

# Year 4 Answers



## Pupil Book 4A

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

#### Lesson 1: 4-digit numbers (1)

**Challenge 1** 1 a 429                      c 614  
b 583                                d 703

2 a  $538 = 500 + 30 + 8$   
b  $413 = 400 + 10 + 3$   
c  $681 = 600 + 80 + 1$   
d  $390 = 300 + 90$   
e  $759 = 700 + 50 + 9$   
f  $827 = 800 + 20 + 7$

**Challenge 2** 1 a  $1295 = 1000 + 200 + 90 + 5$   
b  $2861 = 2000 + 800 + 60 + 1$   
c  $2649 = 2000 + 600 + 40 + 9$   
d  $3804 = 3000 + 800 + 4$   
e  $3382 = 3000 + 300 + 80 + 2$   
f  $4741 = 4000 + 700 + 40 + 1$

2 a 4675                              c 5542  
b 3237                              d 2718

**Challenge 3** 1 a 5421  
b 3619  
c 4236

2 Answers will vary.

#### Lesson 2: 4-digit numbers (2)

**Challenge 1** 1 a 1326                            c 3912  
b 2639                              d 3333

**Challenge 2** 1 a  $1247 = 1000 + 200 + 40 + 7$   
b  $2319 = 2000 + 300 + 10 + 9$   
c  $3184 = 3000 + 100 + 80 + 4$   
d  $3072 = 3000 + 70 + 2$   
e  $4713 = 4000 + 700 + 10 + 3$

2 a 2518p                            d 4066p  
b 1429p                            e 5972p  
c 3219p

**Challenge 3** 1 a 5981  
b 9456  
c 8723

2 Answers will vary.

#### Lesson 3: Ordering numbers beyond 1000

**Challenge 1** 1 a 234, 286, 361, 476, 582  
b 151, 155, 265, 501, 511  
c 505, 573, 615, 675, 755  
d 167, 218, 278, 287, 631  
e 1467, 2854, 3621, 4255  
f 1432, 2765, 3362, 4106

2 Answers will vary.

**Challenge 2** 1 a 1572, 2762, 3265, 4861  
b 4062, 4206, 5087, 5208  
c 4166, 4261, 4482, 4528  
d 5057, 5177, 5207, 5507  
e 4012, 4015, 5011, 5015  
f 6612, 6628, 6643, 6649

2 Answers will vary.

**Challenge 3** Answers will vary.

#### Lesson 4: 1000s more or less

**Challenge 1** 1 a 1365                            d 4671  
b 1276                              e 3995  
c 1831                              f 5329

2 a 2825                            d 3067  
b 2199                              e 3326  
c 3794                              f 4439

**Challenge 2** 1 a 5284                            d 6629  
b 4862                              e 7928  
c 5192                              f 4690

2 a 3722                            d 1981  
b 3063                              e 4109  
c 2762                              f 5321

3 Answers will vary.

**Challenge 3** 1 a 9341, 3341  
b 6842, 842  
c 8999, 2999  
d 7025, 1025  
e 8827, 2827  
f 9297, 3297

2 Answers will vary.

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

#### Lesson 1: Mental addition

**Challenge 1** a 283                              i 563  
b 296                              j 821  
c 387                              k 714  
d 485                              l 667  
e 412                              m 885  
f 431                              n 893  
g 532                              o 532  
h 518                              p 928

**Challenge 2** a 559                              i 178  
b 924                              j 252  
c 752                              k 328  
d 596                              l 387  
e 972                              m 643  
f 873                              n 707  
g 1035                            o 732  
h 1086                            p 755

**Challenge 3** 1 a 853                              i 1039  
b 936                              j 1151  
c 952                              k 1207  
d 996                              l 1287  
e 952                              m 1282  
f 829                              n 1408  
g 961                              o 1676  
h 1025                            p 1908

2 Answers will vary.

#### Lesson 2: Mental subtraction

**Challenge 1** a 136                              i 165  
b 223                              j 228  
c 207                              k 181  
d 223                              l 237  
e 175                              m 129  
f 173                              n 431  
g 296                              o 217  
h 282                              p 382

**Challenge 2** a 262                              i 242  
b 381                              j 205  
c 498                              k 317  
d 337                              l 288  
e 283                              m 273  
f 567                              n 308  
g 681                              o 331  
h 243                              p 269

**Challenge 3** 1 a 287                              i 654  
b 276                              j 617  
c 423                              k 598  
d 475                              l 787  
e 523                              m 817  
f 621                              n 858  
g 576                              o 1024  
h 596                              p 345

2 Answers will vary.

#### Lesson 3: 1-step problems

**Challenge 1** 1 268  
2 222  
3 154

**Challenge 2** 1 103  
2 195  
3 478  
4 182

**Challenge 3** 1 300  
2 296  
3 614

#### Lesson 4: 2-step problems

**Challenge 1** 1 325  
2 152 minutes  
3 82

**Challenge 2** 1 603  
2 1  
3 6  
4 207

**Challenge 3** 1 101 minutes  
2 £42  
3 738 minutes

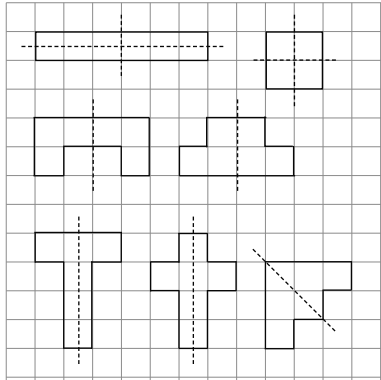
### Unit 1, Week 3: Geometry – Properties of shape

#### Lesson 1: Symmetry in 2-D shapes

- Challenge 1**  
 Lines of symmetry    Road sign(s)  
 None                    h  
 1                        b, d, f, g  
 More than 1         a, c, e

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

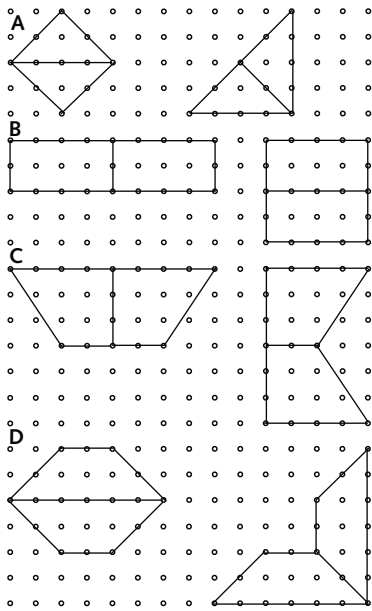
- Challenge 3**    1, 2



#### Lesson 2: Reflecting 2-D shapes

- Challenge 1**  
 A rectangle    B triangle    C circle    D square  
 E hexagon    F rectangle    G pentagon

- Challenge 2**    1



2 b There are 12 shapes altogether.

- Challenge 3**  
 Different whole shapes made up from the quarters of shapes from Question 1 of Challenge 2, marked with lines of symmetry.

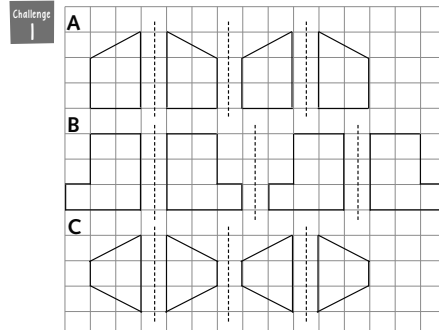
#### Lesson 3: Completing symmetrical patterns

- Challenge 1**  
 Patterns and colours should reflect exactly across the line of symmetry.

- Challenge 2**    1 and 2  
 The spaces around the ellipses to be removed (A–D and E–H).

- Challenge 3**  
 Designs will vary but should have two lines of symmetry.

#### Lesson 4: Making repeating patterns



- Challenge 2**  
 The shapes should reflect in 3 vertical lines of symmetry as in Challenge 1.

- Challenge 3**  
 Answers will vary.

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

#### Lesson 1: 9 multiplication table

- Challenge 1**  
 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99, 108

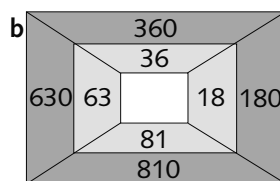
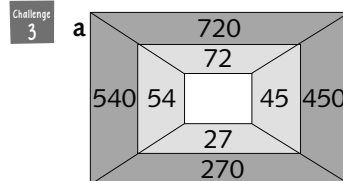
- Challenge 2**  
 1 a 81                    b 36                    c 27  
    d 54                    e 72                    f 63  
 2 a 3                    i 6  
    b 12                    j 45  
    c 7                     k 4  
    d 4                     l 9  
    e 9                     m 90  
    f 12                    n 5  
    g 9                     o 7  
    h 2                     p 72

- Challenge 3**  
 a We are 27, 45, 63, 81    b I am 36  
 c I am 72

#### Lesson 2: Using the 10 multiplication table to learn the 9 multiplication table

- Challenge 1**  
 1a 9                    b 36                    c 27                    d 72                    e 81  
 2a 54                    b 27                    c 81                    d 45                    e 36

- Challenge 2**  
 1 a 81, 45                    d 126, 90  
    b 45, 9                    e 99, 54  
    c 90, 54                    f 72, 36  
 2 a 10, 50, 60, 40, 20, 30, 80, 70, 90, 100  
    b 9, 45, 54, 36, 18, 27, 72, 63, 81, 90



#### Lesson 3: 6 multiplication table

- Challenge 1**  
 1 a 54                    b 42                    c 24  
    d 36                    e 18                    f 48

- Challenge 2**  
 1 a  $6 \times 4 = 24$ ;  $4 \times 6 = 24$ ;  $24 \div 4 = 6$ ;  
     $24 \div 6 = 4$   
    b  $2 \times 6 = 12$ ;  $6 \times 2 = 12$ ;  $12 \div 6 = 2$ ;  
     $12 \div 2 = 6$   
    c  $6 \times 7 = 42$ ;  $7 \times 6 = 42$ ;  $42 \div 6 = 7$ ;  
     $42 \div 7 = 6$   
    d  $8 \times 6 = 48$ ;  $6 \times 8 = 48$ ;  $48 \div 6 = 8$ ;  
     $48 \div 8 = 6$   
    e  $6 \times 6 = 36$ ;  $36 \div 6 = 6$   
    f  $9 \times 6 = 54$ ;  $6 \times 9 = 54$ ;  $54 \div 6 = 9$ ;  
     $54 \div 9 = 6$

- 2 a 5                    g 8  
    b 4                    h 18  
    c 6                    i 9  
    d 7                    j 6  
    e 6                    k 66  
    f 1                    l 7

- Challenge 3**  
 a We are 24, 54                    b I am 30  
 c We are 24, 36

#### Lesson 4: Using other multiplication tables to learn the 6 multiplication table

- Challenge 1**  
 1 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36  
 2 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72

- Challenge 2**  
 a 24                    e 48  
 b 54                    f 42  
 c 18                    g 72  
 d 42                    h 54

- Challenge 3**  
 a 240                    b 40  
    540                    60  
    180                    90  
    480                    100  
    420                    70

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

#### Lesson 1: Equivalent fractions (1)

- Challenge 1**  
 a  $\frac{1}{2} = \frac{4}{8}$                     c  $\frac{1}{2} = \frac{6}{12}$   
 b  $\frac{1}{2} = \frac{5}{10}$                     d  $\frac{1}{2} = \frac{4}{8}$

- Challenge 2**  
 1 a  $\frac{1}{2} = \frac{7}{14}$                     d  $\frac{1}{2} = \frac{9}{18}$   
    b  $\frac{1}{2} = \frac{4}{8}$                     e  $\frac{1}{2} = \frac{6}{12}$   
    c  $\frac{1}{2} = \frac{8}{16}$                     f  $\frac{1}{2} = \frac{5}{10}$   
 2  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = \frac{7}{14} = \frac{8}{16} = \frac{9}{18}$

- Challenge 3**  
 1 a  $\frac{1}{4} = \frac{2}{8}$                     b  $\frac{1}{4} = \frac{3}{12}$                     c  $\frac{1}{4} = \frac{4}{16}$   
 2  $\frac{1}{4} = \frac{5}{20} = \frac{6}{24} = \frac{7}{28} = \frac{8}{32} = \frac{9}{36} = \frac{10}{40} = \frac{11}{44} = \frac{12}{48}$   
 3 Answers will vary.

#### Lesson 2: Equivalent fractions (2)

- Challenge 1**  
 a  $\frac{1}{4} = \frac{5}{20}$                     c  $\frac{1}{4} = \frac{4}{16}$   
 b  $\frac{1}{4} = \frac{3}{12}$                     d  $\frac{1}{4} = \frac{6}{24}$

- Challenge 2**  
 1 a  $\frac{1}{4} = \frac{6}{24}$                     d  $\frac{1}{4} = \frac{5}{20}$   
    b  $\frac{1}{4} = \frac{3}{12}$                     e  $\frac{1}{4} = \frac{6}{24}$   
    c  $\frac{1}{4} = \frac{4}{16}$   
 2  $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20} = \frac{6}{24}$

- Challenge 3**
- $a \frac{3}{4} = \frac{6}{8}$   
 $b \frac{3}{4} = \frac{9}{12}$   
 $c \frac{3}{4} = \frac{12}{16}$
  - $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16} = \frac{15}{20} = \frac{18}{24}$
  - Answers will vary.

**Lesson 3: Non-unit fractions (1)**

- Challenge 1**
- |      |      |
|------|------|
| a 11 | g 8  |
| b 18 | h 12 |
| c 40 | i 14 |
| d 7  | j 5  |
| e 12 | k 7  |
| f 25 | l 10 |

- Challenge 2**
- |       |      |
|-------|------|
| 1 a 9 | g 26 |
| b 15  | h 40 |
| c 24  | i 18 |
| d 30  | j 27 |
| e 12  | k 36 |
| f 18  | l 45 |

2 Any fraction that has a numerator that is not 1.

- Challenge 3**
- |        |      |
|--------|------|
| 1 a 45 | g 28 |
| b 28   | h 48 |
| c 60   | i 39 |
| d 27   | j 55 |
| e 18   | k 24 |
| f 52   | l 60 |

2 Divide by the denominator and then multiply by the numerator.

**Lesson 4: Non-unit fractions (2)**

- Challenge 1**
- |      |      |
|------|------|
| a 9  | g 12 |
| b 18 | h 21 |
| c 30 | i 24 |
| d 10 | j 6  |
| e 14 | k 10 |
| f 20 | l 14 |

- Challenge 2**
- |        |       |
|--------|-------|
| 1 a 26 | g 60  |
| b 30   | h 42  |
| c 85   | i 112 |
| d 24   | j 48  |
| e 45   | k 69  |
| f 28   | l 100 |

2 112

- Challenge 3**
- |        |       |
|--------|-------|
| 1 a 92 | g 125 |
| b 95   | h 126 |
| c 32   | i 48  |
| d 60   | j 176 |
| e 63   | k 132 |
| f 114  | l 138 |

2 £26

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

**Lesson 1: Translating a 2-D shape**

- Challenge 1**
- Challenge 2**
- |      |                                       |
|------|---------------------------------------|
| A, B | 2 translations of 3 dots to the right |
| C, D | 2 translations of 3 dots to the left  |

- Challenges 2, 3**
- |        |                               |
|--------|-------------------------------|
| 1 A, B | 2 translations of 3 dots up   |
| C, D   | 2 translations of 3 dots down |

- |     |                          |
|-----|--------------------------|
| 2 A | 3 dots left, 1 dot up    |
| B   | 1 dot left, 3 dots up    |
| C   | 2 dots right, 2 dots up  |
| D   | 3 dots right, 1 dot down |
| E   | 1 dot right, 3 dots down |
| F   | 2 dots left, 2 dots down |

- Challenge 3**
- Pattern made by translating shape to the right and left.
  - Pattern made by translating shape up and down, then to the right and to the left.

**Lesson 2: Coordinates map**

- Challenge 1**
- Agent A (2, 4)  
 Agent J (3, 4)  
 Agent Z (1, 2)  
 Agent G (5, 2)  
 Agent M (5, 5)

- Challenge 2**
- |   |                          |
|---|--------------------------|
| 1 | Agent B (5, 3) or (5, 4) |
| 2 | 10 paces from black rock |

**Challenge 3** Answers will vary.

**Lesson 3: Plotting the points**

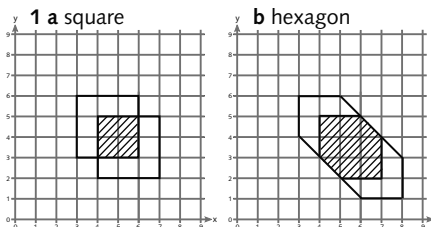
- Challenge 1**
- |   |          |
|---|----------|
| a | triangle |
| b | square   |

- Challenge 2**
- |     |                   |
|-----|-------------------|
| 1   | (5, 4)            |
| 2 c | (3, 4)            |
| e   | (3, 3) and (4, 4) |

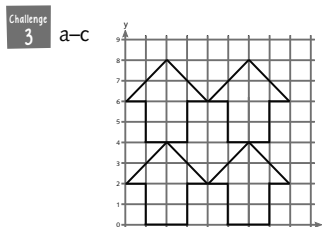
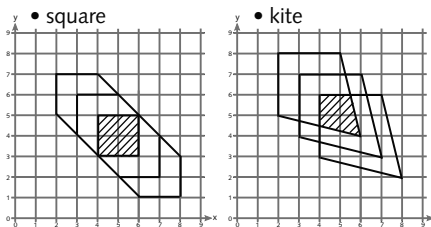
- Challenge 3**
- |        |  |
|--------|--|
| a or b | (0, 4) and (2, 6) or (4, 0) and (6, 2) |
|--------|--|

**Lesson 4: Translations on a grid**

- Challenge 1**
- Challenge 2**
- |     |                       |
|-----|-----------------------|
| 2 a | square and a triangle |
|-----|-----------------------|



- Challenge 2**
- |          |                             |
|----------|-----------------------------|
| square   | (4, 3) (4, 5) (6, 5) (6, 3) |
| triangle | (4, 3) (4, 5) (6, 5)        |



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

**Lesson 1: Addition chains**

- Challenge 1**
- |   |      |   |      |
|---|------|---|------|
| a | 896  | d | 1086 |
| b | 976  | e | 1166 |
| c | 1046 |   |      |

- Challenge 2**
- |   |      |   |      |
|---|------|---|------|
| a | 971  | d | 1161 |
| b | 1051 | e | 1241 |
| c | 1121 |   |      |

- Challenge 3**
- |   |      |   |      |
|---|------|---|------|
| a | 1274 | d | 1464 |
| b | 1354 | e | 1544 |
| c | 1424 |   |      |

**Lesson 2: Written addition (1)**

- Challenge 1**
- |   |     |   |     |
|---|-----|---|-----|
| a | 756 | f | 983 |
| b | 779 | g | 992 |
| c | 772 | h | 996 |
| d | 692 | i | 793 |
| e | 777 | j | 978 |

- Challenge 2**
- |   |     |   |      |
|---|-----|---|------|
| a | 946 | f | 1065 |
| b | 947 | g | 1392 |
| c | 983 | h | 1546 |
| d | 939 | i | 1548 |
| e | 893 | j | 1384 |

- Challenge 3**
- |   |      |   |      |
|---|------|---|------|
| a | 1527 | g | 1540 |
| b | 1585 | h | 1724 |
| c | 1684 | i | 1821 |
| d | 1837 | j | 1942 |
| e | 1867 | k | 960  |
| f | 1639 | l | 1176 |

**Lesson 3: Written addition (2)**

- Challenge 1**
- |   |     |   |      |
|---|-----|---|------|
| a | 954 | f | 1283 |
| b | 957 | g | 1257 |
| c | 995 | h | 1372 |
| d | 876 | i | 1425 |
| e | 953 | j | 1539 |

- Challenge 2**
- |   |      |   |      |
|---|------|---|------|
| a | 1433 | f | 1222 |
| b | 1575 | g | 1420 |
| c | 1429 | h | 1423 |
| d | 1748 | i | 1612 |
| e | 1596 | j | 1812 |

- Challenge 3**
- |   |      |   |      |
|---|------|---|------|
| a | 1750 | f | 2667 |
| b | 1840 | g | 2585 |
| c | 1602 | h | 2622 |
| d | 1821 | i | 3155 |
| e | 1951 | j | 3328 |

**Lesson 4: Leisure centre problems**

- Challenge 1**
- |   |            |
|---|------------|
| 1 | 272        |
| 2 | 105 metres |
| 3 | £652       |

- Challenge 2**
- |   |     |
|---|-----|
| 1 | 271 |
| 2 | 5   |
| 3 | 714 |
| 4 | 570 |

- Challenge 3**
- |   |                    |
|---|--------------------|
| 1 | 11187 litres       |
| 2 | £1875              |
| 3 | Answers will vary. |

### Unit 3, Week 2: Number – Decimals

#### Lesson 1: Decimal fractions

- Challenge 1**
- a  $\frac{7}{10}$  0.7
  - b  $\frac{2}{10}$  0.2
  - c  $\frac{9}{10}$  0.9
  - d  $\frac{5}{10}$  0.5
  - e  $\frac{1}{10}$  0.1
  - f  $\frac{8}{10}$  0.8
  - g  $\frac{4}{10}$  0.4
  - h  $\frac{6}{10}$  0.6

- Challenge 2**
- 1 a 0.3 f 0.9
  - b 0.8 g 0.5
  - c 0.1 h 0.2
  - d 0.4 i 0.6
  - e 0.7 j 1
  - 2 a 0.6 f 1.8
  - b 0.9 g 1.6
  - c 0.4 h 2.8
  - d 0.2 i 2.2
  - e 1.5 j 3.7

- Challenge 3**
- 1 a 1.3 f 3.9
  - b 1.7 g 4.5
  - c 2.4 h 4.6
  - d 2.8 i 5.4
  - e 3.1 j 5.2

- 2  $\frac{4.1}{4\frac{1}{10}}$   $\frac{4.2}{4\frac{2}{10}}$   $\frac{4.3}{4\frac{3}{10}}$   $\frac{4.4}{4\frac{4}{10}}$   $\frac{4.5}{4\frac{5}{10}}$   $\frac{4.6}{4\frac{6}{10}}$   $\frac{4.7}{4\frac{7}{10}}$   $\frac{4.8}{4\frac{8}{10}}$   $\frac{4.9}{4\frac{9}{10}}$

#### Lesson 2: Comparing decimals

- Challenge 1**
- a 0.7 0.8 0.9 1 1.1 1.2
  - b 1.3 1.4 1.5 1.6 1.7 1.8
  - c 2.5 2.6 2.7 2.8 2.9 3
  - d 3.2 3.3 3.4 3.5 3.6 3.7
  - e 3.8 3.9 4 4.1 4.2 4.3
  - f 4 4.1 4.2 4.3 4.4 4.5
  - g 4.1 4.2 4.3 4.4 4.5 4.6
  - h 4.7 4.8 4.9 5 5.1 5.2
  - i 5.5 5.6 5.7 5.8 5.9 6

- Challenge 2**
- 1 a 1.1 1.3 1.7 1.8 1.9
  - b 2.1 2.3 2.5 2.6 2.8
  - c 3.1 3.2 3.7 3.8 3.9
  - d 4.1 4.3 4.5 4.6 4.7
  - e 5.1 5.2 5.3 5.6 5.9
  - f 6.1 6.5 6.6 6.7 6.9
  - g 7.1 7.2 7.3 7.7 7.9
  - h 1.9 2.7 3.7 4.6 5.3
  - i 2.5 2.6 3.1 3.5 3.8

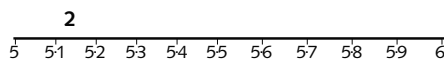
- 2 a 2.6 2.7 2.8
- b 3 3.1 3.2
- c 4.7 4.8 4.9
- d 4.4 4.5 4.6
- e 5.6 5.7 5.8
- f 2.8 2.9 3
- g 8.1 8.2 8.3
- h 9.6 9.7 9.8
- i 9.9 10 10.1
- j 12.4 12.5 12.6

- Challenge 3**
- 1 Answers will vary.
  - 2 a 2.5 < 2.7
  - b 1.6 < 1.9

- c 2.8 > 2.1
- d 2 < 2.6
- e 5.5 > 3.5
- f 7.8 < 8.7
- g 9.3 > 9.1
- h 12.5 > 11.4

#### Lesson 3: Rounding to the whole number

- Challenge 1**
- 1 a 0 e 2
  - b 1 f 2
  - c 1 g 2
  - d 1 h 3



- a 5.1 5.2 5.3 5.4
- b 5.5 5.6 5.7 5.8 5.9

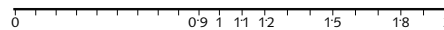
- Challenge 2**
- 1 and 2
  - a 2 2.6 (3)
  - b (1) 1.3 2
  - c 3 3.7 (4)
  - d 5 5.9 (6)
  - e 6 6.5 (7)
  - f (9) 9.4 10
  - g (7) 7.2 8
  - h 4 4.8 (5)
  - i (9) 9.1 10
  - j 10 10.7 (11)

- Challenge 3**
- 1 a 1.5 1.6 1.7 1.8 1.9 2.1
  - 2.2 2.3 2.4
  - b 4.5 4.6 4.7 4.8 4.9 5.1
  - 5.2 5.3 5.4
  - c 6.5 6.6 6.7 6.8 6.9 7.1
  - 7.2 7.3 7.4
  - d 2.5 2.6 2.7 2.8 2.9 3.1
  - 3.2 3.3 3.4
  - e 5.5 5.6 5.7 5.8 5.9 6.1
  - 6.2 6.3 6.4
  - f 9.5 9.6 9.7 9.8 9.9 10.1
  - 10.2 10.3 10.4
  - g 12.5 12.6 12.7 12.8 12.9 13.1
  - 13.2 13.3 13.4
  - h 14.5 14.6 14.7 14.8 14.9 15.1
  - 15.2 15.3 15.4
  - i 15.5 15.6 15.7 15.8 15.9 16.1
  - 16.2 16.3 16.4
  - j 23.5 23.6 23.7 23.8 23.9 24.1
  - 24.2 24.3 24.4

2 Answers will vary.

#### Lesson 4: Sports day

- Challenge 1**
- a Robin
  - b Robin Jake Helena Maya Fatima
  - c Helena 1 m Robin 2 m Maya 1 m Fatima 1 m Jake 2 m
  - d  $1\frac{2}{10}$  m  $1\frac{8}{10}$  m  $1\frac{1}{10}$  m  $\frac{9}{10}$  m  $1\frac{5}{10}$  m
  - e



- Challenge 2**
- a Maya Helena Fatima Robin Jake
  - b Helena 3 km Robin 3 km Maya 4 km Fatima 3 km Jake 3 km
  - c Answers will vary.
  - d  $3\frac{4}{10}$  km  $2\frac{9}{10}$  km  $3\frac{5}{10}$  km  $3\frac{1}{10}$  km  $2\frac{7}{10}$  km

- Challenge 3**
- a Helena Maya Fatima Robin Jake
  - b Helena 12 s Robin 15 s Maya 13 s Fatima 13 s Jake 15 s
  - c Answers will vary.

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

#### Lesson 1: Recording mass using decimal notation

- Challenge 1**
- a 2500 g → 2 kg 500 g
  - b 3100 g → 3 kg 100 g
  - c 5700 g → 5 kg 700 g
  - d 2900 g → 2 kg 900 g

- Challenge 2**
- 1 a 5500 g = 5 kg 500 g = 5.5 kg = 5000 g + 500 g =  $5\frac{5}{10}$  kg
  - b 7200 g = 7 kg 200 g = 7.2 kg = 7000 g + 200 g =  $7\frac{2}{10}$  kg
  - c 9600 g = 9 kg 600 g = 9.6 kg = 9000 g + 600 g =  $9\frac{6}{10}$  kg
  - d 8400 g = 8 kg 400 g = 8.4 kg = 8000 g + 400 g =  $8\frac{4}{10}$  kg
  - e 4900 g = 4 kg 900 g = 4.9 kg = 4000 g + 900 g =  $4\frac{9}{10}$  kg
  - f 6300 g = 6 kg 300 g = 6.3 kg = 6000 g + 300 g =  $6\frac{3}{10}$  kg
  - 2 a 6.4 kg = 6000 g + 400 g = 6400 g
  - b 8.5 kg = 8000 g + 500 g = 8500 g
  - c 5.7 kg = 5000 g + 700 g = 5700 g
  - d 13.1 kg = 13 000 g + 100 g = 13 100 g
  - e 22.9 kg = 22 900 g + 900 g = 22 900 g
  - f 17.6 kg = 17 000 g + 600 g = 17 600 g

- 3 a 1200 g, 1.2 kg
- b 1800 g, 1.8 kg
- c 1600 g, 1.6 kg
- d 1500 g, 1.5 kg

- Challenge 3**
- a 300 g c 160 g
  - b 300 g d 300 g

#### Lesson 2: Multiples of standard weights

- Challenge 1**
- a 350 g = 200 g + 100 g + 50 g
  - b 140 g = 100 g + (2 × 20) g
  - c 470 g = (2 × 200) g + 50 g + 20 g
  - d 290 g = 200 g + 50 g + (2 × 20) g

- Challenge 2**
- 1 a 4 weights 500 g + (2 × 200) g + 100 g
  - b 5 weights 500 g + 200 g + (3 × 100) g
  - c 10 weights 10 × 100 g or (4 × 200) g + 100 g + (5 × 20) g or (2 × 200) g + (4 × 100) g + (4 × 50) g
  - 2 a 3 weights (2 × 200) g + 100 g
  - b 5 weights (5 × 100) g or (1 × 200) g + (2 × 100) g + (2 × 50) g
  - c 10 weights 10 × 50 g or (3 × 100) g + (2 × 50) g + (5 × 20) g
  - 3 a 2 weights 2 × 50 g
  - b 4 weights 50 g + (2 × 20) g + 10 g
  - c 5 weights 50 g + 20 g + (3 × 10) g
  - 4 Answers will vary.

- Challenge 3**
- Answers will vary.
  - He measures out  $3 \times (100 \text{ g} + 200 \text{ g})$ .

**Lesson 3: Estimating and rounding masses**

- Challenge 1**
- a 6 kg                      b 4 kg  
c 3 kg                      d 10 kg

- Challenge 2**
- a 300 g                      b 700 g  
c 500 g                      d 900 g

- a 1 kg                      b 3 kg  
c 4 kg                      d 10 kg

**Challenge 3**

Mass in g	5700 g	3400 g	6800 g	3200 g	7500 g	4600 g
Mass in kg	5.7 kg	3.4 kg	6.8 kg	3.2 kg	7.5 kg	4.6 kg
Rounded to nearest kg	6 kg	3 kg	7 kg	3 kg	8 kg	5 kg

- a 35.7 kg, 37.5 kg, 53.7 kg, 57.3 kg, 73.5 kg, 75.3 kg  
b 36 kg, 38 kg, 54 kg, 57 kg, 74 kg, 75 kg  
c  $75.3 \text{ kg} - 35.7 \text{ kg} = 39.6 \text{ kg} = 40 \text{ kg}$  to nearest whole kg

**Lesson 4: Garden centre calculations**

- Challenge 1**
- a 1.1 kg                      b 2.1 kg                      c 3.1 kg

- Challenge 2**
- a 9 kg                      c 8 kg  
b 11 kg                      d 12 kg
  - a 930 g                      c 780 g  
b 1050 g                      d 1170 g
  - 21 kg
  - 2.7 kg
  - 58.5 kg

- Challenge 3**
- a 15 kg                      b 10 kg                      c 7.5 kg

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

**Lesson 1: Square numbers**

- Challenge 1**
- a  $2 \times 2 = 4$                        $4 \div 2 = 2$   
b  $3 \times 3 = 9$                        $9 \div 3 = 3$   
c  $4 \times 4 = 16$                        $16 \div 4 = 4$   
d  $5 \times 5 = 25$                        $25 \div 5 = 5$   
e  $6 \times 6 = 36$                        $36 \div 6 = 6$   
f  $7 \times 7 = 49$                        $49 \div 7 = 7$   
g  $8 \times 8 = 64$                        $64 \div 8 = 8$   
h  $9 \times 9 = 81$                        $81 \div 9 = 9$

- Challenge 2**
- 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

- Challenge 3**
- a 108                      f 208  
b 130                      g 56  
c 105                      h 45  
d 144                      i 181  
e 576

**Lesson 2: 7 multiplication table**

- Challenge 1**
- a 63                      e 56  
b 14                      f 35  
c 77                      g 42  
d 21                      h 28

- 2 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84

- Challenge 2**
- a 7                      i 7  
b 0                      j 7  
c 9                      k 6  
d 5                      l 7  
e 7                      m 77  
f 1                      n 10  
g 3                      o 7  
h 4

- Challenge 3**
- a I am 21                      b I am 42                      c I am 35

**Lesson 3: Finding factors**

- Challenge 1**
- $66 \div 11 = 6$ ,  $6 \times 11 = 66$ ;  
 $88 \div 11 = 8$ ,  $8 \times 11 = 88$ ;  
 $99 \div 11 = 9$ ,  $9 \times 11 = 99$ ;  
 $22 \div 11 = 2$ ,  $2 \times 11 = 22$ ;  
 $121 \div 11 = 11$ ,  $11 \times 11 = 121$
  - $36 \div 12 = 3$ ,  $3 \times 12 = 36$   
 $60 \div 12 = 5$ ,  $5 \times 12 = 60$   
 $144 \div 12 = 12$ ,  $12 \times 12 = 144$   
 $132 \div 12 = 11$ ,  $11 \times 12 = 132$   
 $72 \div 12 = 6$ ,  $6 \times 12 = 72$

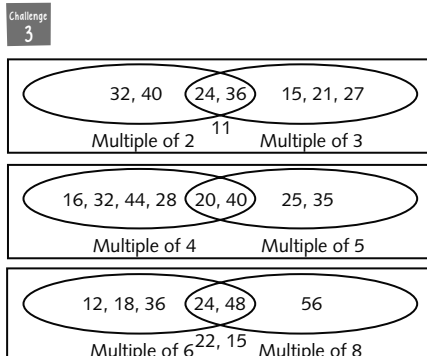
- Challenge 2**
- a 20: 2, 4, 10  
b 28: 4, 7  
c 18: 3, 6, 9  
d 35: 5, 7  
e 30: 2, 6, 5, 3,  
f 60: 3, 5, 10, 12,

- Challenge 3**
- a 24 = (1), (2), 3, (4), 6, (8), 12, 24  
 $16 = (1), (2), (4), (8), 16$   
b  $36 = (1), (2), 3, (4), 6, 9, 12, 18, 36$   
 $64 = (1), (2), (4), 8, 16, 32, 64$   
c  $32 = (1), (2), (4), (8), (16), 32$   
 $48 = (1), (2), 3, (4), 6, (8), 12, (16), 24, 48$

**Lesson 4: Solving problems using multiples**

- Challenge 1**
- 3: 6, 18, 24, 27, 30  
8: 16, 56, 32  
9: 54, 36, 72  
12: 144, 108, 60

- Challenge 2**
- a 48                      f 108  
b 120                      g 144  
c 36                      h 96  
d 84                      i 132  
e 72



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

**Lesson 1: Multiplication using partitioning**

- Challenge 1**
- a 70, 80                      f 10, 20  
b 30, 40                      g 40, 50  
c 80, 90                      h 40, 50  
d 20, 30                      i 50, 60  
e 60, 70                      j 90, 100

- Challenge 2**
- a 300                      e 150  
b 420                      f 280  
c 240                      g 270  
d 720                      h 540
  - a 285                      e 144  
b 444                      f 273  
c 252                      g 243  
d 688                      h 522
  - a 243 (2g)                      e 252 (2c)  
b 285 (2a)                      f 688 (2d)  
c 273 (2f)                      g 444 (2b)  
d 522 (2h)                      h 144 (2e)

- Challenge 3**
- The odd one out is  $58 \times 3$ . All the other calculations equal 384.

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

- Challenge 1**
- a  $50+7$ ,  $40+3$ ,  $10+6$ ,  $30+9$   
b  $80+3$ ,  $60+8$ ,  $20+6$ ,  $90+1$   
c  $50+9$ ,  $40+7$ ,  $60+4$ ,  $70+6$

- Challenge 2**
- a 160                      d 400  
b 540                      e 420  
c 210                      f 480
  - a 235                      f 728  
b 265                      g 192  
c 152                      h 222  
d 128                      i 255  
e 104

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

**Lesson 3: Multiplication using the expanded written method**

- Challenge 1**
- a  $40+5$                       e  $70+4$   
b  $30+8$                       f  $80+2$   
c  $60+3$                       g  $20+7$   
d  $50+6$                       h  $90+4$

- Challenge 2**
- a 240                      e 450  
b 360                      f 240  
c 120                      g 400  
d 490                      h 300
  - a 224                      e 486  
b 344                      f 224  
c 114                      g 395  
d 483                      h 282

- Challenge 3**
- 3 Answers will vary.

**Lesson 4: Mental multiplications**

**Challenge 1** 1 Answers will vary.

- Challenge 2**
- a  $3 \times 5 \times 8 = 120$
  - b  $2 \times 8 \times 4 = 64$
  - c  $6 \times 5 \times 7 = 210$
  - d  $8 \times 9 \times 10 = 720$
  - e  $7 \times 7 \times 0 = 0$
  - f  $9 \times 6 \times 3 = 162$
  - g  $6 \times 4 \times 9 = 216$
  - h  $9 \times 7 \times 1 = 63$
  - i  $9 \times 5 \times 3 = 135$
  - j  $2 \times 9 \times 5 = 90$
  - k  $6 \times 10 \times 7 = 420$
  - l  $4 \times 6 \times 4 = 96$

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

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

**Lesson 1: Converting units of time**

- Challenge 1**
- 1 min = 60 s
  - 1 hour = 60 min
  - 1 day = 24 h
  - 1 week = 7 days
  - 1 year = 12 months, 52 weeks, 365 days

- Challenge 2**
- 1 a 240 min    b 360 min    c 525 min
  - 2 a 120 h    b 216 h    c 360 h
  - 3 a 49 days    b 84 days    c 364 days
  - 4 a 2 days 2 h    b 3 h 20 min  
c 6 min 40 s    d 8 weeks 4 days

**Challenge 3** 1 a 91 days    b 13 weeks  
2 Answers will vary.

**Lesson 2: Using 12-hour clocks**

- Challenges 1, 2**
- 1 a 5:12    b 8:06    c 10:27  
d 10:57    e 8:46    f 12:35
  - 2 a 23 min past 4    b 18 min to 8  
c 9 min past 10    d 4 min to 9  
e 25 min past 2    f 29 min to 6

- Challenge 2**
- 1 a 11:32    b 11:54    c 12:25    d 11:16
  - 2 a 2:40 p.m.    b 12:20 p.m.  
c 1:10 p.m.    d 12:55 p.m.

- Challenge 3**
- 1 23 min early; 22 min late; 11 min early
  - 2 a 10:53    d 3:26  
b 2:12    e 8:55  
c 4:39    f 12:01

**Lesson 3: Using 24-hour clocks**

- Challenge 1, 2**
- 1 a 08:15    b 05:40    c 10:27    d 07:55
  - 2 a 14:35    b 15:50    c 23:09    d 21:20

- Challenge 2**
- 1 a 06:05    b 07:30    c 16:51  
d 14:35    e 21:33    f 21:43

- 2 a 2:45 p.m.    b 10:10 p.m.    c 7:57 a.m.  
d 3:20 a.m.    e 7:32 p.m.    f 8:06 p.m.

- Challenge 3**
- 10:12    10:27    10:42    10:57
  - 11:12    11:27    11:42    11:57
  - 12:12    12:27    12:42    12:57
  - 13:12    13:27    13:42    13:57

**Lesson 4: Changing times**

- Challenge 1**
- a Poppy: 270 s, Lenny: 230 s, Yasmin: 280 s
  - b 280 s, 270 s, 266 s, 230 s

- Challenge 2**
- 1 a Chris: 195 min, Rob: 215 min, Oscar: 210 min  
b 195 min, 209 min, 210 min, 215 min
  - 2 300 months
  - 3 168 hours
  - 4 Archie: 10 years, George: 11 years, Emma: 9 years, Sarah: 12 years

- Challenge 3**
- 1 22 June: 17 h 55 min  
22 December: 8 h 45 min
  - 2 9 h 10 min

# Pupil Book 4B

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

**Lesson 1: Ordering numbers beyond 1000**

- Challenge 1**
- 1 a 1736, 2356, 3871, 5197  
b 1836, 2645, 3982, 5812  
c 1088, 2677, 3721, 4876  
d 1889, 2776, 3121, 5222
  - 2 a 1065, 1289, 1487, 1578  
b 3166, 3255, 3498, 3825  
c 5111, 5216, 5538, 5754  
d 4166, 4286, 4622, 4826

- Challenge 2**
- 1 a 2178, 2789, 4791, 4879  
b 4277, 4722, 6187, 6372  
c 3143, 3521, 3734, 3981  
d 7256, 7454, 8256, 8454

2 Answers will vary.

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

**Lesson 2: Place value problems**

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

**Lesson 3: Rounding to the nearest 10 or 100**

- Challenge 1, 2**
- a 140    147    150
  - b 180    189    190
  - c 230    231    240
  - d 350    358    360
  - e 720    725    730
  - f 860    866    870
  - g 670    673    680
  - h 740    744    750

- Challenge 2**
- 1, 2
  - a 870    875    880
  - b 740    749    750
  - c 1830    1837    1840
  - d 2560    2568    2570
  - e 2370    2371    2380

- 3, 4
- a 700    765    800
  - b 300    353    400
  - c 200    287    300
  - d 900    915    1000
  - e 1500    1528    1600

- Challenge 3**
- 1 a 2700, 2710, 2716, 2720, 2800  
b 3500, 3560, 3569, 3570, 3600  
c 3200, 3240, 3248, 3250, 3300  
d 4600, 4630, 4635, 4640, 4700  
e 7400, 7480, 7482, 7490, 7500  
f 7200, 7250, 7255, 7260, 7300

2 Answers will vary.

**Lesson 4: Negative numbers**

- Challenge 1**
- a -5, -4, -3, -2, -1, 0, 1, 2, 3, 4
  - b -8, -7, -6, -5, -4, -3, -2, -1, 0, 1
  - c -10, -9, -8, -7, -6, -5, -4, -3, -2, -1
  - d -15, -14, -13, -12, -11, -10, -9, -8, -7, -6
  - e -19, -18, -17, -16, -15, -14, -13, -12, -11, -10
  - f -25, -24, -23, -22, -21, -20, -19, -18, -17
  - g -28, -27, -26, -25, -24, -23, -22, -21, -20, -19

- Challenge 2**
- 1 a -8    e -14  
b -2    f -18  
c -5    g -22  
d -11    h -30

- 2 a -20 -21 -22 -23 -24 -25  
b -18 -19 -20 -21 -22 -23  
c -21 -22 -23 -24 -25 -26  
d -24 -25 -26 -27 -28 -29  
e -33 -34 -35 -36 -37 -38  
f -39 -40 -41 -42 -43 -44  
g -46 -47 -48 -49 -50 -51  
h -50 -51 -52 -53 -54 -55

- Challenge 3**
- 1 a -39    e -57  
b -43    f -60  
c -48    g -65  
d -51    h -72

- 2 a -69 -70 -71 -72 -73 -74  
b -75 -76 -77 -78 -79 -80  
c -79 -80 -81 -82 -83 -84  
d -86 -87 -88 -89 -90 -91  
e -93 -94 -95 -96 -97 -98  
f -99 -100 -101 -102 -103 -104  
g -105 -106 -107 -108 -109 -110

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

**Lesson 1: Subtraction chains**

- Challenge 1**  
 a 20                      d 110  
 b 50                      e 140  
 c 180

- Challenge 2**  
 a 5                        d 115  
 b 35                      e 185  
 c 75

- Challenge 3**  
 a 8                        d 208  
 b 98                      e 258  
 c 158

**Lesson 2: Written subtraction (1)**

- Challenge 1**  
 a 323                    e 318  
 b 243                    f 425  
 c 326                    g 218  
 d 326                    h 408

- Challenge 2**  
 1 a 382                   e 377  
 b 415                    f 386  
 c 566                    g 177  
 d 327                    h 77

2 Answers will vary.

- Challenge 3**  
 1 a 465                   e 232  
 b 377                    f 173  
 c 268                    g 188  
 d 108                    h 278

2 Answers will vary.

**Lesson 3: Written subtraction (2)**

- Challenge 1**  
 a 281                    e 337  
 b 417                    f 285  
 c 313                    g 526  
 d 413                    h 257

- Challenge 2**  
 1 a 108                   e 745  
 b 85                      f 763  
 c 824                    g 667  
 d 827                    h 175

2 Answers will vary.

3 Answers will vary.

- Challenge 3**  
 1 a 823                   e 1735  
 b 575                    f 2628  
 c 785                    g 1611  
 d 1916                   h 1778

2 Answers will vary.

**Lesson 4: Trip problems**

- Challenge 1**  
 1 390 children  
 2 160 children  
 3 114 children

- Challenge 2**  
 1 723 children  
 2 121 children  
 3 1017 children

- Challenge 3**  
 1 647 people  
 2 325 children  
 3 786 children  
 4 132 children

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

**Lesson 1: Acute and obtuse angles**

**Challenges 1, 2**

Acute angles	Obtuse angles
a, c, d, f, i	b, e, g, h

- Challenge 3**  
 1 acute angles: a, c, d  
 obtuse angles: b, e, f  
 2 Investigation

**Lesson 2: Acute and obtuse angles in 2-D shapes**

- Challenge 1**  
 acute angles: A, C, E  
 obtuse angles: B, D

- Challenge 2**  
 acute angles: A, D, G, I  
 obtuse angles: B, C, E, F, H, J, K, L

- Challenge 3**  
 a A, B, D, E, G, H, I, J  
 b B, C, D, E, F, H, I, J, K, L  
 c None

**Lesson 3: Ordering angles by size**

- Challenge 1**  
 a acute angles: A, D, E, F  
 b obtuse angles: B, C

- Challenge 2**  
 1, 3 acute angles: d, g, f, a  
 2, 4 obtuse angles: h, e, b, c

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

**Lesson 4: Regular polygons**

- Challenges 1, 2**  
 1 a A, C, F, G, H, I  
 b A, C, F, H

2

Regular	Irregular
A, C, F, H	B, D, E, G, I

**Challenge 3**

Property	Regular	Irregular
One line of symmetry		B, D, E, I
More than one line of symmetry	A, C, F, H	G

**Unit 6, Week 1: Number – Multiplication and division, Incl. Number and place value**

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

**Challenge 1**

a	1000	2000	3000	4000	5000	6000	7000	8000	9000	10 000
b	6100	6200	6300	6400	6500	6600	6700	6800	6900	7000
c	25	50	75	100	125	150	175	200	225	250

- Challenge 2**  
 a Multiples of 1000:  
 3000, 6000, 7000, 8000,  
 b Multiples of 100:  
 4300, 5500, 2100, 6000, 7500,  
 c Multiples of 25:  
 50, 125, 375, 625, 675, 200

- Challenge 3**  
 1 a 250                    f 775  
 b 150                    f 50  
 c 150                    g 400  
 d 975                    h 150

2 Answer will vary.

**Lesson 2: Multiplication using the formal written method**

- Challenge 1**  
 a 27                      e 7  
 b 6                        f 5  
 c 64                      g 8  
 d 7                        h 11

**Challenge 2** Answers will vary.

- Challenge 3**  
 1 a 320                    e 810  
 b 480                    f 300  
 c 350                    g 300  
 d 320                    h 640  
 2 a 300                    e 783  
 b 504                    f 295  
 c 322                    g 294  
 d 336                    h 608

**Lesson 3: Multiplication using the most efficient method**

- Challenge 1**  
 a 14                      140  
 b 32                      320  
 c 28                      280  
 d 54                      540  
 e 49                      490  
 f 72                      720

**Challenge 2**  
 Mental  
 $33 \times 3 = 99$ ,  $42 \times 3 = 126$ ,  
 $55 \times 4 = 220$ ,  $62 \times 3 = 186$ ,  
 $34 \times 2 = 68$ ,  $53 \times 3 = 159$ ,  
 $75 \times 2 = 150$   
 Written  
 $76 \times 8 = 608$ ,  $89 \times 7 = 623$ ,  
 $67 \times 8 = 536$ ,  $79 \times 9 = 711$ ,  
 $86 \times 7 = 602$

**Challenge 3** No answers

**Lesson 4: Solving word problems**

- Challenge 1**  
 a  $24 \div 3 = 8$ ,  $8 \times 3 = 24$  or  $3 \times 8 = 24$   
 b  $6 \times 7 = 42$ ,  $42 \div 6 = 7$  or  $42 \div 7 = 6$   
 c  $8 \times 6 = 48$ ,  $48 \div 6 = 8$  or  $48 \div 8 = 6$   
 d  $54 \div 9 = 6$ ,  $6 \times 9 = 54$  or  $9 \times 6 = 54$   
 e  $7 \times 9 = 63$ ,  $63 \div 9 = 7$  or  $63 \div 7 = 9$   
 f  $7 \times 4 = 28$ ,  $28 \div 4 = 7$  or  $28 \div 7 = 4$   
 g  $32 \div 4 = 8$ ,  $4 \times 8 = 32$  or  $8 \times 4 = 32$   
 h  $56 \div 7 = 8$ ,  $8 \times 7 = 56$  or  $7 \times 8 = 56$

- Challenge 2**  
 a  $3 \times 37 = 111$  items  
 b  $2 \times 74 + 86 = 234$  items  
 c  $2 \times 89 = 178$  items  
 d  $74 + 37 = 111$  items  
 e  $2 \times 86 = 172$  items  
 f  $89 + 95 = 184$  items

- Challenge 3**  
 1 21 packs of glue sticks in one box  
 2 £80  
 3 6  
 4 13 calculators  
 5 19 of each colour  
 6 37 glue sticks.

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

#### Lesson 1: Fractions and number lines

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

- Challenge 2**
- a  $5, 5\frac{1}{2}, 6, 6\frac{1}{2}, 7$   
 b Counting up in quarters from 3 to 5  
 c Counting up in thirds from 6 to 8  
 d Counting up in sixths from 8 to 10  
 e Counting up in quarters from 11 to 13  
 f Counting up in eighths from 15 to 17

- Challenge 3**
- 1 a  $0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1$   
 b  $0, \frac{2}{6}, \frac{1}{2}, \frac{4}{6}, 1$   
 c  $0, \frac{1}{4}, \frac{4}{12}, \frac{8}{12}, \frac{3}{4}, 1$
- 2 Number line with halves and quarters marked.

#### Lesson 2: Hundredths and tenths

- Challenge 1**
- 1 a Fractions from  $\frac{13}{100}$  to  $\frac{22}{100}$   
 b Fractions from  $\frac{27}{100}$  to  $\frac{36}{100}$   
 c Fractions from  $\frac{62}{100}$  to  $\frac{71}{100}$   
 d Fractions from  $\frac{49}{100}$  to  $\frac{58}{100}$

- Challenge 2**
- 1 a Hundredths from  $\frac{25}{100}$  to  $\frac{35}{100}$   
 b Hundredths from  $\frac{38}{100}$  to  $\frac{48}{100}$   
 c Hundredths from  $\frac{50}{100}$  to  $\frac{60}{100}$   
 d Hundredths from  $\frac{67}{100}$  to  $\frac{77}{100}$   
 e Hundredths from  $\frac{80}{100}$  to  $\frac{90}{100}$   
 f Hundredths from  $\frac{86}{100}$  to  $\frac{96}{100}$   
 g Hundredths from  $\frac{90}{100}$  to  $\frac{100}{100}$

- 2 a Hundredths going back from  $\frac{60}{100}$  to  $\frac{50}{100}$   
 b Hundredths going back from  $\frac{81}{100}$  to  $\frac{71}{100}$   
 c Hundredths going back from  $\frac{32}{100}$  to  $\frac{22}{100}$   
 d Hundredths going back from  $\frac{99}{100}$  to  $\frac{89}{100}$   
 e Hundredths going back from  $\frac{55}{100}$  to  $\frac{45}{100}$   
 f Hundredths going back from  $\frac{73}{100}$  to  $\frac{63}{100}$   
 g Hundredths going back from  $\frac{62}{100}$  to  $\frac{52}{100}$

- 3 a  $\frac{14}{100}$                       d  $\frac{33}{100}$   
 b  $\frac{68}{100}$                       e  $\frac{95}{100}$   
 c  $\frac{52}{100}$

- Challenge 3**
- a  $\frac{10}{100}$                        $\frac{1}{10}$   
 b  $\frac{40}{100}$                        $\frac{4}{10}$   
 c  $\frac{80}{100}$                        $\frac{8}{10}$   
 d  $\frac{20}{100}$                        $\frac{2}{10}$   
 e  $\frac{70}{100}$                        $\frac{7}{10}$

#### Lesson 3: Finding tenths and hundredths

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

- Challenge 2**
- 1 a 15                      e 42  
 b 63                      f 90  
 c 20                      g 36  
 d 63                      h 72
- 2 a 12                      c 105  
 b 30                      d 287

- Challenge 3**
- 1 a 427                      e 282  
 b 231                      f 264  
 c 448                      g 500  
 d 350                      h 858
- 2 a 150                      c 280  
 b 272                      d 335

#### Lesson 4: Fraction problems

- Challenge 1**
- 1 100 ml  
 2 160 pizzas  
 3 35 min
- Challenge 2**
- 1 140 cm  
 2 £63  
 3 160 conkers  
 4 600 ml

- Challenge 3**
- 1 His friend  
 2 176 kg  
 3 2800 fans

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

#### Lesson 1: Kilometres and metres

1.0 km	0.5 km	0.1 km	0.8 km	0.3 km	0.4 km	0.9 km
1000 m	500 m	100 m	800 m	300 m	400 m	900 m
1 km	$\frac{1}{2}$ km	$\frac{1}{10}$ km	$\frac{8}{10}$ km	$\frac{3}{10}$ km	$\frac{4}{10}$ km	$\frac{9}{10}$ km

- Challenge 1**
- 1 a 3600 m    b 5500 m    c 8900 m  
 d 10 200 m    e 12 800 m    f 15 400 m
- 2 a 4.8 km    b 7.2 km    c 5.6 km  
 d 9.1 km    e 8.3 km    f 11.2 km
- 3 1.6 km, 1690 m, 1.7 km, 1.9 km, 1906 m, 1 km 960 m
- 4 a Harry    b 250 m    c 400 m

- Challenge 3**
- a L = 140 m, P = 420 m  
 b L = 0.4 km, P = 1.2 km  
 c L = 320 m, P = 960 m  
 d L =  $\frac{1}{2}$  km, P =  $1\frac{1}{2}$  km

#### Lesson 2: DIY measurements

- Challenge 1**
- a 5 m = 500 cm  
 b 5 cm = 50 mm  
 c 5 m = 5000 mm  
 d 8 m = 800 cm  
 e 8 cm = 80 mm  
 f 8 m = 8000 mm  
 g 0.5 m = 50 cm  
 h 0.5 cm = 5 mm  
 i 0.5 m = 500 mm

- Challenge 2**
- 1 a 0.4 m    b 0.6 m    c 0.9 m  
 d 2.5 m    e 3.8 m    f 0.5 m  
 g 0.8 m    h 0.9 m

- 2 a 300 mm = 30 cm = 0.3 m  
 b 60 cm = 600 mm = 0.6 m  
 c 0.5 m = 50 cm = 500 mm  
 d 700 mm = 70 cm = 0.7 m  
 e 80 cm = 800 mm = 0.8 m  
 f 2.4 m = 240 cm = 2400 mm

- 3 a 420 cm    b 810 cm  
 c 570 cm    d 390 cm
- 4 a 600 mm    b 1300 mm  
 c 2800 mm    d 3500 mm

- Challenge 3** height = 0.9 m    width = 1.2 m

#### Lesson 3: Fixing the fence in metres

- Challenge 1**
- a A 24 mm    B 35 mm  
 C 42 mm    D 57 mm  
 b A 2 cm    B 4 cm  
 C 4 cm    D 6 cm

- Challenge 2**
- 1 a P 13 cm    Q 15 cm    R 17 cm  
 S 21 cm    T 25 cm  
 b P 10 cm    Q 20 cm    R 20 cm  
 S 20 cm    T 30 cm

- 2 a 16 m    b 18 m    c 30 m  
 3

Length of roll of wire mesh	Rounded to nearest:	
	10 cm	metre
A 472 cm	470 cm	5 m
B 274 cm	270 cm	3 m
C 742 cm	740 cm	7 m
D 427 cm	430 cm	4 m
E 724 cm	720 cm	7 m
F 247 cm	250 cm	2 m *

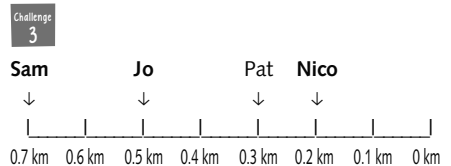
\* 247 cm rounds down to 2 m

- Challenge 3** Rolls B, E and F total 1245 cm. This gives a minimum wastage of 45 cm.

#### Lesson 4: On the map measures

- Challenge 1**
- a 8.9 km    b 8.6 km    c 2.2 km  
 d 6.4 km    e 8.9 km

- Challenge 2**
- 1 a 40.6 m    b 3 times taller  
 2 a 4.4 km    b 22 km  
 3 11.7 km



### Unit 7, Week 1: Number – Addition and subtraction

#### Lesson 1: Adding mentally

- Challenge 1**
- 1 a 584                      e 702  
 b 577                      f 822  
 c 927                      g 982  
 d 712                      h 951
- 2 a 658                      e 893  
 b 712                      f 911  
 c 801                      g 1044  
 d 905                      h 1175



- Challenge 2**
- 1 a 1052 e 1016  
 b 1043 f 1212  
 c 1005 g 1018  
 d 1126 h 1039
- 2 a 1105 e 1345  
 b 1093 f 1563  
 c 1231 g 1598  
 d 1302 h 1739

- Challenge 3**
- 1 a 1646 e 1889  
 b 1638 f 1961  
 c 1742 g 2645  
 d 1824 h 3168
- 2 a 1515 e 1977  
 b 1694 f 2244  
 c 1807 g 2542  
 d 1928 h 2908

**Lesson 2: Subtracting mentally**

- Challenge 1**
- 1 a 527 e 592  
 b 574 f 727  
 c 564 g 453  
 d 149 h 672
- 2 a 523 e 525  
 b 477 f 487  
 c 452 g 622  
 d 576 h 498

- Challenge 2**
- 1 a 1236 e 1366  
 b 1179 f 1179  
 c 1365 g 1452  
 d 1151 h 1083
- 2 a 1212 e 1216  
 b 1055 f 1248  
 c 1253 g 1117  
 d 1222 h 1193

- Challenge 3**
- 1 a 1124 e 1322  
 b 1342 f 1375  
 c 1513 g 1827  
 d 1157 h 1981
- 2 a 1219 e 888  
 b 1248 f 1226  
 c 1155 g 1768  
 d 1137 h 1912

**Lesson 3: Writing 2-step problems**

- Challenge 1**
- 1 a 317 c 682  
 b 788 d 471
- 2 No answers

- Challenge 2**
- 1 a 1033 c 1065  
 b 202
- 2 No answers
- 3 Answers will vary.

- Challenge 3**
- 1 Answers will vary.  
 2 No answers

**Lesson 4: Written addition (3)**

- Challenge 1**
- a 727 g 1376  
 b 795 h 1575  
 c 970 i 1298  
 d 937 j 1467  
 e 1025 k 1003  
 f 983 l 957

- Challenge 2**
- 1 a 2622 g 7374  
 b 3160 h 5432  
 c 4345 i 6260  
 d 4761 j 7183  
 e 6075 k 9980  
 f 5465 l 9035
- 2 No answers

- Challenge 3**
- 1 a 4190 g 9641  
 b 5230 h 9621  
 c 5231 i 9576  
 d 6231 j 9692  
 e 8513 k 10275  
 f 9162 l 12217
- 2 No answers

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

**Lesson 1: Written addition (4)**

- Challenge 1**
- 1 a 805 c 935  
 b 908 d 873
- 2 a 1273 c 1365  
 b 1305 d 1555

- Challenge 2**
- 1 a 5060 e 5530  
 b 5409 f 6381  
 c 4921 g 7090  
 d 6172 h 9180
- 2 a 7341 c 6121  
 b 8223 d 8122

- Challenge 3**
- 1 a 9121 c 7854  
 b 9111 d 9010
- 2 No answers  
 3 Answers will vary.

**Lesson 2: Written subtraction (3)**

- Challenge 1**
- a 274 g 516  
 b 355 h 327  
 c 394 i 284  
 d 382 j 237  
 e 362 k 477  
 f 574 l 314

- Challenge 2**
- 1 a 1838 g 3638  
 b 1379 h 4698  
 c 2775 i 1838  
 d 2189 j 2831  
 e 2826 k 3919  
 f 1637 l 5376
- 2 No answers

- Challenge 3**
- 1 a 3919 e 3669  
 b 2439 f 5678  
 c 649 g 6868  
 d 4891 h 4577
- 2 No answers  
 3 Answers will vary.

**Lesson 3: Written subtraction (4)**

- Challenge 1**
- a 831 g 2793  
 b 782 h 2259  
 c 2104 i 2938  
 d 1648 j 2548  
 e 2473 k 2828  
 f 1578 l 1847

- Challenge 2**
- 1 a 2789 g 3773  
 b 2798 h 4767  
 c 3868 i 3667  
 d 3059 j 2888  
 e 3688 k 3798  
 f 1879 l 1689
- 2 No answers

- Challenge 3**
- 1 a 3919 g 6868  
 b 2439 h 4577  
 c 649 i 7879  
 d 4891 j 3359  
 e 3669 k 3876  
 f 5678 l 4577
- 2 No answers  
 3 Answers will vary.  
 4 Answers will vary.

**Lesson 4: Football problems**

- Challenge 1**
- 1 717 people  
 2 186 fans  
 3 522 fans  
 4 £718

- Challenge 2**
- 1 4656 fans  
 2 £910  
 3 1138 children  
 4 8506 fans

- Challenge 3**
- 1 1360 fans  
 2 4785 hot dogs  
 3 10306 fans

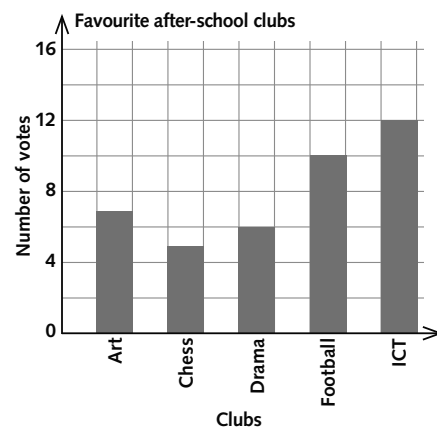
**Unit 7, Week 3: Statistics**

**Lesson 1: Sports bar charts**

**Challenge 1**

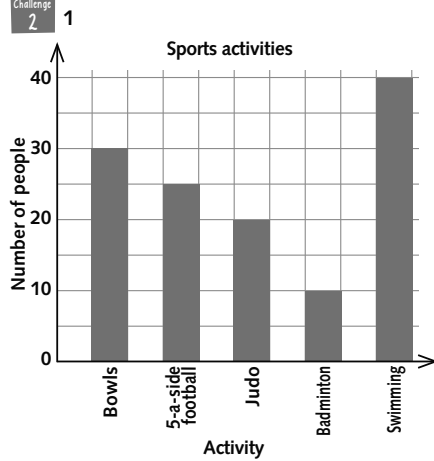
Club	Frequency
Art	7
Chess	5
Drama	6
Football	10
ICT	12

**Challenge 2**



- 3 a ICT b Chess  
 4 a 5 b 6  
 5 40

Challenge 2



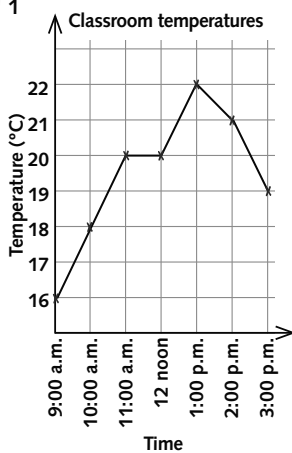
- 2 a Swimming      b Badminton  
 3 a 5 people      b 20 people  
 4 20 people

Challenge 3

- a Weeks 1–2: Ran 5 miles per week. Weeks 3–6: Increased by 5 miles per week to 25 miles in week 6.  
 b Reasons will vary. They may include possible illness, injury, holiday or other reasons.

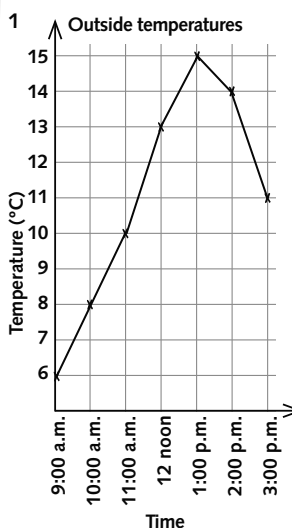
Lesson 2: School time graphs

Challenge 1



- 2 a 1:00 p.m.      b 9:00 a.m.  
 3 11:00 a.m. and 12:00 noon  
 4 1:00 p.m.

Challenge 2



- 2 a 9:00 a.m.      b 1:00 p.m.  
 3 a between 11:00 a.m. and 12:00 noon  
    b between 2:00 p.m. and 3:00 p.m.  
 4 between 11:00 a.m. and 3:00 p.m.

Challenge 3

- 1 a Temperature rose by 9 °C from 16 °C at 10:30 a.m. to 25 °C at 12:00 noon and then fell by 8 °C to 17 °C at 1:00 p.m.  
 b 24 °C

Lesson 3: Football pictograms and bar charts

Challenge 1

Distance	Number of players
20 m	5
25 m	10
30 m	15
35 m	12
40 m	8

- 2 30 m  
 3 a 15 players      b 20 players  
 4 50 players

Challenge 2

Player	Number of goals
Angela	11
Ashrif	17
Jackie	16
Jordan	22
Simon	14

- 2 a Jordan      b 6      c 38      d 8  
    e 8      f 80

Challenge 3

Answers will vary.

Lesson 4: Holiday in Orlando

Challenge 1

- 1 a 18 °C      b 19 °C  
 2 a 21 °C      b 22 °C  
 3 between 4 and 5 hours into flight  
 4 3 °C  
 5 23 °C

Challenge 2

Time (minutes)	Petrol (litres)
0	60
20	56
40	52
60	48
80	42
100	42
120	36

- 2 a 48 litres      b 36 litres  
 3 24 litres  
 4 80 min

Challenge 3

- 1 a between Monday and Tuesday  
    b between Wednesday and Thursday  
 2 The temperature fell from 26 °C on Thursday to 21 °C on Friday before rising to 25 °C on Saturday.

Unit 8, Week 1: Number – Multiplication and division

Lesson 1: Multiplication HTO × O using partitioning

Challenge 1

- 1a 14      b 140      c 1400  
 2a 32      b 320      c 3200  
 3a 28      b 280      c 2800  
 4a 54      b 540      c 5400  
 5a 49      b 490      c 4900  
 6a 72      b 720      c 7200

Challenge 2

- a 999      d 688  
 b 486      e 828  
 c 1288      f 1866

Challenge 3

- a 2000      b 1868      c 2800      d 1200      e 2700  
 f 4900      g 3500      h 6400      i 7200      j 4800  
 k 4837      l 3420      m 6352      n 7335      o 4872

Lesson 2: Multiplication HTO × O using partitioning and the grid method

Challenge 1

- a 400 ← 476 → 500  
 b 700 ← 753 → 800  
 c 100 ← 138 → 200  
 d 800 ← 832 → 900  
 e 200 ← 216 → 300  
 f 900 ← 911 → 1000  
 g 600 ← 694 → 700  
 h 300 ← 374 → 400  
 i 500 ← 585 → 600  
 j 600 ← 647 → 700

Challenge 2

Answers will vary.

Challenge 3

Three of answers are 1872 but  $732 \times 2 = 1464$ .

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

Challenge 1

- a 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300  
 b 40, 80, 120, 160, 200, 240, 280, 320, 360, 400, 440, 480  
 c 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720  
 d 80, 160, 240, 320, 400, 480, 560, 640, 720, 800, 880, 960  
 e 90, 180, 270, 360, 450, 540, 630, 720, 810, 900, 990, 1080

Challenge 2

- 1 a 900      b 2800      c 6300      d 6000  
    e 2500      f 7200      g 4800      h 3500  
 2 a 1038      b 2692      c 6588      d 5916  
    e 2740      f 7104      g 5176      h 3735

Challenge 3

Answers may vary but could include: e is the odd one out because it is divisible by 10; h is the odd one out because its answer is odd not even.

**Lesson 4: Solving word problems**

- Challenge 1**
- |     |     |
|-----|-----|
| a × | e ÷ |
| b × | f + |
| c × | g − |
| d − | h ÷ |

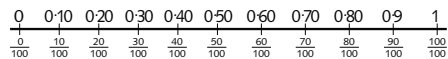
**Challenge 2** Answers will vary.

- Challenge 3**
- £450
  - £46
  - £1112
  - £1140
  - £140
  - £60

**Unit 8, Week 2: Number – Decimals**

**Lesson 1: Decimal hundredths**

- Challenge 1**
- |                             |                           |
|-----------------------------|---------------------------|
| 1 a $\frac{14}{100} = 0.14$ | c $\frac{51}{100} = 0.51$ |
| b $\frac{45}{100} = 0.45$   | d $\frac{74}{100} = 0.74$ |
- 2



- Challenge 2**
- |          |        |
|----------|--------|
| 1 a 0.07 | e 0.56 |
| b 0.18   | f 0.63 |
| c 0.22   | g 0.76 |
| d 0.48   | h 0.81 |
- |           |         |
|-----------|---------|
| 2 a £0.26 | e £0.65 |
| b £0.37   | f £0.77 |
| c £0.44   | g £0.84 |
| d £0.57   | h £0.99 |

- Challenge 3**
- |          |        |
|----------|--------|
| 1 a 1.34 | e 4.03 |
| b 2.48   | f 4.95 |
| c 2.81   | g 5.72 |
| d 3.75   | h 5.83 |
- |          |        |
|----------|--------|
| 2 a 0.15 | f 1.03 |
| b 0.28   | g 1.12 |
| c 0.53   | h 1.47 |
| d 0.65   | i 1.79 |
| e 0.90   | j 1.91 |

**Lesson 2: Comparing decimals (2)**

- Challenge 1**
- |        |      |      |      |      |      |
|--------|------|------|------|------|------|
| a 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 |
| b 0.46 | 0.47 | 0.48 | 0.49 | 0.50 | 0.51 |
| c 1.25 | 1.26 | 1.27 | 1.28 | 1.29 | 1.30 |
| d 2.76 | 2.77 | 2.78 | 2.79 | 2.80 | 2.81 |
| e 3.88 | 3.89 | 3.90 | 3.91 | 3.92 | 3.93 |
| f 3.59 | 3.60 | 3.61 | 3.62 | 3.63 | 3.64 |
| g 4.01 | 4.02 | 4.03 | 4.04 | 4.05 | 4.06 |
| h 4.38 | 4.39 | 4.40 | 4.41 | 4.42 | 4.43 |
| i 4.72 | 4.73 | 4.74 | 4.75 | 4.76 | 4.77 |
| j 5.09 | 5.10 | 5.11 | 5.12 | 5.13 | 5.14 |

- Challenge 2**
- |          |      |      |      |      |
|----------|------|------|------|------|
| 1 a 1.15 | 1.27 | 1.35 | 1.63 | 1.82 |
| b 2.16   | 2.19 | 2.44 | 2.82 | 2.95 |
| c 3.15   | 3.27 | 3.29 | 3.38 | 3.84 |
| d 3.11   | 3.32 | 3.38 | 3.71 | 3.89 |
- |          |      |      |
|----------|------|------|
| 2 a 2.12 | 2.13 | 2.14 |
| b 2.68   | 2.69 | 2.70 |
| c 2.80   | 2.81 | 2.82 |
| d 3.03   | 3.04 | 3.05 |
| e 3.71   | 3.72 | 3.73 |

- Challenge 3**
- Answers will vary.
  - |               |
|---------------|
| a 2.65 < 2.78 |
| b 2.12 > 2.02 |
| c 2.10 < 2.16 |
| d 3.41 > 3.14 |
| e 4.83 > 4.38 |
| f 5.27 < 5.29 |
| g 7.62 > 7.25 |
| h 9.99 > 9.89 |

**Lesson 3: Dividing by 10**

- Challenge 1**
- |         |       |
|---------|-------|
| 1 a 0.4 | e 0.1 |
| b 0.3   | f 0.7 |
| c 0.9   | g 0.2 |
| d 0.6   | h 0.8 |

2 An answer that shows the change in place value.

- Challenge 2**
- |         |       |
|---------|-------|
| 1 a 2.6 | e 3.7 |
| b 1.8   | f 8.1 |
| c 4.2   | g 5.5 |
| d 5.9   | h 8.7 |

2 An answer that shows the change in place value.

- Challenge 3**
- |         |       |
|---------|-------|
| 1 a 6.3 | e 5.9 |
| b 9.8   | f 7.7 |
| c 0.5   | g 4.6 |
| d 6.2   | h 1.5 |
- |          |        |
|----------|--------|
| 2 a 14.5 | d 37.4 |
| b 18.6   | e 59.8 |
| c 25.6   | f 60.1 |

3 An answer that shows the change in place value.

**Lesson 4: Dividing by 100**

- Challenge 1**
- |          |        |
|----------|--------|
| 1 a 0.04 | e 0.01 |
| b 0.03   | f 0.07 |
| c 0.09   | g 0.02 |
| d 0.06   | h 0.08 |

2 An answer that shows the change in place value.

- Challenge 2**
- |          |        |
|----------|--------|
| 1 a 0.43 | e 0.81 |
| b 0.27   | f 0.74 |
| c 0.35   | g 0.62 |
| d 0.57   | h 0.94 |

2 An answer that shows the change in place value.

- Challenge 3**
- |          |        |
|----------|--------|
| 1 a 0.39 | e 0.84 |
| b 0.07   | f 0.71 |
| c 0.28   | g 0.65 |
| d 0.99   | h 0.53 |
- |          |        |
|----------|--------|
| 2 a 1.72 | d 5.74 |
| b 3.85   | e 6.58 |
| c 3.91   | f 7.01 |

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

**Lesson 1: Perimeter of rectangles**

- Challenge 1**
- |         |         |
|---------|---------|
| a 12 cm | d 12 cm |
| b 14 cm | e 20 cm |
| c 16 cm |         |

- Challenge 2**
- |        |        |
|--------|--------|
| a 28 m | d 36 m |
| b 24 m | e 38 m |
| c 28 m |        |

- Challenge 3**
- |                 |
|-----------------|
| 3 a 5 cm × 7 cm |
| b 5 cm × 4 cm   |
| c 5 cm × 5 cm   |

**Lesson 2: Counting squares for area**

- Challenge 1**
- |     |      |
|-----|------|
| a 8 | c 12 |
| b 9 | d 6  |

- Challenge 2**
- |       |      |
|-------|------|
| 1 A 6 | D 18 |
| B 12  | E 8  |
| C 10  | F 9  |

- |       |     |
|-------|-----|
| 2 a A | c F |
| b D   | d A |

**Challenge 3** 1, 2, 3, 4

R	R	Y	Y	Y
R	Y	Y	G	B
R	G	G	G	B
R	G	B	B	B

5 area = 20 square units  
perimeter = 18 units

**Lesson 3: Finding area**

- Challenge 1**
- |              |              |
|--------------|--------------|
| a 21 squares | d 12 squares |
| b 14 squares | e 12 squares |
| c 8 squares  |              |

- Challenge 2**
- |             |              |
|-------------|--------------|
| a 8 squares | d 11 squares |
| b 6 squares | e 9 squares  |
| c 6 squares |              |

- Challenge 3**
- |                |
|----------------|
| a 12 square cm |
| b 28 square cm |
| c 45 square cm |

**Lesson 4: Calculating area**

- Challenge 1**
- |               |               |
|---------------|---------------|
| a 6 square cm | c 9 square cm |
| b 8 square cm |               |

- Challenge 2**
- |                |                |
|----------------|----------------|
| a 12 square cm | d 16 square cm |
| b 15 square cm | e 24 square cm |
| c 20 square cm |                |

**Challenge 3** a–e

Square	A	B	C	D	E	F	G	H
Area	1 sq cm	4 sq cm	9 sq cm	16 sq cm	25 sq cm	36 sq cm	49 sq cm	64 sq cm

# Pupil Book 4C

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

### Lesson 1: Get in order

- Challenge 1**
- a 2651, 3762, 4488, 7645, 8625
  - b 5037, 5119, 7282, 7481, 7628
  - c 6064, 6182, 6292, 6339, 6387
  - d 6522, 7612, 7688, 8011, 8632
  - e 7383, 7393, 8363, 8373, 9373
  - f 2048, 2533, 2766, 2812, 2934
  - g 2981, 3277, 3827, 7035, 7129
  - h 5310, 5328, 5387, 5487, 5981

**Challenge 2** Answers will vary.

**Challenge 3** Answers will vary.

### Lesson 2: Rounding to the nearest 10, 100 or 1000

- Challenge 1** 1 and 2
- |   |      |      |      |
|---|------|------|------|
| a | 610  | 614  | 620  |
| b | 780  | 789  | 790  |
| c | 860  | 865  | 870  |
| d | 1360 | 1362 | 1370 |
| e | 1710 | 1718 | 1720 |
| f | 2060 | 2064 | 2070 |
| g | 2630 | 2637 | 2640 |
| h | 3520 | 3525 | 3530 |

- Challenge 2** 1 and 2
- |   |      |      |      |
|---|------|------|------|
| a | 2100 | 2189 | 2200 |
| b | 3500 | 3577 | 3600 |
| c | 6200 | 6252 | 6300 |
| d | 7800 | 7808 | 7900 |
| e | 9400 | 9458 | 9500 |

- 3 and 4
- |   |      |      |       |
|---|------|------|-------|
| a | 2000 | 2768 | 3000  |
| b | 3000 | 3289 | 4000  |
| c | 4000 | 4890 | 5000  |
| d | 4000 | 4178 | 5000  |
| e | 5000 | 5098 | 6000  |
| f | 5000 | 5318 | 6000  |
| g | 6000 | 6588 | 7000  |
| h | 6000 | 6982 | 7000  |
| i | 7000 | 7437 | 8000  |
| j | 9000 | 9534 | 10000 |

- Challenge 3** 1 and 2
- |   |      |      |      |      |      |
|---|------|------|------|------|------|
| a | 4000 | 4500 | 4572 | 4600 | 5000 |
| b | 4000 | 4100 | 4138 | 4200 | 5000 |
| c | 5000 | 5200 | 5269 | 5300 | 6000 |
| d | 4000 | 4700 | 4731 | 4800 | 5000 |
| e | 5000 | 5900 | 5934 | 6000 | 6000 |
| f | 6000 | 6400 | 6495 | 6500 | 7000 |
| g | 7000 | 7000 | 7065 | 7100 | 8000 |
| h | 8000 | 8400 | 8472 | 8500 | 9000 |

3 Answers will vary.

### Lesson 3: Negative numbers (2)

- Challenge 1**
- |   |     |   |     |
|---|-----|---|-----|
| a | -10 | d | -31 |
| b | -13 | e | -36 |
| c | -18 | f | -42 |

- Challenge 2**
- |     |             |   |             |
|-----|-------------|---|-------------|
| 1 a | -12         | d | -41         |
| b   | -15         | e | -32         |
| c   | -20         | f | -38         |
| 2 a | -20         | d | -52         |
| b   | -37         | e | -35         |
| c   | -46         | f | -56         |
| 3 a | -12 degrees | c | -12 degrees |
| b   | -11 degrees | d | +15 degrees |

- Challenge 3**
- |             |             |             |
|-------------|-------------|-------------|
| 1 a         | 5 degrees   | 7 degrees   |
| 2 degrees   | 1 degrees   | 2 degrees   |
| b           | -15 degrees | -13 degrees |
| -18 degrees | -19 degrees | -22 degrees |

2 Answers will vary.

### Lesson 4: Roman numerals

- Challenge 1**
- |     |  |   |      |
|-----|--|---|------|
| 1   | I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX, XX |   |      |
| 2 a | VI   | f | XI   |
| b   | VIII   | g | XVI  |
| c   | IV   | h | XIII |
| d   | V  | i | XVII |
| e   | VII  | j | XV   |

- Challenge 2**
- |   |   |
|---|---|
| 1 | XX, XXI, XXII, XXIII, XXIV, XXV, XXVI, XXVII, XXVIII, XXIX, XXX, XXXI, XXXII, XXXIII, XXXIV, XXXV, XXXVI, XXXVII, XXXVIII, XXXIX, XL, XLI, XLII, XLIII, XLIV, XLV, XLVI, XLVII, XLVIII, XLIX, L |
|---|---|

- |     |        |   |       |
|-----|--------|---|-------|
| 2 a | XVII   | f | XXXVI |
| b   | XXVI   | g | XLI   |
| c   | XXVIII | h | XLIII |
| d   | XXX    | i | XLVI  |
| e   | XXXIV  | j | LI    |

- Challenge 3**
- |   |   |
|---|---|
| 1 | L, LI, LII, LIII, LIV, LV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXIV, LXV, LXVI, LXVII, LXVIII, LXIX, LXX, LXXI, LXXII, LXXIII, LXXIV, LXXV, LXXVI, LXXVII, LXXVIII, LXXIX, LXXX, LXXXI, LXXXII, LXXXIII, LXXXIV, LXXXV, LXXXVI, LXXXVII, LXXXVIII, LXXXIX, XC, XCI, XCII, XCIII, XCIV, XCV, XCVI, XCVII, XCVIII, XCIX, C |
|---|---|

2 Answers will vary.  
3 Answers will vary.

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

### Lesson 1: Written addition (5)

- Challenge 1**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 885  | d | 2687 |
| b   | 857  | e | 3258 |
| c   | 2647 | f | 2823 |
| 2 a | 912  | d | 3641 |
| b   | 942  | e | 4262 |
| c   | 4142 | f | 4171 |

- Challenge 2**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 4221 | d | 8210 |
| b   | 6203 | e | 8111 |
| c   | 6211 | f | 9222 |
| 2 a | 4180 | d | 5394 |
| b   | 2932 | e | 6620 |
| c   | 4015 | f | 7381 |

3 Open

- Challenge 3**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 6262 | e | 5603 |
| b   | 5805 | f | 6241 |
| c   | 7614 | g | 6697 |
| d   | 6451 | h | 8161 |

2 Open  
3 Answers will vary.

### Lesson 2: Written subtraction (5)

- Challenge 1**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 2282 | e | 2833 |
| b   | 1544 | f | 3007 |
| c   | 2108 | g | 3652 |
| d   | 3241 | h | 3441 |

- Challenge 2**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 3739 | e | 5977 |
| b   | 3526 | f | 5678 |
| c   | 4515 | g | 6478 |
| d   | 5111 | h | 6888 |

2 Open

- Challenge 3**
- |     |      |   |      |
|-----|------|---|------|
| 1 a | 6575 | d | 8768 |
| b   | 7788 | e | 8777 |
| c   | 7445 | f | 8689 |

2 Open

3 a 6132    b 4547    c 3701  
Explanations will vary.

### Lesson 3: How many teeth?

**Challenge 1** Answers will vary.

**Challenge 2** Answers will vary.

**Challenge 3** Answers will vary.

### Lesson 4: Ordering and adding money

- Challenge 1**
- |     |  |
|-----|--|
| 1 a | £5.05, £5.15, £5.50, £5.80, £8.08, £8.50       |
| b   | £12.04, £12.34, £12.40, £13.04, £13.20, £13.42 |

2 a £37.50    c £76.70  
b £42.80

3 a £64.57    c £93.99  
b £92.79

- Challenge 2**
- |     |  |
|-----|--|
| 1 a | £45.07, £45.10, £45.99, £54.00, £54.39, £54.93 |
| b   | £94.00, £94.01, £94.05, £94.15, £94.51, £94.55 |

2 a £115.70    c £192.60  
b £117.65

3 a £132.93    c £459.37  
b £159.22

**Challenge 3** 1 Answers will vary.

2 Answers will vary.

3 Answers will vary.

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

#### Lesson 1: All sorts of triangles

Challenges 1, 2

Equilateral: 3 sides equal	<b>B</b>
Isosceles: 2 sides equal	<b>F</b>
Scalene: No sides equal	<b>A, C, D, E</b>

Challenge 2

- 1, 2 Completed right-angled triangles  
 3 a A, B, C, D    b A, C

Challenge 3

There are five different isosceles triangles.

#### Lesson 2: Parallelogram and rhombus

Challenge 1

square	rectangle	rhombus	parallelogram
<b>B, G</b>	<b>A, E</b>	<b>D, I</b>	<b>C, F, H, J</b>

Challenge 2

Quadrilateral	Opposite sides equal	Opposite sides parallel	Opposite angles equal	All sides equal	4 right angles
square	✓	✓	✓	✓	✓
rectangle	✓	✓	✓	✗	✓
parallelogram	✓	✓	✓	✗	✗
rhombus	✓	✓	✓	✓	✗

Challenge 3

- 1 No answers  
 2 a Parallelogram moves 1 dot to right each time.  
 b Rhombus moves 2 dots to right each time.  
 3 A Only the first shape has line symmetry.  
 B All shapes have 2 lines of symmetry.

#### Lesson 3: Trapezium and kite

Challenges 1, 2

- 1 trapezium: A, B, E, G  
 kite: C, D, F

- 2 Children's drawings of:  
 a three different trapeziums  
 b three different kites

Challenge 2

- 1 a A, B, E, G    b C, D, F    c B, C, D, F, G  
 d A, C    e B, E, G

Challenge 3

- 1, 2 Children's colouring to show:  
 a two different trapeziums  
 b two different kites

#### Lesson 4: Know your quadrilaterals

Challenges 1, 2

- 1 A isosceles trapezium    D kite  
 B parallelogram    E trapezium  
 C rhombus  
 2 Quadrilaterals from question 1 with:  
 a equal sides marked  
 b equal angles marked

Challenge 2

	A	B	C	D	E
1 or more lines of symmetry	✓	✗	✓	✓	✗
Opposite sides equal	✗	✓	✓	✗	✗
Adjacent sides equal	✗	✗	✓	✓	✗
At least 1 pair of opposite sides parallel	✓	✓	✓	✗	✓
Opposite angles equal	✗	✓	✓	✗	✗
At least 1 pair of perpendicular sides	✗	✗	✗	✓	✓

Challenge 3

- a Two similarities and two differences between a rectangle and parallelogram  
 b Two similarities and two differences between a parallelogram and rhombus

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

#### Lesson 1: Multiplication HTO × O using the formal written method

Challenge 1

- 800 ← 851 → 900,  
 600 ← 633 → 700,  
 100 ← 163 → 200,  
 700 ← 752 → 800,  
 200 ← 271 → 300,  
 900 ← 917 → 1000,  
 500 ← 543 → 600,  
 300 ← 325 → 400,  
 200 ← 229 → 300,  
 400 ← 426 → 500

Challenge 2

Answers will vary.

Challenge 3

1152	2352
144   8	336   7
36   4   2	48   7   1
1152	1424
192   6	178   8
64   3   2	89   2   4

#### Lesson 2: Multiplication HTO × O using the formal written method (2)

Challenge 1

- 1 a 30: 270, 240, 210, 180, 150, 120, 90.  
 b 60: 600, 540, 480, 420, 360, 300, 240.  
 c 90: 810, 720, 630, 540, 450, 360, 270.  
 d 40: 440, 400, 360, 320, 280, 240, 200.

2 Answers will vary.

Challenge 2

- 1 a 600    e 2400  
 b 3200    f 3500  
 c 6300    g 2500  
 d 4200    h 5600  
 2 a 738    e 2104  
 b 3396    f 3311  
 c 6183    g 2745  
 d 4104    h 5888

Challenge 3

- 1 a 5    d 3  
 b 4    e 5  
 c 6    f 2

#### Lesson 3: Multiplication HTO × O using the most efficient method

Challenge 1

- 1 a 16    b 160    c 1600  
 2 a 28    b 280    c 2800  
 3 a 42    b 420    c 4200  
 4 a 72    b 720    c 7200  
 5 a 63    b 630    c 6300  
 6 a 30    b 300    c 3000

Challenge 2

Mental  
 233 × 3 = 699, 432 × 3 = 1296,  
 655 × 4 = 2620, 632 × 3 = 1896,  
 434 × 2 = 868, 513 × 3 = 1539,  
 754 × 2 = 1508,  
 Written  
 746 × 8 = 5968, 869 × 7 = 6083,  
 637 × 8 = 5096, 779 × 9 = 7011,  
 856 × 7 = 5992

Challenge 3

Game

#### Lesson 4: Solving word problems (3)

Challenge 1

- 1 a 24    b 48    c 42    d 54  
 2 a 54    b 81    c 63    d 72  
 3 a 63    b 56    c 42    d 49

Challenge 2

- 1 £2490  
 2 £1734  
 3 £3873  
 4 £413  
 5 £994  
 6 £2700  
 7 £160

Challenge 3

Answers will vary.

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

#### Lesson 1: Equivalent fractions (3)

Challenge 1

- 1 a  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$   
 b  $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20}$

2 Answers will vary.

Challenge 2

- 1 a  $\frac{1}{5} = \frac{2}{10} = \frac{3}{15} = \frac{4}{20} = \frac{5}{25} = \frac{6}{30}$   
 b  $\frac{1}{6} = \frac{2}{12} = \frac{3}{18} = \frac{4}{24} = \frac{5}{30} = \frac{6}{36}$   
 c  $\frac{1}{7} = \frac{2}{14} = \frac{3}{21} = \frac{4}{28} = \frac{5}{35} = \frac{6}{42}$   
 d  $\frac{1}{8} = \frac{2}{16} = \frac{3}{24} = \frac{4}{32} = \frac{5}{40} = \frac{6}{48}$

- 2 a  $\frac{9}{18} = \frac{1}{2}$     g  $\frac{6}{60} = \frac{1}{10}$   
 b  $\frac{6}{24} = \frac{1}{4}$     h  $\frac{4}{48} = \frac{1}{12}$   
 c  $\frac{7}{28} = \frac{1}{4}$     i  $\frac{9}{45} = \frac{1}{5}$   
 d  $\frac{8}{40} = \frac{1}{5}$     j  $\frac{7}{77} = \frac{1}{11}$   
 e  $\frac{9}{54} = \frac{1}{6}$     k  $\frac{7}{77} = \frac{1}{11}$   
 f  $\frac{8}{56} = \frac{1}{7}$     l  $\frac{20}{70} = \frac{2}{7}$

- Challenge 3**
- 1 a  $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15} = \frac{12}{18}$   
 b  $\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20} = \frac{15}{25} = \frac{18}{30}$   
 2 a  $\frac{12}{60} = \frac{1}{5}$  f  $\frac{32}{36} = \frac{8}{9}$   
 b  $\frac{10}{18} = \frac{5}{9}$  g  $\frac{54}{90} = \frac{6}{10}$   
 c  $\frac{15}{25} = \frac{3}{5}$  h  $\frac{44}{99} = \frac{4}{9}$   
 d  $\frac{36}{42} = \frac{6}{7}$  i  $\frac{12}{21} = \frac{4}{7}$   
 e  $\frac{20}{50} = \frac{2}{5}$  j No answer
- 3 Answers will vary.

**Lesson 2: Adding fractions**

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

- Challenge 2**
- a  $\frac{4}{7}$  f  $\frac{9}{12}$   
 b  $\frac{7}{8}$  g  $1\frac{3}{10}$   
 c  $\frac{7}{9}$  h  $1\frac{3}{9}$   
 d  $\frac{9}{10}$  i  $1\frac{2}{3}$   
 e 1 j  $1\frac{1}{2}$

- Challenge 3**
- 1 a  $1\frac{13}{14}$  f  $1\frac{2}{14}$   
 b 1 g  $1\frac{3}{17}$   
 c  $1\frac{1}{15}$  h  $\frac{46}{100}$   
 d  $\frac{37}{100}$  i  $1\frac{3}{20}$   
 e  $1\frac{2}{16}$  j  $1\frac{2}{18}$

- 2 a  $\frac{8}{6} = \frac{4}{3} + \frac{2}{3} = 1\frac{2}{3}$   
 b  $\frac{12}{7} = \frac{7}{7} + \frac{5}{7} = 1\frac{5}{7}$   
 c  $\frac{13}{9} = \frac{9}{9} + \frac{4}{9} = 1\frac{4}{9}$   
 d  $\frac{8}{5} = \frac{5}{5} + \frac{3}{5} = 1\frac{3}{5}$   
 e  $\frac{16}{10} = \frac{10}{10} + \frac{6}{10} = 1\frac{6}{10}$   
 f  $\frac{14}{12} = \frac{12}{12} + \frac{2}{12} = 1\frac{2}{12}$   
 g  $\frac{5}{4} = \frac{4}{4} + \frac{1}{4} = 1\frac{1}{4}$   
 h  $\frac{11}{8} = \frac{8}{8} + \frac{3}{8} = 1\frac{3}{8}$   
 i  $\frac{17}{11} = \frac{11}{11} + \frac{6}{11} = 1\frac{6}{11}$   
 j  $\frac{16}{9} = \frac{9}{9} + \frac{7}{9} = 1\frac{7}{9}$

**Lesson 3: Subtracting fractions**

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

- Challenge 2**
- a  $\frac{5}{9}$  f  $\frac{5}{6}$   
 b  $\frac{3}{13}$  g  $\frac{4}{5}$   
 c  $\frac{4}{10}$  h  $\frac{4}{8}$   
 d  $\frac{2}{7}$  i  $\frac{12}{15}$   
 e  $\frac{7}{12}$  j  $\frac{1}{9}$

- Challenge 3**
- 1 a  $\frac{7}{6}$  e  $\frac{2}{14}$   
 b  $\frac{4}{8}$  f  $\frac{10}{10}$   
 c  $\frac{8}{13}$  g  $\frac{93}{100}$   
 d  $\frac{4}{10}$  h  $\frac{4}{20}$

- 2 a  $\frac{14}{6} = \frac{6}{6} + \frac{6}{6} + \frac{2}{6} = 2\frac{2}{6}$   
 b  $\frac{13}{5} = \frac{5}{5} + \frac{5}{5} + \frac{3}{5} = 2\frac{3}{5}$   
 c  $\frac{15}{14} = \frac{14}{14} + \frac{1}{14} = 1\frac{1}{14}$   
 d  $\frac{11}{4} = \frac{4}{4} + \frac{4}{4} + \frac{3}{4} = 2\frac{3}{4}$   
 e  $\frac{26}{10} = \frac{10}{10} + \frac{10}{10} + \frac{6}{10} = 2\frac{6}{10}$   
 f  $\frac{7}{3} = \frac{3}{3} + \frac{3}{3} + \frac{1}{3} = 2\frac{1}{3}$

- g  $\frac{19}{8} = \frac{8}{8} + \frac{8}{8} + \frac{3}{8} = 2\frac{3}{8}$   
 h  $\frac{9}{4} = \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 2\frac{1}{4}$   
 i  $\frac{16}{8} = \frac{7}{7} + \frac{7}{7} + \frac{2}{7} = 2\frac{2}{7}$

**Lesson 4: Table fractions**

- Challenge 1**
- 1 a  $\frac{1}{2}$  each  
 b  $\frac{1}{3}$  each  
 2 a  $\frac{1}{3}$  each  
 b  $\frac{2}{5}$  each  
 3 a  $\frac{1}{4}$  each  
 b  $\frac{1}{2}$  each

- Challenge 2**
- 1 a  $\frac{1}{2}$  each  
 b  $\frac{1}{2}$  each  
 c  $\frac{3}{4}$  each  
 2 a  $\frac{1}{3}$  each  
 b 1 each  
 c  $\frac{3}{5}$  each  
 3 a 1 bar  
 b  $\frac{2}{3}$  each  
 c  $\frac{1}{2}$  each

- Challenge 3**
- 1 a  $\frac{1}{2}$ , 75 cm  
 b  $\frac{1}{4}$ , 50 cm  
 c  $\frac{1}{6}$ , 50 cm  
 2 a All, 150 cm  
 b  $\frac{1}{8}$ , 25 cm  
 c  $\frac{1}{3}$ , 100 cm

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

**Lesson 1: Filling station litres**

- Challenge 1**
- a 2000 l / 400 ml, 2 l / 400 ml,  $2\frac{4}{10}$  l, 2.4 l  
 b 4000 l / 500 ml, 4 l / 500 ml,  $4\frac{5}{10}$  l, 4.5 l  
 c 5000 l / 300 ml, 5 l / 300 ml,  $5\frac{3}{10}$  l, 5.3 l  
 d 9000 l / 800 ml, 9 l / 800 ml,  $9\frac{8}{10}$  l, 9.8 l

- Challenge 2**
- 1 a 3.5 l d 1.9 l  
 b 2.7 l e 5.6 l  
 c 4.2 l f 6.8 l  
 2 a 6.25 l d 8.98 l  
 b 9.75 l e 7.02 l  
 c 6.5 l f 10.05 l

- Challenge 3**
- Fill 5 l jug, pour into 3 l jug.  
 Empty 3 l jug into large jug.  
 Pour remaining 2 l from 5 l jug into 3 l jug.  
 3 l jug now holds 2 l.  
 Refill 5 l jug, pour 1 l into 3 l jug.  
 5 l jug now holds 4 l.

**Lesson 2: Science lab litres**

- Challenge 1**
- a 4250 ml d 5340 ml  
 b 3690 ml e 3080 ml  
 c 2730 ml
- Challenge 2**
- a 250 ml + 750 ml or 2 x 500 ml  
 b 500 ml + 2 x 250 ml  
 c 4 x 250 ml  
 d 750 ml + 100 ml + 3 x 50 ml or  
 500 ml + 250 ml + 2 x 100 ml + 50 ml

- Challenge 3**
- Monday 2000 ml  
 Tuesday 1800 ml  
 Wednesday 1600 ml  
 Thursday 2500 ml  
 Friday 1700 ml

**Lesson 3: Estimating and rounding capacity**

- Challenges 1, 2**
- 1 a 900 ml c 400 ml  
 b 700 ml d 500 ml  
 2 a 4 l b 5 l  
 c 3 l d 7 l

- Challenge 2**
- a A 0.46 l C 0.22 l  
 B 0.18 l D 0.34 l  
 b A 500 ml C 200 ml  
 B 200 ml D 300 ml

**Challenge 3**

	Capacity in ml	Rounded to nearest		Capacity in litres
		10 ml	100 ml	
	1385	1390	1400	1.4
a	1612	1610	1600	1.6
b	1775	1780	1800	1.8
c	1990	1990	2000	2
d	2235	2240	2200	2.2

**Lesson 4: Litres of juice**

- Challenge 1**
- a 10 times b 8 times c 6 times

**Challenges 2, 3**

	Blackcurrant juice	Water	Amount of juice made
	0.1 l	0.4 l	0.5 l
	0.15 l	0.6 l	0.75 l
	0.25 l	1 l	1.25 l
	0.33 l	1.32 l	1.65 l
	0.5 l	2 l	2.5 l
	0.67	2.68 l	3.35 l
	0.75 l	3 l	3.75 l
	1.5 l	6 l	7.5 l

- Challenge 3**
- a 1.98 l b 19.8 l

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

**Lesson 1: Meet the target (1)**

- 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.

**Lesson 2: Meet the target (2)**

- 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.

**Lesson 3: Ordering and subtracting money**

- Challenge 1**  
 1 Answers will vary.  
 2 a £4.70            c £8.40  
    b £10.60  
 3 a £16.12        c £7.23  
    b £21.36

- Challenge 2**  
 1 Answers will vary.  
 2 a £25.50        c £26.40  
    b £33.80  
 3 a £27.20        c £26.36  
    b £7.22

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

**Lesson 4: Lunch problems**

**Challenges 1, 2, 3**  
 Chris had granary roll with cheese.  
 Marsha had brown bread with beef  
 Joe had white bread with tuna

**Challenges 2, 3**  
 Chris paid £1.95  
 Marsha paid £2.65  
 Joe paid £2.43  
 Chris got 5p change.  
 Marsha got £2.35 change.  
 Joe got £7.57 change.

**Challenge 3**  
 Answers will vary.

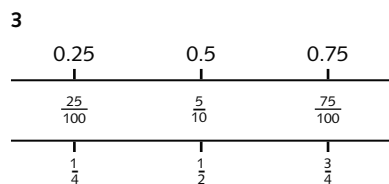
**Unit II, Week 2: Number – Decimals**

**Lesson 1: Decimal tenths and hundredths**

- Challenge 1**  
 1 a 0.2            e 0.6  
    b 0.3            f 0.7  
    c 0.4            g 0.8  
    d 0.5            h 0.9  
 2 a  $\frac{37}{100} = 0.37$     d  $\frac{26}{100} = 0.26$   
    b  $\frac{82}{100} = 0.82$     e  $\frac{74}{100} = 0.74$   
    c  $\frac{23}{100} = 0.23$

- Challenge 2**  
 1 a 0.7            e 0.71  
    b 0.5            f 0.12  
    c 0.3            g 0.63  
    d 0.9            h 0.58

- 2 a  $\frac{4}{10}$             e  $\frac{3}{10}$   
    b  $\frac{1}{10}$             f  $\frac{28}{100}$   
    c  $\frac{8}{10}$             g  $\frac{17}{100}$   
    d  $\frac{2}{10}$             h  $\frac{55}{100}$



- Challenge 3**  
 1 a 3.05            e 3.65  
    b 3.2            f 3.7  
    c 3.41            g 3.75  
    d 3.52            h 3.88

**Lesson 2: Comparing and rounding decimals**

- Challenge 1**  
 1 a 4.2            to 4.3  
    b 3.65          to 3.75  
    c 4.18          to 4.28  
    d 7.1            to 7.2  
    e 5.53          to 5.63  
    f 7.26          to 7.36  
    g 8.5            to 8.6  
    h 9.41          to 9.51  
    i 11.3          to 12.3  
    j 12.5          to 13.5

- 2 a 3            f 10  
    b 4            g 13  
    c 8            h 12  
    d 8            i 15  
    e 10          j 15

- Challenge 2**  
 1 a 4.1    4.4    4.5    4.7    4.9  
    b 6.08    6.18    6.48    6.87    6.88  
    c 7.21    7.48    7.53    8.05    8.14    8.46  
    d 12.18    12.46    12.64    12.66    12.81    12.83  
    e 16.01    16.11    16.16    16.61    16.66  
    f 18.3    18.4    18.7    19.1    19.5

- 2 a (13)    13.4    14  
    b (18)    18.2    19  
    c 16      16.9    (17)  
    d (11)    11.1    12  
    e 15      15.7    (16)  
    f 19      19.5    (20)  
    g 25      25.6    (26)  
    h 28      28.8    (29)

- Challenge 3**  
 1 Answers will vary.  
 2 Answers will vary.  
 3 As Jasmine's height is rounded to 1.4 m, her height could be as low as 1.35 m, 1.36 m, 1.37 m or 1.38 m making her smaller than Jim.

**Lesson 3: Dividing by 10 and 100**

- Challenge 1**  
 a 0.5            g 8.3  
 b 0.9            h 9.1  
 c 0.8            i 4.7  
 d 0.2            j 6.4  
 e 2.8            k 9.1  
 f 5.1            l 7.6

- Challenge 2**  
 a 0.05            g 0.75  
 b 0.63            h 0.01  
 c 0.91            i 0.44  
 d 0.78            j 0.57  
 e 0.03            k 0.36  
 f 0.42            l 0.89

- Challenge 3**  
 1 a 4.8            f 17.3  
    b 0.95        g 2.84  
    c 0.3            h 30.1  
    d 0.64        i 48.4  
    e 2

2 and 3 Answers will vary.

**Lesson 4: Decimal problems**

- Challenge 1**  
 1 Billy    Rosie    Stanley    Poppy    Julian  
 2 Number line drawn and these times in the correct place on number line :  
 26.3    26.9    27.5    28.2    28.7  
 3 Billy 23.3 s            Poppy 25.2 s  
    Rosie 23.9 s            Stanley 24.5 s  
    Julian 25.7 s

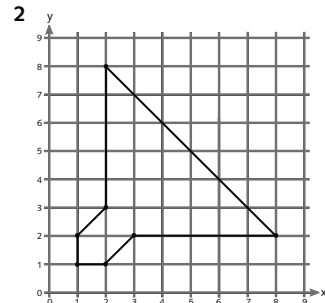
- Challenge 2**  
 1 Susie    Olly    Max    Monty    Jessie  
 2 Susie 43.25 kg            Max 41.95 kg  
    Olly 43.05 kg            Jessie 39.67 kg  
    Monty 41.54 kg  
 3 Susie and Olly

- Challenge 3**  
 1 Yasmin £48            Maisha £49  
    Hussain £48            Mark £47  
    Penny £49  
 2 Maisha and Penny  
 3 Yasmin £54.83, Maisha £56.03,  
    Hussain £55.28, Mark £54.24,  
    Penny £55.96.

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

**Lesson 1: Take off coordinates**

- Challenge 1**  
 1 B (1, 4) C (2, 3) D (2, 5)  
 2 a F (4, 0) and G (4, 3)    b H
- Challenges 2, 3**  
 1 (0, 3) → (1, 3) → (3, 5) → (5, 5) → (5, 3) → (3, 1) → (3, 0) → (0, 3)



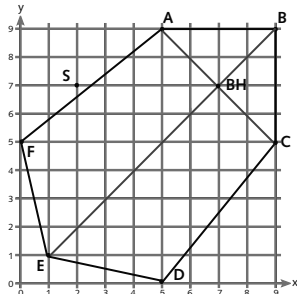
- Challenge 3**  
 1 a
- 
- b (7, 4) (7, 2) (5, 3) (3, 2) (3, 4)

**Lesson 2: Constellation coordinates**

**Challenge 1, 2, 3** 1 See grid below in Challenge 2 answers.

**Challenge 2** 1 a Points A–F joined to make shape as in grid below.  
b hexagon

2 BH (7, 7)



3 six-pointed star with hexagon at the centre

4 S (2, 7)

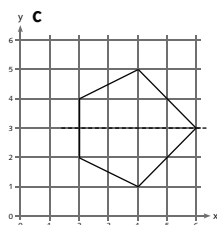
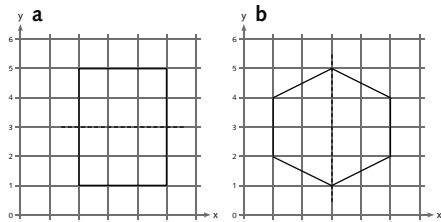
**Challenge 3** 1 (4, 1), (3, 2), (2, 3) or (1, 4)

2 Investigation

**Lesson 3: Coordinates of shapes**

**Challenge 1** a P (2, 5) Q (5, 5) R (4, 2) S (1, 2)  
b T (3, 5) U (5, 5) V (1, 1) W (1, 3)

**Challenge 2** 1, 2

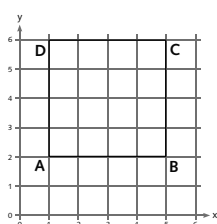


2 a rectangle (2, 1) (2, 5) (5, 5) (5, 1)  
b hexagon (1, 2) (1, 4) (3, 5) (5, 4) (5, 2) (3, 1)  
c pentagon (2, 2) (2, 4) (4, 5) (6, 3) (4, 1)

**Challenge 3** a Shapes move 3 right and 3 up.  
b Shapes flip over

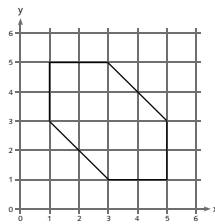
**Lesson 4: Plotting points and making shapes**

**Challenge 1** 1 a, c



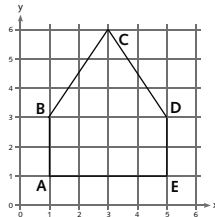
b D (1, 6)

**Challenge 2** 1 a–c



d hexagon

2 a–c, e



d E (5, 1)

**Challenge 3** Investigation

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

**Lesson 1: Division TO ÷ O using partitioning**

**Challenge 1** a 60: 60, 480, 120, 540, 300, 240,  
b 90: 720, 540, 180, 630, 270, 360  
c 80: 240, 640, 560, 320, 80, 400,  
d 70: 630, 280, 210, 350, 490, 420

**Challenge 2** 1 a 11                      b 110  
2 a 5                              b 50  
3 a 9                              b 90  
4 a 8                              b 80  
5 a 4                              b 40  
6 a 4                              b 40  
7 a 9                              b 90  
8 a 5                              b 50  
9 a 6                              b 60  
10 a 10                          b 100

**Challenge 3** a 19                              d 14  
b 16                              e 48  
c 23                              f 13

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

**Challenge 1** 1 11                              12  
7                                      9  
5  
2 9                                      6  
4                                      8  
7  
3 8                                      6  
4                                      9  
7

**Challenge 2** 1 a 20                              e 10  
b 10                                  f 10  
c 10                                  g 10  
d 20                                  h 30  
2 a 17                              e 16  
b 14                                  f 14  
c 14                                  g 13  
d 25                                  h 28

**Challenge 3** Children's choice of calculations will differ.

**Lesson 3: Division HTO ÷ O using partitioning**

**Challenge 1** 1 a 4                              b 40                              c 400  
2 a 6                              b 60                              c 600  
3 a 6                              b 60                              c 600  
4 a 9                              b 90                              c 900

**Challenge 2** 1 82, 91, 71, 63, 52, 43  
2 61, 81, 101, 121, 110, 81  
3 31, 42, 61, 72, 112, 91

**Challenge 3** 1 a 41                              f 52  
b 3                                      g 91  
c 91                                  h 497  
d 6                                      i 248  
e 9

2 Answers will vary.

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

**Challenge 1** 1 a 18                              d 30  
b 54                                  e 48  
c 66  
2 a 16                              d 64  
b 72                                  e 8  
c 48  
3 a 21                              d 42  
b 49                                  e 21  
c 84

**Challenge 2** 1 a 80, 86                          c 40, 48  
b 60, 64                          d 90, 95  
2 a 70, 75                          c 50, 54  
b 90, 93                          d 30, 37  
3 a 60, 62                          c 40, 44  
b 30, 33                          d 90, 93  
4 a 20, 22                          c 70, 74  
b 40, 43                          d 50, 55

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

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

**Lesson 1: Division using the formal written method (1)**

**Challenge 1** 1 a 6                                  d 24  
b 6                                      e 3  
c 27                                  f 6  
2 a 6                                  d 8  
b 3, 4                              e 6, 6  
c 2                                      f 0, 7  
3 4: 120, 120, 120  
6: 120, 180, 180  
7: 140, 210 or 280, 280  
9: 180, 180, 270



**Challenge 2** Children's choice of calculations will differ.  
 Answers are as follows:  
 $148 \div 4 = 37$      $138 \div 6 = 23$   
 $168 \div 7 = 24$      $216 \div 9 = 24$   
 $116 \div 4 = 29$      $204 \div 6 = 34$   
 $245 \div 7 = 35$      $171 \div 9 = 19$   
 $132 \div 4 = 33$      $174 \div 6 = 29$   
 $273 \div 7 = 39$      $288 \div 9 = 32$

**Challenge 3**  
 $37 \times 4 = 148$      $34 \times 6 = 204$   
 $32 \times 9 = 288$      $29 \times 4 = 116$   
 $19 \times 9 = 171$      $29 \times 6 = 174$   
 $24 \times 7 = 168$      $24 \times 9 = 216$   
 $33 \times 4 = 132$      $39 \times 7 = 273$   
 $23 \times 6 = 138$      $35 \times 7 = 245$

**Lesson 2: Division using the formal written method (2)**

**Challenge 1** NB. Some children may include the larger multiples included in brackets.  
 $3 \rightarrow 6, 18, 24, 27, 30, 36, (54, 60, 72, 108, 144,)$   
 $8 \rightarrow 24, 16, 32, 56, 72, (144)$   
 $9 \rightarrow 18, 27, 36, 54, 72, 108 (144)$   
 $12 \rightarrow 24, 36, 60, 72, 108, 144,$

**Challenge 2**  
 1 80    50    90    100    60  
 150    30    70    40    40  
 70    90    130    70    100

2 Children's choice of calculations will vary. Answers are as follows:  
**462    288    528    396    315**  
 77    48    88    99    63  
 154    36    66    44    45  
 66    96    132    66    105

**Challenge 3** Calculations will vary.

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

**Challenge 1**  
 a <    d >    g <  
 b =    e >    h =  
 c =    f <    i >

**Challenge 2**  
 mental  
 $848 \div 4 = 212$ ;  $425 \div 5 = 85$ ;  
 $666 \div 3 = 222$ ;  $497 \div 7 = 71$ ;  
 $336 \div 3 = 112$   
 written  
 $447 \div 3 = 149$ ;  $693 \div 7 = 99$ ;  
 $296 \div 4 = 74$ ;  $176 \div 4 = 44$ ;  
 $567 \div 9 = 63$ ;  $252 \div 6 = 42$ .  
 $632 \div 4 = 158$ ,  $752 \div 8 = 94$ ,  
 $539 \div 7 = 77$ ,  $352 \div 8 = 44$ ;

**Challenge 3** Answers will vary.

**Lesson 4: Solving word problems (4)**

**Challenge 1**  
 a 30: 2, 3, 6, 10    d 20: 2, 4, 5, 10  
 b 45: 3, 5, 9,    e 18: 3, 6, 9  
 c 48: 3, 4, 6, 8, 12    f 36: 3, 12, 9

**Challenge 2**  
 1 97 sandwiches in each box.  
 2 194 sandwiches  
 3 388 sandwiches  
 4 27 cartons per class  
 5 729 pieces of fruit  
 6 67 apples in each basket  
 7 £486  
 8 81 cartons of each flavour.  
 9 260 other fruits

**Challenge 3** Answers will vary.

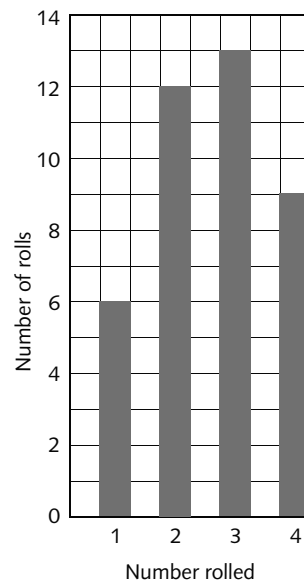
**Unit 12, Week 3: Statistics**

**Lesson 1: Dice bar charts**

**Challenge 1**

Numbers rolled with a 1-4 dice		
Number rolled	Tally	Frequency
1	I	6
2	II	12
3	III	13
4	IIII	9

2 Numbers rolled with a 1-4 dice



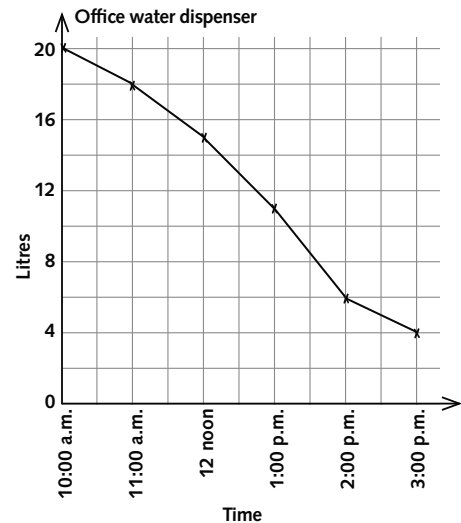
3 a 3    b 1  
 4 a 3    b 7  
 5 40

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

**Challenge 3**  
 1 Statement is correct.  
 2, 3 Answers will vary.

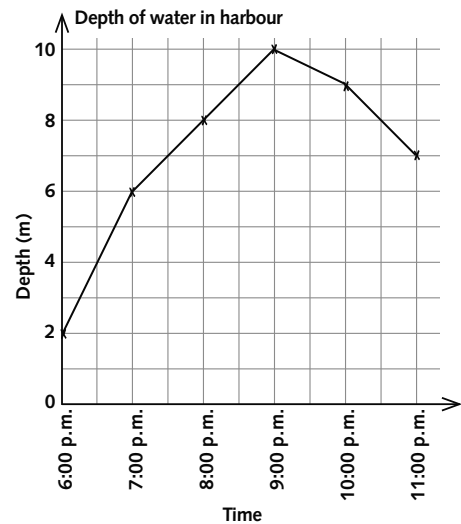
**Lesson 2: Harbour times**

**Challenge 1**



2 a 15 l    b 6 l  
 3 a 5 l    b 11 l  
 4 5 l approximately

**Challenge 2**



2 6 m  
 3 a 8 m    b 3 m  
 4 a 4 m    b 8 m

**Challenge 3**

1 10:30 p.m.  
 2 a 18 l    b 31 l  
 3 Children's time graphs of the data

**Lesson 3: Activity Centre data**

**Challenge 1**

1 a assault course    b archery  
 2 a 12 children    c 8 children  
    b 6 children  
 3 a 6 children    b 4 children  
 4 zip wire  
 5 60 children

Challenges  
2, 3

- 1 zip wire  
 2 a 9 children    b 7 children  
 3 a 5 children    b 1 children  
 4 a water sports    b zip wire  
 5 assault course, canoeing, zip wire  
 6 60 children

Challenge  
3

- 1 Favourite activities at the lakeside

Hill Street School	
Activity	Frequency
Archery	6
Assault course	14
Canoeing	10
Rock climbing	8
Water sports	10
Zip wire	12

Craigton School	
Activity	Frequency
Archery	5
Assault course	14
Canoeing	10
Rock climbing	7
Water sports	6
Zip wire	18

- 2 zip wire and assault course for both schools  
 3 a Hill Street School  
 b Craigton School

#### Lesson 4: Travel time graphs

Challenge  
1

- 1 a Oak Avenue    b 1:30 p.m.  
 2 a 2:30 p.m.    b 3 p.m.  
 3 Ash Road  
 4 a 5 miles    b 6 miles  
 5 3 miles

Challenges  
2, 3

- 1 a 8 miles    b 1 hour  
 2 a 11 a.m.    b 1 p.m.  
 3 a 20 miles    b 28 miles  
 4 30 min  
 5 1 hour  
 6 14 miles approximately  
 7 4.5 hours

Challenge  
3

- 1 Children's own time graphs representing the data

# Progress Guide 4

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

### Lesson 1, Support: 4-digit counting

1

1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
2051	2052	2053	2054	2055	2056	2057	2058	2059	2060

Lesson 2, Extension: What's my number? Game

Lesson 3, Extension: Highest number Game

Lesson 4, Support: Counting in 1000s  
Numbers going up in thousands from first number to last number.

- 1 250 to 9250
- 2 368 to 9368
- 3 421 to 9421
- 4 495 to 9495
- 5 536 to 9536
- 6 699 to 9699
- 7 705 to 9705
- 8 837 to 9837
- 9 861 to 9861
- 10 903 to 9903

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

Lesson 1, Support: Counting on in 10s and 100s

- 1 Counting in tens as follows:
  - 126 to 216
  - 152 to 242
  - 179 to 269
  - 183 to 273
  - 215 to 305
  - 274 to 364
  - 287 to 377
  - 301 to 391
- 2 Counting in hundreds as follows:
  - 38 to 938
  - 29 to 929
  - 65 to 965
  - 73 to 973
  - 55 to 955
  - 92 to 992
  - 48 to 948
  - 11 to 911

Lesson 2, Extension: 4-digit calculations

- a 1027      f 1124
- b 1093      g 1109
- c 1018      h 1153
- d 953        i 1052
- e 984        j 1169

Lesson 3, Extension: Writing 1-step word problems

Answers will vary.

Lesson 4, Support: School play problems

- 1 88 adults
- 2 121 snacks
- 3 76 drinks
- 4 308 chairs
- 5 £217

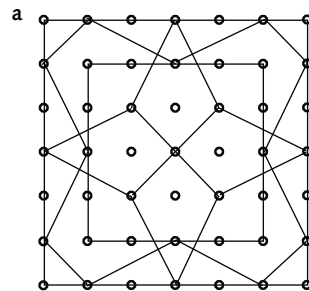
## Unit 1, Week 3: Geometry – Properties of shape

Lesson 1, Support: Symmetrical shapes  
Lines of symmetry drawn on each shape

Lesson 1, Extension: Blue square symmetry  
Designs should show shading that has symmetry, with no duplicates.

Lesson 3, Support: Peg board reflections  
No answers

Lesson 4, Extension: Rangoli patterns



b Children's own Rangoli patterns

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

Lesson 1, Extension: 9 multiplication table Game

Lesson 2, Support: 9 multiplication table: using 10 to help

- 1 a 6            e 8
- b 3            f 3
- c 4            g 6
- d 1            h 9
- 2 a 7            e 6
- b 4            f 1
- c 5            g 8
- d 2            h 3

- 3 a 36            e 54
- b 27            f 9
- c 45            g 18
- d 90            h 63
- 4 a 63            f 9
- b 45            g 54
- c 81            h 36
- d 27            i 72
- e 90

Lesson 3, Support: 6 multiplication table Game

Lesson 4, Extension: 6 multiplication table: using other multiplication tables to calculate

- a 480            k 12
- b 30            l 48
- c 90            m 300
- d 180           n 72
- e 24            o 110
- f 8             p 50
- g 360           q 600
- h 42            r 420
- i 54            s 70
- j 6

## Unit 2, Week 2: Number – Fractions

Lesson 1, Support: Is it half?

- 1  $\frac{1}{2} \times \frac{1}{2} \times \times$   
 $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times$
- 2 No answers
- 3 No answers

Lesson 2, Extension: Tenths and hundredths

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

Lesson 3, Support: Fractions of amounts  
Quarters

- a 2 apples
- b 3 apples
- c 5 apples

Thirds

- a 3 apples
- b 5 apples
- c 7 apples

Fifths

- a 2 apples
- b 3 apples
- c 4 apples

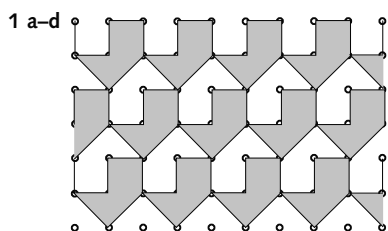
Lesson 4, Extension: How many apples?  
1 apple left.

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

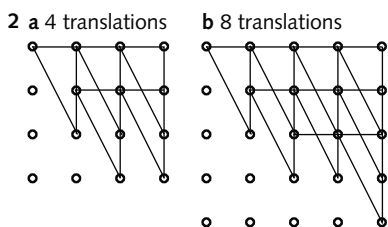
Lesson 1, Support: Patterns with translation

1, 2 Patterns created from translations.

**Lesson 1, Extension: Translating patterns**



e The unshaded spaces are rotations of the shaded shapes.



**Lesson 2, Support: Spin the coordinates**

No answers

**Lesson 2, Extension: 3 in a row coordinates**

No answers

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

**Lesson 1, Support: Addition on a number line**

- a 224                      e 687
- b 285                      f 600
- c 442                      g 462
- d 366

**Lesson 2, Extension: Instructions for the written method for addition**

Answers will vary.

**Lesson 3, Support: Expanded addition**

- 1 947
- 2 943
- 3 965
- 4 1021
- 5 1021
- 6 969
- 7 943
- 8 1004
- 9 882
- 10 860

**Lesson 4, Extension: Problem stories**

- 1 655
- 2 1103
- 3 211
- 4 391
- 5 Answers will vary.

**Unit 3, Week 2: Number – Decimals**

**Lesson 1, Extension: 3 decimals in a row**

No answers

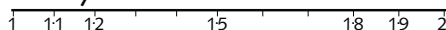
**Lesson 2, Support: Decimal number lines**

- 1 0 0.1 0.2 0.3 0.4 0.5  
0.6 0.7 0.8 0.9 1
- 2 0.5 0.6 0.7 0.8 0.9 1  
1.1 1.2 1.3 1.4 1.5
- 3 0.8 0.9 1 1.1 1.2 1.3  
1.4 1.5 1.6 1.7 1.8
- 4 1 1.1 1.2 1.3 1.4 1.5  
1.6 1.7 1.8 1.9 2
- 5 1.3 1.4 1.5 1.6 1.7 1.8  
1.9 2 2.1 2.2 2.3
- 6 1.7 1.8 1.9 2 2.1 2.2  
2.3 2.4 2.5 2.6 2.7
- 7 2 2.1 2.2 2.3 2.4 2.5  
2.6 2.7 2.8 2.9 3
- 8 2.8 2.9 3 3.1 3.2 3.3  
3.4 3.5 3.6 3.7 3.8
- 9 3.3 3.2 3.1 3 2.9 2.8  
2.7 2.6 2.5 2.4 2.3
- 10 4 4.1 4.2 4.3 4.4 4.5  
4.6 4.7 4.8 4.9 5

**Lesson 3, Extension: Rounding pelmanism Game**

**Lesson 4, Support: Long jump problems**

- 1 Fatima 1.9 m
- 2 Maya 1.1 m
- 3 Fatima Robin Jake Helena Maya
- 4 Helena 1 m Robin 2 m Maya 1 m  
Fatima 2 m Jake 2 m
- 5 1.1 m
- 6 Helena  $1\frac{2}{10}$  m Robin  $1\frac{8}{10}$  m  
Maya  $1\frac{9}{10}$  m Fatima  $1\frac{9}{10}$  m Jake  $1\frac{5}{10}$  m
- 7



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

**Lesson 1, Support: Converting units of mass**

	Grams (g)	Kilograms (kg) and grams (g)	Fraction (kg)	Decimal (kg)
a	100 g	0 kg 100 g	$\frac{1}{10}$ kg	0.1 kg
b	200 g	0 kg 200 g	$\frac{2}{10}$ kg	0.2 kg
c	300 g	0 kg 300 g	$\frac{3}{10}$ kg	0.3 kg
d	400 g	0 kg 400 g	$\frac{4}{10}$ kg	0.4 kg
e	500 g	0 kg 500 g	$\frac{5}{10}$ kg	0.5 kg
f	1000 g	1 kg	1 kg	1.0 kg
g	1600 g	1 kg 600 g	$1\frac{6}{10}$ kg	1.6 kg
h	1700 g	1 kg 700 g	$1\frac{7}{10}$ kg	1.7 kg
i	1800 g	1 kg 800 g	$1\frac{8}{10}$ kg	1.8 kg
j	1900 g	1 kg 900 g	$1\frac{9}{10}$ kg	1.9 kg

- 2 a 800 g = 0.8 kg
- b 1500 g = 1.5 kg
- c 600 g = 0.6 kg
- d 300 g = 0.3 kg
- e 2400 g = 2.4 kg

**Lesson 2, Extension: Sports shop masses**

1

Sports Bag	Mass of bag in grams
a	2750 g
b	1840 g
c	2630 g
d	3480 g
e	2870 g
f	3490 g

2

Sports item	Mass in g	Standard masses used					
		1000 g	500 g	200 g	100 g	50 g	20 g
Rugby ball	460 g			2			3
Cricket bat	1240 g	1		1			2
Running shoes	290 g			1		1	2
Tennis racquet	320 g			1	1		1
Golf bag	2670 g	2	1		1	1	1

**Lesson 3, Support: What does it weigh?**

1 Scale correctly labelled.

2

Mass	Nearest whole kilogram
3.7 kg	4 kg
4.6 kg	5 kg
3.8 kg	4 kg
4.3 kg	4 kg
3.4 kg	3 kg
4.8 kg	5 kg

- 3 a 3.8 kg                      b Kevin

**Lesson 4, Extension: Cake at Café Crème**

1

Cake	A	B	C	D	E	F
Mass of 1 slice	240 g	360 g	280 g	320 g	260 g	340 g

- 2 1920 g
- 3 1220 g
- 4 1300 g = 1 kg to nearest whole kg

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

**Lesson 1, Support: Square numbers**

- 1 a  $2 \times 2 = 4$     b  $5 \times 5 = 25$     c  $9 \times 9 = 81$   
 $4 \div 2 = 2$      $25 \div 5 = 5$      $81 \div 9 = 9$
- d  $7 \times 7 = 49$     e  $4 \times 4 = 16$     f  $1 \times 1 = 1$   
 $49 \div 7 = 7$      $16 \div 4 = 4$      $1 \div 1 = 1$
- g  $8 \times 8 = 64$     h  $3 \times 3 = 9$     i  $6 \times 6 = 36$   
 $64 \div 8 = 8$      $9 \div 3 = 3$      $36 \div 6 = 6$
- 2 a 81                      d 64
- b 36                      e 1
- c 85                      f 36

**Lesson 1, Extension: Square numbers**

1 and 2

-	1	4	9	16	25	36	49	64	81	100	121	144
1	0											
4	3	0										
9	8	5	0									
16	15	12	7	0								
25	24	21	16	9	0							
36	35	32	27	20	11	0						
49	48	45	40	33	24	13	0					
64	63	60	55	48	39	28	15	0				
81	80	77	72	65	56	45	32	17	0			
100	99	96	91	84	75	64	51	36	19	0		
121	120	117	112	105	96	85	72	57	40	21	0	
144	143	140	135	128	119	108	95	80	63	44	23	0

3 Consecutive odd numbers

4 Multiples of 5 adding 10 each time

5 Answers will vary.

**Lesson 3, Support: Finding factors**

12	20	18
1, 12, 2, 6, 3, 4	1, 20, 2, 10, 4, 5	1, 18, 2, 9, 3, 6
24	16	40
1, 24, 2, 12, 3, 8, 4, 6	1, 16, 2, 8, 4	1, 40, 2, 20, 4, 10, 5, 8
36	48	100
1, 36, 2, 18, 3, 12, 4, 9, 6	1, 48, 2, 24, 4, 12, 6, 8,	1, 100, 2, 50, 5, 20, 10,

**Lesson 3, Extension: Finding factors**

16	24	28
1, 2, 4, 8, 16	1, 2, 3, 4, 6, 8, 12, 24	1, 2, 4, 7, 14, 28
44	36	40
1, 2, 4, 11, 22, 44	1, 2, 3, 4, 6, 9, 12, 18, 36	1, 2, 4, 5, 8, 10, 20, 40
72	48	100
1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72	1, 2, 3, 4, 6, 8, 12, 16, 24, 48	1, 2, 4, 5, 10, 20, 25, 50,

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

**Lesson 1, Support: Multiplication using partitioning**

- $45 \times 5 \rightarrow 250 = 225$
- $86 \times 9 \rightarrow 810 = 774$
- $56 \times 5 \rightarrow 300 = 280$
- $54 \times 6 \rightarrow 300 = 324$
- $79 \times 3 \rightarrow 240 = 237$
- $77 \times 7 \rightarrow 560 = 539$
- $36 \times 5 \rightarrow 200 = 180$
- $66 \times 6 \rightarrow 420 = 396$
- $74 \times 4 \rightarrow 280 = 296$
- $58 \times 8 \rightarrow 480 = 464$

**Lesson 1, Extension: Multiplication using partitioning**

Game

**Lesson 3, Support: Multiplication using the expanded written method**

- $48 \times 3 \rightarrow 150 = 144$
- $69 \times 5 \rightarrow 350 = 345$
- $74 \times 4 \rightarrow 280 = 296$
- $39 \times 3 \rightarrow 120 = 117$
- $58 \times 4 \rightarrow 240 = 232$
- $35 \times 6 \rightarrow 240 = 210$

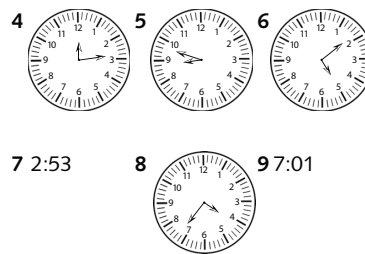
**Lesson 4, Extension: Multiplying by 0, 1 and multiplying by three numbers**

Game

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

**Lesson 2, Support: 12-hour clocks**

- 1 9:25      2 3:40      3 11:17



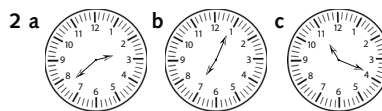
**Lesson 2, Extension: Fun park times**

Roller Coaster Ride		Water Splash Ride		Anthill Train Ride	
Leaves at		Leaves at		Leaves at	
1	12:00	1	11:00	1	10:00
2	12:10	2	11:15	2	10:20
3	12:20	3	11:30	3	10:40
4	12:30	4	11:45	4	11:00
5	12:40	5	12:00	5	11:20
6	12:50	6	12:15	6	11:40
7	1:00	7	12:30	7	12:00
8	1:10	8	12:45	8	12:20

- 5 min
- 12:40
- 2:00

**Lesson 3, Support: 24-hour clocks**

- 1 a 16:45    b 18:22    c 20:57  
d 22:16    e 21:31    f 15:04



**Lesson 3, Extension: Digital displays**

1, 2

Heathrow Airport 24-hour clock display	Euston Station 12-hour clock display	a.m. or p.m.
01:23	01:23	● ○
01:32	01:32	● ○
02:13	02:13	● ○
02:31	02:31	● ○
03:12	03:12	● ○
03:21	03:21	● ○
10:23	10:23	● ○
10:32	10:32	● ○
12:03	12:03	○ ●
12:30	12:30	○ ●
13:02	01:02	○ ●
13:20	01:20	○ ●
20:13	08:13	○ ●
20:31	08:31	○ ●
21:03	09:03	○ ●
21:30	09:30	○ ●
23:01	11:01	○ ●
23:10	11:10	○ ●

3 24-hour clock will display times up to 23:59. 30:12 is not a time.

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

**Lesson 1, Extension: Make a 4-digit number**

Answers will vary.

**Lesson 2, Support: 100s, 10s and 1s**

- |   |   |     |     |     |     |     |     |
|---|---|-----|-----|-----|-----|-----|-----|
| 1 | 0 | 20  | 320 | 324 | 344 | 644 | 645 |
| 2 | 0 | 2   | 402 | 702 | 722 | 742 | 762 |
| 3 | 0 | 400 | 450 | 455 | 457 | 497 | 597 |
| 4 | 0 | 20  | 320 | 330 | 830 | 850 | 852 |
| 5 | 0 | 6   | 306 | 356 | 357 | 377 | 677 |
| 6 | 0 | 6   | 306 | 316 | 318 | 818 | 918 |

**Lesson 3, Support: Rounding**

- 360    367    370  
367 rounds to 370
- 280    284    290  
284 rounds to 280
- 340    341    350  
341 rounds to 340
- 370    375    380  
375 rounds to 380
- 420    428    430  
428 rounds to 430
- 510    519    520  
519 rounds to 520
- 550    552    560  
552 rounds to 550
- 520    526    530  
526 rounds to 530

**Lesson 4, Extension: Temperature**

- All numbers from 20 to -20 marked on the thermometer.
  - 7 degrees
  - 2 degrees
  - 17 degrees
  - 6 degrees
  - 3 degrees
  - 3 degrees
  - 3 degrees
  - 3 degrees

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

**Lesson 1, Support: Subtraction on a number line**

- 225
- 132
- 236
- 177
- 201
- 149

**Lesson 2, Extension: Lowest answer**  
Answers will vary.

**Lesson 3, Support: Change the 1s**

- 214
- 167
- 226
- 218
- 229
- 327
- 238
- 308
- 319
- 438

**Lesson 4, Extension: Farm problems**

- 742 cows
  - Explanations will vary.
  - Answers will vary.
- 647 chickens
  - Explanations will vary.
  - Answers will vary.



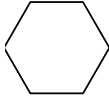

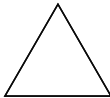

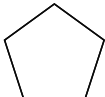


**Unit 5, Week 3: Geometry – Properties of shape**

**Lesson 1, Extension: Sets of angles**  
No answers

**Lesson 3, Support: Ordering pizza slices**

- acute angles: a, d, e, f
  - right angle: g
  - obtuse angles: b, c, h
- f, a, d, e, g, b, c, h,

**Lesson 4, Support: Regular or irregular**

Regular	Irregular
	
	
	
	
	
	

**Lesson 4, Extension: Investigating regular polygons**

3, 4

Number of equal sides	3	4	5	6	7	8	9	10
Number of lines of symmetry	3	4	5	6	7	8	9	10

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

**Lesson 2, Support: Multiplication using the formal written method**

- $63 \times 3 \rightarrow 180 = 189$
- $68 \times 5 \rightarrow 350 = 340$
- $74 \times 4 \rightarrow 280 = 296$
- $49 \times 9 \rightarrow 450 = 441$
- $65 \times 7 \rightarrow 490 = 455$
- $77 \times 9 \rightarrow 720 = 693$
- $48 \times 6 \rightarrow 300 = 288$

**Lesson 3, Support: Multiplication using the most efficient method**

- |       |       |
|-------|-------|
| a 63  | f 79  |
| b 516 | g 768 |
| c 603 | h 744 |
| d 86  | i 84  |
| e 96  | j 0   |

**Lesson 3, Extension: Multiplication using the most efficient method**

- $23 \times 2 = 46$
- $47 \times 1 = 47$
- $76 \times 9 = 684$
- $78 \times 6 = 468$
- $64 \times 2 = 128$
- $11 \times 6 = 66$
- $96 \times 8 = 768$
- $22 \times 4 = 88$

**Lesson 4, Extension: Writing word problems**  
Answers will vary.

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

**Lesson 1, Support: Make a number line**  
No answers

**Lesson 2, Support: Hundredths**

- Missing hundredths filled in on grid
- $\frac{24}{100}$  of the grid coloured in
- $\frac{76}{100}$
- No answer

**Lesson 3, Extension: Hundredths and decimals**

- |        |        |
|--------|--------|
| a 27.3 | e 41.7 |
| b 57.7 | f 19.5 |
| c 38.4 | g 48.3 |
| d 28.9 | h 80.6 |
- Answers will vary.
- |         |         |
|---------|---------|
| a 13.40 | b 23.80 |
| c 16.40 | d 27.70 |
| e 18.90 | f 30.60 |
| g 20.70 | h 42.90 |
- Answers will vary.

**Lesson 4, Extension: How much water?**

- $\frac{1}{6}$
- 200 ml
- Answers will vary.
- Answers will vary.

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

**Lesson 1, Support: Kilometre dominoes**  
No answers

**Lesson 3, Support: Rounding heights of plants**

- |      |                  |
|------|------------------|
| a, b | a 16.3 cm, 16 cm |
|      | b 15.5 cm, 16 cm |
|      | c 20.4 cm, 20 cm |
|      | d 21.4 cm, 21 cm |
|      | e 34.1 cm, 34 cm |
|      | f 25 cm, 25 cm   |
|      | g 19.3 cm, 19 cm |
|      | h 28.9 cm, 29 cm |
|      | j 27.2 cm, 27 cm |
|      | j 31.6 cm, 32 cm |
|      | k 29.7 cm, 30 cm |

**Lesson 3, Extension: How high?**

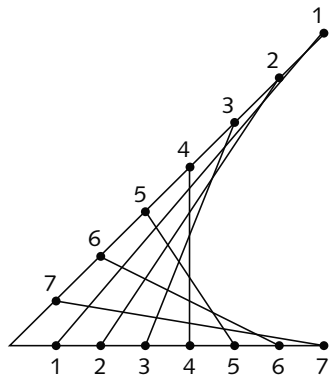
- 800 m
- 

Number of bounces	Height to which ball rises after bounce
1	400 m
2	200 m
3	100 m
4	50 m
5	25 m
6	12.5 m
7	6.25 m

- After 7th bounce
- After 9th bounce

**Lesson 4, Extension: Patterns and lengths**

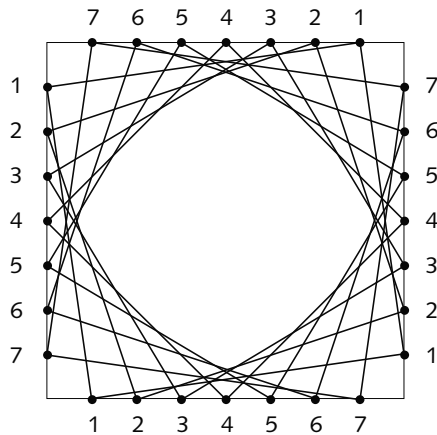
1 a



b Allow differences of  $\pm 0.1$  cm.

Line	Length in cm
1 to 1	9.0
2 to 2	7.0
3 to 3	5.1
4 to 4	3.8
5 to 5	3.4
6 to 6	4.3
7 to 7	5.9

2 a



b Allow differences of  $\pm 0.1$  cm.

Line	Length in cm
1 to 1	6.8
2 to 2	6.1
3 to 3	5.6
4 to 4	5.5
5 to 5	5.6
6 to 6	6.1
7 to 7	6.8

3 Answers will vary, for example: Symmetrical about lines 4 to 4

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

**Lesson 1, Extension: Make a number**  
Answers will vary.

**Lesson 2, Support: Number line subtraction**

- 1 214
- 2 271
- 3 282
- 4 379
- 5 363
- 6 184
- 7 447

**Lesson 3, Support: School problems**

Answers will vary.

**Lesson 4, Extension: Find the answer – addition**

Answers will vary.

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

**Lesson 1, Support: Focus on 1s**

- a 772                      f 771
- b 864                      g 791
- c 742                      h 853
- d 595                      i 586
- e 731                      j 892

**Lesson 2, Extension: Find the answer – subtraction**

Answers will vary.

**Lesson 3, Support: 3-digit subtraction**

- a 324                      f 424
- b 385                      g 275
- c 228                      h 474
- d 182                      i 277
- e 315                      j 507

**Lesson 4, Extension: A curious problem**

Answers will vary

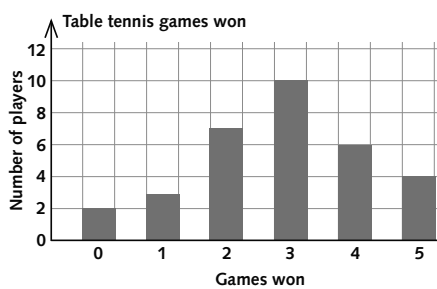
**Unit 7, Week 3: Statistics**

**Lesson 1, Support: Table tennis tournament**

1

Games won	Total
0	2
1	3
2	7
3	10
4	6
5	4

2



3 3

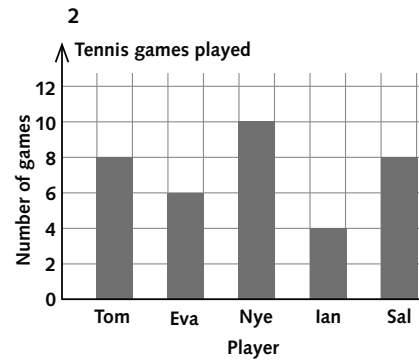
4 a 12

b 10

**Lesson 1, Extension: Tennis partners**

1

Player	Total
Tom	8
Eva	6
Nye	10
Ian	4
Sal	8



3 a Tom, Nye and Sal

b Ian

4 a 6

b 4

5 5 times

6 2 times (twice)

**Lesson 2, Extension: Classroom temperatures**

1 a 11 a.m., 12 noon., 2 p.m. and 3 p.m.

b 8 a.m., 1 p.m., 4 p.m. and 5 p.m.

2 9 °C

3 Answers will vary.

4 Children's own graphs of the temperature in a classroom on a summer's day between 8:00 a.m. to 4:00 p.m., showing a maximum of 27 °C, a minimum of 18 °C and the temperature above 20 °C between 9:00 a.m. and 3:00 p.m.

5 Sentences will vary but should reflect the data plotted.

**Lesson 3, Support: Pocket money records**

1

Sara's table	
Month	Money
Jan	£8
Feb	£11
Mar	£10
Apr	£7
May	£16
June	£12

Sam's table	
Month	Money
Jan	£10
Feb	£14
Mar	£12
Apr	£9
May	£15
June	£12

2 June

3 Sara £4, Sam £5

4 a May    b Each child's savings showed a marked increase.

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

**Lesson 1, Support: Multiplication HTO × O using partitioning**

- 1  $345 \times 3 \rightarrow 900 = 1035$
- 2  $624 \times 4 \rightarrow 2400 = 2496$
- 3  $542 \times 5 \rightarrow 2500 = 2710$
- 4  $359 \times 5 \rightarrow 2000 = 1795$
- 5  $364 \times 4 \rightarrow 1600 = 1456$
- 6  $276 \times 3 \rightarrow 900 = 828$
- 7  $529 \times 3 \rightarrow 1500 = 1587$
- 8  $235 \times 8 \rightarrow 1600 = 1880$

**Lesson 2, Support: Multiplication HTO × O using partitioning and the grid method**

- 1  $345 \times 3 \rightarrow 900 = 1035$
- 2  $624 \times 4 \rightarrow 2400 = 2496$
- 3  $542 \times 5 \rightarrow 2500 = 2710$
- 4  $359 \times 5 \rightarrow 2000 = 1795$
- 5  $364 \times 4 \rightarrow 1600 = 1456$
- 6  $276 \times 3 \rightarrow 900 = 828$
- 7  $529 \times 3 \rightarrow 1500 = 1587$
- 8  $235 \times 8 \rightarrow 1600 = 1880$

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

- 1 3704 apples
- 2 3588 oranges
- 3 7713 plums
- 4 2702 pears

**Lesson 4, Extension: Solving word problems**

- 1 1548 trains
- 2 248 boys
- 3 £4185
- 4 1548 items
- 5 122 athletes
- 6 2158 athletes
- 7 £3968
- 8 228 medals

**Unit 8, Week 2: Number – Decimals**

**Lesson 1, Extension: Three-hundredths in a row**  
No answers

**Lesson 2, Support: Money and hundredths**

- 1 £1.26 £1.39 £1.52 £1.72 £1.86
- 2 £1.17 £1.37 £1.54 £1.78 £1.82
- 3 £2.09 £2.15 £2.38 £2.64 £2.79
- 4 £3.02 £3.12 £3.22 £3.72 £3.92
- 5 £4.29 £4.30 £4.49 £4.82 £4.94
- 6 £5.15 £5.47 £5.61 £5.73 £5.99
- 7 £6.01 £6.16 £6.72 £6.77 £6.91

**Lesson 3, Support: Moving digits**  
Answers will vary.

**Lesson 3, Extension: Packing problems**

- 1 Soup 5.3 boxes  
Beans 6.8 boxes  
Pears 2.6 boxes  
Peas 9.2 boxes  
Olives 1.7 boxes  
Spaghetti 5.1 boxes  
Cat food 7.5 boxes  
Sweetcorn 8.4 boxes  
Tomatoes 7.2 boxes  
Custard 4.6 boxes
- 2 58 full boxes.
- 3 6 extra tins.

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

**Lesson 1, Support: Looking at rectangles**

- 1 length = 4 cm, breadth = 2 cm, perimeter = 12 cm
- 2 length = 2 cm, breadth = 1 cm, perimeter = 6 cm
- 3 length = 8 cm, breadth = 4 cm, perimeter = 24 cm
- 4 length = 6 cm, breadth = 4 cm, perimeter = 20 cm

**Lesson 1, Extension: Investigating L-shapes 1, 2, 4**

Shape number	Perimeter in cm
1	8 cm
2	10 cm
3	12 cm
4	14 cm
5	16 cm
6	18 cm
7	20 cm
8	22 cm
9	24 cm
10	26 cm

- 3 Perimeter of L-shape is twice the shape number plus 6 or  $P = 2n + 6$
- 5 a  $P = 30$  cm    b  $P = 46$  cm

**Lesson 3, Support: Pin board areas**

- 1 8 sq cm
- 2 12 sq cm
- 3 15 sq cm
- 4 3 sq cm
- 5 9 sq cm
- 6 10 sq cm
- 7 12 sq cm
- 8 16 sq cm
- 9 4 sq cm
- 10 20 sq cm
- 11 21 sq cm

**Lesson 3, Extension: Halve the pin board area**  
Answers will vary.

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

**Lesson 1, Support: Ordering**

- |        |        |
|--------|--------|
| 1 808  | 2 1590 |
| 878    | 2176   |
| 887    | 3089   |
| 888    | 4245   |
| 918    | 5823   |
| 938    | 6710   |
| 961    | 7500   |
| 983    | 9157   |
| 3 1023 | 4 1065 |
| 2178   | 2833   |
| 2480   | 2872   |
| 2633   | 3139   |
| 2900   | 3890   |
| 3000   | 4276   |
| 3510   | 4367   |
| 3871   | 4705   |

**Lesson 2, Extension: Rounding challenge**  
Answers will vary.

**Lesson 3, Support: Negative number lines**

- a Numbers from -2 to 8
- b Numbers from -4 to 6
- c Numbers from -5 to 5
- d Numbers from -8 to 2
- e Numbers from -10 to 0
- f Numbers from -20 to -10
- g Numbers from -25 to -15
- h Numbers from -40 to -30
- i Numbers from -47 to -37
- j Numbers from -63 to -53

**Lesson 4, Extension: Number systems**  
Answers will vary.

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

**Lesson 1, Extension: Find the answers (1)**  
Answers will vary.

**Lesson 2, Extension: Find the answers (2)**  
Answers will vary.

**Lesson 3, Support: Investigate step by step**  
Answers will vary.

**Lesson 4, Support: Adding money on a number line**

- 1 £4.75
- 2 £6.37
- 3 £6.37
- 4 £9.35
- 5 £13.20
- 6 £16.75

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

**Lesson 1, Support: Know your triangles**

- 1 Completed triangles
- 2 Equilateral: a, e  
Isosceles: b, f, h  
Scalene: c, d, g, i

**Lesson 1, Extension: Classifying triangles**  
Investigation into triangles each with six dots on its perimeter

**Lesson 3, Extension: Investigating trapeziums and kites**

- 1 a, b Eight different trapeziums with equal sides, parallel sides, right angles and lines of symmetry marked
- 2 a, b Eight different kites with pairs of equal sides, right angles and lines of symmetry marked

**Lesson 4, Support: Quadrilaterals check-up**  
No answers



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

**Lesson 1, Support: Multiplication HTO × O using the formal written method**

- a  $425 \times 3 \rightarrow 1200 = 1275$
- b  $592 \times 4 \rightarrow 2400 = 2368$
- c  $481 \times 5 \rightarrow 2500 = 2405$
- d  $683 \times 3 \rightarrow 2100 = 2049$
- e  $724 \times 3 \rightarrow 2100 = 2172$
- f  $723 \times 4 \rightarrow 2800 = 2892$

**Lesson 3, Support: HTO × O using the most efficient method**

- 1 Mental method  
 $232 \times 3 = 696$ ;  $422 \times 2 = 844$ ;  
 $515 \times 5 = 2575$ ;  $333 \times 3 = 999$ ;  
 $222 \times 4 = 888$ ;  $611 \times 5 = 3055$ ;  
 Written method  
 $463 \times 6 = 2778$ ;  $746 \times 4 = 2984$ ;  
 $835 \times 3 = 2505$ ;  $435 \times 9 = 3915$ ;  
 $487 \times 4 = 1948$ ;  $685 \times 8 = 5480$
- 2 Calculations chosen will vary. See answers in Q1.

**Lesson 3, Extension: HTO × O using the most efficient method**

No answers

**Lesson 4, Extension: Solving word problems**

- 1 a £4074      d £2585  
 b £464      e £564  
 c £399      f Yes. He will have £63 left.
- 2 Answers will vary.

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

**Lesson 1, Support: Make them equivalent**

- 1 a One quarter of each shape should be shaded.  
 b  $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$
- 2 a One third of each shape should be shaded.  
 b  $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$
- 3 a One fifth of each shape should be shaded.  
 b  $\frac{1}{5} = \frac{2}{10} = \frac{3}{15} = \frac{4}{20}$

**Lesson 2, Extension: Mixed numbers and fractions**

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

**Lesson 3, Support: Subtracting fractions using a diagram**

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

**Lesson 4, Extension: Fraction investigation**

- 1 a  $\frac{1}{2} = \frac{1}{3} + \frac{1}{6}$
- b  $\frac{1}{3} = \frac{1}{4} + \frac{1}{12}$
- 2 Answers will vary.

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

**Lesson 1, Support: Domino litres**

No answers

**Lesson 1, Extension: Tromino litres**

No answers

**Lesson 3, Support: Rounding capacities**

- 1 Liquid levels correctly marked on jugs
- 2 a 100 ml    b 300 ml    c 500 ml  
 d 200 ml    e 400 ml    f 800 ml

**Lesson 3, Extension: Rising water levels**

2

Start level	Cubes added	New level	Difference in ml
300 ml	10	310 ml	10 ml
300 ml	20	320 ml	20 ml
300 ml	30	330 ml	30 ml
300 ml	40	340 ml	40 ml
300 ml	50	350 ml	50 ml
300 ml	60	360 ml	60 ml

3

Start level	New level	Difference in ml	Cubes added
250 ml	280 ml	30 ml	30
250 ml	310 ml	60 ml	60
250 ml	370 ml	120 ml	120
250 ml	400 ml	150 ml	150
250 ml	450 ml	200 ml	200
250 ml	500 ml	250 ml	250

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

**Lesson 1, Support: Meet the target 700**

Answers will vary.

**Lesson 2, Extension: Race to the target**

No Answers

**Lesson 3, Extension: How many scooters?**

- 4 large scooters = £520
- 6 small scooters = £480

**Lesson 4, Support: Which one is Jim?**

- 1 Picture d
- 2 Answers will vary.

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

**Lesson 1, Support: Tenth number line**

- 1 Alternate tenths in number line are coloured.
- 2  $\frac{1}{10}$   $\frac{2}{10}$   $\frac{3}{10}$   $\frac{4}{10}$   $\frac{5}{10}$   $\frac{6}{10}$   $\frac{7}{10}$   $\frac{8}{10}$   $\frac{9}{10}$
- 3 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

4

Fraction	Decimal
$\frac{1}{10}$	0.1
$\frac{2}{10}$	0.2
$\frac{3}{10}$	0.3
$\frac{4}{10}$	0.4
$\frac{5}{10}$	0.5
$\frac{6}{10}$	0.6
$\frac{7}{10}$	0.7
$\frac{8}{10}$	0.8
$\frac{9}{10}$	0.9

**Lesson 2, Extension: Rounding race**

No answers

**Lesson 3, Extension: Division chains**

- 1 a 273    27.3    2.73
- b 348    34.8    3.48
- c 751    75.1    7.51
- d 812    81.2    8.12
- e 501    50.1    5.01
- f 832    83.2    8.32
- g 377    37.7    3.77
- h 658    65.8    6.58
- i 165    16.5    1.65
- j 904    90.4    9.04

2 Answers will vary.

**Lesson 4, Support: Time problems**

- 1 16.3 s    16.7 s    16.9 s    17.2 s    17.5 s
- 2 Milly
- 3 Milly    16.3 s  
 Florence    16.7 s  
 Fred    16.9 s  
 Martin    17.2 s  
 Martha    17.5 s
- 4 Milly    16 s  
 Florence    17 s  
 Fred    17 s  
 Martin    17 s  
 Martha    18 s
- 5 Milly    14.3 s  
 Florence    14.7 s  
 Fred    14.9 s  
 Martin    15.2 s  
 Martha    15.5 s

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

**Lesson 1, Support: Moon shot coordinates**

No answers

**Lesson 1, Extension: Flight coordinates**

1

Aircraft	A	B	C	D	E	F	G	H
Coordinates	(1, 2)	(2, 6)	(3, 1)	(4, 3)	(5, 7)	(7, 3)	(6, 9)	(8, 5)

2

Aircraft	A	B	C	D	E	F	G	H
Approximate distance	3	8	4	7	12	10	15	13

3

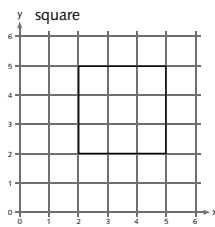
Landing order	1st	2nd	3rd	4th	5th	6th	7th	8th
Aircraft	A	C	D	B	F	E	H	G

**Lesson 2, Extension: Mission to Mars**

No answers

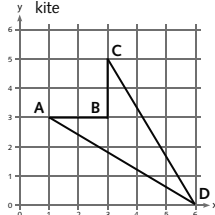
**Lesson 4, Support: Making shapes**

1 a, b



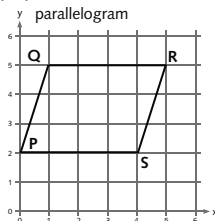
c square

2 a-c



d kite

3 a, b, d, e



c S (4, 2)

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

**Lesson 1, Support: Division TO ÷ O using partitioning**

- 1 6: 36, 42, 6, 30, 72, 60, 24, 48  
8: 72, 40, 96, 80, 64, 56, 88,  
9: 45, 81, 54, 9, 36, 63, 27,
- 2 a 24                      f 16  
b 16                        g 14  
c 17                        h 29  
d 38                        i 23  
e 13

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

- 1  $85 \div 5 \rightarrow 10 = 17$                        $17 \times 5 = 85$
- 2  $92 \div 4 \rightarrow 20 = 23$                        $23 \times 4 = 92$
- 3  $81 \div 3 \rightarrow 30 = 27$                        $27 \times 3 = 81$
- 4  $92 \div 2 \rightarrow 50 = 46$                        $46 \times 2 = 92$
- 5  $75 \div 3 \rightarrow 20 = 25$                        $25 \times 3 = 75$
- 6  $96 \div 4 \rightarrow 20 = 24$                        $24 \times 4 = 96$
- 7  $84 \div 6 \rightarrow 10 = 14$                        $14 \times 6 = 84$
- 8  $91 \div 7 \rightarrow 10 = 13$                        $13 \times 7 = 91$

**Lesson 3, Extension: Division: HTO ÷ O using partitioning**

- 1 6: 360, 420, 600, 720, 540, 240, 480  
7: 210, 70, 490, 280, 560, 420, 350,  
9: 450, 180, 540, 720, 810, 360,

- 2 a 208                      f 61  
b 121                      g 91  
c 307                      h 92  
d 108                      i 112  
e 108

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

- 1 76                       $6 \times 76 = 456$
- 2 88                       $4 \times 88 = 352$
- 3 76                       $9 \times 76 = 684$
- 4 56                       $7 \times 56 = 392$

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

**Lesson 1, Support: Division: HTO ÷ O using the formal written method (1)**

- 1 a 35    b 36    c 36    d 35    e 26
- 2 a ✓    b ✗    c ✓    d ✓    e ✗

**Lesson 2, Extension: Division: HTO ÷ O using the formal written method (2)**

- 1 a Incorrect:63  
b Incorrect:78  
c Correct  
d Incorrect: 68  
e Incorrect: 26
- 2 Answers will vary.

**Lesson 3, Support: Division: HTO ÷ O using the most efficient method**

- 1 Mental method  
 $363 \div 3$ ;  $888 \div 2$ ;  $448 \div 4$ ;  $515 \div 5$ ;  
 $693 \div 3$ ;  $147 \div 7$ ;  $999 \div 3$ ;  
Written method  
 $385 \div 5$ ;  $288 \div 9$ ;  $384 \div 6$ ;  $477 \div 9$ ;  
 $245 \div 7$ ;
- 2 Children's choice of calculations will vary. Answers are as follows:  
Mental method  
 $363 \div 3 = 121$ ;  
 $888 \div 2 = 444$ ;  
 $448 \div 4 = 112$ ;  
 $515 \div 5 = 103$ ;  
 $693 \div 3 = 231$ ;  
 $147 \div 7 = 21$ ;  
 $999 \div 3 = 333$ ;  
Written method  
 $385 \div 5 = 77$ ;  
 $288 \div 9 = 32$ ;  
 $384 \div 6 = 64$ ;  
 $477 \div 9 = 53$ ;  
 $245 \div 7 = 35$ ;

**Lesson 4, Extension: Solving word problems: going on holiday**

- 1 The total cost of his journey is £1026.
- 2 Total cost = £2736
- 3 total cost = £126
- 4 19 hours
- 5 Mary spends £473 on transport.
- 6 Sam spends £2141.
- 7 You save £191.
- 8 Answers will vary.

**Unit 12, Week 3: Statistics**

**Lesson 1, Extension: The sum of two dice**  
Answers will vary.

**Lesson 3, Support: Time asleep**

- 1 8 hours
- 2 a 6                      b 3                      c 4                      d 14
- 3 31

**Lesson 4, Support: Delivery times**

- 1 a 1:15 p.m.    b 1:30 p.m.    c 2:15 p.m.
- 2 Mrs Whyte
- 3 2:30 p.m.
- 4 10 miles
- 5 Mr Gray and Mrs Whyte

**Lesson 4, Extension: Flying high**

- 1 a 200 m                      b 300 m  
c 450 m
- 2 a 12:00                      b 10:00  
c 16:00
- 3 a 12:00 noon and 3:00 p.m.  
b 9:00 a.m. and 1:00 p.m.
- 4 Balloon rises from 200 m at 11 a.m. to 350 m at 12:00 noon then falls to 300 m at 1:00 p.m. It rises again to 450 m from 2:00 p.m. to 3:00 p.m. then falls to 250 m at 4:00 p.m.
- 5 Children's own time graphs showing that the balloon flew no higher than 400 m, flew at 350 m for one hour and dropped to 250 m one hour before landing

**Homework Guide 4**

**Unit 1, Week 1: Number – Number and place value**

**Lesson 1: 1000s, 100s, 10s and 1s**

- Challenge 1** 1 278 = 200 + 70 + 8  
491 = 400 + 90 + 1  
508 = 500 + 8  
651 = 600 + 50 + 1
- 2 279  
492  
509  
652
- Challenge 2** 1 1276 = 1000 + 200 + 70 + 6  
2851 = 2000 + 800 + 50 + 1  
3863 = 3000 + 800 + 60 + 3  
4277 = 4000 + 200 + 70 + 7
- 2 1277  
2852  
3864  
4278
- Challenge 3** 1 5439 = 5000 + 400 + 30 + 9  
6376 = 6000 + 300 + 70 + 6  
7386 = 7000 + 300 + 80 + 6  
7408 = 7000 + 400 + 8

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

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

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

Challenge 1

a

b

Challenges 2, 3

a

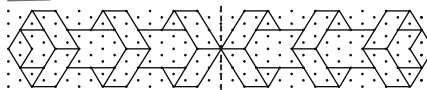
b

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
    - b 6
  - After
    - a 72
    - b 54
- Challenge 2
  - 1 a 24
  - 2 a 48
  - 3 a 48
- Challenge 3
  - b 18
  - c 48
  - b 42
  - c 24
  - b 54
  - c 42
  - b 54
  - c 48

- 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 64
  - 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

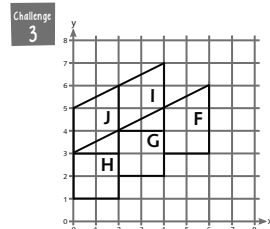
- Challenges 2, 3**
- 1 (6, 7)
  - 2 (9, 3)

- 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
- 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**

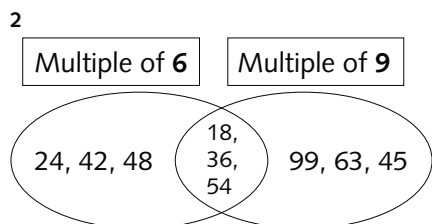
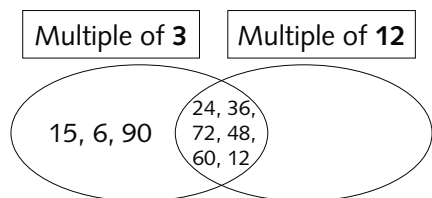
×	0	3	4	6	7	9	20	30	70
3	0	9	12	18	21	27	60	90	210
9	0	27	36	54	63	81	180	270	630
6	0	18	24	36	42	54	120	180	420
8	0	24	32	48	56	72	160	240	560
7	0	21	28	42	49	63	140	210	490

**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**
- 1 3 months
  - 2 219 days
  - 3 13 weeks

**Lesson 4: Clydeside times**

- Challenges 1, 2**
- 1 378 months
  - 2 475 months
  - 3 97 months

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

- Challenge 3**
- 1 19 hours 40 minutes
  - 2 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**
- 1 25 → 25, 125, 275, 325, 375, 400, 650,
  - 2 100 → 300, 400, 600, 800, 1000, 1800, 2400,
  - 3 1000 → 2000, 5000, 6000, 8000, 9000

- Challenge 3**
- 1 2500
  - 2 925
  - 3 725
  - 4 200
  - 5 575
  - 6 350

**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**
- 1 272 people
  - 2 39 biscuits
  - 3 712 legs
  - 4 702 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**

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

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

**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**

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**

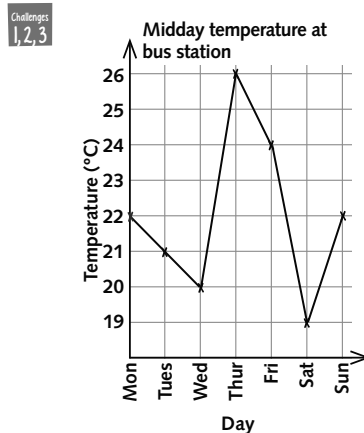
- Challenge 1** Answers will vary.  
**Challenge 2** Answers will vary.  
**Challenge 3** Answers will vary.

**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**



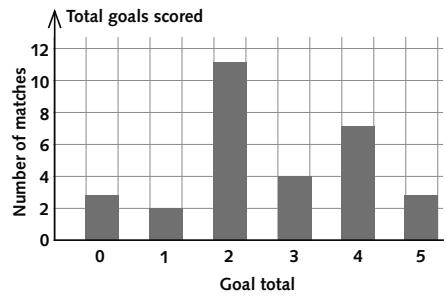
- Challenges 2, 3**  
 1 a Thursday b Saturday  
 2 a Thursday b Saturday  
**Challenge 3**  
 1 a 21 °C b 20 °C  
 2 a 12:00 b 6 °C

**Lesson 3: Football scores bar chart**

**Challenges 1, 2, 3**

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  $564 \times 9 = 5076$   
 b  $612 \times 5 = 3060$   
 c  $743 \times 6 = 4458$   
 d  $211 \times 8 = 1688$

- 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 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**
- 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**
- 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

2 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

2 a 1860    c 3483  
b 4880    d 4608

- Challenge 3** Answers will vary.

#### Lesson 4: Solving word problems

- Challenge 1**
- 480    2 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**
- |                  |                  |
|------------------|------------------|
| a $\frac{3}{10}$ | e $\frac{3}{10}$ |
| b $\frac{2}{10}$ | f $\frac{2}{10}$ |
| c $\frac{2}{10}$ | g $\frac{2}{10}$ |
| d $\frac{2}{10}$ | 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  $\frac{2}{3}$   
 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

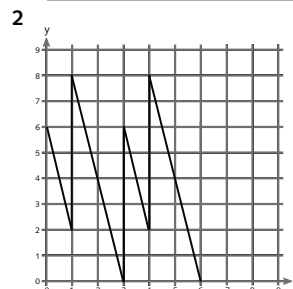
**Unit 11, Week 3: Geometry – Position and direction**

**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** 1

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.

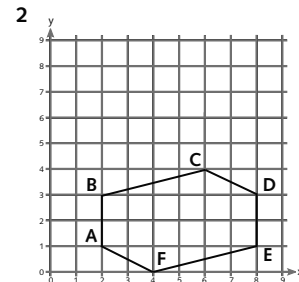
**Lesson 4: Change the shape**

- 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 ÷ 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 |           |           |