Mathemagic 3

Outline Schemes of Work

Number: Place value

1 Review numbers from 0 to 199. ………………………………………………………………………… ☐

2 Use manipulatives to review groups of tens and units.
Review *hundred*, *tens* and *units*. …………………………………………………………………… ☐

3 Review multiples of one hundred up to 999 and introduce number words to 999. …………………………… ☐

4 Use manipulatives to represent amounts beyond 199 to 999, paying attention to zero. ……………………… ☐

5 Represent amounts between 199 and 999 using the notation board paying attention to zero. ……………… ☐

6 Represent amounts up to 999 using the abacus or notation board paying attention to zero. ………………… ☐

7 Count in multiples of 100 to 999. ……………………………………………………………………… ☐

8 Position numbers up to 999 on number line. ……………………………………………………………… ☐

9 Discuss number which comes before or after a number.…………………………………………………… ☐

10 Sequence a series of numbers up to 999. ………………………………………………………………… ☐

11 Make a number from 3 digit cards.
In each number, say which digit has the greatest value. ………………………………………………… ☐

12 Review renaming of numbers as hundreds, tens and units,
e.g. 365 = 3 hundreds + 6 tens + 5 units. ……………………………………………………………… ☐

13 Using the number line, round numbers to the nearest 10. ………………………………………………… ☐

14 Using the number line, round numbers to the nearest 100. ………………………………………………… ☐

Number: Addition

1 Review addition facts to 20. ……………………………………………………………………………… ☐

2 Review addition without renaming to 99. ………………………………………………………………… ☐

3 Review addition with renaming to 99. …………………………………………………………………… ☐

4 Estimate sums by rounding to nearest ten. ……………………………………………………………… ☐

5 Estimate sums by rounding to nearest hundred. ………………………………………………………… ☐

6 Apply to word problems. ………………………………………………………………………………… ☐

Number: Subtraction

1 Review subtraction facts to 20. …………………………………………………………………………… ☐

2 Review subtraction without renaming to 99. ……………………………………………………………… ☐

3 Review subtraction with renaming to 99. ………………………………………………………………… ☐

4 Estimate differences by rounding to nearest ten. ………………………………………………………… ☐

5 Estimate differences by rounding to nearest hundred. …………………………………………………… ☐

6 Apply to word problems. ………………………………………………………………………………… ☐

Number: Multiplication

1 Review repeated addition in twos, using manipulatives, number line, hundred square. Record as addition sentences.… □

2 Count in twos on number line and on part of hundred square. … … … … … … … … … … … … … … … … □

3 Record addition sentences as multiplication sentences

$$\begin{array}{lll} \text{e.g.} & 2+2+2+2+2 & = \underline{} \text{ socks} \\ & \text{5 groups of 2} & = \underline{} \text{ socks} \\ & 5 \times 2 & = \underline{} \text{ socks} \end{array}$$

4 Present groups of two using objects. … □

5 Present groups of two using arrays. … □

6 Follow a similar approach with groups of 4, 8. … □

7 Follow a similar approach with groups of 3, 6, 9.… □

8 Follow a similar approach with groups of 5, 10. … □

9 Follow a similar approach with groups of 7. … □

10 Explore the commutative property of multiplication using manipulatives and the number line

i.e. $3 \times 4 = 4 \times 3$ *(3 groups of 4 is the same as 4 groups of 3).* … … … … … … … … … … … … … … □

11 Explore the distributive property of multiplication using manipulatives and the number line

i.e. $5 \times 6 = (3 \times 6) + (2 \times 6)$ *(5 groups of 6 is the same as 3 groups of 6 and 2 groups of 6).* … … … … … … … □

12 Explore the zero property of multiplication using manipulatives and the number line

i.e. $0 \times 4 = 0$ or $4 \times 0 = 0$. … □

13 Use properties of multiplication and strategies to develop ability to recall facts. … … … … … … … … … … … … … □

14 Use horizontal and vertical representation of multiplication. … … … … … … … … … … … … … … … … … … □

15 Explore multiplication of multiples of ten by 0-10 using manipulatives

e.g. $4 \times 20 = 8$ tens.… □

16 Use repeated addition to develop multiplication of 2-digit numbers by 0-10

e.g. $15 \times 4 = 15 + 15 + 15 + 15 = 60$. … □

17 Extend this approach to $15 \times 4 = (10 \times 4) + (5 \times 4) = 60$

$$\begin{array}{r} \mathbf{15} \\ \times\, \mathbf{4} \\ \hline \mathbf{20} \quad (4 \times 5) \\ \mathbf{40} \quad (4 \times 10) \\ \hline \mathbf{60} \end{array}$$

18 Allow pupils to see renaming by using this shorter approach

$$\begin{array}{r} \mathbf{15} \\ \times\, \mathbf{4} \\ \hline \mathbf{4}\ \ \mathbf{20} \end{array}$$

or $\qquad \mathbf{6}\ \ \mathbf{0}$ (see page 149)

19 Finally, use the conventional approach – the short way

$$\begin{array}{r} \mathbf{15} \\ \times\, \mathbf{4} \\ \hline \mathbf{6}\ \ \mathbf{0} \end{array}$$

20 Estimate amount by first rounding the two-digit number to the nearest ten.… … … … … … … … … … … … … … □

21 Apply to problems. … □

Number: Division

1 Develop concept of division as sharing a set of objects equally between 2 people. … … … … … … … … … □

2 Extend to sharing a set of objects between 4 people. … … … … … … … … … … … … … … … … … … … □

3 Use repeated subtraction in twos or fours with similar examples to develop the concept of division.
   Encourage child to 'undo' operation by using repeated addition. … … … … … … … … … … … … … … … … □

4 Divide sets into groups of 2 using manipulatives. Use number sentence $6 \div 2 = 3$ … … … … … … … … … □

5 Divide sets into groups of 4 using manipulatives. Use number sentence $12 \div 4 = 3$ … … … … … … … … □

6 Develop recall of number facts by linking with multiplication. … … … … … … … … … … … … … … … … □

7 When appropriate, make link with fractions. … □

8 Use a similar approach to introduce division by 8. … □

9 Having dealt with multiplication of 3, 6, 9, use a similar approach
   (Steps 1-7) to introduce division by 3, 6, 9. … □

10 Having dealt with multiplication of 5, 10, use a similar approach
   (Steps 1-7) to introduce division by 5, 10. … □

11 Having dealt with multiplication of 7, use a similar approach
   (Steps 1-7) to introduce division by 7. … □

12 Introduce other ways of recording division, e.g. 7/21; $\dfrac{21}{7}$ … … … … … … … … … … … … … … … … … … □

13 Explore remainders using repeated subtraction with manipulatives
   e.g. 13 – 4 – 4 – 4 = 1, 1 left over. …

14 Divide 13 into groups of 4 using manipulatives. Record as … (see top of page 121) … … … … … … … … … □

15 Divide two-digit numbers by a one-digit number without remainders.

   48 cubes ÷ 3 children =

   (4 tens and 8 units) ÷ 3 =

   (4 tens) ÷ 3 = 1 ten each with 1 ten extra left

   1 ten and 8 units = 18 units altogether

   18 units ÷ 3 = 6 units each

   Each child gets 1 ten and 6 units i.e. 16 cubes

   Record using short way.
   (See page 121 for short way.) … □

16 Use a similar approach to dealing with remainders.

   47 cubes ÷ 3 children =

   (4 tens and 7 units) ÷ 3 =

   (4 tens) ÷ 3 = 1 ten each with 1 extra ten left

   1 ten and 7 units = 17 units altogether

   17 units ÷ 3 = 5 units each and 2 units left over

   Each child gets 1 ten and 5 units i.e. 15 cubes each and there are 2 left over.

   Record using short way.
   (See page 122 for short way.) … □

17 Estimate amount by first rounding the two-digit number to the nearest ten. … … … … … … … … … … □

18 Apply to problems. … □

Number: Fractions

1 Review work on halves and quarters from previous class. … … … … … … … … … … … … … … … □

2 Extend to finding the whole amount when given the fraction of e.g. _ of a number is 6,
   what is the whole amount? … □

3 Introduce eighths and explore the relationship with half and quarter using paper folding. … … … □

4 Explore shapes divided into 8 equal parts. … □

5 Recognise shapes divided in eighths. Discuss the necessary attributes
   i.e. (a) shape must be divided in 8 parts, (b) the parts must be equal to each other. … … … … … □

6 Divide shapes in eighths. … □

7 Colour one-eighth of various shapes. … □

8 Show one-eighth of different shapes. … □

9 Show eighths on a fraction wall. … □

10 Find one-eighth of various amounts using manipulatives e.g. $\frac{1}{8}$ of 16 =   … … … … … … … … … … … □

11 Extend to finding the whole amount when given the fraction
    e.g. $\frac{1}{8}$ of a number is 3, what is the whole amount? … … … … … … … … … … … … … … … □

12 Introduce tenths following steps 3-11. … □

13 Develop relationship between fractions and division. … … … … … … … … … … … … … … … □

14 Position fractions on the number line. … □

15 Order and compare fractions using the fraction wall and number line. … … … … … … … … … … □

16 Apply to problems. … □

Number: Decimals

1 Divide unit strip into ten equal parts identifying each as $\frac{1}{10}$. … … … … … … … … … … … … … □

2 Divide the same unit strip again into ten equal parts, renaming each as 0·1… … … … … … … … … □

3 Express fractions as decimal fractions: $\frac{1}{10}$ = 0·1 … … … … … … … … … … … … … … … … □

4 Express decimal fractions as fractions: 0·3 = $\frac{3}{10}$ … … … … … … … … … … … … … … … □

5 Identify decimal fractions shaded in shapes. … … … … … … … … … … … … … … … … … … □

6 Allow children to shade in selected parts of each shape and to write the amount
   using fractions and decimal fractions. … □

7 Introduce the *unit* as ten tenths or as ten 0·1s.
   Display relationship between 1·0 and 0·1 on fraction wall, notation board and abacus. … … … … □

8 Position decimals on the number line. … □

9 Order and compare decimals using the fraction wall and number line. … … … … … … … … … … □

10 Apply to problems. … □

Algebra: Number patterns and sequences

1 Review counting in ones, twos … tens from different numbers up to 100. … … … … … … … … … □

2 Use the hundred square to explore pattern in odd and even numbers.   … … … … … … … … … □

3 Explore pattern in addition facts e.g. 6 + 5 = 11, 16 + 5 = 21, 26 + 5 = 31 etc. using the hundred square. … … □

4 Extend pattern in addition facts e.g. addition of 10 to explore addition of 9 and 11 using the hundred square. … □

5 Explore pattern in multiplication facts e.g. links between 2, 4 and 8 times tables using the hundred square. … □

6 Use number block beyond one hundred to explore number pattern to 999. … … … … … … … … … □

7 Extend number sequences beyond 100 to explore the addition and subtraction facts. … … … … … … □

8 Describe sequences (explain rule for) and extend accordingly. … … … … … … … … … … … … □

Algebra: Number Sentences

1 Use stories to develop link between word problems and their written or symbolic representation. … … … … … … □

2 Allow pupils to make up their own stories for written number sentences. … … … … … … … … … … … … … … □

3 Use manipulatives to help explain and support the use of frames. … … … … … … … … … … … … … … … … □

4 Explain use of brackets and link to word problems. … □

Shape and Space: 2-D Shapes

1 Review the shapes already covered. … □

2 Sort shapes e.g. **square**, **rectangle**, **triangle**, **circle**, **semi-circle**, **oval** and **hexagon**
according to their similarities and differences… □

3 Identify and discuss each shape in the environment. … □

4 Explore and describe the properties of each shape according to the number of sides,
length of sides, parallel and non-parallel sides and angles. … … … … … … … … … … … … … … … … … □

5 Use templates, geostrips or geoboards to construct shapes. … … … … … … … … … … … … … … … … □

6 Identify and discuss the use of examples of the hexagon in the environment. … … … … … … … … … … □

7 Explore and describe the properties of the hexagon according to the number of sides,
length of sides, parallel and non-parallel sides and angles. … … … … … … … … … … … … … … … … … □

8 Use templates or geoboards to construct a hexagon. … … … … … … … … … … … … … … … … … … … □

9 Explore shapes which tessellate by combining various shapes to make patterns / mosaics. … … … … … … □

10 Cover surfaces with multiple numbers of the same shape. … … … … … … … … … … … … … … … … … □

Shape and Space: 3-D Shapes

1 Review the 3-D shapes already covered. … □

2 Sort shapes e.g. **cube**, **cuboid**, **cylinder**, **sphere**, **triangular**, **prism** and **pyramid**
according to whether they roll, slide or stack. … □

3 Identify and discuss the use of examples of each shape in the environment. … … … … … … … … … … □

4 Explore and describe the properties of each shape according to the number of faces, edges and corners. … … □

5 Deconstruct each to examine the shape of its faces. … … … … … … … … … … … … … … … … … … … □

6 Identify and discuss the use of examples of the triangular prism in the environment. … … … … … … … … □

7 Explore and describe the properties of the triangular prism
according to the number and shape of its faces, edges and corners. … … … … … … … … … … … … … … □

8 Deconstruct a triangular prism to examine the shape of its faces. … … … … … … … … … … … … … … □

9 Identify and discuss the use of examples of the pyramid in the environment. … … … … … … … … … … □

10 Explore and describe the properties of the pyramid
according to the number and shape of its faces, edges and corners. … … … … … … … … … … … … … … □

11 Deconstruct a pyramid to examine the shape of its faces. … … … … … … … … … … … … … … … … □

12 Construct shapes by combining various 2-D and 3-D shapes. … … … … … … … … … … … … … … … … □

13 Use straws or pipe cleaners to construct each 3-D shape. … … … … … … … … … … … … … … … … □

Shape and Space: Symmetry

1 Draw children's attention to symmetrical shapes in the environment e.g. leaves, insects etc… … … … … … □

2 Review work done on line symmetry. Fold paper in half. Draw and cut out a shape.
Draw attention to fold-line i.e. *the line of symmetry*. … … … … … … … … … … … … … … … … … … … □

3 Take a piece of newspaper, fold it in half. Tear or cut along edges. Open and examine the pattern.… … … … □

4 Identify shapes that have a line of symmetry. … □

5 Draw a line of symmetry in shapes. … □

6 Fold a piece of squared paper. Using a pin, make a number of holes in it.
Open and examine the pattern. … □

7 Examine 2-D shapes for lines of symmetry.
Classify them according to the number of lines of symmetry. … … … … … … … … … … … … … … … □

8 Examine letters of the alphabet for lines of symmetry.
Classify them according to the number of lines of symmetry. … … … … … … … … … … … … … … … □

Shape and Space: Lines and angles

1 Draw attention to lines in the environment. Describe them. … … … … … … … … … … … … … … … … □

2 Introduce horizontal, vertical and parallel lines. Find examples in the environment.
Discuss and compare their features. … □

3 Use geostrips to make horizontal, vertical and parallel lines. … … … … … … … … … … … … … … □

4 Review work done on angles in previous class. … … … … … … … … … … … … … … … … … … … □

5 Discuss dynamic angles i.e. angles which are formed by the rotation of objects.
Look for examples of angles in the environment.
Use parts of the body, clock hands, geostrips, opening doors or books. … … … … … … … … … … … □

6 Review work done on right angles in previous class. Construct a right-angle measure.
Find examples in the environment and in shapes. … … … … … … … … … … … … … … … … … … □

7 Classify angles as greater than, less than or equal to a right angle. … … … … … … … … … … … … □

Measures: Length

1 Review the *metre*. Use a metre stick or a metre string.
List items in classroom which are longer than / about / shorter than a metre. … … … … … … … … … □

2 Estimate and measure items with metre stick / strip. … … … … … … … … … … … … … … … … … □

3 Review the centimetre. Compare the centimetre with the metre.
List items in classroom which are longer than / about / shorter than a centimetre. … … … … … … … … □

4 Estimate and measure items in centimetres. … □

5 Estimate and measure items in metres and centimetres. Use examples from the classroom. … … … … … … □

6 Rename units of length as metres and centimetres e.g. 135cm = 1m 35cm. … … … … … … … … … … □

7 Use practical tasks to introduce addition of units of length. … … … … … … … … … … … … … … … □

8 Use practical tasks to introduce subtraction of units of length. … … … … … … … … … … … … … … □

Measures: Area

1 Review work to date on covering surfaces. … □

2 Establish the need for a standard unit of measurement.
Use a variety of 2-D shapes to cover surfaces.
Discuss the problems and disadvantages of using these shapes. Refer to tessellation. … … … … … … □

3 Discuss the advantages of using square units to cover various surfaces in the classroom. … … … … … □

4 Measure the area of various regular and irregular shapes and objects
using cut-out non-standard square units. … □

5 Estimate area of objects using non-standard square units before measuring. … … … … … … … … … □

6 Use table to display results: … □

item name	estimate	measure

7 Use the geoboard / pinboard to discover the different shapes
which can be made from a particular number of square units. … … … … … … … … … … … … … … □

Measures: Weight

1 Review the kilogramme. Use a bag of sugar.
Use the balance to compare the non-standard units with a kilogramme.
List items in classroom which are heavier than / about / lighter than a kilogramme. … … … … … … … … … □

2 Estimate and measure items with kilogramme / bag of sugar. … … … … … … … … … … … … … … … … … … □

3 Review the need for half kilogrammes and quarter kilogrammes.
Compare the half kilogramme and quarter kilogramme with the kilogramme and non-standard units.
List items in classroom which are heavier than / about / lighter than a kilogramme. … … … … … … … … □

4 Establish the need for a smaller unit of measurement.
Discuss the problems of describing weight as half kilogramme and quarter kilogramme. … … … … … … … □

5 Introduce the *gramme*. … □

6 Compare the gramme with non-standard units as well as the kilogramme, half kilogramme and
quarter kilogramme. … □

7 List items in the classroom which are heavier than / about / lighter than a gramme. … … … … … … … □

8 Estimate and measure items with a gramme. … □

9 Discuss the relationship between weight and size. … □

10 Use practical tasks to introduce addition of units of weight. … … … … … … … … … … … … … … … … □

11 Use practical tasks to introduce subtraction of units of weight. … … … … … … … … … … … … … … … □

Measures: Capacity

1 Review the litre. Use a milk carton.
List items in classroom which hold more than / about / less than a litre. … … … … … … … … … … … … □

2 Estimate and measure items with litre / milk carton. … … … … … … … … … … … … … … … … … … … □

3 Review the need for half litres and quarter litres.
Compare the half litre and quarter litre with the litre and non-standard units.
List items in classroom which hold more than / about / less than a litre. … … … … … … … … … … … … □

4 Establish the need for a smaller unit of measurement.
Discuss the problems of describing capacity as half litre and quarter litre. … … … … … … … … … … … □

5 Introduce the **millilitre**. … □

6 Compare the millilitre with non-standard units as well as the litre, half litre and quarter litre. … … … … □

7 List items in the classroom which hold more than / about / less than a millilitre. … … … … … … … … … □

8 Estimate and measure items with the millilitre. … □

9 Use practical tasks to introduce addition of units of capacity. … … … … … … … … … … … … … … … … □

10 Use practical tasks to introduce subtraction of units of capacity. … … … … … … … … … … … … … … … □

Measures: Time

1 Review language of time. Review and sequence events in terms of the times of the day,
days of the week, seasons of the year, annual events. … … … … … … … … … … … … … … … … … … … □

2 Review previous work on the 12-hour analog and digital clocks
i.e. reading time in hours, half hours and quarter hours. … … … … … … … … … … … … … … … … … … □

3 Review the need for a shorter unit of measurement i.e. five-minute intervals. … … … … … … … … … … □

4 Read and recognise times in five-minute intervals e.g. 5 past 3, 25 to 6 on the 12-hour clockface. … … … □

5 Record times in five-minute intervals on the clockface. … … … … … … … … … … … … … … … … … … □

6 Rename minutes as hours and minutes e.g. 75 minutes = 1 hour 15 minutes
or 1 hour 25 minutes = 85 minutes. … □

7 Use a calendar to read the day, date, month and season. Express weeks as days and vice versa. … … … … □

8 Read and interpret a timetable. … □

9 Use practical tasks to introduce problems involving times and dates. … … … … … … … … … … … … … □

Measures: Money

1 Review coins previously covered by recognising coins up to €2 coin, exchanging them for others of an equal value and using them to solve problems. Calculate change. … □

2 Rename coins.
€1 = 50c + 10c + 10c + 10c + 10c + 10c or €2 = €1 + 50c + 10c + 10c + 10c + 10c + 10c … … … … □

3 Write amounts in cent as euro and cent i.e. 245 cent = €2·45 … … … … … … … … … … … … … □

4 Write amounts in euro and cent as cent i.e. €1·34 = 134 cent … … … … … … … … … … … … … □

5 Discuss how to use the decimal point when there is no full euro e.g. €0·55 … … … … … … … … □

6 Use practical tasks to introduce addition of money. Encourage children to estimate the answer. … … … □

7 Use practical tasks to introduce subtraction of money. Encourage children to estimate the answer and to count on to check. … … … … … … … … … … … □

Data: Representing and interpreting data

1 Review the use of the pictogram to represent information. Tell / write the story of the pictogram. Use this as the basis for simple calculations and comparison. … … … … … … … … … … … … … … □

2 Construct a pictogram using information relevant to and, if possible, collected by the children. … … … … □

3 Review the use of the block graph to represent information. Tell / write the story of the block graph. Use this as the basis for simple calculations, comparison and analysis. … … … … … … … … … … □

4 Construct a block graph using information relevant to and, if possible, collected by the children. … … … … □

5 When gathering information, develop the concept of keeping a tally to discover the frequencies and to organise the information. Use a table to help keep track. … … … … … … … … … … … … □

6 Display a completed bar chart representing the same / similar information. … … … … … … … … □

7 Discuss the information presented on the bar chart. … … … … … … … … … … … … … … □

8 Write the story of the bar chart. … □

9 Use this as the basis for simple calculations and comparison. … … … … … … … … … … … … □

10 Construct a bar chart using information relevant to and, if possible, collected by the children. … … … … □

11 Discuss each step as the bar chart develops e.g. the title, the layout. … … … … … … … … … … □

12 Follow construction of the bar chart with interpretation, analysis and computation, as above. … … … … □

13 Discuss the strengths and limitations of each type of representation of the data sets collected by the pupils. … □

Data: Chance

1 Introduce the language of **uncertainty** and **chance** e.g. **certain**, **uncertain**, **possible**, **impossible**, **might**, **definitely**, **not sure**, **likely**, **very likely**, **unlikely**. Invite the children to use the words and discuss what emerges. … … … … … … … … … … … … … … □

2 Discuss the likelihood of events occurring. Allow the pupils to offer suggestions in relation to each of the words listed above. … … … … … … □

3 Use coloured cubes or counters to begin to identify and record random outcomes of simple processes. Say whether this is possible, impossible, likely, unlikely, very likely etc.… … … … … … … … … … … … □

4 Experiment with tossing a coin to see how many times this will fall on each side. Try to predict what will happen the next time. Repeat a number of times to determine the difference in outcomes. Record and discuss. … … … … … … … … … … … … … … … … … … … □

Mathemagic Book 3 Answers

Chapter 1 Look back

Page 1 **1.** (a) 19 (b) 18 (c) 19 (d) 16 (e) 16 (f) 17 (g) 19 (h) 18 (i) 19 (j) 15 (k) 15 (l) 19

2. (a) 1 (b) 4, 3, 7, 1 (c) 9, 8, 4

3. 5, 9, 13, 17, 24, 30, 33, 37, 44, 48, 52, 56, 61, 65, 69, 73, 76, 80, 81, 85, 89, 94, 98, 100

4. (a) 14, 16, 18, 19, 20, 21 (b) 36, 38, 39, 41, 42 (c) 99, 100, 102, 104, 105 (d) 188, 190, 192, 193, 194
(e) 48, 51, 52, 54, 56 (f) 120, 122, 123, 125, 126 (g) 149, 150, 151, 153, 154, 155

5. (a) 12 (b) 22 (c) 32 (d) 42 (e) 19 (f) 29 (g) 39 (h) 49 (i) 52 (j) 62 (k) 72 (l) 82 (m) 33 (n) 43
(o) 53 (p) 63

Page 2 **1.** (a) 23 (b) 40 (c) 6 (d) 24 (e) 106 (f) 150

2. (a) 23 (b) 46 (c) 102 (d) 9 (e) 199

3. (a) 25 (b) 34 (c) 76 (d) 47 (e) 63 (f) 98 (g) 150 (h) 182

4. (a) fifty-four (b) sixty-three (c) seventy-seven (d) thirteen (e) one hundred and seventy-three
(f) one hundred and nine (g) one hundred and ninety-six

5. (a) 15 units (b) 16 units (c) 13 units

6. (a) 16 > 14 (b) 28 < 30 (c) 59 > 43 (d) 42 = 42 (e) 99 > 86 (f) 73 > 37 (g) 46 < 64 (h) 87 > 78

7. (a) 164 (b) 75 (c) 198

Page 3 **2.** (a) $\frac{1}{2}$ (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{4}$ (e) $\frac{1}{4}$

3. (a) 4 (b) 2 (c) 5 (d) 8 (e) 2 (f) 3 (g) 4 (h) 5 (i) 9 (j) 7 (k) 1 (l) 6

4. $\frac{1}{2}$ past 6; 9 o'clock; $\frac{1}{4}$ past 4; $\frac{1}{4}$ to 8; $\frac{1}{2}$ past 11

6. (b) 4 o'clock (c) $\frac{1}{2}$ past 7 (d) $\frac{1}{2}$ past 8 (e) 11 o'clock

Page 4 **1.** (a) 20 (b) 20 (c) 40 (d) 50 (e) 70 (f) 90 (g) 90 (h) 60   **2.** (a) 70c (b) 50c (c) 75c (d) 37c (e) 90c (f) 62c

3. (a) 20c (b) 20c (c) 5c   **4.** (a) 10c (b) 20c (c) 20c

5. (a) 10c (b) 8c (c) 15c (d) 14c (e) 30c (f) 40c (g) 18c (h) 40c

Page 5 **1.** (a) 59 (b) 67 (c) 56 (d) 89 (e) 85 (f) 93   **2.** (a) 63 (b) 53 (c) 18 (d) 47 (e) 38 (f) 16

3. (a) 76 (b) 80 (c) 68 (d) 69 (e) 87 (f) 84   **4.** (a) 33 (b) 42 (c) 39

5. 86   **6.** 76   **7.** 27   **8.** 65   **9.** 64   **10.** 37c   **11.** 68

Page 6 W = 43   I = 75   R = 32   E = 29   U = 34   T = 50   N = 37
H = 56   S = 58   D = 27   M = 91   Z = 48   Y = 53   O = 82
WHY DON'T YOU HIT SOMEONE YOUR OWN SIZE?

Chapter 2 Big numbers

Page 7 **1.** (a) 99 (b) 101 (c) 98 (d) 102   **2.** 289, 290, 293, 294, 295

3. (a) 217, 218, 220, 221, 223, 225, 226, 227 (b) 379, 381, 383, 384, 385, 387, 388
(c) 893, 895, 896, 897, 899, 900, 901, 903 (d) 516, 517, 519, 520, 521, 522, 524, 525
(e) 693, 694, 695, 697, 698, 699, 700, 702

4. (a) 91 (b) 101 (c) 131 (d) 280 (e) 501 (f) 800 (g) 901

5. (a) 69 (b) 99 (c) 248 (d) 457 (e) 570 (f) 898 (g) 989

Page 8 **1.** (a) A = 83   B = 91   C = 99   D = 101   E = 111   F = 118   G = 130
(b) 100 (c) 85 (d) 104 (e) 100 (f) 109 (g) 88 (h) 79

2. (a) A = 374   B = 384   C = 393   D = 402   E = 409   F = 417   G = 421
(b) 378 (c) 379 (d) 399 (e) 391 (f) 412 (g) 398

3. (a) A = 569 B = 583 C = 588 D = 595 E = 599 F = 604 G = 611
(b) 593 (c) 609 (d) 578 (e) 594 (f) 695 (g) 669 (h) 483 (i) 504

Page 9 **1.** (a) 83 (b) 196 (c) 550 (d) 358 (e) 489 (f) 664 (g) 607 (h) 901

2. (a) 114 (b) 349 (c) 545 (d) 98 (e) 678 (f) 989 (g) 899 (h) 691

3. (a) 164 (b) 454 (c) 296 (d) 751 (e) 708 (f) 993 (g) 839 (h) 978

4. (a) 89 (b) 356 (c) 702 (d) 437 (e) 507 (f) 1 (g) 699 (h) 879

5. (a) 179, 278, 354 (b) 98, 375, 687 (c) 667, 677, 767 (d) 482, 824, 842 (e) 357, 375, 537, 573
(f) 465, 546, 564, 645

6. (a) 519, 417, 189 (b) 356, 309, 298 (c) 628, 523, 276 (d) 874, 847, 478 (e) 964, 946, 649, 496
(f) 984, 948, 894, 849

7. (a) 330 (b) 340 (c) 450 (d) 519 (e) 506 (f) 661

Page 10 **1.** (a) 6 (b) 50 (c) 500 (d) 8 (e) 30 (f) 8 (g) 70 (h) 70 (i) 900 (j) 0
(k) 37 (l) 28 (m) 690 (n) 5 (o) 700 (p) 50 (q) 400 (r) 98 (s) 99 (t) 900

1. (a) 357, 375, 753, 735, 573, 537   (b) 472, 427, 274, 247, 742, 724   (c) 695, 659, 596, 569, 956, 965
   (d) 847, 874, 487, 478, 784, 748   (e) 634, 643, 463, 436, 364, 346
2. (a) 942, 924, 492, 429, 294, 249   (b) 732, 723, 372, 327, 237, 273   (c) 569, 596, 965, 956, 659, 695
   (d) 307, 370, 037, 073, 730, 703   (e) 789, 798, 879, 897, 987, 978
1. (a) 963; 369 (b) 864; 468 (c) 743; 347 (d) 652; 256 (e) 831; 138
2. (a) 981; 189 (b) 864; 468 (c) 941; 149 (d) 730; 037 (e) 650; 056

Page 11 1. (a) 185 (b) 348 (c) 611 (d) 753

Page 12 1. (a) 1 hundred + 2 tens + 5 units (b) 2 hundreds + 4 tens + 8 units (c) 4 hundreds + 3 tens + 0 units
   (d) 5 hundreds + 0 tens + 8 units (e) 6 hundreds + 2 tens + 5 units
2. (a) 372 (b) 465 (c) 505 (d) 860 (e) 900
3. (a) 3 hundreds + 6 tens + 5 units = 365   (b) 7 hundreds + 1 ten + 4 units = 714
   (c) 6 hundreds + 9 tens + 2 units = 692   (d) 5 hundreds + 5 tens + 0 units = 550
   (e) 9 hundreds + 7 tens + 8 units = 978

Chapter 3 Adding big numbers

Page 13 1. (a) 355 (b) 594 (c) 568 (d) 658 (e) 878 (f) 679
2. (a) 669 (b) 879 (c) 688 (d) 999 (e) 688 (f) 999
3. (a) 553 (b) 563 (c) 785 (d) 532 (e) 773 (f) 784
4. (a) 576 (b) 469 (c) 691 (d) 869 (e) 468 (f) 678
5. (a) 588 (b) 683 (c) 469

Page 14 1. (a) 419 (b) 418 (c) 837 (d) 717 (e) 758 (f) 939
2. (a) 558 (b) 676 (c) 519 (d) 887 (e) 819 (f) 849
3. (a) 656 (b) 759 (c) 749
4. (a) 441 (b) 522 (c) 525 (d) 823 (e) 555 (f) 745
5. (a) 787 (b) 760 (c) 757 (d) 809 (e) 727 (f) 824 (g) 726 (h) 998 (i) 789 (j) 639 (k) 834 (l) 842

Chapter 4 Subtracting big numbers

Page 15 1. (a) 3 tens + 15 units   (b) 6 tens + 13 units   (c) 5 tens + 14 units   (d) 2 tens + 18 units   (e) 4 tens + 16 units
2. (a) 4 hundreds + 14 tens + 7 units   (b) 7 hundreds + 16 tens + 3 units   (c) 3 hundreds + 12 tens + 5 units
   (d) 2 hundreds + 19 tens + 4 units   (e) 6 hundreds + 15 tens + 8 units
3. (a) 14 units   (b) 3 hundreds + 17 tens + 2 units = 3 hundreds + 16 tens + 12 units
   (c) 2 hundreds + 15 tens + 8 units = 2 hundreds + 14 tens + 18 units
   (d) 4 hundreds + 13 tens + 7 units = 4 hundreds + 12 tens + 17 units
4. (a) 400 = 3 hundreds + 10 tens + 0 units = 3 hundreds + 9 tens + 10 units
   (b) 700 = 6 hundreds + 10 tens + 0 units = 6 hundreds + 9 tens + 10 units

Page 16 1. (a) 114 (b) 235 (c) 144 (d) 124 (e) 112 (f) 433
2. (a) 232 (b) 136 (c) 304 (d) 311 (e) 373 (f) 717
4. (a) 338 (b) 326 (c) 332 (d) 418 (e) 627 (f) 365
5. (a) 366 (b) 365 (c) 565

Page 17 1. (a) 145 (b) 364 (c) 153 (d) 262 (e) 254
2. (a) 275 (b) 262 (c) 254 (d) 173 (e) 361
3. (a) 255 (b) 162 (c) 355 (d) 374 (e) 494 (f) 494 (g) 518 (h) 371 (i) 580
4. (a) 444 (b) 264 (c) 174 (d) 392 (e) 381 (f) 492 (g) 271 (h) 561 (i) 382 (j) 462

Page 18 1. (a) 234 (b) 266 (c) 275 (d) 356 (e) 459
2. (a) 248 (b) 278 (c) 356 (d) 366 (e) 533 (f) 333
3. (a) 546 (b) 335 (c) 365 (d) 356 (e) 657 (f) 479

Page 19   T = 413   B = 681   H = 561   E = 78   L = 263   A = 811   R = 916   N = 531   S = 354   D = 339   W = 425
   O = 204   Y = 792   K = 89   G = 734   C = 207   U = 370   F = 252   P = 647   M = 715   I = 991
   THE BOYS AND GIRLS WHO BREAK THIS CODE SHOULD GET OFF ONE PIECE OF HOMEWORK AT THE WEEKEND

Pages 20/21

   1. 851   2. 425   3. 913   4. 786   5. 465   6. 84   7. 686   8. 497   9. 169   10. 394   11. 548   12. 580
   13. 565   14. 278   15. 375   16. 603   17. 159   18. 476   19. 258   20. 749   21. 82

Chapter 5 Data

Page 22   (a) 22   (b) 30
   (a) 5 ways   (c) 29   (d) 17   (e) 12   (f) yes

Page 23 1. 40   2. 5   3. 4
   1. 1 = 6; 2 = 6; 3 = 6; 4 = 7; 5 = 6; 6 = 5   2. 4   3. 6   4. Pete

Page 25 **1.** (a) 72   (b) €8
Page 26 **1.** (a) 220   (b) Wednesday   (c) 35   (d) 130

Chapter 6   Multiplication 1   Counting in 2s
Page 27 **1.** $2 + 2 + 2 + 2 + 2 + 2 = 12$
   2. $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$
   3. 6, 8, 10, 12, 14, 16, 18, 20   (a) 10   (b) 6   (c) 14   (d) 4   (e) 18   (f) 12   (g) 8   (h) 16
   4. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30   **5.** (a) 6   (b) 12   (c) 10   (d) 16
Page 28 **1.** (a) $2 + 2 + 2 + 2 + 2 = 10$ gloves; **5** groups of 2 = **10** gloves; $5 \times 2 = 10$ gloves
   (b) $2 + 2 + 2 + 2 + 2 + 2 = 12$ socks; **6** groups of 2 = **12** socks; $6 \times 2 = 12$ socks
   (c) $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ eyes; **7** groups of 2 = **14** eyes; $7 \times 2 = 14$ eyes
   (d) $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$ crayons; **8** groups of 2 = **16** crayons; $8 \times 2 = 16$ crayons
   2. (a) $7 \times 2 = 14$ (b) $8 \times 2 = 16$ (c) $10 \times 2 = 20$
   3. (a) $2 + 2 + 2 = 6$ (b) $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ (c) $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 18$
Page 29 **1.** (a) 8   (b) 12   (c) 16   (d) 6   (e) 14   (f) 18
   2. (a) 6   (b) 10   (c) 18   (d) 8   (e) 12   (f) 16
   3. (a) 4   (b) 14   (c) 20   (d) 10   (e) 16   (f) 12
   4. (a) 8   (b) 14   (c) 18   (d) 12   (e) 20   (f) 16
   5. (a) 6c   (b) 10c   (c) 0   (d) 14c   (e) 16c   (f) 8c
   6. $4 \times 2 = 8$ **7.** $6 \times 2 = 12$ **8.** $5 \times 2 = 10$ **9.** $8 \times 2 = 16$
   10. 2, 4, 6, **8**, **10**, **12**, **14**, **16**, **18**, **20**
Page 30 **1.** 32   **2.** 36   **3.** (a) 8   (b) 20   (c) 28   (d) 12   (e) 36   (f) 24   (g) 16   (h) 32
   4. 4, 8, 12, 16, 20, 24, 28, 32, 36, 40   (a) 2   (b) 3   (c) 2   (d) 3
   5. (a) 4   (b) 16   (c) 28   (d) 12   (e) 20   (f) 8   (g) 24   (h) 32
Page 31 **1.** (a) $4 + 4 + 4 + 4 + 4 + 4 = 24$; $6 \times 4 = 24$ (b) $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$; $7 \times 4 = 28$
   (c) $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$; $8 \times 4 = 32$
   2. (a) $6 \times 4 = 24$ (b) $8 \times 4 = 32$ (c) $10 \times 4 = 40$
   3. (a) $4 + 4 + 4 = 12$ (b) $4 + 4 + 4 + 4 + 4 + 4 = 24$ (c) $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$
   (d) $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 40$
Page 32 **1.** (a) 12   (b) 28   (c) 20   (d) 8   (e) 24   (f) 32
   2. (a) 16   (b) 24   (c) 36   (d) 20   (e) 12   (f) 28
   3. (a) 8   (b) 32   (c) 40   (d) 24   (e) 36   (f) 20
   4. (a) 20c   (b) 28c   (c) 40c   (d) 16c   (e) 8c   (f) 36c
   5. $5 \times 4 = 20$ **6.** $7 \times 4 = 28$ **7.** $6 \times 4 = 24$ **8.** $8 \times 4 = 32$
   10. 4, 8, 12, **16**, **20**, **24**, **28**, **32**, **36**, **40**
Page 33 **1.** $8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$
   2. $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 72$
   3. 8, 16, 24, 32, 40, 48, 56, 64, 72, 80   (a) 40   (b) 80
   4. (a) 24   (b) 48   (c) 64   (d) 40   (e) 56   (f) 32   (g) 80   (h) 72
Page 34 **1.** **48** buns; **6** groups of 8 = **48** buns; $6 \times 8 = 48$ buns
   2. (a) $8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$; 7 bunches of **8** bananas; $7 \times 8 = 56$ bananas
   (b) $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 72$; 9 packs of **8** bars; $9 \times 8 = 72$ bars
   (c) $8 + 8 + 8 + 8 + 8 = 40$ pencils; **5** boxes of 8 pencils; $5 \times 8 = 40$ pencils
   3. (a) $3 \times 8 = 24$ (b) $8 \times 8 = 64$ (c) $4 \times 8 = 32$ (d) $7 \times 8 = 56$
   4. (a) $8 + 8 + 8 + 8 + 8 = 40$ (b) $8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$
   (c) $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 72$ (d) $8 + 8 + 8 + 8 + 8 + 8 = 48$
Page 35 **1.** (a) 24   (b) 40   (c) 56   (d) 48   (e) 72   (f) 32   **2.** (a) 32   (b) 16   (c) 72   (d) 56   (e) 64   (f) 24
   3. (a) 48c   (b) 0   (c) 80c   (d) 72c   (e) 40c   (f) 64c   **4.** $3 \times 8 = 24$ **5.** $3 \times 8 = 24$ **6.** $7 \times 8 = 56$
   7. (a)

		(b)		
3	×8 40		6	×8 16
5	56		2	48
4	24		9	64
7	32		8	72

   8. (a) $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$ (b) $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 56$
   (c) $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 80$ (d) $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 48$
   (e) $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 24$ (f) $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = 72$
   (g) $0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 = 0$ (h) $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$
   9. **8**, 16, **24**, **32**, **40**, **48**, **56**, **64**, **72**, **80**

Page 36 **1.** (a) 12 (b) 14 (c) 20 (d) 24 (e) 48 (f) 56

2. (a) 10 (b) 16 (c) 24 (d) 36 (e) 24 (f) 56

3. (a) 10 (b) 14 (c) 20

4. (a) 12 (b) 24 (c) 36

5. (a) 32 (b) 56 (c) 80

6. (a) $4 \times 2 = 8$ (b) $3 \times 4 = 12$ (c) $4 \times 8 = 32$ (d) $6 \times 2 = 12$ (e) $7 \times 4 = 28$ (f) $7 \times 8 = 56$

(g) $8 \times 2 = 16$ (h) $9 \times 4 = 36$ (i) $1 \times 8 = 8$ (j) $10 \times 2 = 20$ (k) $0 \times 4 = 0$ (l) $9 \times 8 = 72$

7. (a) $3 \times 2 = 6$ (b) $5 \times 4 = 20$ (c) $7 \times 2 = 14$ (d) $8 \times 4 = 32$ (e) $10 \times 4 = 40$ (f) $8 \times 3 = 24$

(g) $8 \times 6 = 48$ (h) $8 \times 9 = 72$

Page 40 **4.** (a) 3 (b) 5 (c) 7 (d) 6 (e) 9 (f) 1 (g) 4 (h) 10 (i) 8

5. (a) 4 (b) 3 (c) 6 (d) 5 (e) 7 (f) 10 (g) 1 (h) 8 (i) 9

6. (a) 3 (b) 2 (c) 5 (d) 8 (e) 1 (f) 4 (g) 6 (h) 7

Page 41 **1.** (a) $8 \xrightarrow{\div 2} 6$ (b) $12 \xrightarrow{\div 4} 4$ (c) $40 \xrightarrow{\div 8} 7$ (d) $6 \xrightarrow{\div 2} 10$ (e) $32 \xrightarrow{\div 4} 7$ (f) $64 \xrightarrow{\div 8} 4$

(a) 8, 12, 18, 14 → 6, 4, 7, 9 (b) 12, 20, 16, 24 → 4, 5, 3, 6 (c) 40, 56, 16, 24 → 7, 3, 5, 2 (d) 6, 20, 16, 10 → 10, 5, 3, 8 (e) 32, 28, 40, 36 → 7, 8, 9, 10 (f) 64, 32, 80, 72 → 4, 9, 8, 10

2. (a) $8 - 2 - 2 - 2 - 2 = 0$; $8 \div 2 = 4$ (b) $12 - 2 - 2 - 2 - 2 - 2 - 2 = 0$; $12 \div 2 = 6$

(c) $20 - 4 - 4 - 4 - 4 - 4 = 0$; $20 \div 4 = 5$ (d) $28 - 4 - 4 - 4 - 4 - 4 - 4 - 4 = 0$; $28 \div 4 = 7$

(e) $32 - 8 - 8 - 8 - 8 = 0$; $32 \div 8 = 4$ (f) $48 - 8 - 8 - 8 - 8 - 8 - 8 = 0$; $48 \div 8 = 6$

3. (a) $8 \div 2 = 4$; $4 \times 2 = 8$ (b) $12 \div 2 = 6$; $6 \times 2 = 12$ (c) $18 \div 2 = 9$; $9 \times 2 = 18$

4. (a) $20 \div 4 = 5$; $5 \times 4 = 20$ (b) $28 \div 4 = 7$; $7 \times 4 = 28$ (c) $36 \div 4 = 9$; $9 \times 4 = 36$

5. (a) $32 \div 8 = 4$; $4 \times 8 = 32$ (b) $72 \div 8 = 9$; $9 \times 8 = 72$ (c) $56 \div 8 = 7$; $7 \times 8 = 56$

Page 42 **1.** (a) 8 (b) 12 (c) 9 **2.** (a) 7 (b) 8 (c) 4 **3.** (a) 4 (b) 7 (c) 3 **4.** 9 **5.** 6 **6.** 9

7. 6 **8.** 9 **9.** 7 **10.** 8 **11.** 7 **12.** 10

Page 43 **2.** cylinder, prism, cone, sphere, cuboid

3. (a) cuboid (b) triangular prism (c) cylinder (d) cube (e) pyramid (f) cylinder, cone, sphere

Page 44

cube	6	0	0	0	6
cuboid	0	0	6	0	6
pyramid	1	4	0	0	5
triangular prism	0	2	3	0	5
cylinder	0	0	0	2	3

Page 46

number of edges	number of corners
12	8
12	8
8	5
9	6

Chapter 9   Fractions 1   Halves ($\frac{1}{2}$), quarters ($\frac{1}{4}$)

Page 47 **1.** (a) $\frac{1}{2}$ blue — $\frac{1}{2}$ green (b) $\frac{3}{4}$ blue — $\frac{1}{4}$ green (c) $\frac{1}{2}$ blue — $\frac{1}{2}$ green (d) $\frac{1}{2}$ blue — $\frac{1}{2}$ green

4. (i) b, c (ii) d, e (iii) 8 (iv) 4 (v) 2

Page 48 **1.** (a) $\frac{1}{2}$ (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{4}$ (e) $\frac{1}{2}$ (f) $\frac{1}{4}$ (g) $\frac{1}{2}$

2. (a) 5 (b) 7

3. (a) 2 (b) 4

4. (a) 3 (b) 5 (c) 4 (d) 7 (e) 9 (f) 1 (g) 3 (h) 5 (i) 9 (j) 6 (k) 8 (l) 2

5. (a) 10 (b) 11 (c) 15 (d) 20 (e) 30 (f) 7 (g) 9 (h) 8 (i) 20 (j) 15 (k) 12 (l) 2

Page 49 **1.** (a) 2 (b) 4 (c) 8 (d) 24 (e) 20

2. (a) 10 (b) 14 (c) 18 (d) 12 (e) 22

3. (a) 12 (b) 8 (c) 4 (d) 16 (e) 28 (f) 32

4. (a) 24 (b) 40 (c) 36 (d) 16 (e) 28 (f) 20 (g) 12 (h) 32

Page 50 **1.** (a) $\frac{1}{4}$ blue — $\frac{3}{4}$ green (b) $\frac{3}{8}$ blue — $\frac{5}{8}$ green (c) $\frac{7}{8}$ blue — $\frac{1}{8}$ green (d) $\frac{5}{8}$ blue — $\frac{3}{8}$ green

2. (a) $\frac{4}{8}$ or $\frac{1}{2}$ (b) $\frac{2}{8}$ or $\frac{1}{4}$ (c) $\frac{6}{8}$ or $\frac{3}{4}$ (d) $\frac{8}{8}$ or $\frac{4}{4}$

4. (a) $\frac{1}{2}$ or $\frac{4}{8}$ (b) $\frac{3}{4}$ or $\frac{6}{8}$

Page 51 **1.** (a) 2 (b) 1 (c) 4 (d) 6 (e) 9 (f) 10 (g) 3 (h) 5 (i) 8

2. (a) 1 (b) 3 (c) 2 (d) 4 (e) 5 (f) 6 (g) 7 (h) 10 (i) 9

Page 52 **1.** (a) 32 (b) 40

2. (a) 24 (b) 48 (c) 64

3. (a) 80 (b) 48 (c) 24 (d) 56 (e) 72 (f) 40 (g) 32 (h) 64

4. (a) 20 (b) 12 (c) 8 (d) 16 (e) 10

5. (a) 40 (b) 24 (c) 16 (d) 32 (e) 20

Chapter 10   Multiplication 2   Groups of 3

Page 53 **1.** $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$

2. $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 27$

3. 3, 6, 9, 12, 15, 18, 21, 24, 27, 30; 5th stopping place = 15; 8th stopping place = 24

4. (a) 12 (b) 21 (c) 9 (d) 24 (e) 15 (f) 27 (g) 18 (h) 30

5. $3 + 3 + 3 + 3 + 3 = 15$; **5** trays of 3 oranges; **5 x 3 = 15**

Page 54 **1.** (a) $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$; $7 \times 3 = 21$ lemons

(b) $3 + 3 + 3 + 3 + 3 + 3 = 18$; $6 \times 3 = 18$ eggs

2. (a) 3×4; 12 (b) 3×8; 24   **3.** (a) $3 + 3 + 3 + 3 + 3 + 3 = 18$

4. (a) 15 (b) 30 (c) 0   (b) $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 27$

5. (a) 12c (b) 27c (c) 21c   (c) $3 + 3 + 3 + 3 = 12$

6. (a)

5	×3	18
2		12
6		15
4		6

(b)

8	×3	27
7		24
9		21
10		30

7. (a) 12 (b) 18 (c) 6 (d) 21 (e) 27 (f) 0 (g) 24 (h) 30

Page 55 **1.** 42

2. 6, 12, 18, 24, 30, 36, 42, 48, 54, 60; 5th stopping place = 30; 9th stopping place = 54

3. (a) 24 (b) 42 (c) 30 (d) 48 (e) 18 (f) 54 (g) 36 (h) 60

4. $6 + 6 + 6 + 6 + 6 = 30$ bananas; $5 \times 6 = 30$

5. $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 48$ berries; $8 \times 6 = 48$

6. $6 + 6 + 6 + 6 = 24$ crayons; $4 \times 6 = 24$

Page 56 **1.** (a) $6 \times 5 = 30$ (b) $6 \times 8 = 48$

2. (a) $6 + 6 + 6 + 6 = 24$ (b) $6 + 6 + 6 + 6 + 6 + 6 + 6 = 42$ (c) $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 54$

3. (a) $5 \times 6 = 30$ (b) $7 \times 6 = 42$

4. (a) 24 (b) 42 (c) 54 (d) 18 (e) 48 (f) 30

5. (a) 30 (b) 48 (c) 60 (d) 36 (e) 0 (f) 54

6. (a) 18c (b) 0 (c) 36c (d) 48c (e) 30c (f) 24c

7. (a)

5	×6	12
2		24
8		30
4		48

(b)

7	×6	54
3		42
9		18
6		36

8. (a) 12 (b) 30 (c) 48 (d) 60 (e) 42 (f) 24 (g) 54 (h) 36

9. **6**, **12**, **18**, 24, **30**, **36**, **42**, **48**, **54**, **60**

Page 57 **1.** $9 + 9 + 9 + 9 + 9 + 9 + 9 = 63$

2. 9, 18, 27, 36, 45, 54, 63, 72, 81, 90 (a) 36 (b) 63 (c) 72 (d) 90

3. (a) 18 (b) 45 (c) 72 (d) 27 (e) 63 (f) 54 (g) 0 (h) 36

4. $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = 72$; $8 \times 9 = 72$

5. $9 + 9 + 9 + 9 + 9 + 9 = 54$; $6 \times 9 = 54$

6. (a) $9 \times 4 = 36$ (b) $9 \times 7 = 63$

Page 58 **1.** (a) $6 \times 9 = 54$ (b) $7 \times 9 = 63$

2. (a) 36 (b) 54 (c) 72 (d) 27 (e) 63 (f) 81 (g) 45 (h) 18 (i) 90

3. (a) 18c (b) 45c (c) 90c (d) 72c (e) 0 (f) 63c (g) 27c (h) 54c (i) 81c

4. (a)

3	×9	45
7		54
5		27
6		63

(b)

4	×9	81
9		36
8		90
10		72

5. (a) 27 (b) 45 (c) 63 (d) 18 (e) 54 (f) 0 (g) 72 (h) 81

6. 9, 18, 36, 45, 54, 63, 72, 81, 90

Page 59 **1.** (a) 15 (b) 21 (c) 27 (d) 18 (e) 30 (f) 24   **2.** (a) 24 (b) 42 (c) 60 (d) 48 (e) 36 (f) 54

3. (a) 45 (b) 27 (c) 72 (d) 54 (e) 81 (f) 63   **4.** (a) 12 (b) 21 (c) 27

5. (a) 15 **(b)** 24 **(c)** 18   **6. (a)** 30 **(b)** 48 **(c)** 36
7. (a) 60 **(b)** 18 **(c)** 42   **8. (a)** 24 **(b)** 42 **(c)** 54
9. (a) 21 **(b)** 27 **(c)** 18   **10. (a)** 24 **(b)** 42 **(c)** 54
11. (a) 45 **(b)** 81 **(c)** 63   **12. (a)** 36c **(b)** 72c **(c)** 54c
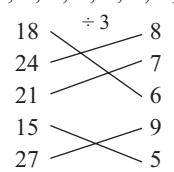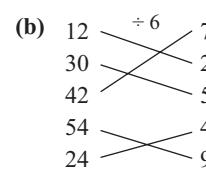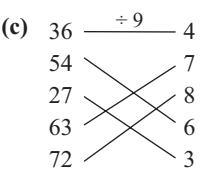
Page 60 **1.** 4 times 3 = **12**; $4 \times 3 = 12$; **3** times **4 = 12**; $3 \times 4 = 12$ **2.** 4 times **2 = 2 × 4 = 8**
3. $4 \times 6 = 24$; $6 \times 4 = 24$; $4 \times 6 = 6 \times 4 = 24$ **4.** $6 \times 3 = 18$; $3 \times 6 = 18$; $6 \times 3 = 3 \times 6 = 18$
5. $6 \times 8 = 48$; $8 \times 6 = 48$; $6 \times 8 = 8 \times 6 = 48$ **6.** $3 \times 8 = 24$; $8 \times 3 = 24$; $3 \times 8 = 8 \times 3 = 24$
7. (a) $9 \times 3 = 27$; $3 \times 9 = 27$;   so $9 \times 3 = 3 \times 9 = 27$
(b) $4 \times 9 = 36$; $9 \times 4 = 36$;   so $4 \times 9 = 9 \times 4 = 36$
(c) $4 \times 8 = 32$; $8 \times 4 = 32$;   so $4 \times 8 = 8 \times 4 = 32$

Chapter 11   Division 2   Sharing among 3

Page 61 **1.** 12, 3, 4
2. Pat got **6** bars, Jane got **5** bars, Colin got **4** bars.
3. 21, 3, 7
4. 3 children. Each gets **6** sweets.

Page 62 **1. 12** bananas. **6** children. Each gets **2** bananas.
2. 24 plums. **6** children. Each gets **4** plums.
3. 6 children. **5** times. Each gets **5** apples.
4. $48 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 = 0$. Each gets **8** balloons.
5. 27 apples. **9** children. Each gets **3** apples.
6. $45 - 9 - 9 - 9 - 9 - 9 = 0$. **9** children. **5** times. Each gets **5** bars.
7. $63 - 9 - 9 - 9 - 9 - 9 - 9 - 9 = 0$. **9** cards. **63** cards. **7** times.

Page 63 **1. (a)** 12 **(b)** 6 **(c)** 4
2. (a) 12 **(b)** 3 **(c)** 4 $12 \div 3 = 4$
3. (a) 30 **(b)** 6 **(c)** 5 $30 \div 6 = 5$
4. (a) 36 **(b)** 9 **(c)** 4 $36 \div 9 = 4$
5. (a) 4 **(b)** 6 **(c)** 8 **(d)** 5 **(e)** 7 **(f)** 9
6. (a) 3 **(b)** 5 **(c)** 7 **(d)** 9 **(e)** 4 **(f)** 8
7. (a) 5 **(b)** 3 **(c)** 7 **(d)** 4 **(e)** 6 **(f)** 8
8. 1, 2, 3, 5, 6, 7, 8, 9, 10
1, 2, 4, 5, 6, 7, 8, 9, 10
1, 3, 4, 5, 6, 7, 8, 9, 10

Page 64 **1. (a)**

2. (a) 0; 5 **(b)** 0; 7 **(c)** 0; 7 **(d)** 0; 4 **(e)** 0; 6 **(f)** 0; 3
3. (a) $12 \div 3 = 4$; $4 \times 3 = 12$ **(b)** $21 \div 3 = 7$; $7 \times 3 = 21$ **(c)** $30 \div 3 = 10$; $10 \times 3 = 30$
4. (a) $30 \div 6 = 5$; $5 \times 6 = 30$ **(b)** $48 \div 6 = 8$; $8 \times 6 = 48$ **(c)** $54 \div 6 = 9$; $9 \times 6 = 54$
5. (a) $36 \div 9 = 4$; $4 \times 9 = 36$ **(b)** $54 \div 9 = 6$; $6 \times 9 = 54$ **(c)** $72 \div 9 = 8$; $8 \times 9 = 72$
6. (a) 9 **(b)** 6   **7. (a)** 3 **(b)** 9   **8. (a)** 6 **(b)** 4   **9.** 6 lollipops / 4 bars   **10.** 6 balloons / 2 bars

Chapter 12   Number patterns   100 square

Page 65 **1.** 3, 9, 16, 18, 27, 35, 39, 46, 48, 51, 57, 63, 66, 70, 77, 84, 89, 91, 98
2. (a) 15, **16,** 17, **18**   **(b)** 32, **33, 34, 35**   **(c)** 54, **55,** 56, **57**   **(d)** 16, **17, 18, 19**
25, 26, 27, 28   42, 43, **44, 45**   **64, 65, 66, 67**   **26, 27, 28, 29**
35, **36, 37,** 38   **52, 53, 54, 55**   74, 75, **76, 77**   **36,** 37, **38, 39**
45, 46, **47, 48**   62, **63, 64,** 65   **84, 85, 86, 87**   **46, 47, 48,** 49
3. (a) 24, 42 **(b)** 16, 38 **(c)** 53, 62, 71 **(d)** 37, 39, 57, 59
4. (a) 27 **(b)** 37 **(c)** 47 **(d)** 57 **(e)** 57 **(f)** 67 **(g)** 77 **(h)** 87 **(i)** 4 **(j)** 14 **(k)** 24 **(l)** 34 **(m)** 32 **(n)** 42
(o) 52 **(p)** 62
5. (a) 18, 28, 38, 48, 58, 68, 78   **(b)** 21, 31, 41, 51, 61, 71, 81   **(c)** 15, 25, 35, 45, 55, 65, 75
(d) 10, 20, 30, 40, 50, 60, 70, 80

Page 66 **1.** 864, 869
872, 877, 880
891, 895, 898
904, 909
912, 916, 918
921, 925, 929
938
941, 944, 946, 950

2. **(a)** 864, 865, 866 **(b)** 876, 877, 878 **(c)** 895, 896, 897 **(d)** 918, 919, 920 **(e)** 880, 882, 884
(f) 898, 900, 902 **(g)** 880, 885, 890 **(h)** 900, 905, 910 **(i)** 900, 910, 920 **(j)** 892, 902, 912

3. **(a)** 890 **(b)** 895 **(c)** 896 **(d)** 893 **(e)** 912 **(f)** 930 **(g)** 941 **(h)** 953

4. **(a)** 913, 912, 911 **(b)** 895, 894, 893 **(c)** 891, 890, 889 **(d)** 900, 899, 898 **(e)** 918, 916, 914
(f) 934, 930, 926 **(g)** 935, 930, 925 **(h)** 912, 907, 902 **(i)** 900, 890, 880 **(j)** 874, 864, 854

5. **(a)** 912 **(b)** 873 **(c)** 862 **(d)** 900 **(e)** 922 **(f)** 889 **(g)** 947 **(h)** 899

6. **(a)** 864, **865, 866, 867** **(b)** **913**, 914, **915, 916** **(c)** **884, 885**, 886, **887**
874, 875, 876, 877 **923, 924**, 925, **926** **894**, 895, **896, 897**
884, 885, 886, **887** **933, 934, 935**, 936 904, **905, 906, 907**
894, 895, 896, 897 943, **944, 945, 946** **914, 915, 916**, 917

Chapter 13   Length   Metres and centimetres

Page 67 **2.** **(a)** measure: 10cm **(b)** measure: 6cm **(c)** measure: 8cm
3. **(a)** 15cm **(b)** 12cm **(c)** 4cm **(d)** 3cm **(e)** 8cm

Page 68 **1.** **(a)** 137cm **(b)** 247cm **(c)** 259cm **(d)** 294cm **(e)** 108cm **(f)** 255cm **(g)** 294cm
2. **(a)** 1m 87cm **(b)** 1m 78cm **(c)** 5m 76cm **(d)** 2m 46cm **(e)** 8m 90cm **(f)** 3m 52cm **(g)** 3m 99cm

Page 69 **1.** **(a)** 3m 17cm **(b)** 3m 48cm **(c)** 3m 24cm **(d)** 3m 22cm **(e)** 3m 31cm
2. **(a)** 3m 19cm **(b)** 3m 42cm **(c)** 3m 32cm **(d)** 3m 20cm
3. **(a)** 1m 52cm **(b)** 62cm **(c)** 1m 93cm **(d)** 99cm **(e)** 1m 77cm
4. **(a)** 2m 88cm **(b)** 1m 76cm

Page 70 **1.** 3m 68cm **2.** 5m 62cm **3.** 1m 9cm **4.** 6m 42cm **5.** 1m 13cm **6.** 4m 52cm
7. 58cm **8.** 1m 24cm **9.** 9m 95cm

Page 71 **1.** 40 47 **2.** 58 44 **3.** 143
4. Move one from the right-hand side of the equals sign to make a "plus".
19 21 79 64
11 15
6

Page 72 **A.** **(1)** F **(2)** Z **(3)** E **(4)** N   **B.** **(1)** 3 **(2)** 8 **(3)** 0 **(4)** 10

Chapter 14   Look back

Page 73 **1.** **(a)** 444, 445, 446, 447, 449, 450, 451, 452, 453, 454
(b) 893, 895, 896, 898, 899, 900, 901, 902, 903, 904, 905, 906
2. **(a)** 67, 77 **(b)** 105, 115 **(c)** 506, 516 **(d)** 552, 452
3. **(a)** 375 **(b)** 819
(a) three hundred and twenty-four **(b)** five hundred and thirty-seven **(c)** seven hundred and six
(d) two hundred and eighteen **(e)** six hundred and ten **(f)** four hundred **(g)** nine hundred and ninety-eight
4. **(a)** 406, 493, 617 **(b)** 93, 539, 903 **(c)** 467, 647, 764 **(d)** 849, 894, 984
5. **(a)** 124 **(b)** 207 **(c)** 350 **(d)** 595 **(e)** 341 **(f)** 450 **(g)** 506 **(h)** 75
6. **(a)** 6 hundreds + 7 tens + 8 units = **678** **(b)** 5 hundreds + 8 tens + 6 units = **586**
(c) 4 hundreds + 2 tens + 3 units = **423** **(d)** 8 hundreds + 9 tens + 7 units = **897**
(e) 7 hundreds + 3 tens + 4 units = **734**

Page 74 **1.** **(a)** 2 hundreds + 16 tens + 8 units **(b)** 6 hundreds + 13 tens + 5 units
(c) 5 hundreds + 15 tens + 5 units **(d)** 8 hundreds + 14 tens + 7 units
2. **(a)** 40 **(b)** 90 **(c)** 120 **(d)** 30 **(e)** 320 **(f)** 480 **(g)** 700 **(h)** 990 **(a)** 100 **(b)** 200 **(c)** 400 **(d)** 400 **(e)** 500
(f) 600 **(g)** 800 **(h)** 900
3. **(a)** 663 **(b)** 586 **(c)** 628 **(d)** 848 **(e)** 621 **(f)** 763 **(g)** 665
4. **(a)** 225 **(b)** 312 **(c)** 565 **(d)** 268 **(e)** 338 **(f)** 422 **(g)** 226
5. **(a)** 679 **(b)** 667 **(c)** 846 **(d)** 793
6. **(a)** 223 **(b)** 375 **(c)** 319 **(d)** 242 **(e)** 347 **(f)** 373
7. 527 **8.** 136 **9.** 149 **10.** 623

Page 75 1. (a) red $^1/_2$ green $^1/_2$ (b) red $^1/_2$ green $^1/_2$ (c) red $^1/_2$ green $^1/_2$

2. (a) red $^5/_8$ green $^3/_8$ (b) red $^3/_8$ green $^5/_8$ (c) red $^1/_8$ green $^7/_8$

3. (a) 15cm (b) 13cm

4. (a) 138cm (b) 349cm

5. (a) 1m 89cm (b) 4m 27cm

6. (a) 2m 78cm (b) 4m 33cm (c) 6m 37cm (d) 4m 3cm (e) 5m 49cm

7. 2m 88cm 8. 2m 23cm 9. 3m 39cm

Page 76 1. (a)

4 ×2 10
6 14
5 12
7 8

(b)

5 ×4 40
7 32
10 28
8 20

(c)

3 ×8 40
7 56
5 48
6 24

2. (a) 4 (b) 20 (c) 18 (d) 64 (e) 24 (f) 36 (g) 32 (h) 80

3. (a)

6 ÷2 6
16 3
12 9
18 8

(b)

12 ÷4 5
4 7
20 3
28 1

(c)

56 ÷8 5
32 7
40 8
64 4

4. (a) 7 (b) 3 (c) 2 (d) 6 (e) 10 (f) 10 (g) 9 (h) 7 5. (a) 24 (b) 48 (c) 56 (d) 72

6. (a) 16 (b) 20 (c) 32 (d) 40

7. 6 8. 9 9. 9

Chapter 15 Multiplication 3 Groups of 5, 10

Page 77 1. $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$ 2. 5, 10, 15, 20, 25, 30, 35, 40, 45, 50; 35; 45

3. (a) 15 (b) 30 (c) 40 (d) 20 (e) 35 (f) 10 (g) 45 (h) 25

4. $5 + 5 + 5 + 5 + 5 + 5 = 30$ $6 \times 5 = 30$ 5. $5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$ $7 \times 5 = 35$

6. (a) 30 $6 \times 5 = 30$ (b) 45 $9 \times 5 = 45$ 7. (a) $4 \times 5 = 20$ (b) $7 \times 5 = 35$ (c) $10 \times 5 = 50$

Page 78 1. $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 100$

2. 10, 20, 30, 40, 50, 60, 70, 80, 90, 100; 70; 80; 90

3. $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 80$; $8 \times 10 = 80$

4. (a) 70c (b) 90c (c) 100c 5. (a) 7 x 5 = 35 (b) $4 \times 10 = 40$

6. (a)

7 ×5 45
9 40
6 35
8 30

(b)

3 ×10 80
7 30
8 70
4 40

Chapter 16 Division 3 Sharing among 5, 10

Page 79 1. **15** apples. **5** children. Each gets **3** apples. 2. **20** sweets. **5** children. Each gets **4** sweets.

3. **50** lollipop sticks. **5** children. Each gets **10** lollipop sticks. 4. $35 - 5 - 5 - 5 - 5 - 5 - 5 - 5 = 0$

I subtracted five **7** times, so each gets **7** sweets.

5. **30** pears. **10** children. Each gets **3** pears. 6. **50** lollipop sticks. **10** children. Each gets **5** lollipop sticks.

7. $80 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 = 0$. **10** children. I subtracted ten **8** times, so each gets **8** sweets.

8. (a) 8 (b) 4

Page 80 1. 30, 5, 6 $30 \div 5 = 6$

2. 40, 10, 4 $40 \div 10 = 4$

3. (a) 4 (b) 6 (c) 5 (d) 8 (e) 7 (f) 9 4. (a) 5 (b) 7 (c) 1 (d) 9 (e) 0 (f) 10

5. (a)

20 ÷5 7
15 9
35 4
45 3
30 6

(b)

30 ÷10 5
70 3
50 7
100 8
80 10

6. (a) 0; $30 \div 5 = 6$ (b) 0; $60 \div 10 = 6$

7. (a) 7; $7 \times 5 = 35$ (b) 9; $9 \times 5 = 45$ (c) 1; $1 \times 5 = 5$

8. (a) 3; $3 \times 10 = 30$ (b) 8; $8 \times 10 = 80$ (c) 10; $10 \times 10 = 100$

9. (a) 1, 2, 3, 5, 6, 7, 8, 9, 10 (b) 1, 2, 4, 5, 6, 7, 8, 9, 10

Page 81 1. (a) 8 (b) 7 (c) 9 2. (a) 8 (b) 9 (c) 6 3. 7 4. 10 5. 10 6. 7 7. 9 8. 9

Page 82 1. 6 2. 8 3. 7 4. 9 5. 10 6. 4 7. 7 8. 5 9. 8 10. 9 11. 10 12. 9

Chapter 17 Time 1   Hour, half hour, quarter to, quarter past

Page 83 1. (a) 6 o'clock **(b)** a quarter past 6   **(c)** a quarter to 7   **(d)** a quarter to 8   **(e)** a quarter past 7

  2. (a) Lee   **(b)** Liz   **(c)** Maria   **(d)** 15 minutes

Page 84 **(a) to 12**   **(b) past 12**; 10 minutes **to 12**   **(c) past 12**; 15 minutes **to 12**   **(d)** 20 minutes **to 12**; 20 minutes **past 12**

  (e) 25 minutes **to 12**; 25 minutes **past 12**

Page 85 1. (a) 4   **(b)** 7   **(c)** 9   **(d)** 11   **3. (a)** past   **(b)** to   **(c)** to   **(d)** past   **(e)** past

  5. (a) past 2   **(b)** to 4   **(c)** past 11   **(d)** to 6   **(e)** 5 to 1

Page 86 1. (a), (d), (e), (c), (b)

Chapter 18 Area   Covering surfaces

Page 87 1. (a) — (g); (b) — (e); (c) — (h); (d) — (f)   **2.** 6   **3.** 40

Page 88 1. 3   **2.** 64

Page 89 1.

part	area
one ear	10 squares
one eye	6 squares
nose	2 squares
mouth	6 squares
one arm	24 squares
tail	9 squares
one leg	27 squares
head	100 squares
body	144 squares

  2. (a) nose   **(b)** mouth   **(c)** one eye   **(d)** tail   **(e)** one ear   **(f)** one arm   **(g)** one leg   **(h)** head   **(i)** body

Page 90 1. A = 4   B = 4   C = 4   D = 4

Page 91 2. (g)

Page 92 1. 4   **2. a** = 1   **b** = 3   **c** = 2   **d** = 6   **e** = 1   **f** = 2   **g** = 1   **h** = many

Chapter 20 Fractions 2   Tenths ($\frac{1}{10}$)

Page 93 1. (a) red = $\frac{7}{10}$ blue = $\frac{3}{10}$ **(b)** blue = $\frac{1}{2}$ red = $\frac{1}{2}$ **(c)** blue = $\frac{1}{10}$ red = $\frac{9}{10}$

  (d) blue = $\frac{1}{2}$ red = $\frac{1}{2}$ **(e)** blue = $\frac{3}{10}$ red = $\frac{7}{10}$

  3. 1 slice; $\frac{1}{2}$; $\frac{5}{10}$; $\frac{5}{10}$ = $\frac{1}{2}$ or $\frac{1}{2}$ = $\frac{5}{10}$

Page 94 1. (a) 1 **(b)** 3 **(c)** 5 **(d)** 10 **(e)** 9 **(f)** 2 **(g)** 4   **2. (a)** 2 **(b)** 4 **(c)** 7 **(d)** 5 **(e)** 3 **(f)** 8 **(g)** 10 **(h)** 6

Page 95 1. (a) 20 **(b)** 40 **(c)** 70 **(d)** 80   **2. (a)** 3; 30 **(b)** 4; 40 **(c)** 1; 10 **(d)** 5; 50 **(e)** 10; 100 **(f)** 6; 60

  3. (a) 50 **(b)** 90 **(c)** 60 **(d)** 30 **(e)** 80 **(f)** 20 **(g)** 70 **(h)** 100

  4. (a) 40 **(b)** 60 **(c)** 50 **(d)** 30 **(e)** 70 **(f)** 80 **(g)** 20 **(h)** 90 **(i)** 10

Page 96 1. (a) 4 **(b)** 7 **(c)** 2 **(d)** 8 **(e)** 6 **(f)** 9 **(g)** 1 **(h)** 10   **2. (a)** 2 **(b)** 7 **(c)** 8 **(d)** 4 **(e)** 6 **(f)** 1 **(g)** 10 **(h)** 9

  3. (a) 3 **(b)** 4 **(c)** 8 **(d)** 10 **(e)** 5 **(f)** 6 **(g)** 7 **(h)** 9   **4. (a)** 2 **(b)** 6 **(c)** 7 **(d)** 10 **(e)** 7 **(f)** 5 **(g)** 8 **(h)** 9

  5. (a) 8 **(b)** 3 **(c)** 1 **(d)** 3 **(e)** 2 **(f)** 1 **(g)** 9 **(h)** 2 **(i)** 9 **(j)** 6 **(k)** 4 **(l)** 8

Page 97 1. 2, 2½, 3   **2.** 1½, 2½, 4, 4½, 5, 5½   **3.** 1¾, 2, 2¼, 2½, 2¾, 3   **4.** 1¾, 2¼, 2¾, 3½, 4

  6. ⅜, ⅝, 1⅜, 1⅜, 1⅝, 1⅞, 2¼, 2½, 2¾, 2⅞

Chapter 21 Decimals

Page 100 1. (c) 0·3 **(d)** 0·4 **(e)** 0·5 **(f)** 0·8   **2. (a)** $\frac{2}{10}$ = **0·2** **(b)** $\frac{5}{10}$ = **0·5** **(c)** $\frac{8}{10}$ = **0·8** **(d)** $\frac{6}{10}$ = **0·6** **(e)** $\frac{4}{10}$ = **0·4** **(f)** $\frac{1}{10}$ = **0·1**

Page 101 **(a)** 0·3 **(b)** 0·4 **(c)** 0·2 **(d)** 0·5 **(e)** 1·0 **(f)** 0·0

Page 102 1. (a) 1·2 **(b)** 1·6 **(c)** 1·8 **(d)** 1·9 **(e)** 2·0 **(f)** 2·2

Page 103 4. (a) 0·1 **(b)** 0·1 **(c)** 1·3   **5. (a)** 0·9 **(b)** 1·0 **(c)** 1·0

Page 105 1. (a) 20 + 30 + 4 + 5 → 50 + 9 = 59 **(b)** 30 + 20 + 6 + 2 → 50 + 8 = 58

  (c) 40 + 30 + 5 + 1 → 70 + 6 = 76 **(d)** 50 + 30 + 4 + 2 → 80 + 6 = 86

  (e) 30 + 20 + 4 + 7 → 50 + 11 = 61 **(f)** 40 + 30 + 8 + 5 → 70 + 13 = 83

  (g) 20 + 20 + 9 + 6 → 40 + 15 = 55   **(h)** 10 + 30 + 8 + 7 → 40 + 15 = 55

  2. (a) 100 + 200 + 20 + 40 + 3 + 5 → 300 + 60 + 8 = 368

  (b) 200 + 100 + 30 + 50 + 4 + 1 → 300 + 80 + 5 = 385

  (c) 300 + 200 + 20 + 50 + 2 + 7 → 500 + 70 + 9 = 579

  (d) 200 + 300 + 40 + 30 + 1 + 6 → 500 + 70 + 7 = 577

  (e) 100 + 100 + 20 + 30 + 6 + 5 → 200 + 50 + 11 = 261

  (f) 200 + 100 + 30 + 50 + 8 + 6 → 300 + 80 + 14 = 394

  (g) 400 + 300 + 20 + 50 + 7 + 5 → 700 + 70 + 12 = 782

  (h) 300 + 400 + 70 + 10 + 5 + 9 → 700 + 80 + 14 = 794

(i) $400 + 200 + 90 + 3 + 5 \rightarrow 600 + 90 + 8 = 698$ **(j)** $400 + 100 + 30 + 50 + 2 + 9 \rightarrow 500 + 80 + 11 = 591$

(k) $500 + 200 + 40 + 30 + 6 + 5 \rightarrow 700 + 70 + 11 = 781$

(l) $600 + 100 + 30 + 40 + 5 + 8 \rightarrow 700 + 70 + 13 = 783$

3. **(a)** $20 + 4 + 20 - 2 \rightarrow 40 + 4 - 2 \rightarrow 44 - 2 = 42$ **(b)** $30 + 3 + 30 - 1 \rightarrow 60 + 3 - 1 \rightarrow 63 - 1 = 62$

  (c) $30 + 4 + 30 - 3 \rightarrow 60 + 4 - 3 \rightarrow 64 - 3 = 61$ **(d)** $40 + 3 + 40 - 1 \rightarrow 80 + 3 - 1 \rightarrow 83 - 1 = 82$

  (e) $30 + 2 + 30 - 1 \rightarrow 60 + 2 - 1 \rightarrow 62 - 1 = 61$ **(f)** $40 + 2 + 40 - 1 \rightarrow 80 + 2 - 1 \rightarrow 82 - 1 = 81$

  (g) $20 + 2 + 20 - 2 \rightarrow 40 + 2 - 2 \rightarrow 42 - 2 = 40$

  (h) $50 + 2 + 50 - 1 \rightarrow 100 + 2 - 1 \rightarrow 102 - 1 = 101$

4. **(a)** $300 + 4 + 300 - 1 \rightarrow 600 + 4 - 1 \rightarrow 604 - 1 = 603$

  (b) $200 + 2 + 200 - 1 \rightarrow 400 + 2 - 1 \rightarrow 402 - 1 = 401$

  (c) $300 + 2 + 300 - 2 \rightarrow 600 + 2 - 2 \rightarrow 602 - 2 = 600$

  (d) $100 + 4 + 100 - 3 \rightarrow 200 + 4 - 3 \rightarrow 204 - 3 = 201$

  (e) $100 + 7 + 100 - 5 \rightarrow 200 + 7 - 5 \rightarrow 207 - 5 = 202$

  (f) $200 + 8 + 200 - 7 \rightarrow 400 + 8 - 7 \rightarrow 408 - 7 = 401$

  (g) $300 + 6 + 300 - 5 \rightarrow 600 + 6 - 5 \rightarrow 606 - 5 = 601$

  (h) $400 + 9 + 400 - 6 \rightarrow 800 + 9 - 6 \rightarrow 809 - 6 = 803$

  (i) $300 + 3 + 300 - 2 \rightarrow 600 + 3 - 2 \rightarrow 603 - 2 = 601$

  (j) $400 + 6 + 400 - 2 \rightarrow 800 + 6 - 2 \rightarrow 806 - 2 = 804$

  (k) $500 + 5 + 400 - 3 \rightarrow 900 + 5 - 3 \rightarrow 905 - 3 = 902$

  (l) $400 + 8 + 200 - 9 \rightarrow 600 + 8 - 9 \rightarrow 608 - 9 = 599$

Page 106 1. **(a)** 26 **(b)** 21 **(c)** 31 **(d)** 44 **(e)** 43 **(f)** 63 **(g)** 25 **(h)** 35

  2. **(a)** 135 **(b)** 221 **(c)** 222 **(d)** 213 **(e)** 431 **(f)** 322 **(g)** 643 **(h)** 643 **(i)** 276 **(j)** 643 **(k)** 653 **(l)** 531

  3. **(a)** 24 **(b)** 23 **(c)** 35 **(d)** 35 **(e)** 34 **(f)** 26 **(g)** 62 **(h)** 31

  4. **(a)** 155 **(b)** 387 **(c)** 277 **(d)** 438 **(e)** 238 **(f)** 265 **(g)** 256 **(h)** 195 **(i)** 688 **(j)** 447 **(k)** 547 **(l)** 485

Chapter 22   Multiplication 4   Groups of 7

Page 107 1. **4** boxes. **7** pens in each. **28** altogether. $4 \times 7 = \mathbf{28}$

  2. **6** glasses. **7** straws in each. **42** altogether. $6 \times 7 = \mathbf{42}$

  3. 7, 14, 21, 28, 35, 42, 49, 56, 63, 70; 42; 63   4. **(a)** $5 \times 7 = 35$ **(b)** $8 \times 7 = 56$

  5. **(a)** $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 56$ **(b)** $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 63$

  (c) $7 + 7 + 7 + 7 + 7 + 7 + 7 = 49$

  6. $5 \times 7 = \mathbf{35}$ markers $8 \times 7 = \mathbf{56}$ balloons

  7. **(a)** 21 **(b)** $5 \times 7 = \mathbf{35}$ **(c)** $4 \times 7 = \mathbf{28}$ **(d)** $6 \times 7 = \mathbf{42}$ 8. 7, 14, 21, 28, 35, 42, 49, 56, 63, 70

Page 108 1. **(a)** 21 **(b)** 42 **(c)** 56 **(d)** 14 **(e)** 35 **(f)** 7   2. **(a)** 28 **(b)** 49 **(c)** 63 **(d)** 21 **(e)** 0 **(f)** 70

  3. **(a)** 35c **(b)** 56c **(c)** 70c **(d)** 21c **(e)** 63c **(f)** 28c   4. **(a)** 42c **(b)** 63c **(c)** 49c **(d)** 70c **(e)** 35c **(f)** 0

  5. **(a)** 28 **(b)** 42 **(c)** 63   6. **(a)** 35 **(b)** 56 **(c)** 70   7. 8c   8. 4 left

Chapter 23   Division 4   Sharing among 7

Page 109 1. **21** oranges altogether. **7** children. Each gets **3**.

  2. $35 - 7 - 7 - 7 - 7 - 7 = \mathbf{0}$; **7** children. Subtracted seven **5** times, each gets **5** sweets.

  3. $56 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 = \mathbf{0}$; subtract 7 plums from **56** plums **8** times.

  4. **6** ; **6** ; $42 - 7 - 7 - 7 - 7 - 7 - 7 = \mathbf{0}$; $42 \div 7 = \mathbf{6}$ 5. **(a)** $28 \div 7 = \mathbf{4}$ **(b)** $56 \div 7 = \mathbf{8}$

  6. **(a)** 2 **(b)** 5 **(c)** 3   7. **(a)** $28 \div 7 = \mathbf{4}$ $4 \times 7 = 28$ **(b)** $42 \div 7 = \mathbf{6}$ $6 \times 7 = \mathbf{42}$ **(c)** $63 \div 7 = \mathbf{9}$ $9 \times 7 = \mathbf{63}$

  8. **(a)** $5 \times 7 = \mathbf{35}$ $35 \div 7 = \mathbf{5}$ **(b)** $8 \times 7 = \mathbf{56}$ $56 \div 7 = \mathbf{8}$ **(c)** $6 \times 7 = \mathbf{42}$ $42 \div 7 = \mathbf{6}$

  9. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Page 110 1. **(a)** 5 **(b)** 5 **(c)** 5 **(d)** 5   2. **(a)** $56 \div 7 = \mathbf{8}$ **(b)** 56, 8 **(c)** 8, 56 **(d)** $\frac{56}{7} = 8$

  3. **(a)** $63 \div 7 = \mathbf{9}$ **(b)** 7, 63, 9 **(c)** 9, 63 **(d)** $\frac{63}{7} = 9$

  4. **(a)** 7 **(b)** 6 **(c)** 8   5. 49   6. 5   7. 10   8. 9   9. 8   10. 6

Chapter 24   Estimation   Rounding to 10s and 100s

Page 111 1. **(a)** 10 **(b)** 30 **(c)** 30 **(d)** 40 **(e)** 50 **(f)** 70 **(g)** 90 **(h)** 90 **(i)** 30 **(j)** 50 **(k)** 50 **(l)** 90 **(m)** 60

  (n) 70 **(o)** 50 **(p)** 90

  2. **(a)** 180 **(b)** 190 **(c)** 190 **(d)** 190 **(e)** 190 **(f)** 200 **(g)** 200 **(h)** 210 **(i)** 270 **(j)** 290

  (k) 320 **(l)** 420 **(m)** 380 **(n)** 560 **(o)** 680 **(p)** 990

  3. **(a)** 300 **(b)** 200 **(c)** 400 **(d)** 500 **(e)** 700 **(f)** 600 **(g)** 700 **(h)** 100 **(i)** 200 **(j)** 400 **(k)** 500 **(l)** 700

  (m) 800 **(n)** 800 **(o)** 400 **(p)** 900 **(q)** 800 **(r)** 900 **(s)** 700 **(t)** 700 **(u)** 600

Page 112 **1.** (a) 149 **150**; **100** 195 **200**; **200** 250 **250**; **300** 286 **290**; **300** 319 **320**; **300** 347 **350**; **300** 351 **350**;
400 389 **390**; **400** 445 **450**; **400**
(b) 458 **460**; **500** 576 **580**; **600** 512 **510**; **500** 778 **780**; **800** 896 **900**; **900** 617 **620**; **600** 485 **490**;
500 811 **810**; **800** 945 **950**; **900** 750 **750**; **800**

2. (a) 17 → 20   (b) 27 → 30   (c) 31 → 30   (d) 52 → 50
　　　+ 33 → 30   　　+ 53 → 50   　　+ 45 → 50   　　+ 39 → 40
　　　50　　50   　　80　　80   　　76　　80   　　91　　90

3. (a) 132 → 100   (b) 274 → 300   (c) 417 → 400   (d) 479 → 500
　　　+ 316 → 300   　　+ 225 → 200   　　+ 184 → 200   　　+ 137 → 100
　　　448　　400   　　499　　500   　　601　　600   　　616　　600

(e) 341 → **300**   (f) 450 → **500**   (g) 518 → **500**   (h) 723 → **700**
　　+ 208 → **200**   　　+ 342 → **300**   　　+ 350 → **400**   　　+ 179 → **200**
　　549　　500   　　792　　800   　　868　　900   　　902　　900

Page 113 **1.** (a) 38 → **40**   (b) 52 → **50**   (c) 48 → **50**   (d) 82 → **80**
　　　− 11 → 10   　　− 25 → 30   　　− 22 → 20   　　− 39 → 40
　　　27　　30   　　27　　20   　　26　　30   　　43　　40

(e) 76 → **80**   (f) 53 → **50**   (g) 87 → **90**   (h) 94 → **90**
　　− 23 → 20   　　− 35 → 40   　　− 42 → 40   　　− 27 → 30
　　53　　60   　　18　　10   　　45　　50   　　67　　60

2. (a) 489 → **500**   (b) 612 → **600**   (c) 743 → **700**   (d) 827 → **800**
　　　− 122 → **100**   　　− 237 → **200**   　　− 250 → **300**   　　− 378 → **400**
　　　367　　400   　　375　　400   　　493　　400   　　449　　400

(e) 874 → **900**   (f) 850 → **900**   (g) 791 → **800**   (h) 949 → **900**
　　− 292 → **300**   　　− 635 → **600**   　　− 309 → **300**   　　− 652 → **700**
　　582　　600   　　215　　300   　　482　　500   　　297　　200

Page 114 **1.**　　304　　|　　320　| **2.**　　86　| **3.**　　498
　　173　**131**　|　163　　157　|　38　　48　|　**234**　**264**
　78　**95**　36　|　74　89　**68**　| 17　21　**27**　| 109　**125**　**139**
　　　　　　　　　　　　　　　　| 8　9　**12**　15　| 52　57　**68**　71
　　　　　　　　　　　　　　　　| 6　2　7　5　10 | 27　**25**　32　36　**35**
　　　　　　　　　　　　　　　　　　　　　　　| 15　**12**　**13**　19　**17**　18

4. 8 days — no slide back on the 8th day   **5.** 50

Chapter 25   Capacity   Litres, millilitres

Page 115 **2.** (a) 5ml   (b) 12ml   (c) 24ml   **3.** (a) 20ml   (b) 35ml   (c) 50ml   **4.** 120ml   **5.** 180ml

Page 116 **1.** (a) 4l 790ml   (b) 6l 670ml   (c) 6l 810ml   (d) 5l 840ml
2. (a) 4l 730ml   (b) 6l 670ml   (c) 6l 860ml   (d) 7l 890ml
3. (a) 3l 440ml   (b) 3l 640ml   (c) 3l 430ml   (d) 4l 350ml
4. (a) 4l 280ml   (b) 3l 370ml   (c) 4l 370ml   (d) 3l 490ml
5. (a) 5l 790ml   (b) 6l 720ml   (c) 7l 720ml
6. (a) 3l 370ml   (b) 2l 140ml   (c) 4l 180ml
7. (a) 4l 270ml   (b) 3l 370ml   (c) 6l 190ml   **8.** (a) 4l 340ml   (b) 3l 290ml   (c) 4l 540ml

Page 117 **1.** (a) 250ml   (b) 400ml   (c) 400ml   (d) 700ml   (e) 750ml
2. (a) 2   (b) 4   (c) 1   (d) 4   (e) 1   (f) 2   (g) 2   (h) 2   (i) 4   (j) 1

Page 118 **1.** 4l 750ml   **2.** 4l 610ml   **3.** 350ml   **4.** 1l 500ml   **5.** 2l 260ml   **6.** 1l 250ml   **7.** 4l 520ml
8. 1l 170ml   **9.** 6l 810ml   **10.** 400ml   **11.** 310ml   **12.** 2l 190ml

Chapter 26   Division 5   Without and with remainders

1. (a) 6; 8; 9; 7   (b) 4; 6; 8; 10   (c) 5; 7; 9; 6   (d) 1; 6; 9; 8   (e) 4; 8; 0; 9   (f) 0; 9; 6; 8   (g) 4; 0; 9; 6
(h) 5; 7; 9; 0   (i) 8; 10; 7; 1   **2.** (a) 3 R 2   (b) 2 R 1   **3.** (a) 3 R 1   (b) 3 R 2   (c) 4 R 5

Page 120 **1.** (a) 3 R 4   (b) 3 R 4   (c) 3 R 4   (d) 3 R 4   **2.** (a) 6 R 1   (b) 8 R 1   (c) 9 R 1   (d) 5 R 1
3. (a) 3 R 2   (b) 4 R 2   (c) 5 R 1   (d) 6 R 2   **4.** (a) 2 R 1   (b) 4 R 3   (c) 7 R 2   (d) 8 R 2
5. (a) 4 R 1   (b) 5 R 3   (c) 7 R 4   (d) 9 R 2   **6.** (a) 3 R 2   (b) 4 R 5   (c) 6 R 5   (d) 8 R 2
7. (a) 2 R 2   (b) 4 R 5   (c) 6 R 5   (d) 9 R 3   **8.** (a) 3 R 3   (b) 4 R 7   (c) 6 R 6   (d) 8 R 6
9. (a) 2 R 3   (b) 3 R 7   (c) 5 R 6   (d) 6 R 7   **10.** (a) 3 R 7   (b) 7 R 6   (c) 8 R 9   (d) 9 R 7   **11.** (a) 5 R 2   (b) 4 R 6

Page 121 **1.** 14   **2.** 19   **3.** 13   **4.** 27   **5.** 16

Page 122 **1.** (a) 15   (b) 14   (c) 13   (d) 12   (e) 12   (f) 13   (g) 18   (h) 19   (i) 17   (j) 14   (k) 15   (l) 13   (m) 19   (n) 16   (o) 19
2. (a) 14   (b) 17   (c) 15   (d) 18   (e) 18   (f) 24   (g) 26   (h) 28   (i) 29   (j) 23   (k) 12   (l) 23   (m) 22   (n) 15   (o) 24

3. **(a)** 14 R 1 **(b)** 16 R 1 **(c)** 14 R 1 **(d)** 13 R 3 **(e)** 12 R 4 **(f)** 18 R 2 **(g)** 17 R 1 **(h)** 17 R 4 **(i)** 15 R 5 **(j)** 13 R 6 **(k)** 12 R 3 **(l)** 24 R 2 **(m)** 29 **(n)** 30 R 2 **(o)** 39 R 1 **(p)** 18 R 1 **(q)** 19 R 2 **(r)** 19 R 3 **(s)** 14 R 1 **(t)** 31 R 1

Page 123 A 1. **(a)** 24 **(b)** 12 **(c)** 8 **2.** **(a)** 12 **(b)** 15 **(c)** 6 **3.** **(a)** 16 **(b)** 12 **(c)** 24 **4.** **(a)** 6 **(b)** 7 **(c)** 14 **5.** **(a)** 17 **(b)** 23 **(c)** 19 **(d)** 22 **6.** **(a)** 13 **(b)** 15 **(c)** 14 **(d)** 12

B 1. 12 R 3 **2.** 13 R 4 **3.** 11 R 2 **4.** 14 R 3 **5.** 13 R 4 **6.** 12 R 3

Page 124 1. **(a)** 15 R 1 **(b)** 17 R 1 **(c)** 19 R 1 **(d)** 13 R 2 **(e)** 14 R 3 **(f)** 12 R 3 **(g)** 13 R 1 **(h)** 13 R 4 **(i)** 11 R 4 **(j)** 12 R 5 **2.** **(a)** 12 R 5 **(b)** 11 R 5 **(c)** 24 R 1 **(d)** 28 R 2 **(e)** 12 R 3 **(f)** 15 R 3 **(g)** 18 R 3 **(h)** 14 R 3 **(i)** 16 R 4 **(j)** 18 R 2 **3.** **(a)** 22 R 2 **(b)** 21 R 3 **(c)** 37 R 1 **(d)** 29 R 2 **(e)** 23 R 2 **(f)** 16 R 4 **(g)** 14 R 5 **(h)** 13 R 5 **(i)** 11 R 5 **(j)** 12 R 4 **4.** **(a)** 17 R 3 **(b)** 15 R 5 **(c)** 16 R 1 **(d)** 25 R 1 **(e)** 49 R 1 **(f)** 14 R 3 **(g)** 16 R 2 **(h)** 22 R 2 **(i)** 13 R 4 **(j)** 12 R 3 **5.** **(a)** 16 R 4 **(b)** 18 R 1 **(c)** 5 **(d)** 2 **(e)** 18 R 2

Page 125 1. 2 packs of cube-shaped candles, 1 pack of sphere-shaped candles **2.** 24 48 **3.** Q: 163 – 138 163 + 138 **4.** Q: 300 – 162 Q: 162 + 162 **5.** 14. 9, 4, 1 **6.** 6, 12, 15

Page 126 1. **(a)** 8 **(b)** 6 **(c)** 2 **(d)** 8 **(e)** top middle or bottom **(f)** any two corner sticks **(g)** two top left and one between **(h)** any five end sticks **2.** A = €2·40 B = €3·40 C = €3·15 D = €2·80 E = €2·99 F = €3·20 **3.** 1. B 2. F 3. C 4. E 5. D 6. A

Chapter 27 Look back

1. 327, 419, 530, 789, 864, 902 **2.** 900, 810, 749, 609, 587, 289 **3.** **(a)** units **(b)** hundreds **(c)** tens **(d)** tens **(e)** units **(f)** hundreds **4.** **(a)** 89 **(b)** 189 **(c)** 258 **(d)** 547 **(e)** 956 **(f)** 900 **(g)** 73 **(h)** 273 **(i)** 284 **(j)** 298 **(k)** 879 **(l)** 805 **(m)** 58 **(n)** 258 **(o)** 336 **(p)** 748 **(q)** 959 **(r)** 606 **5.** **(a)** 300 **(b)** 300 **(c)** 400 **(d)** 900 **(e)** 700 **(f)** 800 **(g)** 900 **6.** **(a)** 700 **(b)** 700 **(c)** 900 **7.** **(a)** 2m 39cm **(b)** 3m 50cm **(c)** 4m 5cm **8.** **(a)** 317cm **(b)** 460cm **(c)** 509cm **9.** **(a)** 10 **(b)** 17 **10.** **(a)** 24c **(b)** 48c **(c)** 72c

Page 128 1. **(a)** 5 **(b)** 7 **(c)** 7 **(d)** 9 **(e)** 7 **(f)** 7 **(g)** 8 **(h)** 9 **(i)** 7 **(j)** 9

2. **(a)** $7 \times 5 = 35$ **(b)** $8 \times 10 = 80$
$5 \times 7 = 35$ $10 \times 8 = 80$
$35 \div 7 = 5$ $80 \div 8 = 10$
$35 \div 5 = 7$ $80 \div 10 = 8$

4. **(a)** 6 **(b)** 80 **5.** 42 **6.** 8 **7.** **(a)** 5 R 1 **(b)** 5 R 6 **(c)** 6 R 5 **(d)** 10 R 4 **(e)** 7 R 3 **(f)** 9 R 8 **(g)** 9 R 6

Page 129 1. **(a) (b)** **2.** **(a)** ³⁄₁₀ **(b)** 0·3 **(c)** ⁷⁄₁₀ **(d)** 0·7 **3.** ¹⁄₁₀, 0·3, ⁴⁄₁₀, 0·5, 0·7, ⁹⁄₁₀ **4.** **(c)** 0·2 **5.** **(a)** 17 **(b)** 17 **(c)** 16 **(d)** 15 R 2 **(e)** 14 R 4 **(f)** 13 **6.** 63 **7.** 8 lollipops. 6c left **8.** 12 bags. 1 left **9.** **(a)** 63c **(b)** 10 R 5c

Page 130 1. **(a)** 9 **(b)** 7 **(c)** 9 **2.** **(a)** 70 **(b)** 48 **(c)** 45 **3.** **(a)** 6 R 3 **(b)** 24 R 2 **(c)** 12 R 6 **(d)** 23 R 3 **4.** ²⁄₁₀, ⁴⁄₁₀, ⁵⁄₁₀, ⁶⁄₁₀, ⁸⁄₁₀, ⁹⁄₁₀ **5.** 0·1, 0·3, 0·4, 0·6, 0·7, 0·9 **6.** **(a)** ½ **(b)** ⁷⁄₁₀ **(c)** ¼ **7.** **(a)** 18, 18 **(b)** 30, 30 **(c)** 14, 28, 56 **8.** 11 bags. 3 left **9.** 6 **10.** 9

Chapter 28 Lines and angles

Page 132 1. (a), (c), (e), (f)
Page 133 4. (b), (c), (d)

Chapter 29 2-D shapes

Page 135 2. many **3.** 13
Page 136 2.

a	b	c	d	e	f
triangle	square	rectangle	hexagon	irregular four-sided shape	irregular hexagon
3	4	4	6	4	6
0	4	4	0	1	2
3	0	0	0	1	0
0	0	0	6	2	4
0	2	2	3	0	3

Chapter 30 Money euro and cent

Page 139 1. **(a)** 120c **(b)** 1 euro + 30c = 100c + 30c = 130c **(c)** 1 euro + 60c = 100c + 60c = 160c **(d)** 2 euro + 0c = 200c + 0c = 200c **(e)** 2 euro + 50c = 200c + 50c = 250c **(f)** 3 euro + 15c = 300c + 15c = 315c **(g)** 5 euro + 68c = 500c + 68c = 568c **2.** **(a)** 400c **(b)** 430c **(c)** 435c **(d)** 546c **(e)** 680c **(f)** 740c **(g)** 845c **(h)** 900c

3. (a) 400c + 47c = 4 euro + 47c = €4·47   **(b)** 600c + 78c = 6 euro + 78c = €6·78

4. (a) €7·45 **(b)** €6·00 **(c)** €6·70 **(d)** €7·40 **(e)** €8·00 **(f)** €8·94 **(g)** €9·00 **(h)** €9·76

Page 140 1. (a) €0·50 **(b)** €0·65 **(c)** €0·72 **(d)** €0·84 **(e)** €0·99   **2. (a)** 45c **(b)** 53c **(c)** 61c **(d)** 75c **(e)** 89c

4. (a) €5·75 **(b)** €6·40 **(c)** €8·26 **(d)** €6·33 **(e)** €5·84 **(f)** €6·16 **(g)** €8·00 **(h)** €3·58 **(i)** €7·00

Page 141 1. (a) €0·90 **(b)** €0·80 **(c)** €0·71 **(d)** €0·85 **(e)** €0·76 **(f)** €0·55 **(g)** €0·82 **(h)** €0·64 **(i)** €0·43

(j) €0·63 **(k)** €0·96 **(l)** €0·60   **2. (a)** Henry's **(b)** Ciara's

Page 142 2. (a) 386c **(b)** 368c **(c)** 376c **(d)** 504c **(e)** 251c **(f)** 302c

3. A = €3·42   **V** = €2·74   **C** = €2·39   **N** = €1·67   **E** = €3·04   **T** = €4·07   **S** = €5·12   **D** = €3·77

I = €2·73   **W** = €2·29   **R** = €5·45   **H** = €2·81   **G** = €8·23   A TRAIN DRIVER'S EGG SANDWICH

Page 143 1. €2·05   **2.** €4·03   **3.** 11c   **4.** €2·87   **5.** €2·85   **6.** No.   **7.** Yes.   **8.** €3·01

Page 144 1. €1·95   **2. (b)**   **3. (c)**

Chapter 31   Multiplication 5   Interesting facts

Page 145 1. $5 \times 6 = 30$

$6 \times 5 = 30$

$5 \times 6 = 6 \times 5 = 30$

2. (a) $8 \times 4 = 4 \times 8 = 32$ **(b)** $6 \times 9 = 9 \times 6 = 54$ **(c)** $8 \times 9 = 9 \times 8 = 72$

3. $7 \times 3 = 21$ $(5 \times 3) + (2 \times 3) = 15 + 6 = 21$ $7 \times 3 = (5 \times 3) + (2 \times 3) = 21$

4. $9 \times 3 = (3 \times 3) + (6 \times 3) = 27$ **5. (a)** 16 **(b)** 30 **(c)** $(7 \times 3) = 27$ **(d)** $(3 \times 4) = 40$ **(e)** $(7 \times 5) = 35$ **(f)** $9 \times 3 = 27$

(g) $10 \times 4 = 40$ **(h)** $10 \times 4 = 40$ **6. (a)** $2 \times 6 = 12$, $4 \times 6 = 24$, $8 \times 6 = 48$ **(b)** $7 \times 2 = 14$, $7 \times 4 = 28$, $7 \times 8 = 56$

7. (a) $3 \times 4 = 12$, $9 \times 4 = 36$ **(b)** $7 \times 3 = 21$, $7 \times 9 = 63$

Page 146 1. (a) 7 **(b)** 9 **(c)** 10 **(d)** 12 **(e)** 16 **(f)** 23 **(g)** 15 **(h)** 27 **(i)** 59   **2. (a)** 0 **(b)** 0 **(c)** 0 **(d)** 0 **(e)** 0 **(f)** 0

3. (a) 70 **(b)** 40 **(c)** 60 **(d)** 30 **(e)** 80 **(f)** 100 **(g)** 90 **(h)** 120 **(i)** 170 **(j)** 260 **(k)** 580 **(l)** 790

(m) 200 **(n)** 300 **(o)** 400 **(p)** 500 **(q)** 600 **(r)** 700

4. (a) $50 \times 10 = 500$ **(b)** $60 \times 10 = 600$ **(c)** $50 \times 10 = 500$ **(d)** $60 \times 10 = 600$ **(e)** $70 \times 10 = 700$ **(f)** $80 \times 10 = 800$

Page 147 1. (a) 28 **(b)** 45   **2. (a)** 12 **(b)** 20 **(c)** 15 **(d)** 24 **(e)** 28 **(f)** 35 **(g)** 30

3. (a) 42 **(b)** 24 **(c)** 36 **(d)** 27 **(e)** 56 **(f)** 72 **(g)** 90

4. (a) 180 **(b)** 80 **(c)** 120 **(d)** 60 **(e)** 150

Page 148 1. (a) $18 + 18 + 18 + 18 = 72$ **(b)** $40 + 32 = 72$ **2. (a)** $17 \times 5 = 85$ **(b)** $14 \times 7 = 98$

3. (a) $14 \times 3 = 42$ **(b)** $19 \times 4 = 76$ **(c)** $18 \times 7 = 126$ **(d)** $15 \times 9 = 135$ **(e)** $16 \times 8 = 128$ **(f)** $19 \times 9 = 171$

4. (a) $24 \times 6 = 144$ **(b)** $25 \times 7 = 175$ **(c)** $23 \times 8 = 184$ **(d)** $26 \times 4 = 104$ **(e)** $27 \times 3 = 81$

Page 149 1. (a) 65 **(b)** 68 **(c)** 95 **(d)** 91 **(e)** 90   **2. (a)** 84 **(b)** 57 **(c)** 98 **(d)** 80 **(e)** 76

3. (a) 115 **(b)** 162 **(c)** 140 **(d)** 195 **(e)** 138

4. (a) 212 **(b)** 335 **(c)** 344 **(d)** 576 **(e)** 602

5. (a) 90 **(b)** $40 \times 7 = 280$ **(c)** $70 \times 10 = 700$ **(d)** $60 \times 9 = 540$

6. (a) $38 \rightarrow 40$ **(b)** $53 \rightarrow 50$ **(c)** $69 \rightarrow 70$

$\times 7$	$\times 7$	$\times 8$	$\times 8$	$\times 5$	$\times 5$
266	**280**	**424**	**400**	**345**	**350**

Page 150 1. 140   **2.** 238   **3.** 216   **4.** 270   **5.** 234   **6.** 768   **7.** 288   **8.** 252   **9.** 168   **10.** 405

Page 152 1. (a) Soap Sudz   **(b)** Animal Trackers   **(c)** Crazy News

(d) 5 minutes   **(e)** 1½ hours; 20 minutes; 40 minutes; 35 minutes; 15 minutes; 40 minutes

(f) Animal Trackers   **(g)** Poppy's Rainbow   **(h)** Games Alive, Tip of the Tops

2. (a) 9:00   **(b)** 9:30   **(c)** 10:30 — 10:55   **(d)** 1 hr 30 mins   **(e)** 10 minutes   **(f)** 11:40   **(g)** 30 minutes

(h) bus 3 — 1:00

Page 153 2. (a) 50 mins   **(b)** shorter than an hour   **(c)** 75 mins   **(d)** 1 hr 15 mins   **(e)** 16   **(f)** 18   **(g)** 90

3. (a) 65 minutes   **(a)** 1 hour 5 minutes

(b) 70 minutes   **(b)** 1 hour 15 minutes

(c) 75 minutes   **(c)** 1 hour 20 minutes

(d) 90 minutes   **(d)** 1 hour 40 minutes

(e) 100 minutes   **(e)** 1 hour 50 minutes

(f) 120 minutes   **(f)** 1 hour 55 minutes

4. (a) 70 minutes **(b)** 1 hr 10 mins **(c)** 1 hr 25 mins

Page 154 1. July   **2.** Friday 4 August   **3.** 4 days   **4.** visit museum   **5.** hill walk   **6.** Thursday 17 August

7. canoe adventure   **8.** 2 weeks   **9.** 22 days. 3 weeks 1 day   **10.** 28 August

Page 155 1. sunflowers — 160cm, roses — 80cm, apple tree — 260cm, lilies — 50cm

2. Monday — 2,   Tuesday — 3,   Wednesday — 5,   Thursday — 5,   Friday — 5;   Wednesday

Page 156 1. 6th hour

1st hour	2nd hour	3rd hour	4th hour	5th hour	6th hour	7th hour
105	100	90	75	55	30	0
5	10	15	20	25	30	0
100	90	75	55	30	0	0

    2. (a) Aoife   **(b)** Viv   **(c)** Eli   **(d)** Ray   **(e)** Orla

Page 157 1. (a) 6g **(b)** 12g **(c)** 16g   **2. (a)** 8g **(b)** 20g **(c)** 28g   **3. (a)** 12g **(b)** 24g **(c)** 30g   **4.** 42g   **5.** 42g

    6. (a) 500g **(b)** 300g **(c)** 400g **(d)** 800g   **7. (a)** 650g **(b)** 500g **(c)** 800g **(d)** 600g **(e)** 950g

    8. (a) 200g **(b)** 250g **(c)** 150g **(d)** 250g **(e)** 150g   **9. (a)** 200g **(b)** 350g **(c)** 300g **(d)** 100g

Page 160 1. (a) 4kg 590g   **(b)** 3kg 820g   **(c)** 2kg 830g   **(d)** 3kg 770g   **(e)** 3kg 850g

    2. (a) 3kg 760g **(b)** 3kg 740g **(c)** 3kg 720g **(d)** 3kg 810g   **3. (a)** 2kg 270g **(b)** 1kg 440g **(c)** 1kg 360g

    (d) 2kg 230g **(e)** 1kg 640g   **4. (a)** 1kg 350g **(b)** 2kg 440g **(c)** 1kg 570g **(d)** 2kg 410g **(e)** 3kg 470g

    5. (a) 1kg 350g **(b)** 1kg 450g

Chapter 34   Number sentences   Add or subtract

Page 161 1. (a) 6   **(b)** 6   **(c)** 14   **(d)** 18   **(e)** 5   **(f)** 7   **(g)** 18   **(h)** 57   **(i)** 45

    2. $6 + 7 + 2 = 15$ | $2 + 9 + 4 = 15$ | $6 + 1 + 8 = 15$ | $8 + 3 + 4 = 15$

        $15 - (6 + 2) = 7$ | $15 - (2 + 4) = 9$ | $15 - (8 + 6) = 1$ | $15 - (8 + 4) = 3$

    3.

7	1	10		10	**3**	8		7	6	11		12	**13**	8
9	**6**	**3**		5	**7**	**9**		**12**	8	**4**		7	11	**15**
2	**11**	5		6	**11**	4		5	**10**	9		**14**	**9**	10

Page 162 1. $3 \times 7 = 21$ $4 \times 5 = 20$ $5 \times 9 = 45$ **(a)** $21 \div 3 = 7$ **(b)** $20 \div 4 = 5$ **(c)** $45 \div 5 = 9$

    2. (a) $2 \times 6 = 12$ **(b)** $4 \times 7 = 28$ **(c)** $5 \times 7 = 35$ **(d)** $7 \times 6 = 42$ **(e)** $3 \times 13 = 39$ **(f)** $4 \times 20 = 80$

    (g) $5 \times 15 = 75$ **(h)** $6 \times 13 = 78$ **(i)** $4 \times 23 = 92$

    3. (a) $3 + 2 - 1 = 4$ **(b)** $3 + 2 + 1 = 6$ **(c)** $3 \times 2 - 1 = 5$ **(d)** $3 \times 2 + 1 = 7$

Page 163   **(a)** 26   **(b)** 1   **(c)** 16   **(d)** 50   **(e)** 2   **(f)** 20

    1. €2   **2.** 1   **3.** 20   **4.** 26c   **5.** 50   **6.** 16   **(a)** 4   **(b)** 2   **(c)** 6   **(d)** 5   **(e)** 1   **(f)** 3

Page 164   **(a)** 83   **(b)** 27   **(c)** 0   **(d)** 29   **(e)** 54   **(f)** 54

    1. 54   **2.** 29   **3.** 83   **4.** 0   **5.** 27c   **6.** 54   **(a)** 3   **(b)** 5   **(c)** 4   **(d)** 2   **(e)** 6   **(f)** 1

Page 169   **step 1 (a)** 32   **(b)** 54   **(c)** 34   **(d)** 38   **(e)** 39   **(f)** 45   **(g)** 42   **(h)** 48   **(i)** 36   **(j)** 51   **(k)** 57   **(l)** 52   **(m)** 56

    step 2 **S** = 32   **N** = 34   **O** = 36   **W** = 48   **T** = 39   **H** = 54   **I** = 51

           E = 45   **F** = 57   **A** = 38   **R** = 42   **M** = 56   **L** = 52

    step 3 WHAT IS THE NAME OF THE SMALLEST IRISH MAMMAL?

Chapter 36   Look back

Page 171 1. (a) 346   **(b)** 409   **(c)** 540   **(d)** 627   **2.** 97, **98, 99, 100, 101,** 102, **103**;   794, **795,** 796, 797, 798, 799, 800

    3. (a) 276   **(b)** 490   **(c)** 706   **(d)** 834

    4. (a) 24, **25, 26, 27** | **(b)** 46, 47, 48, 49 | **(c)** 57, **58, 59, 60** | **(d)** 61, **62, 63, 64**

           34, 35, 36, 37 | **56,** 57, 58, 59 | **67, 68, 69,** 70 | **71, 72, 73, 74**

           44, 45, **46,** 47 | **66, 67, 68,** 69 | **77, 78,** 79, 80 | **81, 82, 83,** 84

    5. (a) 66, 76, 86   **(b)** 154, 164, 174   **(c)** 556, 546, 536   **(d)** 572, 472, 372

    (e) 152, 156, 160   **(f)** 570, 564, 558

    6. (a) 868   **(b)** 855   **(c)** 735   **(d)** 344   **(e)** 354

    7. (a) 697   **(b)** 762   **(c)** 778   **(d)** 745   **(e)** 843   **(f)** 774

    8. (a) 324   **(b)** 563   **(c)** 552   **(d)** 293   **(e)** 573   **(f)** 213

Page 172 1. (a) blue = ¾ green = ¼   **(b)** blue = ½ green = ½   **(c)** blue = ⅝ green = ⅜   **(d)** blue = ⅞ green = ⅛

    2. (a) 6 **(b)** 5 **(c)** 5 **(d)** 7 **(e)** 8 **(f)** 6 **(g)** 9 **(h)** 8   **3. (a)** ½ **(b)** ¼ **(c)** ½ **(d)** ¼ **(e)** ¹/₁₀ **(f)** ⅛

    4. (a) 5 past 6 **(b)** 20 to 9 **(c)** 25 past 4 **(d)** 10 to 9 **(e)** 25 to 7   **5. (a)** It is 4 o'clock.   **(b)** It is ½ past 5.

    (c) It is ¼ past 3.   **(d)** It is 25 past 6.   **6. (a)** triangle   **(b)** semi-circle   **(c)** rectangle   **(d)** hexagon

Page 173 1. (a) 8 **(b)** 15 **(c)** 24 **(d)** 16   **2. (a)** 32 **(b)** 42 **(c)** 56 **(d)** 27   **3. (a)** 70 **(b)** 30 **(c)** 54 **(d)** 64

    4. (a) 3 **(b)** 9 **(c)** 5 **(d)** 6   **5. (a)** 6 **(b)** 5 **(c)** 7 **(d)** 8   **6. (a)** 9 R 2 **(b)** 7 R 3 **(c)** 7 R 3 **(d)** 6 R 4

    7. (a) 7 R 3   **(b)** 7 R 4   **(c)** 8 R 5   **(d)** 7 R 4   **8. (a)** 72 **(b)** 72 **(c)** 90 **(d)** 104 **(e)** 133 **(f)** 288 **(g)** 384

    9. (a) €3·64   **(b)** €4·07   **(c)** €5·82   **(d)** €3·52   **(e)** €3·74   **10.** €1·73   **11.** €1·52

    12. (a) 5m 73cm   **(b)** 7m 32cm   **(c)** 4kg 450g   **(d)** 4kg 770g   **(e)** 5l 630ml   **(f)** 6l 740ml

    13. 2kg 170g   **14.** 1l 150ml

Page 174 1. 768   **2.** €1·07   **3.** 12   **4.** 9   **5.** 40c   **6.** 8   **7.** 8   **8.** €1·60   **9.** 743   **10.** 10:15

    11. 1 in 6   **12.** 3   **13.** 378   **14.** 312

Mathemagic Shadow Book 3 Answers

Page 1   **1. (a)** 287, **288**, 289, 290, 291, 292, **293**, **294**, **295**, 296, **297**, 298
      (b) 695, **696**, **697**, 698, **699**, 700, **701**, 702, **703**, **704**, **705**, **706**, 707, **708**
      (c) **894**, **895**, **896**, 897, **898**, **899**, **900**, **901**, **902**, **903**, 904, **905**, **906**
   2. (a) 67   **(b)** 90   **(c)** 151   **(d)** 302   **(e)** 603   **(f)** 892   **(g)** 905
   3. (a) 84   **(b)** 89   **(c)** 150   **(d)** 258   **(e)** 496   **(f)** 599   **(g)** 798
   4. 867, 872, 889, 891, 899, 901, 912; 871; 886; 899; 891; 972; 812
   5. (a) 94   **(b)** 113   **(c)** 207   **(d)** 266   **(e)** 775   **(f)** 817   **(g)** 906;
      (a) 147   **(b)** 340   **(c)** 599   **(d)** 690   **(e)** 806   **(f)** 894   **(g)** 989   **6.** 320, 240, 340, 530

Page 2   **1. (a)** 276, 359, 638, 746   **(b)** 286, 394, 517, 735   **(c)** 356, 536, 635, 653   **(d)** 148, 184, 418, 481
      (e) 345, 435, 534, 543   **(f)** 629, 692, 926, 962   **(g)** 798, 879, 897, 978   **(h)** 468, 486, 648, 684
   2. (a) (i) 50   **(ii)** fifty   **(b) (i)** 6   **(ii)** six   **(c) (i)** 600   **(ii)** six hundred   **(d) (i)** 9   **(ii)** nine
      (e) (i) 300   **(ii)** three hundred   **(f) (i)** 900   **(ii)** nine hundred   **(g) (i)** 50   **(ii)** fifty
      (h) (i) 4   **(ii)** four   **(i) (i)** 600   **(ii)** six hundred   **(j) (i)** 40   **(ii)** forty   **(k) (i)** 8   **(ii)** eight
      (l) (i) 55   **(ii)** fifty-five   **(m) (i)** 840   **(ii)** eight hundred and forty   **(n) (i)** 57   **(ii)** fifty-seven
      (o) (i) 930   **(ii)** nine hundred and thirty
   4. (a) 513, 376, 297, 129   **(b)** 632, 578, 287, 218   **(c)** 826, 594, 330, 156   **(d)** 796, 469, 379, 317
      (e) 816, 618, 186, 168   **(f)** 732, 723, 327, 237   **(g)** 654, 645, 564, 546   **(h)** 987, 978, 879, 798
   5. (a) 832   **(b)** 951   **(c)** 853   **(d)** 981   **(e)** 765   **(f)** 973   **(g)** 764   **(h)** 650
   6. (a) 345   **(b)** 358   **(c)** 356   **(d)** 678   **(e)** 279   **(f)** 368   **(g)** 79   **(h)** 49   **7. (a)** 356   **(b)** 533   **(c)** 709   **(d)** 560

Page 3   **1. (a)** 2 hundreds + 8 tens + 7 units   **(b)** 5 hundreds + 2 tens + 9 units   **(c)** 6 hundreds + 5 tens + 0 units
      (d) 7 hundreds + 9 tens + 5 units   **(e)** 4 hundreds + 0 tens + 7 units   **(f)** 9 hundreds + 7 tens + 6 units
      (g) 8 hundreds + 0 tens + 9 units
   2. (a) 5 hundreds + 3 tens + 4 units = **534**   **(b)** 7 hundreds + 8 tens + 7 units = **787**
      (c) 6 hundreds + 6 tens + 3 units = **663**   **(d)** 9 hundreds + 2 tens + 5 units = **925**
      (e) 8 hundreds + 9 tens + 8 units = **898**
   3. (a) 566   **(b)** 587   **(c)** 699   **(d)** 669   **(e)** 778   **(f)** 599
   4. (a) 665   **(b)** 792   **(c)** 573   **(d)** 767   **(e)** 761   **(f)** 685
   5. (a) 821   **(b)** 755   **(c)** 813   **(d)** 842   **(e)** 836   **(f)** 924
   6. (a) 669   **(b)** 959   **(c)** 789   **(d)** 877   **(e)** 787   **(f)** 986
   7. (a) 746   **(b)** 796   **(c)** 857   **(d)** 728   **(e)** 772   **(f)** 777   **8. (a)** 680   **(b)** 809   **(c)** 728   **(d)** 743

Page 4   **1. (a)** 3 hundreds + 17 tens + 6 units   **(b)** 6 hundreds + 16 tens + 5 units   **(c)** 4 hundreds + 12 tens + 3 units
      (d) 2 hundreds + 15 tens + 1 unit   **(e)** 8 hundreds + 18 tens + 9 units   **(f)** 5 hundreds + 13 tens + 7 units
   2. (a) 144   **(b)** 314   **(c)** 327   **(d)** 311   **(e)** 337   **(f)** 564
   3. (a) 254   **(b)** 322   **(c)** 436   **(d)** 339   **(e)** 434   **(f)** 447
   4. (a) 354   **(b)** 388   **(c)** 343   **(d)** 562   **(e)** 642   **(f)** 561
   5. (a) 134   **(b)** 236   **(c)** 353   **(d)** 369   **(e)** 370   **(f)** 679
   6. (a) 468   **(b)** 411   **(c)** 504   **(d)** 335   **(e)** 329   **(f)** 546
   7. (a) 453   **(b)** 415   **(c)** 632   **(d)** 436   **(e)** 523   **(f)** 243   **(g)** 557   **(h)** 123   **(i)** 284   **(j)** 266   **(k)** 656   **(l)** 256
      (m) 626   **(n)** 327   **(o)** 559   **(p)** 465   **(q)** 302   **(r)** 417   **(s)** 334

Page 5   **C** = 236   **T** = 378   **S** = 555   **O** = 570   **B** = 434   **I** = 456   **K** = 673   **W** = 584   **D** = 344   **P** = 783   **M** = 845
      A = 171   **L** = 606   **F** = 286   **Y** = 901   **E** = 334   **R** = 87   **N** = 653   **U** = 730   **H** = 189   **G** = 538
      MICHELANGELO WAS A FAMOUS ARTIST. HE PAINTED THE CEILING OF THE SISTINE CHAPEL
      WHILE LYING ON HIS BACK.

Page 6   **1.** 958   **2.** 522   **3.** 585   **4.** 784   **5.** 351   **6.** 706   **7.** 358   **8.** 744   **9.** 345
   10. 267   **11.** 504   **12.** 366   **13.** 261

Page 7   ash — 13   beech — 20   chestnut — 22   oak — 27   sycamore — 18

Page 8   **2. (a)** Beef bites   **(b)** Fishy frizzles   **(c)** Tuna tops   **(d)** Prawn pops   **(e)** 38   **(f)** 140

Page 9   **1.** 18 eyes $9 \times 2 = 18$ **2. (a)** 6   **(b)** 14   **(c)** 10   **(d)** 16   **(e)** 12   **(f)** 18
   3. (a) 8c   **(b)** 4c   **(c)** 20c   **(d)** 0   **(e)** 18c   **(f)** 14c
   4. 32 straws. $8 \times 4 = 32$ **5. (a)** 12   **(b)** 28   **(c)** 20   **(d)** 36   **(e)** 0   **(f)** 40
   6. (a) 16c   **(b)** 32c   **(c)** 20c   **(d)** 40c   **(e)** 28c   **(f)** 24c
   7. (i) (a) $6 \times 2 = 12$ **(b)** $2 + 2 + 2 + 2 + 2 + 2 = 12$ **(ii) (a)** $7 \times 4 = 28$ **(b)** $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$

Page 10   **8.** 56 cakes. $7 \times 8 = 56$ **9. (a)** 32   **(b)** 64   **(c)** 24   **(d)** 0   **(e)** 80   **(f)** 72
   10. (a) 40c   **(b)** 80c   **(c)** 24c   **(d)** 48c   **(e)** 72c   **(f)** 56c

11. (a) $3 \times 2 = 6$ (b) $6 \times 2 = 12$ (c) $5 \times 4 = 20$ (d) $7 \times 4 = 28$ (e) $6 \times 8 = 48$ (f) $5 \times 8 = 40$

12. (a)

$\times 2$		$\times 2$	
5	**10**	4	**8**
3	**6**	7	**14**
8	**16**	9	**18**
6	**12**	0	**0**

(b)

$\times 4$		$\times 4$	
3	**12**	10	**40**
6	**24**	8	**32**
9	**36**	7	**28**
5	**20**	4	**16**

(c)

$\times 8$		$\times 8$	
2	**16**	9	**72**
4	**32**	7	**56**
8	**64**	5	**40**
3	**24**	10	**80**

13. (a) $5 \times 2 = 10$ (b) $3 \times 4 = 12$ (c) $6 \times 8 = 48$ (d) $7 \times 2 = 14$ (e) $9 \times 4 = 36$ (f) $8 \times 8 = 64$
    (g) $10 \times 8 = 80$ (h) $7 \times 4 = 28$

14. 32   15. 56

Page 11 1. 10 sweets. 2 children. Each gets 5 sweets. $10 \div 2 = 5$
2. $12 - 2 - 2 - 2 - 2 - 2 - 2 = 0$ I can take 2 buns from 12 buns 6 times. $12 \div 2 = 6$
3. 16 altogether. 8 groups. $16 \div 2 = 8$
4. 12 sweets. 4 children. Each gets 3 sweets. $12 \div 4 = 3$
5. $20 - 4 - 4 - 4 - 4 - 4 = 0$ I can take 4 biscuits from 20 biscuits 5 times. $20 \div 4 = 5$
6. 24 altogether. 6 groups. $24 \div 4 = 6$
7. $24 - 8 - 8 - 8 = 0$ Each gets 3 sticks. $24 \div 8 = 3$
8. $48 - 8 - 8 - 8 - 8 - 8 - 8 = 0$ $48 \div 8 = 6$

Page 12 9. (a) $28 \div 4 = 7$ (b) $40 \div 8 = 5$
10. (a) $14 \div 2 = 7$ $14 - 2 - 2 - 2 - 2 - 2 - 2 - 2 = 0$ (b) $16 \div 4 = 4$ $16 - 4 - 4 - 4 - 4 = 0$
    (c) $56 \div 8 = 7$ $56 - 8 - 8 - 8 - 8 - 8 - 8 - 8 = 0$
11. Division (a) $7 \times 2 = 14$ $14 \div 2 = 7$ (b) $6 \times 4 = 24$ $24 \div 4 = 6$ (c) $5 \times 8 = 40$ $40 \div 8 = 5$
    (d) $9 \times 2 = 18$ $18 \div 2 = 9$ (e) $8 \times 4 = 32$ $32 \div 4 = 8$ (f) $7 \times 8 = 56$ $56 \div 8 = 7$
12. (a)

$\div 2$		$\div 2$	
8	**4**	14	**7**
12	**6**	6	**3**
18	**9**	20	**10**
10	**5**	16	**8**

(b)

$\div 4$		$\div 4$	
12	**3**	36	**9**
20	**5**	24	**6**
28	**7**	40	**10**
16	**4**	32	**8**

(c)

$\div 8$		$\div 8$	
16	**2**	24	**3**
32	**4**	48	**6**
64	**8**	72	**9**
56	**7**	40	**5**

13. 9   14. 6   15. 9   16. (a) 8 (b) 10 (c) 12   17. (a) 4 (b) 6 (c) 5

Page 13 1. (a) cone   (b) cylinder   (c) sphere   (d) cube   (e) pyramid   (f) triangular prism   (g) cylinder   (h) cuboid
2. (a) cylinder   (b) cuboid   (c) triangular prism   (d) cylinder   (e) sphere   (f) cylinder   (g) cuboid
   (h) triangular prism   (i) cylinder   (j) cone   (k) cuboid   (l) cylinder

Page 14 1. (a) cube   (b) cuboid   (c) triangular prism   (d) pyramid   (e) cylinder
5. (a) cuboid — 10 edges, 8 corners   (b) pyramid — 8 edges, 5 corners

Page 15 1. (a)

$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

2. (a) $\frac{2}{2}$ (b) $\frac{4}{4}$ (c) $\frac{8}{8}$ (d) $\frac{4}{4}$ (e) $\frac{2}{4}$ (f) $\frac{4}{8}$ (g) $\frac{2}{8}$
3. (a) 3 — quarters   (b) 2 — quarters   (c) 2 — eighths   (d) 4 — eighths
   (e) 7 — eighths   (f) 3 — eighths   (g) 5 — eighths   (h) 1 — half

Page 16 1. j   2. h $\frac{1}{2}$ of 18   3. i   4. b $\frac{1}{4}$ of 16   5. a   6. c $\frac{1}{4}$ of 24   7. k   8. d $\frac{1}{8}$ of 16   9. l $\frac{1}{8}$ of 24
10. f $\frac{1}{4}$ of 20   11. e $\frac{1}{2}$ of 28   12. g

Page 17 1. 24 berries. $8 \times 3 = 24$ 2. (a) 12   (b) 21   (c) 15   (d) 30   (e) 18   (f) 27
3. (a) 15c (b) 24c (c) 9c (d) 0 (e) 27c (f) 21c   4. 42 beads. $7 \times 6 = 42$
5. (a) 24   (b) 48   (c) 30   (d) 60   (e) 18   (f) 54   6. (a) 18c   (b) 36c   (c) 54c   (d) 30c   (e) 60c   (f) 48c
7. (i) (a) $5 \times 3 = 15$ (b) $3 + 3 + 3 + 3 + 3 = 15$ (ii) (a) $9 \times 6 = 54$ (b) $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 54$

Page 18 8. 54 rings. $6 \times 9 = 54$ 9. (a) 27   (b) 54   (c) 81   (d) 36   (e) 72   (f) 45
10. (a) 63c   (b) 45c   (c) 90c   (d) 0   (e) 72c   (f) 81c
11. (a) $4 \times 3 = 12$ (b) $5 \times 6 = 30$ (c) $7 \times 9 = 63$ (d) $5 \times 9 = 45$
12. (a)

$\times 3$		$\times 3$	
4	**12**	5	**15**
8	**24**	10	**30**
3	**9**	7	**21**
9	**27**	6	**18**

(b)

$\times 6$		$\times 6$	
3	**18**	5	**30**
8	**48**	9	**54**
4	**24**	6	**36**
7	**42**	10	**60**

(c)

$\times 9$		$\times 9$	
2	**18**	3	**27**
4	**36**	6	**54**
8	**72**	9	**81**
7	**63**	5	**45**

13. (a) $7 \times 3 = 21$ (b) $8 \times 6 = 48$ (c) $5 \times 9 = 45$ (d) $9 \times 3 = 27$
    (e) $10 \times 6 = 60$ (f) $7 \times 9 = 63$ (g) $7 \times 6 = 42$ (h) $9 \times 9 = 81$
14. 54   15. 54

Page 19 **1.** **15** counters. **3** children. Each gets **5** counters. **15 ÷ 3 = 5**

2. 21 − 3 − 3 − 3 − 3 − 3 − 3 − 3 = 0   Take 3 crayons from **21** crayons **7** times. **21 ÷ 3 = 7**

3. **18** altogether. **6** groups. **18 ÷ 3 = 6**

4. **24** marbles. **6** children. Each gets **4** marbles. **24 ÷ 6 = 4**

5. 30 − 6 − 6 − 6 − 6 − 6 = 0   Take 6 nuts from **30** nuts **5** times. **30 ÷ 6 = 5**

6. 63 − 9 − 9 − 9 − 9 − 9 − 9 − 9 = 0   Each gets **7** chocolates. **63 ÷ 9 = 7**

7. 48 − 6 − 6 − 6 − 6 − 6 − 6 − 6 − 6 = 0 **48 ÷ 6 = 8**   **8.** 54 − 9 − 9 − 9 − 9 − 9 − 9 = 0   **54 ÷ 9 = 6**

9. 72 − 9 − 9 − 9 − 9 − 9 − 9 − 9 − 9 = 0   **72 ÷ 9 = 8**

Page 20 **10.** (a) 42 ÷ 6 = 7   (b) 45 ÷ 9 = 5

11. (a) 24 − 3 − 3 − 3 − 3 − 3 − 3 − 3 − 3 = 0   (b) 30 − 6 − 6 − 6 − 6 − 6 = 0

(c) 63 − 9 − 9 − 9 − 9 − 9 − 9 − 9 = 0

12. (a) 5 × 3 = **15** **15** ÷ 3 = 5   (b) 7 × 6 = **42** **42** ÷ 6 = **7**   (c) 4 × 9 = **36** **36** ÷ 9 = **4**

(d) 7 × 3 = **21** **21** ÷ 3 = **7**   (e) 8 × 6 = **48** **48** ÷ 6 = **8**   (f) 6 × 9 = **54** **54** ÷ 9 = **6**

13.

(a)	÷ 3		÷ 3		(b)	÷ 6		÷ 6		(c)	÷ 9		÷ 9	
	15	**5**	27	**9**		24	**4**	30	**5**		18	**2**	54	**6**
	24	**8**	21	**7**		48	**8**	60	**10**		36	**4**	81	**9**
	12	**4**	30	**10**		36	**6**	42	**7**		72	**8**	63	**7**
	18	**6**	9	**3**		54	**9**	12	**2**		27	**3**	45	**5**

14. 8   **15.** 9   **16.** 8   **17.** 6   **18.** (a) 6 (b) 9 (c) 12   **19.** (a) 6 (b) 8 (c) 4   **20.** 8   **21.** 10   **22.** 9

Page 21 **1.** 1, 11, **21, 31, 41, 51, 61, 71, 81, 91**   **2.** 3, 13, **23, 33, 43, 53, 63, 73, 83, 93**

3. 7, **17, 27, 37, 47, 57, 67, 77, 87, 97**

4. 9, **19, 29, 39, 49, 59, 69, 79, 89, 99**   **5.** 94, 84, **74, 64, 54,** 44, **34, 24, 14,** 4

6. 98, **88,** 78, **68, 58, 48, 38, 28, 18,** 8

7. (a) 113, **114,** 115, **116, 117,** 118, **119, 120, 121**   (b) 148, **149,** 150, **151,** 152, **153, 154,** 155, **156**

(c) 192, **193, 194,** 195, **196, 197, 198, 199, 200**

8. 100, 110, **120, 130,** 140, **150, 160, 170, 180, 190**

9. 105, **115,** 125, **135, 145,** 155, **165, 175, 185, 195**   **10.** 0, 20, **40, 60, 80,** 100, **120, 140,** 160, **180, 200**

Page 22 **11.** (a) 29, 39, 49, 59, 69   (b) 24, 34, 44, 54, 64   (c) 47, 57, 67, 77, 87   (d) 83, 93, 103, 113, 123

12. 4, 14, 24, 34, 44; 7, 17, 27, 37, 47; 5, 15, 25, 35, 45; 76, 66, 56, 46, 36

13. (a) 4, 8, 12, **16, 20, 24,** 28   (b) 6, 12, 18, **24, 30, 36, 42,** 48   (c) 8, 16, 24, **32, 40, 48,** 56

(d) 9, 18, 27, **36, 45, 54, 63,** 72   (e) 1, 7, 13, **19, 25, 31, 37,** 43   (f) 2, 6, 10, **14, 18, 22, 26,** 30

(g) 5, 13, 21, **29, 37, 45, 53,** 61   (h) 6, 15, 24, **33, 42, 51, 60,** 69

14. (a) 28, 25, 22, **19, 16, 13,** 10   (b) 34, 30, 26, **22, 18, 14, 10,** 6   (c) 46, 40, 34, **28, 22, 16,** 10

(d) 55, 53, 51, **49, 47, 45, 43,** 41   (e) 62, 54, 46, **38, 30, 22,** 14   (f) 76, 67, 58, **49, 40, 31, 22,** 13

15. (a) 225, 235, 245, **255, 265, 275**   (b) 317, 327, 337, **347, 357, 367**   (c) 476, 486, 496, **506, 516, 526**

(d) 771, 781, 791, **801, 811, 821**   (e) 610, 630, 650, **670, 690, 710**   (f) 869, 889, 909, **929, 949, 969**

(g) 746, 776, 806, **836, 866, 896**   (h) 525, 565, 605, **645, 685, 725**

16. (a) 325, 315, 305, **295, 285, 275**   (b) 729, 719, 709, **699, 689, 679**   (c) 892, 882, 872, **862, 852, 842**

(d) 931, 921, 911, **901, 891, 881**   (e) 690, 670, 650, **630, 610, 590**   (f) 550, 530, 510, **490, 470, 450**

(g) 880, 850, 820, **790, 760, 730**   (h) 970, 930, 890, **850, 810, 770**

Page 24 **5.** (a) 3m 60cm   (b) 2m 30cm   (c) 1m 84cm   (d) 2m 10cm   (e) 1m 30cm   (f) 1m 73cm

(g) 1m 80cm   (h) 7m 54cm

Page 25   Three puppies   You're a detective

Holly: black: bone   Pam is 9: small: brown eyes

Raggles: grey: collar   Toni is 8: tall: green eyes

Champ: white: bowl   Stefan is 10: medium: blue eyes

Page 26

1.		3			2.	1			9		3.	1	3	5	
	2	5	6			2	3		6	4		2	4		6	7
	4	0		8	7			4	8	2		7			9
		8	9	4		7	9		3	8		6	5		4	2
							0			5		3	8	8	

Page 27 **1.** **40** fingers **8 × 5 = 40**

2. (a) 30 (b) 45 (c) 20 (d) 40 (e) 15 (f) 35   **3.** (a) 20c (b) 35c (c) 50c (d) 40c (e) 30c (f) 45c

4. **70** crayons **7 × 10 = 70**   **5.** (a) 40c (b) 80c (c) 30c (d) 60c (e) 90c (f) 70c

6. (a) 20   (b) 50   (c) 100   (d) 90   (e) 70   (f) 80

7. (a) 5 + 5 + 5 + 5 + 5 + 5 + 5 = **35** **7 × 5 = 35**   (b) 10 + 10 + 10 + 10 + 10 + 10 = **60** **6 × 10 = 60**

8. (a) 4 × 5 = **20** 5 + 5 + 5 + 5 = 20   (b) 5 × 10 = **50** 10 + 10 + 10 + 10 + 10 = 50

Mathemagic 3

Page 28   **9.** (a) $7 \times 5 = 35$ $5 \times 7 = 35$ **(b)** $9 \times 5 = 45$ $5 \times 9 = 45$ **(c)** $3 \times 10 = 30$ $10 \times 3 = 30$

       (d) $8 \times 10 = 80$ $10 \times 8 = 80$

    10. (a) $6 \times 5 = 30$ $5 \times 6 = 30$ **(b)** $8 \times 5 = 40$ $5 \times 8 = 40$ **(c)** $6 \times 10 = 60$ $10 \times 6 = 60$

       (d) $9 \times 10 = 90$ $10 \times 9 = 90$

    11. (a)

$\times 5$		$\times 5$	
4	**20**	5	**25**
7	**35**	9	**45**
3	**15**	6	**30**
8	**40**	10	**50**

    (b)

$\times 10$		$\times 10$	
6	**60**	8	**80**
3	**30**	4	**40**
9	**90**	7	**70**
5	**50**	10	**100**

    (c)

$\times$	2	1	0
10	**20**	**10**	**0**

    (d)

$\times$	0	2	1
5	**0**	**10**	**5**

    12. **(a)** $3 \times 5 = 15$ **(b)** $8 \times 5 = 40$ **(c)** $6 \times 10 = 60$ **(d)** $4 \times 10 = 40$ **(e)** $9 \times 10 = 90$ **(f)** $10 \times 5 = 50$

    13. **(a)** $4 \times 5 = 20$ **(b)** $5 \times 4 = 20$ **(c)** $4 \times 5 = 5 \times 4 = 20$ **14.** 35 mins   **15.** 80   **16.** 90c

Page 29   **1.** 30 counters. **5** children. Each gets **6**. $30 \div 5 = 6$

    2. $35 - 5 - 5 - 5 - 5 - 5 - 5 - 5 = 0$ I can take **5** shells from **35** shells **7** times. $35 \div 5 = 7$

    3. $45 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 = 0$ **9** teams of **5** can be made. $45 \div 5 = 9$

    4. $60 - 10 - 10 - 10 - 10 - 10 - 10 = 0$ **6** bags of **10** can be made. $60 \div 10 = 6$

    5. 90 nuts. **10** children. Each gets **9** nuts. $90 \div 10 = 9$

    6. **(a)** $30 \div 5 = 6$ **(b)** $40 \div 10 = 4$ **(c)** $80 \div 10 = 8$ **(a)** $30 - 5 - 5 - 5 - 5 - 5 - 5 = 0$

       (b) $40 - 10 - 10 - 10 - 10 = 0$ **(c)** $80 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 = 0$

    7. **(a)** $4 \times 5 = 20$ $20 \div 5 = 4$ **(b)** $9 \times 5 = 45$ $45 \div 5 = 9$ **(c)** $7 \times 10 = 70$ $70 \div 10 = 7$

    8. (a)

$\div 5$		$\div 5$	
35	**7**	25	**5**
20	**4**	30	**6**
15	**3**	45	**9**
40	**8**	50	**10**

    (b)

$\div 10$		$\div 10$	
30	**3**	40	**4**
60	**6**	80	**8**
90	**9**	100	**10**
70	**7**	50	**5**

    (c)

$\div$	20	10	0
10	**2**	**1**	**0**

    (d)

$\div$	0	5	10
5	**0**	**1**	**2**

Page 30   **9.** **(a)** $3 \times 5 = 15$ $5 \times 3 = 15$ $15 \div 3 = 5$ $15 \div 5 = 3$ **(b)** $8 \times 5 = 40$ $5 \times 8 = 40$ $40 \div 5 = 8$ $40 \div 8 = 5$

    (c) $6 \times 10 = 60$ $10 \times 6 = 60$ $60 \div 10 = 6$ $60 \div 6 = 10$

    (d) $9 \times 10 = 90$ $10 \times 9 = 90$ $90 \div 9 = 10$ $90 \div 10 = 9$

    10. **(a)** 4   **(b)** 7   **(c)** 10   **(d)** 8   **11.**   **(a)** 3   **(b)** 6   **(c)** 9   **(d)** 7   **12.**   **(a)** 6   **(b)** 9   **(c)** 10   **13.**   **(a)** 3   **(b)** 9   **(c)** 5

    14. 7   **15.** 8   **16.** 10

    17. **6** marbles or **3** balloons   **18.** **10** marbles or **5** balloons

Page 31   **1.** **(a)** 8 o'clock   **(b)** ½ past 2   **(c)** ¼ past 7   **(d)** ¼ to 12   **(e)** ½ past 6

    3. **(a) (i)** ¼ past 6 **(ii)** ¼ to 7   **(b) (i)** ¼ to 6 **(ii)** ¼ past 6   **(c) (i)** ¼ to 8 **(ii)** ¼ past 8

    4. **(a) (i)** 1 o'clock **(ii)** 3 o'clock   **(b) (i)** ¼ to 5 **(ii)** ¼ to 7   **(c) (i)** ¼ past 11 **(ii)** ¼ past 1

Page 32   **5.** **(a)** 20 past 7   **(b)** 25 past 11   **(c)** 25 to 5   **(d)** 10 to 7   **(e)** 20 to 1

    6. **(a)** 10 to 7   **(b)** 5 to 11   **(c)** 5 past 4   **(d)** 20 past 6   **(e)** 10 past 12

    7. **(a)** 10 to 9   **(b)** 5 to 1   **(c)** 5 past 6   **(d)** 20 past 8   **(e)** 10 past 2

    8. **(a)** 4:30   **(b)** 6:15   **(c)** 7:45   **(d)** 2:25   **(e)** 8:35   **(f)** 5:50

    9. **(a)** ¼ past 7   **(b)** ¼ to 9   **(c)** 20 to 11   **(d)** 25 past 11   **(e)** 25 to 1   **(f)** 10 to 2   **10.** 25 mins   **11.** 40 mins

Page 33   **1.** 18 squares. **2** left over   **2.** 16 squares. **4** left over   **3.** 28 squares. **2** left over   **4.** 20 squares. **5** left over

    5. 26 squares. **4** left over   **6.** 61 squares. **3** left over

Page 34   **7.** Area of 3 squares **c, d**   Area of 4 squares **e, f, k**   Area of 5 squares **a, b, h, j, l**   Area of 6 squares **g, i**

Page 37 $w = ½$ $e = ⅛$ $t = ⅜$ $h = ¾$ $k = ⅝$ $n = ¹⁰⁄_{10}$ $a = ³⁄_{10}$ $s = ¹⁄_{10}$ $m = ⁹⁄_{10}$ $d = ⅜$ $i = ¼$ when it makes ma mad

Page 38   **1.** full, part, all, piece, most, bit, whole, one, some

Page 39   **1.** (a)

¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀	¹⁄₁₀
0·1	0·1	0·1	0·1	0·1	0·1	0·1	0·1	0·1	0·1

    (b) $⁸⁄_{10} = \mathbf{0·8}$, $⁷⁄_{10} = \mathbf{0·7}$, $⁶⁄_{10} = \mathbf{0·6}$, $⁵⁄_{10} = \mathbf{0·5}$, $⁴⁄_{10} = \mathbf{0·4}$, $³⁄_{10} = \mathbf{0·3}$, $²⁄_{10} = \mathbf{0·2}$

    2. 0·1   0·2   **0·3**   **0·4**   **0·5**   **0·6**   **0·7**   **0·8**   **0·9**   **3.** 1·1   1·2   **1·3**   **1·4**   **1·5**   **1·6**   **1·7**   **1·8**   **1·9**

Page 40   **6.** **(a)** 0·2   **(b)** 0·9   **(c)** 0·6   **7.** **(a)** 1·0   **(b)** 1·4   **(c)** 1·0

Page 41   **1.** **(a)** $132 + 456 = 100 + 400 + 30 + 50 + 2 + 6 \rightarrow 500 + 80 + 8 = 580 + 8 = 588$

       (b) $221 + 346 = 200 + 300 + 20 + 40 + 1 + 6 \rightarrow 500 + 60 + 7 = 560 + 7 = 567$

       (c) $436 + 253 = 400 + 200 + 30 + 50 + 6 + 3 \rightarrow 600 + 80 + 9 = 680 + 9 = 689$

       (d) $504 + 395 = 500 + 300 + 90 + 4 + 5 \rightarrow 800 + 90 + 9 = 890 + 9 = 899$

       (e) $324 + 156 = 300 + 100 + 20 + 50 + 4 + 6 \rightarrow 400 + 70 + 10 = 470 + 10 = 480$

       (f) $237 + 346 = 200 + 300 + 30 + 40 + 7 + 6 \rightarrow 500 + 70 + 13 = 570 + 13 = 583$

       (g) $329 + 158 = 300 + 100 + 20 + 50 + 9 + 8 \rightarrow 400 + 70 + 17 = 470 + 17 = 487$

       (h) $430 + 358 = 400 + 300 + 30 + 50 + 8 \rightarrow 700 + 80 + 8 = 780 + 8 = 788$

(i) $635 + 257 = 600 + 200 + 30 + 50 + 5 + 7 \rightarrow 800 + 80 + 12 = 880 + 12 = 892$

(j) $419 + 377 = 400 + 300 + 10 + 70 + 9 + 7 \rightarrow 700 + 80 + 16 = 780 + 16 = 796$

(k) $342 + 128 = 300 + 100 + 40 + 20 + 2 + 8 \rightarrow 400 + 60 + 10 = 460 + 10 = 470$

(l) $435 + 246 = 400 + 200 + 30 + 40 + 5 + 6 \rightarrow 600 + 70 + 11 = 670 + 11 = 681$

(m) $286 + 509 = 200 + 500 + 80 + 6 + 9 \rightarrow 700 + 80 + 15 = 780 + 15 = 795$

(n) $439 + 348 = 400 + 300 + 30 + 40 + 9 + 8 \rightarrow 700 + 70 + 17 = 770 + 17 = 787$

(o) $243 + 427 = 200 + 400 + 40 + 20 + 3 + 7 \rightarrow 600 + 60 + 10 = 660 + 10 = 670$

(p) $346 + 239 = 300 + 200 + 40 + 30 + 6 + 9 \rightarrow 500 + 70 + 15 = 570 + 15 = 585$

(q) $158 + 637 = 100 + 600 + 50 + 30 + 8 + 7 \rightarrow 700 + 80 + 15 = 780 + 15 = 795$

(r) $555 + 238 = 500 + 200 + 50 + 30 + 5 + 8 \rightarrow 700 + 80 + 13 = 780 + 13 = 793$

(s) $309 + 477 = 300 + 400 + 70 + 9 + 7 \rightarrow 700 + 70 + 16 = 770 + 16 = 786$

(t) $763 + 128 = 700 + 100 + 60 + 20 + 3 + 8 \rightarrow 800 + 80 + 11 = 880 + 11 = 891$

2. (a) $134 + 223 \rightarrow 134 + 200 + 20 + 3 \rightarrow 334 + 20 + 3 \rightarrow 354 + 3 = 357$

  (b) $415 + 251 \rightarrow 415 + 200 + 50 + 1 \rightarrow 615 + 50 + 1 \rightarrow 665 + 1 = 666$

  (c) $324 + 412 \rightarrow 324 + 400 + 10 + 2 \rightarrow 724 + 10 + 2 \rightarrow 734 + 2 = 736$

  (d) $532 + 147 \rightarrow 532 + 100 + 40 + 7 \rightarrow 632 + 40 + 7 \rightarrow 672 + 7 = 679$

  (e) $454 + 205 \rightarrow 454 + 200 + 5 \rightarrow 654 + 5 = 659$

  (f) $428 + 234 \rightarrow 428 + 200 + 30 + 4 \rightarrow 628 + 30 + 4 \rightarrow 658 + 4 = 662$

  (g) $247 + 318 \rightarrow 247 + 300 + 10 + 8 \rightarrow 547 + 10 + 8 \rightarrow 557 + 8 = 565$

  (h) $516 + 176 \rightarrow 516 + 100 + 70 + 6 \rightarrow 616 + 70 + 6 \rightarrow 686 + 6 = 692$

  (i) $439 + 146 \rightarrow 439 + 100 + 40 + 6 \rightarrow 539 + 40 + 6 \rightarrow 579 + 6 = 585$

  (j) $275 + 309 \rightarrow 275 + 300 + 9 \rightarrow 575 + 9 = 584$

  (k) $346 + 347 \rightarrow 346 + 300 + 40 + 7 \rightarrow 646 + 40 + 7 \rightarrow 686 + 7 = 693$

  (l) $209 + 375 \rightarrow 209 + 300 + 70 + 5 \rightarrow 509 + 70 + 5 \rightarrow 579 + 5 = 584$

  (m) $364 + 319 \rightarrow 364 + 300 + 10 + 9 \rightarrow 664 + 10 + 9 \rightarrow 674 + 9 = 683$

  (n) $536 + 248 \rightarrow 536 + 200 + 40 + 8 \rightarrow 736 + 40 + 8 \rightarrow 776 + 8 = 784$

  (o) $617 + 174 \rightarrow 617 + 100 + 70 + 4 \rightarrow 717 + 70 + 4 \rightarrow 787 + 4 = 791$

  (p) $427 + 333 \rightarrow 427 + 300 + 30 + 3 \rightarrow 727 + 30 + 3 \rightarrow 757 + 3 = 760$

  (q) $718 + 168 \rightarrow 718 + 100 + 60 + 8 \rightarrow 818 + 60 + 8 \rightarrow 878 + 8 = 886$

  (r) $243 + 328 \rightarrow 243 + 300 + 20 + 8 \rightarrow 543 + 20 + 8 \rightarrow 563 + 8 = 571$

  (s) $329 + 465 \rightarrow 329 + 400 + 60 + 5 \rightarrow 729 + 60 + 5 \rightarrow 789 + 5 = 794$

  (t) $559 + 336 \rightarrow 559 + 300 + 30 + 6 \rightarrow 859 + 30 + 6 \rightarrow 889 + 6 = 895$

3. (a) $305 + 296 = 300 + 5 + 300 - 4 \rightarrow 600 + 5 - 4 \rightarrow 605 - 4 = 601$

  (b) $407 + 395 = 400 + 7 + 400 - 5 \rightarrow 800 + 7 - 5 \rightarrow 807 - 5 = 802$

  (c) $209 + 184 = 200 + 9 + 200 - 16 \rightarrow 400 + 9 - 16 \rightarrow 409 - 16 = 393$

  (d) $309 + 297 = 300 + 9 + 300 - 3 \rightarrow 600 + 9 - 3 \rightarrow 609 - 3 = 606$

  (e) $408 + 398 = 400 + 8 + 400 - 2 \rightarrow 800 + 8 - 2 \rightarrow 808 - 2 = 806$

  (f) $103 + 99 = 100 + 3 + 100 - 1 \rightarrow 200 + 3 - 1 \rightarrow 203 - 1 = 202$

  (g) $306 + 295 = 300 + 6 + 300 - 5 \rightarrow 600 + 6 - 5 \rightarrow 606 - 5 = 601$

  (h) $403 + 397 = 400 + 3 + 400 - 3 \rightarrow 800 + 3 - 3 \rightarrow 803 - 3 = 800$

  (i) $312 + 289 = 300 + 12 + 300 - 11 \rightarrow 600 + 12 - 11 \rightarrow 612 - 11 = 601$

  (j) $414 + 390 = 400 + 14 + 400 - 10 \rightarrow 800 + 14 - 10 \rightarrow 814 - 10 = 804$

4. (a) $249 + 95 \rightarrow 249 + 100 - 5 \rightarrow 349 - 5 = 344$ **(b)** $387 + 96 \rightarrow 387 + 100 - 4 \rightarrow 487 - 4 = 483$

  (c) $538 + 94 \rightarrow 538 + 100 - 6 \rightarrow 638 - 6 = 632$ **(d)** $626 + 99 \rightarrow 626 + 100 - 1 \rightarrow 726 - 1 = 725$

  (e) $719 + 98 \rightarrow 719 + 100 - 2 \rightarrow 819 - 2 = 817$ **(f)** $341 + 102 \rightarrow 341 + 100 + 2 \rightarrow 441 + 2 = 443$

  (g) $463 + 105 \rightarrow 463 + 100 + 5 \rightarrow 563 + 5 = 568$ **(h)** $384 + 101 \rightarrow 384 + 100 + 1 \rightarrow 484 + 1 = 485$

  (i) $475 + 104 \rightarrow 475 + 100 + 4 \rightarrow 575 + 4 = 579$ **(j)** $532 + 106 \rightarrow 532 + 100 + 6 \rightarrow 632 + 6 = 638$

  (k) $291 + 209 \rightarrow 291 + 200 + 9 \rightarrow 491 + 9 = 500$ **(l)** $376 + 97 \rightarrow 376 + 100 - 3 \rightarrow 476 - 3 = 473$

  (m) $537 + 98 \rightarrow 537 + 100 - 2 \rightarrow 637 - 2 = 635$ **(n)** $693 + 202 \rightarrow 693 + 200 + 2 \rightarrow 893 + 2 = 895$

  (o) $485 + 305 \rightarrow 485 + 300 + 5 \rightarrow 785 + 5 = 790$ **(p)** $362 + 196 \rightarrow 362 + 200 - 4 \rightarrow 562 - 4 = 558$

  (q) $471 + 92 \rightarrow 471 + 100 - 8 \rightarrow 571 - 8 = 563$ **(r)** $297 + 108 \rightarrow 297 + 100 + 8 \rightarrow 397 + 8 = 405$

  (s) $432 + 195 \rightarrow 432 + 200 - 5 \rightarrow 632 - 5 = 627$ **(t)** $568 + 107 \rightarrow 568 + 100 + 7 \rightarrow 668 + 7 = 675$

Page 42 **1. (a)** 233 **(b)** 254 **(c)** 531 **(d)** 343 **(e)** 322 **(f)** 321 **(g)** 424 **(h)** 494 **(i)** 532 **(j)** 332 **(k)** 216 **(l)** 321

  (m) 323 **(n)** 445 **(o)** 311 **(p)** 231 **(q)** 502 **(r)** 553 **(s)** 513 **(t)** 743

  2. (a) 277 **(b)** 369 **(c)** 249 **(d)** 377 **(e)** 464 **(f)** 132 **(g)** 286 **(h)** 190 **(i)** 356 **(j)** 396 **(k)** 259 **(l)** 684

  (m) 361 **(n)** 275 **(o)** 394 **(p)** 339 **(q)** 357 **(r)** 381 **(s)** 247 **(t)** 383 **(u)** 481 **(v)** 274 **(w)** 363

  (x) 371 **(y)** 629

3. (a) 34   (b) 38   (c) 47   (d) 35   (e) 52   (f) 28   (g) 48   (h) 16   (i) 17   (j) 36   (k) 49   (l) 25
   (m) 49   (n) 68   (o) 29

4. (a) 52   (b) 35   (c) 43   (d) 145   (e) 104   (f) 59   (g) 58   (h) 45   (i) 66   (j) 136   (k) 258   (l) 353
   (m) 357   (n) 244   (o) 462

Page 43   1. 56 crayons. $8 \times 7 = 56$ 2. (a) 21   (b) 42   (c) 63   (d) 35   (e) 28   (f) 56

3. (a) 35c   (b) 70c   (c) 49c   (d) 63c   (e) 42c   (f) 56c

4. (i) (a) $7 + 7 + 7 + 7 + 7 + 7 + 7 = 49$ (b) $7 \times 7 = 49$ (ii) (a) $7 + 7 + 7 + 7 + 7 = 35$ (b) $5 \times 7 = 35$

5. $28 - 7 - 7 - 7 - 7 = 0$ I can take **7** stars from **28** stars **4** times. $28 \div 7 = 4$

6. $63 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 = 0$ 9 bags of 7 can be made. $63 \div 7 = 9$

7. **6** teams of 7 can be made. $42 \div 7 = 6$

Page 44   8. (a) $21 \div 7 = 3$ (b) $35 \div 7 = 5$ (c) $49 \div 7 = 7$

9. (a) $4 \times 7 = 28$ $7 \times 4 = 28$ $28 \div 7 = 4$ $28 \div 4 = 7$ (b) $6 \times 7 = 42$ $7 \times 6 = 42$ $42 \div 7 = 6$ $42 \div 6 = 7$
   (c) $9 \times 7 = 63$ $7 \times 9 = 63$ $63 \div 7 = 9$ $63 \div 9 = 7$ (d) $10 \times 7 = 70$ $7 \times 10 = 70$ $70 \div 7 = 10$ $70 \div 10 = 7$

10.

(a) $\times 7$		(b) $\times 7$		(c) $\div 7$		(d) $\div 7$	
2	14	5	35	28	4	56	8
7	49	9	63	42	6	70	10
8	56	4	28	63	9	49	7
6	42	3	21	35	5	14	2

11. (a) 3   (b) 5   (c) 7   (d) 9   12. (a) 4   (b) 6   (c) 8   (d) 10   13. (a) 8   (b) 5   (c) 9

14. (a) 4   (b) 6   (c) 7   (d) 9   15. (a) 56   (b) 35   (c) 63   (d) 42   16. 7

Page 45   1. (a) 20   (b) 20   (c) 40   (d) 50   (e) 50   (f) 80   (g) 90   (h) 80   (i) 100   (j) 100   (k) 130   (l) 140
   (m) 170   (n) 190   (o) 150   (p) 260   (q) 350   (r) 450   (s) 530   (t) 760   (u) 790   (v) 810   (w) 900   (x) 990

2. (a) 100   (b) 100   (c) 300   (d) 300   (e) 300   (f) 300   (g) 500   (h) 400   (i) 400   (j) 500   (k) 400   (l) 500
   (m) 600   (n) 600   (o) 600   (p) 600   (q) 600   (r) 700   (s) 800   (t) 800   (u) 900   (v) 900   (w) 800   (x) 900

3.

(a)			(b)		
137	140	100	513	510	500
154	150	200	651	650	700
186	190	200	649	650	600
239	240	200	850	850	900
304	300	300	829	830	800
465	470	500	752	750	800
550	550	600	941	940	900
347	350	300	888	890	900

4. (a)
$$\begin{array}{rcl} 21 & \to & 20 \\ + 47 & \to & 50 \\ \hline 68 & & 70 \end{array}$$
   (b)
$$\begin{array}{rcl} 29 & \to & 30 \\ + 32 & \to & 30 \\ \hline 61 & & 60 \end{array}$$
   (c)
$$\begin{array}{rcl} 43 & \to & 40 \\ + 26 & \to & 30 \\ \hline 69 & & 70 \end{array}$$
   (d)
$$\begin{array}{rcl} 37 & \to & 40 \\ + 43 & \to & 40 \\ \hline 80 & & 80 \end{array}$$

5. (a)
$$\begin{array}{rcl} 78 & \to & 80 \\ - 23 & \to & 20 \\ \hline 55 & & 60 \end{array}$$
   (b)
$$\begin{array}{rcl} 63 & \to & 60 \\ - 29 & \to & 30 \\ \hline 34 & & 30 \end{array}$$
   (c)
$$\begin{array}{rcl} 85 & \to & 90 \\ - 33 & \to & 30 \\ \hline 52 & & 60 \end{array}$$
   (d)
$$\begin{array}{rcl} 92 & \to & 90 \\ - 58 & \to & 60 \\ \hline 34 & & 30 \end{array}$$

6. (a)
$$\begin{array}{rcl} 34 & \to & 30 \\ + 48 & \to & 50 \\ \hline 82 & & 80 \end{array}$$
   (b)
$$\begin{array}{rcl} 71 & \to & 70 \\ - 18 & \to & 20 \\ \hline 53 & & 50 \end{array}$$
   (c)
$$\begin{array}{rcl} 47 & \to & 50 \\ + 35 & \to & 40 \\ \hline 82 & & 90 \end{array}$$
   (d)
$$\begin{array}{rcl} 65 & \to & 70 \\ - 24 & \to & 20 \\ \hline 41 & & 50 \end{array}$$

Page 46   1. (a)
$$\begin{array}{rcl} 179 & \to & 200 \\ + 212 & \to & 200 \\ \hline 391 & & 400 \end{array}$$
   (b)
$$\begin{array}{rcl} 386 & \to & 400 \\ + 231 & \to & 200 \\ \hline 617 & & 600 \end{array}$$
   (c)
$$\begin{array}{rcl} 283 & \to & 300 \\ + 428 & \to & 400 \\ \hline 711 & & 700 \end{array}$$
   (d)
$$\begin{array}{rcl} 534 & \to & 500 \\ + 281 & \to & 300 \\ \hline 815 & & 800 \end{array}$$

2. (a)
$$\begin{array}{rcl} 425 & \to & 400 \\ + 378 & \to & 400 \\ \hline 803 & & 800 \end{array}$$
   (b)
$$\begin{array}{rcl} 627 & \to & 600 \\ + 258 & \to & 300 \\ \hline 885 & & 900 \end{array}$$
   (c)
$$\begin{array}{rcl} 350 & \to & 400 \\ + 448 & \to & 400 \\ \hline 798 & & 800 \end{array}$$
   (d)
$$\begin{array}{rcl} 438 & \to & 400 \\ + 376 & \to & 400 \\ \hline 814 & & 800 \end{array}$$

3. (a)
$$\begin{array}{rcl} 312 & \to & 300 \\ 186 & \to & 200 \\ + 209 & \to & 200 \\ \hline 707 & & 700 \end{array}$$
   (b)
$$\begin{array}{rcl} 168 & \to & 200 \\ 229 & \to & 200 \\ + 497 & \to & 500 \\ \hline 894 & & 900 \end{array}$$
   (c)
$$\begin{array}{rcl} 207 & \to & 200 \\ 352 & \to & 400 \\ + 146 & \to & 100 \\ \hline 705 & & 700 \end{array}$$
   (d)
$$\begin{array}{rcl} 375 & \to & 400 \\ 299 & \to & 300 \\ + 125 & \to & 100 \\ \hline 799 & & 800 \end{array}$$

4. (a)
$$\begin{array}{rcl} 106 & \to & 100 \\ 279 & \to & 300 \\ + 317 & \to & 300 \\ \hline 702 & & 700 \end{array}$$
   (b)
$$\begin{array}{rcl} 355 & \to & 400 \\ 138 & \to & 100 \\ + 94 & \to & 100 \\ \hline 587 & & 600 \end{array}$$
   (c)
$$\begin{array}{rcl} 59 & \to & 100 \\ 421 & \to & 400 \\ + 251 & \to & 300 \\ \hline 731 & & 800 \end{array}$$
   (d)
$$\begin{array}{rcl} 268 & \to & 300 \\ 148 & \to & 100 \\ + 354 & \to & 400 \\ \hline 770 & & 800 \end{array}$$

5. (a) $378 \rightarrow 400$ (b) $591 \rightarrow 600$ (c) $650 \rightarrow 700$ (d) $895 \rightarrow 900$
$-115 \rightarrow \underline{100}$ $-207 \rightarrow \underline{200}$ $-172 \rightarrow \underline{200}$ $-418 \rightarrow \underline{400}$
   263   **300**   **384**   **400**   **478**   **500**   **477**   **500**

6. (a) $609 \rightarrow 600$ (b) $732 \rightarrow 700$ (c) $649 \rightarrow 600$ (d) $827 \rightarrow 800$
$-273 \rightarrow \underline{300}$ $-181 \rightarrow \underline{200}$ $-352 \rightarrow \underline{400}$ $-278 \rightarrow \underline{300}$
   336   **300**   **551**   **500**   **297**   **200**   **549**   **500**

7. (a) $941 \rightarrow 900$ (b) $851 \rightarrow 900$ (c) $702 \rightarrow 700$ (d) $912 \rightarrow 900$
$-392 \rightarrow \underline{400}$ $-247 \rightarrow \underline{200}$ $-388 \rightarrow \underline{400}$ $-763 \rightarrow \underline{800}$
   549   **500**   **604**   **700**   **314**   **300**   **149**   **100**

Page 47   **1.** $43 = $ T   **2.** $36 = $ D   **3.** $52 = $ R   **4.** $59 = $ I   **5.** $73 = $ E   **6.** $64 = $ A
7. $54 = $ N   **8.** $82 = $ S   **9.** $32 = $ H   **10.** $35 = $ G   **11.** $76 = $ K
12. $37 = $ W   **13.** $55 = $ L   **14.** $47 = $ O   A STORK WITH A WOODEN LEG

Page 48   **1.** (a) 5 (b) 15 (c) 15ml (d) 20ml (e) 1000ml   **2.** (a) 20ml (b) 50ml (c) 250ml (d) 500
3. (a) 40ml (b) 60ml (c) 80ml (d) 100ml (e) 150ml (f) 200ml (g) 500ml (h) 750ml (i) 1000ml

Page 49   **2.** (a) 1l 500ml (b) 1l 500ml (c) 1l 400ml (d) 1l 900ml (e) 0l 500ml (f) 0l 900ml
3. (a) 0l 800ml (b) 1l 300ml (c) 1 litre (d) 1l 300ml (e) 0l 150ml (f) 0l 450ml

Page 50   **1.** (a) 6 (b) 4 (c) 7 (d) 7   **2.** (a) 9 (b) 7 (c) 8 (d) 9   **3.** (a) 3 R 1 (b) 3 R 2 (c) 4 R 3 (d) 6 R 4
4. (a) 7 R 5 (b) 6 R 7 (c) 8 R 5 (d) 8 R 5   **5.** (a) 9 R 7 (b) 5 R 5 (c) 9 R 8 (d) 8 R 6
6. 6 R 4   **7.** 7 R 6   **8.** 8 R 3c   **9.** (a) 15 (b) 14 (c) 13 (d) 13 (e) 16   **10.** (a) 25 (b) 19 (c) 23 (d) 36 (e) 29
11. (a) 21 (b) 32 (c) 14 (d) 15 (e) 17   **12.** (a) 18 R 2 (b) 14 R 3 (c) 13 R 4 (d) 12 R 3 (e) 14 R 5

Page 51   **13.** (a) 18 R 3 (b) 29 R 2 (c) 48 R 1 (d) 15 R 5 (e) 12 R 5
14. (a) 23 R 3 (b) 26 R 1 (c) 14 R 4 (d) 38 R 1 (e) 17 R 3
15. 19   **16.** 13   **17.** 12   **18.** 14 R 2   **19.** 15 R 3   **20.** 15 R 2   **21.** 12   **22.** 13, 3   **23.** 23, 3c; 15, 5c   **24.** 14

Page 52   **1.** **A** cones **B** bibs **C** hoops **D** skipping ropes **E** bats **F** small balls **G** hurleys **H** basketballs **I** big balls
2. tomatoes peas cabbages; peas cabbages tomatoes; cabbages tomatoes peas

Page 53   **1.** (a) 1 (b) 3 (c) 6

Page 56   **1.** (a) triangle (b) circle (c) oval (d) rectangle (e) hexagon (f) square (g) semi-circle (h) irregular hexagon
2. (a) rectangle (b) circle (c) oval (d) triangle (e) rectangle (f) semi-circle (g) square (h) hexagon
3. (a) triangle (b) hexagon (c) square (d) semi-circle (e) rectangle

Page 57   **4.** (a) false (b) true (c) false (d) true (e) true (f) true   **5.** (a) true (b) false (c) true (d) false (e) false (f) true
6. 1, 4, 9, 14   **7.** 4, 4, 8   **8.** 6

Page 58   **f** = €1, €2, 50c, 20c   **o** = €3·70   **x** = 370c;   **b** = €2, €2, 50c, 10c, 5c   **e** = €4·65   **e** = 465c;
b = €1, 20c, 20c, 2c, 5c   **a** = €1·47   **t** = 147c;   **f** = 50c, 20c, 2c, 2c, 10c, 5c   **l** = €0·89   **y** = 89c;
p = 20c, 10c, 10c, 10c, 2c, 2c, 1c   **i** = €0·55   **g** = 55c;   **e** = 20c, 20c, 20c, 2c, 1c   **e** = €0·63   **l** = 63c;
a = 50c, 20c, 2c, 20c, 20c, 5c, 1c   **n** = €1·18   **t** = 118c;   **o** = 20c, 5c, 5c, 2c, 1c, 2c, 1c, 2c
w = €0·38   **l** = 38c
fox   bee   bat   fly   pig   eel   ant   owl

Page 59   **1.** (a) €1·84 (b) €1·82 (c) €1·87 (d) €1·83 (e) €1·80 (f) €1·89 (g) €1·86 (h) €1·81 (i) €1·88 (j) €1·85
e €1·80   **b** €1·82   **a** €1·84   **g** €1·86   **i** €1·88   **f** €1·89   **h** €1·81   **d** €1·83   **j** €1·85   **c** €1·87
2. two, o**ne**, ten

Page 60   blue, yellow, red;   yellow, red, blue;   red, blue, yellow
(i) Dasher = carrots   **Flyer** = hay   **Whizz** = nuts
(ii) Dasher = €250   **Flyer** = €200   **Whizz** = €300
(iii) Dasher = black   **Flyer** = grey   **Whizz** = white

Page 61   **1.** (a) 30 (b) 28 (c) 27 (d) 32   **2.** (a) 72 (b) 70 (c) 6 (d) 0   **3.** (a) 0 (b) 38 (c) 260 (d) 750
4. (a) $4 \times 9 = 36$ $9 \times 4 = 36$ (b) $7 \times 8 = 56$ $8 \times 7 = 56$ (c) $10 \times 6 = 60$ $6 \times 10 = 60$
(d) $8 \times 0 = 0$ $0 \times 8 = 0$ **5.** $7 \times 3 = (5 \times 3) + (2 \times 3) = 21$
6. (a) $9 \times 3 = (4 \times 3) + (\mathbf{5 \times 3}) = \mathbf{27}$ (b) $8 \times 5 = (2 \times 5) + (\mathbf{6 \times 5}) = \mathbf{40}$ (c) $7 \times 6 = (6 \times 6) + (\mathbf{1 \times 6}) = \mathbf{42}$
(d) $9 \times 10 = (2 \times 10) + (\mathbf{7 \times 10}) = \mathbf{90}$
7. (a) $16 \times 4 = (10 \times 4) + (\mathbf{6 \times 4}) = \mathbf{64}$ (b) $15 \times 5 = (10 \times 5) + (\mathbf{5 \times 5}) = \mathbf{75}$
(c) $19 \times 3 = (10 \times 3) + (\mathbf{9 \times 3}) = \mathbf{57}$ (d) $13 \times 7 = (\mathbf{10} \times 7) + (\mathbf{3} \times 7) = \mathbf{91}$
8. (a) $(10 \times 5) + (4 \times 5) = \mathbf{14} \times 5$ (b) $(10 \times 7) + (9 \times 7) = \mathbf{19} \times 7$ (c) $(20 \times 3) + (5 \times 3) = \mathbf{25} \times 3$
(d) $(30 \times 8) + (7 \times 8) = \mathbf{37} \times 8$ **9.** (a) $40 \times 9 = 360$ (b) $90 \times 8 = 720$ (c) $70 \times 12 = 840$

Page 62 **10.** **(a)** $17 + 17 + 17 + 17 = 68$

$$
\begin{array}{r}
17 \\
\times\ 4 \\
\hline
\mathbf{28}\ (7 \times 4) \\
\mathbf{40}\ (10 \times 4) \\
\hline
\mathbf{68}\ (17 \times 4)
\end{array}
$$

(b) $19 + 19 + \mathbf{19} + \mathbf{19} + \mathbf{19} = 95$

$$
\begin{array}{r}
19 \\
\times\ 5 \\
\hline
\mathbf{45}\ (9 \times 5) \\
\mathbf{50}\ (10 \times 5) \\
\hline
\mathbf{95}\ (19 \times 5)
\end{array}
$$

11.

(a)	(b)	(c)	(d)	(e)	(f)
16	18	15	25	23	28
×6	×7	×9	×6	×9	×7
36 (6×6)	**56** (8×7)	**45** (5×9)	**30** (5×6)	**27** (3×9)	**56** (8×7)
60 (10×6)	**70** (10×7)	**90** (10×9)	**120** (20×6)	**180** (20×9)	**140** (20×7)
96 (16×6)	**126** (18×7)	**135** (15×9)	**150** (25×6)	**207** (23×9)	**196** (28×7)

12. (a) 42 (b) 135 (c) 128 (d) 133 (e) 138 (f) 135   **13.** (a) 144 (b) 190 (c) 228 (d) 424 (e) 558 (f) 588

14. 266

Page 63 **1.** (a) (i) 20 past 1 (ii) 1:20   (b) (i) 25 to 4 (ii) 3:35   (c) (i) 5 past 12 (ii) 12:05   (d) (i) 5 to 9 (ii) 8:55

(e) (i) 20 to 1 (ii) 12:40

2. (a) (i) 20 to 2 (ii) 1:40   (b) (i) 5 to 4 (ii) 3:55   (c) (i) 25 past 12 (ii) 12:25   (d) (i) ¼ past 9 (ii) 9:15

(e) (i) 1 o'clock (ii) 1:00

3. (a) (i) 5 to 1 (ii) 12:55   (b) (i) 10 past 3 (ii) 3:10   (c) (i) 20 to 12 (ii) 11:40   (d) (i) ½ past 8 (ii) 8:30

(e) (i) ¼ past 12 (ii) 12:15   **4.** (a) 10 past 11   (b) 10 to 8   (c) 25 past 3   (d) ¼ to 2   (e) 5 past 12

5. (a) (i) 10 to 12 (ii) 11:50   (b) (i) ½ past 8 (ii) 8:30   (c) (i) 5 past 4 (ii) 4:05   (d) (i) 25 past 2 (ii) 2:25

(e) (i) ¼ to 1 (ii) 12:45

Page 64 **6.** (a) (i) 25 to 11 (ii) 10:35   (b) (i) ¼ past 7 (ii) 7:15   (c) (i) 10 to 3 (ii) 2:50   (d) (i) 10 past 1 (ii) 1:10

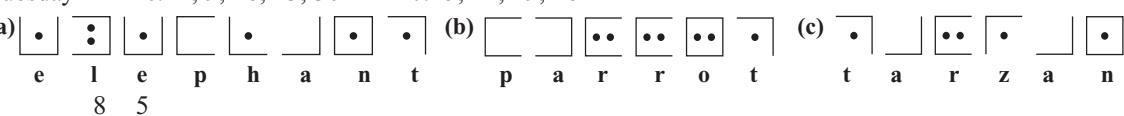(e) (i) ½ past 11 (ii) 11:30

7. (a) 70 mins   (b) 80 mins   (c) 90 mins   (d) 85 mins

8. (a) 1 hr 5 mins   (b) 1 hr 25 mins   (c) 1 hr 30 mins   (d) 1 hr 50 mins

9. (a) 25 mins   (b) 35 mins   (c) 40 mins   (d) 50 mins   (e) 40 mins   (f) 50 mins

10. 3:10   **11.** 7:55   **12.** 45 mins   **13.** 11:40   **14.** 31 days

15. Tuesday   **16.** 2, 9, 16, 23, 30   **17.** 5, 12, 19, 26

Page 65 (a) [braille] e l e p h a n t   (b) [braille] p a r r o t   (c) [braille] t a r z a n

```
        8   5
            2   7
                3   0   6       4
                5   1       1   8   9
        2   4   3       2   4
        8       7   7   5
                    8   6
                    3   2
```

Page 66

yellow	red	green
red	black	blue
green	blue	yellow

(a) 3 7   (b) 2 4   (c) 2 8   (d) 9 5   (e) 2 6

Page 67 **1.** 50, 2, 200, 500, 1000g or 1kg   **2.** (a) 100g (b) 120g (c) 190g (d) 500

Page 68 **1.** 33g   **2.** (a) 100g (b) 67g (c) 39g (d) 110g   **3.** (i) A = b + f   B = c + e   C = e + f (ii) many

4. (a) 3kg 800g   (b) 4kg 740g   (c) 2kg 830g   (d) 3kg 370g   (e) 2kg 550g

5. (a) 1kg 140g   (b) 490g   (c) 2kg 70g   (d) 2kg 260g   (e) 1kg 420g

Page 69 **1.** 15 + 8 = 23   **2.** 34 − 9 = 25   **3.** 6 × 9 = 54   **4.** 72 ÷ 8 = 9   **5.** 24 − 19 = 5   **6.** 27 + 9 = 36

7. 23 − 7 = 16   **8.** 19 − 6 = 13   **9.** 12 + 15 = 27   **10.** 9 × 8 = 72   **11.** 56 ÷ 8 = 7   **12.** 63 ÷ 9 = 7

13. (a) 8   (b) 18   (c) 19   (d) 16   (e) 28   (f) 16

Page 70 **14.** (a) 7   (b) 8   (c) 7   (d) 14   (e) 19   (f) 23   **15.** (a) 4   (b) 16   (c) 9   (d) 6   (e) 12   (f) 63

16. (a) 29   (b) 51   (c) 49   (d) 14   (e) 15   (f) 6

17. (a) 39   (b) 52   (c) 3   (d) 3   (e) 28   (f) 9   A = b   B = d   C = f   D = c   E = a   F = e

18. (58 + 36) − 75 = 19   **19.** (37 − 19) + 28 = 46   **20.** 90c − (37c + 28c) = 25c

Page 71 **1.** certain; impossible; very likely; possible; very likely; possible / unlikely; possible; impossible

2. (a) very likely; possible / unlikely; impossible

(b) certain; certain; impossible; impossible; certain

Page 72 **1.** certain; possible; impossible; impossible; possible / unlikely