Primary Practice

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Year 2

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Answers

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Includes explanations

Schofield & Sims

Notes for parents and carers

These answers are provided to accompany the **Maths Practice Year 2 Question Book**, which is part of the **Schofield & Sims Primary Practice Maths** series. Answers for all books in the series can be downloaded from the **Schofield & Sims** website.

The structure

This PDF contains answers for every question in the book. Navigate the PDF document by clicking on the hyperlink for the desired topic in the Contents page. Questions are presented in the order they appear in the book.

In most units, explanations are included for each set of questions to support understanding of the objective being covered. These explanations may suggest methods for working through each question. Explanations are also supplied for questions that children may find particularly challenging. Question number references have been added to answers when explanations from earlier questions may aid understanding.

In the 'Final practice' section, explanations have been provided for every question. Marking guidance is provided alongside the explanation to demonstrate how to allocate partial and full credit for work as applicable.

Using the answers

Encourage children to work through each question carefully. They should begin by reading the question thoroughly and identifying key terminology before forming their answer.

Although units have been included with these answers to aid understanding, note that children do not need to write the units in their answers for the answers to be marked correct unless it is specified in the question that units should be included.

Some questions in the **Maths Practice Year 2 Question Book** have multiple answers. The explanations accompanying the answers in this document indicate where this is the case. For these questions, accept any possible answers according to the limits laid out. There is no preference for any examples provided in this document over other possible answers not listed and no preference for answers listed first.

Where children have given an answer that is not correct, it may be useful to work through the question with them to correct any misunderstandings.

Marking the 'Final practice' section

The timing for the 'Final practice' section is intended as a guide only. Some children may prefer to work through the section with a longer time limit or without a time limit.

The marking guidance for some questions indicates that children may receive one mark for a correct method that would lead to a correct answer. This is intended to recognise ability in cases where children have used the correct method but have made a calculation error that has led to the use of incorrect figures in their calculation.

After completing the 'Final practice' section, children may choose to revise topics that they have identified as challenging. If they are comfortable with the material already covered, you may wish to print out and award the editable certificate from the **Schofield & Sims** website to recognise their achievement. The child may then wish to advance to the **Maths Practice Year 3 Question Book**.

Contents

## Counting in steps of 2, 3, 5 and 10 (pages 4–5)

Practise

1. **a.** 8   10   12
    When counting in steps, the difference between two numbers in the sequence is the same. Calculate the difference between the first two numbers (2 and 4). To do this, complete the subtraction 4 − 2 = 2. The step size between the numbers is 2. To find each missing number, add 2 to the previous number. 6 + 2 = 8. 8 + 2 = 10. 10 + 2 = 12.

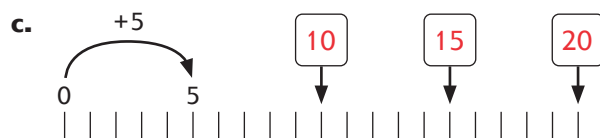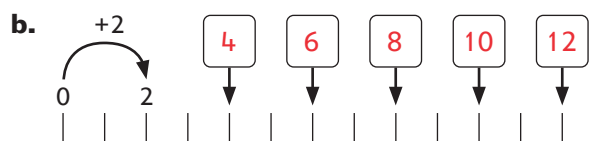   **b.** 12   15   18

    c. 20   25   30

    d. 40   50   60

2. **a.**
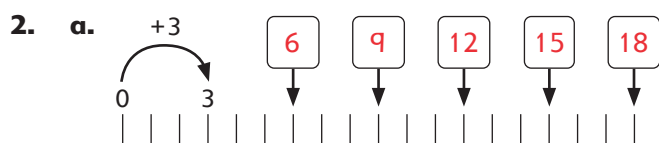
The curved arrow shows the step size. The step size is +3, so add 3 to the previous number to find each missing number. 3 + 3 = 6. 6 + 3 = 9. 9 + 3 = 12. 12 + 3 = 15. 15 + 3 = 18.

    b.

    c.

Extend

3. **a.** (0) (2) (18) (4) (22) (30) (10) (6)
    It can be helpful to count from 0 in twos up to 30 (the largest number in the set) and list the numbers that are counted. Circle the numbers that appear on the list and in the set. Note that they are all even numbers.

    b. (0) (3) (18) (6) (15) (9) (30) (21) (33) (12) (24)

4. **a.** 30   60   70

    b. 44   54   74

    c. 52   62   82   102

Apply

5. **a.** 42   **b.** 48

---

c. 54
Use the information in the diagram to find the missing numbers. The vertical line counts in steps of 2 and the horizontal line counts in steps of 3. To find A, subtract 2 from 44. 44 − 2 = 42. To find B, add 2 to 46. 46 + 2 = 48. Check B by adding 3 to 45. 45 + 3 = 48. To find C, add 3 to 51. 51 + 3 = 54.

Numerals and words (pages 6–7)

Practise

1. A: six   B: sixty-one   C: sixteen   D: sixty
    Count the number of tens beads on each abacus. Then count the number of ones beads. Combine the tens and ones. Then match the result to the correct number in words. Abacus A has 0 tens beads and 6 ones beads. This is six in words. Abacus B has 6 tens beads and 1 ones bead. This is sixty-one in words. Abacus C has 1 tens bead and 6 ones beads. This is sixteen in words. Abacus D has 6 tens beads and 0 ones beads. This is sixty in words.

2. **a.**

Tens	Ones
● ● ●	● ●

thirty-two
Identify the tens. 32 has 3 tens. Draw three counters in the tens column. Identify the ones. 32 has 2 ones. Draw two counters in the ones column. This is the number thirty-two in words.

    b.

Tens	Ones
● ● ● ● ● ●	● ● ●

sixty-three

    c.

Tens	Ones
●	● ● ● ● ● ●

sixteen

    d.

Tens	Ones
● ● ● ● ● ● ●	● ● ● ● ●

seventy-five

Extend

3. **a.** 24
   Identify the tens. There are 2 tens, which is 20. Identify the ones. There are 4 ones, which is 4. Combine the parts to make the whole. 20 + 4 = 24.

   b. 59

   c. 75

   d. 62

4. **a.** 19

   b. eighty-two

   c. 57

   d. forty-four

   e. 70

Apply

5. Seventeen is 1 ten and 7 ones. Zoe lives at number 71. 71 is 7 tens and 1 one. It is written as seventy-one.
   Accept any explanation that explains why seventeen is not correct or why seventy-one is correct.

Place value and representing numbers (pages 8–9)

Practise

1. **a.** 46
   Identify the tens. There are 4 tens, which is 40. Identify the ones. There are 6 ones, which is 6. Combine the parts to make the whole. 40 + 6 = 46.

   b. 65

   c. 53

   d. 36

2. **a.** 23
   Count the number of tens beads. There are 2 tens beads, which is 20. Count the number of ones beads. There are 3 ones beads, which is 3. Combine the tens and ones. 20 + 3 = 23.

   b. 63

3. **a.** 38
   Identify the whole. The whole is equal to the parts. Identify the known parts. The known parts are 30 and 8. Add the parts to find the whole. 30 + 8 = 38. The whole is equal to 38.

   b. 69

Extend

4. **a.**

Tens	Ones
10 10 10 10 10	1 1 1 1 1 1 1 1

   Look at the number shown and identify the tens and ones. 58 is made up of 5 tens and 8 ones. Count the number of counters in the tens column. There are 5 tens counters, so no more tens counters need to be added. Count the number of counters in the ones column. There are no counters, so 8 ones counters must be drawn into the place value chart.

   b.

Tens	Ones
10 10	1 1 1

5. **a.** 4
   Identify the whole. The whole is equal to the two lower parts. Identify the known part. The known part is 50. Subtract the known parts from the whole to find the missing part. 54 − 50 = 4. The missing part is 4.

   b. 99

Apply

6. Both
   Because they both used their equipment to show 6 tens and 7 ones.

Comparing and ordering numbers (pages 10–11)

Practise

1. C, A, B
   Identify the number shown by counting the tens and ones. A = 46. B = 42. C = 51. Put the numbers in order from largest to smallest. Begin by looking at the value of the tens digit. 51 has the greatest number of tens, so it is the largest. 46 and 42 both have 4 tens, so look at the value of the ones digits. 6 ones is greater than 2 ones, so 46 is the next largest number and 42 is the smallest number.

2. **a.** 64

Begin by looking at the value of the tens digit. 5 tens is less than 6 tens, so 64 is the larger number.
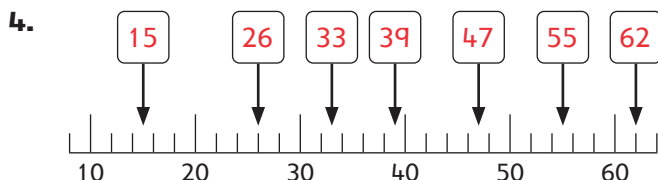
b. (89)

c. (23)

d. (78)

e. (54)

f. (33)

3. a. <

Look at the value of each digit in the number. Read the number statement aloud. Decide which symbol fits between the two numbers so that the number statement makes sense. 17 < 21.

b. >   **c.** >   **d.** <   **e.** >

f. <   **g.** >   **h.** <   **i.** >

Extend

4.

| 15 | | 26 | 33 | 39 | | 47 | | 55 | 62 |

Place all the numbers in the correct position on the number line. Identify the place value of each digit in the number. Think about where the number would be placed on the number line. For example: there is a missing box between 10 and 20 on the number line. Look for a number that has 1 ten. 15 is the only number that has 1 ten, so it must go in the first answer box.

5. a. 32, 37, 40, 41, 49

Begin by looking at the value of the tens digit. Choose the number with the smallest tens digit.

T	O
3	7
4	9
3	2
4	1
4	0

37 and 32 both have the smallest tens digit, so look at the value of the ones digit. 32 has 2 ones compared to 7 ones in 37. 32 goes before 37. The rest of the numbers all have 4 tens. Because the tens digits are the same, look at the values of the ones digits. Choose

the ones digit with the smallest value first.

T	O
3	7
4	9
3	2
4	1
4	0

40 has 0 ones compared to 1 one in 41 and 9 ones in 49, so 40 goes next, then 41 and then 49.

b. 52, 56, 71, 76, 98

c. 31, 34, 79, 83, 87

Apply

6. Tom is not correct because 39 is made up of 3 tens and 9 ones. 40 has 4 tens. 3 tens is smaller than 4 tens.

7. 31, 34, 35, 41, 43, 45
The number is larger than 30 but smaller than 50, so it must have 3 tens or 4 tens. Work systematically and begin by using the number card 3 in the tens column. The numbers that can be made are 31, 34 and 35. Now put the number card 4 in the tens column. The numbers that can be made are 41, 43 and 45. The possible numbers are 31, 34, 35, 41, 43 and 45.

Mental addition and subtraction to 20 (pages 12–13)

Practise

1. a. 20

Find 11 on the number line. Use the number line to count on 9 in steps of 1. 11 + 9 = 20.
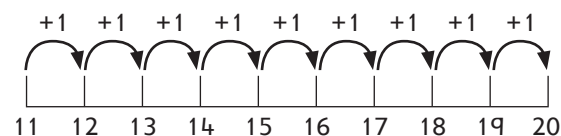
Alternatively, remember the number bond 1 + 9 = 10. 11 is 10 more than 1, so add 10 more. 10 + 1 + 9 = 20.

b. 20

c. 20

d. 20

2. a. 8

A full ten-frame is equal to 10. The first ten-frame is full since it has 10 counters. There are 2 counters in the second ten-frame.

10 + 2 = 12. To find the missing number, count the empty spaces in the second ten-frame. There are 8 empty spaces. 12 + 8 = 20.
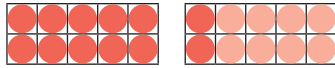
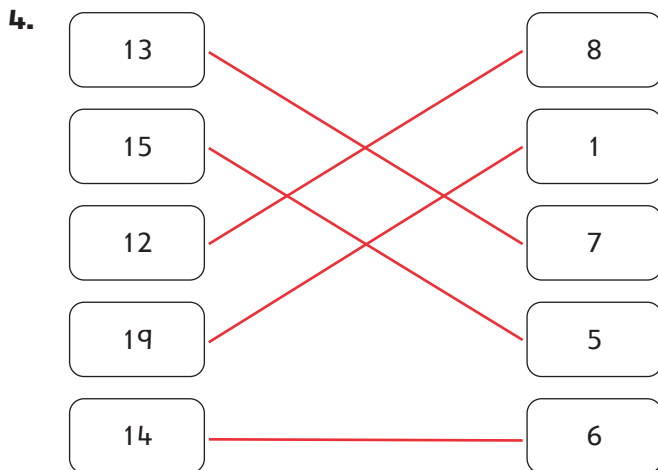**b.** 4

c. 11

d. 17

3. a. 16

Identify the whole. The whole is 20 and is equal to the parts. Identify the known part. The known part is 4. Subtract the known part from the whole. 20 − 4 = 16. The missing part is 16.

b. 3

Extend

4.

5. 12 + 8 = 20 or 13 + 7 = 20 or 14 + 6 = 20 or 16 + 4 = 20 or 17 + 3 = 20 or 18 + 2 = 20
Answers will vary. Accept any answer that does not include a repeated digit. 11 + 9 = 20 and 19 + 1 = 20 use the digit 1 twice, so they are not correct. 15 + 5 = 20 uses the digit 5 twice, so it is not correct. 20 + 0 = 20 uses the digit 0 twice, so it is not correct.

Apply

6. 20 cupcakes
Read word problems carefully and identify the numbers and operations needed. Add 11 cupcakes with chocolate icing, 3 cupcakes with strawberry icing and 6 cupcakes with no icing. Complete the calculation. 11 + 3 + 6 = 20.

7. 14 bikes
Subtract 6 bikes from 20 bikes. 20 − 6 = 14.

Mental addition and subtraction to 100 (pages 14–15)

Practise

1. a.
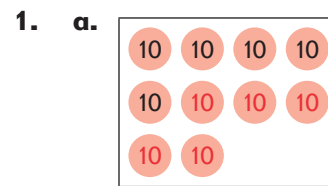
Count the number of place value counters. There are 5 tens place value counters. Subtract these counters from 100. 100 − 50 (5 tens) = 50. 5 more tens counters need to be added.

b.

c.
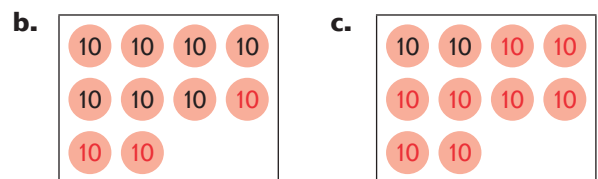
2. a. 40
Identify the whole. The whole is 100 and is equal to the parts. Identify the known part. The known part is 60. Subtract the known part from the whole. 100 − 60 = 40.

b. 80   **c.** 90   **d.** 70

Extend

3. A: 40 + 60 = 100   B: 20 + 80 = 100
C: 90 + 10 = 100   D: 70 + 30 = 100
Each counter represents 10. The full ten-frame represents 100. The first ten-frame shows 4 dark shaded counters (40) and 6 light shaded counters (60). 40 + 60 = 100.

4. a. 65
The whole (the top bar) is equal to the parts (the two numbers in the bottom bar). Identify the whole. The whole is 100. Identify the known part. The known part is 35. Subtract the known part from the whole. 100 − 35 = 65.

b. 54   **c.** 83   **d.** 18

Apply

5. a. 100 cards
Read word problems carefully and identify the numbers and operations needed. Add 24 cards and 76 cards together. Complete the calculation. 24 + 76 = 100.

b. 100 bulbs

Addition in columns (pages 16–17)

Practise

1. a. 26

Tens	Ones
10	1 1 1 1
10	1 1
10 10	1 1 1 1 1 1

Begin with the ones. 4 + 2 = 6. Draw 6 ones counters in the ones column. Now add the tens. 1 ten + 1 ten = 2 tens. Draw 2 tens counters in the tens column. Combine the tens and ones. 2 tens and 6 ones is 26.

b. 59

Tens	Ones
10 10 10	1 1 1 1
10 10	1 1 1 1 1
10 10 10 10 10	1 1 1 1 1 1 1 1 1

c. 67

Tens	Ones
10 10 10 10	1 1 1
10 10	1 1 1 1
10 10 10 10 10	1 1 1 1 1
10	1 1

d. 82

Tens	Ones
10 10 10 10 10	1̸ 1̸ 1̸ 1̸
10 10	1̸ 1̸ 1̸ 1̸ 1̸
	1̸ 1 1
10 10 10 10 10	1 1
10 10 10	

Begin with the ones. 4 + 8 = 12. Draw 2 ones counters in the ones column. Exchange 10 ones for 1 ten. Now add the tens. 5 tens + 2 tens = 7 tens. Add the exchanged ten. 7 tens + 1 ten = 8 tens. Draw 8 tens counters in the tens column.

Extend

2. a.

$$\begin{array}{r} 50 + 3 \\ +\ 10 + 4 \\ \hline 60 + 7\ = 67 \\ \hline \end{array}$$

Estimate: 50 + 10 = 60
Check: 67 − 14 = 53
Round numbers to the nearest ten to estimate the answer. 50 + 10 = 60. Then use the expanded column addition method to first add the ones, then the tens. 3 + 4 = 7. 50 + 10 = 60. 60 + 7 = 67. Finally, check the answer by performing the inverse operation, which is subtraction.

b.

$$\begin{array}{r} 30 + 7 \\ +\ 50 + 8 \\ \hline 80 + 15\ = 95 \\ \hline \end{array}$$

Estimate: 40 + 60 = 100
Check: 95 − 58 = 37

3. a.

$$\begin{array}{r} 2\ 5 \\ +\ 3\ 3 \\ \hline 5\ 8 \\ \hline \end{array}$$

Estimate: 30 + 30 = 60
Check: 58 − 33 = 25
Round the numbers to the nearest hundred to estimate the answer. 30 + 30 = 60. Then use the formal column method to first add the ones, then the tens. 5 + 3 = 8. 2 + 3 = 5. Finally, check the answer by performing the inverse operation, which is subtraction. 58 − 33 = 25.

b.

$$\begin{array}{r} 5\ 4 \\ +\ 3\ 8 \\ \hline 9\ 2 \\ \hline {\scriptstyle 1} \end{array}$$

Estimate: 50 + 40 = 90
Check: 92 − 38 = 54
Add the ones. 4 + 8 = 12. Exchange 10 ones for 1 ten. Add the tens including the exchanged ten. 5 + 3 + 1 = 9.

4. a. 64
A column method should be used to calculate these answers. Check that the tens and ones are correctly aligned in their columns. This explanation shows the formal column method. Add the ones. 7 + 7 = 14. Write 4 in the ones column. Exchange 10 ones for 1 ten.

Now add the tens including the exchanged ten. 2 + 3 + 1 = 6. Write 6 in the tens column.

$$
\begin{array}{r}
2\ 7 \\
+\ 3\ 7 \\
\hline
6\ 4 \\
\tiny 1
\end{array}
$$

b. 139

Apply

5. **a.** 57 balls
Read word problems carefully and identify the numbers and operations needed. Add 34 footballs and 23 rugby balls together. Complete the calculation. 34 + 23 = 57.

b. £55
Add £16 (cost of T-shirt) and £39 (cost of jeans) together to find the total cost. £16 + £39 = £55.

c. 71 taxis
'Increase' means add. Add 54 taxis and 17 taxis to find the total number of taxis. 54 + 17 = 71.

Subtraction in columns (pages 18–19)

Practise

1. **a.** 31

Tens	Ones
10 10 10 10̶ 10̶ 10̶ 10̶	1 1̶ 1̶

Subtract the ones by crossing out 2 ones counters. 3 − 2 = 1. Subtract the tens by crossing out 4 tens counters. 7 tens − 4 tens = 3 tens. Combine the remaining counters. 3 tens and 1 one = 31.

b. 52

Tens	Ones
10 10 10 10 10 10̶ 10̶ 10̶	1 1 1̶ 1̶

c. 43

Tens	Ones
10 10 10 10 10̶ 10̶ 10̶ 10̶ 10̶	1 1 1 1̶ 1̶

d. 44

Tens	Ones
10 10 10 10 10̶ 10̶	1 1 1 1 1̶ 1̶ 1̶ 1̶

e. 35

Tens	Ones
10 10 10 10̶ 10̶ 10̶ 10̶	1 1 1 1 1 1̶ 1̶ 1̶ 1̶ 1̶ 1̶ 1̶ 1̶

Subtract the ones. To subtract 8 ones from 3 ones, exchange 1 ten for 10 ones. Cross out 1 tens counter and draw 10 counters in the ones box. Then cross out 8 ones counters. 13 − 8 = 5. Subtract the tens by crossing out 3 tens counters. 6 tens − 3 tens = 3 tens. Combine the remaining counters. 3 tens and 5 ones = 35.

f. 17

Tens	Ones
10 10̶ 10̶ 10̶	1 1 1 1 1 1 1 1̶ 1̶ 1̶ 1̶ 1̶ 1̶

Extend

2. **a.**
$$
\begin{array}{r}
40\ +\ 8 \\
-\ 10\ +\ 5 \\
\hline
30\ +\ 3\ =\ 33
\end{array}
$$

Estimate: 50 − 20 = 30
Check: 33 + 15 = 48
Round the numbers to the nearest ten to estimate the answer. 50 − 20 = 30. Then use the expanded column subtraction method to first subtract the ones, then the tens. 8 − 5 = 3. 40 − 10 = 30. Recombine the answers. 30 + 3 = 33. Finally, check the answer by performing the inverse operation, which is addition. 33 + 15 = 48.

b.
$$
\begin{array}{r}
\overset{40}{5\!\!\!/0}\ +\ \overset{1}{}4 \\
-\ 30\ +\ 6 \\
\hline
10\ +\ 8\ =\ 18
\end{array}
$$

Estimate: 50 − 40 = 10
Check: 18 + 36 = 54

Note that 6 ones cannot be subtracted from 4 ones. Instead, 1 ten needs to be exchanged for 10 ones so that 6 ones can be subtracted from 14 ones.

3. a.

```
    9   6
 −  4   2
 _____
    5   4
```

Estimate: 100 − 40 = 60
Check: 54 + 42 = 96
Round the numbers to the nearest ten to estimate the answer. 100 − 40 = 60. Then use the formal column method to first subtract the ones, then the tens. 6 − 2 = 4. 9 − 4 = 5. Finally, check the answer by performing the inverse operation, which is addition. 54 + 42 = 96.

b.

```
    8   5
 −  3   5
 _____
    5   0
```

Estimate: 90 − 40 = 50
Check: 50 + 35 = 85

4. a. 24
A column method should be used to calculate these answers. Check that the tens and ones are correctly aligned in their columns. This explanation shows the formal column method. Subtract the ones. 6 − 2 = 4. Write 4 in the ones column. Subtract the tens. 5 − 3 = 2. Write 2 in the tens column.

```
    5   6
 −  3   2
 _____
    2   4
```

b. 24

```
    ⁵6̸  ¹1
 −  3   7
 _____
    2   4
```

Apply

5. a. 32cm
'Left' means subtract. Subtract 35cm from 67cm. 67cm − 35cm = 32cm.

b. £28
'Reduced by' means subtract. Subtract £17 from £45 to find the new cost of the trainers. £45 − £17 = £28.

c. 25cm
'Calculate the difference' means subtract. Subtract 68cm from 93cm to find the difference between the heights of the sunflowers. 93cm − 68cm = 25cm.

Addition and subtraction word problems (pages 20–21)

Practise

1. a. 51
Read word problems carefully and identify the numbers and operations needed. 'More' means add. 48 + 3 = 51.

b. £23

c. 28
'Left' means subtract. 35 − 7 = 28.

d. 18ºC

e. 17

Extend

2. a. 77   **b.** 25   **c.** 8

Apply

3. a. 38
Identify the numbers on the dice. There is a 6 and a 5. Add the numbers to 27. 27 + 6 = 33. 33 + 5 = 38.
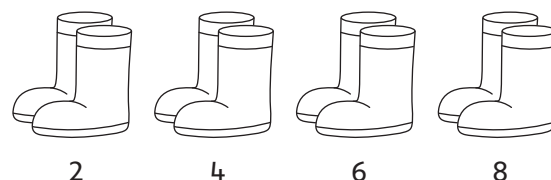
b. 90   **c.** 27   **d.** 55

Two times table (pages 22–23)

Practise

1. a. 8
Begin counting in twos. Remember to count every other number when counting in twos.


```
    2        4        6        8
```

b. 10   **c.** 6p

2. a. 2 × 7 = 14
Count the number of rows. There are 2 rows. Count the number of columns. There are 7 columns. Complete the missing numbers in the number statement. 2 × 7 = 14.

b. 2 × 9 = 18

c. 2 × 3 = 6

d. 2 × 10 = 20

Extend

3.

×	3	4	5	6	7	8
2	6	8	10	12	14	16

Multiply the numbers in the top row of the grid by the number in the left-hand column of the grid to get the missing numbers in the bottom row of the grid. For example: 6 × 2 = 12. Divide the numbers in the bottom row of the grid by the number in the left-hand column of the grid to get the missing numbers in the top row of the grid. For example: 10 ÷ 2 = 5.

4.   **a.** 18   **b.** 24   **c.** 4   **d.** 0

     e. 8   **f.** 5   **g.** 11   **h.** 7

     i. 2   **j.** 2   **k.** 10   **l.** 3

Apply

5.   **a.** 12 socks

     The word 'total' means find how many there are altogether. Remember that 'pair' means 2. Multiply the number of pairs of socks by the number of socks in a pair. Complete the calculation. 6 × 2 = 12.

   b. 18 chairs

   c. 5 cards

     'Share' means divide. Divide the number of cards by the number of people. Complete the calculation. 10 ÷ 2 = 5.

Five times table (pages 24–25)

Practise

1.   **a.** 15

     Begin counting in fives. When counting in fives from 0, remember that the ones digit is always a 5 or 0.

       5   10   15
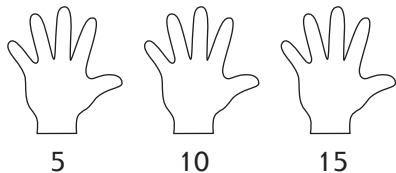
   b. 30

   c. 35p

2.   **a.** 5 × 4 = 20

     Count the number of rows. There are 4 rows. Count the number of columns. There are 5 columns. Complete the missing numbers in the number statement. 5 × 4 = 20.

   b. 5 × 1 = 5

   c. 5 × 5 = 25

   d. 5 × 9 = 45

Extend

3.   **a.** 50   **b.** 60   **c.** 45   **d.** 0

     e. 5   **f.** 6   **g.** 8   **h.** 3

     i. 5   **j.** 5   **k.** 55   **l.** 12

4.   5 × 9 = 45   9 × 5 = 45   45 ÷ 9 = 5

     45 ÷ 5 = 9

     Multiply the two numbers on either side of the base of the triangle together to give the product. For example: 5 × 9 = 45 and 9 × 5 = 45. Divide the product by each number on either side of the base of the triangle to make two different division calculations. For example: 45 ÷ 9 = 5 and 45 ÷ 5 = 9.

Apply

5.   **a.** 25 players

   b. 3 boxes

     Divide the total number of cupcakes by the number packed into each box. 15 ÷ 5 = 3.

Ten times table (pages 26–27)

Practise

1.   **a.** £60   **b.** 50

2.   **a.** 10 × 5 = 50

     Count the number of rows. There are 5 rows. Count the number of columns. There are 10 columns. Complete the missing numbers in the number statement. 10 × 5 = 50.

   b. 10 × 7 = 70

   c. 10 × 2 = 20

   d. 10 × 1 = 10

Extend

3.

×	5	6	7	8	9	10
10	50	60	70	80	90	100

Multiply the numbers in the top row of the grid by the number in the left-hand column of the grid to get the missing numbers in the bottom row of the grid. For example: 7 × 10 = 70. Divide the numbers in the bottom row of the grid by the number in the left-hand column of the grid to get the missing numbers in the top row of the grid. For example: 80 ÷ 10 = 8.

4.
a. 20		**b.** 120		**c.** 10		**d.** 0	
e. 4		**f.** 9		**g.** 7		**h.** 11	
i. 10		**j.** 8		**k.** 100		**l.** 10	

Apply

5. **a.** 70 metres

Read word problems carefully and identify the numbers and operations needed. 'Times' means multiply. Multiply the length of the hall by the number of times the children run it. 10 × 7 = 70.

b. 30 balls

c. 7 sheets

Multiplication and division word problems (pages 28–29)

Practise

1. **a.** 7

Read word problems carefully and identify the numbers and operations needed. 'Shared equally' means divide. Divide the number of seeds by the number of pots. 14 ÷ 2 = 7.

b. 4   **c.** £40   **d.** 12

Extend

2. **a.** 24cm   **b.** 20   **c.** 35

Apply

3. **a.** 20

This problem has several steps. First, calculate the number of cards Ellis has. 3 × 10 = 30. Then, calculate the number of cards Ben has. 2 × 5 = 10. Finally, calculate the difference between the numbers of cards Ben and Ellis have. 30 − 10 = 20.

b. 5

Recognising fractions (pages 30–31)

Practise
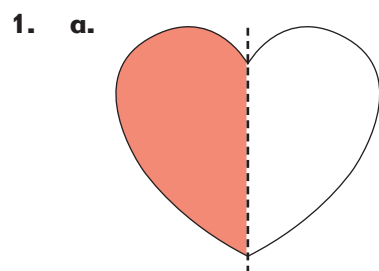
1. **a.**

The dashed mirror line marks half the shape. Either side of the shape can be shaded.

b.
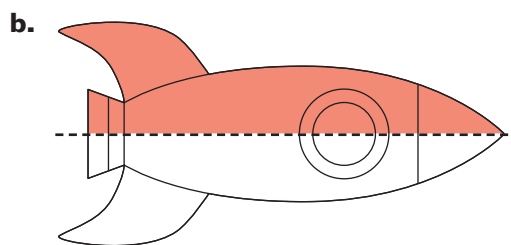
The dashed mirror line marks half the shape. Either side of the shape can be shaded. All parts of the image should be shaded, including details such as the windows of the rocket.

c.
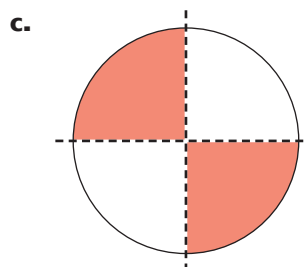
This shape has two dashed mirror lines marked, both of which mark half of the shape. Any two quarters of the shape can be shaded. The quarters do not need to be next to each other. Half can also be shaded without the use of the dashed mirror lines (for example: using the diagonals), but all halves must pass through the centre point.

2. **a.** $\frac{1}{2}$ (or $\frac{2}{4}$)

Count the number of parts. There are 2 equal parts (each part is made up of 2 stars). One of the 2 equal parts has been circled. This represent a half ($\frac{1}{2}$).

b. $\frac{1}{5}$

Extend

3. **a.** $\frac{2}{6}$ (or $\frac{1}{3}$)

Count the number of parts the whole has been divided into. The whole has been divided into 6 equal parts, so the denominator (bottom number) will be 6. Now count the number of parts that have been shaded. Two out of the six parts have been shaded, so the numerator (top number) will be 2. Two-sixths have been shaded. Write the fraction with the numerator stacked above the denominator.

b. $\frac{3}{8}$ **c.** $\frac{6}{20}$ (or $\frac{3}{10}$)   **d.** $\frac{1}{6}$

4. **a.** Ⓐ

Remember that half is one of two equal parts. The first bar has been divided into two equal parts, so it represents halves. The second bar

is divided into two parts, but the parts are not equal. It does **not** represent halves. The third bar is divided into two parts, but the parts are not equal. It does **not** represent halves.

b. Ⓒ

Remember that a quarter is one of four equal parts. The first bar is divided into four parts, but the parts are not equal. It does **not** represent quarters. The second bar is divided into four parts, but the parts are not equal. It does **not** represent quarters. The third bar has been divided into four equal parts, so it represents quarters.

Apply

5. 5
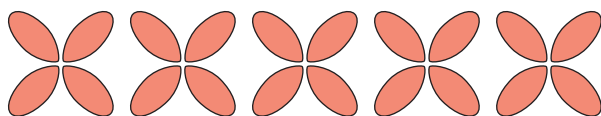
Circle the petals so that they are in groups of four. There will be no petals left over. Count the number of whole groups of 4. There are 5 whole groups.

Finding fractions of a number (pages 32–33)

Practise

1. a.
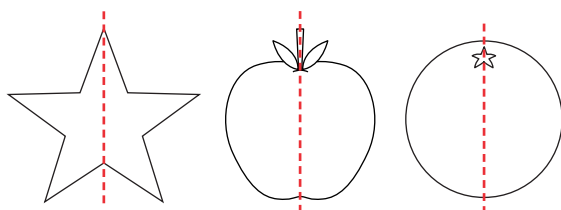
Accept any other correct split into two equal parts. Remember that a half is one of two equal parts.

b.
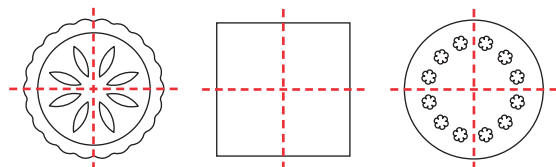
Accept any other correct split into four equal parts. Remember that a quarter is one of four equal parts.

2. a.
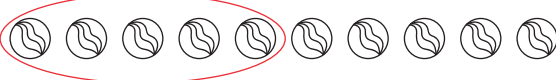
Find a half of 10 marbles. This is the same as dividing 10 by 2.

b.
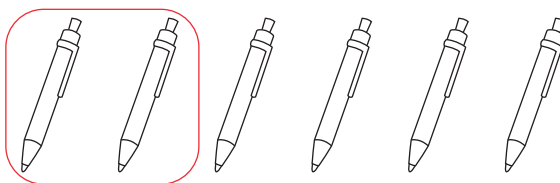
Find a third of 6 pens. This is the same as dividing 6 by 3.

3. a. 4

The bar shows the whole. This bar is divided into 4 equal parts. 1 part is equal to 4.

b. 12

The bar shows the whole. This bar is divided into 4 equal parts. 1 part is equal to 4. Three parts are shaded. 4 + 4 + 4 = 12.
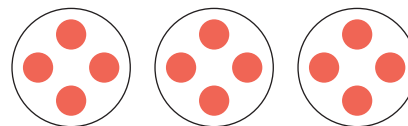
Extend

4. a. 6
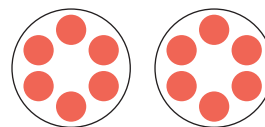
b. 3
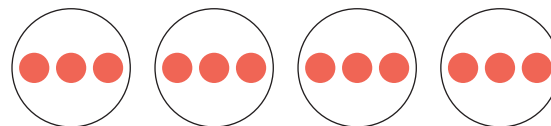
c. 4

5. a. 2

Divide the whole (20) by 10 to find one part, which equals 2.

b. 3   **c.** 2   **d.** 20   **e.** 7   **f.** 5

Apply

6. a. 5 bags

Read word problems carefully and identify the numbers and operations needed. Calculate $\frac{1}{4}$ of 20. Divide the whole (20) by 4 to find one part, which equals 5.

b. 20 children

Divide 30 children by 3 to find the number of children who wear glasses. This is $\frac{1}{3}$. Subtract the number of children who wear glasses from the whole to find the number of children who do not wear glasses. 30 ÷ 3 = 10. 30 − 10 = 20.

Equivalent fractions (pages 34–35)

Practise

1. (D)

Remember that one half is the same as two quarters. Bar A has been divided into three equal parts, with one part shaded. This is a third. Bar B has been divided into four equal parts, with one part shaded. This is a quarter. Bar C has been divided into three equal parts, with two parts shaded. This is two thirds. Bar D has been divided into four equal parts, with two parts shaded. This is two quarters, which is the same as a half.

2. **a.** 6

Count the number of cars. There are 12 cars. Calculate half of 12 by dividing by 2. $12 \div 2 = 6$.

   b. 6

Use the knowledge that $\frac{1}{2}$ and $\frac{2}{4}$ are equal. Alternatively, calculate one quarter of 12 by halving and then halving again. $\frac{1}{4}$ of 12 is 3. Multiply 3 by 2 to find $\frac{2}{4}$. $3 \times 2 = 6$.

   c. 6   the same or equal or equivalent fractions

Extend

3. **a.** 40   **b.** 20   **c.** 20

4.
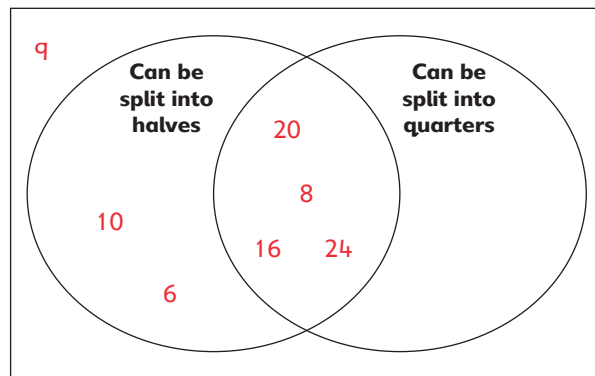
Place the numbers in the correct part of the Venn diagram. Numbers that cannot be split into either halves or quarters go outside the two ovals but inside the rectangle. Note that there are no numbers that can be split into quarters but not halves. This is because all numbers that can be halved twice can also be halved once.

Apply

5. (Neither)

They both get the same/6 cards. or $\frac{1}{2}$ and $\frac{2}{4}$ are the same.
Accept any explanation that shows $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent.

Length (pages 36–37)

Practise

1. **a.** 11cm

Check that the pencil starts at 0cm. Draw a line at the end of the pencil. Read the scale on the ruler. The pencil is 11cm long.

   b. 9cm
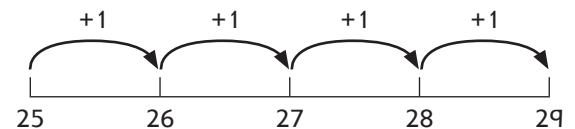
2. **a.** m   **b.** cm   **c.** mm

3. **a.** 5cm   **b.** 8cm   **c.** $7\frac{1}{2}$cm
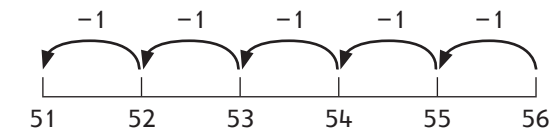
Extend

4. **a.** 29cm

It may be helpful to use a number line. Begin at 25 and count on 4 in steps of 1. $25 + 4 = 29$.

   b. 51cm   **c.** 85cm   **d.** 74cm

5. **a.** 51cm

Use the method used in **Question 4**, but count back on the number line to subtract instead of counting on to add. $56 - 5 = 51$.

   b. 76cm

   c. 32cm

   d. 37cm

Apply

6. 3cm

Find the difference between the lengths of the two ribbons. One ribbon is 12cm and the other ribbon is 9cm. Subtract the length of the shorter ribbon from the length of the longer ribbon. $12\text{cm} - 9\text{cm} = 3\text{cm}$.

7. Because she started measuring the pencil at 2cm not 0cm. She needs to subtract 2cm from 12cm. The pencil is really 10cm.
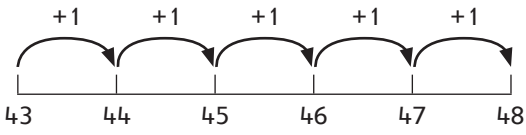Accept any answer that explains Orla's mistake with the positioning of the ruler and that also provides either the correct measurement of the pencil or explains a correct method for how to find the correct answer.
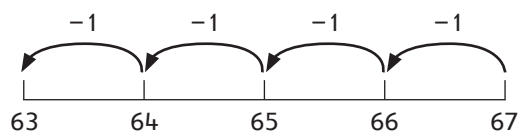
Mass (pages 38–39)

Practise

1. **a.** The lightest item is the orange. The heaviest item is the pineapple.
Remember that a balance scale shows the mass of two items compared to one another. The pan that is lower is the heavier item.

    b. 5
The mass of 2 oranges is the same as the mass of 3 bananas. The mass of 3 bananas is the same as the mass of 5 apples. So, the mass of 2 oranges is the same as the mass of 5 apples.

2. **a.** 90g
Read the scale. The arrow is at 90g.

    b. 150g
Read the scale. The arrow is exactly half-way between 100g and 200g, so it is at 150g.

Extend

3. **a.** 48g
It may be helpful to use a number line. Begin at 43 and count on 5 in steps of 1. 43 + 5 = 48.

    b. 54g

    c. 66kg

    d. 82kg

4. **a.** 63g
Use the method used in **Question 3**, but count back on the number line to subtract instead of counting on to add. 67 − 4 = 63.

    b. 55g

    c. 62kg

    d. 58kg

5. D, B, A, C, E
Look at the place value of each digit. Put the numbers into a place value chart to help.

T	O
2	1
2	4
2	0
2	9
1	9

The heaviest has the greatest mass, so choose the bag with the greatest number of tens. A, B, C and D all have 2 tens, so look at the value of the ones. A has 2 tens and 1 one, B has 2 tens and 4 ones, C has 2 tens and 0 ones, D has 2 tens and 9 ones. D has the greatest number of ones, so D is the heaviest. B is next, then A and then C. E has 1 ten, so it is the lightest. The correct order of all five lengths is: D, B, A, C, E.

Apply

6. **a.** 6kg
The first scale shows 24kg and the second scale shows 18kg. Subtract the second mass from the first mass. 24kg − 18kg = 6kg.

    b. 51kg
Add together the masses of the book box, shoe box and toy box. 28kg + 10kg + 13kg = 51kg.

Capacity (pages 40–41)

Practise

1. D, A, B, C
Remember that 'full' means when the glass holds the most liquid and 'empty' means when the glass holds no liquid. The glass that is full is D, so it comes first. The glass that is empty is C, so it comes last. Now compare glasses A and B. A contains more liquid than B. The order from full to empty is D, A, B, C.

2. **a.** 250ml
Read the scale at the water level. The water level is at 250ml.

    b. 6l

    c. 22ml

    d. 65ml

3. **a.** ml

    b. l

    c. l

    d. ml

Extend

4. a.

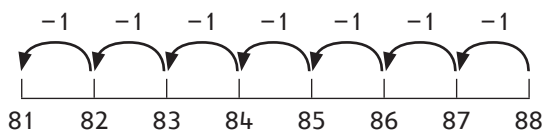**b.**
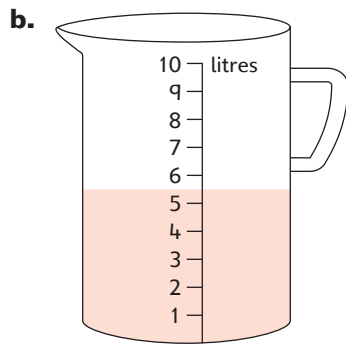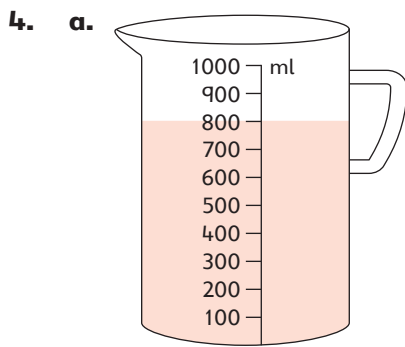
5. a. 76ml

It may be helpful to use a number line.
Begin at 71 and count on 5 in steps of 1.
71 + 5 = 76.
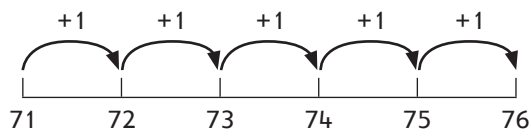
b. 54ml   **c.** 59ml   **d.** 102ml

6. a. 81ml

Use the method used in **Question 5**, but count back on the number line to subtract instead of counting on to add. 88 − 7 = 81.

b. 87ml   **c.** 33l   **d.** 49l

Apply

7. a. 45ml

Read the scale. There are 55ml of water in the jug. Subtract the amount of water in the jug from 100ml to find out how much more water needs to be added. 100ml − 55ml = 45ml.

b. 80ml

There are 55ml of water in the jug. Add 25ml to the jug. 55ml + 25ml = 80ml.

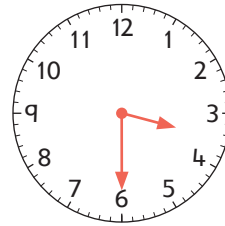**c.** 15ml

There are 55ml of water in the jug. Subtract 40ml from the jug. 55ml − 40ml = 15ml.
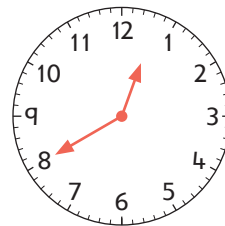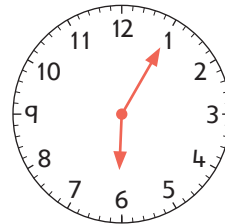
Time (pages 42–43)

Practise

1. a.

Draw two hands on the clock. The hour hand is the shorter hand. It points half-way between 3 and 4. The minute hand is the longer hand. It points to 6 when the time is half past.

b.

Draw two hands on the clock. The hour hand is the shorter hand. It points near to 1. The minute hand is the longer hand. It points to 8 when the time is 20 minutes to the next hour.

c.

Draw two hands on the clock. The hour hand is the shorter hand. It points slightly after 6. The minute hand is the longer hand. It points to 1 when the time is 5 minutes past the hour.

2. a. quarter past 5 (five)

Count around the clock face in fives to find the minutes. The longer (minute) hand points at 3, so this is 15 minutes past the hour, which is usually said as quarter past. The shorter (hour) hand points between 5 and 6, so the hour is 5.

b. half past 6 (six)

c. 10 (ten) minutes to 8 (eight)

d. 25 (twenty-five) minutes past 6 (six)

Extend

3. a. 25 minutes

Identify the whole. The whole is 85 minutes and is equal to the parts. Identify the known part.

The known part is 60 minutes. Subtract the known part from the whole. 85 − 60 = 25. The missing part is equal to 25 minutes.

b. 35 minutes

**c.** 15 minutes   60 minutes (1 hour)

d. 105 minutes
The whole is equal to the parts. Identify the known parts. The known parts are 60 minutes and 45 minutes. Add the known parts to find the whole. 60 + 45 = 105. The whole is equal to 105 minutes.

4. French, drama, football, art
Change all the times into minutes. Compare the times. Complete the conversion. Art: 75 minutes. Drama: 55 minutes. French: 25 minutes. Football: 1 hour = 60 minutes. Compare the times and put them in order from shortest to longest. 25 minutes for French is the shortest time because it is made up of 2 tens and 5 ones. Then drama, football and art.

Apply

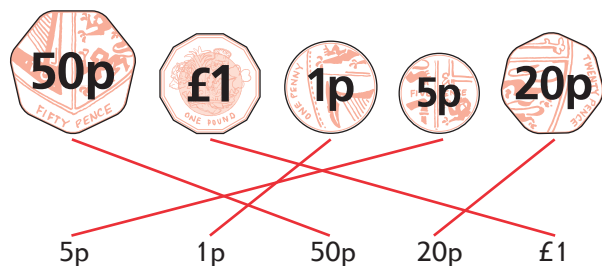**5. a.**

Start   End
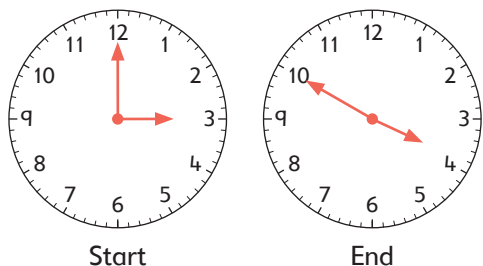
Draw the shorter hand (the hour hand) pointing to 3 and the longer hand (the minute hand) pointing to 12 to show the start time. The end time is 10 minutes to 4. Draw the shorter hand (the hour hand) pointing to just before 4 and the longer (the minute hand) pointing to 10.
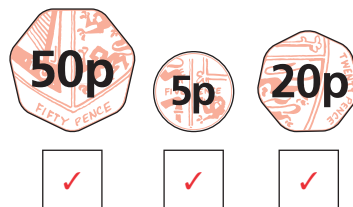
b. 10 (ten) minutes to 4 (four)

Money (pages 44–45)
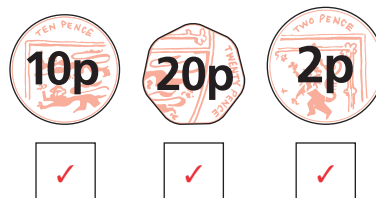
Practise

1.

2. a.

Find the coins that total 75p. Look for the coin with the largest value under 75p. This is 50p. 75p − 50p = 25p. Look for the coin with the largest value under 25p. This is 20p. 25p − 20p = 5p. Check that there is a coin with the value of 5p. Tick these three coins.

b.

Find the coins that total 32p. Look for the coin with the largest value under 32p. This is 20p. 32p − 20p = 12p. Look for the coin with the largest value under 12p. This is 10p. 12p − 10p = 2p. Check that there is a coin with the value of 2p. Tick these three coins.

Extend

3. a. 10p 10p 10p or 20p 5p 5p
Identify the whole (30p). The whole is equal to the parts. 30p (the whole) is equal to three parts. Choose 3 coins that add up to 30p. Coins may be used more than once. 30p = 10p + 10p + 10p or 30p = 20p + 5p + 5p.

b. 20p 10p
Choose 2 coins that add up to 30p. 30p = 20p + 10p.

c. 10p 10p 5p 5p
Choose 4 coins that add up to 30p. Coins may be used more than once. 30p = 10p + 10p + 5p + 5p.

4. <
Add the values of the coins on the left-hand side of the answer box. 50p + 5p + 2p + 2p = 59p. Add the values of the coins on the right-hand side of the answer box. 50p + 20p = 70p. Use the <, > or = symbol to compare the amounts. 59p < 70p.

Apply

5. a. 40p
Read word problems carefully and identify the numbers and operations needed. Divide the cost of the doughnuts by 2 to find the cost of 1 doughnut. 80p ÷ 2 = 40p.

b. 10p
Subtract the cost of the fruit tart from £1 to find the change. Remember £1 = 100p. 100p − 90p = 10p.

c. 15p
Subtract the price of 1 cupcake from the price of 2 doughnuts. 80p − 65p = 15p.

d. 1 cupcake, 1 fruit tart and 1 cookie or 1 fruit tart and 2 doughnuts or 6 cookies and 2 doughnuts or 1 cupcake and 7 cookies
Use a trial and improvement method to find a combination of items that equal £1 and 70p in price. Begin with a cupcake: 65p. Subtract 65p from £1 and 70p = £1 and 5p. Now choose items that can add up to £1 and 5p. A fruit tart costs 90p. A cookie costs 15p. 90p + 15p = 105p. Items that can be bought for £1 and 70p = 1 cupcake, 1 fruit tart, 1 cookie. Other possible options include: 1 fruit tart (90p) and 2 doughnuts (80p) = 90p + 80p = £1 and 70p. 6 cookies (6 × 15p = 90p) and 2 doughnuts (80p) = 90p + 80p = £1 and 70p. 1 cupcake (65p) and 7 cookies (7 × 15p = 105p) = £1 and 70p.

Temperature (pages 46–47)

Practise

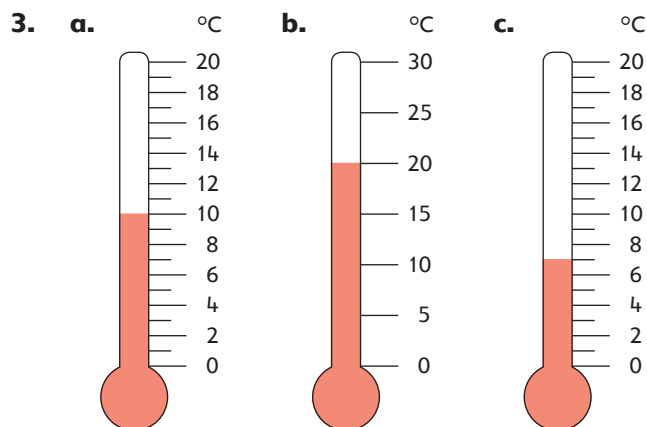**1.** **a.** 97°C   **b.** 32°C   **c.** 5°C   **d.** 160°C

2. **a.** 8°C
Read the scale. The temperature line is level with 8°C.

b. 17°C
Read the scale. The temperature line is half-way between 16°C and 18°C. The temperature is 17°C.

Extend

3. **a.** **b.** **c.**

4. **a.** 19°C
Remember that 'increase' means add. Add 5°C to the morning temperature to find the temperature in the afternoon. 14°C + 5°C = 19°C.

b. 13°C

c. 34°C

d. 16°C
Subtract 5°C to find the morning temperature when the afternoon temperature is given. 21°C − 5°C = 16°C.

Apply

5. 25°C
Read the scale. The temperature when they start cooking is 19°C. Remember that 'rises' means add. Add 6°C to find the temperature when they have finished cooking. 19°C + 6°C = 25°C.

2D shapes (pages 48–49)

Practise

1. **a.** circle
b. rectangle
c. triangle
d. pentagon
e. parallelogram
f. octagon

2. **a.** 6   6
b. 4   4
c. 4   4
Read the labels on the table. Remember that a 'vertex' (or 'vertices') is the corner of a shape and the 'side' is the line that joins two corners of a shape.

Extend

3. 4 sides or fewer: A   B   D   F
5 sides or more: C   E
Read the labels on the sorting diagram. Count the number of sides of each shape. Then place it in the correct part of the sorting diagram. Shape A has 4 sides, so it needs to be placed on the left-hand side of the sorting diagram with the label '4 sides or fewer'. Shape E has 6 sides, so it needs to be placed on the right-hand side of the sorting diagram with the label '5 sides or more'.

4.

☑   ☑
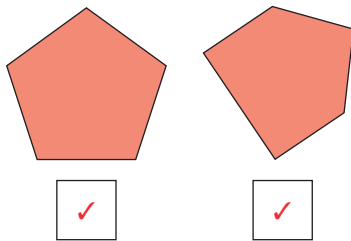
Remember that a pentagon is a 5-sided shape with 5 vertices. Count the sides or vertices of each shape. Tick all the shapes that have 5 sides or vertices.

Apply

5.

Shape	Number
circle	2
triangle	3
square	2
rectangle	3

Identify all the different 2D shapes that have been used. Count the number of each type of 2D shape used in the picture. Accept both answers that count squares and rectangles as separate shapes and answers that include squares as a type of rectangle. Do not accept answers that include rectangles under the shape name 'square'.

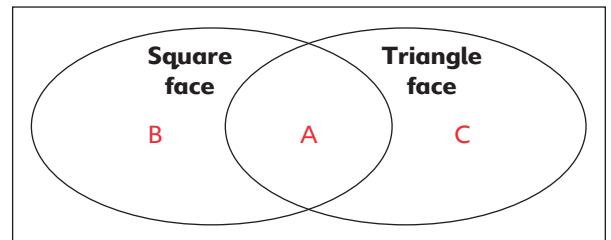## 3D shapes (pages 50–51)

Practise

1.
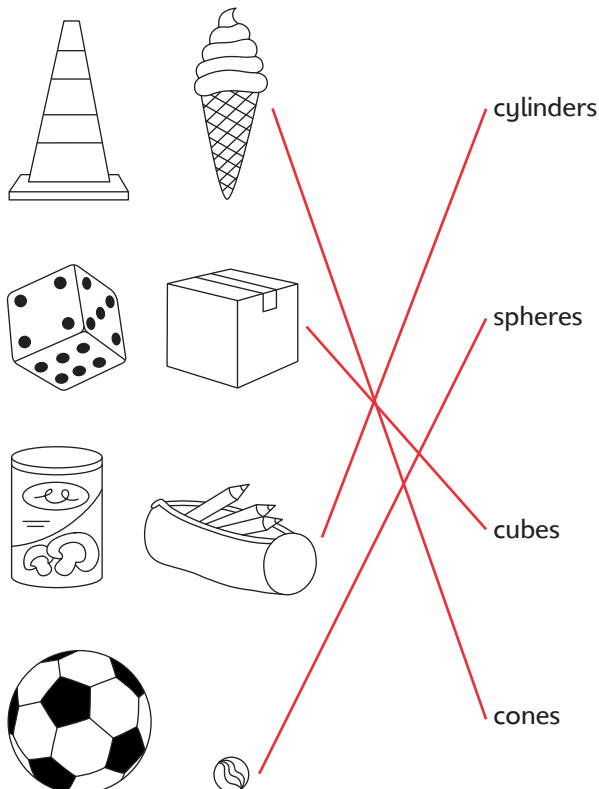
Extend

2. a. 6   12   8

b. 5   8   5

c. 6   12   8

Read the labels in the table. Remember that faces are the flat surfaces on a 3D shape, edges are where two faces of the shape meet and vertices are the corners of a 3D shape.

3.

Look at the labels on the Venn diagram. Decide where the correct place to put each letter is by thinking about each shape's properties.

Apply

4. a. 4

Think about the properties of a triangle-based pyramid. The marshmallows represent the vertices of the shape. There are 4 vertices in a triangle-based pyramid.
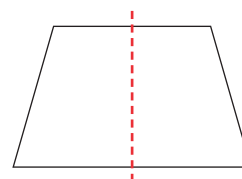
b. 6

Think about the properties of a triangle-based pyramid. The spaghetti represents the edges of the shape. There are 6 edges in a triangle-based pyramid.
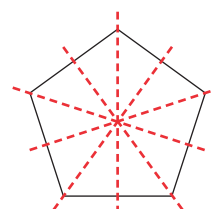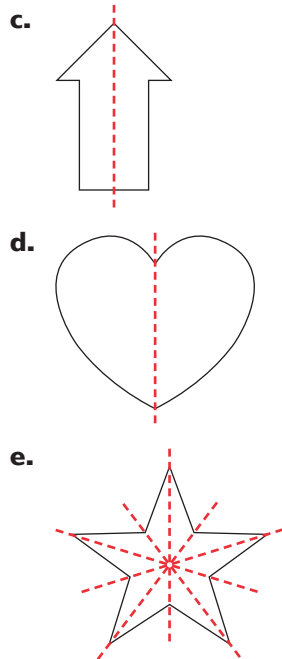
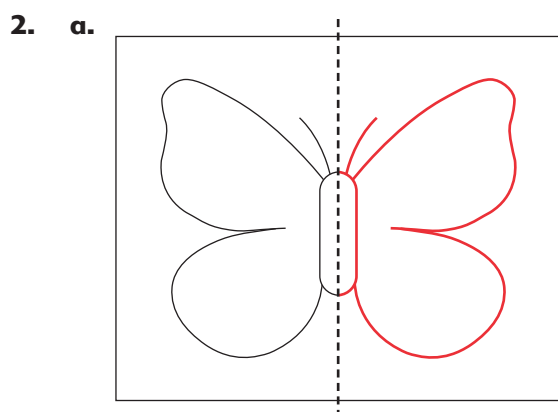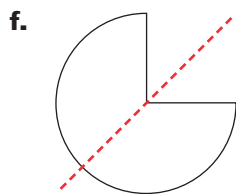## Lines of symmetry (pages 52–53)

Practise

1. a.

b.
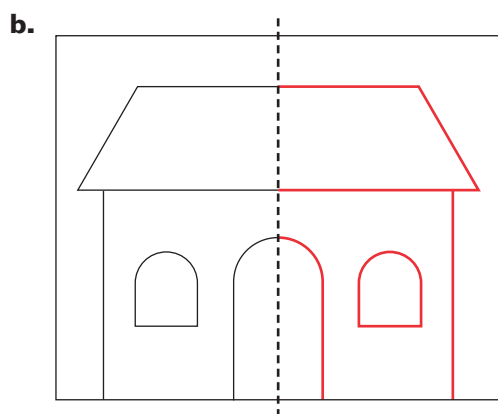

Answers should only have one line of symmetry drawn on the shape. Accept any line from a vertex through the centre of the opposite side.

c.

d.

e.

Answers should only have one line of symmetry drawn on the shape. Accept any line from a vertex through the opposite vertex.

f.

2. a.

Accept answers that have attempted to reflect all components in the mirror line.

b.

Accept answers that have attempted to reflect all components in the mirror line.

Extend

3.

4. a.
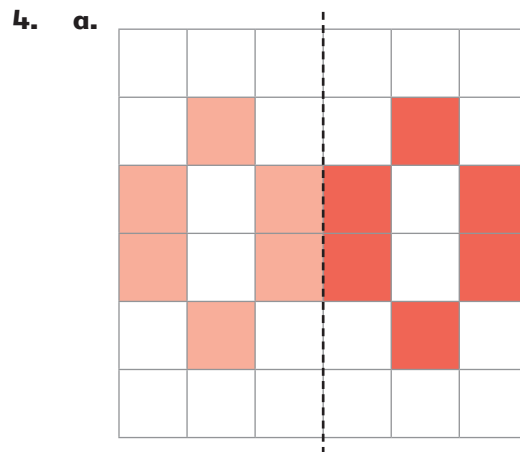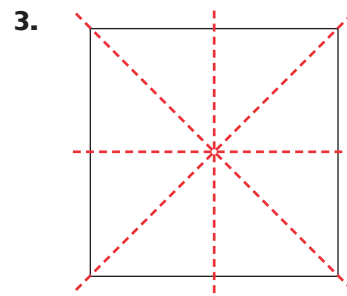
Count the grid squares from the mirror line to work out which squares should be shaded. For example: in the second row from the top of the grid, the first square from the mirror line is blank, then the next one is shaded, then the third one is blank. Copy this pattern on the other side of the mirror line. Work through each row using this method.

b.
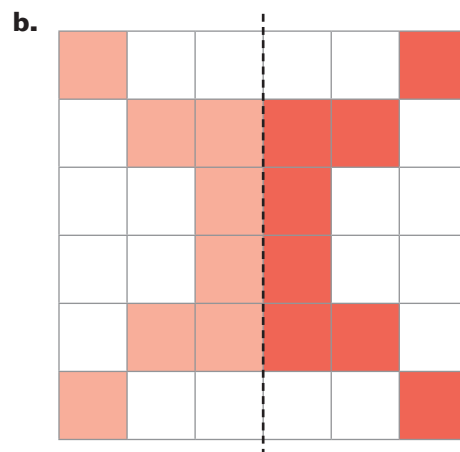
Apply

5.

	A shape with symmetry	A shape with no symmetry
Has 4 or more sides	C	A
Has fewer than 4 sides	B	D

Read the labels on the sorting diagram. Count the number of sides of each shape. Decide if the shape has symmetry or no symmetry. Then place the shape in the correct part of the sorting diagram. Shape A has 6 sides and no symmetry, so it goes in the top-right space.

Patterns (pages 54–55)

Practise

1. **a.**

Look at the pattern. It is made up of stars and triangles. Begin with the first shape. Work along the pattern to find the part of the pattern that is repeated. This is one star, one triangle, one star.
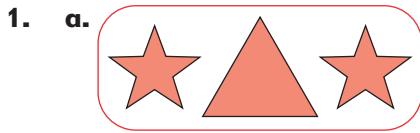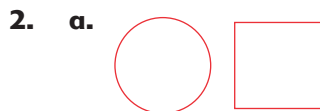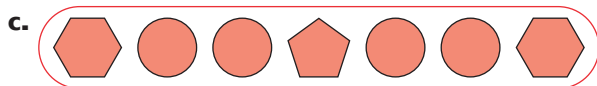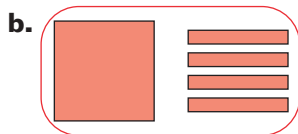
b.

c.

2. **a.**

Work out the pattern. The pattern is one pentagon, one circle, one square. Find the missing shapes. There is a pentagon before the missing shapes, so the next two shapes are the circle and the square.

b.   **c.**

Extend

3. **a.**
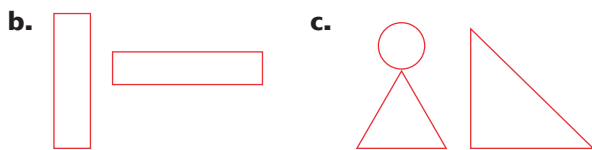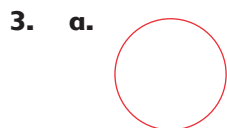
Work out the pattern. The pattern is one circle, one triangle, one square. Number each shape in the set in order. At the end of the set, go back to the beginning and continue numbering. Continue the sequence to shape number 10. 1 (circle), 2 (triangle), 3 (square), 4 (circle), 5 (triangle), 6 (square), 7 (circle), 8 (triangle), 9 (square), 10 (circle).

b.

c.

4. **a.**

Use the method used in **Question 2a**. The pattern is one heart, one pentagon, one circle.

b.

c.
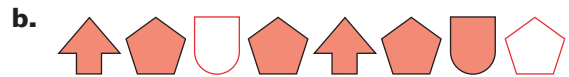
Apply

5. (D)

The pattern is two circles, one triangle, one square. There is one circle before the missing shapes and one square after the missing shapes. Two shapes must be missing: one circle and one triangle.

Position and turns (pages 56–57)

Practise

1.
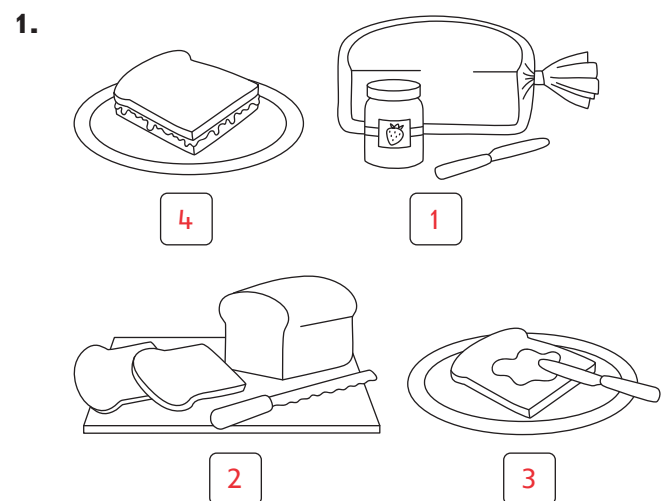
Think about what each image is showing and the correct order of the steps in making a sandwich. Write the numbers 1 to 4 by each picture.

2. **a.** The pentagon is above the rectangle.

b. The triangle is under the parallelogram.

c. The circle is next to the hexagon.

Extend

3.   **a.** A quarter turn clockwise ✓

    b. A half turn ✓

4.   **a.** False ✓

    Read the labels in the columns. Remember 'true' means correct and 'false' means not correct. Read each statement in turn and decide if it is true or false. Count from the left and see which position the van is in. It is the first vehicle from the left, so it is in the first position. This statement is false.

    b. True ✓

    c. True ✓

Apply

5.   **a.** forwards, turn right, forwards, forwards
Accept any other possible route and any similar notation (for example: forwards 2).

    b. turn left, forwards, turn left, forwards, forwards, turn left, forwards, forwards
Accept any other possible route and any similar notation (for example: forwards 2).

Tally charts (pages 58–59)

Practise

1.   **a.**

Minibeast	Tally	Number
Worm	卌 l	6
Bee	卌 卌 l	11
Slug	卌 卌 lll	13
Spider	卌 l	6
Woodlouse	卌 卌 ll	12

Read the labels on the chart. Count the number of each minibeast. Draw a tally of the number of each minibeast. Write the number of each minibeast.

    b. 2
Subtract the number of bees from the number of slugs. 13 − 11 = 2.

    c. 48
Add all the minibeasts together. 6 + 11 + 13 + 6 + 12 = 48.

Extend

2.   **a.**

Sport	Tally	Number
Football	卌 卌 卌 ll	17
Tennis	卌 卌 ll	12
Swimming	卌 卌 卌 l	16
Netball	卌 lll	8
Hockey	llll	4

Read the labels on the chart. Complete the missing numbers.

    b. football

    c. 1
Subtract the number of children who chose swimming from the number of children who chose football. 17 − 16 = 1.

    d. 12
Divide the number of children who chose swimming by 4 to find $\frac{1}{4}$. Use a bar model to find $\frac{3}{4}$ of 16 (the number of girls who chose swimming). 16 ÷ 4 = 4.

4	4	4	4
boys	girls	girls	girls

$\frac{3}{4}$ of 16 = 4 + 4 + 4 = 12. 12 girls chose swimming.

Apply

3.   **a.**

Monday		
Meal	Tally	Number
Hot meal	卌 卌 卌 lll	18
Packed lunch	卌 卌 ll	12

Tuesday		
Meal	Tally	Number
Hot meal	卌 卌 卌 卌 l	21
Packed lunch	卌 卌 l	11

    b. 39
Add the number of hot meals on Monday and Tuesday. 18 + 21 = 39.

    c. 1
Subtract the number of children who had packed lunch on Tuesday from the number of children who had a packed lunch on Monday. 12 − 11 = 1.

d. 2

Add the number of children who had packed lunches and hot meals on Monday. 18 + 12 = 30. Add the number of children who had packed lunches and hot meals on Tuesday. 21 + 11 = 32. Subtract the total number on Monday from the total number on Tuesday to find out how many children were absent on Monday. 32 − 30 = 2.

Tables (pages 60–61)

Practise

1. **a.** Wednesday   **b.** 6

2. **a.** 89

Read the labels in the table. Find the information.

b. 25

Read the labels in the table. Calculate the difference between the number of children that went swimming and ice skating. 93 − 68 = 25.

c. 26

Find the number of children who went to basketball. Subtract the number who went from 100. 100 − 74 = 26.

d. 34

Divide 68 equally between two groups. 68 ÷ 2 = 34.

Extend

3.

	Saturday	Sunday
Adults	56	39
Children	12	27
Total	68	66

a. 66

Find the total number of visitors on Sunday by adding the number of adults and children. 39 + 27 = 66.

b. 12

Find the number of children who visited on Saturday by subtracting the number of adults from the total number of visitors. 68 − 56 = 12.

c. 134

Add the total number of visitors on Saturday and Sunday together. 68 + 66 = 134.

Apply

4. **a.** plants

b. iguana and giant tortoise

c. 4, 18, 55, 100 (accept iguana, python, crocodile, giant tortoise)

Find the column of ages. The youngest reptile will have the smallest number as its age. This is 4 because it has no tens or hundreds. The other ages are 18, 100 and 55. 18 and 55 are next because they have no hundreds. 18 is less than 55 because it has 1 ten and 55 has 5 tens. 100 is the largest number because it has 1 hundred. Write the ages in the correct order: 4, 18, 55, 100.

d. 13m

Find the length of the python (18m). Find the length of the crocodile (5m). Subtract the length of the crocodile from the length of the python. 18m − 5m = 13m.

Block charts (pages 62–63)

Practise

1. **a.**
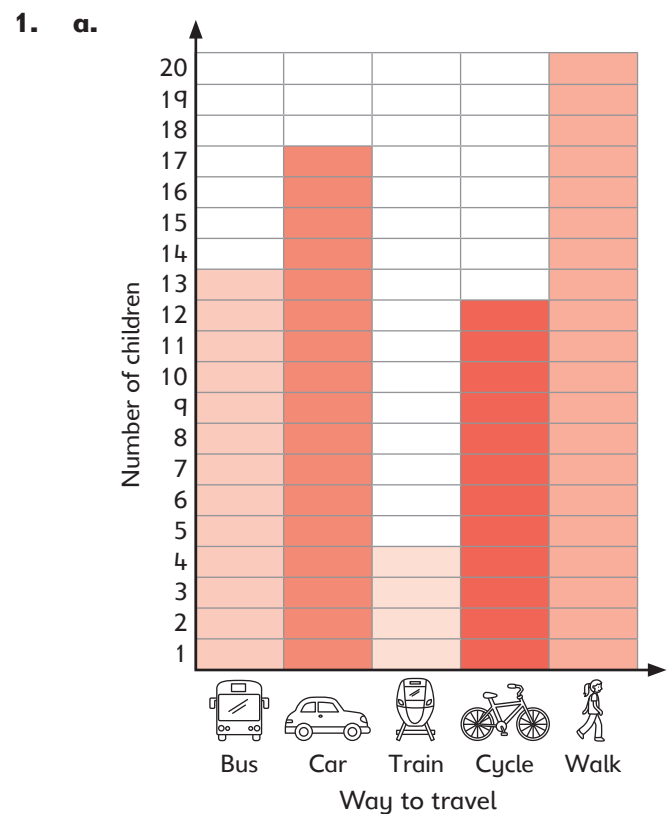
b. walk

c. train

d. 5

Read the chart to find out how many children travel to school by car (17). Read the chart to find out how many children cycle to school (12). Subtract the number of children who cycle from the number of children who travel by car. 17 − 12 = 5.

Extend

2. **a.** 2

   b. 13

   Read the chart to find out how many teas were sold (5). Read the chart to find out how many coffees were sold (8). Add the number of teas and coffees sold. 5 + 8 = 13.

   c. 4

   Read the chart to find out how many glasses of juice were sold (11). Read the chart to find out how many bottles of water were sold (7). Subtract the number of bottles of water from the number of glasses of juice. 11 − 7 = 4.

Apply

3. **a.** 1

   b. 3

   Count the number of pupils who scored above 15 marks in Class 2G (2). Count the number of pupils who scored above 15 marks in Class 2H (1). Add the number of pupils who scored above 15 marks in Class 2G and Class 2H. 2 + 1 = 3.

   c. Class 2G, pupil 3

Pictograms (pages 64–65)

Practise

1. **a.** 5

   Read the key on the pictogram. Each symbol = 1 smoothie.

   b. 12

   Count the number of apple and orange smoothies (8). Count the number of banana and apple smoothies (4). Add the smoothies together. 8 + 4 = 12.

   c. 3

   Count the number of apple and orange smoothies (8). Count the number of berry smoothies (5). 8 − 5 = 3.

   d. 22   **e.** 0

Extend

2. **a.** 55

   Read the key on the pictogram. Each symbol = 5 children. Count the number of children who cycle to school on Monday (25). Count the number of children who cycle to school on Tuesday (30). Add the numbers of children who cycle to school on Monday and Tuesday. 25 + 30 = 55.

   b. 15

   Count the number of children who cycle to school on Tuesday (30). Subtract the number of bikes on Tuesday from 45. 45 − 30 = 15.

Apply

3. **a.**

Season	Number of children born
Spring	16
Summer	12
Autumn	10
Winter	8

   Accept answers where the table has been completed with tally marks. Read the key on the pictogram. Each symbol = 8 birthdays. Work out how many children have birthdays in each season. For example: there are 2 boxes in spring. 8 + 8 = 16. Note that summer has half a box. Half of 8 is 4. Autumn has one quarter of a box. One quarter of 8 is 2.

   b. 4

   Subtract the number of birthdays in winter from the number of birthdays in summer. 12 − 8 = 4.

Final practice (pages 66–68)

1. **a.** 8

   The whole is equal to the parts. Identify the whole. The whole is 58. Identify the known part. The known part is 50. Subtract the known part from the whole to find the missing part. 58 − 50 = 8. The missing part is 8. Award 1 mark for the correct answer.

   b. 40

   The whole is equal to the parts. Identify the known parts. The known parts are 25 and 15. Add the known parts to find the whole. 25 + 15 = 40. The whole is 40. Award 1 mark for the correct answer.

2. **a.** 12p

   Count in twos. Award 1 mark for the correct answer.

   b. 15p

   Count in fives. Award 1 mark for the correct answer.

   c. 70p

   Count in tens. Award 1 mark for the correct answer.

3. **a.** 103

Begin with the ones. 2 + 1 = 3. Then add the tens. 4 + 6 = 10. 10 tens is the same as 0 tens and 1 hundred. Put the 0 in the tens column and the 1 in the hundreds column. Award 1 mark for the correct answer.

b. 121

Use the method used in **Question 3a**. Add the ones. 5 + 6 = 11. Write 1 in the ones column. Exchange 10 ones for 1 ten. Add the tens including the exchanged ten. 7 + 4 + 1 = 12. Write 2 in the tens column and 1 in the hundreds column. Award 1 mark for the correct answer.

c. 50

Subtract the ones. 5 − 5 = 0. Then subtract the tens. 8 − 3 = 5. Award 1 mark for the correct answer.

d. 19

Use the method used in **Question 3c**. Subtract the ones. 8 ones cannot be subtracted from 7 ones, so exchange 1 ten for 10 ones to make 17 ones. 17 − 8 = 9. Subtract the tens. 5 − 4 = 1. Award 1 mark for the correct answer.

4. 13cm

Read the scale to see where the pencil starts on the ruler (2cm). Read the scale to see where the pencil ends on the ruler (15cm). Calculate the length by subtracting 2cm from 15cm. 15cm − 2cm = 13cm. Award 1 mark for the correct answer.

5. **a.** 16

Think about place value. Sixteen is one ten and six ones. Write this number in digits. Award 1 mark for the correct answer.

b. forty

Think about place value. 40 is 4 tens and 0 ones. Write this number in words. Award 1 mark for the correct answer.

c. 11

Use the method used in **Question 5a**. Award 1 mark for the correct answer.

d. sixty-nine

Use the method used in **Question 5b**. Award 1 mark for the correct answer.

e. 80

Use the method used in **Question 5a**. Award 1 mark for the correct answer.

6. **a.** 75p

£1 = 100p. 100p − 25p = 75p. Award 1 mark for the correct answer.

b. 22p

£1 = 100p. 100p − 78p = 22p. Award 1 mark for the correct answer.

7. **a.** 124 points

Read word problems carefully and identify the numbers and operations needed. Add Joe's points and Rosie's points. Complete the calculation. 78 + 46 = 124. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

b. £18

Subtract the price of Alfie's trainers from the price of Arnav's trainers. £55 − £37 = £18. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

8. **a.** 67 − 33 = 34

Begin with the ones. 7 − ? = 4. Complete the inverse calculation. 7 − 4 = 3. The missing digit is 3. Check the rest of the calculation. 6 − 3 = 3. Award 1 mark for the correct missing digit.

b. 85 + 85 = 170

Begin with the ones. ? + 5 = 10. The missing digit in the first column is 5. Now add the tens. 8 + ? = 7. Remember to include the exchanged ten from 5 ones + 5 ones. 8 + 8 = 16, then add the exchanged ten = 17. The missing digits are 5 and 8. Award 1 mark for one correct missing digit. Award 2 marks for two correct missing digits. Maximum 2 marks.

c. 83 − 57 = 26

Begin with the ones. Use the inverse operation to find the missing digit. 6 + 7 = 13. The missing digit is 3 and there has been an exchange. Now look at the tens. There has been an exchange, so the 8 must be a 7. Use an inverse operation. 7 − 2 = 5. The missing digit is 5. Award 1 mark for one correct missing digit. Award 2 marks for two correct missing digits. Maximum 2 marks.

9. 9 cans

Read word problems carefully and identify the numbers and operations needed. Find $\frac{1}{4}$ of 12. Use a bar model to find the number of cans opened. Draw a bar model.

3	3	3	3
not opened	opened	opened	opened

Open cans = $\frac{3}{4}$. 3 + 3 + 3 = 9. 9 cans are opened. Award 1 mark for the correct answer.

10. a. 20 letters

Read the key on the pictogram. Each symbol = 10 letters. There are two letter symbols in the row for Monday. 2 × 10 = 20. Award 1 mark for the correct answer.

b. 70 letters

There are four letter symbols for Tuesday. 4 × 10 = 40. There are three letter symbols for Thursday. 3 × 10 = 30. 40 + 30 = 70. Award 1 mark for the correct answer.

11. The large triangle is on the left of the small triangle, so the correct missing card is C not B. Answers will vary. Accept any reasonable explanation that either identifies C as the correct answer or explains why B is not the correct answer. Award 1 mark for a correct explanation.