Unit 12: Multiplication

Counting in 10s, 5s and 2s

➜ pages 6–8

1. a) Children should have matched the pictures to the number lines as follows:
Top picture (fingers) ➜ middle number line (0 to 20)
Middle picture (sticks) ➜ bottom number line (0 to 40)
Bottom picture (eyes) ➜ top number line (0 to 10)
b) There are 20 fingers. There are 40 sticks. There are 10 eyes.

2. Missing numbers on number line: 20, 25, 30, 35. There are 35 beads.

3. Children should have noticed that Filip has missed out 20 when counting in 5s so there are 30 bags, not 35.

4. a) Children should have circled 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30
b) Children should have coloured in 5, 10, 15, 20, 25, 30
c) 10, 20, 30
d) Any multiple of 10 would have both a circle and a colour so 40, 50, 60…

Reflect

Children could have written different explanations for how to count the wheels on 5 bicycles, e.g.

I would count up in 2s until I get to five 2s: 2, 4, 6, 8, 10. There are 10 wheels.

I would add 5 and 5 to get 10.

Making equal groups

➜ pages 9–11

1. a) There are 5 groups of 4 candles.
b) There are 5 groups of 6 lollies.
c) There are 3 groups of 2 gloves.
d) There are 4 groups of 2 hats.
e) There are 2 groups of 2 scarves.

2. a) Children should have added 3 dots in the second group and 2 dots in the third group to complete 3 equal groups of 4. Alternatively, some children might have added dots to the first picture as well, to make equal groups of a different size.
b) Children should have drawn 2 more groups of triangles, so that **not all** of the groups contain 4 triangles.

3. Oliver made 3 groups of 4.

4. Children could have written different stories, e.g.
Equal groups: There are 3 equal groups of 5 books.
Unequal groups: There is a group of 3 computer screens and a group of 2 computer screens.
The CDs are in two unequal groups, with 2 CDs in one pile and 1 CD in another.

Reflect

Children should have drawn different pictures, one to show equal groups and the other to show unequal groups. Children should have understood that equal groups each contain the same number of objects but do not necessarily need to be organised in the same way.

Adding equal groups

➜ pages 12–14

1. a) Missing number on number line: 6, 8, 10.
2 + 2 + 2 + 2 + 2 = 10. There are 10 wheels.
b) 5 + 5 + 5 + 5 = 20. There are 20 spots.

2. 5 + 5 + 5 = 15. 15 buttons are needed for 3 snowmen.

3. Children should have completed the table as follows:
4th column: 5 + 5 + 5 = 15
5th column: 5 + 5 + 5 + 5 = 20

4. a) Missing number on number line: 30
10 + 10 + 10 = 30
b) Missing numbers on number line: 30, 40
10 + 10 + 10 + 10 = 40

5. Oliver and Anna are both incorrect. They have **the same** number of stickers because 5 + 5 + 5 + 5 = 20 and 4 + 4 + 4 + 4 + 4 = 20.

Reflect

Children could have described different methods, e.g.

I can work out how many shells there are by counting up in 5s: 5, 10, 15, 20, 25, 30. There are 30 shells.

5 + 5 + 5 + 5 + 5 + 5 = 30. There are 30 shells.

I can work out how many shells there are by drawing circles around two groups of 5 each time and then counting in 10s: 10, 20, 30.

Making simple arrays

➜ pages 15–17

1. a) There are 3 objects in each row. There are 2 rows.
b) There are 3 objects in each row. There are 4 rows.

2. Children should have matched the arrays to the descriptions as follows:
top array ➜ top description (4 columns, 2 triangles in each column)
middle array ➜ bottom description (3 columns, 4 triangles in each column)
bottom array ➜ middle description (4 columns, 3 triangles in each column)

3. Missing numbers in number line: 10, 15
5 + 5 + 5 = 15. There are 15 stars.

4. Tim has made a mistake. Children could have explained their reasoning in different ways, e.g.

Every row in an array should be the same but Tim has put 6 counters in the top two rows and 7 counters in the bottom row.

Tim has not organised his array so that every row is the same and every column is the same.

5. It is most likely that children will draw 3 dots to complete a 3 by 10 array, however children could have drawn in more dots to create larger arrays.

Reflect

Children will have needed to know the number of rows and the number of columns to work out how many smiley faces are in the array. They could have completed the number line by drawing two jumps of 5 or by drawing five jumps of 2 (or both). Hopefully, children will have started to appreciate that it does not matter whether they think of each row as a group (giving 2 groups of 5) or each column as a group (giving 5 groups of 2) as the total number of objects is the same (10).

Making doubles

➜ pages 18–20

1. Children should have circled the dominoes that show: double 2, double 4, double 3.

2. Children should have drawn counters into the right column of each ten frame so that it matches the counters in the left column.

Double 1 is 2. Double 2 is 4. Double 3 is 6. Double 4 is 8. Double 5 is 10.

3. Children should have matched:
1st card in top row (3) ➜ 4th card in bottom row (6)
2nd card in top row (7) ➜ 1st card in bottom row (14)
3rd card in top row (5) ➜ 2nd card in bottom row (10)
4th card in top row (8) ➜ 3rd card in bottom row (16)

4. a) Double 4 is 8.
b) 10 is double 5.
c) 2 is double 1.
d) Double 6 is 12.

5. Children could have chosen any number from 1 to 10 and coloured its double in the grid. They could have noticed that the double is a number they say when they count in 2s from 0.

Reflect

Different children will have been able to recall a different range of doubles facts from the following:

Number:	1	2	3	4	5	6	7	8	9	10
Double:	2	4	6	8	10	12	14	16	18	20

Solving word problems – multiplication

➜ pages 21–23

1. a) There are 5 pots of 2 brushes. There are 10 brushes altogether. Children should have completed the number line with 6, 8, 10.
b) There are 30 pencils altogether. Children should have completed the number line with 15, 20, 25, 30.

2. Children should have matched the questions to the number lines as follows:

How many circles? ➜ middle number line (0 to 10)

How many squares? ➜ bottom number line (0 to 8)

How many triangles? ➜ top number line (0 to 6)

3. There are 15 dots in total.

4. a) 14
b) 5

Reflect

Children could have written many different questions to match the number line, e.g.

I have 5 groups of 2 objects. How many objects do I have altogether?

5 children have got paint all over their hands. How many hands are covered in paint?

I have five 2 pence coins in my purse. How many pennies would have the same value?

End of unit check

➜ pages 24–25

My journal

Children could have given a number of different reasons, e.g.

Joe is right because there are 2 groups of 10. When there is the same number twice it means there is double that number.

Sara is right because the columns in the array show 10 groups of 2.

Poppy is right because the rows in the array show 2 groups of 10.

Unit 13: Division

Making equal groups (I)

➜ pages 26–28

1. a) The farmer needs 4 horseboxes with 2 horses each.
b) The farmer needs 5 pens of 3 sheep.

2. There are 6 groups of 3 bees.

3. Children should have matched sets of counters to the descriptions as follows:

1st set of counters (3 by 5 array) ➜ There are 15 counters in groups of 3 or This is 15 sorted into groups of 5.

2nd set of counters (2 by 5 array) ➜ 10 has been put into groups of 5 or 10 is sorted into groups of 2.

3rd set of counters (5 groups of 2) ➜ 10 has been sorted into groups of 2.

4th set of counters (3 by 5 array) ➜ There are 15 counters in groups of 3 or This is 15 sorted into groups of 5.

4. Children should have ticked the 1st and 2nd pictures.

5. Children need to have drawn the same number of counters in the two grids.

The most likely answers are: There are 2 groups of 6. There are 6 groups of 2.

However, alternative answers are possible: There are 4 groups of 3. There are 3 groups of 4. There are 12 groups of 1. There is 1 group of 12.

Reflect

Jed can make 5 more chains of 3 paperclips, i.e. there will be 6 chains altogether where each chain is made of 3 paperclips.

Making equal groups (2)

➜ pages 29–31

1. Children should have grouped the shoes in 2s and continued jumps of 2 backwards along the number line.
There are 5 groups of 2 shoes.

2. a) Children should have grouped the counters in 5s and drawn jumps of 5, from 15 to 0, along the number line.
There are 3 groups of 5. Luke fills 3 pots.
b) Children should have grouped the counters in 5s and drawn jumps of 5, from 25 to 0, along the number line.
There are 5 groups of 5. Cora fills 5 trays.

3. Children should have drawn jumps of 10, from 40 to 0, along the number line.
Ella has 4 groups of 10 sticks. She can make 4 flower patterns.

4. Children should have completed the table as follows:

4	2 jumps of 2 on number line, from 4 back to 0. 2 groups of 2
8	4 jumps of 2 on number line, from 8 back to 0. 4 groups of 2
10	5 jumps of 2 on number line, from 10 back to 0. 5 groups of 2

Children should have noticed the pattern that the number of people is double the number of groups of 2.

Reflect

There are 3 groups of 10 pens. Children could have explained different methods for finding the answer, e.g.

I drew 30 dots and then put a loop around a group of 10 at a time. There were 3 groups.

I counted back in 10s along a number line from 30 to 0. There were three 10s.

I knew that three 10s made 30.

Sharing equally (I)

➜ pages 32–34

1. Children should have drawn 2 cars in each set.
There are 6 cars. They are shared between 3 children.
Each child gets 2 cars.

2. There are 15 dinosaurs. They are shared between 5 children. Each child gets 3 dinosaurs.

3. a) 18 shared between 2 is 9. Each child gets 9 cards.
b) A is correct. Children could have explained their reasoning in different ways, e.g.

18 shared between 3 is 6, and 6 is less than 9 so each child will get fewer than before.

If the number of cards is the same but they have to be shared between more children, each child must get fewer.

4. 12, 16 (either way round)

Reflect

Children could explain different approaches, e.g.

He could get 20 counters and put one counter next to each cake and keep doing this until all of the counters are used up.

He could get arrange 20 counters in an array that has 4 rows. The number of counters in each row is the number of cherries that should go on each cake.

Sharing equally (2)

→ pages 35–37

1. a) There are 2 carrots for each rabbit. There are 5 groups of 2 carrots.
b) There are 10 carrots for each rabbit. There are 2 groups of 10 carrots.

2. Each tortoise gets 3 leaves. There are 4 groups of 3 leaves.

3. a) Children should match the top array (4 groups of 5) to the bottom picture (4 children).
Children should match the bottom array (10 groups of 2) to the top picture (10 children).
b) 20 shared between 4 is 5 for each person.
20 shared between 10 is 2 for each person.

4. Eve has shared between 3 equally. Children could have explained the mistakes in different ways, e.g.

Ben has shared his sweets into more than 3 groups.

Sara has organised her sweets into 3 groups but they are not equal.

5. 42, 48, 54 (in any order)

Reflect

Children could explain their method in different ways, e.g.

I can share 8 cubes between 4 people equally by giving each person one cube each until all of the cubes are shared out.

I can share 8 cubes between 4 people equally by giving each person 2 cubes because I know that 4 groups of 2 can be made from 8.

Solving word problems – division

→ pages 38–40

1. Leo can fill 5 transporters.

2. Jade fills 5 rows.

3. Eva will have 6 toys on each shelf. Tom will have 3 toys of each shelf. So, Eva has more on each shelf.

4. Eva is correct because the cubes need to be sorted into 2 bags, so if Eva shares the cubes into 2 groups then one group can be put into each bag. Some children could have described a method that involves sorting the cubes into groups of 2 if, for example, they argued that then one cube from each group should be put into each bag.

5. a) There are 10 groups.
b) There are 2 counters in each group.

Reflect

The following questions involve making equal groups: 1, 2.
The following questions involve equal sharing: 3, 4, 5.

Children could have identified different questions as the hardest.

End of unit check

→ pages 41–42

My journal

The girls are correct because they have 6 teddy bears each while the boys only have 5.

Power puzzle

Children should recognise that they need to first find out the total number of dots and then consider what equal groups they can make using that number.

Unit 14: Halves and quarters

Finding halves (I)

➜ pages 43–45

1. Children should have drawn lines as follows:
Rectangle: any line through the centre of the shape, e.g. horizontal line, vertical line, diagonal line
Heart: vertical line down the middle of the shape
Oval: any line through the centre of the shape, e.g. horizontal line, vertical line, diagonal line
Butterfly: vertical line down middle of shape

2. a) Children should have coloured one of the marked parts on each shape.
b) Any straight line which passes through the centre of the shape, e.g. vertical, diagonal.

3. Children should have ticked: 1st and 4th triangles, 1st and 3rd circles.

4. Children should have matched each shape with its mirror image:
The two right-angle, isosceles triangles together would make a square.
The two right-angle, non-isosceles triangles together would make a non-square rectangle (oblong).
The two rectangles whose horizontal sides are twice as long as their vertical sides together would make a square.
The two other rectangles together would make a non-square rectangle (oblong).

5. Shapes should be matched to descriptions as follows:
4th shape in top row, 1st shape in bottom row, 2nd shape in bottom row ➜ less than half shaded.
1st shape in top row, 3rd shape in top row, 4th shape in bottom row ➜ exactly half shaded.
2nd shape in top row, 3rd shape in bottom row ➜ more than half shaded.

Reflect

Children could have given different answers but the most likely answer is that the 3rd shape is the odd one out because less than half of it is shaded whereas exactly half of each of the others is shaded.

Finding halves (2)

➜ pages 46–48

1. a) Half of 8 children is 4 children.
b) Half of 10 children is 5 children.

2. Children should have coloured:
a) 2 cars.
b) 7 books.
c) 6 bananas.
d) 8 smiley faces.

3. a) Half of 10 is 5.
b) 9 is half of 18.
c) 2 is half of 4.
d) Half of 6 is 3.

4. Children should have coloured, from left to right: any 2 squares, any 3 squares, any 3 squares, any 3 squares

5. star = 3, triangle = 6

Reflect

Children could have explained different methods, e.g.

I can find half of 12 by sharing 12 counters into 2 equal sets.

I can find half of 12 by colouring a row of 12 squares on squared paper and drawing a line down the middle.

Finding quarters (I)

➜ pages 49–51

1. There are different ways to draw lines to divide the rectangle into quarters, e.g.

3 evenly spaced horizontal lines, 3 evenly spaced vertical lines, 1 horizontal line and 1 vertical line through the centre of the shape, 2 diagonal lines through the centre of the shape

2. Children should have coloured a quarter in the following ways:
Shapes on first and second rows – shade one marked part of each shape.
Rectangles in third row – draw lines to divide each shape into 4 equal pieces (probably in similar ways to 2nd row) and then shade one piece.

3. Children should have ticked the following:
Top row: 1st shape and 4th shape
Bottom row: 3rd shape

4. Children should have matched shapes to descriptions as follows:
Top row: 2nd shape, bottom row: 2nd shape, bottom row: 4th shape ➜ less than a quarter shaded
Top row: 1st shape, top row: 3rd shape, bottom row: 3rd shape ➜ exactly a quarter shaded
Top row: 4th shape, bottom row: 1st shape ➜ more than a quarter shaded

5. There are alternative answers but the most likely answers are:
Cross: 1 vertical and 1 horizontal line crossing in centre of shape; two diagonals which cross at right-angles at centre of shape
Star: 1 vertical and 1 horizontal line crossing in centre of shape; two diagonals which cross at right-angles at centre of shape
Rhombus: 1 vertical and 1 horizontal line crossing in centre of shape; lines from the centre of one side to the centre of the opposite side and cross at centre of shape.

Reflect

There are many ways to divide a rectangle into quarters. The most likely ways children will have shown are:

3 evenly spaced horizontal lines, 3 evenly spaced vertical lines, 1 horizontal line and 1 vertical line through the centre of the shape, 2 diagonal lines through centre of the shape

Finding quarters (2)

→ pages 52–54

1. a) A quarter of 4 is 1.
b) A quarter of 8 is 2.
c) A quarter of 20 is 5.
d) A quarter of 12 is 3.

2. Children should have circled the 2nd, 3rd and 4th pictures.

3. a) more than
b) exactly
c) less than

4. a) A quarter of 4 is 1.
b) A quarter of 8 is 2.
c) A quarter of 16 is 4.
d) A quarter of 4 is 1.

5. Meg is right. Children might have explained their reasoning in different ways, e.g.
There are 20 sweets and a quarter of 20 is 5.
4 is a quarter of 16 but there are more than 16 sweets altogether.

6. star = 6, square = 4

Reflect

Children could have explained different methods, e.g.

I can find a quarter of 12 by dividing 12 objects into 4 equal sets.

I can find a quarter of 12 by dividing 12 objects in half and then dividing each set in half again.

Solving word problems – halves and quarters

→ pages 55–57

1. a) Half of 8 donuts is 4 donuts. 4 donuts are eaten.
b) 5 is a quarter of 20. There are 20 toy cars in total.

2. a) A half of 20 is 10. 10 pebbles have dots.
b) A quarter of 20 is 5. 5 pebbles have stripes.

3. There are 9 birds left.

4. Children should have circled picture **C**.

Reflect

Which questions needed you to think about quarters?
1b, **2**b, **3**, **4**

Which questions needed you to think about halves?
1a, **2**a, **4**

Children could have identified different questions as harder.

End of unit check

→ pages 58–59

My journal

It is easier for Luke because you can share the strawberries equally into two halves. It is harder for Eva because you cannot share the strawberries equally into quarters. There will be two left over.

Power puzzle

Children should shade half of the total number of boxes in each grid without producing the same pattern twice.

Unit I5: Position and direction

Describing turns

➜ pages 60–62

1. a) monkey
b) monkey
c) quarter turn or three-quarter turn

2. Answers from top to bottom: True, False, True

3. Yes. Children could have given different explanations, e.g.
Two quarter turns in the same direction are the same as a half turn.
If you turn a quarter turn and then another quarter turn, you will end up facing in the opposite direction to the one you started in. This is what Josh has done.

4. a) S
b) S

Reflect

Children could have chosen any of the turns to draw and explain to their partner, e.g.

Whole turn: You will turn all the way round and end up facing in the same direction as when you started.

Quarter turn: There are two directions you can turn in. You end up facing in a different direction to when you started. You would need to make 4 quarter turns to end up back where you started. If you start facing North and turn a quarter turn clockwise, you will end up facing East.

Describing positions (I)

➜ pages 63–65

1. Children should have circled the following words:
a) left
b) right
c) right
d) left

2. Children should have drawn a smiley face in the left-hand square.

3. Children should have put the following numbers next to the directions:
Turn 1 quarter turn right: 2
Walk 6 steps forwards: 3
Walk 8 steps forwards: 1
Turn 1 quarter turn left: no number

4. First walk 10 steps forwards.
Then, turn 1 quarter turn left.
Next, walk 3 steps forwards.

5. Half turn left. Children could have given different explanations, e.g.
If the tractor had turned a half turn then it would have ended up facing in the opposite direction to the one it started in.

Reflect

Children should have ended up facing the teacher again.

Describing positions (2)

➜ pages 66–68

1. Children should have circled the following words:
a) above
b) right
c) below, right

2. The finished grid should contain pictures arranged as follows:
Top row: tree, car, blank
Bottom row: pond, house, bicycle

3. The three most likely answers are as follows: The socks are below the T-shirt. The socks are to the right of the shoes. The socks are to the left of the trousers.

4. a) c
b) a
c) k
d) e

Reflect

Children could have chosen any shape and used a range of positional language to describe its position to their partner, e.g.

Square: It is above the pyramid. It is to the left of the cuboid in the middle row. It is below the cube.

End of unit check

➜ pages 69–70

My journal

There are four possible paths:

Go forwards 1 square; make a quarter turn right; go forwards 2 squares; make a quarter turn left; go forwards 1 square.

Make a quarter turn right; go forwards 1 square; make a quarter turn left; go forwards 2 squares; make a quarter turn right; go forwards 1 square.

Go forwards 1 square; make a quarter turn right; go forwards 1 square; make a quarter turn left; go forwards one square; make a quarter turn right; go forwards 1 square.

Make a quarter turn right; go forwards 1 square; make a quarter turn left; go forwards 1 square; make a quarter turn right; go forwards 1 square; make a quarter turn left; go forwards 1 square.

Power puzzle

	Maya	Molly
Anya	Katie	Bob
Hassan	Shaan	

Unit 16: Numbers to 100

Counting to 100

➜ pages 71–73

1. There are 36 buttons.

2. Children should have written the following numbers onto the number line: 10, 20, 30, 40, 50, 60, 62.
There are 62 pegs.

3. a) There are 53 counters.
b) There are 18 counters.

4. Missing numbers from left to right:
a) 48, 49, 50
b) 71, 73, 74, 76
c) 61, 60, 59
d) 83, 85, 86

5. Children should have joined the dots to make a picture of a chick.

Reflect

Children should have counted from 34 to 62, completing the ten frames up to 62 as they went.

The most challenging sections of the count are likely to have been counting over the tens boundaries.

Exploring number patterns

➜ pages 74–76

1. square = 42, triangle = 66, circle = 70, pentagon = 9, parallelogram = 95, star = 29

2. Children should have filled in the missing numbers as follows:
a) second row: 28, 30
third row: 37, 39
fourth row: 48, 50
b) horizontal sequence: 54, 55, 56, 58
vertical sequence from top to bottom: 35, 55, 65, 85

3. a) 74
b) 30
c) 17
d) 47
e) one less than

4. Children should have shaded the numbers: 3, 13, 23, 33, 43, 53, 63, 73, 83, 93.
Children should have noticed that the shaded numbers are in a vertical line.

5. Children should have completed the pattern so that it reads as follows:
Horizontal sequence from left to right: 21, 22, 23
Vertical sequence from top to bottom:12, 22, 32

Reflect

Children should have positioned the numbers 15, 25, 46, 70 and 99 on the 100 square. The positions of the numbers may vary depending on the way in which they have oriented their 100 square. It should be clear from the positioning of their numbers where the 1 and the 100 would be on the square.

For example, if the child decided to orient their 100 square so that 1 is in the top left hand corner of the square and 100 is in the bottom right hand corner of the square, the numbers should have been placed as follows:

				15					
				25					
									70
								99	

Partitioning numbers (I)

➜ pages 77–79

1. a) Missing numbers on number line: 10, 20, 30, 37.
There are 37 apples.
b) There are 53 carrots.

2. Children should have matched the images to the place value grids and written in numbers as follows:
Top image ➜ bottom place value grid, 32
Middle image ➜ top place value grid, 28
Bottom image ➜ middle place value grid, 17

3. Children should have drawn:
a) 4 tens and 5 ones
b) 2 tens

4. It is possible to make six 2-digit numbers: 25, 26, 56, 52, 62, 65 using the three cards, assuming that you cannot use the same number twice. Children could have drawn and made their number using different objects and equipment, e.g. number line, tens and ones blocks, counters.

Reflect

There are many possible pairs of numbers children could have made using the 5 tens and 4 ones blocks. Each pair of numbers will total 54, e.g.

2 tens and 3 ones (23) and 3 tens and 1 one (31)

1 ten and 2 ones (12) and 4 tens and 2 ones (42)

5 tens (50) and 4 ones (4)

Partitioning numbers (2)

→ pages 80–82

1. a) Missing numbers on number line: 10, 20, 30, 40, 46. There are 4 rows of 10 rubbers. There are 6 more rubbers. There are 46 rubbers.
b) Missing numbers on number line: 0, 10, 20, 30, 40, 50, 53. There are 53 pencils.

2. Children should have completed the diagrams and number sentences as follows:
a) 25, 25
b) 9 (tens) and 7 (ones), 97

3. a) 45
b) 86
c) 7
d) 0
e) 36
f) 54
g) 20
h) 8

4. There are several possible pairs of numbers. Each pair of numbers should total 53, e.g.
21 = 20 + 1 and 32 = 30 + 2
42 = 40 + 2 and 11 = 10 + 1
50 = 50 + 0 and 3 = 0 + 3

5. a) There are many possible answers, e.g. 56, 52, 257
b) There are many possible answers, e.g. 65, 25, 5
c) There are many possible answers, e.g. 72, 65, 752
d) 26

Reflect

Answers will depend on the children's dice roll. They could have drawn and made the number in different ways, e.g. using counters, part-whole diagrams or tens and ones blocks.

Comparing numbers (I)

→ pages 83–85

1. Ray planted more than Ola.

2. a) 47 > 32
b) 70 > 67 or 67 < 70
c) 26 < 28 or 28 > 26

3. a) The greater number is 34. This is because 30 > 20 (or 20 < 30). Alternatively, some children could have written 34 > 29 (or 29 < 34).
b) The smaller number is 74. This is because 4 < 6 (or 6 > 4). Alternatively, some children could have written 74 < 76 (or 76 > 74).

4. Children should have added 4 counters so there are 30 counters in the left-hand set of ten frames.

5. Children should have drawn 1 to 3 beads on the bead string and 5 to 10 counters in the ten frame.

Reflect

Children could have described a range of methods, e.g.

I would make the numbers with tens and ones blocks and line up the blocks to see which number is greater and which is smaller.

I would show each number on a bead string and see which had more beads.

I know 66 is smaller than 72 because it has 6 tens but 72 has 7 tens.

Comparing numbers (2)

→ pages 86–88

1. a) 25 is less than 28. This is because 5 < 8 (or 8 > 5). Alternatively, some children could have written 25 < 28 (or 28 > 25).
b) 40 is equal to 40. 40 = 40.

2. a) 64 > 48
b) 90 < 95
c) 23 < 28
d) 33 = 33
e) 72 > 27
f) 55 > 5

3. Children should have circled the following numbers:
a) 39
b) 9

4. Children should have circled the following numbers:
a) 75
b) 19

5. Children should have written the following digits into the gaps in the number sentences from top to bottom:
8 or 9
any digit from 0 to 6
any digit from 5 to 9

Reflect

Children could have suggested and described different methods, e.g.

I can compare 54 and 58 by looking at the tens digit in each number. This is the same so I need to compare the ones. 4 is less than 8 so 54 is less than 58.

I can compare 15 and 76 by looking at the tens digit in each number. 15 has 1 ten but 76 has 7 tens so 76 is bigger than 15.

I can compare the numbers by making them with tens and ones blocks and lining up the blocks for each number underneath each other to see which is the smaller number and which is greater.

Ordering numbers

→ pages 89–91

1. Children should have circled 54.

2. 28, 44, 58

3. a) 63 < 65 < 72
b) 11, 30, 38, 48 or 11 < 30 < 38 < 48

4. a) 64 > 48 > 47
b) 33, 31, 30, 13 or 33 > 31 > 30 > 13

5. Assuming the same card cannot be used twice:
a) 36
b) 98

6. Children should have selected or written 27, possibly by circling the picture showing 27 made with tens and ones blocks.

Reflect

40 < 44 < 54 < 61 or 40, 44, 54, 61.

Children could have described different methods for ordering the numbers, e.g.

I looked at how many tens each number has and then how many ones.

I marked each number of a number line to compare them.

Bonds to 100 (1)

→ pages 92–94

1. a) 70 + 30 = 100 or 30 + 70 = 100
b) 90 + 10 = 100 or 10 + 90 = 100
c) 60 + 40 = 100 or 40 + 60 = 100

2. Children should have coloured 20 counters or 80 counters (or each set in a different colour).

3. a) 40, 90
b) 60 + 40 = 100, 40 + 60 = 100, 100 − 40 = 60, 100 − 60 = 40 or
10 + 90 = 100, 90 + 10 = 100, 100 − 90 = 10, 100 − 10 = 90

4. a) 40 + 60 = 100 50 + 50 = 100
30 + 70 = 100 0 = 100 − 100
100 − 90 = 10 100 − 20 = 80
b) 60 + 40 = 30 + 70 10 + 90 = 90 + 10 (though other answers are possible, e.g. 10 + 80 = 90 + 0)

5. circle = 50, triangle = 5, heart = 12

Reflect

The following answers are possible:

10 + 90 = 100, 20 + 80 = 100, 30 + 70 = 100, 40 + 60 = 100, 50 + 50 = 100, 60 + 40 = 100, 70 + 30 = 100, 80 + 20 = 100, 90 + 10 = 100

Some children might also have included: 0 + 100 = 100 and 100 + 0 = 100.

Bonds to 100 (2)

→ pages 95–97

1. a) There are 4 rows shaded. There are 6 rows not shaded. 4 + 6 = 10 or 6 + 4 = 10
b) There are 40 squares shaded. There are 60 squares not shaded. 40 + 60 = 100 or 60 + 40 = 100

2. a) 8 + 2 = 10 or 2 + 8 = 10
b) 6 + 4 = 10 or 4 + 6 = 10

3. Children should have circled the following bonds:
Bonds to 10: 7 + 3, 5 + 5, 2 + 8
Bonds to 100: 90 + 10, 10 + 90, 100 + 0, 20 + 80

4. a) 5 + 5 = 10, 50 + 50 = 100
b) 2 + 8 = 10, 80 + 20 = 100
c) 100 − 30 = 70, 10 − 3 = 7
d) 20 + 80 = 100, 100 − 20 = 80

5. There are 80 red apples.

Reflect

Children should have been able to use their knowledge of bonds to 10 to help them identify the missing number in bonds to 100.

End of unit check

→ pages 98–99

My journal

Children should choose a clear, concrete method (for example, Base 10 equipment, counters, a bead string) to represent 75.

They should write that 75 is made up of 7 tens and 5 ones and complete the part-whole model to show 75 = 70 + 5 (with the parts in either order).

Their drawing should clearly represent 75.

Unit 17: Time

Using before and after

➜ pages 100–102

1. a) before, after (or the reverse order, as children could have interpreted the artworks differently, e.g. the boy filled the half-empty glass up)
b) after, before
c) before, after

2. Children should have numbered the pictures from left to right: 3, 1, 2

3. a) Noah rode his bicycle.
b) Noah planted a flower/did some gardening.

4. Children should have underlined all of the days except Saturday. Some children may also have circled all of the days except Saturday if they consider the cycle of days in the week rather than the way days have been written into the grid.

5. Children should have written they day they completed the page, the day before and the day after.

Reflect

Children could have suggested different ideas, e.g.

Before: The girl might have dropped her drink. Someone might have knocked into the girl.

After: The girl might get a towel and dry the floor. The girl might get another drink.

Using a calendar

➜ pages 103–105

1. Children should have underlined the day they completed the question, circled the day before and coloured the day after.

2. a) The month is August. The number day in the month is 10. The day of the week is Thursday.
b) The month is August. The number day in the month is 19. The day of the week is Saturday.

3. a) Thursday
b) Tuesday
c) 5
d) Children should have drawn a star on the calendar on 27 Dec.
e) Children should have drawn a cross on the calendar on 20 Dec.
f) Tuesday

4. Children should have written the following numbers from top to bottom:
1, 2, 5, 3, 4, 7, 8, 6, 11, 9, 10, 12.

Reflect

Children could have completed the reflection statement in different ways, e.g.

Today, I have used a calendar to find what day of the week a date is.

Today, I have used a calendar to order the months of the year.

Telling time to the hour

➜ pages 106–108

1. Children should have matched the times to the clocks as follows:
12 o'clock ➜ bottom clock
8 o'clock ➜ top clock
1 o'clock ➜ middle clock

2. a) 5
b) 6
c) 11

3. Children should have drawn the minute hand pointing to the 12 and the hour hand pointing to the following numbers:
a) 10
b) 2
c) 7

4. Children should have circled the child/time on the right.

5. There are four possible times: 1 o'clock, 10 o'clock, 11 o'clock and 12 o'clock.
Children might have suggested different activities they do at these times of the day, e.g.
1 o'clock: I come in from lunchtime.
10 o'clock: I go to assembly.
11 o'clock: I come in from break.
12 o'clock: I eat my lunch.

Reflect

Since the lesson focused on telling the time on analogue clocks, children are most likely to draw an analogue clock showing 4 o'clock. They should have recognised that the minute hand should be longer than the hour hand, that the minute hand should point to 12 and that the hour hand should point to 4.

Alternatively, children who have used digital clocks could have shown 4 o'clock on a digital clock, i.e. 04:00 (or even 16:00).

Telling time to the half hour

➜ pages 109–111

1. Children should have matched times to clocks as follows:
half past 5 ➜ 2nd clock
half past 8 ➜ 4th clock
half past 6 ➜ 3rd clock
half past 7 ➜ 1st clock

2. a) 11 c) 10
b) 9 d) 1

3. Children should have drawn the minute hand pointing to the 6 and the hour hand pointing as follows:
a) half-way between 2 and 3
b) half-way between 4 and 5
c) half-way between 3 and 4
d) half-way between 9 and 10

4. No. Children could have given different explanations for why Astrid is not correct, e.g.

The minute hand is pointing to the number 12 so it is 6 o'clock, not half past 6.

5. The following answers are possible: half past 1, half past 2, half past 3.
Children might have described different activities they do at these times of the day, e.g.

half past 1: I put away my reading book.
half past 2: I am working.
half past 3: I walk home from school.

Reflect

Children should have drawn a clock showing half past 7. Since the lesson has focused on telling the time on an analogue clock, it is likely that most children will draw one. They should have drawn the minute hand as longer than the hour hand and realised that the minute hand should point at the 6. Some children might have drawn the hour hand pointing at the 7, though hopefully most children will have appreciated that the hand should be pointing half-way between the 7 and the 8.

Some children, who have used digital clocks, might have drawn 7:30 (or even 19:30) on a digital clock.

Writing time

➜ pages 112–114

1. Children should have matched:
A night's sleep ➜ hours
Eating a biscuit ➜ seconds
Playing football ➜ minutes (though some children could have said hours)

2. a) minutes
b) hours

3. Children's answers will vary.

4. Yes. Children should have recognised that 60 seconds is the same as 1 minute.
Some children might have suggested that the children are not right because it is not clear whether the race has been timed correctly.

5. Children's answers will vary.

Reflect

Children could have suggested different actions that they can do in 1 minute and in 1 hour, e.g.

1 minute: I can walk to the hall. I can read a page of my book.

1 hour: I can bake a cake. I can walk from my house to the swimming pool.

Comparing time

➜ pages 115–117

1. Children should have circled the following words:
a) greater
b) more time
c) longer
d) slower

2. Children should have ticked the child on the right.
18 minutes is faster than 20 minutes.

3. Children should have circled the following words:
shorter, faster, longer, slower

4. Five (whole number) answers are possible: 7, 8, 9, 10 or 11.

Reflect

Children should have circled: 10 hours.

Children should have underlined: 15 seconds.

Children could have explained how they identified the longest and shortest times in different ways, e.g.

I knew that 10 hours was the longest time because all of the other times are shorter than 1 minute and 1 minute is shorter than 10 hours.

60 seconds is the same as 1 minute, so 15 seconds is shorter than 1 minute. All of the other times are longer than 1 minute, so 15 seconds must be the shortest time.

Solving word problems – time

➜ pages 118–120

1. 8 + 4 = 12 or 4 + 8 = 12. Jack's meal takes 12 minutes.

2. Claire has 14 minutes left.

3. Tariq was faster. Children could have explained how they worked this out in different ways, e.g.

Tariq set a timer for 20 seconds but finished with 5 seconds left on the timer. 20 subtract 5 is 15 so he took 15 seconds. Sue took 16 seconds. 15 is smaller than 16 so Tariq took less time than Sue. This means he was faster.

4. 9 o'clock

5. There are many possible answers, e.g.

Mixing the cake: 20 minutes
Baking the cake: 20 minutes
Mixing the cake: 10 minutes
Baking the cake: 30 minutes
Mixing the cake: 18 minutes
Baking the cake: 22 minutes

Reflect

Children could have completed the reflection statement in different ways, e.g.

Today, I have learned to answer word problems which use time.

Today, I have learned to work out how long an activity took using subtraction.

End of unit check

➜ pages 121–122

My journal

For the first question children should recognise that both of the clocks show half past the hour and both of the minute hands are pointing straight down at the 6.

For the second question children should recognise that the hour hands are in different positions and the first clock shows half past 4, and the second one shows half past 7.

Unit I8: Money

Recognising coins

➜ pages 123–125

1. Children should have matched coins to words as follows:
£2 coin ➜ 2 pounds
50p coin ➜ 50 pence
5p coin ➜ 5 pence
10p coin ➜ 10 pence
1p coin ➜ 1 pence
2p coin ➜ 2 pence
£1 coin ➜ 1 pound
20p coin ➜ 20 pence

2. There is a 2 pence coin hidden.

3. Children should have drawn a line from each coin as follows:
20p coin ➜ Greater than 10 pence
Less than 10 pence ➜ 5p coin
50p coin ➜ Greater than 10 pence
Less than 10 pence ➜ 2p coin
Less than 10 pence ➜1p coin

4. Children should have drawn a line from the follow coins to fill the gaps:
a) 10p
b) 1p
c) Left box: 1p, 2p, 5p, 10p, 20p or 50p. Right box: £2.

5. Children should have circled coins and filled gaps to complete the table as follows:
2nd row: Circle 20p coin, 20 pence, Less than 50 pence.
3rd row: 2p coin circled, 2 pence, Greater than 1 pence.
4th row: Circle 10p coin, 10 pence, Less than 20 pence.

Reflect

Children could have asked a range of questions to guess their friend's chosen coin, e.g.

Is the coin silver?

Is the value of the coin greater than 10p?

If you drew round your coin, would you draw a circle?

Recognising notes

➜ pages 126– 128

1. Children should have matched groups of notes to amounts as follows:
1st picture ➜ Two 5 pound notes
2nd picture ➜ One 20 pound notes
3rd picture ➜ Four 10 pound notes
4th picture (no match)
5th picture ➜ Two 10 pound notes

2. The 50 pound note is missing.

3. a) 3
b) 4
c) 2
d) 2

4. a) >
b) =
c) <

5. Children should have circled the £10 note because £20 notes have a greater value than £10 notes, so the £20 notes should have come before the £10 note when ordering from greatest to least value.

Reflect

Children should have circled: The two £5 notes, the £10 note and the £20 note.

Children should have identified that there are no £15 and £30 notes in real life.

Counting with coins

➜ pages 129–131

1. a) 25, 25
b) 3
c) 40
d) 6

2. Children should have drawn:
a) Eight 1p coins
b) Four 2p coins

3. a) Two 5p coins
b) One 10p coin

4. a) <
b) <
c) >
d) =

5. Jack is not correct.

6. There are two possible answers:
Lucy has six 5p coins. Pavel has three 10p coins. They both have 30p.
Lucy has six 10p coins. Pavel has three 20p coins. They both have 60p.

Reflect

There are four possible ways to make 20 using 1p, 2p, 5p and 10p coins and using only one coin type each time:

Twenty 1p coins, ten 2p coins, four 5p coins and two 10p coins.

End of unit check

→ pages 132–133

My journal

There are six possible ways to make 20p from the coins listed:

10p + 10p

5p + 5p + 10p

5p + 5p + 5p + 5p

2p + 2p + 2p + 2p + 2p + 10p

2p + 2p + 2p + 2p + 2p + 5p + 5p

2p + 2p + 2p + 2p + 2p + 2p + 2p + 2p + 2p + 2p