**Lesson 4: Class outing litres**

- Challenges 1, 2, 3**  
 orange: 0.25 l cola: 0.15 l  
 cherry: 0.33 l lemonade: 1 l  
 apple: 0.18 l water: 0.5 l  
 milk: 0.49 l raspberry: 0.22 l

- Challenges 2, 3**  
 1 a 0.75 l b 1.33 l  
 c 0.67 l d 0.37 l
- 2 a orange + cola b raspberry + cherry  
 c lemonade + apple d water + milk

- Challenge 3**  
 10 × 0.4 l bottles + 4 × 0.25 l bottles

**Unit 11, Week 1: Number – Addition and subtraction, incl. Measurement**

**Lesson 2: Written addition and subtraction**

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

**Lesson 3: Coin investigation**

- Challenge 1** 12  
**Challenge 2** 16  
**Challenge 3** 18

**Unit 11, Week 2: Number – Decimals**

**Lesson 2: Money and decimals**

- Challenge 1**  
 a £3.76 f £9.26  
 b £4.67 g £5.05  
 c £8.99 h £6.76  
 d £4.88 i £10.49  
 e £5.51
- Challenge 2**  
 1 £8.28 £8.38 £8.88 £8.98  
 2 £13.01 £13.07 £13.17 £13.71  
 3 £15.15 £15.55 £16.18 £16.58  
 4 £27.02 £27.82 £27.87 £27.96
- Challenge 3**  
 1 (£7.20) £7.24 £7.35 (£7.50)  
 2 (£9.10) £9.34 £9.65 (£9.70)  
 3 (£16.80) £16.88 (£16.90) £16.98  
 4 (£21.20) £21.21 £21.29 (£21.90)

**Lesson 3: Decimal division**

- Challenge 1**  
 a 2.3 d 3.1  
 b 2.8 e 3.2  
 c 1.6 f 3.9
- Challenge 2**  
 a 4.6, 0.46 d 5.1, 0.51  
 b 5.8, 0.58 e 6.3, 0.63  
 c 5.7, 0.57 f 6.1, 0.61
- Challenge 3**  
 a 6.4, 0.64 f 9.5, 0.95  
 b 8.3, 0.83 g 5.0, 0.5  
 c 8.6, 0.86 h 0.6, 0.06  
 d 7.8, 0.78 i 1.4, 0.14  
 e 7.7, 0.77

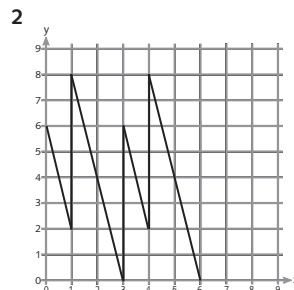
**Unit 11, Week 3: Geometry – Position and direction**

**Lesson 2: Plot the multiples**

- Challenge 1**  
 1 3 pairs of points joined by straight lines  
 2 All 3 lines intersect at the point (3, 4)

**Challenges 2, 3**

| Multiple           | Coordinates |
|--------------------|-------------|
| $6 \times 1 = 6$   | (0, 6)      |
| $6 \times 2 = 12$  | (1, 2)      |
| $6 \times 3 = 18$  | (1, 8)      |
| $6 \times 4 = 24$  | (2, 4)      |
| $6 \times 5 = 30$  | (3, 0)      |
| $6 \times 6 = 36$  | (3, 6)      |
| $6 \times 7 = 42$  | (4, 2)      |
| $6 \times 8 = 48$  | (4, 8)      |
| $6 \times 9 = 54$  | (5, 4)      |
| $6 \times 10 = 60$ | (6, 0)      |



- Challenge 3** The pattern continues.

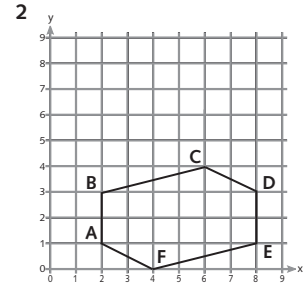
**Lesson 4: Change the shape**

**Challenges 1, 2, 3**

| A      | B      | C      | D      | E      | F      |
|--------|--------|--------|--------|--------|--------|
| (1, 1) | (1, 3) | (3, 4) | (4, 3) | (4, 1) | (2, 0) |

**Challenges 2, 3** 1

| A      | B      | C      | D      | E      | F      |
|--------|--------|--------|--------|--------|--------|
| (2, 1) | (2, 3) | (6, 4) | (8, 3) | (8, 1) | (4, 0) |



- Challenge 3** Answers will vary.

**Unit 12, Week 1: Number – Multiplication and division**

**Lesson 2: Division: TO ÷ O using the formal written method**

- Challenge 1**  
 1 a 4 b 40  
 2 a 4 b 40  
 3 a 6 b 60
- Challenges 2, 3**  
 1 a 20 d 30  
 b 30 e 10  
 c 20 f 20  
 2 a 17 d 26  
 b 28 e 13  
 c 18 f 16

**Lesson 4: Division using the expanded written method**

- Challenge 1**  
 1 a 4 g 6  
 b 27 h 5  
 c 64 i 72  
 d 7 j 8  
 e 8 k 32  
 f 7 l 12
- Challenge 2**  
 160 180 140 270  
 240 360 210 450  
 320 420 350 810

- Challenge 3** Children's choice of calculations will vary. Answers are as follows:  
 176 ÷ 4 = 44 198 ÷ 6 = 33  
 256 ÷ 4 = 64 384 ÷ 6 = 64  
 332 ÷ 4 = 83 432 ÷ 6 = 72  
 154 ÷ 7 = 22 297 ÷ 9 = 33  
 231 ÷ 7 = 33 495 ÷ 9 = 55  
 378 ÷ 7 = 54 846 ÷ 9 = 94

## Unit 12, Week 2: Number – Multiplication and division

### Lesson 1: Division: $HTO \div O$ using the formal written method

|             |         |     |     |     |      |
|-------------|---------|-----|-----|-----|------|
| Challenge 1 |         |     |     |     |      |
| 300         | ← 325 → | 400 | 800 | 831 | 900  |
| 700         | 778     | 800 | 500 | 550 | 600  |
| 600         | 634     | 700 | 900 | 987 | 1000 |

- Challenge 2
- 1 110, 116
  - 2 120, 128
  - 3 190, 195
  - 4 110, 112
  - 5 40, 43
  - 6 70, 76

Challenge 3 Answers will vary.

### Lesson 3: Division using the most efficient method

- Challenge 1
- a =                      d =  
 b =                      e =  
 c <                      f >

Challenge 2 Children's choice of calculations may vary. Answers are as follows:

- Mental method
- 669 ÷ 3 = 223;  
 884 ÷ 2 = 442;  
 488 ÷ 4 = 122;  
 545 ÷ 5 = 109;  
 999 ÷ 3 = 333;  
 693 ÷ 3 = 231;  
 147 ÷ 7 = 21;

- Written method
- 395 ÷ 5 = 79;  
 387 ÷ 9 = 43;  
 474 ÷ 6 = 79;  
 477 ÷ 9 = 53;

Challenge 3 Children check own answers from Challenge 2 using multiplication.

- Yes, there are six outcomes where the answer is 0.
- Yes, there is only one outcome where the answer is 5.

### Lesson 4: Terry's time graph

- Challenges 1, 2, 3
- 1 10 miles
  - 2 15 miles
  - 3 25 miles

- Challenges 2, 3
- 1 15 min
  - 2 10 miles
  - 3 2:45 p.m.

Challenge 3 Answers will vary.

## Unit 12, Week 3: Statistics

### Lesson 1: Spin the numbers

Challenge 1 Answers will vary.

Challenges 2, 3 Answers will vary.

Challenge 3 Possible outcomes from two dice:

- |           |           |           |
|-----------|-----------|-----------|
| 6 - 1 = 5 | 6 - 2 = 4 | 6 - 3 = 3 |
| 6 - 4 = 2 | 6 - 5 = 1 | 6 - 6 = 0 |
| 5 - 1 = 4 | 5 - 2 = 3 | 5 - 3 = 2 |
| 5 - 4 = 1 | 5 - 5 = 0 |           |
| 4 - 1 = 3 | 4 - 2 = 2 | 4 - 3 = 1 |
| 4 - 4 = 0 |           |           |
| 3 - 1 = 2 | 3 - 2 = 1 | 3 - 3 = 0 |
| 2 - 1 = 1 | 2 - 2 = 0 |           |
| 1 - 1 = 0 |           |           |