White Rose MATHS

Year 3

Maths Practice Journal

Answers

Author: Caroline Hamilton

Series Editor: MK Connolly

OXFORD
UNIVERSITY PRESS

Year 3 Answers

Autumn term Place value Knowledge Organiser

= 118
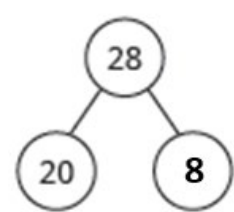
= 364
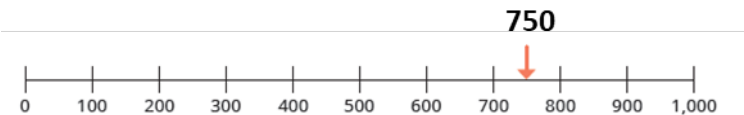
Autumn term Week 1

Let's remember

1   4

2   60

3   30

4   4

Let's practise

1a   There are **3** tens and **6** ones. The number is **36**

1b   There are **7** tens and **4** ones. The number is **74**

1c   There are **9** tens and **0** ones. The number is **90**

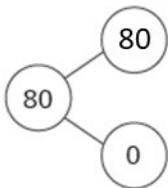2   Tiny counted two of the tens as ones because they were not next to the other four tens.

3a
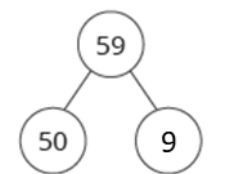
59 has **5** tens and **9** ones.

59 = 50 + **9**

3b

80 has **8** tens and **0** ones.

80 = 80 + 0

4
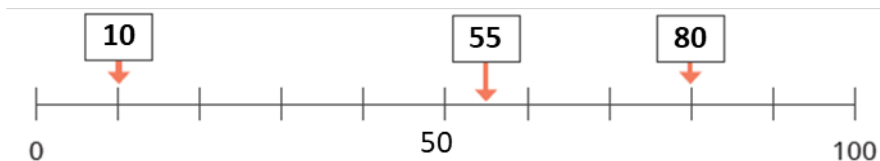
5
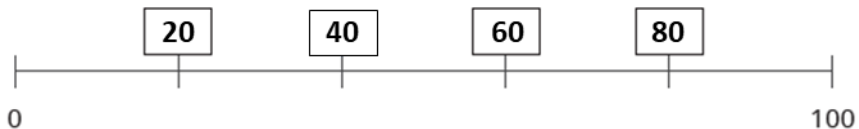
6   Amir needs **3** more bags of counters.

Crack the code: numerals

Talk it out: Answers will vary.

Autumn term Week 2

Let's remember

1   4

2   43 has **4** tens and **3** ones.

3   24

4   Answers can vary, but must include **3** circled counters, for example,

Let's practise

1a

456

1b

279
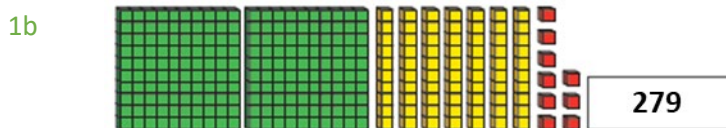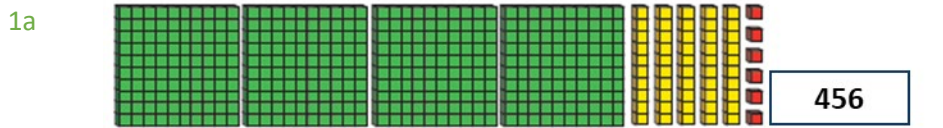
2a   245 has **2** hundreds, **4** tens and **5** ones.

2b   907 has **9** hundreds, **0** tens and **7** ones.

3a   371 = 300 + 70 + **1**

3b   198 = 100 + **90** + **8**   (or any flexible partition that equals 98)

3c   852 = **800** + **50** + **2**   (or any flexible partition that equals 852)

4a

```
      473
     /  |  \
  400   60   13
```

4b

```
      920
     /   \
  700    220
```

4c

```
      755
     /   \
  500    255
```
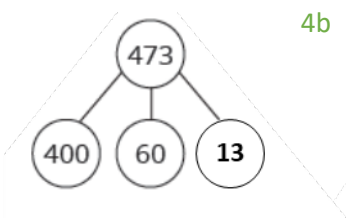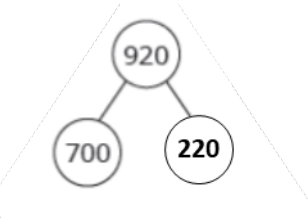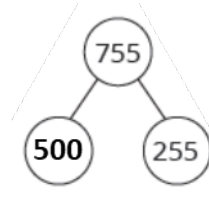
5

100 less	10 less	1 less	Starting number	1 more	10 more	100 more
160	250	259	260	261	270	360
800	890	899	900	901	910	1,000

6   Answers will vary, for example, 5, 50, 14, 41, 132, 302, 320, 410, 500

Crack the code: partition

Think it out: Answers will vary but could include any flexible partitioning of 649, for example,

```
      649              649              649
     / |  \           / |  \           / |  \
  600  40   9      500 140   9      500 100  49

      649              649              649
     / |  \           / |  \           / |  \
  300 300  49      250 250 149      400 200  49
```
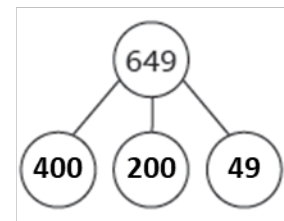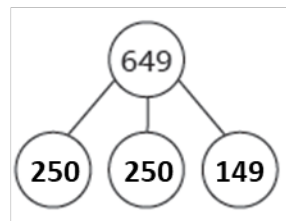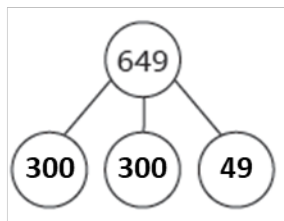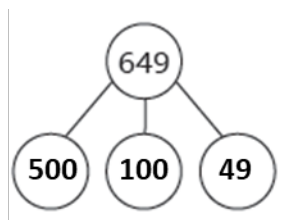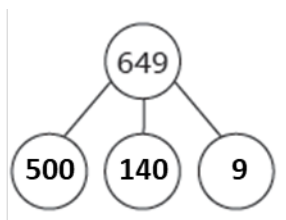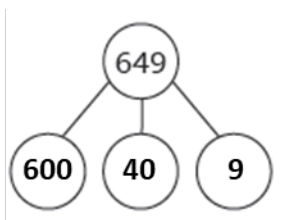
Talk it out: Teddy is incorrect as he has assumed the two counters are two hundreds. The counters could be two ones, two tens, two hundreds, or one of each pair, for example, one ten and one hundred.

Autumn term Week 3

Let's remember

1   292

2   314

3   Answers can vary but must circle 2 counters, for example,

4   7
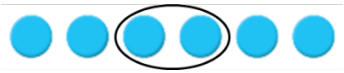
Let's practise

1a
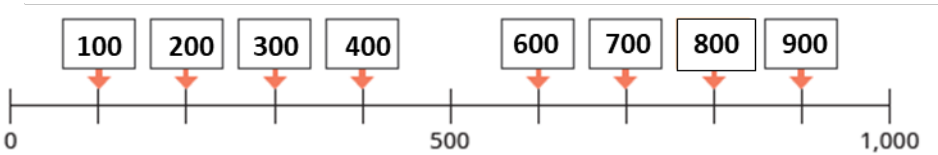
1b
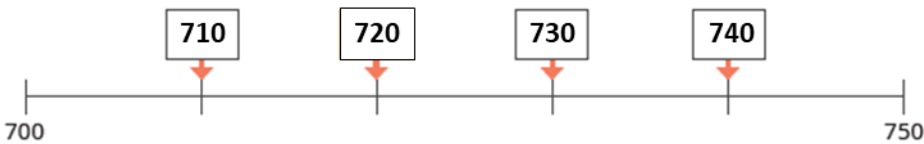
1c

2   Tiny is wrong because there are 5 intervals between 600 and 700 on the number line so each is worth 20. Therefore, the arrow is pointing at 620, not 610

3a   A number close to 500

3b

4

699   (900)   (713)   711   (721)
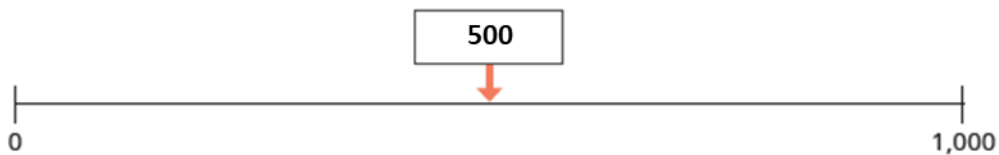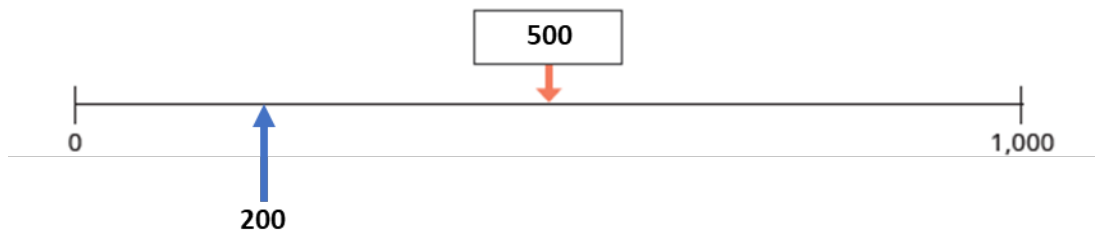
From greatest to smallest: 900, 721, 713

5   317 > 3**0**7

6   **1**47, 213, 2**2**9, **2**31, 300

Crack the code: interval

Real world maths: Answers will vary.

Talk it out: Answers will vary depending on the numbers made.

Autumn term Week 4

1

50	100	150	200	250	300	350

2   420

3   738 = 700 + **30** + 8

4   Quarter past six, or fifteen minutes past six

Let's practise

1a   4 + 3 = **7**   1b   9 – 1 = **8**

       40 + 30 = **70**   90 – 10 = **80**

       400 + 300 = **700**   900 – 100 = **800**

2a   Add 5 ones and the number is **628**

H	T	O
100 100	10 10	1 1
100 100		1
100 100		
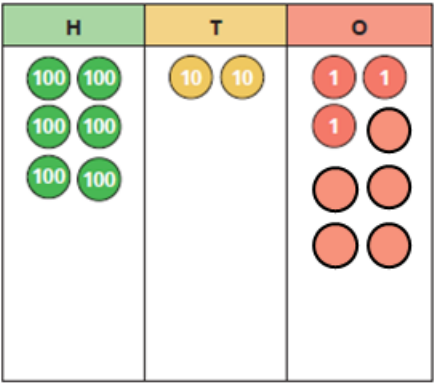
2b   Add 4 tens and the number is **391**

H	T	O
100 100	10 10	1
100	10 10	
	10	
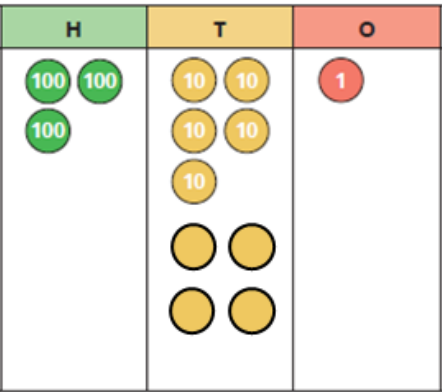
3a   326 + 30 = **356**   3c   989 – 50 = **939**

3b   852 + **40** = 892   3d   763 – **60** = 703

4   Tiny has added 3 ones to the number; he should have added 3 tens. The answer should be 792

5a
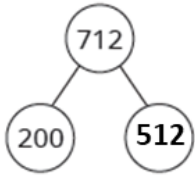
5b
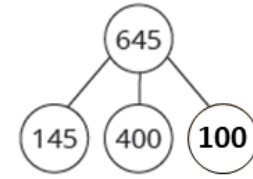
6   Annie has **74** cakes left.

Crack the code: hundreds

Think it out: 196; other answers will vary.

Talk it out:

| 4 | 2 | 6 | + | 7 | 0 | = | 4 | 9 | 6 |

I started by looking at the numbers in the answer. That helped me work out the value of the ones as there are 6 ones in the answer and 6 ones in the first number so no more ones can be added, which means that the second number has 0 ones. The are 9 tens in the answer and 7 tens were added in the second number so the first number must have 2 tens (as 2 + 7 = 9). There are 0 hundreds in the second number to add so there are just 4 hundreds. The answer is 426 + 70 = 496

Autumn term Week 5

Let's remember

1   753 − 20 = **733**

2   500 + 300 = **800**

3   647 = 500 + **140** + 7

4   Shade any one of the parts, for example,

Let's practise

1a   146 + 7 = **153**

1b   309 + 5 = **314**

2   132 − 9 = 123
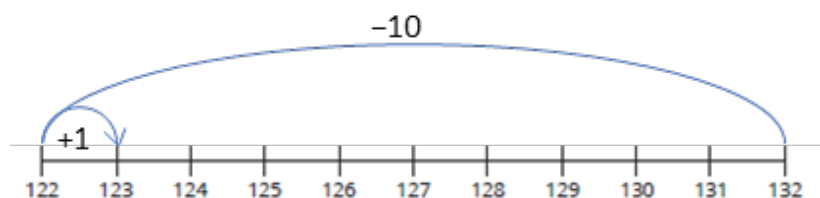
Make 1 jump of 10 back along the number line to 122 and then add 1

3a   641 − 4 = **637**

3b   363 − 7 **356**   3c   555 − 8 = **547**

4   270 + 10 = **280**   270 + 30 = **300**

        270 + 20 = **290**   270 + 40 = **310**   **Adding 10 more each time.**

5a   230 − 40 = **190**   5c   604 − **50** = 554

5b   725 − 30 = **695**   5d   147 − **60** = 87

6   **5**28 − **5**0 = 478

Crack the code: subtract

Think it out: Answers will vary.

Talk it out: Answers will vary but include, for example,
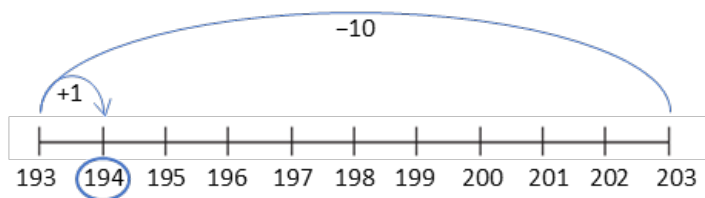
Jump back 10 along the number line and then add 1
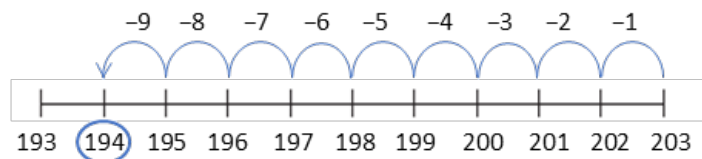
Jump back along the number line in 9 jumps of 1 each
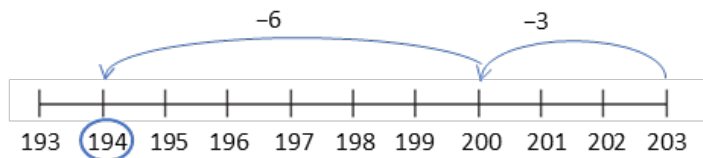
Jump back 3 to the nearest 10 and then subtract the remaining 6

Autumn term Week 6

Let's remember

1   630 – 70 = **560**

2   745 – **400** = 345

3   365 = 300 + 60 + 5   (or any flexible partition of 65)

4   36 g

Let's practise

1a   There are **10** ones in 10

1b   There are **10** tens in 100

2a   30

2b   50

2c   4

3

	H	T	O
	4	5	3
+	2	0	4
	6	5	7

4a

	H	T	O
	3	7	7
+	3	2	1
	6	9	8

4b

	H	T	O
	6	0	4
+	2	9	0
	8	9	4

5

Hundreds	Tens	Ones
100 100 100	10 10	1 1 1 1 1 1

	H	T	O
	3	2	6
−	1	2	5
	2	0	1

6a

	H	T	O
	8	4	7
−	5	0	3
	3	4	4

6b

	H	T	O
	9	5	1
−	2	4	0
	7	1	1

7   Answers will vary, for example:

119 + 639 = 758

397 + 361 = 758

737 + 21 = 758

Crack the code: exchange

Think it out:

★ = 5   ▲ = 2   ● = 4

Talk it out:

	3	5	4
−	2	4	4
	1	1	0

Answers may vary, but could include using number lines, place value grids, bridging, compensation or partitioning.

Autumn term Week 7

Let's remember

1   875 − 442 = **433**

2   26 **8** − 3 = 265

3   800 496 399 452 267 442 500

4   27+ 46 = **73**

Let's practise

1   Tiny worked from left to right, instead of right to left and has not made the exchange of 10 ones to a ten.

         The correct answer is **470**

2a
	5	3	6
+	2	2	5
	7	6	1

2c
		9	5	8
+			6	7
	1	0	2	5

2b
	7	4	4
+	1	3	9
	8	8	3

2d
	1	1	6
+	7	9	4
	9	1	0

3   Tiny has made a mistake with the ones. He subtracted 3 from 5. He should have made an exchange.

         The correct answer is **638**

4a

	7	4	6
−	5	2	7
	2	1	9

4b

	4	5	9
−	2	6	4
	1	9	5

4c

	6	2	0
−	3	1	4
	3	0	6

4d

	8	0	6
−	2	1	7
	5	8	9

5a   97 + 483 = **580**

		9	7
+	4	8	3
	5	8	0

5b   703 − 251 = **452**

	7	0	3
−	2	5	1
	4	5	2

6   Altogether, Whitney and Mo run **733 m**

Crack the code: column

Think it out: Answers will vary.

Talk it out:

	2	1	5
+	3	7	
	5	8	5

The numbers are lined up incorrectly and so the numbers have been added together incorrecly. I knew it was a mistake because you can't have an empty box in the ones column. The correct answer is 252

	8	0	7
−	3	5	2
	5	5	5

It needed an exchange. I knew it was a mistake because you can't subtract 5 from 0. The correct answer is 455

	4	6	7
−	1	9	2
	6	5	9

The numbers have been added instead of subtracted. I knew it was a mistake because the number should be smaller after a subtraction, and it is bigger. The correct answer is 275

Autumn term Week 8

Let's remember

1   786 – 59 = **727**

2   625

3   400 + **500** = 900

4   30 minutes

Let's practise

1a   Answers will vary, but 33 squares must be shaded, for example,
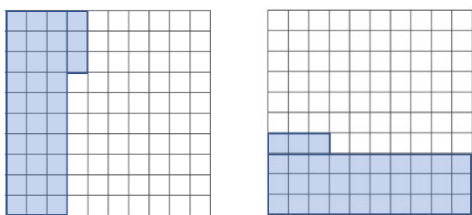
1b   67

1c   33 + **67** = 100

2   No, Tiny is not correct. 53 + 57 = **110**, not 100

         The correct answer is **47**

         53 + 47 = 100

3a   **36** + 64 = 100   3c   100 = 19 + **81**

3b   **92** + 8 = 100   3d   100 = **45** + 55

4a   787 is close to **800**

         95 is close to **100**

         My estimate is **900**

4b   An estimate to 398 – 206 = **200**

5a   50

5b   52

Crack the code: number

Talk it out: Answers will vary.

Real world maths: Answers will vary.

Autumn term Week 9

Let's remember

1   203 − 156 = **47**

2   493

3   301

4

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

Let's practise

1   There are **4** plates.

         Each plate has **2** cookies.

         There are **4** groups of **2**

2   Drawing showing 5 plates (large circles) and 3 apples (small circles) on each plate.

3a   3

3b   4

3c   **3 × 4 = 12**

4a   35 ÷ 5 = **7**

35				
7	7	7	7	7

4b   60 ÷ 10 = **6**

60									
6	6	6	6	6	6	6	6	6	6

5a   2 × 4 = **8**

5b   8 ÷ 2 = **4**

6

All multiples of 10 end in 0	All multiples of 5 end in 5	All multiples of 2 end in 2
☑ ✓	☐	☐

Crack the code: unequal

Think it out: Answers will vary.

A multiple of two was most likely because any number that ends in 2, 4 or 6 is a multiple of 2.

Only numbers ending in 5 could be a multiple of 5.

You can't roll a multiple of 10 because there is no 0 on a dice and all multiples of 10 end in 0.

Autumn term Week 10

Let's remember

1   8

2   for example, 450

3   499   501   505   510

4   3

Let's practise

1   There are **6** equal groups of **3**

        $6 \times 3 = 18$

        3 + 3 + 3 + 3 + 3 + 3 = 18

2a
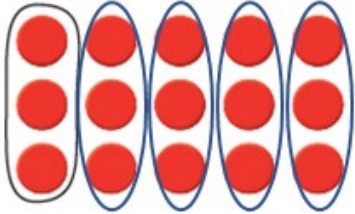
2b   5

2c   15

2d   5

3      $3 \times 8 = 24$ $24 \div 8 = 3$

        $8 \times 3 = 24$ $24 \div 3 = 8$

4a

24		
8	8	**8**

4c

18		
6	6	6

4b

27		
9	9	9

4d

33		
11	11	11

5a $3 \times 2 = \mathbf{6}$ 5c $3 = 3 \times \mathbf{1}$ 5e $\mathbf{36} = 12 \times 3$

5b $0 \times 3 = \mathbf{0}$ 5d $3 \times 6 = \mathbf{18}$ 5f $7 = \mathbf{21} \div 3$

6   **10** weeks

Crack the code: grouping

Real world maths: Answers will vary.

Talk it out:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Children may notice that the multiples of 3 are every third number; that they form a pattern on a diagonal line; for each diagonal pattern, the tens go down by one ten and the ones go down by one 1.

Autumn term Week 11

Let's remember

1   21

2   Answers will vary, but any three multiples, for example, 5, 25, 60

3   45 + **55** = 100

4   4

Let's practise

1a

7 more counters should have been drawn to make 4 rows and 6 columns of counters.

1b   4

1c   6

1d   24

2a
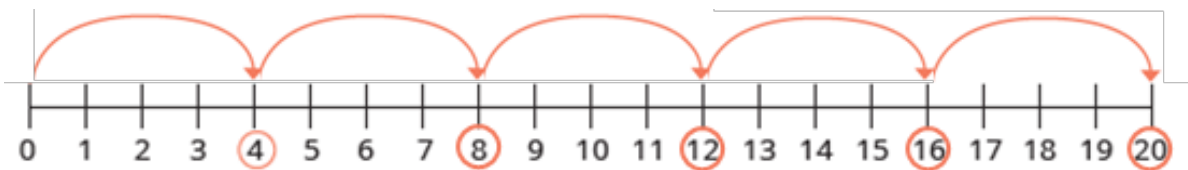
2b   5

2c   1 × 4 = **4**   3 × 4 = **12**   5 × 4 = **20**

      2 × 4 = **8**   4 × 4 = **16**

3a   7

3b   28 ÷ 4 = **7**

4a   4 × 2 = **8**   4c   0 × 4 = **0**

4b   **48** = 12 × 4   4d   9 = **36** ÷ 4

5a   3 × 7 (<) 4 × 7   5c   0 × 4 (=) 0 × 3

5b   3 × 4 (=) 4 × 3   5d   3 × 10 (>) 30 ÷ 10

6   £96

Crack the code: estimate

Talk it out:

2 × 1 = 2	3 × 1 = 3	4 × 1 = 4	5 × 1 = 5	10 × 1 = 10
2 × 2 = 4	3 × 2 = 6	4 × 2 = 8	5 × 2 = 10	10 × 2 = 20
2 × 3 = 6	3 × 3 = 9	4 × 3 = 12	5 × 3 = 15	10 × 3 = 30
2 × 4 = 8	3 × 4 = 12	4 × 4 = 16	5 × 4 = 20	10 × 4 = 40
2 × 5 = 10	3 × 5 = 15	4 × 5 = 20	5 × 5 = 25	10 × 5 = 50
2 × 6 = 12	3 × 6 = 18	4 × 6 = 24	5 × 6 = 30	10 × 6 = 60
2 × 7 = 14	3 × 7 = 21	4 × 7 = 28	5 × 7 = 35	10 × 7 = 70
2 × 8 = 16	3 × 8 = 24	4 × 8 = 32	5 × 8 = 40	10 × 8 = 80
2 × 9 = 18	3 × 9 = 27	4 × 9 = 36	5 × 9 = 45	10 × 9 = 90
2 × 10 = 20	3 × 10 = 30	4 × 10 = 40	5 × 10 = 50	10 × 10 = 100
2 × 11 = 22	3 × 11 = 33	4 × 11 = 44	5 × 11 = 55	10 × 11 = 110
2 × 12 = 24	3 × 12 = 36	4 × 12 = 48	5 × 12 = 60	10 × 12 = 120

Do any of the times-tables have all even numbers?

Yes, the 2, 4 and 10-times table have all even numbers.

Do you notice any patterns between the times-tables?

Yes, 4 is double 2 so all the numbers in the 4 times table are double the numbers in the 2 times table.

5 is half of 10, so all the numbers in the 5 times table are half the numbers in the 10 times table.

Do any of them have all odd numbers? Why do you think this is?

No, 3 and 5 are odd numbers and multiplication is repeated addition. When you add two (or an even number of) odd numbers, you get an even number. When you add three (or any odd number of) odd numbers you get an odd number.

Real world maths: Answers will vary.

Autumn term Week 12

Let's remember

1   **11** × 4 = 44

2   7

3   426 + 55 = **481**

4   32 m (**>**) 32 cm

Let's practise

1a   **4 × 8 = 32**   (or **8 × 4 = 32**)   1b   **6 × 10 = 60**   (or **10 × 6 = 60**)

2   There are **8** grapes on each plate.

There are **3** plates.

24 shared into **3** equal groups is **8**

3a

8 ÷ 8 = 1

3b

80 ÷ 8 = 10

4a   8 × 2 = **16**   4c   0 × 8 = **0**   4e   8 = 8 × **1**
4b   8 × 6 = **48**   4d   **96** = 12 × 8   4f   7 = **56** ÷ 8

5   **240** because 30 is 10 times greater than 3, so the answer will be 10 times greater than 24

6   There are **98** legs in the shed   (96 for the spiders (12 × 8 = 96) and 2 for Ron! (96 + 2 = 98))

Crack the code: compare

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Answers may vary, for example,

I notice that every 2nd number in the 2 times table is in the 4 times table.

I notice that every 4th number in the 2 times table is in the 8 times table.

I notice that all the numbers in the 4 times table are in the 8 times table.

Think it out: Answers will vary.

Autumn term Self-assessment

Part whole models:

```
        (712)
        /    \
   (200)    (512)
```
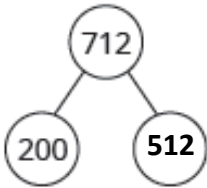
Column addition:

	H	T	O
	4	5	3
+	2	0	4
	6	5	7

	H	T	O
	6	4	5
−	2	3	1
	4	1	4

Multiplication and division:

16			
4	4	4	4

4 × 4 = 16

16 ÷ 4 = 4

Spring term Week 1

1   7 × 8 = **56**

2   12

3   All multiples of 2 are **even** numbers.

4   5

Let's practise

1   No, because each counter is worth 10 not 1, so the ten frames show 18 × 10 = 180

2a	17 × 10 = **170**	2c	23 × 10 = **230**
2b	10 × 19 = **190**	2d	36 × 10 = **360**

3a   4 × 5 = **20**   3b   42 ÷ 6 = **7**

          40 × 5 = **200**   420 ÷ 6 = **70**

4   2 × 3 = **6**

        2 × 20 = **40**

        6 + 40 = 46

        23 × 2 = **46**

5a   24 × 3 = **72**   5b   3 × 44 = **132**

6   4 × 3 = **12**

        4 × 50 = **200**

        12 + 200 = 212

        53 × 4 = **212**

7a   6 × 15 = **90**   7b   26 × 5 = **130**

8   £189

Crack the code: multiply

Think it out:

Child	Score	House points given
Ron	17	35
Mo	2	5
Sam	15	35
Eva	4	12
Jack	16	35
Teddy	9	20
Tommy	1	5
Jo	13	35
Dora	10	20
Annie	4	12
Total	**91**	**214**

Spring term Week 2

Let's remember

1   5 × 90 = **450**

2   12 × 4 = 8 × **6**

3   32 ÷ 4 = **8**

4   £4 and 70p

Let's practise

1a   15   150

1b   **3 × 5 = 15**   (or **5 × 3 = 15**)   **5 × 30 = 150**   (or **30 × 5 = 150**)

      15 ÷ 3 = 5   (or **15 ÷ 5 = 3**)   **150 ÷ 5 = 30**   (or **150 ÷ 3 = 50**)

2a   60 × 8 = **480**   2c   480 ÷ 8 = **60**

2b   6 × 80 = **480**   2d   480 ÷ 6 = **80**

3   No, Tiny is wrong. The answer is 7. I know 560 ÷ 8 = 70 so 560÷ 80 must also be 7 because we are dividing the same number by a number that is ten times greater so the answer will be ten times smaller.
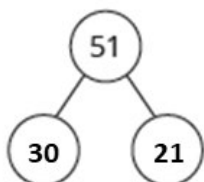

4a
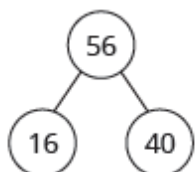
16 ÷ 4 = **4**   **4 + 10 = 14**

40 ÷ 4 = **10**   56 ÷ 4 = **14**

4b

30 ÷ 3 = 10   **7 + 10 = 17**

21 ÷ 3 = 7   51 ÷ 3 = **17**

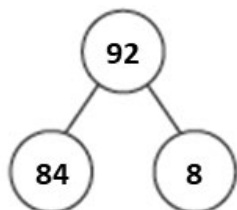5a   85 ÷ 5 = **17**   5b   76 ÷ 4 = **19**

6   **96**   (96 ÷ 2 = 48, 96 ÷ 4 = 24, 96 ÷ 8 = 12)

Crack the code: division

Talk it out: It is not helpful because neither 90 or 2 are divisible by 4 with none left over.

Answers will vary, for example, 84 and 8, or 80 and 12, or 72 and 20 as they all divide by 4 easily.

84 ÷ 4 = 21   80 ÷ 4 = 20   72 ÷ 4 = 18

8 ÷ 4 = 2   12 ÷ 4 = 3   20 ÷ 4 = 5

2 + 21 = 23   3 + 20 = 23   5 + 18 + 23

92 ÷ 4 = 23   92 ÷ 4 = 23   92 ÷ 4 =23

Think it out: Mo is incorrect. A number can be divided by 4 if the last two digits can be halved.

Spring term Week 3

1   65 ÷ 5 = **13**

2   28 × 6 = **168**

3   3 × 4 + 5 × 4 = **32**

4   84

Let's practise

1a   6 triangles

1b   2

1c   20 ÷ 3 = **6** remainder **2**

2a   19 ÷ 5 = **3** remainder **4**

2b   19 ÷ 4 = **4** remainder **3**

3a   26 ÷ 4 = **6** remainder **2**   3c   44 ÷ 3 = **14** remainder **2**

3b   31 ÷ 5 = **6** remainder **1**   3d   54 ÷ 4 = **13** remainder **2**
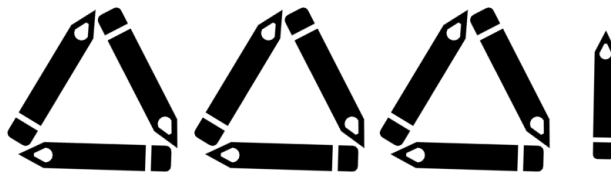

4   8

5   15

Crack the code: divide

Talk it out:

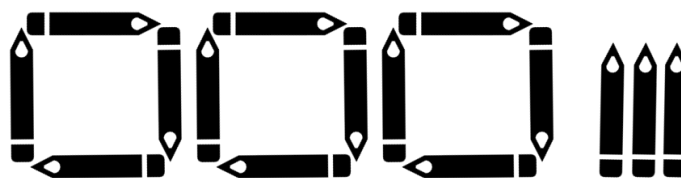   10 ÷ 3 = 3 remainder 1

        For the first division, I have made 3 complete pencil triangles. There is 1 pencil remaining.

        So 10 ÷ 3 = 3 remainder 1

15 ÷ 4 = 3 remainder 3

For the second division, I have made 3 complete pencil squares. There are 3 pencils remaining.

So 15 ÷ 4 = 3 remainder 3

Think it out: 73 ÷ 5 = **14** remainder **3**

91 ÷ 5 = **18** remainder **1**

279 ÷ 5 = **55** remainder **4**

Find a number between 300 and 400 that has a remainder of 2 when it is divided by 5

Any number ending in 2 or 7 between 302 and 397 will divide by 5 and leave a remainder of 2, so 302, 307, 312, 317…

Find a number between 750 and 850 that has a remainder of 3 when it is divided by 5

Any number ending in 3 or 8 between 753 and 848 will divide by 5 and leave a remainder of 3, so 753, 758, 763, 768…

Is it possible to have a remainder of 5 or 6 when you divide a number by 5? Explain why or why not.

No, it is not possible to have a remainder of 5 or 6 when you divide a number by 5 because the remainder has to be less than the divisor (5). If the remainder is the same or more than the divisor then the number can be divided again.

Spring term Week 4

Let's remember

1   87 ÷ 8 = **10** remainder **7**

2   84 ÷ 4 = **21**

3   The 8 times-table is **double** the 4 times-table.

4   98

Let's practise

1a   6 cm

1b   3 cm

2a   20 mm

2b   67 mm

3   Tiny is **11** cm and **5** mm tall.

4a   No Teddy is not correct.

4b   Teddy thinks the car is longer than the train because the number is bigger, but the car is not positioned at 0 on the ruler.

4c   Train: **10** cm; Car **9** cm

5   1 millimetre   1 centimetre   1 metre

6a   Ron is **148** cm tall.

6b   Ron's sister is **92** cm tall.

Crack the code: measure

Real world maths: Answers will vary.

Spring term Week 5

Let's remember

1   18 cm

2   20

3   32 × 7 = **224**

4   35p + **65p** = £1

Let's practise

1a

1 cm	1 cm	1 cm	1 cm
10 mm	10 mm	10 mm	10 mm

40 mm to equal to 4 cm

1b

1 cm	1 cm	1 cm	1 cm	1 cm	1 cm	1 cm
10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm

70 mm is equal to **7 cm**

1c

1 m	1 m	1 m	1 m	1 m
100 cm	100 cm	100 cm	100 cm	100 cm

500 cm is equal to **5 m**

2a   10 mm = **1 cm**

2b   30 mm = **3 cm**

2c   **90 mm** = 9 cm

2d   100 cm = **1 m**

2e   700 cm = **7 m**

2f   **600 cm** = 6 m

3a   3 m is **longer** than 299 cm.

3b   95 mm is **shorter** than 10 cm.

3c   1 m 70 cm is **longer** than 107 cm.

4a   **375** cm (or 3 m 75 cm)

4b   **220** cm (or 2 m 20 cm)

Crack the code: length

Think it out: 50 cm = $\frac{1}{2}$ m

25 cm = $\frac{1}{4}$ m

Real world maths:

About how long is a bus in whole metres? **7.5 m**

About how long is a bus in metres and centimetres? **7 m 50 cm**

About how long are 3 buses parked end to end? **22.5 m (or 22 m and 50 cm, or 2,250 cm)**

Spring term Week 6

1   500 cm

2   8 mm

3   17

4

3	6	9	12	15	18	21

Let's practise

1   Jo is correct because the perimeter is the distance around a shape, not the surface it covers.

2   A = **18 cm**

         B = **18 cm**

         C = **16 cm**

3   A = **16 cm**

         B = **24 cm**

4   Perimeter = **9** cm

5a   60 cm   5b   125 cm

6   10 cm

Crack the code: width

Think it out: Shapes will vary.

Real world maths: Answers will vary.

Spring term Week 7

1   38 cm

2   6 cm

3   18

4   Forty-three

Let's practise

1a   The whole is split into **2** equal parts.

        The fraction shaded is $\frac{1}{2}$

        The numerator is **1**

        The denominator is **2**

1b   The whole is split into **9** equal parts.
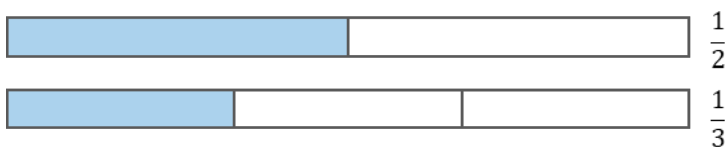
        The fraction shaded is $\frac{6}{9}$

        The numerator is **6**

        The denominator is **9**

2a

$\frac{1}{10}$

$\frac{1}{5}$

$\frac{1}{4}$

$\frac{1}{3}$

2b $\frac{1}{4}$ (>) $\frac{1}{10}$ $\frac{1}{3}$ (>) $\frac{1}{5}$ $\frac{1}{5}$ (<) $\frac{1}{4}$

3   Any drawings that show 1 / 2 is greater than 1 /3 with a reasonable accuracy, for example:

$\dfrac{1}{2}$

$\dfrac{1}{3}$

4

5

$\dfrac{3}{64}$

This is circled because the larger the denominator number the smaller the part.

Crack the code: fraction

Real world maths: Answers will vary.

Talk it out: Answers will vary.

What is the numerator?

The numerator is the number above the line in a fraction and tells us how many parts we have out of the whole.

What is the denominator?

The denominator is the number below the line in a fraction and tells us how many equal parts the whole has been divided into.

How do you compare two fractions?

If the two fractions have the same denominator then you just need to look at the numerators. The larger fraction is the one with the bigger number for the numerator.

If the fractions are unit fractions, you just need to look at the denominators: the larger the number the small the fraction, because the whole has been divided up into more parts.

If the denominators are different, then you need to find the lowest common denominator and convert both fractions into their equivalent fractions so you can then compare them.

Mixed numbers will need to be converted to improper fractions and the compared.

When you are drawing a bar model fraction, why do you need to split the bar into equal parts?

To represent the whole being divided into equal parts and to show that the parts are the same size and have the same value.

Spring term Week 8

1      $\frac{1}{5}$

2   Perimeter = 48 mm
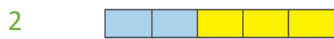
3   3 m 28 cm

4   6

Let's practise

1a   The whole is split into **2** equal parts.

        2 parts are shaded.
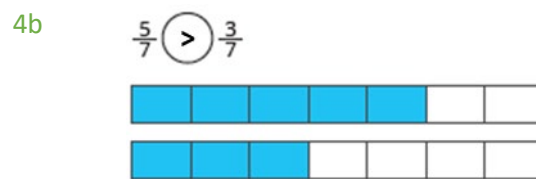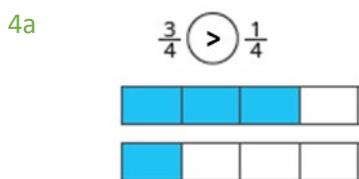
        The fraction shaded is $\frac{2}{2}$
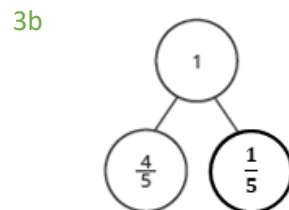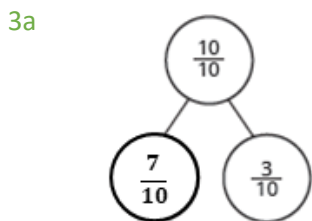
1b   The whole is split into **6** equal parts.

        6 parts are shaded.

        The fraction shaded is $\frac{6}{6}$

2

        2 fifths + **3** fifths = **5** fifths

        5 fifths are the same as 1 whole.

3a

3b

4a $\frac{3}{4}$ ⟩ $\frac{1}{4}$

4b $\frac{5}{7}$ ⟩ $\frac{3}{7}$

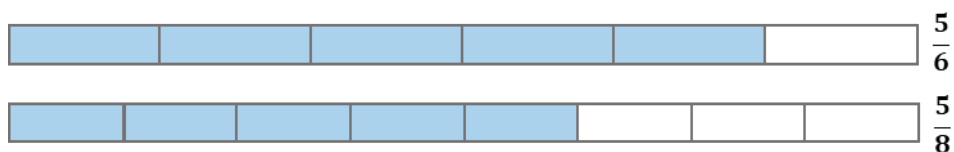5a $\frac{8}{21}$ < $\frac{18}{21}$ 5b $\frac{4}{4}$ = $\frac{10}{10}$ 5c $\frac{3}{4}$ > $\frac{3}{5}$

6a $\frac{8}{8}, \frac{7}{8}, \frac{3}{8}, \frac{1}{8}$ 6b $\frac{5}{6}, \frac{5}{7}, \frac{5}{9}, \frac{5}{11}$

7 Any drawings that show $\frac{5}{6}$ is greater than $\frac{5}{8}$ with reasonable accuracy, for example:

$\frac{5}{6}$

$\frac{5}{8}$

Crack the code: numerator

Think it out: Answers may vary.

Talk it out: To compare fractions with the same numerator, you must look at the denominators: the larger the denominator, the smaller the fraction as the whole has been divided up into more/smaller parts.
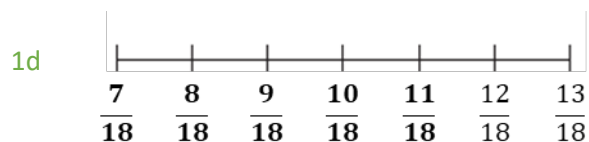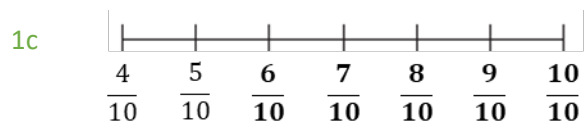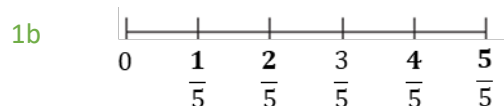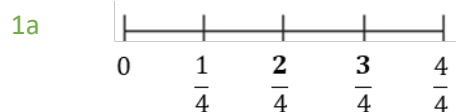
To compare fractions with the same denominator, look at the numerators: the bigger the numerator, the bigger the fraction or more parts of the whole.

Spring term Week 9

Let's remember

1   8

2    $\frac{1}{4}$

3   1 m 28 cm

4   365 + 20 = **385**

1a

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

1b

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

1c

$\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

1d

$\frac{7}{18}$ $\frac{8}{18}$ $\frac{9}{18}$ $\frac{10}{18}$ $\frac{11}{18}$ $\frac{12}{18}$ $\frac{13}{18}$

2   No, $\frac{2}{4}$ is equal to $\frac{4}{8}$. You must multiply the denominator and numerator by the same number to make an equivalent fraction, not add.

3a $\frac{1}{6}$ is less than, for example, $\frac{4}{8}$. (Answers can vary but must be greater than $\frac{1}{6}$)

3b $\frac{5}{8}$ is **greater** than $\frac{1}{2}$

3c $\frac{1}{2}$ is equivalent to $\frac{3}{6}$ or $\frac{4}{8}$ (or other equivalent fractions)
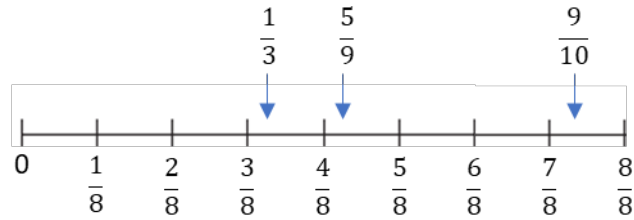
4a $\frac{2}{3} = \frac{4}{6}$

4b $\frac{4}{5} = \frac{8}{10}$

Crack the code: denominator

Real world maths: Answers will vary.
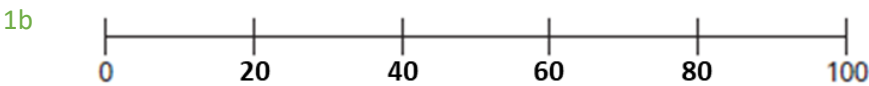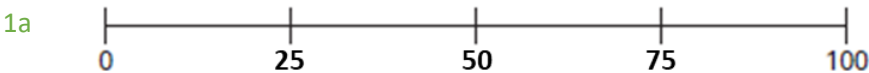
Think it out:

Spring term Week 10

Let's remember

1   $\dfrac{1}{2} = \dfrac{4}{8}$

2   $\dfrac{7}{12}$

3   10 cm

4   8

Let's practise

1a

1b

2a   400 g

2b   750 g

3   I agree with Mo. There are 10 intervals between 2 kg and 3 kg so the scale increases by 100 g each interval and the arrow is pointing to the 4th mark between 2 kg and 3 kg.

4a   **1000** g = 1 kg

4c   450 g + **550** g = 1 kg

4b   300 g + **700** g = 1 kg

4d   **950** g + 50 g = 1 kg

5a   500 g = $\frac{1}{2}$ kg   5c   250 g = $\frac{1}{4}$ kg

5b   100 g = $\frac{1}{10}$ kg

6   No, I don't agree with Tiny. The scales go up in different intervals but both the arrows are pointing to 200 g.

Crack the code: kilogram

Think it out:

500 g

200 g + 200 g + 100 g

200 g + 200 g + 50 g + 50 g

200 g + 100 g + 100 g + 100 g

200 g + 100 g + 100 g + 50 g + 50 g

200 g + 100 g + 50 g + 50 g + 50 g + 50 g

200 g + 50 g + 50 g + 50 g + 50g + 50 g + 50 g

100 g + 100 g + 100 g + 100 g + 100 g

100 g + 100 g + 100 g + 100 g + 50 g + 50 g

100 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g

100 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

1 kg

500 g + 200 g + 200 g + 100 g

500 g + 200 g + 200 g + 50 g + 50 g

500 g + 200 g + 100 g + 100 g + 100 g

500 g + 200 g + 100 g + 100 g + 50 g + 50 g

500 g + 200 g + 100 g + 50 + 50 g + 50 g + 50 g

500 g + 200 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

500 g + 100 g + 100 g + 100 g + 100 g + 100 g

500 g + 100 g + 100 g + 100 g + 50 g + 50 g

500 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g

500 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

200 g + 200 g + 200 g + 100 g + 100 g + 100 g + 100 g

200 g + 200 g + 200 g + 100 g + 100 g + 100 g + 50 g + 50 g

200 g + 200 g + 200 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g

200 g + 200 g + 200 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

200 g + 200 g + 100 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

200 g + 200 g + 100 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

200 g + 100 g + 100 g + 100 g + 100 g + 100 g + 50 g + 50 g + 50 g + 50 g + 50 g + 50 g

Talk it out: The number line and the scale are the same because they are both scales; they have intervals; the 100s are all marked; they start at 0; they both go up to 1000

They are different because one is straight, the other is circular; the circular scale goes past 1000; the number line has no unit of measure but the scale is marked in g. Between each 100, a midpoint is marked but not labelled, on the circular scale only.

Spring term Week 11

Let's remember

1   1000 g
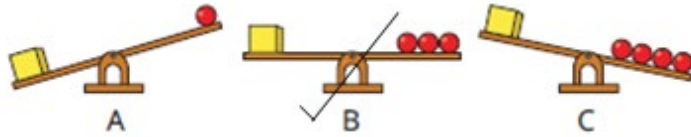
2        $\frac{5}{5}$

3        $\frac{3}{10}$

4   25 ÷ **5** = 5

Let's practise

1   The pineapple is **<u>heavier</u>** than the toy car.

         The toy car is **<u>lighter</u>** than the pineapple.

2a

Scale B shows items with an equal mass.

2b   1 cube has the same mass as **3** spheres.

3a   300 g $<$ 700 g   3c   1 kg $>$ 999 g

3b   650 g $>$ 398 g   3d   10 g $<$ 10 kg

4a   400 ml   4b   2 l 100 ml or 2.1 l

5a   400 g

5b   800 g

6   No, Tiny has misread the scale and ignored the mass of the bowl. He should have subtracted the mass of the
        bowl from the correct amount shown on the scale. The dandelions have a mass of 350 g.

Crack the code: mass

Real world maths: Answers will vary.

Think it out: Answers may vary as there are many combinations of containers that Jo could use to fill the barrel, for
example, one 5-litre bucket, three 1-litre jugs and four 250-ml jugs. However, refilling the 3-litre jug three times and
the 250 ml jug twice would be fastest.
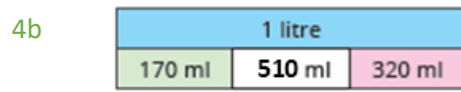
Let's remember

1   5 kg   578 g

2   1 kg

3      $\frac{2}{5}$

4   9 cm – 5 cm = **4** cm

Let's practise

1a	250 ml	1b	500 ml	1c 0.5 l or $\frac{1}{2}$ l or 500 ml

2   **5** cups

3a	**500 ml** + 500 ml = 1 l	3d 100 ml + **900 ml** = 1 l
3b	750 ml + **250 ml** = 1 l	3e 520 ml + **480 ml** = 1 l
3c	**1 ml** + 999 ml = 1 l	3f 1 l = 7 ml + **993 ml**

4a

1 litre		
50 ml	400 ml	**550** ml

4b

1 litre		
170 ml	**510** ml	320 ml

5a   500 ml (>) 490 ml   5c   2 l 300 ml (<) 3 l 200 ml

b   1 l (>) 1 ml   5d $\frac{1}{2}$ l (=) 500 ml

6   8 l 100 ml

Crack the code: capacity

Real world maths: Answers will vary.

Talk it out: Answers will vary.

There are 1000 millilitres in a litre.
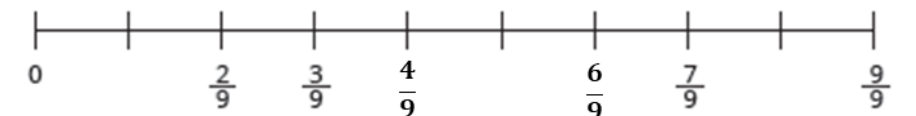
There are 100 centimetres in a metre.

There are 1000 grams in a kilogram.

Spring term Self-assessment:

Multiplication and division: $23 \times 2 =$ **46**

Length and perimeter: Perimeter of the shape = **30 cm**

Fractions:

Summer term Week 1

1   600 ml

2   700 g

3      $\frac{1}{5}, \frac{2}{5}, \mathbf{\frac{3}{5}, \frac{4}{5}, \frac{5}{5}}$

4   6

Let's practise

1      $\frac{1}{9} + \frac{4}{9} = \mathbf{\frac{5}{9}}$

2

        $\frac{4}{11} + \frac{3}{11} = \mathbf{\frac{7}{11}}$

3a $\frac{1}{6} + \frac{4}{6} = \mathbf{\frac{5}{6}}$ 3c $\frac{3}{10} + \frac{4}{10} = \mathbf{\frac{7}{10}}$

3b $\mathbf{\frac{3}{7}} + \frac{3}{7} = \mathbf{\frac{6}{7}}$ 3d $\frac{1}{4} + \frac{3}{4} = \mathbf{\frac{4}{4}} = \mathbf{1}$
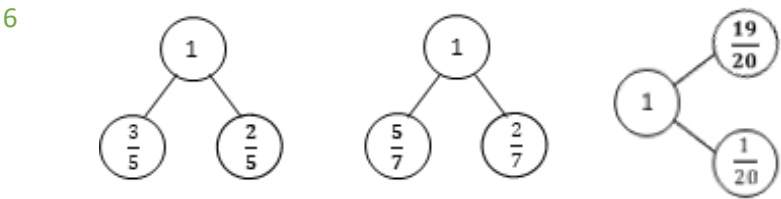
4      $\frac{8}{11} - \frac{3}{11} = \mathbf{\frac{5}{11}}$

5a $\frac{11}{12} - \frac{5}{12} = \mathbf{\frac{6}{12}}$ 5c $\frac{6}{7} - \frac{6}{7} = \mathbf{\frac{0}{7}} = 0$

5b $\frac{4}{5} - \frac{3}{5} = \mathbf{\frac{1}{5}}$ 5d $1 - \frac{3}{8} = \mathbf{\frac{5}{8}}$

6

7   Tiny is working out $\frac{367}{450} - \frac{366}{450}$

When you subtract a fraction, the denominator stays the same whatever size it is. You only need to find the difference between the numerators 367 and 366, which is 1, so the answer is $\frac{1}{450}$

Crack the code: sevenths

Think it out: Answers will vary but could include, for example:

- $\frac{12}{30} + \frac{10}{30} + \frac{5}{30} = \frac{27}{30}$

- $\frac{9}{30} + \frac{9}{30} + \frac{9}{30} = \frac{27}{30}$

- $\frac{2}{10} + \frac{5}{15} + \frac{11}{30} = \frac{27}{30}$

Real world maths: Answers will vary.

Summer term Week 2

Let's remember

1    $\frac{2}{3} + \frac{1}{3} = 1$

2    $\frac{4}{13} + \frac{5}{13} = \frac{9}{13}$

3   1000 g

4   76 has **7** tens and **6** ones
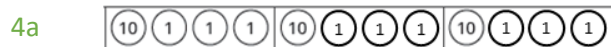
Let's practise

1    $\frac{1}{2}$ of 6 = **3**

2a $\frac{1}{2}$ of 10 = **5**

2b $\frac{1}{4}$ of 12 = **3**

2c $\frac{1}{4}$ of 4 = **1**

2d $\frac{1}{5}$ of 10 = **2**
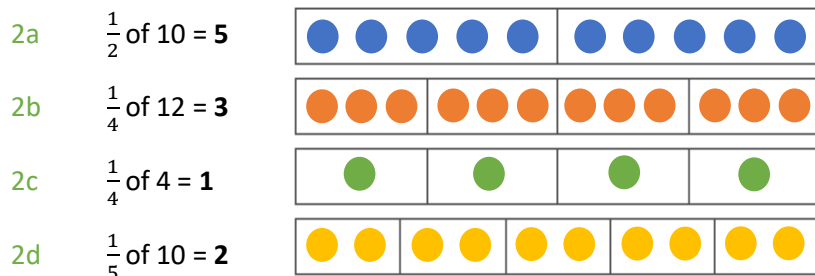
3a $\frac{1}{4}$ of 20 = **5**   3c $\frac{1}{4}$ of 44 = **11**

3b $\frac{1}{5}$ of 100 = **20**   3d $\frac{1}{3}$ of 60 = **20**

4a

4b $\frac{2}{3}$ of 39 = **26**

5a $\frac{3}{4}$ of 40 = **30**   5c $\frac{2}{3}$ of 27 = **18**

5b $\frac{2}{5}$ of 35 = **14**   5d $\frac{4}{5}$ of 100 = **80**

6   Dora has **£27** left.

7   Jack has **12** counters in total.

Crack the code: operation

Talk it out: Answers will vary, for example, "I have 12 pieces of pasta. One piece of pasta is $\frac{1}{12}$ of the whole. The numerator is 1 and the denominator is 12. I can divide the pasta into equal parts. $\frac{1}{2}$ of the pieces of pasta would be 6. That is the same as $\frac{6}{12}$. The numerator is 6 and the denominator is 12."

Think it out:

 = 120

 = 400   + = 520

Summer term Week 3

Let's remember

1   50

2        $\frac{7}{10} - \frac{4}{10} = \frac{3}{10}$

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

4   1, 3

Let's practise

1a   15p

1b   £1 and 50p

1c   64p   There are two ways to make 64p

           or

2   Ron has £30

3a   £28

3b   £102 and 57p

4   There are 100 pence in £1

5a   5   5b   10   5c   20

6a   £1 and 36p   6c   £7 and 99p

6b   £4 and 50p   6d   £1 and 6p

7a   Mo has one £1 coin, one 20p coin and one 5p coin.

7b   There are four different ways that Jack can have £1 and 25p in 7 coins:

Crack the code: change

Think it out: There are lots of different ways that Sam could have £25 in two notes and some coins. But the answer must include two £10 notes, two £5 notes, or one £10 and one £5 note, and coins up to the total of £25

For example:
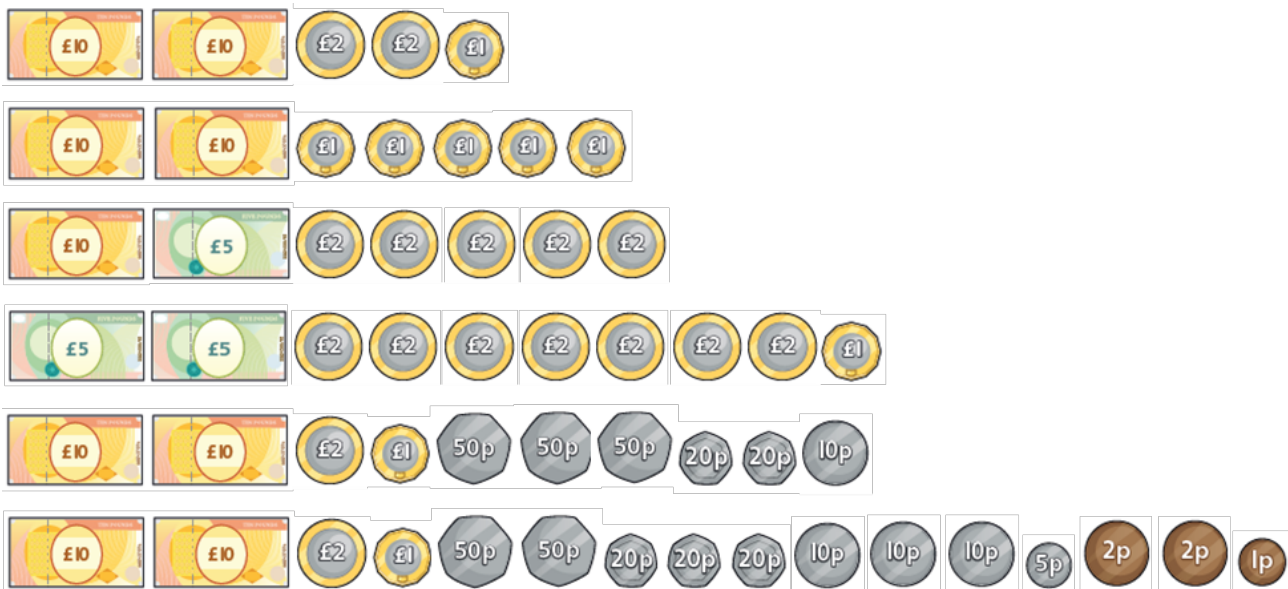
Summer term Week 4

1   £1

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

3   1 kg and 100g

4   180

Let's practise

1   £1 + £2 = £3

         55p + 30p = 85p

         Ron spends £3 and 85p

2a   £6 and 83p

2b   £7 and 53p

2c   £12 and 95p

2d   £21 and 85p

3a

£1 and 90p	
£1	90 p

3b

£5 and 24p		
£3 and 13p	£ 2 and	11 P

4   Alex spends £7 and 10p, so she will get **£2 and 90p** change from a £10 note.

5   To get £3 and 45p change from a £5 note Mo spent £1 and 55p.

         Mo bought an apple and a pear, which cost him 85p and 70p.

         85p + 70p = £1 and 55p

Crack the code: pounds

Real world maths:

2 cheese sandwiches: 2 × £2 and 20p = £4 and 40p

1 egg sandwich: 1 × £2 and 45p

1 baked potato: 1 × £3 and 40p

Total spent: £8 and 25p

Change from a £20 note   £20 − £8 and 25p = **£11 and 75p**

Answers will vary on the notes and coins that may be given as change.

Talk it out: There are three steps to this problem.

1. How much did the train tickets cost?

    The two train tickets cost £6 and 35p + £12 and 75p = £19 and 10p

2. How much money did Whitney pay with?

    Whitney paid with £10 + £5 + £6 (3 × £2) = £21

3. Finally, how much change did Whitney get?

    £21 - £19 and 10p = £1 and 90p

    Whitney got £1 and 90p change.

Summer term Week 5

Let's remember

1   £2 and 21p

2   16 cm

3       $\frac{1}{2} = \frac{3}{6}$

4

3	6	9	12	15	18

Let's practise

1a	3	1c	10	1e	7
1b	5	1d	9	1f	4

2a   20 minutes past 5

2b   20 minutes past 9

2c   10 minutes past 6

3   20 minutes to 5

4a   10 minutes past 3   4b   25 minutes past 2

5a   28 minutes past 3   5b   14 minutes past 11

6   Answers will vary, for example, half past one, 3 pm, half past 4, 6 pm, half past 6.

Crack the code: minutes

Real world maths: Answers will vary.

Summer term Week 6

1   Twenty minutes to eight, or 20 minutes to 8

2   £5 and 80p

3      $\frac{4}{13} + \frac{6}{13} = \frac{10}{13}$

4   4 cm

Let's practise

1   7:15 **pm**

2   The later time is: 8:55 am   ~~8:55 pm~~

3   The earlier time is: ~~11:00 am~~   6:30 pm
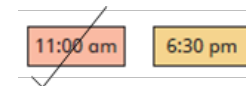
4a   There are **7** days in 1 week.

4b   There are **12** months in 1 year.

4c   There are **24** hours in 1 day.

4d   There are **31** days in March.

5a   30

5b   Friday

5c   4

5d   No, it depends on what day the months starts each year. If the 1st or 2nd of June is on a Saturday, then there would be 5 in the month.

6   Sometimes true. If it is a leap year, which occurs almost every 4 years, there are 366 days in the year.

7a   48 hours (<) 3 days   7c   168 hours (=) 1 week

7b   30 months (<) 3 years   7d   367 days (>) 1 year

8   378

Crack the code: digital

Talk it out: Answers will vary.

Real world maths: Answers will vary.

Summer term Week 7

1   14

2   VI

3   Answers can vary, but any 2 counters that are circled, for example:

4   20 ÷ 3 = **6** remainder **2**

Let's practise

1   39 minutes

2   59 minutes

3   15:43

4

5a   There are **60** seconds in 1 minute.

5b   There are **120** seconds in 2 minutes.

5c   There are **600** seconds in 10 minutes.

6a   1 minute and 12 seconds = **72** seconds

6b   4 minutes and 38 seconds = **278** seconds

6c   205 seconds = **3** minutes and **25** seconds

7   Teddy was faster because he ran the race in 3 minutes and 54 seconds. Mo ran it in 354 seconds, which is 5 minutes and 54 seconds, so Mo was 2 minutes slower than Teddy.

Crack the code: seconds

Real world maths: Answers will vary.

Think it out:

What time will it be in New York when it is 6 pm in England?

13:00, or 1 pm

What time will it be in Dubai when it is 7 am in England?

10:00, or 10 am

What time will it be in Pakistan when it is 11 am in England?

15:00, or 3 pm

Summer term Week 8

Let's remember

1   There are **180** seconds in 3 minutes.

2   30

3   £5 and 73p

4   896

Let's practise

1a   South

1b   North

1c   West

2

3   3

4a   4

4b   rectangle

5

        right angle   acute   obtuse

6
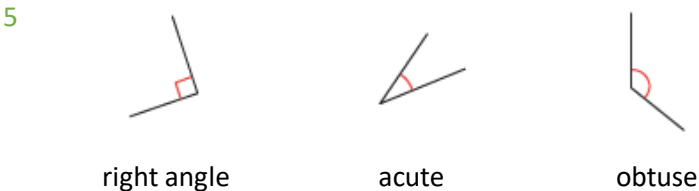
7   The shapes drawn will vary.

Crack the code: turn
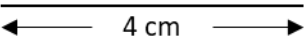
Think it out: It will be 5 minutes past 3

Real world maths: Answers will vary.

Summer term Week 9

Let's remember

1

4 cm

2   11:25 am, or twenty-five minutes past eleven

3   £5 and 21p

4   893 has **8** hundreds, **9** tens and **3** ones

Let's practise

1a   Parallel lines; answers will vary.   1b   Perpendicular lines; answers will vary.
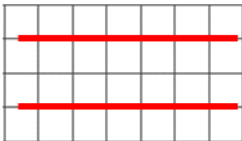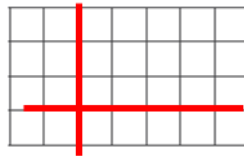
2   Tiny's statement is sometimes true. Parallel lines can be horizontal, but they could also be vertical or diagonal.

3a   A triangle has **3** sides.   3c   A **hexagon** has 6 sides.

3b   A pentagon has **5** sides.   3d   A quadrilateral as **4** sides.

4

5   Answers may vary, for example,
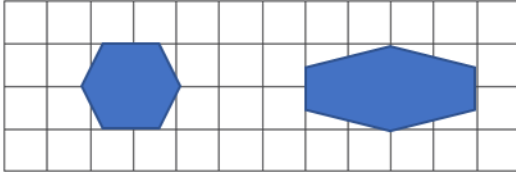
6   Annie: **cone**; Eva: **cube**

Crack the code: side

Real world maths: Answers will vary.

Talk it out: Answers will vary. For example, I can tell this is a cuboid because it has 6 faces, 8 vertices and 12 edges. I can tell this is a cylinder because it has straight sides and circular ends. I can tell this is a sphere because it is round like a ball.

Summer term Week 10

Let's remember

1   sphere

2   pentagon

3   420 minutes is equal to **7** minutes

4   8 × **12** = 96

1a   Friday

1b   Monday and Wednesday

1c   50

1d   10

1e   230

2

Fruit	Number of berries
Blackberries	●●●●●●◖
Strawberries	●●◖
Blueberries	●●●●●●●●●●
Raspberries	●●●●●

Key: ● = 2 berries

3a   Year 3

3b   Year 5

3c   80

3d   20

3e   30

3f   150

Crack the code: labels

Think it out:

Animal	Number of children
Turtles	▪ ▪ ▪ ▪ ▪ ▪
Dogs	▪ ▪
Cats	▪
Giraffes	▪

Key: ▪ = 3 children

Summer term Week 11

Let's remember

1   9

2   cylinder

3   2

4   507 – 30 = **477**

Let's practise

1

Shape	Tally	Total
Square	ӅӅ I	6
Triangle	ӅӅ IIII	9
Trapezium	IIII I	4
Circle	ӅӅ	5

To make sure that you don't miss any, you could cross out each shape as you count.

2
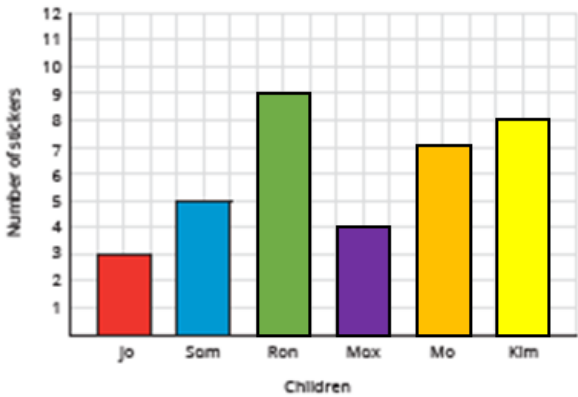
3a

	Hockey	Football	Rounders	Total
Girls	14	25	10	49
Boys	20	21	10	51
Total	34	46	20	100

3b   25

3c   51

3d   rounders

3e   11

Crack the code: scale

Real world maths: Answers will vary.

Summer term Week 12
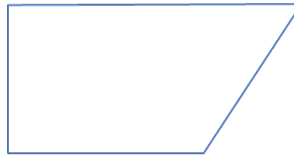
Let's remember

1   11

2   0

3   April

4      $\frac{1}{3} + \frac{1}{3} = \frac{\mathbf{2}}{\mathbf{3}}$

Let's practise

1a	16 cm	1c	45 cm
1b	24 mm	1d	34 cm

2a $\frac{2}{11} + \frac{5}{11} = \frac{\mathbf{7}}{\mathbf{11}}$ 2b $\frac{7}{8} = \frac{\mathbf{4}}{\mathbf{8}} + \frac{3}{8}$ 2c $\frac{9}{14} - \frac{3}{14} = \frac{\mathbf{6}}{\mathbf{14}}$ 2d $1 - \frac{3}{4} = \frac{\mathbf{1}}{\mathbf{4}}$

3a	3 × 16 = **48**	3c	34 × 3 = **102**
3b	5 × 26 = **130**	3d	17 × 5 = **85**

4a   68 ÷ 2 = **34**   4b   90 ÷ 5 = **18**   4c   81 ÷ 3 = **27**

5a	17 ÷ 4 = **4** remainder **1**	5c	48 ÷ 5 = **9** remainder **3**
5b	50 ÷ 3 = **16** remainder **2**	5d	100 ÷ 3 = **33** remainder **1**

6   Shapes drawn will vary, for example:
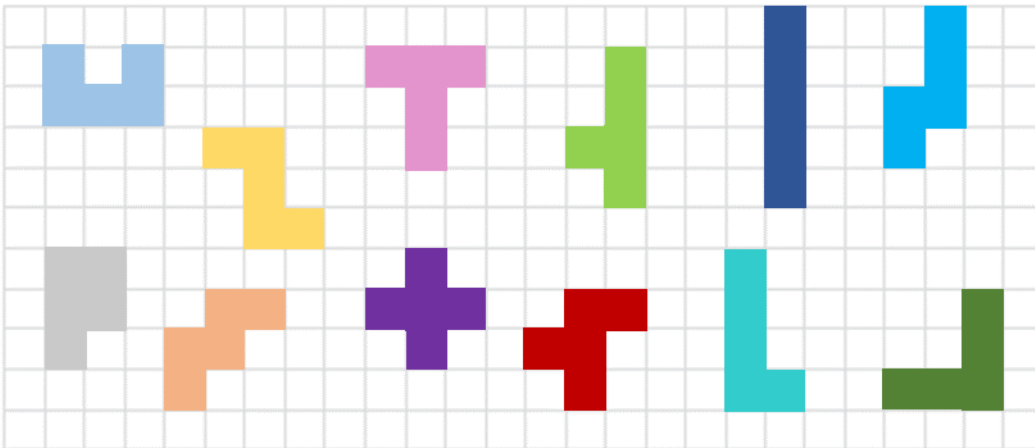

       a **trapezium**

7   It will cost **£7** and **86p**

Crack the code: pictogram

Think it out:

Talk it out: Answers will vary.

Summer term Self-assessment

Time:

4:10   or   16:10

Shape:

acute   obtuse   right
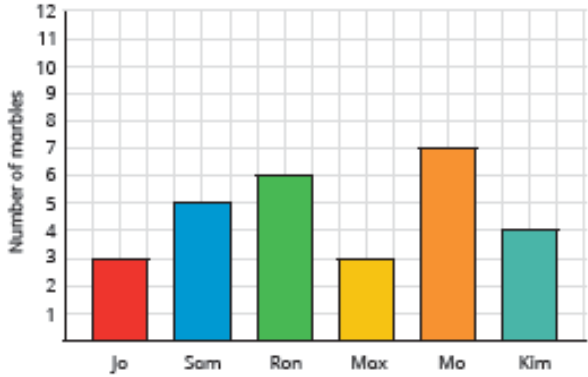
Statistics:

Mo has the most marbles.