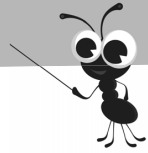


Answers

Answers



Pupil Book 5A

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

Lesson 1: 5-digit numbers

- Challenge 1**
- 1 a $6281 = 6000 + 200 + 80 + 1$
 - b $3025 = 3000 + 20 + 5$
 - c $8127 = 8000 + 100 + 20 + 7$
 - d $5338 = 5000 + 300 + 30 + 8$
 - e $7208 = 7000 + 200 + 8$
 - f $3719 = 3000 + 700 + 10 + 9$
 - g $8972 = 8000 + 900 + 70 + 2$
 - h $6320 = 6000 + 300 + 20$
 - i $2977 = 2000 + 900 + 70 + 7$
 - j $6839 = 6000 + 800 + 30 + 9$
 - k $9273 = 9000 + 200 + 70 + 3$
 - l $9999 = 9000 + 900 + 90 + 9$

2 Answers will vary.

- Challenge 2**
- 1 a $16864 = 10000 + 6000 + 800 + 60 + 4$
 - b $27519 = 20000 + 7000 + 500 + 10 + 9$
 - c $46862 = 40000 + 6000 + 800 + 60 + 2$
 - d $53952 = 50000 + 3000 + 900 + 50 + 2$
 - e $75144 = 70000 + 5000 + 100 + 40 + 4$
 - f $83482 = 80000 + 3000 + 400 + 80 + 2$
 - g $91639 = 90000 + 1000 + 600 + 30 + 9$
 - h $78063 = 70000 + 8000 + 60 + 3$
 - i $61777 = 60000 + 1000 + 700 + 70 + 7$
 - j $83606 = 80000 + 3000 + 600 + 6$
 - k $76933 = 70000 + 6000 + 900 + 30 + 3$
 - l $99999 = 90000 + 9000 + 900 + 90 + 9$

- 2 a 34789 e 18453
- b 56132 f 95298
- c 43817 g 62961
- d 81574 h 55555

3 Answers will vary.

- Challenge 3**
- 1 a 46315 e 14953
 - b 23588 f 73891
 - c 67343 g 85955
 - d 62791 h 68425

2 Answers will vary.

3 Answers will vary.

4 Answers will vary.

Lesson 2: Ordering 5-digit numbers

- Challenge 1**
- 1 a 1447 2872 3609
 - 4871 4927 8182
 - b 1633 1724 3091
 - 4327 5287 7298

- c 3018 3904 3927
- 5112 5719 5981
- d 6252 6300 6911
- 7275 7484 7982
- e 8027 8209 8634
- 9145 9222 9638
- f 2071 2251 2287
- 2856 2874 2981
- g 4061 4187 4617
- 4782 4823 4971
- h 5402 5410 5428
- 5439 5482 5498

2 Answers will vary.

- Challenge 2**
- 1 a 16398 19872 23872
 - 26154 35982
 - b 12872 33886 59091
 - 62612 76386
 - c 30135 30671 31832
 - 36989 37871
 - d 40871 42337 45227
 - 45871 48240
 - e 56002 56397 65255
 - 65872 65882
 - f 48523 48655 48762
 - 84011 84330
 - g 79023 79276 79548
 - 79761 79980
 - h 91001 91012 91101
 - 91121 91122

2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: 5-digit counting

- Challenge 1**
- 1 a 4316 count on in tens to 4376
 - b 5753 count on in tens to 5813
 - c 2694 count on in tens to 2754
 - d 8067 count on in tens to 8127
 - e 6599 count on in tens to 6659

- 2 a 4316 count back in tens to 4236
- b 5753 count back in tens to 5673
- c 2694 count back in tens to 2614
- d 8067 count back in tens to 7987
- e 6599 count back in tens to 6519

- 3 a 2762 count on in hundreds to 3362
- b 3276 count on in hundreds to 3876
- c 5861 count on in hundreds to 6461
- d 7534 count on in hundreds to 8134
- e 6725 count on in hundreds to 7325

- 4 a 2762 count back in hundreds to 1962
- b 3276 count back in hundreds to 2476
- c 5861 count back in hundreds to 5061
- d 7534 count back in hundreds to 6734
- e 6725 count back in hundreds to 5925

Challenge 2

- 1 a 41763 count on in tens to 41823
- b 28741 count on in tens to 28801
- c 33285 count on in tens to 33345
- d 58531 count on in tens to 58591
- e 72868 count on in tens to 72928
- 2 a 41763 count back in tens to 41683
- b 28741 count back in tens to 28661
- c 33285 count back in tens to 33205
- d 58531 count back in tens to 58451
- e 72868 count back in tens to 72788

- 3 a 18652 count on in hundreds to 19252
- b 26482 count on in hundreds to 27082
- c 61875 count on in hundreds to 62475
- d 57946 count on in hundreds to 58546
- e 72931 count on in hundreds to 73531
- f 65428 count on in hundreds to 66028

- 4 a 18652 count back in hundreds to 17852
- b 26482 count back in hundreds to 25682
- c 61875 count back in hundreds to 61075
- d 57946 count back in hundreds to 57146
- e 72931 count back in hundreds to 72131
- f 65428 count back in hundreds to 64628

Challenge 3

Answers will vary.

Lesson 4: 5-digit rounding

Challenge 1

- 1, 2 a $\boxed{2760}$ 2763 2770
- b $\boxed{1950}$ 1951 1960
- c 4280 4287 $\boxed{4290}$
- d 6150 6159 $\boxed{6160}$
- e 7390 7395 $\boxed{7400}$
- f 8210 8218 $\boxed{8220}$
- g $\boxed{4830}$ 4832 4840
- h $\boxed{5620}$ 5624 5630
- i 8910 8916 $\boxed{8920}$
- j $\boxed{4890}$ 4893 4900

- Challenge 2**
- 1 a 25820 25824 25830
 b 18760 18769 18770
 c 36520 36523 36530
 d 41990 41995 42000
 e 57160 57168 57170
 f 68220 68221 68230
 g 48630 48637 48640
 h 73520 73524 73530
 i 36880 36885 36890
 j 83480 83482 83490
- 2 a 25800 25824 25900
 b 18700 18769 18800
 c 36500 36523 36600
 d 41900 41995 42000
 e 57100 57168 57200
 f 68200 68221 68300
 g 48600 48637 48700
 h 73500 73524 73600
 i 36800 36885 36900
 j 83400 83482 83500
- 3 a 25000 25824 26000
 b 18000 18769 19000
 c 36000 36523 37000
 d 41000 41995 42000
 e 57000 57168 58000
 f 68000 68221 69000
 g 48000 48637 49000
 h 73000 73524 74000
 i 36000 36885 37000
 j 83000 83482 84000

4 Answers will vary.

5 Answers will vary.

- Challenge 3**
- 1 Answers will vary.
- 2 a £37 600
 b £93 870
 c 65 000 copies
 d 34 630, 34 600, 35 000
 e Various answers between £44 500 and £45 499
 f 84 140, 84 100, 84 000

Unit 1, Week 2: Number - Addition and subtraction

Lesson 1: Adding mentally (1)

- Challenge 1**
- 1 a 1632 f 2591
 b 1571 g 3177
 c 2803 h 3523
 d 2925 i 4235
 e 3053 j 5944
- 2 a 1833 f 3979
 b 1832 g 4906
 c 2981 h 5997
 d 3088 i 7175
 e 3494 j 8402

- Challenge 2**
- 1 a 13614 f 54741
 b 24611 g 54863
 c 29822 h 60921
 d 37041 i 64353
 e 42663
- 2 a 17956 f 61556
 b 23863 g 62163
 c 38839 h 66525
 d 46212 i 72403
 e 57188
- 3 a 19871 f 72402
 b 30871 g 55873
 c 37287 h 70871
 d 53287 i 72692
 e 61899

- Challenge 3**
- 1 a 37358 f 75597
 b 46498 g 82562
 c 50341 h 94366
 d 68498 i 91521
 e 73681 j 101289
- 2 a 28887 f 50405
 b 18908 g 68358
 c 32969 h 83026
 d 45451 i 87452
 e 59831 j 92150
- 3 a 800 f 79316
 b 5000 g 16752
 c 70 h 53978
 d 720 i 84361
 e 5600 j 35823

4 Answers will vary.

Lesson 2: Subtracting mentally (1)

- Challenge 1**
- 1 a 1722 g 5782
 b 2816 h 6297
 c 3099 i 7295
 d 4671 j 8588
 e 4487 k 7682
 f 5766 l 8292
- 2 a 1319 g 4926
 b 2037 h 6055
 c 3521 i 6871
 d 2956 j 7717
 e 4258 k 7785
 f 4149 l 7812

- Challenge 2**
- 1 a 18813 f 57461
 b 26089 g 61582
 c 30565 h 63663
 d 45771 i 68562
 e 51646
- 2 a 18487 f 63487
 b 28926 g 61829
 c 36955 h 64918
 d 40839 i 70763
 e 54588 j 69868
- 3 a 12752 f 59114
 b 17871 g 47753
 c 29874 h 59826
 d 38287 i 63104
 e 48829

- Challenge 3**
- 1 a 34671 f 69955
 b 48543 g 76562
 c 47893 h 85877
 d 66498 i 93573
 e 74834
- 2 a 24988 f 71713
 b 35683 g 79227
 c 42368 h 92335
 d 48442 i 93867
 e 64563
- 3 a 240 f 74079
 b 6100 g 16791
 c 5800 h 82913
 d 40 i 91476
 e 4600 j 89504

4 Answers will vary.

Lesson 3: Subtracting mentally (2)

- Challenge 1**
- 1 a 3273 f 4847
 b 1217 g 5262
 c 3229 h 6831
 d 4783 i 6171
 e 2232
- 2 a 1931 f 2202
 b 2272 g 2031
 c 1821 h 3252
 d 2822 i 6022
 e 2381
- Challenge 2**
- 1 a 22201 f 49382
 b 23362 g 45543
 c 31281 h 49289
 d 34402 i 52274
 e 36561
- 2 a 5271 f 22757
 b 8172 g 29727
 c 7871 h 26467
 d 14998 i 16821
 e 27293

3 Answers will vary.

4 Answers will vary.

- Challenge 3**
- 1 a 18787 f 40047
 b 17278 g 38804
 c 27799 h 40405
 d 21301 i 10449
 e 31898
- 2 a 37760 f 30994
 b 37293 g 29853
 c 38287 h 39996
 d 38709 i 73809
 e 32979
- 3 a 35997 f 64387
 b 32999 g 97623
 c 14003 h 51809
 d 16998 i 84152
 e 12002 j 37921
- 4 Answers will vary.
- 5 Answers will vary.

Lesson 4: Computer game problems

- Challenge 1**
- 1 7851
 - 2 a 600 b 9220
 - 3 3490
 - 4 7741

- Challenge 2**
- 1 44724
 - 2 9401
 - 3 38303
 - 4 24361
 - 5 Molly 19801
 - Jack 22601
 - 6 Answers will vary.

- Challenge 3**
- 1 Tuesday 30780
 - Wednesday 32781
 - 2 Answers will vary.
 - 3 56497
 - 4 799
 - 5 Answers will vary.

Unit 1, Week 3: Geometry – Properties of shapes

Lesson 1: Faces and edges in 3-D shapes

- Challenge 1**
- 1 a parallel
 - b parallel
 - c perpendicular
 - d perpendicular
 - e perpendicular

Challenges 2,3

3-D shape	Total number of faces	Number of faces perpendicular to the shelf	Number of faces parallel to the shelf
cube	6	4	2
triangular prism	5	3	2
pentagonal prism	7	5	2
hexagonal prism	8	6	2

3-D shape	Total number of edges	Number of edges perpendicular to the shelf	Number of edges parallel to the shelf
cube	12	4	8
triangular prism	9	3	6
pentagonal prism	15	5	10
hexagonal prism	18	6	12

- 3 a parallel
- b parallel
- c perpendicular
- d perpendicular
- e perpendicular
- f parallel

4 a

3-D shape	Total number of faces	Number of faces perpendicular to the shelf	Number of faces parallel to the shelf
triangular prism	5	2	1
pentagonal prism	7	2	1
hexagonal prism	8	2	2

3-D shape	Total number of edges	Number of edges perpendicular to the shelf	Number of edges parallel to the shelf
triangular prism	9	0	5
pentagonal prism	15	0	7
hexagonal prism	18	0	10

b Answers may vary

- Challenge 3**
- 1 a 1
 - b 4
 - c, d Answers may vary.

Lesson 2: Identifying 3-D shapes

Challenge 1

no faces with 4 right angles	D, E
only one face with 4 right angles	B
more than one face with 4 right angles	A, C, F, G, H
3 edges at each vertex	A, C, D, F, G, H
more than 3 edges at one or more vertices	B, E

- 2 a hexagonal prism
- b octahedron

Challenge 2

	3 edges at each vertex	More than 3 edges at one or more vertices
no right-angled faces	H, I	G, J
one right-angled face		A
more than one right-angled face	B, C, D, E, F	

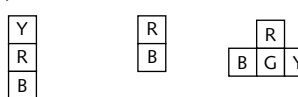
- 2 a cube
- b none
- c hexagonal prism
- d dodecahedron

Challenge 3 tetrahedron, cube, octahedron, dodecahedron

Lesson 3: Drawing 3-D shapes

Challenge 1

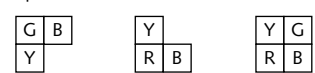
1 b top view front view side view



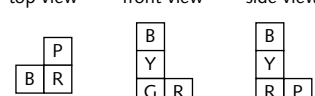
2 Answers will vary.

Challenges 2,3

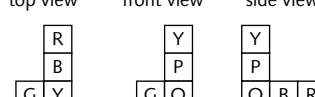
1 A top view front view side view



B top view front view side view



C top view front view side view



2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Working with 3-D shapes

- Challenge 1**
- | | | |
|-------|------|------|
| 1 A 4 | B 6 | C 11 |
| D 5 | E 10 | F 5 |

2 shape E

- Challenge 2**
- | | | |
|-------|-----|------|
| 1 A 4 | B 5 | C 8 |
| D 9 | E 5 | F 11 |

- 2 A and B
C and G
D and F
E and H

Challenge 3 Answers will vary.

Unit 2, Week 1: Number – Multiplication and division

Lesson 1: Multiplying by 9, 99 using 10, 100 and adjusting

- Challenge 1**
- | | |
|---------|-------|
| 1 a 230 | d 580 |
| b 470 | e 840 |
| c 720 | |
- 2 a 3900 d 8500
- b 7700 e 4600
- c 2800

- Challenge 2**
- | | |
|---------|-------|
| 1 a 603 | f 306 |
| b 801 | g 405 |
| c 621 | h 522 |
| d 333 | i 666 |
| e 567 | j 828 |

- 2 a 4554 f 8217
- b 3663 g 5742
- c 2475 h 6138
- d 7326 i 4059
- e 9207 j 8514

3 81, 891, 8991, 89991

- Challenge 3**
- 1 Answers will vary.
- | | |
|----------|---------|
| 2 a 6965 | g 5364 |
| b 9867 | h 15968 |
| c 10692 | i 12177 |
| d 5148 | j 12814 |
| e 5940 | k 25536 |
| f 8734 | l 48438 |

Lesson 2: Multiplying by multiples of 10, 100 and 1000

- Challenge 1**
- 1 a 360 b 3600 c 36000
 2 a 480 b 4800 c 48000
 3 a 740 b 7400 c 74000
 4 a 270 b 2700 c 27000
 5 a 530 b 5300 c 53000
 6 a 650 b 6500 c 65000
 7 a 810 b 8100 c 81000

- Challenge 2**
- 1 a 72 d 288
 b 74 e 315
 c 232 f 256

2

2320	288000	7400	315000	720
31500	25600	7200	23200	28800
2560	23200	3150	2880	74000

3, 4 Answers will vary.

- Challenge 3**
- 1 a 30 h 1400
 b 1890 i 5000
 c 30 j 3000
 d 200 k 800
 e 40 l 34200
 f 600 m 4000
 g 1000 n 170
- 2 a 1680 b 15 c 36000

Lesson 3: Multiplying using multiples 10 and adjusting

- Challenge 1**
- 1 a 530 f 360
 b 270 g 740
 c 820 h 910
 d 650 i 180
 e 480 j 600
- 2 a 243 f 144
 b 455 g 584
 c 265 h 570
 d 656 i 518
 e 288

- Challenge 2**
- 1 a 456 e 1216
 b 855 f 1064
 c 684 g 1463
 d 912 h 1615
- 2 a 667 d 1276
 b 435 e 1827
 c 1073
- 3 a 624 e 2418
 b 1053 f 1599
 c 1755 g 3120
 d 2067 h 2886
- 4 a 1862 e 2773
 b 2415 f 986
 c 2054 g 2695
 d 1416 h 1596

- Challenge 3**
- 32 × 21
 44 × 28
 36 × 41
 29 × 15

Lesson 4: Multiplying and halving

- Challenge 1**
- 1 a i 240 iv 210
 ii 130 v 320
 iii 420
- b i 280 iv 360
 ii 190 v 470
 iii 70
- c i 75 iv 195
 ii 185 v 375
 iii 265

2 Answers will vary.

- Challenges 2,3**
- 1 a 120 f 185
 b 430 g 240
 c 320 h 290
 d 225 i 360
 e 315
- 2 a 2200 f 750
 b 3100 g 1800
 c 1150 h 2800
 d 2250 i 3750
 e 1350
- 3 a 600 f 1300
 b 1200 g 1900
 c 1600 h 1150
 d 400 i 2075
 e 900

- 4 a 190 f 2350
 b 700 g 325
 c 1750 h 4150
 d 365 i 385
 e 1125 j 2300

- Challenge 3**
- 1 Answers will vary.
- 2 a 25 d 77
 b 34 e 5
 c 50 f 58

Unit 2, Week 2: Number - Fractions

Lesson 1: Finding fractions

- Challenge 1**
- 1 a 24 e 24
 b 22 f 18
 c 17 g 14
 d 14 h 18

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

- Challenge 2**
- 1 i $\frac{2}{3}$ 200ml v $\frac{2}{6}$ 100ml
 ii $\frac{2}{5}$ 120ml vi $\frac{3}{3}$ 300ml
 iii $\frac{4}{6}$ 200ml vii $\frac{4}{5}$ 240ml
 iv $\frac{3}{5}$ 180ml viii $\frac{5}{6}$ 250ml

- 2 a £48 e 68 hrs
 b 87 km f £84
 c 38 g g 140 kg
 d 136 h 72 km

Challenge 3

1 Answers will vary.

- 2 $\frac{6}{8}$ is further than $\frac{4}{6}$
- 3 $\frac{8}{9}$
- 4 a Answers will vary.
 b Answers will vary.

Lesson 2: Fraction sequences

Challenge 1

1 $\frac{1}{2}$ count in halves to 10

2 $\frac{1}{4}$ count in quarters to 5

3 $\frac{1}{3}$ count in thirds to 7

- Challenge 2**
- 1 a 8 count in halves to 15
 b 10 count in quarters to 13
 c 4 count in thirds to 7
 d 7 count in fifths to 10
 e 2 count in tenths to 4
 f 5 count in sixths to 8

2 a $\frac{1}{4}, \frac{3}{4}, 1\frac{1}{4}, 1\frac{3}{4}$
 continue in sequence to $4\frac{3}{4}$

b $\frac{2}{6}, \frac{4}{6}, 1, 1\frac{2}{6}$
 continue in sequence to $3\frac{2}{6}$

c $\frac{1}{5}, \frac{3}{5}, 1, 1\frac{2}{5}$
 continue in sequence to $3\frac{4}{5}$

d $\frac{2}{10}, \frac{4}{10}, \frac{6}{10}, \frac{8}{10}$
 continue in sequence to 2

e $\frac{2}{8}, \frac{4}{8}, \frac{6}{8}, 1, 1\frac{2}{8}, 1\frac{4}{8}, 1\frac{6}{8}, 2, 2\frac{2}{8}, 2\frac{4}{8}$

f $\frac{1}{10}, \frac{3}{10}, \frac{5}{10}, \frac{7}{10}, \frac{9}{10}, 1\frac{1}{10}, 1\frac{3}{10}, 1\frac{5}{10}, 1\frac{7}{10}, 1\frac{9}{10}$

3 Answers will vary.

Challenge 3

1 a $0, \frac{3}{10}, \frac{6}{10}, \frac{9}{10}$
 complete sequence to 3

b $0, \frac{3}{4}, 1\frac{1}{2}, 2\frac{1}{4}$
 complete sequence to $6\frac{3}{4}$

c $0, \frac{2}{5}, \frac{4}{5}, 1\frac{1}{5}$
 complete sequence to 4

d $0, 1\frac{1}{2}, 3, 4\frac{1}{2}$
 complete sequence to $13\frac{1}{2}$

e $0, \frac{1}{6}, \frac{4}{6}, 1\frac{1}{6}$
 complete sequence to $4\frac{4}{6}$

f $\frac{6}{7}, 1\frac{1}{7}, 1\frac{3}{7}$
 complete sequence to $3\frac{5}{7}$

2 Answers will vary.

- 3 a 3 increase by $\frac{2}{5}$ to 7
 b 10 increase by $\frac{3}{10}$ to 13
 c 9 increase by $\frac{2}{7}$ to $11\frac{6}{7}$
 d 5 decrease by $\frac{2}{6}$ to $1\frac{4}{6}$
 e 8 decrease by $\frac{2}{3}$ to $1\frac{1}{3}$
 f 12 decrease by $\frac{2}{10}$ to 10

Lesson 3: Equivalent fractions

- Challenge 1** 1 $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$
 2, 3 Answers will vary.

- Challenge 2** 1 $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$
 2 Answers will vary.
 3 $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$
 4 Answers will vary.

- Challenge 3** 1 Answers will vary.
 2 a $\frac{9}{16}$ X g $\frac{13}{26}$ ✓
 b $\frac{7}{14}$ ✓ h $\frac{15}{28}$ X
 c $\frac{6}{13}$ X i $\frac{8}{18}$ X
 d $\frac{11}{22}$ ✓ j $\frac{14}{28}$ ✓
 e $\frac{9}{18}$ ✓ k $\frac{9}{17}$ X
 f $\frac{12}{20}$ X l $\frac{16}{30}$ X

- 3 Answers will vary.
 4 Answers will vary.

Lesson 4: Ordering fractions

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

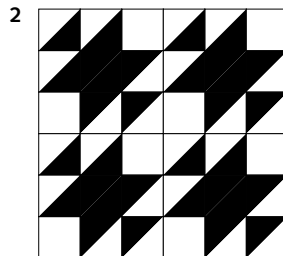
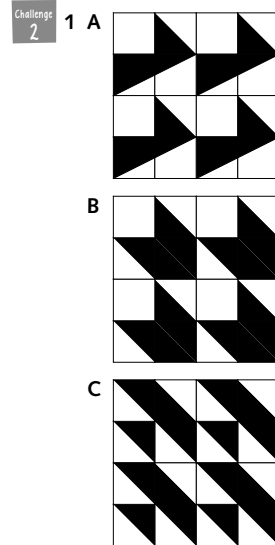
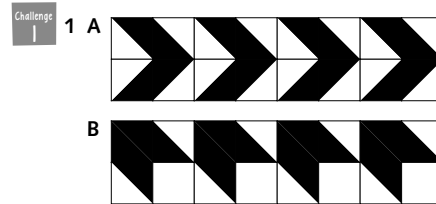
- Challenge 2** 1 a $\frac{2}{5}$ $\frac{1}{2}$ $\frac{6}{10}$
 b $\frac{1}{4}$ $\frac{2}{3}$ $\frac{5}{6}$
 c $\frac{2}{5}$ $\frac{6}{10}$ $\frac{3}{4}$
 d $\frac{2}{6}$ $\frac{5}{12}$ $\frac{2}{3}$
 e $\frac{2}{7}$ $\frac{1}{2}$ $\frac{11}{14}$
 f $\frac{4}{8}$ $\frac{1}{2}$ $\frac{2}{3}$

- 2 Answers will vary.

- Challenge 3** 1 a Halves group $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{6}$ $\frac{1}{8}$ $\frac{1}{10}$ $\frac{1}{12}$
 Thirds group $\frac{1}{3}$ $\frac{1}{6}$ $\frac{1}{9}$ $\frac{1}{12}$
 Quarters group $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{12}$
 Fifths group $\frac{1}{5}$ $\frac{1}{10}$
 b Twelfths
 c $\frac{1}{7}$ $\frac{1}{11}$ $\frac{1}{14}$ $\frac{1}{22}$
 2 a $\frac{1}{3}$ $\frac{3}{6}$ $\frac{4}{7}$ $\frac{3}{4}$
 b $\frac{2}{5}$ $\frac{1}{2}$ $\frac{7}{10}$ $\frac{5}{6}$
 c $\frac{2}{9}$ $\frac{13}{18}$ $\frac{3}{4}$ $\frac{11}{12}$
 d $\frac{2}{3}$ $\frac{4}{5}$ $\frac{13}{15}$ $\frac{9}{10}$

Unit 2, Week 3: Geometry - Position and direction

Lesson 1: Translating shapes



- 3 Answers will vary.

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

Lesson 2: Tiling translations

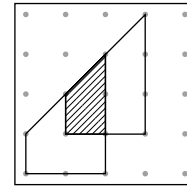
- Challenge 1** Answers will vary.

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

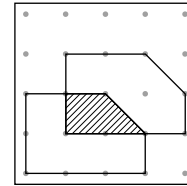
- Challenge 3** 1 Answers will vary.
 2 Answers will vary.

Lesson 3: Translating polygons

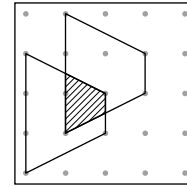
- Challenge 1** 1 A trapezium



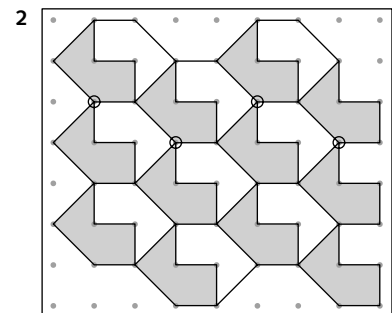
- B trapezium



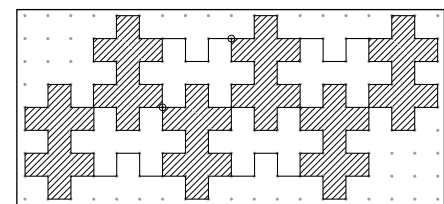
- C isosceles trapezium



- Challenge 2** 1 a 4 dots to the right
 b 4 dots up
 c 4 dots up



- Challenge 3**

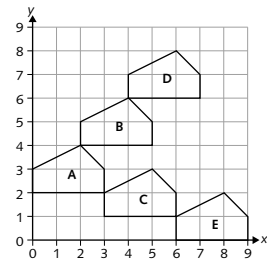
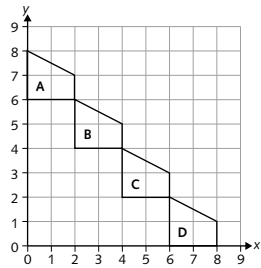


Lesson 4: Translating with coordinates

- Challenge 1** 3 to the right then 1 up

Challenge 2

Shape	x-axis	y-axis
A	0	2
B	2	4
C	4	6
D	6	8



Unit 3, Week 1: Number - Addition and subtraction

Lesson 1: Adding mentally (2)

Challenge 1

- 1 a 16293 g 35 197
 b 17787 h 45 486
 c 24762 i 40382
 d 28865 j 42 487
 e 32298 k 46 192
 f 22478 l 74283

2 Answers will vary.

Challenge 2

- 1 a 26997 g 43 967
 b 28597 h 43 566
 c 28177 i 55 272
 d 34857 j 48 296
 e 44172 k 58 176
 f 49263 l 58 287

2 Answers will vary.

Challenge 3

- 1 a 55 542 f 75 198
 b 65 287 g 75 228
 c 59 417 h 87 198
 d 54 244 i 92 373
 e 72 183

- 2 a 540 e 7400
 b 6400 f 730
 c 730 g 480
 d 5700 h 7500

- 2 a $51\,675 + 4000 + 300 + 20 = 55\,995$
 b $57\,531 + 6000 + 400 + 30 = 63\,961$
 c $64\,248 + 8000 + 200 = 72\,448$
 d $66\,885 + 7000 + 300 + 90 = 74\,275$
 e $70\,483 + 5000 + 900 + 10 = 76\,393$
 f $75\,684 + 5000 + 500 + 50 = 81\,234$

Lesson 2: Written addition (1)

Challenge 1

- a 7938 g 13 883
 b 9378 h 9787
 c 11993 i 9837
 d 15487 j 14002
 e 9689 k 10184
 f 8579 l 16947

Challenge 2

- 1 a 53938 g 96430
 b 49464 h 86918
 c 80752 i 89364
 d 59273 j 77667
 e 63964 k 94933
 f 70060 l 87580
- 2 a 65970 e 92087
 b 76859 f 91021
 c 79577 g 101346
 d 83316 h 105023

Challenge 3

- 1 a 44655 g 92551
 b 54671 h 97421
 c 49251 i 88291
 d 80631 j 104760
 e 82461 k 100232
 f 97443 l 135631

2 Answers will vary.

- 3 a 91895 e 133961
 b 105709 f 136123
 c 114408 g 142244
 d 120221 h 146502

- 4 a 17732, 17733, 17734
 b 28744, 28745, 28746
 c 19101, 19102, 19103
 d 30424, 30425, 30426
 e 27263, 27264, 27265
 f 22333, 22334, 22335

Lesson 3: Written addition (2)

Challenge 1

- 1 a 26827 g 48882
 b 27259 h 50298
 c 29885 i 63758
 d 37918 j 67754
 e 44789 k 74192
 f 49088 l 72637

2 Answers will vary.

Challenge 2

- 1 a 74437 g 74620
 b 60553 h 97232
 c 74135 i 93753
 d 74223 j 86310
 e 70530 k 95602
 f 63350 l 96278

2 Answers will vary.

- 3 a 18380, 18381
 b 21153, 21154
 c 23001, 23002
 d 27067, 27068
 e 30214, 30215

Challenge 3

- 1 a 84220 g 92231
 b 73310 h 93110
 c 91221 i 118411
 d 91220 j 124331
 e 93110 k 124232
 f 94242 l 138251

2, 3 Answers will vary.

Lesson 4: Checking calculations

Challenge 1

- a 27588 g 43639
 27600 43700
 b 35346 h 60538
 35300 60600
 c 30438 i 56498
 30500 56500
 d 45373 j 68766
 45300 68700
 e 49539 k 68218
 49600 68200
 f 38559 l 79933
 38500 79900

Challenge 2

- 1 a 49791 f 75353
 b 54658 g 88673
 c 51262 h 87462
 d 61432 i 90587
 e 67574 j 97443

2 Answers will vary.

3 490 numbers would be rounded down, 500 numbers would be rounded up and 10 numbers would not need to be rounded.

Challenge 3

- 1 a 74 618 f 117 041
 b 97 050 g 120 842
 c 100 212 h 135 083
 d 96 870 i 131 261
 e 96 840 j 139 050

2 Answers will vary.

Unit 3, Week 2: Number - Decimals

Lesson 1: Decimals as fractions

Challenge 1

- a $0.34 = \frac{34}{100}$ g $0.85 = \frac{85}{100}$
 b $0.45 = \frac{45}{100}$ h $0.26 = \frac{26}{100}$
 c $0.52 = \frac{52}{100}$ i $0.03 = \frac{3}{100}$
 d $0.68 = \frac{68}{100}$ j $0.14 = \frac{14}{100}$
 e $0.22 = \frac{22}{100}$ k $0.91 = \frac{91}{100}$
 f $0.74 = \frac{74}{100}$

Challenge 2

- 1 a $\frac{60}{100}$ f $\frac{4}{100}$
 b $\frac{52}{100}$ g $\frac{27}{100}$
 c $\frac{11}{100}$ h $\frac{10}{100}$
 d $\frac{90}{100}$ i $\frac{1}{100}$
 e $\frac{83}{100}$ j $\frac{99}{100}$

- 2 a $4\frac{10}{100}$ f $8\frac{6}{100}$
 b $3\frac{98}{100}$ g $9\frac{18}{100}$
 c $6\frac{26}{100}$ h $12\frac{60}{100}$
 d $6\frac{90}{100}$ i $13\frac{36}{100}$
 e $7\frac{41}{100}$ j $17\frac{93}{100}$

3 Answers will vary.

Challenge 3

- 1 a $6 \cdot 46 = 6\frac{46}{100} = \frac{646}{100}$
 b $7 \cdot 38 = 7\frac{38}{100} = \frac{738}{100}$
 c $5 \cdot 7 = 5\frac{70}{100} = \frac{570}{100}$
 d $9 \cdot 12 = 9\frac{12}{100} = \frac{912}{100}$
 e $4 \cdot 08 = 4\frac{8}{100} = \frac{408}{100}$
 f $6 \cdot 37 = 6\frac{37}{100} = \frac{637}{100}$
 g $3 \cdot 5 = 3\frac{50}{100} = \frac{350}{100}$
 h $6 \cdot 62 = 6\frac{62}{100} = \frac{662}{100}$
 i $8 \cdot 40 = 8\frac{40}{100} = \frac{840}{100}$
 j $9 \cdot 90 = 9\frac{90}{100} = \frac{990}{100}$

2 Answers will vary.

Lesson 2: Decimal rounding and complements

Challenge 1

- 1 a 1 e 3
 b 2 f 2
 c 1 g 4
 d 2 h 4

- 2 1 1.84 (2)
 (1) 1.15 2
 2 2.77 (3)
 (2) 2.48 3
 3 3.64 (4)
 (3) 3.05 4
 4 4.92 (5)
 (0) 0.1 1
 (5) 5.35 6

Challenge 2

- 1 (3) 3.14 4
 4 4.67 (5)
 (5) 5.29 6
 2 2.51 (3)
 7 7.96 (8)
 8 8.50 (9)
 9 9.88 (10)
 (10) 10.02 11
 12 12.63 (13)
 (14) 14.38 15
 (15) 15.49 16
 (17) 17.38 18

- 2 0.65 + 0.35 = 1
 0.47 + 0.53 = 1
 0.93 + 0.07 = 1
 0.26 + 0.74 = 1
 0.81 + 0.19 = 1
 0.22 + 0.78 = 1
 0.51 + 0.49 = 1
 0.76 + 0.24 = 1
 0.77 + 0.23 = 1
 0.42 + 0.58 = 1
 0.99 + 0.01 = 1
 0.03 + 0.97 = 1

Challenge 3

- 1 Answers will vary.
 2 a 12.87 + 0.13 = 13
 b 14.62 + 0.38 = 15
 c 17.15 + 0.85 = 18
 d 18.03 + 0.97 = 19
 e 19.98 + 0.02 = 20
 f 21.50 + 0.50 = 22
 g 26.48 + 0.52 = 27
 h 34.22 + 0.78 = 35

Lesson 3: Rounding to 1 decimal place

Challenge 1

- (1.1) 1.14 1.2
 1.2 1.26 (1.3)
 (1.3) 1.32 1.4
 1.3 1.39 (1.4)
 (1.4) 1.43 1.5
 1.5 1.55 (1.6)
 1.6 1.68 (1.7)
 1.7 1.79 (1.8)
 1.8 1.86 (1.9)
 1.9 1.95 (2)

Challenge 2

- 1 No answers
 2 No answers
 3 a 3.02 rounds down to 3.0
 b 3.12 rounds down to 3.1
 c 3.19 rounds up to 3.2
 d 3.35 rounds up to 3.4
 e 3.43 rounds down to 3.4
 f 3.51 rounds down to 3.5
 g 3.59 rounds up to 3.6
 h 3.65 rounds up to 3.7
 i 3.77 rounds up to 3.8
 j 3.96 rounds up to 4.0

- 4 a 4.3 f 7.3
 b 5.0 g 8.3
 c 5.7 h 9.8
 d 6.5 i 9.2
 e 7.0

Challenge 3

- 1 a 3.45, 3.46, 3.47, 3.48, 3.49, 3.51, 3.52, 3.53, 3.54
 b 5.55, 5.56, 5.57, 5.58, 5.59, 5.61, 5.62, 5.63, 5.64
 c 6.85, 6.86, 6.87, 6.88, 6.89, 6.91, 6.92, 6.93, 6.94
 d 7.05, 7.06, 7.07, 7.08, 7.09, 7.11, 7.12, 7.13, 7.14
 e 7.95, 7.96, 7.97, 9.98, 7.99, 8.01, 8.02, 8.03, 8.04
 f 9.25, 9.26, 9.27, 9.28, 9.29, 9.31, 9.32, 9.33, 9.34
 g 10.75, 10.76, 10.77, 10.78, 10.79, 10.81, 10.82, 10.83, 10.84
 h 12.15, 12.16, 12.17, 12.18, 12.19, 12.21, 12.22, 12.23, 12.24
 i 14.65, 14.66, 14.67, 14.68, 14.69, 14.71, 14.72, 14.73, 14.74
 j 15.35, 15.36, 15.37, 16.38, 15.39, 15.41, 15.42, 15.43, 15.44
 k 6.45, 6.46, 6.47, 6.48, 6.49, 6.51, 6.52, 6.53, 6.54
 l 13.25, 13.26, 13.27, 13.28, 13.29, 13.31, 13.32, 13.33, 13.34

2 Answers will vary.

3 Game

Lesson 4: Decimal sequences

Challenge 1

- 1 a 1.9 2.1 2.3 2.5 2.7
 b 3.8 4.0 4.2 4.4 4.6
 c 3.0 3.5 4.0 4.5 5.0
 d 1.6 2.0 2.4 2.8 3.2
 e 3.3 3.5 3.7 3.9 4.1
 f 6.8 7.1 7.4 7.7 8.0
 g 5.2 5.5 5.8 6.1 6.4
 h 9.0 9.5 10 10.5 11
 i 9.3 9.7 10.1 10.5 10.9
 j 7.4 7.6 7.8 8.0 8.2
 2 a 1.48 1.49 1.50 1.51 1.52
 b 0.38 0.40 0.42 0.44 0.46
 c 2.17 2.19 2.21 2.23 2.25
 d 2.59 2.62 2.65 2.68 2.71
 e 3.85 3.87 3.89 3.91 3.93
 f 4.10 4.13 4.16 4.19 4.22
 g 4.72 4.75 4.78 4.81 4.84
 h 6.37 6.41 6.45 6.49 6.53
 i 7.80 7.85 7.90 7.95 8.0
 j 8.44 8.54 8.64 8.74 8.84

- Challenge 2**
- 1 a 2.1 2.3 2.5 2.7
2.9 3.1 3.3 3.5
b 3.3 3.6 3.9 4.2
4.5 4.8 5.1 5.4
c 3.8 4.0 4.2 4.4
4.6 4.8 5.0 5.2
d 5.4 5.6 5.8 6.0
6.2 6.4 6.6 6.8
e 0.1 0.3 0.5 0.7
0.9 1.1 1.3 1.5
f 2.1 2.6 3.1 3.6
4.1 4.6 5.1 5.6
g 2.0 2.5 3.0 3.5
4.0 4.5 5.0 5.5
h 6.0 6.4 6.8 7.2
7.6 8.0 8.4 8.8

2 Answers will vary.

- 3 a 0.48 0.50 0.52 0.54
0.56 0.58 0.60 0.62
b 1.22 1.24 1.26 1.28
1.30 1.32 1.34 1.36
c 1.54 1.57 1.60 1.63
1.66 1.69 1.72 1.75
d 2.12 2.16 2.20 2.24
2.28 2.32 2.36 2.40
e 5.63 5.66 5.69 5.72
5.75 5.78 5.81 5.84
f 7.56 7.66 7.76 7.86
7.96 8.06 8.16 8.26
g 2.82 3.82 4.82 5.82
6.82 7.82 8.82 9.82
h 2.11 2.16 2.21 2.26
2.31 2.36 2.41 2.46

4 Answers will vary.

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

Unit 3, Week 3: Measurement (mass)

Lesson 1: Converting masses

- 1 a 2500 g b 4100 g c 6250 g
d 3300 g e 5700 g f 7900 g
- 2 a 6 kg 260 g b 9 kg 530 g
c 6 kg 60 g d 9 kg 500 g
e 6 kg 200 g f 9 kg 30 g
- 3 a $3\frac{1}{2}$ kg = 3.5 kg
b $3\frac{1}{4}$ kg = 3.25 g
c $3\frac{3}{4}$ kg = 3.75 kg
d $3\frac{1}{10}$ kg = 3.1 kg
e $3\frac{7}{10}$ kg = 3.7 kg
f $3\frac{9}{10}$ kg = 3.9 kg
- 4 a 2500 g b 4200 g
c 3250 g d 1750 g
e 3600 g f 2900 g

- Challenges 2,3**
- 1 a 4 kg 350 g b 3 kg 920 g
c 5 kg 180 g d 3 kg 20 g
e 5 kg 80 g f 4 kg 50 g
- 2 a 4.35 kg b 3.92 kg
c 5.18 kg d 3.02 kg
e 5.08 kg f 4.05 kg
- 3 a pack A 2.6 kg = 2600 g
pack B 3.2 kg = 3200 g
pack C 5.5 kg = 5500 g
pack D 5.9 kg = 5900 g
pack E 4.6 kg = 4600 g
pack F 4.9 kg = 4900 g
b pack A 0.26 kg = 260 g
pack B 0.32 kg = 320 g
pack C 0.55 kg = 550 g
pack D 0.59 kg = 590 g
pack E 0.46 kg = 460 g
pack F 0.49 kg = 490 g
c pack A 26 kg pack B 32 kg
pack C 55 kg pack D 59 kg
pack E 46 kg pack F 49 kg

1 585 kg

Lesson 2: Using metric and imperial units (1)

- Challenge 1**
- 1 a $\frac{1}{2}$ lb \approx 250 g
b $\frac{1}{4}$ lb \approx 125 g
c $\frac{3}{4}$ lb \approx 375 g
- 2 a 250 g d 500 g
b 375 g e 875 g
c 125 g
- 3 a 2 kg \approx 4 lb
b 5 kg \approx 10 lb
c 2.5 kg \approx 5 lb
- 4 a $1\frac{1}{4}$ lb \approx 625 g
b $4\frac{1}{2}$ lb \approx 2250 g
c $2\frac{3}{4}$ lb \approx 1375 g

- Challenge 2**
- 1 a $4\frac{1}{2}$ kg \approx 9 lb
b $3\frac{1}{4}$ kg \approx $6\frac{1}{2}$ lb
c $6\frac{3}{4}$ kg \approx $13\frac{1}{2}$ lb
d $9\frac{1}{4}$ kg \approx $18\frac{1}{2}$ lb

- 2 a 8 kg c 9 kg
b 6 kg d 12 kg
- 3 a i 230 g b i $\frac{3}{4}$ lb
ii 450 g ii 2 lb
iii 790 g iii $1\frac{1}{4}$ lb
iv 570 g iv $\frac{1}{4}$ lb

- 4 a false d false
b false e false
c true f true

- Challenge 3**
- 1 a 1 lb c $3\frac{1}{4}$ lb
b $1\frac{3}{4}$ lb d $2\frac{3}{4}$ lb

Lesson 3: Mass problems

- Challenge 1**
- 1 a 5.6 kg b 1.7 kg c 1.2 kg
2 a 3.9 kg b 4.4 kg
3 a 2.4 kg b 2 kg
4 200 g
- Challenge 2**
- 1 360 g
2 15 eggs
3 0.18 kg
4 a 1.32 kg b 310 g
5 6.81 kg

- Challenge 3**
- 7 trips
- ABCD
AC \leftarrow BD
A \rightarrow BCD
ACD \leftarrow B
AC \rightarrow BD
ABD \leftarrow D
AB \rightarrow CD
ABCD \leftarrow

Lesson 4: At Sara's Snack Bar

- Challenge 1**
- 1 a 400 g, 0.4 kg
b 300 g, 0.3 kg
c 230 g, 0.23 kg
- 2 2.3 kg

Challenge 2

Food item	Number of sales		
	1 sale	10 sales	50 sales
baked potato	0.25 kg	2.5 kg	12.5 kg
quiche	0.09 kg	0.9 kg	4.5 kg
sandwich	0.175 kg	1.75 kg	8.75 kg
soup	0.14 kg	1.4 kg	7 kg

- 2 scone doughnut cupcake
a 90 g 70 g 80 g
b 0.9 kg 0.7 kg 0.8 kg
c 9 kg 7 kg 8 kg

- 3 0.72 kg
4 75 scones

- 5 a cat: 2.3 kg b kitten: 0.5 kg

- Challenge 3**
- 1 a 44 kg b 39 kg c 20.5 kg
2 103.5 kg

Unit 4, Week 1: Number - Multiplication and division

Lesson 1: Square and cube numbers

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

- 2 $1^2 = 1 \times 1 = 1$
 $2^2 = 2 \times 2 = 4$
 $3^2 = 3 \times 3 = 9$
 $4^2 = 4 \times 4 = 16$
 $5^2 = 5 \times 5 = 25$
 $6^2 = 6 \times 6 = 36$
 $7^2 = 7 \times 7 = 49$
 $8^2 = 8 \times 8 = 64$
 $9^2 = 9 \times 9 = 81$
 $10^2 = 10 \times 10 = 100$
 $11^2 = 11 \times 11 = 121$
 $12^2 = 12 \times 12 = 144$

Challenge 2

- 1 $1^3 = 1 \times 1 \times 1 = 1$
 $2^3 = 2 \times 2 \times 2 = 8$
 $3^3 = 3 \times 3 \times 3 = 27$
 $4^3 = 4 \times 4 \times 4 = 64$
 $5^3 = 5 \times 5 \times 5 = 125$
 $6^3 = 6 \times 6 \times 6 = 216$
 $7^3 = 7 \times 7 \times 7 = 343$
 $8^3 = 8 \times 8 \times 8 = 512$
 $9^3 = 9 \times 9 \times 9 = 729$
 $10^3 = 10 \times 10 \times 10 = 1000$

2 No answers

- 3 a 77 d 355
 b 99 e 1296
 c 155 f 729

Challenge 3

- $4 \times 35 = 2 \times 2 \times 5 \times 7$
 $3 \times 270 = 9 \times 3 \times 10 \times 3$
 $16 \times 25 = 4 \times 5 \times 5 \times 4$
 $36 \times 25 = 6 \times 5 \times 5 \times 6$
 $8 \times 8 \times 10 \times 9 = 64 \times 90$

Lesson 2: Multiplying THHTO x O

Challenge 1

- 1 a 36 j 6
 b 6 k 7
 c 48 l 9
 d 8 m 7
 e 8 n 5
 f 8 o 7
 g 12 p 1
 h 5 q 0
 i 8 r 6
- 2 a 21 f 64
 210 640
 2100 6400
- b 36 g 63
 360 630
 3600 6300
- c 42 h 32
 420 320
 4200 3200
- d 72 i 48
 720 480
 7200 4800
- e 49
 490
 4900

Challenge 2

1 Approximate answers may vary.

- 2 a 10638 f 71104
 b 22928 g 53732
 c 28240 h 51102
 d 56457 i 41214
 e 23916

Challenge 3

- 1 a
$$\begin{array}{r} 6\ 5\ 2\ 7 \\ \times \quad 3 \\ \hline 1\ 9\ 5\ 8\ 1 \end{array}$$
- b
$$\begin{array}{r} 3\ 6\ 2\ 8 \\ \times \quad 9 \\ \hline 3\ 2\ 6\ 4\ 3 \end{array}$$
- c
$$\begin{array}{r} 4\ 8\ 3\ 2 \\ \times \quad 4 \\ \hline 1\ 9\ 3\ 2\ 8 \end{array}$$
- d
$$\begin{array}{r} 4\ 3\ 7\ 5 \\ \times \quad 8 \\ \hline 3\ 5\ 0\ 0\ 0 \end{array}$$
- e
$$\begin{array}{r} 6\ 7\ 8\ 4 \\ \times \quad 4 \\ \hline 2\ 7\ 1\ 3\ 6 \end{array}$$
- f No solution

Lesson 3: Multiples and factors

Challenge 1

- 1 $6 \rightarrow 6, 18, 30, 36, 42, 54, 72$
 $7 \rightarrow 21, 42, 56, 49, 63$
 $8 \rightarrow 32, 56, 64, 72$
 $9 \rightarrow 18, 36, 45, 54, 63, 72, 81$

- 2 a 40: 2, 4, 5, 8, 10
 b 42: 3, 6, 7
 c 28: 4, 7
 d 25: 1, 5, 25
 e 30: 2, 3, 5, 6
 f 60: 3, 5, 6, 10, 12

Challenge 2

- 1 a 24: (1), (2), (3), 4, (6), 8, 12, 24
 30 (1), (2), (3), 5, (6), 10, 15, 30
 b 36: (1), (2), 3, (4), 6, 9, 12, 36
 64: (1), (2), (4), 8, 16, 32, 64
 c 56: (1), (2), (4), 7, (8), 14, 28, 56
 80: (1), (2), (4), 5, (8), 10, 16, 20, 40, 80
 d 45: (1), (3), 5, (9), 15, 45
 18: (1), 2, (3), 6, (9), 18
 e 32: (1), (2), (4), (8), (16), 32
 48: (1), (2), 3, (4), 6, (8), 12, (16), 24, 48
 f 60: (1), (2), 3, (4), (5), 6, (10), 12, 15, 20, 30, 60
 100: (1), (2), (4), (5), (10), 20, 25, 50, 100
 g 28: (1), (2), 4, (7), (14), 28
 42: (1), (2), 3, 6, (7), (14), 21, 42
 h 20: (1), (2), 4, 5, 10, 20
 54: (1), (2), 3, 6, 9, 18, 27, 54
 i 50: (1), 2, (5), 10, 25, 50
 35: (1), (5), 7, 35
 j 34: (1), 2, (17), 34, 136
 51: (1), 3, (17), 51
 k 56: (1), (2), (4), 7, (8), 14, 28, 56
 24: (1), (2), 3, (4), 6, (8), 12, 24
 l 72: (1), (2), 3, (4), 6, 8, 9, 12, 18, 24, 36, 72
 20: (1), (2), (4), 5, 10, 20
- 2 a 3: 3, 6, 9, (12), 15, 18, 21, (24)
 4: 4, 8, (12), 16, 20, (24), 28, 32
 b 4: 4, 8, 12, 16, (20), 24, 28, 32
 5: 5, 10, 15, (20), 25, 30, 35, 40
 c 3: 3, (6), 9, (12), 15, (18), 21, (24)
 6: (6), (12), (18), (24), 30, 36, 42, 48
 d 4: 4, 8, (12), 16, 20, (24), 28, 32
 6: 6, (12), 18, (24), 30, 36, 42, 48
 e 12: 12, 24, 36, (48), 60, 72, 84, (96)
 16: 16, 32, (48), 64, 80, (96), 112, 128
 f 15: 15, 30, 45, 60, (75), 90, 105, 120
 25: 25, 50, (75), 100, 125, 150, 175, 200
 g 25: 25, (50), 75, (100), 125, (150), 175, (200)
 50: (50), (100), (150), (200), 250, 300, 350, 400
 h 8: 8, 16, (24), 32, 40, (48), 56, 64
 12: 12, (24), 36, (48), 60, 72, 84, 96
 i 6: 6, 12, (18), 24, 30, (36), 42, 48
 9: 9, (18), 27, (36), 45, 54, 63, 72

Challenge 3

Answers will vary.

Lesson 4: Solving word problems (1)

- Challenge 1**
- a 430
 - b 42
 - c 40
 - d 182
 - e 36
 - f 56
 - g 73
 - h 312
 - i 12
 - j 63
 - k 72
 - l 208

- Challenge 2**
- a 2330 bananas
 - b 1273 oranges
 - c 1615 oranges
 - d 3900 blueberries
 - e £1.80
 - f 65p
 - g 612 apples
 - h No because multiples of 25 end in 25, 50, 75 or 00.
 - i No, he would need 1125 strawberries.

Challenge 3 Answers will vary.

Unit 4, Week 2: Number – Multiplication and division

Lesson 1: Prime numbers

- Challenge 1**
- a 36: 2, 3, 4, 6
 - b 50: 2, 5, 10
 - c 24: 2, 3, 4, 6, 8, 12
 - d 20: 2, 4, 5, 10
 - e 48: 3, 4, 6, 8
 - f 56: 7

Challenge 2

1	
prime	
2:1, 2	23:1, 23
3:1, 3	29:1, 29
5:1, 5	31:1, 31
7:1, 7	41:1, 41
11:1, 11	43:1, 43
13:1, 13	
17:1, 17	
19:1, 19	
composite	
9:1, 3, 9	45:1, 3, 5, 9, 15, 45
12:1, 2, 3, 4, 6, 12	49:1, 7, 49
14:1, 2, 7, 14	51:1, 3, 17, 51
15:1, 3, 5, 15	54:1, 2, 3, 6, 9, 18, 27, 54
21:1, 3, 7, 21	63:1, 3, 7, 9, 21, 63
26:1, 2, 13, 26	70:1, 2, 7, 10, 14, 35, 70
33:1, 3, 11, 33	81: 1, 3, 9, 27, 81
39:1, 3, 13, 39	99:1, 3, 9, 11, 33, 99
	100: 1, 2, 4, 5, 10, 20, 25, 50, 100

- 2** 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Challenge 3

All odd numbers are prime numbers: Incorrect as many odd numbers have factors other than itself and 1.

All even numbers are composite numbers: Incorrect. All even numbers except 2 are composite. 2 is a prime number as it only has 2 factors, itself and 1

1 is the smallest prime number: Incorrect. 1 is neither prime nor composite.

7 is a prime number so all numbers ending in 7 must be prime: Incorrect. Many numbers ending in 7 have more than 2 factors, e.g. 27 has the factors 1, 3, 9, 27

Lesson 2: Division involving multiples of 10, 100, 1000

Challenge 1

- 1 a 6
- 2 a 9
- 3 a 36
- 4 a 47
- 5 a 6300
- 6 a 540
- b 6
- b 9
- b 36
- b 47
- b 630
- b 54
- c 6
- c 9
- c 36
- c 47
- c 63
- c 54

Challenge 2

- 1 a $21 \div 3 = 7$
- b $36 \div 4 = 9$
- c $63 \div 9 = 7$
- d $56 \div 8 = 7$
- e $49 \div 7 = 7$
- 2 a $210 \div 3 = 70$
- b $4900 \div 70 = 70$
- c $6300 \div 900 = 7$
- d $630 \div 90 = 7$
- e $49000 \div 700 = 70$
- f $360 \div 40 = 9$
- g $72000 \div 9 = 8000$
- h $560 \div 8 = 70$
- i $36000 \div 400 = 90$
- j $56000 \div 8000 = 7$
- k $6300 \div 9 = 700$
- l $2100 \div 30 = 70$
- m $490 \div 70 = 7$
- n $560 \div 8 = 70$
- o $7200 \div 90 = 80$
- p $4200 \div 6 = 700$
- q $640 \div 80 = 8$
- r $6400 \div 80 = 80$
- s $2800 \div 70 = 40$
- t $42000 \div 60 = 700$
- u $2800 \div 700 = 4$

Challenge 3

- 1 a 100
- b 4800
- c 80
- d 900
- e 20
- f 36000
- g 54000
- h 3200
- i 4000
- j Answers will vary.
- k Answers will vary.
- l 4200
- 2 Answers will vary.

Lesson 3: Division ThHTO \div O using mental methods

Challenge 1

- 1 a 9
- b 32
- c 6 (60)
- d 1, 3 or 8, 4
- e 8
- f 4
- g 3 (30), 4
- h 0, 5
- i 63
- j 9
- k 2
- l 7, 7
- m 84
- n 8
- o 9
- p 10
- q 9, 9 or 3, 27
- r 3, 7

- 2 a 2
- 20
- 200
- b 6
- 60
- 600
- c 4
- 40
- 400
- d 9
- 90
- 900
- e 7
- 70
- 700
- f 6
- 60
- 600
- g 9
- 90
- 900
- h 7
- 700
- 70
- i 4
- 400
- 40
- j 70
- 7
- 700
- k 700
- 70
- 7
- l 700
- 7
- 70

Challenge 2

- 1 a 81
- b 81
- c 802
- d 408
- e 1206
- f 93
- g 72
- h 803
- i 604
- j 903
- k 71
- l 91
- m 806
- n 805
- o 408
- p 51
- q 73
- r 807
- s 710
- t 910.5

Challenge 3

Answers will vary.

Lesson 4: Solving problems

Challenge 1

a	1	2	4	8	16	32	64	128
b	5	10	20	40	80	160	320	640
c	3	6	12	24	48	96	192	384
d	7	14	28	56	112	224	448	896

- 2 a 140
- b 230
- c 320
- d 210
- e 420
- f 180
- g 290
- h 370
- i 460
- j 270
- k 175
- l 285
- m 465
- n 395
- o 255
- p 65

- Challenge 2**
- 1 a 720 f 432
 b 608 g 960
 c 1344 h 480
 d 481 i 416
 e 476

2 Answers will vary.

- Challenge 3**
- 1 a iv $17 \times 21 \ 9$ (odd one as both numbers are odd)
 b iii 23×17 (odd one out as both numbers are odd)
 c iii 17×19 (odd one as both numbers are odd)
 d iii 15×45 (odd one as both numbers are odd)

Unit 4, Week 3: Measurement (time)

Lesson 1: Problems involving 12- and 24-hour clocks

- 1 a 8:15 d 9:55
 b 7:20 e 1:10
 c 8:35 f 3:50
- 2 a 7:45 p.m. d 11:30 p.m.
 b 2:40 p.m. e 4:24 p.m.
 c 9:06 p.m. f 6:51 p.m.

Challenge 1

- 1 a Paul, 270 sec, Leah 230 sec, Yasmin 248 sec
 b i 34 sec ii 40 sec iii 18 sec
 c 2 min 8 sec

Challenge 2

- 2 Aberdeen 9:50 a.m.
 Oslo 10:14 a.m.
 Paris 11:32 a.m.
 Dubai 12:45 p.m.
 New York 1:16 p.m.
 Rome 1:38 p.m.
- 3 a Paris d 20 min
 b Aberdeen e 35 min
 c 26 min f 37 min

- Challenge 3**
- 1 Possible rota:
 A B C D
 B C D A
 C D A B
 D C B C

- 2 Lunch break start times:
 11:45
 12:20
 12:55
 13:30

Lesson 2: Timely calculations

- Challenge 1**
- 1 a Mr Adams 20 min
 Mr Nassem 35 min
 Mrs Duncan 20 min
 b i 12:50 ii 13:20 iii 13:30
- 2 13:55

- Challenge 2**
- a tennis coaching
 b canoeing
 c water ski-ing
 d rock climbing
 e Answers will vary.
 f i 18:05
 ii 4 h 5 min

- Challenge 3**
- 1 10:21
 2 The hour 05 to 09

Lesson 3: Time problems

- Challenge 1**
- a 120 sec f 240 h
 b 240 sec g 14 days
 c 120 min h 49 days
 d 360 min i 24 months
 e 48 h j 60 months

- Challenge 2**
- 1 a 300 months
 b 480 months
 c 600 months

- 2 2 years 270 days
 3 August 1812

- 4 a 7 weeks 2 days
 b 8 weeks 5 days
 c 16 weeks

- 5 1825 days
 6 2 July

- Challenge 3**
- 1 a 776 BC to 2014 AD is 2790 years.
 b 1168 years
- 2 293 games
 3 2672 years
 4 27 games

Lesson 4: More time problems

- Challenge 1**
- 1 a 35 days b 49 days c 70 days
- 2 a 36 months
 b 72 months
 c 108 months

- 3 a 120 months
 b 520 weeks

- Challenge 2**
- 1 a 6 h 40 min e 2 h 44 min
 b 5 h 30 min f 3 h 16 min
 c 1 h 24 min g 7 h 34 min
 d 2 h 16 min

- 2 16 h 30 min
 3 5 h 30 min

- 4 5 trips to Edinburgh and 5 trips to Glasgow
 5 a 4 h 32 min
 b 9 h 4 min
 c 18 h 8 min

- Challenge 3** 17:44

Pupil Book 5B

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

Lesson 1: 6-digit numbers

- Challenge 1**
- 1 a $28\ 651 = 20\ 000 + 8000 + 600 + 50 + 1$
 b $31\ 628 = 30\ 000 + 1000 + 600 + 20 + 8$
 c $45\ 237 = 40\ 000 + 5000 + 200 + 30 + 7$
 d $58\ 105 = 50\ 000 + 8000 + 100 + 5$
 e $39\ 444 = 30\ 000 + 9000 + 400 + 40 + 4$
 f $63\ 810 = 60\ 000 + 3000 + 800 + 10$

- 2 Answers will vary.
- 3 a 16922 39163 43811
 52761 53178 83621
 b 30836 31243 34823
 35144 37812 39264
 c 28097 28204 28312
 28476 28576 28599
 d 56072 56333 56983
 65308 65365 65411
 e 10673 10763 12367
 12763 13703 17306
 f 78650 78651 78653
 78654 78655 78659

- Challenge 2**
- 1 a $164\ 821 = 100\ 000 + 60\ 000 + 4\ 000 + 800 + 20 + 1$
 b $272\ 927 = 200\ 000 + 70\ 000 + 2\ 000 + 900 + 20 + 7$
 c $406\ 366 = 400\ 000 + 6\ 000 + 300 + 60 + 6$
 d $793\ 141 = 700\ 000 + 90\ 000 + 3\ 000 + 100 + 40 + 1$
 e $804\ 782 = 800\ 000 + 4\ 000 + 700 + 80 + 2$
 f $577\ 226 = 500\ 000 + 70\ 000 + 7\ 000 + 200 + 20 + 6$

- 2 Answers will vary.
 3 Answers will vary.

- 4 a 548 624 e 728 700
 b 402 388 f 620 286
 c 527 660 g 583 400
 d 299 654 h 200 000

Challenge 3

- 1 a Answers will vary.
 b Answers will vary.
 c Answers will vary.
 d Answers will vary.

- 2 Answers will vary.

Lesson 2: 6-digit counting and rounding (1)

Challenge 1

- 1 a 27 876 count on in tens to 27 976
 19 872 count on in tens to 19 972
 52 263 count on in tens to 52 363
 84 728 count on in tens to 84 828
 b 27 876 count back in tens to 27 776
 19 872 count back in tens to 19 772
 52 263 count back in tens to 52 163
 84 728 count back in tens to 84 628
 c 27 876 count on in hundreds to 28 876
 19 872 count on in hundreds to 20 872
 52 263 count on in hundreds to 53 263
 84 728 count on in hundreds to 85 728
 d 27 876 count back in hundreds to 27 876
 19 872 count back in hundreds to 18 872
 52 263 count back in hundreds to 51 263
 84 728 count back in hundreds to 83 728
- 2 a 27 680 51 820
 36 190 65 750
 76 440 48 660
 b 27 700 51 800
 36 200 65 800
 76 400 48 700

Challenge 2

- 1 a 417 535 count back in tens to 417 435
 375 937 count back in tens to 375 837
 605 862 count back in tens to 605 762
 744 281 count back in tens to 744 181
 b 417 535 count on in hundreds to 418 535
 375 937 count on in hundreds to 376 937
 605 862 count on in hundreds to 606 862
 744 281 count on in hundreds to 745 281
 c 417 535 count on in thousands to 427 535
 375 937 count on in thousands to 385 937
 605 862 count on in thousands to 615 862
 744 281 count on in thousands to 754 281
 d 417 535 count back in thousands to 407 535
 375 937 count back in thousands to 365 937
 605 862 count back in thousands to 595 862
 744 281 count back in thousands to 734 281
- 2 a 762 650 762 653 762 660
 b 259 840 259 841 259 850
 c 573 290 573 295 573 300
 d 682 930 682 936 682 940
 e 965 110 965 112 965 120
 f 804 450 804 455 804 460
- 3 a 762 600 762 653 762 700
 b 259 800 259 841 259 900
 c 573 200 573 295 573 300
 d 682 900 682 936 683 000
 e 965 100 965 112 965 200
 f 804 400 804 455 804 500
- 4 a 762 000 762 653 763 000
 b 259 000 259 841 260 000
 c 573 000 573 295 574 000
 d 682 000 682 936 683 000
 e 965 000 965 112 966 000
 f 804 000 804 455 805 000

Challenge 3

- 1 Answers will vary.
 2 No answers.

Lesson 3: Negative numbers

Challenge 1

- 1 a -4 count back to -14
 b -9 count back to -19
 c -15 count back to -25
 d -20 count back to -30
 e -34 count back to -44
 f -42 count back to -52
 g -50 count back to -60
 h -63 count back to -73
- 2 a -18 -17 -16
 b -26 -25 -24
 c -40 -39 -38
 d -48 -47 -46
 e -51 -50 -49
 f -66 -65 -64
 g -78 -77 -76
 h -82 -81 -80
 i -60 -59 -58
 j -87 -86 -85
 k -91 -90 -89
 l -96 -95 -94

Challenge 2

- 1 a -11 g -4
 b -19 h -68
 c -26 i -62
 d -42 j -3
 e -47 k -77
 f -54 l -1
- 2 a -38 g -6
 b -47 h -3
 c -59 i -30
 d -65 j -1
 e -9 k -68
 f -94 l -12
- 3 a -2 e -16
 b -10 f -11
 c -7 g -11
 d -12

Challenge 3

- 1 a 0 count back in threes to -30
 b -4 count back in threes to -34
 c -22 count back in threes to -52
 d -35 count back in threes to -65
 e -47 count back in threes to -77
 f -59 count back in threes to -89
 g -66 count back in threes to -96
 h -86 count back in threes to -116
- 2 a -3 °C d 6 °C
 b -12 °C e 3 °C
 c -21 °C f 11 °C

Lesson 4: Negative problems

Challenge 1

- 1 -£180
 2 28 °C
 3 8 weeks
 4 11 °C
 5 -£23

Challenge 2

- 1 -£22.70
 2 -£12.89

- 3 50 °C
- 4 £290.70
- 5 20 °C
- 6 -£2317

Challenge 3

- 1 29.5°C
- 2 -£346.55
- 3 £11208
- 4 Answers will vary.
- 5 Answers will vary.

Unit 5, Week 2: Number - Addition and subtraction

Lesson 1: Subtracting mentally (3)

Challenge 1

- 1 a 19215 g 36617
- b 18187 h 39175
- c 20761 i 39872
- d 29338 j 46166
- e 34458 k 47982
- f 29761 l 45387

Challenge 2

- 1 a 23137 e 37911
- b 23325 f 34996
- c 31332 g 43537
- d 29186 h 39187
- 2 a 115738 e 226298
- b 162498 f 151782
- c 89386 g 384386
- d 247276 h 127318

3 Answers will vary.

Challenge 3

- 1 a 44952 g 427897
- b 48631 h 291243
- c 67455 i 515297
- d 68962 j 599026
- e 73862 k 257382
- f 86578 l 593621
- 2 a 350 g 40000
- b 5900 h 8000
- c 740 i 300000
- d 6400 j 60000
- e 7200 k 5000
- f 730 l 50000

Lesson 2: Written subtraction (1)

Challenge 1

- 1 a 2733 g 4845
- b 3228 h 2348
- c 2282 i 7058
- d 3525 j 5848
- e 3183 k 3839
- f 3565 l 5394

Challenge 2

- 1 a 5789 g 31734
- b 7798 h 25637
- c 5763 i 19348
- d 8287 j 25666
- e 13632 k 36864
- f 25546 l 35281

2 Answers will vary.

- 3 a 68476 - 25982 = 42492
- b 79408 - 26539 = 52869

4 Answers will vary.

Challenge 3

- 1 a 9478 f 27359
- b 14779 g 24687
- c 14878 h 25769
- d 17187 i 28715
- e 33669

2 Answers will vary.

- 3 a 4667 c 27999
- b 20001 d 40004

Lesson 3: Written subtraction (2)

Challenge 1

- 1 a 5086 g 23221
- b 14574 h 14137
- c 12755 i 17332
- d 12444 j 22751
- e 17481 k 17120
- f 21852 l 25661

Challenge 2

- 1 a 16878 f 42649
- b 13678 g 36298
- c 14876 h 36549
- d 18575 i 46478
- e 35957

- 2 a 138138 f 291738
- b 173725 g 272668
- c 223618 h 286465
- d 155847 i 381177
- e 282187

3 No answers.

4 Answers will vary.

Challenge 3

- 1 a 193778 g 464833
- b 172679 h 476769
- c 327779 i 557376
- d 293689 j 473698
- e 428778 k 448349
- f 275978 l 426488

2 No answers.

3, 4 Answers will vary.

Lesson 4: Adding and subtracting decimals

Challenge 1

- 1 a 591.97 f 497.67
- b 688.78 g 718.27
- c 559.37 h 736.38
- d 588.37 i 836.17
- e 578.29 j 774.25

- 2 a 242.24 f 451.84
- b 212.24 g 395.76
- c 232.76 h 360.72
- d 352.75 i 264.66
- e 422.74 j 390.91

3 Answers will vary.

Challenge 2

- 1 a 6369.19 f 8839.29
- b 5919.25 g 9308.09
- c 6808.18 h 12302.17
- d 5579.29 i 14097.61
- e 8617.27 j 13376.24

- 2 a 4332.81 f 2510.92
- b 4211.81 g 5170.91
- c 1825.62 h 3671.86
- d 2231.7 i 2874.58
- e 3252.62 j 3927.27

3 Answers will vary.

Challenge 3

- 1 a 37693.35 f 93852.19
- b 62529.28 g 96565.18
- c 59950.01 h 121959.39
- d 73638.1 i 142728.59
- e 70229.08 j 123486.31

- 2 a 24177.85 f 24166.53
- b 26994.92 g 25560.71
- c 24748.79 h 8077.34
- d 18355.9 i 27777.78
- e 24610.64 j 45191.71

Unit 5, Week 3: Geometry - Properties of shapes

Lesson 1: Naming angles

Challenge 1

- 1 a reflex d acute
- b obtuse e obtuse
- c reflex f acute

2 f, d, b, e, a, c

Challenge 2

- 1 a acute e reflex
- b obtuse f reflex
- c acute g acute
- d obtuse h obtuse

- 2 a angles a, c and g
- b angles e and f
- c angles d and h

3 angle f

Challenge 3

All questions are true

Lesson 2: Measuring angles

Challenge 1

- 1 $\angle a = 120^\circ$ $\angle b = 50^\circ$ $\angle c = 100^\circ$
- $\angle d = 150^\circ$ $\angle e = 30^\circ$

Challenge 2

- 1 $\angle a = 35^\circ$ $\angle b = 45^\circ$
- $\angle c = 120^\circ$ $\angle d = 50^\circ$
- $\angle e = 45^\circ$ $\angle f = 50^\circ$
- $\angle g = 35^\circ$ $\angle h = 120^\circ$

- 2 $\angle a$ and $\angle g = 35^\circ$
- $\angle b$ and $\angle e = 45^\circ$
- $\angle c$ and $\angle h = 120^\circ$
- $\angle d$ and $\angle f = 50^\circ$

3 Answers will vary.

4 Answers will vary.

Challenge 3

- 1 $\angle a$ and $\angle b = 70^\circ$
- $\angle c$ and $\angle d = 94^\circ$
- $\angle e$ and $\angle f = 103^\circ$
- $\angle g$ and $\angle h = 52^\circ$

2 Answers will vary.

Lesson 3: Drawing angles

Challenge 1 1, 2 Answers will vary.

Challenge 2 1, 2, 3 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Identifying angles

Challenge 1 1 a 50° b 20° c 35°

2 a 60° b 95°

Challenge 2 1 a 115° d 42°
b 58° e 86°
c 133° f 45°

2 a 250° c 132°
b 200° d 107°

3 a 45° b 50° c 60°

Challenge 3 a 90° b 180° d 360°

Unit 6, Week 1: Number - Multiplication and division

Lesson 1: Division HTO ÷ O with a remainder

Challenge 1 1 a 20 e 32
b 40 f 16
c 24 g 36
d 8 h 28

2 a 12 e 72
b 36 f 24
c 54 g 18
d 60 h 42

3 a	3	c	6
	i 73		i 61 r1
	ii 51 r1		ii 31 r2
	iii 111 r1		iii 41
	iv 52 r1		iv 110 r1
	v 82r2		v 91
b	5	d	9
	i 71 r2		i 21
	ii 91		ii 61
	iii 50 r2		iii 70 r1
	iv 91 r3		iv 110 r1
	v 110 r1		v 80 r3

Challenge 2 1

a 93	b 64 r2	c 41 r3	d 71 r1	e 123 r3	f 83 r2
g 64 r3	h 88	i 39 r3	j 61 r7	k 53 r4	l 96 r6

2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 2: Division HTO ÷ O with a fraction remainder

Challenge 1 6 → 24, 36, 42, 48, 54, 60, 72, 90, 96

7 → 14, 21, 35, 42, 56

8 → 24, 32, 48, 56, 72, 96

9 → 27, 36, 45, 54, 72, 90

Challenge 2 1 a $86\frac{1}{4}$

b $57\frac{1}{4}$

c $74\frac{2}{3}$

d $46\frac{1}{2}$

e $122\frac{3}{4}$

f $33\frac{1}{4}$

g $62\frac{1}{2}$

h $94\frac{2}{3}$

i $39\frac{3}{5}$

j $94\frac{1}{3}$

k $91\frac{2}{3}$

l 97

2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: Division HTO ÷ O with a decimal remainder

Challenge 1 1 21, 12, 15, 30, 27, 27, 24, 9

2 8, 56, 32, 48, 16, 72, 24, 40

3 40 tenths

30 tenths

20 tenths

10 tenths

80 tenths

60 tenths

50 tenths

90 tenths

4 20 hundredths

10 hundredths

40 hundredths

50 hundredths

60 hundredths

90 hundredths

30 hundredths

70 hundredths

Challenge 2

a 32.8

b 49.5

c 62.5

d 46.5

e 98.2

f 68.75

g 79

h 40.83

i 109.5

j 87.66

k 49.5

l 154.6

Challenge 3

1 a £170.40 each

b 134.6 km

c £75.50

d £43.50

e £179

2 Answers will vary.

3 Answers will vary.

4 Answers will vary.

Lesson 4: Solving word problems: rounding remainders

Challenge 1

a 8 r4

b 9 r3

c 8 r3

d 9 r4

e 10 r6

f 6 r5

g 9 r4

h 8 r4

i 9 r1

j 9 r7

k 8 r4

l 5 r4

Challenge 2

a 63 boxes

b 74 times

c £795

d 14 times

e 94 tickets

f 168 packs

g 135 hot dogs

h 218 rides

i No, they need

another £10.

Challenge 3

Answers will vary.

Unit 6, Week 2: Number - Fractions

Lesson 1: Thousandths

Challenge 1

1 a $\frac{3}{10}$

b $\frac{7}{10}$

c $\frac{2}{10}$

d $\frac{8}{10}$

e $\frac{5}{10}$

f $\frac{9}{10}$

Challenge 2

1 a $\frac{300}{1000}$

b $\frac{700}{1000}$

c $\frac{500}{1000}$

2 c $\frac{500}{1000}$

3 a $\frac{3}{10} = \frac{30}{100} = \frac{300}{1000}$

b $\frac{7}{10} = \frac{70}{100} = \frac{700}{1000}$

c $\frac{5}{10} = \frac{50}{100} = \frac{500}{1000}$

d $\frac{9}{10} = \frac{90}{100} = \frac{900}{1000}$

e $\frac{2}{10} = \frac{20}{100} = \frac{200}{1000}$

f $\frac{6}{10} = \frac{60}{100} = \frac{600}{1000}$

Challenge 3

1 a $\frac{1}{10} = \frac{10}{100} = \frac{100}{1000}$

b $\frac{7}{10} = \frac{70}{100} = \frac{700}{1000}$

c $\frac{4}{10} = \frac{40}{100} = \frac{400}{1000}$

d $\frac{9}{10} = \frac{90}{100} = \frac{900}{1000}$

e $\frac{2}{10} = \frac{20}{100} = \frac{200}{1000}$

f $\frac{5}{10} = \frac{50}{100} = \frac{500}{1000}$

2 a $\frac{23}{100} = \frac{230}{1000}$

b $\frac{65}{100} = \frac{650}{1000}$

c $\frac{48}{100} = \frac{480}{1000}$

d $\frac{81}{100} = \frac{810}{1000}$

e $\frac{14}{100} = \frac{140}{1000}$

f $\frac{75}{100} = \frac{750}{1000}$

g $\frac{3}{4}$

3 Answers will vary.

Lesson 2: Fractions in order

- Challenge 1**
- 1 a $\frac{1}{2}$ $\frac{9}{12}$ e $\frac{5}{8}$ $\frac{3}{4}$
 b $\frac{2}{5}$ $\frac{3}{4}$ f $\frac{2}{7}$ $\frac{1}{3}$
 c $\frac{2}{3}$ $\frac{7}{9}$ g $\frac{2}{3}$ $\frac{5}{6}$
 d $\frac{1}{5}$ $\frac{11}{15}$ h $\frac{3}{5}$ $\frac{16}{20}$

- Challenge 2**
- 1 a $\frac{1}{3}$ $\frac{1}{2}$ $\frac{9}{12}$
 b $\frac{2}{5}$ $\frac{1}{2}$ $\frac{3}{4}$
 c $\frac{2}{3}$ $\frac{14}{18}$ $\frac{7}{9}$
 d $\frac{1}{5}$ $\frac{2}{3}$ $\frac{11}{15}$
 e $\frac{10}{16}$ $\frac{5}{8}$ $\frac{3}{4}$
 f $\frac{5}{21}$ $\frac{2}{7}$ $\frac{1}{3}$
 g $\frac{1}{3}$ $\frac{2}{3}$ $\frac{5}{6}$
 h $\frac{3}{5}$ $\frac{7}{10}$ $\frac{16}{20}$
 i $\frac{1}{2}$ $\frac{3}{5}$ $\frac{7}{10}$

2 $\frac{8}{9}$

3, 4 Answers will vary.

- Challenge 3**
- 1 a $\frac{4}{12}$ $\frac{6}{8}$ $\frac{3}{4}$
 b $\frac{3}{5}$ $\frac{18}{25}$ $\frac{9}{10}$
 c $\frac{2}{8}$ $\frac{9}{32}$ $\frac{1}{2}$
 d $\frac{1}{5}$ $\frac{4}{6}$ $\frac{23}{30}$
 e $\frac{11}{20}$ $\frac{73}{100}$ $\frac{8}{10}$
 f $\frac{1}{2}$ $\frac{5}{8}$ $\frac{4}{6}$
 g $\frac{3}{15}$ $\frac{1}{3}$ $\frac{2}{5}$
 h $\frac{24}{40}$ $\frac{3}{5}$ $\frac{5}{8}$
 i $\frac{1}{2}$ $\frac{9}{14}$ $\frac{5}{7}$

2 a $\frac{8}{24} = \frac{4}{12} = \frac{2}{6} = \frac{1}{3}$

b $\frac{12}{20} = \frac{6}{10} = \frac{3}{5}$

c $\frac{8}{12} = \frac{4}{6} = \frac{2}{3}$

d $\frac{24}{32} = \frac{12}{16} = \frac{6}{8} = \frac{3}{4}$

3 Answers will vary.

4 Answers will vary.

Lesson 3: Adding fractions

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

2 Answers will vary.

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

2 Answers will vary.

- 3 a $\frac{11}{12}$ c $\frac{3}{20}$
 b $\frac{7}{8}$ d $\frac{4}{10}$

4 No answers

- Challenge 3**
- 1 a $\frac{31}{28}$ f $\frac{25}{24}$
 b $\frac{22}{15}$ g $\frac{52}{42}$
 c $\frac{6}{10}$ h $\frac{37}{33}$
 d $\frac{11}{12}$ i $\frac{17}{24}$
 e $\frac{15}{18}$ j $\frac{25}{21}$
 2 a $1\frac{3}{28}$ f $1\frac{1}{24}$
 b $1\frac{7}{15}$ g $1\frac{10}{42}$
 c $\frac{6}{10}$ h $1\frac{4}{33}$
 d $\frac{11}{12}$ i $1\frac{17}{24}$
 e $\frac{15}{18}$ j $1\frac{4}{21}$

Lesson 4: Subtracting fractions

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

2 Answers will vary.

- Challenge 2**
- 1 a $\frac{5}{12}$ g $\frac{9}{10}$
 b $\frac{6}{8}$ h $\frac{8}{6}$
 c $\frac{8}{9}$ i 1
 d $\frac{15}{10}$ j 1
 e $\frac{6}{14}$ k 2
 f $\frac{27}{20}$ l $\frac{5}{3}$

2 Answers will vary.

- 3 a $1\frac{1}{8}$ miles c $1\frac{1}{12}$ cups
 b $\frac{1}{12}$, 10 m d $\frac{9}{10}$ litres

- Challenge 3**
- 1 a $\frac{39}{18}$ i $\frac{9}{8}$
 b $\frac{21}{36}$ j $\frac{4}{5}$
 c $\frac{36}{35}$ k $\frac{14}{15}$
 d $\frac{37}{40}$ l $\frac{48}{35}$
 e $\frac{16}{30}$ m $\frac{21}{20}$
 f $\frac{13}{21}$ n $\frac{9}{10}$
 g $\frac{28}{30}$ o $\frac{19}{15}$
 h $\frac{50}{42}$ p $\frac{31}{14}$

2 a $2\frac{3}{18}$ i $1\frac{1}{8}$

b $\frac{21}{36}$ j $\frac{4}{5}$

c $1\frac{1}{35}$ k $\frac{14}{15}$

d $\frac{37}{40}$ l $1\frac{13}{35}$

e $\frac{16}{30}$ m $1\frac{1}{20}$

f $\frac{13}{21}$ n $\frac{9}{10}$

g $\frac{28}{30}$ o $1\frac{4}{15}$

h $1\frac{8}{42}$ p $2\frac{3}{14}$

3 a $\frac{18}{24} = \frac{6}{8} = \frac{3}{4}$

b No answers.

Unit 6, Week 3: Measurement (length)

Lesson 1: Converting lengths

- Challenge 1**
- 1 a i 25 mm ii 2.5 cm
 b i 48 mm ii 4.8 cm
 c i 64 mm i 6.4 cm

- Challenge 2**
- 1 a 1320 m c 2080 m
 b 530 m d 3820 m

- 2 a 4.17 km c 12.57 km
 b 6.09 km d 20.03 km

- 3 a 7.5 m d 1.36 m
 b 6.4 m e 0.99 m
 c 28.1 m f 1.04 m

- 4 a, b Ben Lewis 650 m, 0.65 km
 Ben Mull 710 m, 0.71 km
 Ben Staffa 840 m, 0.84 km
 Ben Jura 570 m, 0.57 km
 Ben Lochy 830 m, 0.83 km

- 5 10820 m, 12.85 km, 16700 m, $19\frac{1}{2}$ km, 21 km 50 m

- Challenge 3**
- 1 All answers resolve to 1089.

Lesson 2: Using metric and imperial units (2)

- Challenge 1**
- 1 2 inches \approx 5 cm
 4 inches \approx 10 cm
 5 inches \approx 12.5 cm
 6 inches \approx 15 cm
 10 inches \approx 25 cm

2 Answers will vary.

- 3 a 7.5 cm = 3 inches
b 10 cm = 4 inches
c 12.5 cm = 5 inches

Challenge 2

1 Answers will vary.

- 2 Line a (15 cm) ≈ line f (6 inches)
Line c (17.5 cm) ≈ line h (7 inches)
Line e (20 cm) ≈ line d (8 inches)
Line g (100 mm) ≈ line b (4 inches)

- 3 a 12.5 cm d 30 cm
b 25 cm e 60 cm
c 35 cm f 90 cm

- 4 a 180 cm c 130 cm
b 40 cm d 48 inches

Challenge 3

- 1 2 cm
2 a £0.50 b £1.25 c £10

Lesson 3: Lengths and distances

Challenge 1

- 1 a 4200 m, 4 km 420 m, 4.5 km
b 390 m, 3000 m, 3.5 km
c 2 m 8 cm, 279 cm, 2.8 m
d 2.1 cm, 180 mm, 20 cm

- 2 a Lexie b 4 cm

Challenge 2

- 1 a 0.9 km b 4.5 km
2 a 20 mm b 260 mm
3 a 12.18m, 1216 cm, 12.01 m,
11950 mm, 1187 cm, 11.83 m
b i 2 cm ii 23 cm iii 35 cm
c 6 cm
4 a 11.25 m b 3.75 m c 1.78 m

Challenge 3

Rectangle	A	B	C	D	E
Perimeter (cm)	12	20	28	36	44

Lesson 4: Multiple lengths

Challenge 1

- 1 A l = 35 cm, h = 40 cm
B l = 25 cm, h = 15 cm

- 2 0.1 m

- 3 0.25 m

Challenge 2

- 1 A l = 60 cm, h = 75 cm
B l = 95 cm, h = 30 cm
C l = 105 cm, h = 85 cm
D l = 214 cm, h = 60 cm

- 2 0.55 m

- 3 A, B and D

- 4 a 2.4 m b 4.8 m

- 5 a 1 m b 0.9 m

Challenge 3

1 Answers will vary.

2

Pattern	A	B	C	D
Height (mm)	300	600	900	1200
Width (mm)	200	400	600	800
Number of tiles	1	4	9	16

- 3 a h = 1500 mm, w = 1000 mm
b h = 1800 mm, w = 1200 mm

Unit 7, Week 1: Number - Decimals

Lesson 1: Decimal thousandths

Challenge 1

- 1 a 0.45 e 0.48
b 0.12 f 0.99
c 0.68 g 0.54
d 0.29 h 0.07

2 No answers.

Challenge 2

- 1 a 0.461 g 0.989
b 0.102 h 0.384
c 0.834 i 0.136
d 0.529 j 0.842
e 0.903 k 0.937
f 0.255 l 0.736

2 No answers.

3 Answers will vary.

Challenge 3

- 1 Answers will vary.
2 a 0.011 g 0.045
b 0.009 h 0.061
c 0.078 i 0.124
d 0.001 j 0.283
e 0.006 k 0.111
f 0.099 l 0.406

3 Answers will vary.

4 $\frac{54}{1000} = 0.054$

Explanations will vary.

Lesson 2: Ordering thousandths

Challenge 1

- 1 a 0.276 0.277 0.278
0.279 0.280 0.281
b 0.158 0.159 0.160
0.161 0.162 0.163
c 1.641 1.642 1.643
1.644 1.645 1.646
d 2.317 2.318 2.319
2.320 2.321 2.322
e 3.854 3.855 3.856
3.857 3.858 3.859
f 3.903 3.904 3.905
3.906 3.907 3.908
g 4.008 4.009 4.010
4.011 4.012 4.013
h 4.744 4.745 4.746
4.747 4.748 4.749
i 4.078 4.079 4.080
4.081 4.082 4.083
j 5.835 5.836 5.837
5.838 5.839 5.840
k 6.038 6.039 6.040
6.041 6.042 6.043
l 7.934 7.935 7.936
7.937 7.938 7.939

Challenge 2

- 1 a 0.183 0.286 0.386
0.482 0.589 0.863
b 1.002 1.082 1.148
1.262 1.629 1.735
c 2.007 2.529 2.629
2.721 2.761 2.812
d 5.101 5.273 5.286
5.297 5.398 5.981
e 4.308 4.309 4.343
4.361 4.387 4.392
f 7.215 7.289 7.291
7.602 7.287 7.659
g 8.206 8.216 8.683
8.825 8.827 8.911
h 9.013 9.018 9.354
9.377 9.721 9.726
i 6.005 6.075 6.555
6.675 6.756 6.757
j 3.011 3.021 3.102
3.121 3.211 3.222

- 2 a 2.386 2.387 2.388
b 3.208 3.209 3.210
c 5.113 5.114 5.115
d 6.803 6.804 6.805
e 1.054 1.055 1.056
f 7.851 7.852 7.853
g 6.254 6.255 6.256
h 8.887 8.888 8.889
i 9.004 9.005 9.006
j 8.077 8.078 8.079
k 7.044 7.045 7.046
l 8.616 8.617 8.618
m 5.298 5.299 5.300
n 7.300 7.301 7.302
p 8.000 8.001 8.002
p 3.332 3.333 3.334

Challenge 3

- 1 a 2.645 < 2.821
b 4.831 > 4.762
c 5.558 > 5.539
d 7.028 < 7.038
e 8.156 < 8.172
f 9.628 < 9.691
g 6.529 > 6.527
h 3.877 > 3.866
i 4.003 > 4.001
j 6.937 < 6.973
k 1.626 < 1.627
l 9.999 > 9.909

2 Answers will vary.

Lesson 3: Rounding and ordering

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

- 2 a 1.265 1.326 1.587 1.873
b 4.355 4.615 4.738 4.972
c 6.013 6.308 6.478 6.592
d 2.062 2.198 2.465 2.643
e 5.391 5.408 5.635 5.752
f 3.117 3.442 3.881 3.992

- Challenge 2**
- 1 a 3 3-2 3-21
 b 5 5-36 5-4
 c 4-78 4-8 5
 d 8-9 8-92 9
 e 1 1-45 1-50
 f 7-5 7-51 8
 g 6-98 7-0 7
 h 9 9-08 9-1
 i 5 5-3 5-34
 j 2-7 2-72 3

- 2 a 2-081 2-301 2-315
 2-762 2-812 2-852
 b 5-001 5-133 5-222
 5-562 5-817 5-926
 c 4-003 4-011 4-013
 4-018 4-081 4-088
 d 7-879 7-888 7-898
 7-987 7-997 7-998
 e 2-225 2-252 2-522
 2-525 2-552 2-555
 f 8-012 8-014 8-029
 8-126 8-129 8-192

- 3 a 2-899 f 6-002
 b 4-130 g 4-518
 c 7 h 5-924
 d 8-010 i 4-004
 e 3-112 j 7-570

- Challenge 3**
- 1 Answers will vary.
- 2 a 6-002 6-262 6-609
 6-669 6-962 6-996
 b 2-19 2-83 2-872
 2-91 2-982 2-992
 c 4-03 4-05 4-3
 4-35 4-5 4-55
 d 7-26 7-265 7-62
 7-625 7-65 7-652
 e 0-3 0-33 0-37
 0-7 0-73 0-77
 f 5-005 5-015 5-05
 5-1 5-5 5-505

Lesson 4: Decimal problems

- Challenge 1**
- 1 a 0-065 m b 0-03 m
 2 31-72 s 33-15 s 34-2 s 34-52 s 2-8 s
 3 a 8-2 km b 2-8 km
 c 2-8 s
 4 £4

- Challenge 2**
- 1 a 0-151 m c 0-053 m
 b 0-026 m
 2 a 6-31 s b 127-33 s
 3 13-81 km
 4 0-783 kg
 5 Answers will vary.

- Challenge 3**
- 1 0-125 m
 2 a 37-95 s 37-9 s 37-29 s 37-09 s
 b 0-86 s
 c 0-59 s
 3 53-945 km

- 4 1-075 kg
 0-995 kg

Unit 7, Week 2: Number - Addition and subtraction

Lesson 1: Adding decimals

- Challenge 1**
- 1 a 0-8 e 1-4
 b 0-8 f 1-5
 c 0-8 g 1-4
 d 1-2 h 1-7
 2 a 0-57 e 0-88
 b 0-53 f 0-92
 c 0-73 g 0-87
 d 0-83 h 0-89

- Challenge 2**
- 1 No answers-
 2 a 1-19 e 1
 b 1-23 f 1-15
 c 1-15 g 1-61
 d 1-12 h 1-39

3 Answers will vary.

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

Lesson 2: Subtracting decimals

- Challenge 1**
- 1 a 0-2 e 0-4
 b 0-6 f 0-7
 c 0-5 g 0-8
 d 0-7 h 0-8
 2 a 0-22 e 0-29
 b 0-12 f 0-68
 c 0-39 g 0-37
 d 0-45 h 0-39

- Challenge 2**
- 1 Answers will vary.
 2 a 0-86 e 0-67
 b 0-68 f 0-67
 c 0-74 g 0-43
 d 0-79 h 1-14

3 Answers will vary.

- Challenge 3**
- 1 Answers will vary.
 2 a 0-77 g 1-19
 b 1-11 h 1-44
 c 0-78 i 1-46
 d 0-56 j 1-36
 e 0-3 k 1-67
 f 1-44 l 3-64
 3 a 0-25 e 0-46
 b 0-33 f 0-37
 c 0-52 g 0-6
 d 0-68 h 0-44

Lesson 3: Whole number and decimal calculations

- Challenge 1**
- 1 a 7-8 e 8-1
 b 7-8 f 11-2
 c 8-9 g 13-3
 d 9-4 h 13

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

1 Answers will vary.

2 Answers will vary.

- 3 a $5-19 + 3-65 = 8-84$
 $3-65 + 5-19 = 8-84$
 $8-84 - 3-65 = 5-19$
 $8-84 - 5-19 = 3-65$
 b $4-37 + 2-76 = 7-13$
 $2-76 + 4-37 = 7-13$
 $7-13 - 2-76 = 4-37$
 $7-13 - 4-37 = 2-76$
 c $6-05 + 1-89 = 7-94$
 $1-89 + 6-05 = 7-94$
 $7-94 - 1-89 = 6-05$
 $7-94 - 6-05 = 1-89$

- 4 a 0-89; 8-33
 b 2-14; 12-22
 c 3-39; 12-63
 d 6-01; 12-51
 e 4-46; 10-16

- Challenge 3**
- a 5-91 f 12-31
 b 8-44 g 5-63
 c 4-64 h 21-09
 d 4-71 i 33-81
 e 4-3 j 3-18

Lesson 4: Decimal walls

- Challenge 1**
- a 17-3
 6-1 11-20
 0-7
 2-9 2-2
 b 26-7
 15-2 11-5
 0-1
 3-6 3-7
 c 23-8
 10-0 13-8
 3-8
 4-6 0-80
 d 28-5
 12-8 15-7
 2-9
 5-4 2-5
 e 45-6
 20-1 25-5
 1-2
 3-3 2-1
 f 59-3
 33-1 26-2
 0-1
 3-5 3-4

Challenge 2

a 40-94
18-97 21-97
6-3 12-67 9-3
Answers for fourth row will vary.

b 32-7
12-62 20-08
4-12 8-5 11-58
Answers for fourth row will vary.

c 47-24
24-32 22-92
9-5 14-82 8-1
Answers for fourth row will vary.

d 48-65
23-29 25-36
7-99 15-3 10-06
Answers for fourth row will vary.

e 32-92
20-16 12-76
12-8 7-36 5-4
Answers for fourth row will vary.

f 38-23
13-26 24-97
3-86 9-4 15-57
Answers for fourth row will vary.

Challenge 3

a 17-968
7-334 7-634
3-2 4-134 3-5
Answers for fourth row will vary.

b 17-053
7-851 9-202
5-6 2-251 6-951
Answers for fourth row will vary.

c 35-845
20-53 15-315
8-26 12-27 3-045
Answers for fourth row will vary.

d 40-755
26-0 14-755
16-7 9-3 5-455
Answers for fourth row will vary.

Unit 7, Week 3: Statistics

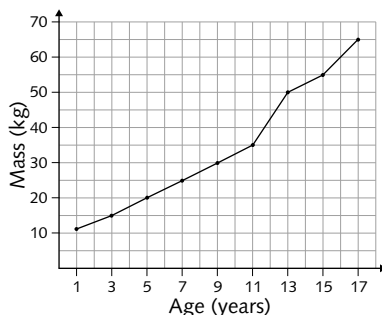
Lesson 1: Growing up line graphs

Challenge 1

1 a 6 kg b 18 kg
2 6 kg
3 15 kg

Challenge 2

1 **David's mass**



2 between 11 and 13 years

3 a 60 kg e 27.5 kg
b 52.5 kg f 22.5 kg
c 42.5 kg g 17.5 kg
d 32.5 kg h 13.6 kg

4 a 12.5 kg b 22.5 kg
5 10 kg

Challenge 3

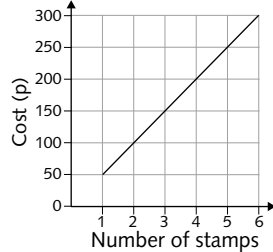
1 a 135 cm b 156.5 cm
2 between 11 and 12 and between 13 and 14
3 $15\frac{1}{2}$ years
4 Answers will vary.

Lesson 2: Post office straight line graphs

Challenge 1

Number of stamps	1	2	3	4	5	6
Cost (p)	50p	100p	150p	200p	250p	300p

2 **Cost of 2nd class stamps**

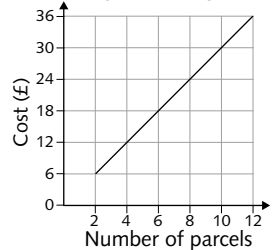


3 a 5 b 10

Challenge 2

Number of small parcels	2	4	6	8	10	12
Cost (£)	6	12	18	24	30	36

2 **Cost to post small parcels**



3 a £15 b £27

4 a 11 b 7

5 a £90 b £300

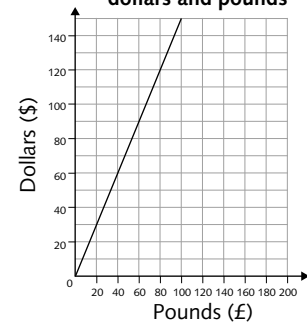
6 £390

7 £42

Challenge 3

Pound (£)	20	40	60	80	100
Dollar (\$)	30	60	90	120	150

2 Conversion chart for dollars and pounds



3 a i \$210 iii \$240
ii \$300 iv \$75
b i £80 iii £100
ii £120 iv £180

Lesson 3: Data in tables and timetables

Challenge 1

Market Street	10:15	10:35	10:55
Northford	10:25	10:45	11:05
Easton	10:35	10:55	11:15
Southam	10:45	11:05	11:25
Westerby	10:55	11:15	11:35

b 40 minutes

Challenge 2

Cambridge	11:00	12:30	14:00	15:30
Harston	11:15	12:45	14:15	15:45
Royston	11:25	12:55	14:25	15:55
Letchworth	11:42	13:12	14:42	16:12
Hitchin	11:50	13:20	14:50	16:20
Luton Airport	12:05	13:35	15:05	16:35

b 40 minutes
c 13:12

2 a IT 1155, 3 h 25 min
b BR 0291, 5 min
c £194
d 14:55

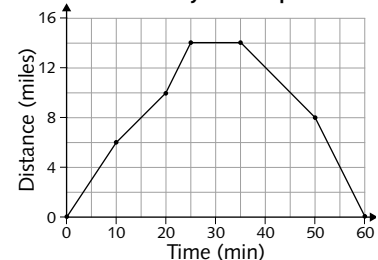
Challenge 3

a 16:01, 16:16, 16:34, 16:46
b 43 min
c 16:19
d 16:46

Lesson 4: On the move

Challenge 1

1 **Delivery from depot**



2 a 6 miles c 6 miles
b 4 miles d 10 miles

Challenge 2

1 a 5 miles
b 2.5 miles
c 1 mile

- 2 a 7.5 miles
b 5 miles
c 3 miles
- 3 25 minutes
- 4 5 minutes
- 5 a 5 minutes b 7.5 miles
- 6 50 minutes

Challenge 3 Answers will vary.

Unit 8, Week 1: Number - Multiplication and division

Lesson 1: Multiplication TO x TO using partitioning

- Challenge 1**
- 1 a 21 b 210 c 2100
 - 2 a 48 b 480 c 4800
 - 3 a 36 b 360 c 3600
 - 4 a 36 b 36 c 3600
 - 5 a 56 b 560 c 5600
 - 6 a 24 b 240 c 2400
 - 7 a 35 b 350 c 3500
 - 8 a 72 b 720 c 7200

- Challenge 2**
- 1 a 1932 i 7820
 - b 1254 j 840
 - c 4704 k 2516
 - d 3120 l 1404
 - e 1014 m 2736
 - f 4292 n 4356
 - g 3588 o 7744
 - h 4758

2 Answers will vary.

Challenge 3 1, 2 Answers will vary.

Lesson 2: Multiplication TO x TO using partitioning and the grid method

- Challenge 1**
- a 42 i 2100
 - b 400 j 1200
 - c 480 k 360
 - d 54 l 560
 - e 720 m 63
 - f 3200 n 360
 - g 24 o 56
 - h 2500 p 6300

Challenge 2 1 Answers will vary.

- 2 a He is £1932 short of his target.
- b £442
- c £3416

- Challenge 3**
- 1 a 5 h 55
 - b 3 i 5 (50)
 - c 8 j 1
 - d 5 (50) k 2 (20)
 - e 4 (40) l 5
 - f 6 m 40
 - g 2 (20) n 99

2 Answers will vary.

Lesson 3: Multiplication TO x TO using the expanded written method

Challenge 1	8 x 9 = 72	20 x 7 = 140	30 x 6 = 180
	30 x 9 = 270	6 x 7 = 42	50 x 6 = 300
	6 x 9 = 54	70 x 7 = 490	8 x 6 = 48
	40 x 9 = 360	90 x 7 = 630	70 x 6 = 420
	7 x 9 = 63	8 x 7 = 56	6 x 6 = 36
	50 x 9 = 450	3 x 7 = 21	4 x 6 = 24

Challenge 2 1 Approximations will vary.

- 2 a 1748 f 2496
- b 2808 g 3344
- c 3248 h 5032
- d 5312 i 5208
- e 3283

Challenge 3 Answers will vary.

Lesson 4: Solving word problems (2)

- Challenge 1**
- a x e + i ÷
 - b ÷ f - j ÷
 - c - g x k -
 - d x h ÷ l +

- Challenge 2**
- a £1008
 - b 375 + 1248 = £1623
 - c £966
 - d 348 + 450 = 798; 1000 - 798 = 202
 - £202
 - e 23 strawberry gateaux cost £851
 - 16 cupcake trees cost £768
 - 851 - 768 = 83
 - £83
 - f £198
 - g 12 x 36 = 432
 - £432
 - h Answers will vary.
 - i 4 cakes. £14 change

- Challenge 3**
- a £3.65
 - b £1.20 each
 - c £0.93 or 93p each

Unit 8, Week 2: Percentages

Lesson 1: Percentages and hundredths

- Challenge 1**
- a $\frac{40}{100}$ or 40%
 - b $\frac{70}{100}$ or 70%
 - c $\frac{10}{100}$ or 10%
 - d $\frac{30}{100}$ or 30%
 - e $\frac{90}{100}$ or 90%
 - f $\frac{100}{100}$ or 100%
 - g $\frac{25}{100}$ or 25%
 - h $\frac{68}{100}$ or 68%
 - i $\frac{56}{100}$ or 56%
 - j $\frac{7}{100}$ or 7%
 - k $\frac{43}{100}$ or 43%
 - l $\frac{62}{100}$ or 62%

Challenge 2 No answers.

- Challenge 3**
- 1 Answers will vary.
 - 2 a 34% f 38%
 - b 59% g 73%
 - c 72% h 50%
 - d 99% i 27%
 - e 1% j 84%
 - 3 a $\frac{12}{100}$ f $\frac{47}{100}$
 - b $\frac{89}{100}$ g $\frac{100}{100}$
 - c $\frac{36}{100}$ h $\frac{86}{100}$
 - d $\frac{3}{100}$ i $\frac{34}{100}$
 - e $\frac{97}{100}$ j $\frac{3}{100}$

Lesson 2: Percentages and decimal hundredths

- Challenge 1**
- a 50% or 0.50
 - b 70% or 0.70
 - c 40% or 0.40
 - d 25% or 0.25
 - e 64% or 0.64
 - f 99% or 0.99
 - g 7% or 0.07
 - h 42% or 0.42
 - i 36% or 0.36
 - j 81% or 0.81
 - k 75% or 0.75
 - l 58% or 0.58

- Challenge 2**
- 1 a 0.28 e 0.06
 - b 0.74 f 0.52
 - c 0.15 g 1.0
 - d 0.93 h 0.39

- 2 a 72% e 55%
- b 81% f 39%
- c 17% g 4%
- d 96% h 22%

3 Answers will vary.

Challenge 3 No answers.

Lesson 3: Percentage and fraction equivalents

Challenge 1 1 a $\frac{5}{10}$ or 50%. This is also a half

b $\frac{2}{10}$ or 20%

c $\frac{6}{10}$ or 60%

d $\frac{8}{10}$ or 80%

e $\frac{7}{10}$ or 70%

f $\frac{10}{10}$ or 100%

g $\frac{4}{10}$ or 40%

h $\frac{9}{10}$ or 90%

i $\frac{1}{10}$ or 10%

Challenge 2 1 a $\frac{2}{5} = 40\%$

b $\frac{1}{4} = 25\%$

c $\frac{4}{5} = 80\%$

d $\frac{3}{5} = 60\%$

e $\frac{3}{4} = 75\%$

f $\frac{5}{5} = \frac{4}{4} = 100\%$

- 2 $\frac{1}{10} = 10\% = \frac{10}{100}$
 $\frac{2}{10} = 20\% = \frac{20}{100}$
 $\frac{3}{10} = 30\% = \frac{30}{100}$
 $\frac{4}{10} = 40\% = \frac{40}{100}$
 $\frac{5}{10} = 50\% = \frac{50}{100}$
 $\frac{6}{10} = 60\% = \frac{60}{100}$
 $\frac{7}{10} = 70\% = \frac{70}{100}$
 $\frac{8}{10} = 80\% = \frac{80}{100}$
 $\frac{9}{10} = 90\% = \frac{90}{100}$
 $\frac{10}{10} = 100\% = \frac{100}{100}$
 $\frac{1}{5} = 20\% = \frac{20}{100}$
 $\frac{2}{5} = 40\% = \frac{40}{100}$
 $\frac{3}{5} = 60\% = \frac{60}{100}$
 $\frac{4}{5} = 80\% = \frac{80}{100}$
 $\frac{1}{4} = 25\% = \frac{25}{100}$
 $\frac{3}{4} = 75\% = \frac{75}{100}$

Challenge 3 No answers.

Lesson 4: Percentage problems

Challenge 1 1 a 150 j 160
 b £275 k 250 m
 c 400 km l 24 ml
 d 48 m m £76
 e 320 n 258
 f £830 o 53 kg
 g 650 p 18 km
 h 1000 q 300
 i 22 cm r 330 ml

2 50%

3 20%

4 10%

5 60%

Challenge 2 1 a 1600 i 1275
 b 1005 j 3105
 c 387 k 1104
 d 1000 l 1262
 e 4560 m 4662
 f 1620 n 1005
 g 1532 o 4664
 h 4000

2 76%

3 17%

4 26%

5 70% of 80 = 56
 60% of 90 = 54

6 £21

Challenge 3 1 £45

2 144 cm

3 £21

4 £2580

5 9.6 kg

6 20 °C

7 33 pieces

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

Lesson 1: Calculating perimeters

Challenge 1 A 10 cm B 14 cm C 16 cm
 D 14 cm E 16 cm E 16 cm

Challenge 2 1 A 48 cm B 48 cm C 48 cm
 2 A 24 cm C 20 cm
 B 22 cm D 24 cm

3 A 60 m B 80 m C 140 m

Challenge 3 10 hexagons, P = 42 cm

Lesson 2: Using square units

Challenge 1 A 15 cm² D 12 cm²
 B 12 cm² E 9 cm²
 C 10 cm²

Challenge 2 1 A 35 cm² C 32 cm²
 B 27 cm² D 36 cm²

2 D, A, C, B

3 A 16 cm²
 B 16 cm²
 C 21 cm²

4 A 54 cm² D 1500 cm²
 B 108 cm² E 20 m²
 C 6400 m²

Challenge 3 1 A 18 m² C 16 m²
 B 14 m² D 12 m²

2 window A

Lesson 3: Finding missing lengths

Challenge 1 A 2 cm C 4 cm
 B 3 cm D 4 cm

Challenge 2 1 A 6 cm D 11 cm
 B 6 cm E 5 cm
 C 5 cm F 15 cm

2 A 6 cm D 7 cm
 B 5 cm E 9 cm
 C 10 cm

3 A 5 cm x 8 cm = 40 cm²
 B 2 cm x 12 cm = 24 cm²

Challenge 3 1 ducks 7500 m²
 hens 4000 m²
 sheep 18,500 m²

Lesson 4: Area of irregular shapes

Challenge 1 A 9 cm² C 19 cm²
 B 8 cm² D 16 cm²

Challenge 2 1 A 52 cm² C 128 cm²
 B 80 cm²
 2 A 600 cm² D 260 cm²
 B 550 cm² E 156 cm²
 C 650 cm²

Challenge 3 1 A 864 cm² B 546 cm²

Pupil Book 5C

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

Lesson 1: 6-digit ordering

- Challenge 1**
- 1 a 120782 290466 521766
 587387 734298
- b 603777 619881 638259
 662165 675287
- c 347209 372135 374200
 376821 387299
- d 377872 387783 788376
 807625 870651
- 2 825286 (80), 852297 (50000, 90),
 854222 (200), 901725 (1000),
 910822 (900000)
- 3 Answers will vary.
- 4 587388 290467 521767
 734299 120783
- 5 807725 387883 788476
 870751 377972
- 6 786387 289466 520766
 733298 119782
- 7 665287 609881 628259
 652165 593777

Challenge 2 No answers.

Challenge 3 No answers.

Lesson 2: 6-digit counting and rounding

- Challenge 1**
- 1 a 52872 count on in
 hundreds to 53772
 81673 count on in
 hundreds to 82573
 73083 count on in
 hundreds to 73983
 65215 count on in
 hundreds to 66115
 87945 count on in
 hundreds to 88845
 49923 count on in
 hundreds to 50823
- b 52872 count back in
 hundreds to 51972
 81673 count back in
 hundreds to 80773
 73083 count back in
 hundreds to 72183
 65215 count back in
 hundreds to 64315
 87945 count back in
 hundreds to 87045
 49923 count back in
 hundreds to 49023

- Challenge 2**
- 1 a 543982 count back in
 hundreds to 543082
 536154 count back in
 hundreds to 535254
 582385 count back in
 hundreds to 581485
 513488 count back in
 hundreds to 512588
 575698 count back in
 hundreds to 574798
 537819 count back in
 hundreds to 536919

- c 52872 count on in
 thousands to 61872
 81673 count on in
 thousands to 90673
 73083 count on in
 thousands to 82083
 65215 count on in
 thousands to 74215
 87945 count on in
 thousands to 96945
 49923 count on in
 thousands to 58923
- d 52872 count back in
 thousands to 43872
 81673 count back in
 thousands to 72673
 73083 count back in
 thousands to 64083
 65215 count back in
 thousands to 56215
 87945 count back in
 thousands to 78945
 49923 count back in
 thousands to 40923
- 2 a 38900 38982 39000
 47200 47253 47300
 54400 54476 54500
 65100 65163 65200
 75900 75982 76000
 83200 83289 83300
- b 38000 38982 39000
 47000 47253 48000
 54000 54476 55000
 65000 65163 66000
 75000 75982 76000
 83000 83289 84000

- b 543982 count on in
 thousands to 552982
 536154 count on in
 thousands to 545154
 582385 count on in
 thousands to 591385
 513488 count on in
 thousands to 522488
 575698 count on in
 thousands to 584698
 537819 count on in
 thousands to 546819
- c 543982 count on in
 steps of 10000 to 633982
 536154 count on in
 steps of 10000 to 626154
 582385 count on
 in steps of 10000 to 672385
 513488 count on in
 steps of 10000 to 603488
 575698 count on in
 steps of 10000 to 665698
 537819 count on in
 steps of 10000 to 627819
- d 543982 count back in
 steps of 10000 to 453982
 536154 count back in
 steps of 10000 to 446154
 582385 count back in
 steps of 10000 to 492385
 513488 count back in
 steps of 10000 to 423488
 575698 count back in
 steps of 10000 to 485698
 537819 count back in
 steps of 10000 to 447819
- e 543982 count on in
 steps of 100000 to 1443982
 536154 count on in
 steps of 100000 to 1436154
 582385 count on in
 steps of 100000 to 1482385
 513488 count on in
 steps of 100000 to 1413488
 575698 count on in
 steps of 100000 to 1475698
 537819 count on in
 steps of 100000 to 1437819
- f 543982 count back in
 steps of 100000 to -356018
 536154 count back in
 steps of 100000 to -363846
 582385 count back in
 steps of 100000 to -317615
 513488 count back in
 steps of 100000 to -386512
 575698 count back in
 steps of 100000 to -324302
 537819 count back in
 steps of 100000 to -362181

- 2 a 780 000 840 000
 510 000 400 000
 480 000 420 000
- b 800 000 800 000
 500 000 400 000
 500 000 400 000

Challenge 2

- 1 Ten thousandths digit. Sometimes hundred thousandths digit.
- 2 a 763 522 count on in steps of 100 000 to 1 163 522
 703 468 count on in steps of 100 000 to 1 103 468
 832 355 count on in steps of 100 000 to 1 232 355
 860 731 count on in steps of 100 000 to 1 260 731
 972 648 count on in steps of 100 000 to 1 372 648
- b 763 522 count back in steps of 100 000 to 363 522
 703 468 count back in steps of 100 000 to 303 468
 832 355 count back in steps of 100 000 to 432 355
 860 731 count back in steps of 100 000 to 460 731
 972 648 count back in steps of 100 000 to 572 648

3 Answers will vary.

Lesson 3: Number problems

Challenge 1

- 1 Answers will vary.
 2 16·7 hours
 3, 4, 5 Answers will vary.

Challenge 2

- 1 57 years
 2 Answers will vary.
 3 86 400 seconds equals 24 hours.
 4, 5 Answers will vary.

Challenge 3

- 1 Answers will vary.
 2 1285
 3, 4, 5 Answers will vary.

Lesson 4: Roman numerals

Challenge 1

- 1 a 12 g 34
 b 16 h 40
 c 14 i 45
 d 21 j 59
 e 27 k 73
 f 32 l 121
- 2 LXXX LXXXI LXXXII
 LXXXIII LXXXIV LXXXV
 LXXXVI LXXXVII LXXXVIII
 LXXXIX XC XCI
 XCII XCIII XCIV
 XCV XCVI XCVII
 XCVIII XCIX C

Challenge 2

- 1 a CI CII CIII
 CIV CV CVI
 CVII CVIII CIX
 CX CXI CXII
 CXIII CXIV CXV
 CXVI CXVII CXVIII
 CXIX CXX
- b CCXL CCXLI CCXLII
 CCXLIII CCXLIV CCXLV
 CCXLVI CCXLVII CCXLVIII
 CCXLIX CCL CCLI
 CCLII CCLIII CCLIV
 CCLV CCLVI CCLVII
 CCLVIII CCLIX CCLX
- c CCCL CCCLI CCCLII
 CCCLIII CCCLIV CCCLV
 CCCLVI CCCLVII CCCLVIII
 CCCLIX CCCLX CCCLXI
 CCCLXII CCCLXIII CCCLXIV
 CCCLXV CCCLXVI CCCLXVII
 CCCLXVIII CCCLXIX CCCLXX
- d CDX CDXI CDXII
 CDXIII CDXIV CDXV
 CDXVI CDXVII CDXVIII
 CDXIX CDXX CDXXI
 CDXXII CDXXIII CDXXIV
 CDXXV CDXXVI CDXXVII
 CDXXVIII CDXXIX CDXXX

- 2 a LXXXII g CCLII
 b XLVIII h CCXXI
 c CXXXVIII i CCCVIII
 d CXVII j CCCLI
 e CXCI k CCCLXX
 f CCXXIII l CDXXI

3 Answers will vary.

- 4 a 2000 e 2016
 b 2005 f 1990
 c 2008 g 1950
 d 2020 h 1980

5 Answers will vary.

Challenge 3

- 1 a D DI DII
 DIII DIV DV
 DVI DVII DVIII
 DIX DX DXI
 DXII DXIII DXIV
 DXV DXVI DXVII
 DXVIII DXIX DXX
- b DCL DCLI DCLII
 DCLIII DCLIV DCLV
 DCLVI DCLVII DCLVIII
 DCLIX DCLX DCLXI
 DCLXII DCLXIII DCLXIV
 DCLXV DCLXVI DCLXVII
 DCLXVIII DCLXIX DCLXX

- c DCCX DCCXI DCCXII
 DCCXIII DCCXIV DCCXV
 DCCXVI DCCXVII DCCXVIII
 DCCXIX DCCXX DCCXXI
 DCCXXII DCCXXIII DCCXXIV
 DCCXXV DCCXXVI DCCXXVII
 DCCXXVIII DCCXXIX DCCXXX
- d DCCCLXXX DCCCLXXXI
 DCCCLXXXII DCCCLXXXIII
 DCCCLXXXIV DCCCLXXXV
 DCCCLXXXVI DCCCLXXXVII
 DCCCLXXXVIII DCCCLXXXIX
 DCCCXC DCCCXCI
 DCCCXCII DCCCXCIII
 DCCCXCIV DCCCXCV
 DCCCXCVI DCCCXCVII
 DCCCXCVIII DCCCXCIX
 CM
- 2 a 1993 e 1850
 b 1975 f 1871
 c 1959 g 1813
 d 1800 h 1880
- 3 Answers will vary.
 4 Answers will vary.

Unit 9, Week 2: Number - Addition and subtraction

Lesson 1: Mental addition and subtraction

Challenge 1

- 1, 2 Answers will vary.

Challenge 2

- 1, 2 Answers will vary.

Challenge 3

- 1, 2 Answers will vary.

Lesson 2: Written addition (3)

Challenge 1

- a 61 838 f 85 835
 b 48 870 g 88 093
 c 73 675 h 94 173
 d 92 738 i 75 144
 e 94 516 j 87 841

Challenge 2

- 1 a 119 231 i 803 120
 b 110 863 j 997 369
 c 128 121 k 408 429
 d 142 810 l 570 539
 e 150 301 m 449 049
 f 621 421 n 239 720
 g 756 823 o 335 708
 h 935 050 p 544 027

2 Answers will vary.

Challenge 3

- 1 a 590 511 f 420 180
 b 198 963 g 320 697
 c 358 053 h 828 609
 d 803 133 i 631 611
 e 535 269

- 2 a 161 585 f 475 550
 b 351 827 g 162 010
 c 320 011 h 524 481
 d 282 022 i 355 921
 e 584 119 j 400 550

Lesson 3: Written subtraction (3)

- Challenge 1**
 1 a 18 127 f 25 668
 b 32 608 g 36 229
 c 24 185 h 27 829
 d 25 759 i 38 514
 e 18 166 j 26 826

- Challenge 2**
 1 a 247 678 h 754 689
 b 290 587 i 845 977
 c 259 117 j 963 653
 d 256 367 k 16 517
 e 388 182 l 88 159
 f 684 657 m 493 187
 g 669 259 n 826 173

2 Answers will vary.

- Challenge 3**
 1 a 261 354 f 201 138
 b 341 586 g 240 665
 c 262 249 h 108 326
 d 263 408 i 253 135
 e 415 994 j 188 000

2, 3 Answers will vary.

Lesson 4: Fairground problems

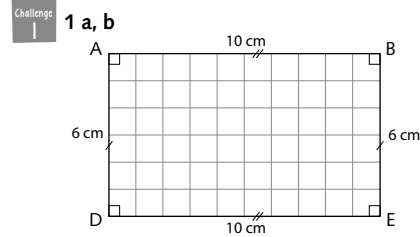
- Challenge 1**
 1 £4803
 2 865 coconuts
 3 2.1cm
 4 £22 044.91
 5 208 700 miles

- Challenge 2**
 1 Answers will vary.
 2 £3264.22
 3 Various answers
 4 46386
 5 £478

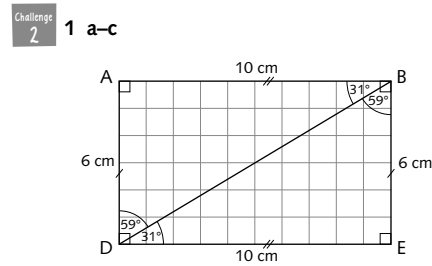
- Challenge 3**
 1 £23 168
 2 £17 019
 3 £12 639
 4 9 years, 21 years, 33 years, 45 years...
 5 420

Unit 9, Week 3: Geometry - Properties of shapes

Lesson 1: Properties of rectangles

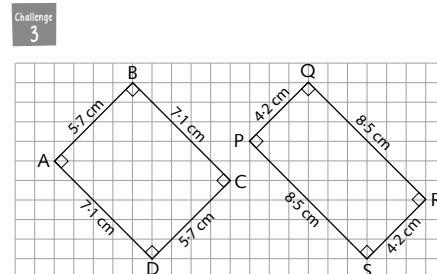
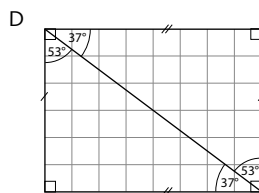
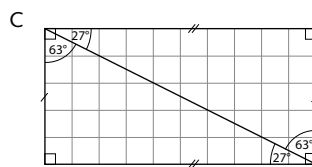
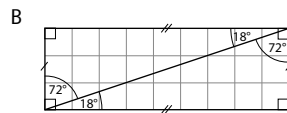
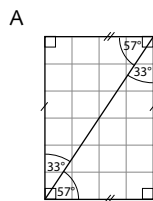


- 2 a DC = 10 cm
 b 4

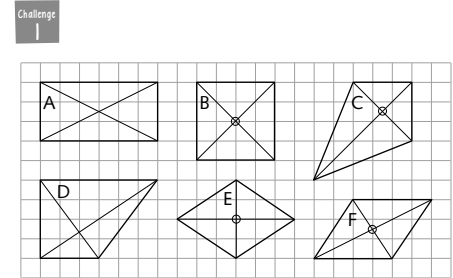


d angle x = 59°, angle y = 31°

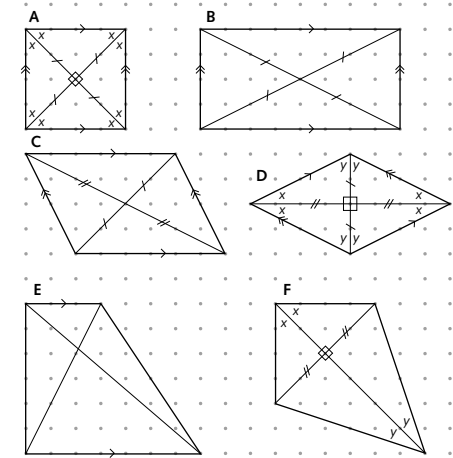
- 2 a, b



Lesson 2: Diagonal lines



- Challenge 2**
 1 a-d



- 4 a

Shape	Size of angle x	Size of angle y
A square	45°	45°
B rectangle	60°	60°
C parallelogram	23°	23°
D rhombus	63°	63°

b For each shape angle x = angle y

- Challenge 3**
 b In a kite, the diagonals intersect at 90°, one diagonal bisects a pair of opposite angles and one diagonal is bisected by the other.

Lesson 3: Regular and irregular polygons

Challenge 1

Shape	A	B	C	D	E	F
Has all sides equal	✓	✓	✓	✓	✓	✓
Has all angles equal	✓	✓	✓	✓	✓	X
Is a regular shape	✓	✓	✓	✓	✓	X

- Challenge 2**
 1

Shape	A	B	C	D	E	F	G	H	I	J
All sides equal	✓	✓	X	✓	X	✓	X	✓	✓	✓
All angles equal	X	✓	X	✓	X	✓	X	✓	X	✓

2 Shape A: All the sides are equal.

All the angles are not equal.

Is an irregular polygon.

Shape C: Has two sets of equal sides

and two sets of equal angles. Is an

irregular polygon.

Shape E: Has two sides equal and two

angles equal. Is an irregular polygon.

Shape G: All the angles are not equal.

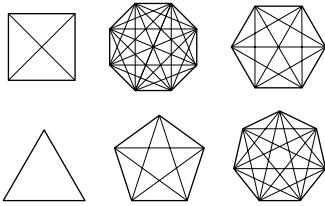
All the sides are not equal. Is an

irregular polygon.

Shape I: Has all equal sides and two sets

of equal angles. Is an irregular polygon.

Challenge 3



Number of sides	3	4	5	6	7	8	9
Number of diagonals	0	2	5	9	14	20	27

The number of diagonals equals the number of sides multiplied by the number of sides minus three and divided by 2.

$$D = S(S - 3) \div 2$$

Lesson 4: Missing angles

Challenge 1

- a 65° d 55°
 b 50° e 55°
 c 135°

Challenge 2

- 1 a 37° e 107°
 b 142° f 204°
 c 64° g 276°
 d 53°

- 2 a $\angle ABD = 75^\circ$
 b i $\angle DBC$ decreases by 15°, 20°, 25°
 ii $\angle DBC$ increases by 12°, 24°, 36°
 3 a $\angle PQR = 122^\circ$
 b i $\angle RQS$ decreases by 35°, 45°, 55°
 ii $\angle RQS$ increases by 18°, 27°, 36°

Challenge 3

- 2:30 105° 3:30 75° 4:30 45°
 5:30 15° 6:30 15° 7:30 45°
 8:30 75° 9:30 105° 10:30 135°
 11:30 165° 12:30 165°

Unit 10, Week 1: Number - Multiplication and division, incl. Measurement (money)

Lesson 1: Multiplication ThHTO x O, Division ThHTO ÷ O, using the most efficient method

Challenge 1

- 1 Answers will vary.
 2 Answers will vary.

Challenge 2

1 Answers will vary.

2	mental	written
	$9366 \div 3 = 3122$	$7336 \div 4 = 1834$
	$6966 \div 3 = 2322$	$7568 \div 8 = 946$
	$1648 \div 4 = 412$	$3529 \div 7 = 504.1$
	$5427 \div 9 = 603$	$4657 \times 8 = 37256$
	$5333 \times 3 = 15999$	$8639 \times 7 = 60473$
	$4222 \times 4 = 16888$	$6427 \times 8 = 51416$
	$5555 \times 4 = 22220$	$6875 \times 5 = 34375$
	$6116 \times 6 = 36696$	
	$7749 \div 7 = 1107$	
	$4618 \div 2 = 2309$	
	$6231 \times 3 = 18693$	

Challenge 3

No answers.

Lesson 2: Multiplying and dividing by 10, 100, 1000, including decimals

Challenge 1

- 1 a x e x i x
 b x f x j ÷
 c ÷ g ÷
 d x h ÷

Challenge 2

Player 1									
Start number	4	x 10	x 10	÷ 1000	x 100	÷ 10	÷ 100	x 1000	÷ 10
		40	400	0.4	40	4	0.04	400	4

Player 2									
Start number	8	x 1000	÷ 100	÷ 10	x 1000	÷ 100	x 10	÷ 10	÷ 10
		8000	80	8	8000	80	800	80	8

Player 3									
Start number	1	x 100	÷ 10	x 100	÷ 1000	÷ 10	x 100	x 10	x 100
		100	10	1000	1	10	100	100	10000

Player 3 had the highest score.

Challenge 3

- 1 a £8.90 e £40.00
 b £229.00 f £25.00
 c £56.80 g £2490.00
 d £6.40 h £42.00
 2 a £0.89 e £0.45
 b £2.59 f £0.20
 c £0.63 g £0.30
 d £4.39 h £0.09

Lesson 3: Multiplication TO x TO using factors

Challenge 1

- 1 a 70 i 180
 b 140 j 80
 c 65 k 155
 d 90 l 235
 e 45 m 160
 f 180 n 185
 g 60 o 145
 h 85

- 2 a 180 i 316
 b 208 j 196
 c 152 k 360
 d 148 l 388
 e 312 m 300
 f 260 n 348
 g 92 o 116
 h 140
 3 a 240 b 90

Challenge 2

- 1 a 896 e 504
 b 828 f 800
 c 1232 g 468
 d 720 h 408
 2 a 690 e 900
 b 576 f 672
 c 1470 g 336
 d 392 h 726

Challenge 3

	37 x 17	23 x 29	13 x 43		27 x 41
--	---------	---------	---------	--	---------

Both numbers are odd so it is difficult to halve one of the numbers and then keep halving as the number will become a decimal number.

Lesson 4: Solving word problems (3)

Challenge 1

Start										Finish
6	x 4	x 5	x 10	÷ 100	x 12	÷ 4	x 6	÷ 3	x 2	÷ 12
	24	120	1200	12	144	36	216	72	144	12

Challenge 2

- 1 £784
 2 £117
 3 a £227
 b £7037
 4 £159
 5 £1368
 6 £164
 7 £17

Challenge 3

- 1 The designer watch cost £525.
 2 He can buy 8 sandwiches.
 He has £3.20 left.
 3 Each cake cost £1.50.

Unit 10, Week 2: Number - Fractions

Lesson 1: Improper fractions and mixed numbers (1)

Challenge 1

- a $\frac{7}{4} = 1\frac{3}{4}$ e $\frac{10}{6} = 1\frac{4}{6}$
 b $\frac{3}{2} = 1\frac{1}{2}$ f $\frac{12}{8} = 1\frac{4}{8}$
 c $\frac{8}{5} = 1\frac{3}{5}$ g $\frac{15}{10} = 1\frac{5}{10}$
 d $\frac{5}{3} = 1\frac{2}{3}$ h $\frac{11}{7} = 1\frac{4}{7}$

Challenge 2

1 a $\frac{13}{6} = \frac{6}{6} + \frac{6}{6} + \frac{1}{6} = 2\frac{1}{6}$
 b $\frac{10}{4} = \frac{4}{4} + \frac{4}{4} + \frac{2}{4} = 2\frac{2}{4}$
 c $\frac{13}{5} = \frac{5}{5} + \frac{5}{5} + \frac{3}{5} = 2\frac{3}{5}$
 d $\frac{18}{7} = \frac{7}{7} + \frac{7}{7} + \frac{4}{7} = 2\frac{4}{7}$
 e $\frac{5}{2} = \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = 2\frac{1}{2}$
 f $\frac{20}{8} = \frac{8}{8} + \frac{8}{8} + \frac{4}{8} = 2\frac{4}{8}$
 g $\frac{11}{3} = \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{2}{3} = 3\frac{2}{3}$
 h $\frac{22}{6} = \frac{6}{6} + \frac{6}{6} + \frac{6}{6} + \frac{4}{6} = 3\frac{4}{6}$

2 a $\frac{8}{5} = \frac{5}{5} + \frac{3}{5} = 1\frac{3}{5}$
 b $\frac{10}{6} = \frac{6}{6} + \frac{4}{6} = 1\frac{4}{6}$
 c $\frac{5}{3} = \frac{3}{3} + \frac{2}{3} = 1\frac{2}{3}$
 d $\frac{9}{4} = \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 2\frac{1}{4}$
 e $\frac{13}{5} = \frac{5}{5} + \frac{5}{5} + \frac{3}{5} = 2\frac{3}{5}$
 f $\frac{15}{7} = \frac{7}{7} + \frac{7}{7} + \frac{1}{7} = 2\frac{1}{7}$
 g $\frac{24}{10} = \frac{10}{10} + \frac{10}{10} + \frac{4}{10} = 2\frac{4}{10}$
 h $\frac{19}{9} = \frac{9}{9} + \frac{9}{9} + \frac{1}{9} = 2\frac{1}{9}$
 i $\frac{9}{2} = \frac{2}{2} + \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = 4\frac{1}{2}$
 j $\frac{15}{4} = \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{3}{4} = 3\frac{3}{4}$
 k $\frac{18}{8} = \frac{8}{8} + \frac{8}{8} + \frac{2}{8} = 2\frac{2}{8}$
 l $\frac{50}{12} = \frac{12}{12} + \frac{12}{12} + \frac{12}{12} + \frac{12}{12} + \frac{2}{12} = 4\frac{2}{12}$

Challenge 3

1 a $2\frac{1}{3} = \frac{3}{3} + \frac{3}{3} + \frac{1}{3} = \frac{7}{3}$
 b $2\frac{4}{5} = \frac{5}{5} + \frac{5}{5} + \frac{4}{5} = \frac{14}{5}$
 c $3\frac{4}{7} = \frac{7}{7} + \frac{7}{7} + \frac{7}{7} + \frac{4}{7} = \frac{25}{7}$
 d $3\frac{5}{8} = \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{5}{8} = \frac{29}{8}$
 e $2\frac{8}{9} = \frac{9}{9} + \frac{9}{9} + \frac{8}{9} = \frac{26}{9}$
 f $4\frac{1}{2} = \frac{2}{2} + \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = \frac{9}{2}$
 g $4\frac{6}{10} = \frac{10}{10} + \frac{10}{10} + \frac{10}{10} + \frac{6}{10} = \frac{46}{10}$
 h $5\frac{2}{3} = \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{2}{3} = \frac{17}{3}$
 i $6\frac{3}{4} = \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{3}{4} = \frac{27}{4}$
 j $7\frac{3}{5} = \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{3}{5} = \frac{38}{5}$

Lesson 2: Improper fractions and mixed numbers (2)

Challenge 1

a $\frac{11}{9} = 1\frac{2}{9}$ g $\frac{17}{5} = 3\frac{2}{5}$
 b $\frac{9}{6} = 1\frac{3}{6}$ h $\frac{14}{4} = 3\frac{2}{4}$
 c $\frac{9}{5} = 1\frac{4}{5}$ i $\frac{15}{5} = 3$
 d $\frac{6}{4} = 1\frac{2}{4}$ j $\frac{30}{8} = 3\frac{6}{8}$
 e $\frac{7}{3} = 2\frac{1}{3}$ k $\frac{24}{10} = 2\frac{4}{10}$
 f $\frac{5}{2} = 2\frac{1}{2}$ l $\frac{16}{5} = 3\frac{1}{5}$

Challenge 2

1 a $\frac{13}{4} = 13 \div 4 = 3\frac{1}{4}$
 b $\frac{11}{3} = 11 \div 3 = 3\frac{2}{3}$
 c $\frac{7}{2} = 7 \div 2 = 3\frac{1}{2}$
 d $\frac{9}{5} = 9 \div 5 = 1\frac{4}{5}$
 e $\frac{7}{3} = 7 \div 3 = 2\frac{1}{3}$
 f $\frac{5}{2} = 5 \div 2 = 2\frac{1}{2}$
 g $\frac{17}{5} = 17 \div 5 = 3\frac{2}{5}$
 h $\frac{14}{4} = 14 \div 4 = 3\frac{2}{4}$

2 Answers will vary.

Challenge 3

1 a $\frac{23}{5} = 23 \div 5 = 4\frac{3}{5}$
 b $\frac{18}{4} = 18 \div 4 = 4\frac{2}{4}$
 c $\frac{9}{2} = 9 \div 2 = 4\frac{1}{2}$
 d $\frac{15}{3} = 15 \div 3 = 5$
 e $\frac{31}{7} = 31 \div 7 = 4\frac{3}{7}$
 f $\frac{39}{8} = 39 \div 8 = 4\frac{7}{8}$
 g $\frac{47}{10} = 47 \div 10 = 4\frac{7}{10}$
 h $\frac{40}{9} = 40 \div 9 = 4\frac{4}{9}$
 i $\frac{13}{4} = 13 \div 4 = 3\frac{1}{4}$
 j $\frac{34}{10} = 34 \div 10 = 3\frac{4}{10}$
 k $\frac{37}{5} = 37 \div 5 = 7\frac{2}{5}$
 l $\frac{39}{12} = 39 \div 12 = 3\frac{3}{12}$

2 Answers will vary.

3 Answers will vary.

Lesson 3: Multiplying proper fractions

Challenge 1

a $1\frac{1}{4}$ e $1\frac{2}{6}$
 b $1\frac{2}{3}$ f $2\frac{1}{3}$
 c $1\frac{3}{4}$ g $2\frac{1}{2}$
 d $1\frac{1}{5}$ h $2\frac{1}{4}$

Challenge 2

1 a $\frac{3}{5} \times 4 = \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{12}{5} = 2\frac{2}{5}$
 b $\frac{4}{6} \times 2 = \frac{4}{6} + \frac{4}{6} = \frac{8}{6} = 1\frac{2}{6}$
 c $\frac{3}{4} \times 5 = \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{15}{4} = 3\frac{3}{4}$
 d $\frac{2}{6} \times 4 = \frac{2}{6} + \frac{2}{6} + \frac{2}{6} + \frac{2}{6} = \frac{8}{6} = 1\frac{2}{6}$
 e $\frac{4}{7} \times 3 = \frac{4}{7} + \frac{4}{7} + \frac{4}{7} = \frac{12}{7} = 1\frac{5}{7}$
 f $\frac{6}{8} \times 5 = \frac{6}{8} + \frac{6}{8} + \frac{6}{8} + \frac{6}{8} + \frac{6}{8} = \frac{30}{8} = 3\frac{6}{8}$
 g $\frac{2}{9} \times 7 = \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = 1\frac{5}{9}$
 h $\frac{6}{10} \times 3 = \frac{6}{10} + \frac{6}{10} + \frac{6}{10} = \frac{18}{10} = 1\frac{8}{10}$
 i $\frac{3}{6} \times 5 = \frac{3}{6} + \frac{3}{6} + \frac{3}{6} + \frac{3}{6} + \frac{3}{6} = \frac{15}{6} = 2\frac{3}{6}$
 j $\frac{4}{5} \times 6 = \frac{4}{5} + \frac{4}{5} + \frac{4}{5} + \frac{4}{5} + \frac{4}{5} + \frac{4}{5} = \frac{24}{5} = 4\frac{4}{5}$
 k $\frac{2}{8} \times 4 = \frac{2}{8} + \frac{2}{8} + \frac{2}{8} + \frac{2}{8} = \frac{8}{8} = 1$
 l $\frac{3}{4} \times 7 = \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{21}{4} = 5\frac{1}{4}$

2 a $\frac{2}{5} \times 7 = \frac{2}{5} \times \frac{7}{1} = \frac{2 \times 7}{5 \times 1} = \frac{14}{5} = 2\frac{4}{5}$
 b $\frac{3}{4} \times 6 = \frac{3}{4} \times \frac{6}{1} = \frac{3 \times 6}{4 \times 1} = \frac{18}{4} = 4\frac{2}{4}$
 c $\frac{4}{6} \times 4 = \frac{4}{6} \times \frac{4}{1} = \frac{4 \times 4}{6 \times 1} = \frac{16}{6} = 2\frac{4}{6}$
 d $\frac{2}{3} \times 6 = \frac{2}{3} \times \frac{6}{1} = \frac{2 \times 6}{3 \times 1} = \frac{12}{3} = 4$
 e $\frac{3}{7} \times 4 = \frac{3}{7} \times \frac{4}{1} = \frac{3 \times 4}{7 \times 1} = \frac{12}{7} = 1\frac{5}{7}$
 f $\frac{5}{8} \times 5 = \frac{5}{8} \times \frac{5}{1} = \frac{5 \times 5}{8 \times 1} = \frac{25}{8} = 3\frac{1}{8}$
 g $\frac{4}{9} \times 6 = \frac{4}{9} \times \frac{6}{1} = \frac{4 \times 6}{9 \times 1} = \frac{24}{9} = 2\frac{6}{9}$
 h $\frac{3}{10} \times 8 = \frac{3}{10} \times \frac{8}{1} = \frac{3 \times 8}{10 \times 1} = \frac{24}{10} = 2\frac{4}{10}$
 i $\frac{2}{6} \times 5 = \frac{2}{6} \times \frac{5}{1} = \frac{2 \times 5}{6 \times 1} = \frac{10}{6} = 1\frac{4}{6}$
 j $\frac{3}{8} \times 4 = \frac{3}{8} \times \frac{4}{1} = \frac{3 \times 4}{8 \times 1} = \frac{12}{8} = 1\frac{4}{8}$
 k $\frac{4}{7} \times 3 = \frac{4}{7} \times \frac{3}{1} = \frac{4 \times 3}{7 \times 1} = \frac{12}{7} = 1\frac{5}{7}$
 l $\frac{4}{5} \times 6 = \frac{4}{5} \times \frac{6}{1} = \frac{4 \times 6}{5 \times 1} = \frac{24}{5} = 4\frac{4}{5}$

Challenge 3

a $\frac{6}{7} \times 6 = \frac{36}{7} = 5\frac{1}{7}$
 b $\frac{5}{8} \times 9 = \frac{45}{8} = 5\frac{5}{8}$
 c $\frac{3}{4} \times 12 = \frac{36}{4} = 9$
 d $\frac{4}{9} \times 10 = \frac{40}{9} = 4\frac{4}{9}$
 e $\frac{8}{10} \times 7 = \frac{56}{10} = 5\frac{6}{10}$
 f $\frac{4}{12} \times 6 = \frac{24}{12} = 2$
 g $\frac{7}{8} \times 9 = \frac{63}{8} = 7\frac{7}{8}$
 h $\frac{11}{15} \times 8 = \frac{88}{15} = 5\frac{13}{15}$
 i $\frac{4}{11} \times 6 = \frac{24}{11} = 2\frac{2}{11}$
 j $\frac{6}{12} \times 7 = \frac{42}{12} = 3\frac{6}{12}$
 k $\frac{3}{15} \times 5 = \frac{15}{15} = 1$
 l $\frac{7}{13} \times 8 = \frac{56}{13} = 4\frac{4}{13}$

Lesson 4: Multiplying mixed numbers

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

- Challenge 2**
- a $10\frac{2}{3}$ h $13\frac{6}{8}$
 b $10\frac{1}{5}$ i $36\frac{4}{5}$
 c $13\frac{2}{6}$ j $47\frac{1}{4}$
 d 15 k $16\frac{1}{2}$
 e $16\frac{3}{7}$ l $30\frac{1}{3}$
 f $27\frac{3}{5}$ m $22\frac{1}{5}$
 g $21\frac{1}{7}$ n $48\frac{2}{3}$

2 $1\frac{15}{16}$
 3 $\frac{11}{4} = 2\frac{3}{4} = 2\frac{9}{12}$

- Challenge 3**
- 1 a $14\frac{3}{6}$ e $25\frac{1}{5}$
 b $17\frac{4}{8}$ f $37\frac{1}{3}$
 c $18\frac{2}{9}$ g $9\frac{2}{10}$
 d $31\frac{5}{7}$ h $27\frac{6}{7}$

2 Answers will vary.

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

Lesson 1: Converting capacities

- Challenge 1**
- 1 a 5000 ml b 500 ml c 50 ml
 2 A 4250 ml C 3400 ml
 B 3240 ml D 6500 ml
 3 A 4000 ml C 400 ml
 B 40 ml

- Challenge 2**
- 1 a 2400 ml d 11 250 ml
 b 3910 ml e 860 ml
 c 7580 ml f 90 ml

- 2 a 7.16 l e 0.42 l
 b 3.08 l f 0.06 l
 c 12.52 l g 11.01 l
 d 22.4 l h 20.06 l

- 3 A 42.5 l C 34 l
 B 32.4 l D 65 l

- 4 a i 3 l ii 7.5 l
 b 4.5 l
 c i 30 l ii 75 l iii 105 l

- Challenge 3**
- 1 E, A, C, D, B
 2 A = 750 ml
 B = 100 ml
 C = 500 ml
 D = 250 ml
 E = 1000 ml

Lesson 2: Converting between pints and litres

- Challenge 1**
- 1 a 7 pints c 14 pints
 b 9 pints d 16 pints
 2 a 1 l c 4 l
 b 3 l d 7 l

- Challenge 2**
- 1 a 5 pints c 4 pints
 b 11 pints d 12 pints
 2 a 3 l c 7 l
 b 5 l d 8 l

- 3 a 7 pints c 3 pints
 b 3.5 pints d 4.5 pints

- 4 a 1.1 l c 3.1 l
 b 1.7 l d 3.5 l

- 5 a 2 pints c 3.5 l
 b 4 l d 3200 ml

- Challenge 3**
- a 240 pints b 135 l

Lesson 3: Volume of cuboids

- Challenge 1**
- a 8 cm³ d 9 cm³
 b 16 cm³ e 18 cm³
 c 24 cm³ f 27 cm³

- Challenge 2**
- 1 16 cm³
 2 a 32 cm³ b 30 cm³ c 27 cm³
 3 A 144 cm³ B 100 cm³
 4 a 4 cubes
 b 18 cm³

- Challenge 3**
- a 20 cubes, 27 cm³
 c 9 cubes, 24 cm³

Lesson 4: On board problems

- Challenge 1**
- a 5700 ml c 6590 ml
 b 3160 ml d 7040 ml

- Challenge 2**
- 1 1400 litres
 2 a 300 passengers
 b 262 passengers
 3 a 25 cartons
 b 50 cartons
 c 100 cartons
 4 a 9 boxes
 b 900 cm³
 5 a 1250 l b 900 l c 3550 l

Challenge 3

a					b
M	P	Le	Li	Tot	
•	•			750 ml	250 ml
•		•		600 ml	400 ml
•			•	550 ml	450 ml
	•	•		350 ml	650 ml
	•		•	300 ml	700 ml
		•	•	150 ml	850 ml
•	•	•		850 ml	150 ml
•	•		•	800 ml	200 ml
•		•	•	650 ml	350 ml
	•	•	•	400 ml	600 ml
•	•	•	•	900 ml	150 ml

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

Lesson 1: Number squares

- Challenge 1**
- 1 a 535 450 515 600
 b 312 486 548 374
 c 502 402 502 602
 d 484 682 684 486

- 2 a 4.1 4.7 3.9 3.3
 b 4 2.2 3.6 5.4
 c 1.7 2 1.2 0.9
 d 5.2 3.6 0.5 2.1

- Challenge 2**
- 1 a 2300 1700 5000 5600
 b 1050 4800 4550 800
 c 3002 2002 1002 2
 d 4105 2530 3925 5500

- 2 a 2.8 3.59 2.22 1.43
 b 3.23 1.58 0.09 1.74
 c 3 2.34 2.48 3.14
 d 3.22 0.96 1.12 3.38

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

Lesson 2: Addition targets

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

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

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

Lesson 3: Subtraction targets

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

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

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

Lesson 4: Solving word problems (4)

- Challenge 1**
- 1 £157.50
 2 £7106

3 a 142993 b 8121

4 £25950

Challenge 2
1 £4414.50

2 a 103859 b 209579

3 Answers will vary.

4 £16618

5 £2587.50

Challenge 3
1 £86.25

2 £3140

3 Second – 441845. Lowest – 183783

4 a 153,109 increase in total
b 84,575 increase on Wednesday

5 11 seven seaters or 13 five seaters

Unit II, Week 2: Number – Fractions (incl. decimals and percentages)

Lesson 1: Percentages, fractions and decimals

Challenge 1
a $50\% = \frac{50}{100} = \frac{5}{10}$

b $70\% = \frac{70}{100} = \frac{7}{10}$

c $90\% = \frac{90}{100} = \frac{9}{10}$

d $25\% = \frac{25}{100} = \frac{1}{4}$

e $40\% = \frac{40}{100} = \frac{4}{10}$

f $75\% = \frac{75}{100} = \frac{3}{4}$

g $10\% = \frac{10}{100} = \frac{1}{10}$

h $50\% = \frac{50}{100} = \frac{5}{10}$

Challenge 2
1 a $40\% = \frac{4}{10} = \frac{2}{5} = 0.4$

b $25\% = \frac{1}{4} = \frac{25}{100} = 0.25$

c $80\% = \frac{8}{10} = \frac{4}{5} = 0.8$

d $60\% = \frac{6}{10} = \frac{3}{5} = 0.6$

e $75\% = \frac{3}{4} = \frac{75}{100} = 0.75$

f $20\% = \frac{2}{10} = \frac{1}{5} = 0.2$

2 $10\% = \frac{1}{10} = 0.1$

$20\% = \frac{1}{5} = 0.2$

$30\% = \frac{3}{10} = 0.3$

$40\% = \frac{2}{5} = 0.4$

$50\% = \frac{1}{2} = 0.5$

$60\% = \frac{3}{5} = 0.6$

$70\% = \frac{7}{10} = 0.7$

$80\% = \frac{4}{5} = 0.8$

$90\% = \frac{9}{10} = 0.9$

$100\% = \frac{10}{10} = 1$

$25\% = \frac{1}{4} = 0.25$

$75\% = \frac{3}{4} = 0.75$

Challenge 3
No answers.

Lesson 2: Calculating percentage (2)

- Challenge 1**
- | | |
|-----------|-----------|
| 1 a 750 | g 1625 cm |
| b £495 | h 186 |
| c 2300 km | i £92 |
| d 390 m | j 376 |
| e 2010 | k 237 kg |
| f £1120 | l 548 m |

- 2 a $\frac{1}{2}$ c 180
b 60% d 48

- Challenge 2**
- | | |
|-----------|-------------|
| 1 a £4262 | g 6040 km |
| b 1840 km | h 2473 |
| c 541 m | i £7458 |
| d 3816 | j 4077 g |
| e 6108 g | k 3558.5 m |
| f £1716 | l 2337.5 ml |

- 2 a 51 c £12
b £77 d 1200

- Challenge 3**
- | | |
|--------------|-------------|
| 1 a 857.5 km | g 5518.5 kg |
| b 1757 g | h 4907.5 |
| c £1144.50 | i £7038 |
| d 1233 | j 8491.5 |
| e 3658.5 km | k 480 g |
| f 4392 | l £1596 |

2 Answers will vary.

- 3 a Red 25% Blue 15%
Orange 40% Green 20%
- b Red – £612.50
Blue – £367.50
Orange – £980
Green – £490

Lesson 3: Shopping percentages

- Challenge 1**
- | | |
|-------------|------|
| 1 Swimsuits | £63 |
| Goggles | £36 |
| Dinghy | £153 |
| Snorkel Set | £99 |
| Surf Board | £198 |

- 2 Swimsuits £56
Goggles £32
Dinghy £136
Snorkel Set £88
Surf Board £176

- 3 £432
4 £82.50
5 £98

- Challenge 2**
- | | |
|-------------|---------|
| 1 Swimsuits | £52.50 |
| Goggles | £30 |
| Dinghy | £127.50 |
| Snorkel Set | £82.50 |
| Surf Board | £165 |

- 2 Swimsuits £49
Goggles £28
Dinghy £119
Snorkel Set £77
Surf Board £154

- 3 £1856
4 1440
5 80%

- Challenge 3**
- | | |
|-------------|---------|
| 1 Swimsuits | £45.50 |
| Goggles | £26 |
| Dinghy | £110.50 |
| Snorkel Set | £71.50 |
| Surf Board | £143 |

- 2 £425
3 £3339
4 40%
- 5 One flight to Paris £247.50
One flight to New York £319
One flight to Madrid £132
Day in Brighton £44
Holiday in the Sun £346.50

Lesson 4: Weather percentages

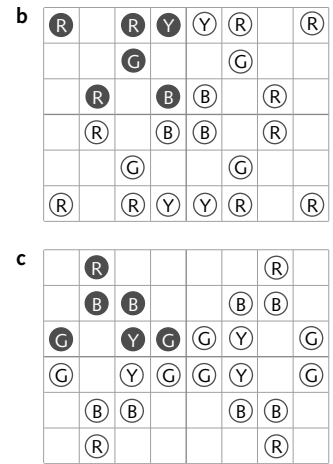
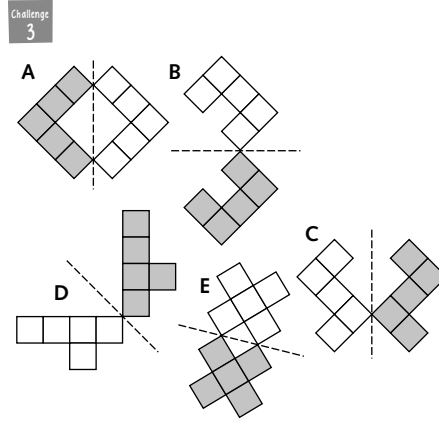
- Challenge 1**
- | | |
|---------|-------|
| 1 a 10% | c 50% |
| b 20% | d 20% |
- 2 a $\frac{10}{100}$ c $\frac{1}{2}$
b $\frac{1}{5}$ d $\frac{1}{5}$

- 3 70%
4 30%

- Challenge 2**
- | | |
|---------|-------|
| 1 a 10% | c 30% |
| b 20% | d 10% |

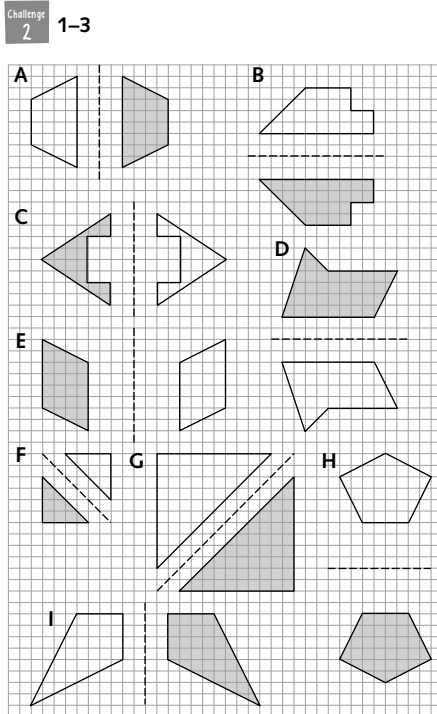
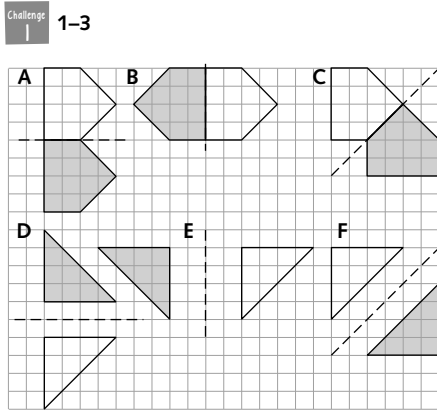
- 2 a Answers will vary.
- b Answers will vary.
- 3 Answers will vary.
- 4 No answers.

- Challenge 3**
- 1 a 15% d 17%
 - b 22% e 25%
 - c 7%
 - 2 15%
 - 3 Answers will vary.

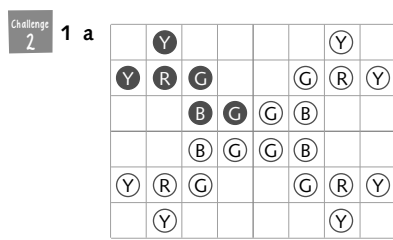
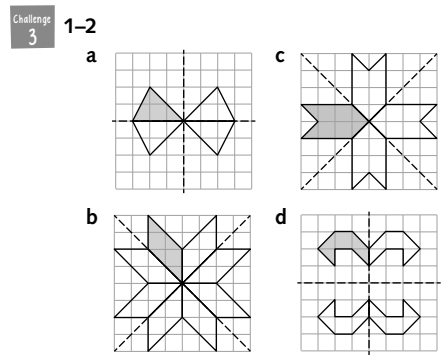
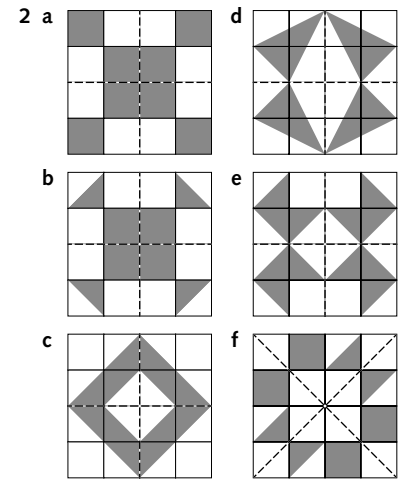
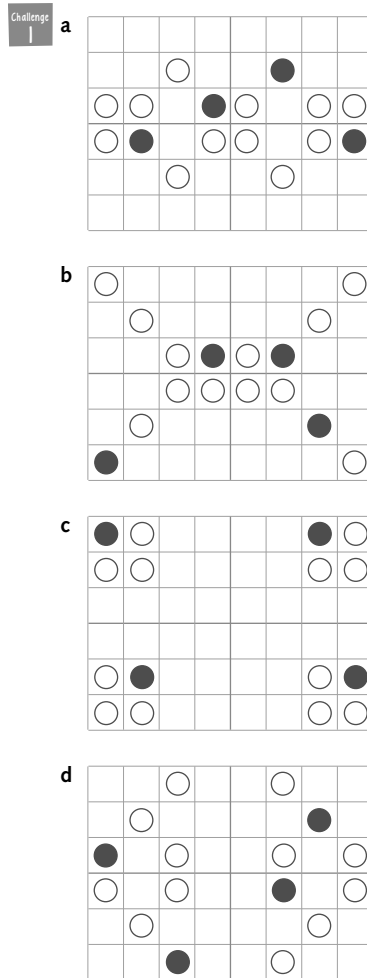


Unit II, Week 3: Geometry - Position and direction

Lesson 1: Reflecting 2-D shapes

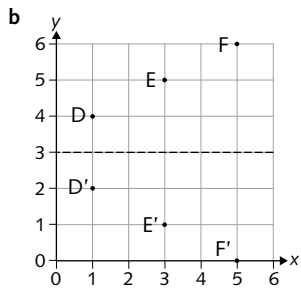
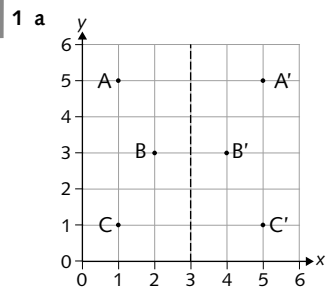


Lesson 2: Reflection in two lines of symmetry



Lesson 3: Reflecting shapes using coordinates

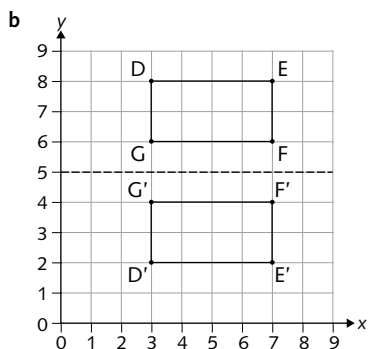
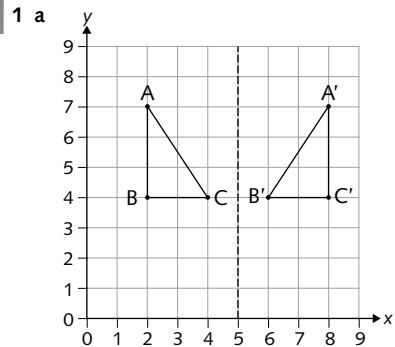
Challenge 1



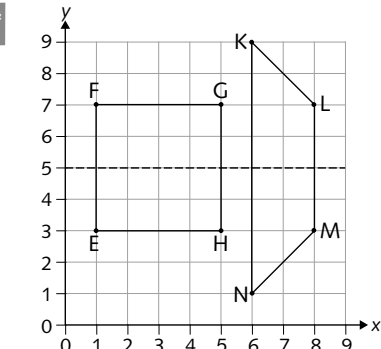
2

Point	Coordinates	Point	Coordinates
A	(1, 5)	A'	(5, 5)
B	(2, 3)	B'	(4, 3)
C	(1, 1)	C'	(5, 1)
D	(1, 4)	D'	(1, 2)
E	(3, 5)	E'	(3, 1)
F	(5, 6)	F'	(5, 0)

Challenge 2



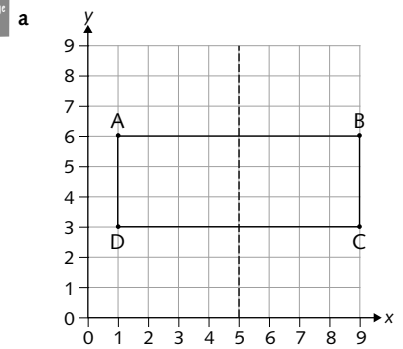
Challenge 3



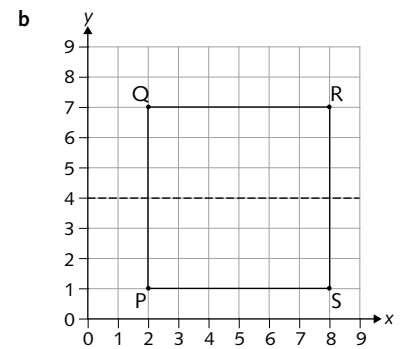
- a F(1, 7) G(5, 7)
b M(8, 3) N(6, 1)

Lesson 4: Four-way reflections

Challenge 1

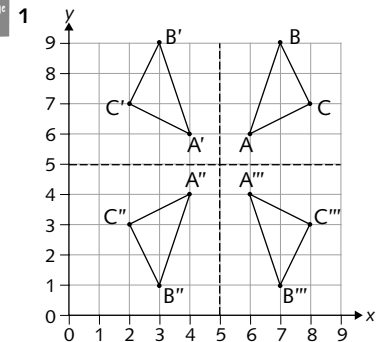


B(9, 6), C(9, 3)



Q(2, 7), R(8, 7)

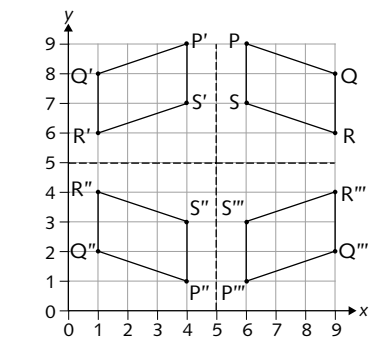
Challenge 2



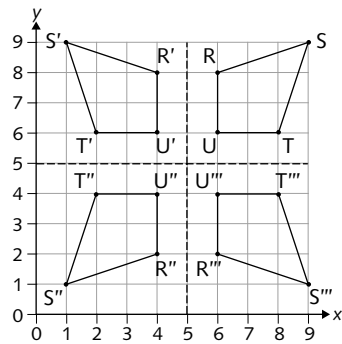
2

1st quadrant	2nd quadrant	3rd quadrant	4th quadrant
A(6, 6)	A'(4, 6)	A''(4, 4)	A'''(6, 4)
B(7, 9)	B'(3, 9)	B''(3, 1)	B'''(7, 1)
C(8, 7)	C'(2, 7)	C''(2, 3)	C'''(8, 3)

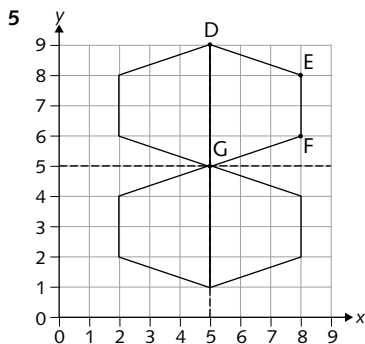
3 Grid 1



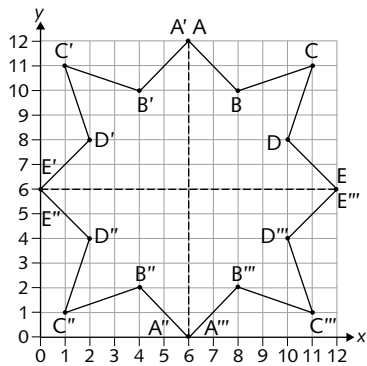
Grid 2



4	Grid	1st quadrant	2nd quadrant	3rd quadrant	4th quadrant
1	S	(6, 7)	S' (4, 7)	S'' (4, 3)	S''' (6, 3)
2	S	(9, 9)	S' (1, 9)	S'' (1, 1)	S''' (9, 1)



Challenge 3 1-2



3	1st quadrant	2nd quadrant	3rd quadrant	4th quadrant
	B (8, 10)	B' (4, 10)	B'' (4, 2)	B''' (8, 2)
	C (11, 11)	C' (1, 11)	C'' (1, 1)	C''' (11, 1)
	D (10, 8)	D' (2, 8)	D'' (2, 4)	D''' (10, 4)

Unit 12, Week 1: Number - Multiplication and division, incl Measurement (money)

Lesson 1: Multiplication HTO x TO using partitioning

- Challenge 1
- 1 a 18 d 1800
 b 180 e 18000
 c 1800
- 2 a 56 d 5600
 b 560 e 56000
 c 5600

- 3 a 54 d 5400
 b 540 e 54000
 c 5400
- 4 a 28 d 2800
 b 280 e 28000
 c 2800
- 5 a 72 d 7200
 b 720 e 72000
 c 7200
- 6 a 12 d 1200
 b 120 e 12000
 c 1200

- 7 a 63 d 6300
 b 630 e 63000
 c 6300
- 8 a 48 d 4800
 b 480 e 48000
 c 4800
- 9 a 35 d 3500
 b 350 e 35000
 c 3500

- Challenge 2
- 1 a 12792 g 16188
 b 14980 h 27132
 c 17388 i 33465
 d 5934 j 10395
 e 9594 k 34496
 f 40953 l 20336

- 2 a 25584 m²
 b 420 m²

Challenge 3 Answers will vary.

Lesson 2: Multiplication HTO x TO using partitioning and the grid method

- Challenge 1
- 1 a 70, 140, 210, 280, 350, 420
 b 600, 1200, 1800, 2400, 3000, 3600
 c 60, 120, 180, 240, 300, 360
 d 90, 180, 270, 360, 450, 540
 e 400, 800, 1200, 1600, 2000, 2400
 f 250, 500, 750, 1000, 1250, 1500
 g 30, 60, 90, 120, 150, 180
 h 150, 300, 450, 600, 750, 900

- 2 a 420 i 21000
 b 4000 j 12000
 c 4800 k 3600
 d 5400 l 5600
 e 7200 m 6300
 f 32000 n 3600
 g 24000 o 4900
 h 25000

- Challenge 2
- 1 a 10192 km
 b 2548 km
 c 11700 minutes

2 Answers will vary.

- Challenge 3
- a 2 d 2 (20)
 b 7 (70) e 4
 c 2 (20) f 4 (400)

Lesson 3: Multiplication HTO x TO using the expanded written method

Challenge 1

a	b	c
80 x 8 = 640	200 x 9 = 1800	30 x 7 = 210
300 x 8 = 2400	60 x 9 = 540	500 x 7 = 3500
60 x 8 = 480	700 x 9 = 6300	800 x 7 = 5600
40 x 8 = 320	90 x 9 = 810	70 x 7 = 490
700 x 8 = 5600	8 x 9 = 72	6 x 7 = 42
5 x 8 = 40	30 x 9 = 270	40 x 7 = 280

d	e	f
30 x 60 = 1800	500 x 30 = 15000	400 x 50 = 20000
50 x 60 = 3000	7 x 30 = 210	600 x 50 = 30000
800 x 60 = 48000	60 x 30 = 1800	9 x 50 = 450
40 x 60 = 2400	800 x 30 = 24000	70 x 50 = 3500
3 x 60 = 180	90 x 30 = 2700	800 x 50 = 40000
700 x 60 = 42000	200 x 30 = 6000	10 x 50 = 500

Challenge 2

1 Approximations may vary.

- 2 a 11648 g 29106
 b 11214 h 37386
 c 4624 i 8372
 d 14344 j 10412
 e 5096 k 12765
 f 13468 l 18564

Challenge 3

384	5888	6860	7344	3204
32 12	184 32	196 35	204 36	267 12
8 4 3	46 4 8	28 7 5	34 6 6	89 3 4

Lesson 4: Solving word problems (5)

Challenge 1

- a 25: 750, 725, 700, 675, 650, 625, 600
 b 60: 600, 540, 480, 420, 360, 300, 240
 c 70: 630, 560, 490, 420, 350, 280, 210
 d 90: 810, 720, 630, 540, 450, 360, 270

Challenge 2

- a £4675
 b £4884
 c 5564 + 2784 = 8348 (£8348)
 d £500
 e keyboard £214 drum kit £464 guitar £143 cello £263 clarinet £93.50 violin £74
 f 286 + 526 + 148 = 960
 960 x 24 = 23040
 £23040
 g £3350
 h 10000 - 8416 = 1584
 £1584
 i £72
 j 6 violins
 k £604
 l Answers will vary.

- Challenge 3**
- a £12512
 - b 20040 m
 - c 27375 minutes/year =
456 hrs 15 mins

Unit 12, Week 2: Number - Multiplication and division, incl. Measurement (money)

Lesson 1: Division ThHTO ÷ O with a decimal remainder

- Challenge 1**
- 1 21, 56, 35, 49, 56, 42, 77, 84
 - 2 18, 27, 63, 36, 54, 72, 90, 90
 - 3 16 tenths 28 tenths
34 tenths 62 tenths
53 tenths 19 tenths
 - 4 530 hundredths
62 hundredths
110 hundredths
53 hundredths
2 hundredths
134 hundredths

- Challenge 2**
- 1 a 599.5 g 1097
b 329.4 h 729.16
c 876.83 i 1474.6
d 992.2 j 579
e 1568.75 k 390.83
f 461.5 l 674.5
 - 2 a 2316 c 3812
b 3976

- Challenge 3**
- a £471.40 each
 - b 796 kilometres per hour
 - c 179.375 litres per day
 - d Sarah: £267.75 Jonathan: £266.75
Sarah pays £1 more per day.

Lesson 2: Division ThHTO ÷ O with a fraction remainder

- Challenge 1**
- 4: 12, 16, 24, 32, 36, 40, 48, 52, 56, 64, 72, 84, 92, 96, 100,
 - 6: 12, 18, 24, 36, 48, 54, 66, 72, 84, 96,
 - 8: 16, 24, 32, 40, 48, 56, 64, 72, 96

- Challenge 2**
- 1 a $319\frac{3}{5}$ g $719\frac{1}{9}$
b $545\frac{5}{6}$ h $951\frac{1}{3}$
c $911\frac{1}{4}$ i $567\frac{1}{4}$
d 333 j $796\frac{1}{2}$
e $1097\frac{3}{4}$ k $877\frac{2}{3}$
f $921\frac{2}{3}$ l $971\frac{4}{2}$
 - 2 a 346 bowls each
b 74.5 pages
c 585.5 km
d 64.5 packs each.

Challenge 3 Answers will vary.

Lesson 3: Division ThHTO ÷ O rounding remainders

- Challenge 1**
- a 30 r6 f 61
 - b 91 r3 g 910
 - c 80 r7 h 807
 - d 91 r2 i 910 r1
 - e 102

- Challenge 2**
- a 371 people
 - b 227 programmes
 - c 360 tickets
 - d 539 packs
 - e 269 packs
 - f 162 crates
 - g 166 rows
 - h 534 children
 - i 27378 biscuits
 - j £50464
 - k 567 trays

Challenge 3 Answers will vary.

Lesson 4: Solving money problems

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

- Challenge 2**
- 1 338 cars
 - 2 134 cards
 - 3 £565.75
 - 4 $3468 + 392 = 3860$ £3860 in total
 - 5 137 marbles
 - 6 $600 - 534 = 66$ (£66)
 - 7 Josh earns £579
 - 8 285 boys, 570 girls
 - 9 £0.60 or 60p
 - 10 £52.80

Challenge 3 Answers will vary.

Unit 12, Week 3: Statistics

Lesson 1: Bookshop sales

- Challenge 1**
- 1 a 400 b 200 c 250
 - 2 a September c December
b July
- Challenge 2**
- 1 a 200 b 400 c 300
 - 2 a June b September

- Challenge 3**
- 3 a January, July, August and December
b July and August – people going on holiday buy books to take with them; December – Christmas sales; January – spending Christmas book tokens in the shop

- 4 a January and February
b November and December

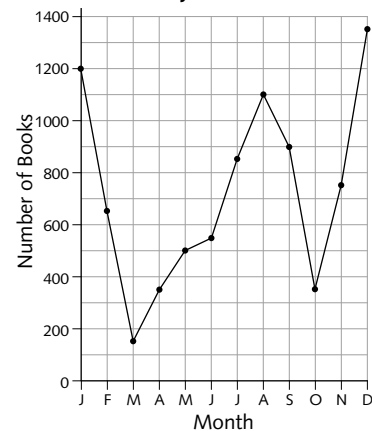
5 April and May

- 6 a Similar:
high sales at similar times
lowest sales in March
Highest sales in December
both show a fall in sales between August and October
- b Different:
different scales
different number of books sold
Children's book sales fall between April and May and adult book sales fall between May and June.

Challenge 3

Month	Children's books	Adults Books	Total sales
Jan	400	800	1200
Feb	250	400	650
Mar	50	100	150
Apr	150	200	350
May	100	400	500
June	200	350	550
July	350	500	850
Aug	400	700	1100
Sept	300	600	900
Oct	100	250	350
Nov	250	500	750
Dec	450	900	1350

2 Monthly sales of books



- 3 Mirrors sales pattern for children's and adults' books having highest sales at similar times.
All three graphs have their highest sales totals in December.
- 4 Mr Hollins could probably take his holiday in March as that is when the bookshop is at its least busy. October is a possibility but the shop will be taking in new stock for Christmas purchases.

Lesson 2: Data in tables

Challenge 1

	Roasting time in minutes						
	Mass in kilograms						
	0.5	1	1.5	2	2.5	3	3.5
Lamb	30	60	90	120	150	180	210
Chicken	20	40	60	80	100	120	140

- 2 a 60 min; 1 h
 b 120 min; 2 h
 c 100 min; 1 h 40 min
 d 210 min; 3 h 30 min

Challenges 2,3

Roasting time in minutes	Mass in kilograms				
	1	2	3	4	5
Beef	60	100	140	180	220
Lamb	80	130	180	230	280
Turkey	90	150	210	270	330

- 2 a 3 kg b 4 kg
 3 a 260 min; 4 h 20 min
 b 330 min; 5 h 30 min
 c 390 min; 6 h 30 min
 4 a 12:40 p.m. c 10:30 a.m.
 b 11:30 a.m.
 5 a 9°C
 b i 24°C ii 22°C

Challenge 3

The graph shows roasting time for $3\frac{1}{2}$ kg of beef at 140 minutes. Add 20 minutes to give the correct time for the roast as 160 minutes.

Lesson 3: Time graphs

Challenge 1

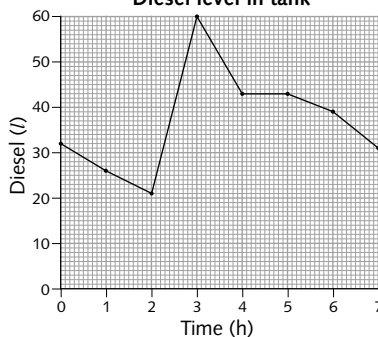
Time (min)	Water (l)
0	0
5	10
10	20
15	30
20	40
25	60
30	80

- 2 After 20 minutes
 3 70 litres

Challenge 2

Time (h)	Diesel (l)
0	32
1	26
2	21
3	60
4	43
5	43
6	39
7	31

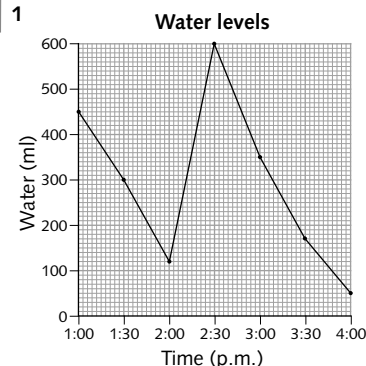
2 Diesel level in tank



- 3 a 60 litres
 b 11 litres
 c 3 hours

- d 16 litres
 e After 4 hours
 f 52 litres
 g i at $5\frac{1}{2}$ hours
 ii at $6\frac{1}{2}$ hours

Challenge 3



- 2 Answers will vary.

Lesson 4: Presenting the data

Challenge 1

Month	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Income (£)	24	30	34	16	10	26	32	20	28	36	32

- 2 a June b January
 3 November, March, June, July
 4 a November to December
 b £18
 5 School holidays

Challenge 2

- 1, 2 Answers will vary.

Challenge 3

- Answers will vary.

Progress Guide 5

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

Lesson 1, Extension: 5-digit puzzle

- 1 Various answers beginning with 24 and ending with 6.
 2 No answers.

Lesson 2, Support: 5-digit counting

No answers.

Lesson 3, Extension: Beyond 100 000

- 1 a 99987 count on in tens to 100077
 b 102561 count on in tens to 102651
 c 135549 count back in tens to 135459
 d 147964 count back in tens to 147874

- 2 a 99752 count on in hundreds to 100652
 b 100083 count on in hundreds to 100983
 c 174499 count back in hundreds to 173599
 d 185628 count back in hundreds to 184728

Lesson 4, Support: 4-digit rounding

- a 4870 4872 4880
 b 7390 7393 7400
 c 5060 5064 5070
 d 9310 9316 9320
 e 6740 6748 6750
 f 8320 8325 8330

Unit 1, Week 2: Number - Addition and subtraction

Lesson 1, Support: Using the number line

- 1 a 1814 f 3889
 b 2922 g 5221
 c 3125 h 6889
 d 7478 i 7645
 e 8225 j 9661

Lesson 2, Extension: Stepping stones

- 1 a-f Answers will vary.

Lesson 3, Support: Find the difference

- 1 a 1702 e 5851
 b 2705 f 6622
 c 4251 g 7333
 d 4202 h 8527

Lesson 4, Extension: What are the scores?

- 1 Ashraf 18300
Ben 13100
Holly 10500
- 2 Ashraf 4800
Ben 6500
Holly 5900
- 3 Answers will vary

Unit 1, Week 3: Geometry – Properties of shape

Lesson 1, Support: Faces, edges and vertices

1

3-D shape	Triangle	Square	Rectangle	Pentagon	Total number of faces
A		6			6
B	4	1			5
C			6		6
D	2		3		5
E			5	2	7

2

	Shape A	Shape B	Shape C	Shape D	Shape E
Number of edges	12	8	12	9	15
Number of vertices	8	5	8	6	10

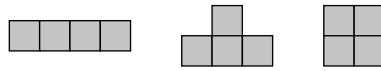
Lesson 2, Extension: Euler's rule

1

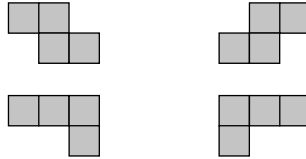
	Number of			
	Faces (F)	Vertices (V)	Edges (E)	Faces + Vertices (F + V)
cube	6	8	12	14
hexagonal prism	8	12	18	20
cuboid	6	8	12	14
square-based pyramid	5	5	8	10
triangular prism	5	6	9	11
octahedron	8	6	12	14
pentagonal prism	7	10	15	17
tetrahedron	4	4	6	8
dodecahedron	12	20	30	32
pentagonal-based pyramid	6	6	10	12

2 No

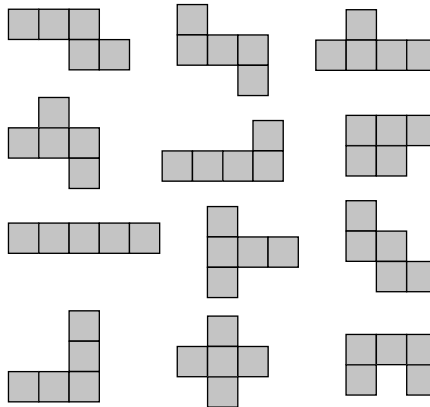
Lesson 4, Support: Investigating 3-D shapes made with 4 cubes



You may wish to allow reflections of these shapes.



Lesson 4, Extension: Investigating 3-D shapes made with 5 cubes



Unit 2, Week 1: Number – Multiplication and division

Lesson 1, Support: Multiplying by 9 using 10 and adjusting

a	1	230	→	207
b	2	450	→	405
c	3	670	→	603
d	4	890	→	801
e	5	560	→	504
f	6	480	→	432
g	7	370	→	333
h	8	590	→	531
i	9	320	→	288
j	10	430	→	387
k	11	210	→	189
l	12	520	→	468
m	13	650	→	585
n	14	910	→	819

Lesson 1, Extension: Multiplying by 9, 99 using 10, 100 and adjusting

Game

Lesson 4, Support: Multiplying and halving

1 a	$62 \times 10 = 620$	$\div 2$	$= 310$
b	$48 \times 10 = 480$	$\div 2$	$= 240$
c	$26 \times 10 = 260$	$\div 2$	$= 130$
d	$45 \times 10 = 450$	$\div 2$	$= 225$
e	$67 \times 10 = 670$	$\div 2$	$= 335$
f	$53 \times 10 = 530$	$\div 2$	$= 265$
2 a	$42 \times 100 = 4200$	$\div 2$	$= 2100$
b	$28 \times 100 = 2800$	$\div 2$	$= 1400$
c	$64 \times 100 = 6400$	$\div 2$	$= 3200$
d	$25 \times 100 = 2500$	$\div 2$	$= 1250$
e	$65 \times 100 = 6500$	$\div 2$	$= 3250$
f	$47 \times 100 = 4700$	$\div 2$	$= 2350$

Lesson 4, Extension Multiplying and halving

Game

Unit 2, Week 2: Number – Fractions

Lesson 1, Support: Fractions of quantities

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

Lesson 2, Extension: Mystery terms

- 1 $7\frac{1}{2}$
- 2 Answers will vary
- 3 a 13 c 25
- b $17\frac{1}{2}$ d 50

Lesson 3, Support: Tile fractions

- 1 a Eighths d Twelfths
- b Tenths e Sixths
- c Quarters f Eighths
- 2 No answers.
- 3 a $\frac{4}{8}$ d $\frac{6}{12}$
- b $\frac{5}{10}$ e $\frac{3}{6}$
- c $\frac{2}{4}$ f $\frac{4}{8}$
- 4 They are the same fraction.

Lesson 4, Extension: Farey sequences

- 1 $\frac{0}{1}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{1}{1}$
- 2 $\frac{0}{1}$ $\frac{1}{5}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{2}{5}$ $\frac{1}{2}$ $\frac{3}{5}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{4}{5}$ $\frac{1}{1}$

Unit 2, Week 3: Geometry: Position and direction

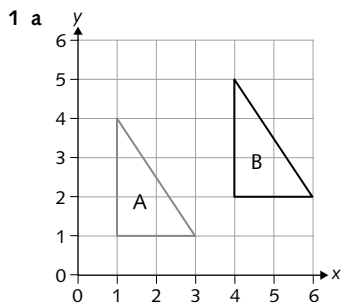
Lesson 1, Support: Border patterns

Open

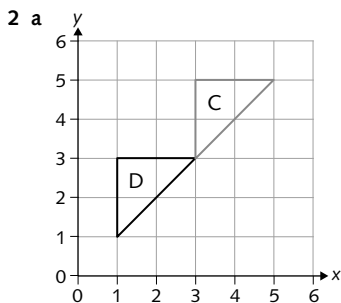
Lesson 3, Extension: Create translating shapes

Open

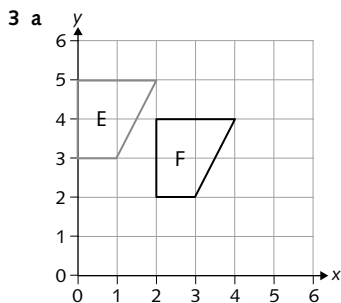
Lesson 4, Support: 2-step translations



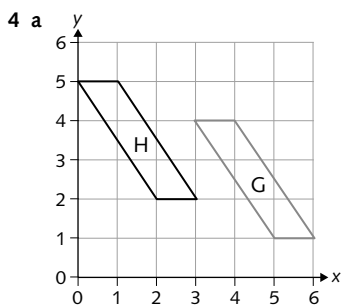
b (4, 2) (4, 5) (6, 2)



b (1, 1) (1, 3) (3, 3)

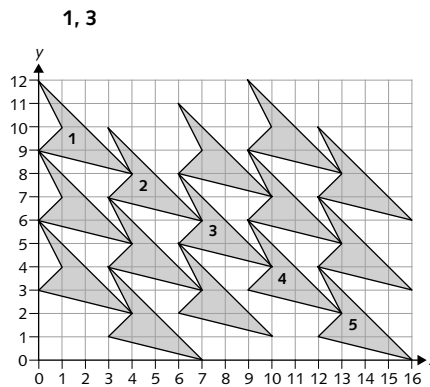


b (2, 2) (2, 4) (4, 4) (3, 2)



b (2, 2) (0, 5) (1, 5) (3, 2)

Lesson 4, Extension: 2-step translations



2

Shape	Corresponding vertices	
	x co-ordinate	y co-ordinate
1	0	12
2	3	10
3	6	8
4	9	6
5	12	4

Unit 3, Week 1: Number - Addition and subtraction

Lesson 1, Extension: Missing calculations

Answers will vary.

Lesson 2, Extension: Palindrome challenge

Answers will vary.

Lesson 3, Support: 4-digit calculations

- a 8386
- b 6017
- c 8801
- d 8289
- e 8617
- f 8583
- g 6917
- h 9198
- i 7972
- j 9826
- k 12114

Lesson 4, Support: Rounding 5-digit numbers

- a 24200
- b 19700
- c 26100
- d 32600
- e 35300
- f 39400
- g 42800

Unit 3, Week 2: Number - Decimals

Lesson 1, Extension: Decimals to 3 places

- 1 a $\frac{254}{1000}$ d $\frac{207}{1000}$
 - b $\frac{189}{1000}$ e $\frac{628}{1000}$
 - c $\frac{367}{1000}$ f $\frac{126}{1000}$
- 2 Answers will vary.
- 3 Answers will vary.
- 4 a $\frac{25}{100}$ $\frac{254}{1000}$ $\frac{26}{100}$
- b $\frac{18}{100}$ $\frac{189}{1000}$ $\frac{19}{100}$
- c $\frac{36}{100}$ $\frac{367}{1000}$ $\frac{37}{100}$
- d $\frac{20}{100}$ $\frac{207}{1000}$ $\frac{21}{100}$
- e $\frac{62}{100}$ $\frac{628}{1000}$ $\frac{63}{100}$
- f $\frac{12}{100}$ $\frac{126}{1000}$ $\frac{13}{100}$

Lesson 2, Support: Complements of 1

- a $0.74 + 0.26 = 1$
- b $0.58 + 0.42 = 1$
- c $0.49 + 0.51 = 1$
- d $0.26 + 0.74 = 1$
- e $0.82 + 0.18 = 1$
- f $0.37 + 0.63 = 1$
- g $0.63 + 0.37 = 1$

Lesson 3, Extension: Decimal number line

1 No answers.

2

	Rounded to the nearest whole number	Rounded to the nearest decimal to 1 place
7.28	down to 7	up to 7.3
7.4	down to 7	7.4
7.23	down to 7	down to 7.2
7.81	up to 8	down to 7.8
7.95	up to 8	up to 8.0
7.6	up to 8	7.6
7.358	down to 7	up to 7.4
7.44	down to 7	down to 7.4
7.603	up to 8	down to 7.6
7.99	up to 8	up to 8.0
7.73	up to 8	down to 7.7
7.04	down to 7	down to 7.0

Lesson 4, Support: Follow the rule

- 1 a 3.2, 3.3 sequence increasing by 0.1
- b 5.6, 5.7 sequence increasing by 0.1
- c 8.4, 8.5 sequence increasing by 0.1
- 2 a 1.6, 1.8 sequence increasing by 0.2
- b 3.2, 3.4 sequence increasing by 0.2
- c 5.1, 5.3 sequence increasing by 0.2
- 3 a 4.26, 2.27 sequence increasing by 0.01
- b 3.19, 3.20 sequence increasing by 0.01
- c 7.55, 7.56 sequence increasing by 0.01

- 4 a 5-34, 5-36 sequence increasing by 0-02
8-71, 8-73 sequence increasing by 0-02
6-03, 6-05 sequence increasing by 0-02

Unit 3, Week 3 - Measurement (mass)

Lesson 1, Extension: Guessing the mass

1	Name	Guess
a	Lee	5050 g
b	Fiona	4830 g
c	Peter	4750 g
d	Ros	5020 g
e	Chris	5160 g
f	Beth	5047 g
g	Sandra	4900 g

- 2 a 5020 g b Ros
3 20 g
4 410 g
5 No

Lesson 2, Extension: Honeycomb masses

- 1 a $\frac{1}{2}$ lb \approx 230 g $1\frac{1}{4}$ lb \approx 570 g
 $\frac{3}{4}$ lb \approx 340 g $1\frac{1}{2}$ lb \approx 680 g
b $1\frac{1}{4}$ lb
c 0-1 kg
d 690 g
2 a 9 g
b 103 days

Lesson 2, Support: Metric and imperial card game (1)

Open

Lesson 3, Support: Masses of chocolate

Open

Unit 4, Week 1: Number - Multiplication and division

Lesson 1, Extension: Square and cube numbers

- 1 a 125 f 1728
b 108 g 1125
c 2916 h 343
d 98 i 10000
e 216

2 a

$15 \times 15 = 225$	\rightarrow	$(10 \times 20) + 25$	$11 \times 11 = 121$
$25 \times 25 = 625$	\rightarrow	$(20 \times 30) + 25$	$21 \times 21 = 441$
$35 \times 35 = 1225$	\rightarrow	$(30 \times 40) + 25$	$31 \times 31 = 961$
$45 \times 45 = 2025$	\rightarrow	$(40 \times 50) + 25$	$41 \times 41 = 1681$
$55 \times 55 = 3025$	\rightarrow	$(50 \times 60) + 25$	$51 \times 51 = 2601$
$65 \times 65 = 4225$	\rightarrow	$(60 \times 70) + 25$	$61 \times 61 = 3721$
$75 \times 75 = 5625$	\rightarrow	$(70 \times 80) + 25$	$71 \times 71 = 5041$
$85 \times 85 = 7225$	\rightarrow	$(80 \times 90) + 25$	$81 \times 81 = 6561$
$95 \times 95 = 9025$	\rightarrow	$(90 \times 100) + 25$	$91 \times 91 = 8281$

b Answers will vary.

Lesson 2, Support: Multiplying ThHTO \times 0

- 1 a 12180 b 40077
2 a 13608 b 18465

Lesson 3, Support: Multiples and factors

Answers will vary.

Lesson 3, Extension: Multiples and factors

- 1 a, b, c Answers will vary.
2 The final line of each factor tree is made up of all of the prime factors of the number.
3 A factor tree does not show all of the factors of a number.

Unit 4, Week 2: Number - Multiplication and division

Lesson 1, Support: Prime numbers

- 1 Open
2 2, 3, 5, 7
Prime numbers are numbers that have only two factors, itself and one.

Lesson 1, Extension: Prime numbers

- 1 Answers will vary.
2 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199
There are more prime numbers between 1 and 100.
3 a There is only one even prime number, which is 2.
b All other even numbers have more than two factors.
4 December 16 and December 31
5 The statement by Levy is thought to be correct. Children's examples will differ.

Lesson 3, Support: Division ThHTO \div 0 using mental methods

- a 121
b 903
c 73
d 408
e 31
f 804
g 72
h 1006
i 507
j 802
k 408
l 803
m 2408
n 604

Lesson 4, Extension: Solving problems

- 1 a 512 d 720
b 338 e 608
c 432 f 864
2 a 31 d 12
b 15 e 15
c 5 f 15

Unit 4, Week 3: Measurement (time)

Lesson 2, Support: Mini marathon times

1	School	Finish time
	Forrest	4:21 p.m.
	Greenside	4:33 p.m.
	Hayston	4:48 p.m.
	Meadow	4:42 p.m.
	St Andrew's	4:19 p.m.

2	School	Finish time
1	St Andrew's	16:19
2	Forrest	16:21
3	Greenside	16:33
4	Meadow	16:42
5	Hayston	16:48

- 3 a 2 min b 29 min c 9 min
4 1 h 40 min

Lesson 2, Extension: 5-a-side tournament

1, 2, 3, 4 Open

Lesson 3, Support: Time machine

- 1 2012, 2020, 1984, 1976 are leap years
2 Open

Lesson 3, Extension: Calendar patterns

- 1 a 32
b For each pair of diagonals the sum is the same.
c For any 3 by 3 or 4 by 4 square the sum of the diagonals is the same.
2 a sum = 80, middle number = 20
The sum of the four corner numbers is 4 times the middle number.
b Yes
c Same results as in 2b.

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

Lesson 1, Extension: 6-digit puzzle

Answers will vary.

Lesson 2, Support: Counting in 10s

- 1 54872 count forward in tens to 54962
23165 count forward in tens to 23255
41324 count forward in tens to 41414
76776 count back in tens to 76686
62179 count back in tens to 62089
- 2 12653 count on in hundreds to 13553
26334 count on in hundreds to 27234
35721 count on in hundreds to 36621
49815 count back in hundreds to 48915
58388 count back in hundreds to 57488

Lesson 3, Extension: World temperatures

- 1 a 13°C e 12°C
b 22°C f 33°C
c 23°C g 42°C
d 61°C h 68°C
- 2 Answers will vary.
- 3 Open

Lesson 4, Support: Using negative number lines

- 1 16 °C
- 2 12°C
- 3 -4°C
- 4 -£7
- 5 £7
- 6 -£5

Unit 5, Week 2: Number - Addition and subtraction

Lesson 1, Extension: Subtraction calculations trail

972826	968726	768726
698726	692226	676226
526226	486226	479026
419026	119026	22026
-178674	-203674	

Lesson 2, Extension: Subtraction investigation

- = 1 ■ = 2 ■ = 3 ■ = 4 ■ = 5
● = 5 ● = 6 ● = 7 ● = 8 ● = 9
▲ = 3 ▲ = 3 ▲ = 3 ▲ = 3 ▲ = 3

Lesson 3, Support: 4-digit subtraction

- | | |
|--------|--------|
| a 4234 | g 4398 |
| b 5363 | h 6304 |
| c 4724 | i 4257 |
| d 3772 | j 4667 |
| e 6266 | k 4283 |
| f 4821 | l 3347 |

Lesson 4, Support: Adding and subtracting decimal numbers

- 1 a 79.24 d 79.29
b 79.27 e 78.04
c 83.19 f 95.29
- 2 a 32.84 d 26.86
b 23.56 e 44.92
c 22.63

Unit 5, Week 3: Geometry - Properties of shape

Lesson 1, Support: Angle families

Open

Lesson 2, Support: Angles in a hexagon

- Angle a = 60°
Angle a is acute
Angle b = 90°
Angle b is a right angle.
Angle c = 120°
Angle c is obtuse
Angle d = 60°
Angle d is acute
Angle e = 30°
Angle e is acute

Lesson 2, Extension: Angles in an octagon

Open

Lesson 3, Extension: Angles in a pentagon

- 1 a

Angle	a	b	c	d	e	f
Degrees	72°	72°	54°	54°	72°	72°

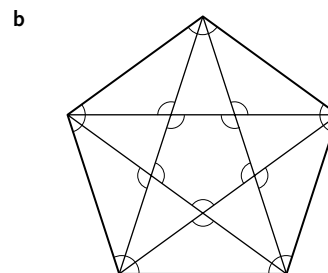
b The angles subtended at the centre of a pentagon by its sides are equal, each being $360^\circ \div 5 = 72^\circ$, as found for a and b.
The exterior angles are also equal, each being $360^\circ \div 5 = 72^\circ$, as found for e and f.
Angle c = Angle d = $(180^\circ - 72^\circ) \div 2 = 54^\circ$.
- 2 a

Angle	k	l	m	n	o	p	q
Degrees	36°	72°	36	36°	36°	72°	36°

b angle $(k + l) = 108^\circ$
angle $(m + n + o) = 108^\circ$
c The interior angles of a regular pentagon are all equal to 108° .

3 a

Angle	x	y	x
Degrees	108°	108°	108°



Unit 6, Week 1: Number - Multiplication and division

Lesson 1, Support: Division HTO ÷ O with a remainder

- | | |
|---------|---------|
| a 88 r1 | e 74 r1 |
| b 42 r1 | f 88 |
| c 78 r3 | g 84 r1 |
| d 34 r4 | h 52 r8 |

Lesson 3, Extension: Division HTO ÷ O with a decimal remainder

- | | |
|----------|----------|
| a 128.83 | e 61.5 |
| b 65.75 | f 47.44 |
| c 73 | g 69.33 |
| d 126.4 | h 155.75 |

Lesson 4, Support: Solving word problems: rounding remainders

- | | |
|--------|------|
| a 85 | d 34 |
| b 65 | e 36 |
| c £780 | f 45 |

Lesson 4, Extension: Solving problems: rounding remainders

- | | |
|---------|-------|
| a 185 | d 37 |
| b 8 | e 146 |
| c £3180 | f 145 |

Unit 6, Week 2: Number - Fractions

Lesson 1, Support: Hundredths

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

Lesson 2, Extension: Highest fraction

No answers.

Lesson 3, Support: Fraction addition

- 1 a $\frac{3}{4}$
- b $\frac{5}{7}$

- 2 a $\frac{9}{12}$ f $\frac{5}{6}$
 b $\frac{5}{9}$ g $\frac{7}{8}$
 c $\frac{6}{10}$ h $\frac{9}{11}$
 d $\frac{4}{5}$ i $\frac{6}{10}$
 e $\frac{8}{9}$

Lesson 4, Extension: Spend, spend

£1200000

Unit 6, Week 3: Measurement (length)

Lesson 1, Extension: Money measures

- 1 1p 20 mm, 2 cm 0 mm, 2.0 cm
 2p 26 mm, 2 cm 6 mm, 2.6 cm
 5p 18 mm, 1 cm 8 mm, 1.8 cm
 10p 24 mm, 2 cm 4 mm, 2.4 cm
 £1 22 mm, 2 cm 2 mm, 2.2 cm
- 2 a 50p c £50
 b £5 d £500

Lesson 2, Support: Metric and imperial card game (2)

Open

Lesson 2, extension: Inches and centimetres

- 1 a grip = 150 mm
 = 15 cm
 b point = 300 mm
 = 30 cm
 c length = 2625 mm
 = 262.5 cm
- 2 a diameter = 225 mm
 = 22.5 cm
 b thickness = 50 mm
 = 5 cm
- 3 a 105 cm b 82.5 cm

Lesson 3, Support: Ribbon lengths

- 1 A 0.6 E 1.45 m
 B 0.86 m F 1.89 m
 C 1.13 m G 2.07 m
 D 1.21 m
- 2 a 0.26 m c 0.44 m
 b 0.08 m
- 3 a 2.07 m c 3.02 m
 b 3.52 m

Unit 7, Week 1: Number - Decimals

Lesson 1, Support: Decimal hundredths

- 1 $0.34 = \frac{34}{100}$ $0.95 = \frac{95}{100}$
 $0.87 = \frac{87}{100}$ $0.07 = \frac{7}{100}$
 $0.03 = \frac{3}{100}$ $0.75 = \frac{75}{100}$
 $0.70 = \frac{70}{100}$ $0.29 = \frac{29}{100}$
 $0.61 = \frac{61}{100}$ $0.99 = \frac{99}{100}$
 $0.18 = \frac{18}{100}$ $0.42 = \frac{42}{100}$
- 2 $\frac{70}{100} = \frac{7}{10}$

Lesson 2, Extension: Three in a row

No answers.

Lesson 3, Support: Rounding hundredths

- 1 a 4 d 8
 b 3 e 7
 c 4
- 2 a 2.9 d 6.4
 b 5.2 e 3.5
 c 9.5

Lesson 4, Extension: Decimal puzzles

- 1 a 23.568 d 68.532
 b 35.268 e 83.652
 c 38.652 f 63.852
- 2 a No answers
 b Answers will vary.
 c Answers will vary.
- 3 a No answers
 b Answers will vary.

Unit 7, Week 2: Number - Addition and subtraction

Lesson 1, Extension: Square totals

No answers.

Lesson 2, Support: Decimal jumping

- a 1.1 e 0.9
 b 0.6 f 0.5
 c 0.8 g 0.8
 d 0.9 h 0.8

Lesson 3, Extension: Decimal in the middle

Answers will vary.

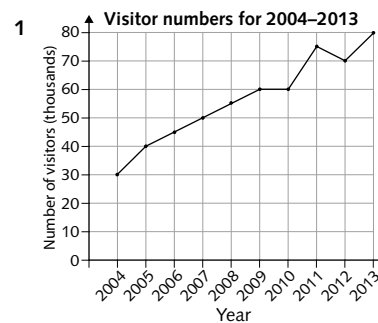
Lesson 4, Support: Decimal adding

- 1 a
$$\begin{array}{r} 30.2 \\ 15 \quad 15.2 \\ 7.7 \quad 7.3 \quad 7.9 \\ \hline 3.2 \quad 4.5 \quad 2.8 \quad 5.1 \end{array}$$
- b
$$\begin{array}{r} 19.3 \\ 5 \quad 14.3 \\ 2.1 \quad 2.9 \quad 11.4 \\ \hline 1.5 \quad 0.6 \quad 2.3 \quad 9.1 \end{array}$$
- c
$$\begin{array}{r} 47.6 \\ 22.9 \quad 24.7 \\ 10.4 \quad 12.5 \quad 12.2 \\ \hline 3.3 \quad 7.1 \quad 5.4 \quad 6.8 \end{array}$$
- d
$$\begin{array}{r} 38.2 \\ 17.8 \quad 20.4 \\ 9.3 \quad 8.5 \quad 11.9 \\ \hline 5.4 \quad 3.9 \quad 4.6 \quad 7.3 \end{array}$$
- e
$$\begin{array}{r} 36.6 \\ 21.5 \quad 15.1 \\ 11.3 \quad 10.2 \quad 4.9 \\ \hline 2.8 \quad 8.5 \quad 1.7 \quad 3.2 \end{array}$$
- f
$$\begin{array}{r} 29.7 \\ 15.6 \quad 14.1 \\ 10.9 \quad 4.7 \quad 9.4 \\ \hline 6.7 \quad 4.2 \quad 0.5 \quad 8.9 \end{array}$$

2 Answers will vary.

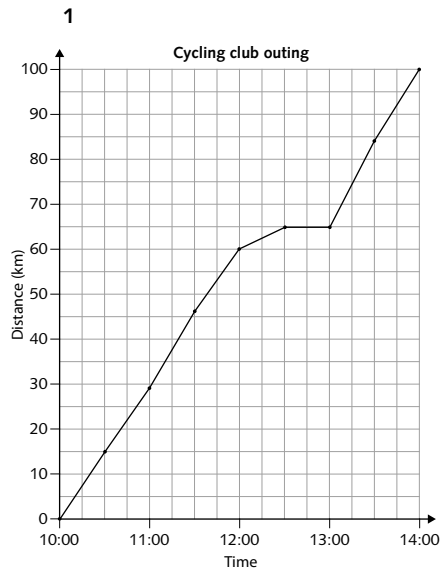
Unit 7, Week 3: Statistics

Lesson 1, Support: Visitors to the castle



- 2 2011
 3 2009 and 2010
 4 2012
 5 25,000
 6 Answers will vary.

Lesson 1, Extension: Cycling club outing



- 1
 2 a 22 km b 38 km c 53 km
 3 a 13:45 b 10:15
 4 Answers will vary.
 5 Answers will vary.

Lesson 3, Support: Travel times

1

Terminal A	
Train	Leaves at
1	10:30
2	10:36
3	10:42
4	10:48
5	10:54
6	11:00

Terminal B	
Train	Leaves at
1	10:03
2	10:09
3	10:15
4	10:21
5	10:27
6	10:33

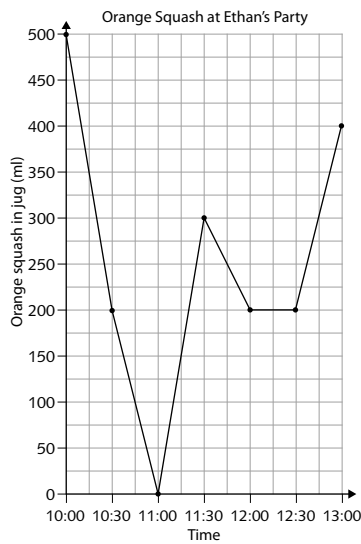
2 a

Depart London	07:05	09:00	10:55	12:55	15:30	17:00	19:15	21:45
Arrive Glasgow	08:20	10:15	12:10	14:10	16:45	18:15	20:30	23:00

- b 11:15
 c 12:30
 d 1 h 38 min

Lesson 4, Extension: Party time

1



- 2 a 100 ml b 150 ml c 250 ml
 3 10:20, 11:30, 12:45
 4 600 ml
 5 Answers will vary.

Unit 8, Week 1: Number - Multiplication and division

Lesson 1, Support: Multiplication TO × TO using partitioning

- a 1802 e 1566
 b 1512 f 2688
 c 1620 g 3658
 d 2006 h 1701

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

- a 2352 d 2530
 b 1190 e 1632
 c 1677 f 1961

Lesson 2, Extension: Multiplication TO × TO

No answers.

Lesson 3, Extension: Multiplication TO × TO using the expanded written method

Calculations and answers will vary.

Unit 8, Week 2: Percentages

Lesson 1, Extension: Fractions and percentages

- 1 a 10% e 70%
 b 40% f 20%
 c 90% g 75%
 d 25% h 20%

- 2 They are both 20%.
 Explanations will vary.

Lesson 2, Support: Percentages

- 1 No answers.
 2 a 60% d 100%
 b 15% e 50%
 c 75%

Lesson 3, Extension: Socks and percentages

- 1 20 spotty socks
 10 stripy socks
 4 white socks
 6 plain socks
 2 Answers will vary.
 3 Answers will vary.

Lesson 4, Support: Fifty per cent

- 1 No answers.
 2 a £34 d 310 ml
 b 70 km e £250
 c 100 g f 425 kg
 3 Answers will vary.

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

Lesson 1, Support: Puzzling pentominoes

Polygon	A	B	C	D	E	F	G	H
Perimeter in cm	12	12	12	12	12	10	12	12

- 2 Answers will vary.

Lesson 1, Extension: Perimeter search

1 Open

Polygon	A	B	C	D	E	F
Perimeter in cm	14	18	16	16	20	18

- 3 Open

Lesson 2, Support: Area of rectangles

- 1 $l = 4$ cm, $b = 2$ cm, $A = 8$ cm²
 2 $l = 6$ cm, $b = 4$ cm, $A = 24$ cm²
 3 $l = 8$ cm, $b = 4$ cm, $A = 32$ cm²

Lesson 2, Extension: Investigating areas

1 a

Length in metres	9	8	7	6	5	4	3	2	1
Breadth in metres	1	2	3	4	5	6	7	8	9
Area in m ²	9	16	21	24	25	24	21	16	9

- b length 5 m and breadth 5 m

2 a

Length in metres	11	10	9	8	7	6	5	4	3
Breadth in metres	1	2	3	4	5	6	7	8	9
Area in m ²	11	20	27	32	35	36	35	32	27

b 36 m²

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

Lesson 1, Extension: 6-digit puzzle

59049

Lesson 2, Support: Round to the nearest 1000

- 1 a 63 000 63 429 64 000
 b 28 000 28 682 29 000
 c 42 000 42 235 43 000
 d 55 000 55 520 56 000
 e 89 000 89 973 90 000
 f 37 000 37 810 38 000
 g 17 000 17 999 18 000
 h 63 000 63 752 64 000

2 Answers will vary.

Lesson 3, Extension: Palindromic numbers

91

Lesson 4, Support: Missing numerals

- | | |
|------------|---------------|
| 2 = II | 52 = LII |
| 5 = V | 56 = LVI |
| 7 = VII | 59 = LIX |
| 12 = XII | 63 = LXIII |
| 16 = XVI | 67 = LXVII |
| 18 = XVIII | 70 = LXX |
| 23 = XXIII | 71 = LXXI |
| 25 = XXV | 75 = LXXV |
| 30 = XXX | 78 = LXXVIII |
| 32 = XXXII | 82 = LXXXII |
| 34 = XXXIV | 85 = LXXXV |
| 36 = XXXVI | 88 = LXXXVIII |
| 41 = XLI | 91 = XCI |
| 44 = XLIV | 94 = XCIV |
| 47 = XLVII | 98 = XCVIII |

Unit 9, Week 2: Number - Addition and subtraction

Lesson 1, Extension: Spin to win

No answers.

Lesson 2, Extension: Which digit where?

7	6	4
2	8	9
<hr/>		
1	0	5

Lesson 3, Support: More written subtraction

- | | |
|---------|---------|
| a 18432 | g 22464 |
| b 14733 | h 22423 |
| c 22363 | i 23191 |
| d 22214 | j 36257 |
| e 16232 | k 23209 |
| f 34645 | l 46234 |

Lesson 4, Support: Fair problems

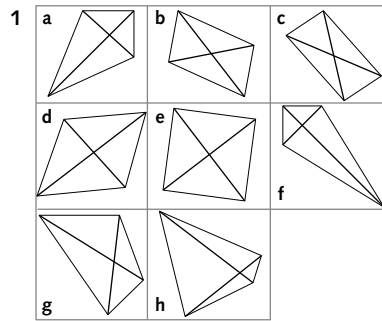
- | | |
|---------|----------|
| a £947 | d £16040 |
| b £128 | e £2634 |
| c £5813 | f £1799 |

Unit 9, Week 3: Geometry: Properties of shapes

Lesson 1, Extension: Three-piece rectangle

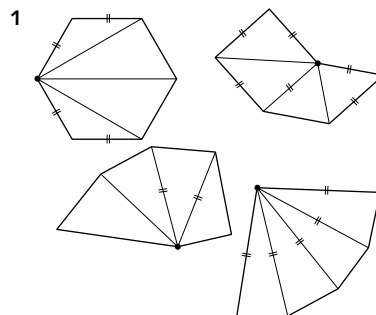
- 1 90°, 45°, 90°, 67°, 45°
 2 No answers.
 3 a 45°, 67°, 68°
 b 67°, 90°, 90°, 113°
 c 68°, 68°, 90°, 134°
 d 67°, 67°, 113°, 113°
 45°, 45°, 135°, 135°
 68°, 68°, 112°, 112°

Lesson 2, Support: Measuring diagonals

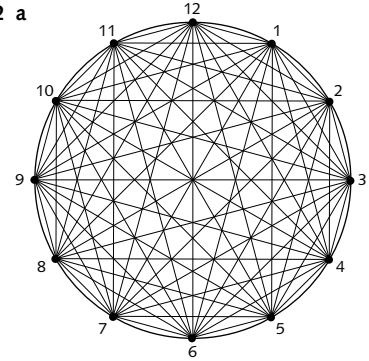


- 2 a 5.3 cm, 3.2 cm
 b 5.7 cm, 4.4 cm
 c 5.2 cm, 4.7 cm
 d 6.6 cm, 3.7 cm
 e 5.5 cm, 5.5 cm
 f 6.2 cm, 2.7 cm
 g 4.6 cm, 5.7 cm
 h 4.8 cm, 4.1 cm

Lesson 2, Extension: Dazzling diagonals



2 a



- b 12 sides
 d 9

Lesson 4, Support: Mountain bike rally angles

Turn	A	B	C	D	E	F
Angle	100°	130°	89°	53°	108°	65°

Unit 10, Week 1: Number - Multiplication and division, incl. Measurement (money)

Lesson 1, Support: Multiplication ThHTO × O, Division ThHTO ÷ O, using the most efficient method

No answers.

Lesson 2, Support: Multiplying and dividing by 10, 100, 1000 including decimals

- Jamie: 62, 620, 62000, 62, 6200, 62, 6.2
 Sam: 84, 84 000, 8400, 840000, 840, 84, 840
 Barry: 37, 3700, 370, 37000, 370000, 3700, 37
 The winner was: Sam

Lesson 2, Extension: Multiplying and dividing by whole numbers and decimals

A	B	C	D	E	F	G	H	I
25	250	÷25	3600	3·6	×10	1800	90	0·09
J	K	L	M	N	O	P	Q	R
×1	9	27000	÷10000	54	×1000	540	÷90	÷100
S	T	U	V	W	X	Y	Z	
0·6	×80	1200	×20	÷80	÷1000	30	1	

Lesson 4, Extension: The Bryant ski trip

- | | |
|---------|---------|
| a £1744 | d £1092 |
| b £1720 | e £3500 |
| c £952 | f £9008 |

Unit 10, Week 2: Number – Fractions

Lesson 1, Extension: Baking fractions

- 1 $\frac{4}{2}$ pints milk
 $\frac{4}{3}$ bags flour
 $\frac{12}{5}$ bags sugar
 $\frac{4}{8}$ jar chocolate spread
 $\frac{28}{8}$ blocks butter
- 2 2 pints milk
 $1\frac{1}{3}$ bags flour
 $2\frac{2}{5}$ bags sugar
 $\frac{4}{8}$ jar chocolate spread
 $3\frac{4}{8}$ blocks butter
- 3 2 pints milk
 2 bags flour
 3 bags sugar
 1 jar chocolate spread
 4 blocks butter

Lesson 2, Support: Improper fractions

- 1 No answers.
- 2 a $1\frac{2}{3}$ e $2\frac{1}{2}$
 b $1\frac{3}{4}$ f $2\frac{3}{8}$
 c $1\frac{4}{6}$ g $3\frac{1}{4}$
 d $2\frac{3}{5}$ h $2\frac{4}{7}$

Lesson 3, Extension: Pizza fractions

- 1 a 4 pizzas c 3 slices
 b 2 slices
- 2 a 6 pizzas b $\frac{4}{5}$
- 3 No answers.

Lesson 4, Support: Mixed numbers

No answers.

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

Lesson 2, Extension: Pints and litres card game

Open

Lesson 3, Support: Stacking the shelves

- 1 a 7 cubes, 18 cm³
 b 9 cubes, 30 cm³
 c 12 cubes, 36 cm³
 d 8 cubes, 18 cm³

Lesson 4, Support: Linking litres and millilitres

Water level	Litres	Millilitres
full	0.9 l	900 ml
to 1 l	0.1 l	100 ml
full	0.8 l	800 ml
to 1 l	0.2 l	200 ml
full	0.7 l	700 ml
to 1 l	0.3 l	300 ml
full	0.55 l	550 ml
to 1 l	0.45 l	450 ml
full	0.4 l	400 ml
to 1 l	0.6 l	600 ml
full	0.25 l	250 ml
to 1 l	0.75 l	750 ml
full	0.15 l	150 ml
to 1 l	0.85 l	850 ml

Lesson 4, Extension: Preserving food

Open

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

Lesson 1, Extension: Number square mystery

One solution is:
 34-26, 10-48, 11-54, 43-72
 34-26, 13-27, 35-64, 16-83
 43-72, 6-49, 28-34, 21-45
 16-83, 25-73, 35-99, 21-45

Lesson 2, Support: Target 7000

- 1 Open
 2 Answers will vary.

Lesson 3, Extension: Race to your target

No answers.

Lesson 4, Support: Missing prices

- 1 Eurostar to Paris £535
 African Safari £2124
 Everest Adventure £5624
 Taj Mahal Discovery £3300
 Flight to Australia £1725
- 2 Answers will vary.

Unit 11, Week 2: Number – Fractions, incl. decimals and percentages

Lesson 1, Extension: Percentage mix up

Percentage	Fraction	Decimal
12.5%	$\frac{1}{8}$	0.125
25%	$\frac{1}{4}$	0.25
30%	$\frac{3}{10}$	0.3
37.5%	$\frac{3}{8}$	0.375
40%	$\frac{4}{10}$	0.4
50%	$\frac{1}{2}$	0.5
60%	$\frac{3}{5}$	0.6
70%	$\frac{7}{10}$	0.7
75%	$\frac{3}{4}$	0.75
75%	$\frac{3}{4}$	0.75
80%	$\frac{4}{5}$	0.8
90%	$\frac{9}{10}$	0.9

Lesson 2, Support: Twenty five per cent

- 1 No answers.
- 2 a £21 d 90 ml
 b 80 km e £220
 c 250 g f 135 kg

Lesson 3, Support: Ten per cent sale

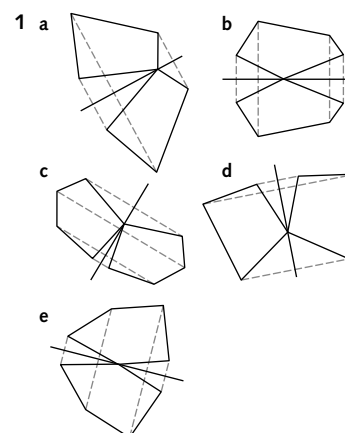
- a £4.50
 b £6.30
 c £13.50
 d £12.60
 e £1.80

Lesson 4, Extension: Would you rather?

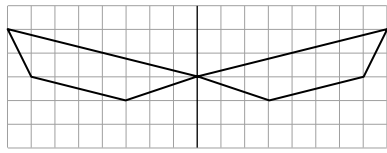
- a 75% of 80p
 b 60% of 2 pizzas
 c 15% of 120 bugs
 d 85% of 270 cm
 e 35% of 2 hours

Unit 11, Week 3: Geometry – Position and direction

Lesson 1, Support: Clear reflections



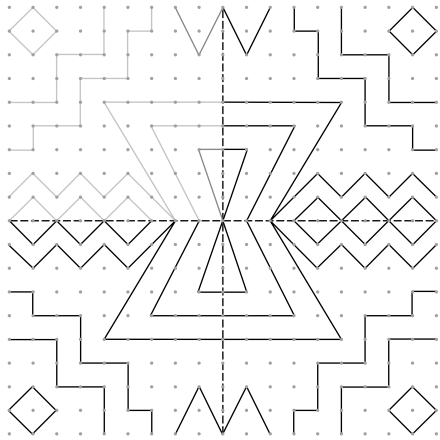
2



Lesson 2, Support: Peg Board

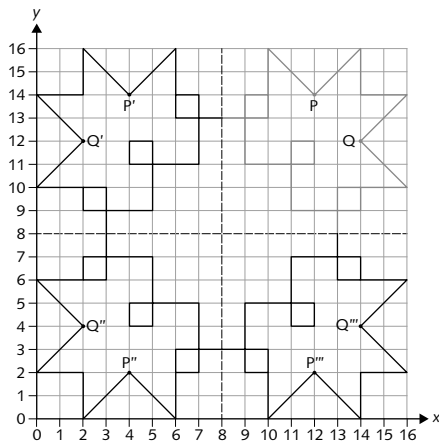
Open

Lesson 2, Extension: Hour glass designs



Lesson 4, Extension: On reflection

1



2

1st quadrant	2nd quadrant	3rd quadrant	4th quadrant
$P = (12, 14)$	$P' = (4, 14)$	$P'' = (4, 2)$	$P''' = (12, 2)$
$Q = (14, 12)$	$Q' = (2, 12)$	$Q'' = (2, 4)$	$Q''' = (14, 4)$

Unit 12, Week 1: Number – Multiplication and division, incl Measurement (money)

Lesson 1, Support: Multiplication HTO × TO using partitioning

- a 13462
- b 14672
- c 16290
- d 16928
- e 21808
- f 22976g
- g 38471
- h 14605

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

- a 10752
- b 7990
- c 15437
- d 23980
- e 20091
- f 37324
- g 30912

Lesson 2, Extension: Multiplication HTO × TO using partitioning and the grid method

No answers needed.

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

Answers will vary.

Unit 12, Week 2: Number – Multiplication and division, incl. Measurement (money)

Lesson 1, Support: Division ThHTO ÷ O with a decimal remainder

- a 863.25
- b 431.2
- c 853.75
- d 599.25
- e 754.66
- f 590.12
- g 709.25
- h 584

Lesson 1, Extension: Division ThHTO ÷ TO with a decimal remainder

- a £1460.83 per month
- b £876.55 per month
- c $£8765 + £9138 = £17\ 903$.
Difference = £373
- d $£9138 - £2284.50 = £6853.50$
- e $£9768 ÷ 6 = 1628$
 $1628 ÷ 10 = 162.80$
 $1628 + 162.80 = 1790.80$
£1790.80 per month
- f i $8765 ÷ 8 = 1095.62$
 $1095.62 ÷ 4 = 273.90$
 $1095.62 + 273.9 = 1369.52$
£1369.52 per month
- ii $1369.52 × 8 = 10956.16$
Total cost of car = £10956.16

Lesson 2, Support: Division ThHTO ÷ O with a fraction remainder

- a $663\frac{1}{4}$
- b $434\frac{3}{8}$
- c $161\frac{1}{3}$
- d $345\frac{3}{8}$
- e $341\frac{1}{4}$
- f $543\frac{1}{2}$

Lesson 4, Extension: Solving money problems

- 1 a 935 plants can be bought. There is £3 remaining.
- b $2336.50 + 467.30 = 2803.80$
Total monthly outlay = £2803.80
- c £3.80
- d 887.25 kg
- e 250 g of clotted cream
- f £3.12

2 Answers will vary.

Unit 12, Week 3: Statistics

Lesson 1, Support: At the chemist's shop

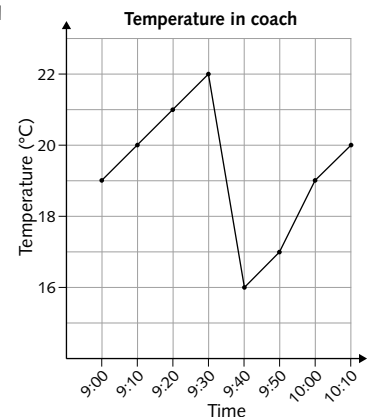
- Graph A cold remedies: fewer people have colds in the summer than in the winter
- Graph B shampoo: people use shampoo throughout the year
- Graph C sun lotion: little need for sun lotion in the winter months in the UK
- Graph D Christmas gifts: people begin to buy Christmas gifts from late summer onwards

Lesson 2, Extension: School lunch menu

- 6 bags of potatoes
- 16 punnets of mushrooms
- 30 packs of peppers
- 24 strings of onions
- 28 tins of chopped tomatoes

Lesson 3, Support: Coach temperatures

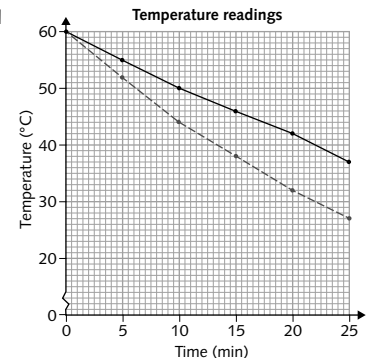
1



- 2 9:20 and 9:30
- 3 a 9:30 b 6 degrees
- 4 a 20.5°C b 16.5°C
- 5 Answers will vary.

Lesson 3, Extension: Keeping warm

1



- 2 a 7°C b 9°C c 10°C
- 3 The feather filled bag retains the heat of the bottle for longer.

Homework Guide 5

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

Lesson 2: Get in order

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Rounding numbers

Challenge 1	3600	3628	3700
	6100	6117	6200
	2900	2974	3000
	4000	4062	4100
	8200	8258	8300
	7500	7524	7600
	5400	5428	5500
	8400	8499	8500

Challenge 2	36800	36873	36900
	19900	19996	20000
	39200	39287	39300
	62000	62082	62100
	73500	73501	73600
	49300	49388	49400
	51900	51911	52000
	64900	64903	65000

Challenge 3	89700	89765	89800
	99800	99899	99900
	87800	87898	87900
	99900	99999	100000
	104500	104576	104600
	45300	45376	45400
	176200	176294	176300
	203400	203405	203500

Unit 1, Week 2: Number - Addition and subtraction

Lesson 2: Mental methods

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Making problems

Challenge 1 a 7572 b 5421

Challenge 2 a 8672
b $41235 - 600 = 40635$
 $40635 + 200 = 40835$

Challenge 3 a $85269 - 67834 = 17435$
Leroy: 76434
Samuel: 93869
b $75199 - 12999 = 62200$
 $62200 - 6400 = 55800$

Unit 1, Week 3: Geometry - Properties of shape

Lesson 2: About 3-D shapes

Challenges 1, 2, 3

Property	A	B	C	D	E	F	G	H
is a prism	✓	X	✓	X	✓	X	✓	✓
has no right-angled faces	X	X	X	✓	X	✓	X	X
has 8 vertices	✓	X	X	X	X	X	✓	X
has 3 edges at each vertex	✓	X	✓	X	✓	✓	✓	✓

Challenges 2, 3

Property	A	C	E	G	H
Number of faces	6	8	7	6	5
Number of edges of an end face	4	6	5	4	3

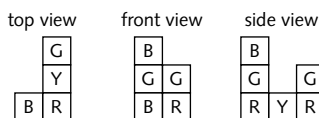
Challenge 3 The number of edges of an end face of a prism is 2 less than the total number of faces of a prism.

Lesson 3: Points of view

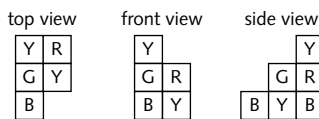
Challenges 1, 2, 3



Challenges 2, 3



Challenge 3



Unit 2, Week 1: Number - Multiplication and division

Lesson 3: Multiply using multiples 10 and adjusting

Challenge 1 a 230 d 310
b 470 e 550
c 620 f 760

Challenge 2 a 266 c 874
b 475 d 703

Challenge 3 a 882 c 1476
b 672 d 1537

Lesson 4: Multiplying and halving

Challenge 1 a 140 c 85
b 180 d 230

Challenge 2 1 a 70 b 230 c 420
2 a 1200 b 3100 c 2150

Challenge 3 a 190 c 1350
b 1200

Unit 2, Week 2: Number - Fractions

Lesson 1: Fraction problems

Challenge 1 £8

Challenge 2 £35

Challenge 3 £30

Lesson 2: Tenths and hundredths

Challenge 1 a $\frac{10}{100}$ d $\frac{50}{100}$
b $\frac{20}{100}$ e $\frac{60}{100}$
c $\frac{40}{100}$ f $\frac{90}{100}$

Challenge 2 a $\frac{1}{2} = \frac{5}{10} = \frac{50}{100}$ d $\frac{8}{10} = \frac{80}{100}$
b $\frac{7}{10} = \frac{70}{100}$ e $\frac{10}{10} = \frac{100}{100} = 1$
c $\frac{3}{10} = \frac{30}{100}$ f $\frac{1}{10} = \frac{10}{100} = \frac{2}{20}$

Challenge 3 a $\frac{6}{10} = \frac{60}{100} = \frac{12}{20}$ d $\frac{5}{10} = \frac{50}{100} = \frac{10}{20}$
b $\frac{3}{10} = \frac{30}{100} = \frac{6}{20}$ e $\frac{7}{10} = \frac{70}{100} = \frac{14}{20}$
c $\frac{2}{10} = \frac{20}{100} = \frac{4}{20}$ f $\frac{8}{10} = \frac{80}{100} = \frac{16}{20}$

Unit 2, Week 3: Geometry: Position and direction

Lesson 1: Translating shapes on 2-D grids

Open

Lesson 2: Completing the picture

Open

Unit 3, Week 1: Number - Addition and subtraction

Lesson 2: The formal written method

Challenge 1
 a 9193 d 9362
 b 6932 e 8803
 c 8097 f 9270

Challenge 2
 a 41944 d 80299
 b 58193 e 70148
 c 65617 f 77947

Challenge 3
 a 64363 d 92190
 b 83581 e 95350
 c 77131 f 93090

Lesson 4: Adding and checking

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 3, Week 2: Number - Decimals

Lesson 2: Rounding decimals

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Make the sequence

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 3, Week 3: Measurement (Mass)

Lesson 2: Grocery masses

Challenge 1, 2, 3 Open

Challenge 3 Open

Lesson 3: 3-fruit salads

Challenges 1, 2, 3 1, 2

Salad	A	B	C	P	S	Total mass (g)
1	✓	✓	✓			950
2	✓	✓		✓		1200
3	✓	✓			✓	950
4	✓		✓	✓		850
5	✓		✓		✓	600
6	✓			✓	✓	850

3 Yes

Challenge 3 3900 g

Unit 4, Week 1: Number - Multiplication and division

Lesson 2: Multiplying ThHTO x 0

Challenge 1
 1 a 24 b 240 c 2400
 2 a 54 b 540 c 5400
 3 a 42 b 420 c 4200

Challenge 2
 a 22 680 c 39 879
 b 42 057

Challenge 3
 a

$$\begin{array}{r} 4832 \\ \times 4 \\ \hline 19328 \end{array}$$

b

$$\begin{array}{r} 6527 \\ \times 3 \\ \hline 19581 \end{array}$$

c

$$\begin{array}{r} 3627 \\ \times 9 \\ \hline 32643 \end{array}$$

Lesson 3: Multiples and factors

Challenge 1
 a 7: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70
 b 9: 9, 18, 27, 36, 45, 54, 63, 72, 81, 90
 c 6: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Challenge 2 1

36	48	72
1, 2, 3, 4, 6, 9, 12, 18, 36	1, 2, 3, 4, 6, 8, 12, 16, 24, 48	1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

2 1, 2, 3, 4, 6, 12

Challenge 3 Answers will vary.

Unit 4, Week 2: Number - Multiplication and division

Lesson 2: Division involving multiples of 10, 100, 1000

Challenge 1
 a i 7 ii 7 iii 7
 b i 9 ii 9 iii 9
 c i 54 ii 54 iii 54
 d i 27 ii 27 iii 27

Challenge 2
 a 90 d 60 g 60
 b 7 e 80 h 600
 c 900 f 8000 i 60

Challenge 3 Answers will vary.

Lesson 3: Division ThHTO ÷ 0 using mental methods

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

Challenge 2
 a 906 d 506
 b 406 e 711
 c 912 f 307

Challenge 3 Answers will vary.

Unit 4, Week 3: Measurement (time)

Lesson 1: Flight times

Challenges 1, 2, 3

Time in Texas	Time in Britain	Time in Holland
1:30 a.m.	7:30 a.m.	8:30 a.m.
4:30 a.m.	10:30 a.m.	11:30 a.m.

Challenges 2, 3

Time in Houston	Time in Glasgow	Time in Amsterdam
00:40	06:40	07:40
02:15	08:15	09:15
03:25	09:25	10:25
13:15	19:15	20:15

12 h 35 min

Challenge 3
 Lesson 3: Find your day of birth

Open

Challenges 1, 2, 3

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

Lesson 1: 6-digit order

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: Negative counting

Challenge 1 a -18 -17 -16 -15 -14
-13 -12 -11 -10 -9

b -23 -22 -21 -20 -19
-18 -17 -16 -15 -14

c -44 -43 -42 -41 -40
-39 -38 -37 -36 -35

d -7 -6 -5 -4 -3
-2 -1 0 1 2

Challenge 2 a -45 -40 -35 -30 -25
-20 -15 -10 -5 0

b -53 -48 -43 -38 -33
-28 -23 -18 -13 -8

c -26 -21 -16 -11 -6
-1 4 9 14 19

d -32 -27 -22 -17 -12
-7 -2 3 8 13

Challenge 3 a -30 -27 -24 -21 -18
-15 -12 -9 -6 -3

b -16 -13 -10 -7 -4
-1 2 5 8 11

c -26 -23 -20 -17 -14
-11 -8 -5 -2 1

d -22 -19 -16 -13 -10
-7 -4 -1 2 5

Unit 5, Week 2: Number - Addition and subtraction

Lesson 1: Mental subtraction chains

Challenge 1 8993, 8693, 8633, 6633,
6233, 6183, 3183, 2583

Challenge 2 59994, 59494, 52494, 51694,
21694, 21624, 12624, 11824,

Challenge 3 199997, 199597, 149597, 145297,
125297, 119297, 106297, 105497,

Lesson 3: Using the formal written method

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 5, Week 3: Geometry - Properties of shapes

Lesson 1: Clockwise angles

Challenge 1 a acute d reflex
b acute e reflex
c obtuse f obtuse

Challenge 2 a acute d reflex
b obtuse e reflex
c reflex f reflex

Challenge 3 Open

Lesson 4: Angles round a point

	Number of angles	Size of one angle	Sum of degrees at the point
a	6	60°	6 × 60° = 360°
b	4	90°	4 × 90° = 360°
c	3	120°	3 × 120° = 360°

Challenges 1, 2, 3

Challenge 2, 3 a (2 × 90°) + (3 × 60°) = 360°
b (2 × 90°) + (3 × 60°) = 360°
c 120° + 60° + (2 × 90°) = 360°

Unit 6, Week 1: Number - Multiplication and division

Lesson 1: Division HTO ÷ O with a remainder

Challenge 1 56, 32, 40, 72, 64

Challenge 2 a 73 d 82 r5
b 74 r2 e 74 r2
c 63 r5 f 56 r6

	No remainder	Remainder
Challenge 3	448 ÷ 4 164 ÷ 4	436 ÷ 5 213 ÷ 5 285 ÷ 4 641 ÷ 8

Lesson 3: Division HTO ÷ O with a decimal remainder

Challenge 1 36 54 60 24 42

Challenge 2 a 62.5 d 98.2
b 55.6 e 87.5
c 49.5 f 79

Challenge 3 a £195.25 each
b Answers will vary.
c Answers will vary.

Unit 6, Week 2: Number - Fractions

Lesson 1: Thousandths, hundredths and tenths

Challenge 1 No answers.

Challenge 2 No answers.

Challenge 3 a $\frac{240}{1000} = \frac{24}{100}$ d $\frac{510}{1000} = \frac{51}{100}$
b $\frac{10}{1000} = \frac{1}{100}$ e $\frac{880}{1000} = \frac{88}{100}$
c $\frac{670}{1000} = \frac{67}{100}$ f $\frac{190}{1000} = \frac{19}{100}$

Lesson 4: Adding and subtracting fractions

Challenge 1 a $\frac{8}{10} + \frac{3}{10} = \frac{11}{10}$ b $\frac{9}{12} + \frac{4}{12} = \frac{13}{12}$
 $+\frac{6}{10} = \frac{14}{10}$ $+\frac{7}{12} = \frac{16}{12}$
 $-\frac{5}{10} = \frac{3}{10}$ $-\frac{3}{12} = \frac{6}{12}$
 $-\frac{7}{10} = \frac{1}{10}$ $-\frac{6}{12} = \frac{3}{12}$

Challenge 2 a $\frac{12}{8} + \frac{1}{2} = \frac{16}{8}$ b $\frac{15}{12} + \frac{2}{6} = \frac{19}{12}$
 $+\frac{1}{4} = \frac{14}{8}$ $+\frac{3}{4} = \frac{24}{12}$
 $-\frac{3}{4} = \frac{6}{8}$ $-\frac{2}{3} = \frac{7}{12}$
 $-\frac{3}{16} = \frac{21}{16}$ $-\frac{4}{6} = \frac{7}{12}$

Challenge 3 a $\frac{8}{5} + \frac{1}{4} = \frac{37}{20}$ b $\frac{5}{3} + \frac{2}{5} = \frac{31}{15}$
 $+\frac{4}{6} = \frac{68}{30}$ $+\frac{1}{2} = \frac{13}{6}$
 $-\frac{4}{15} = \frac{20}{15}$ $-\frac{4}{10} = \frac{38}{30}$
 $-\frac{1}{2} = \frac{11}{10}$ $-\frac{4}{5} = \frac{13}{15}$

Unit 6, Week 3: Measurement (length)

Lesson 1: Length data

Challenges 1, 2, 3 Open

	m	cm	mm
Challenges 2, 3	0.06	6	60
	1.38	138	1380
	0.15	15	150
	0.75	75	750

Challenge 3 Open

Lesson 2: At home with inches

Challenges 1, 2, 3 a 3 inches ≈ 7.5 cm
b 4 inches ≈ 10.0 cm
c 6 inches ≈ 15.0 cm
d 8 inches ≈ 20.0 cm

Challenges 2, 3 Open

Challenge 3 Open

Unit 7, Week 1: Number – Decimals

Lesson 2: Ordering decimals

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Footsteps

Challenge 1 a 55.3 cm c 46.01 cm
b 36.72 cm

Challenge 2 a 64.37 cm c 69.81 cm
b 79.1 cm

Challenge 3 a 130.55 cm c 126.48 cm
b 139.62 cm

Unit 7, Week 2: Number – Addition and subtraction

Lesson 2: Adding and subtracting decimals

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Building walls

Challenge 1 66.4
32.6 33.8
16.4 16.2 17.6
7.9 8.5 7.7 9.9
2.5 5.4 3.1 4.6 5.3

Challenge 2 75.82
35.99 39.83
16.96 19.03 20.8
7.78 9.18 9.85 10.95
4.2 3.58 5.6 4.25 6.7

Challenge 3 99.73
38.803 60.927
17.302 21.501 22.124
7.751 9.551 11.95 10.174
4.5 3.251 6.3 5.65 4.524

Unit 7, Week 3: Statistics

Lesson 3: Making connections

Challenges 1, 2, 3 a i 50 minutes ii 35 minutes
b 09:40 and 10:15

Challenges 2, 3 a 1 h 53 min b 37 minutes

Challenge 3 £180

Lesson 4: Two lengths of the pool

Challenges 1, 2, 3 1 50 m
2 a 20 m b 12 m c 6 m

Challenges 2, 3 1 a 15 s b 30 s c 40 s
2 a 12 m b 8 m c 19 m

Challenge 3 1 a 0 – 15 s b 15 – 25 s

Unit 8, Week 1: Number – Multiplication and division

Lesson 1: Multiplication TO x TO using partitioning

Challenge 1 1 a 42 b 420 c 4200
2 a 480 b 4800 c 48
3 a 5400 b 54 c 540

Challenge 2 a 1512 c 1036
b 3654 d 5214

Challenge 3 a $25 \times 74 = 1850$
b $63 \times 79 = 4977$

Lesson 3: Multiplication TO x TO using the expanded written method

Challenge 1 a 49 d 270 g 2000
b 640 e 4300 h 2100
c 4000 f 240 i 630

Challenge 2 a 1786 c 5372
b 4368

Challenge 3 a 4 c 3
b 7 d 4 (40)

Unit 8, Week 2: Percentages

Lesson 2: What's the per cent?

Challenge 1 No answers.

Challenge 2 13% yellow 16% blue
24% red 4% orange
31% green 12% black

Challenge 3 7% yellow 27% blue
40% red 2% orange
19% green 5% black

Lesson 4: Cake percentages

Challenge 1 a 50% d 20%
b 10% e 50%
c 25%

Challenge 2 a 40% d 30%
b 75% e 90%
c 80%

Challenge 3 a 40% d 20%
b 80% e 60%
c 75%

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

Lesson 2: Picture framing

Challenges 1, 2, 3 A 9 cm² B 20 cm²

Challenges 2, 3 1 No answers.
2 A 25 cm² B 42 cm²

Challenge 3 144 cm²

Lesson 3: Missing a length

Challenges 1, 2, 3 A 5 cm B 6 cm C 8 cm

Challenges 2, 3 D 5 cm E 6 cm F 8 cm

Challenge 3

Rectangle	Area	Perimeter	Length a	Length b
A	42 cm ²	26 cm	7 cm	6 cm
B	60 cm ²	34 cm	12 cm	5 cm
C	90 cm ²	46 cm	18 cm	5 cm

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

Lesson 1: Ordering challenge

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 4: Writing Roman numerals

Challenge 1 Roman numerals from 50 to 100.

Challenge 2 Roman numerals from 200 to 250.

Challenge 3 Roman numerals from 350 to 400.

Unit 9, Week 2: Number – Addition and subtraction

Lesson 1: Adding and subtracting decimals

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: Written addition and subtraction

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 9, Week 3: Geometry: Properties of shape

Lesson 2: Intersecting diagonals

Challenges 1, 2, 3 Open.

Challenges 2, 3 a square rhombus
b square, rhombus, parallelogram

Challenge 3 For rectangles and parallelograms the diagonals bisect each other but do not bisect at 90°.

Lesson 4: Angles in a regular hexagon

Challenges 1, 2, 3 a All angles equal 120°.
b angle a = 60°

Challenges 2, 3 angle b = 90°, angle c = 30°, angle d = 60°

Challenge 3 angle e = 30°, angle f = 60°

Unit 10, Week 1: Number - Multiplication and division, incl. Measurement (money)

Lesson 1: Multiplication ThHTO × O, Division ThHTO ÷ O, using the most efficient method

Challenge 1 Answers will vary.

Challenge 2

Mental method	
2442 × 2	
6327 ÷ 9	
6642 ÷ 6	
6814 ÷ 2	

Written method

5384 ÷ 4
7568 ÷ 8
3457 × 8
6785 × 6

Challenge 3

My Mental Calculations	
2442 × 2 = 4884	
6327 ÷ 9 = 703	
6642 ÷ 6 = 1107	
6814 ÷ 2 = 3407	

My Written Calculations

5384 ÷ 4 = 1346
7568 ÷ 8 = 946
3457 × 8 = 27656
6785 × 6 = 40710

Lesson 2: Multiplying and dividing by 10, 100, 1000, including decimals

a × c × e ÷
b × d ÷ f ×

Challenge 2

Start number									Finish
3	× 10	× 10	÷ 1000	× 100	÷ 10	÷ 100	× 1000	÷ 10	3
	30	300	0.3	30	3	0.03	30	3	

Start number									Finish
7	× 1000	÷ 100	÷ 10	× 1000	÷ 100	× 10	× 10	÷ 10	700
	7000	70	7	7000	70	700	7000	700	

Challenge 3 Answers will vary.

Unit 10, Week 2: Number - Fractions

Lesson 1: Changing fractions

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

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

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

Lesson 3: Pizza problems

Challenge 1 a 4 pizzas b $\frac{1}{2}$ over
Challenge 2 a 5 pizzas b $\frac{1}{2}$ over
Challenge 3 a 6 pizzas b $\frac{4}{10}$ over

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

Lesson 2: Litres and pints

Challenges 1, 2, 3 a 4 pints d $4\frac{1}{2}$ pints
b 9 pints e $13\frac{1}{2}$ pints
c 8 l f 6.5 pints

Challenges 2, 3 a 2.8 l c 14.6 l
b 6.2 l d 36 l

Challenge 3 a 9 l c 11.25 l
b 13.5 l

Lesson 3: Investigating cuboids

Challenges 1, 2, 3

	Volume of cuboid			
	Length	Breadth	Height	Volume
A	1 cm	1 cm	1 cm	1 cm ³
B	2 cm	2 cm	1 cm	4 cm ³
C	3 cm	3 cm	1 cm	9 cm ³
D	4 cm	4 cm	1 cm	16 cm ³
E	5 cm	5 cm	1 cm	25 cm ³
F	6 cm	6 cm	1 cm	36 cm ³

Challenges 2, 3 See table above

Challenge 3 a Cube Y = 64 cm³
b Cuboid D fits into cube Y 4 times

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

Lesson 1: Missing decimals

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Lesson 3: Meet your target

Challenge 1 Answers will vary.

Challenge 2 Answers will vary.

Challenge 3 Answers will vary.

Unit 11, Week 2: Number - Fractions (incl. decimals and percentages)

Lesson 2: Food percentages

Challenge 1

Ingredient	Grams
Protein	30 g
Sugar	10 g
Fat	5 g
Fibre	10 g
Carbohydrates	20 g

Challenge 2

Ingredient	Grams
Protein	20 g
Sugar	60 g
Fat	10 g
Fibre	10 g
Carbohydrates	120 g

Challenge 3

Ingredient	Grams
Protein	140 g
Sugar	4 g
Fat	40 g
Fibre	8 g
Carbohydrates	60 g

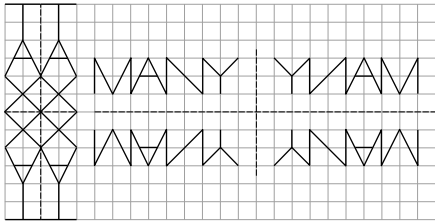
Lesson 4: Plan your weather

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

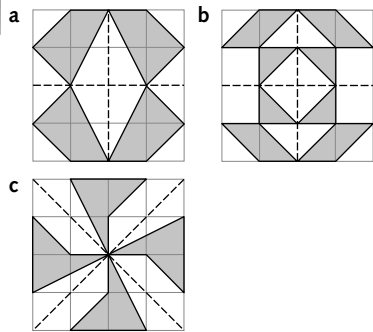
Unit 12, Week 3: Geometry – Position and direction

Lesson 2: On reflection

Challenges 1, 2, 3



Challenge 2, 3

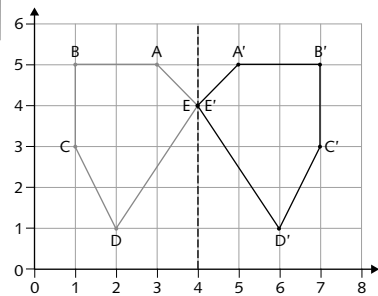


Challenge 3

Answers will vary

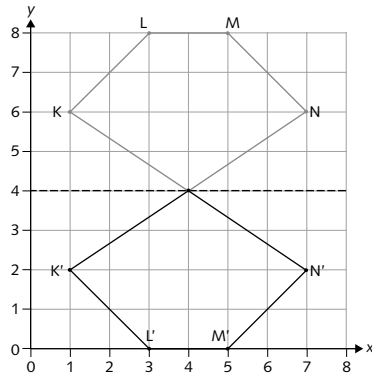
Lesson 3: Coordinates of reflection

Challenges 1, 2, 3



Challenge 2, 3

Shape		Image	
vertex	co-ordinates	vertex	co-ordinates
A	(3, 5)	A'	(5, 5)
B	(1, 5)	B'	(7, 5)
C	(1, 3)	C'	(7, 3)
D	(2, 1)	D'	(6, 1)



Shape		Image	
vertex	co-ordinates	vertex	co-ordinates
K	(1, 6)	K'	(1, 2)
L	(3, 8)	L'	(3, 0)
M	(5, 8)	M'	(5, 0)
N	(7, 6)	N'	(7, 2)

Unit 12, Week 1: Number – Multiplication and division

Lesson 1, Support: Multiplication HTO x TO using partitioning

Challenge 1

- a 42
- b 420
- c 4200
- d 4200
- e 42000

Challenge 2

- a 14 532
- b 36 477
- c 9916
- d 50 244

Challenge 3

240	4032	7740
12 20	144 28	258 30
3 4 5	36 4 7	43 6 5

Lesson 2: Multiplication HTO x TO using partitioning and the grid method

Challenge 1

- a 540
- b 60
- c 64 000
- d 3600
- e 700
- f 6300
- g 300
- h 700
- i 4
- j 9
- k 60
- l Answers will vary.

Challenge 2

- Answers will vary
- a 13
- b 5 (50)
- c 2 (20)

Unit 12, Week 2: Number – Multiplication and division, incl. Measurement (money)

Lesson 3: Division ThHTO ÷ O rounding remainders

Challenge 1

- a 21
- 42
- 70
- 35
- 63
- b 27
- 36
- 45
- 72
- 63

Challenge 2

- a 597 full boxes of sandwiches.
- b 318 carriages were needed.
- c 1135 hot dogs were sold.

Challenge 3

Answers will vary.

Lesson 4: Solving money problems

Challenge 1

- a 30 r4
- b 90 r1
- c 703 r1
- d 71 r1
- e 80 r6
- f 607 r2

Challenge 2

- a €385 per day
- b 804 cars
- c £776.33 per item
- d 310.75

Challenge 3

Answers will vary.

Unit 12, Week 3: Statistics

Lesson 1: Landing the catch

Challenges 1, 2, 3

- 1 a 85 kg
- b 5 kg
- c 60 kg
- 2 a February
- b August

Challenges 2, 3

- 1 a June
- b February
- 2 35 kg

Challenge 3

The fishing boat was laid up for repairs during April and May.

Lesson 2: Which holiday?

Challenges 1, 2, 3

- 1 Friday
- 2 a Palm Bay
- b Red reef

Challenges 2, 3

- 1 Sunday, Friday
- 2 a Monday
- b Thursday
- 3 Palm Bay