



Unit II: Position and direction

Describing movement

→ pages 9-11

- 2
 - 2
- football
 - Children should have drawn a flower on the bottom shelf below the picture frame. They could have described its position in different ways, e.g. The flower is to the left of the book.
- cylinder, cuboid (either way round)
 - cube, cuboid (either way round)
- Children should have labelled the squares as follows:

3	9	7
8	6	4
5	2	1

or

2	8	6
7	5	3
4	1	9

- Top row: rectangle, circle
 - Bottom row: triangle, square

Reflect

Children could have given different descriptions, e.g.
I could say that the star is to the left of the dog.
I could say that the star is above the ice cream.

Describing turns

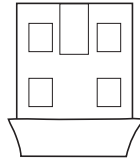
→ pages 9-11

- Children should have circled the words:
 - clockwise
 - anticlockwise
 - clockwise
- half turn
 - quarter turn
 - whole
- Children should have matched images to descriptions as follows:
 - Top image → Half turn clockwise
 - Middle image → Quarter turn clockwise
 - Bottom image → Whole turn anticlockwise
- Children could have circled either yes or no, but they should have recognised that the fly could have turned clockwise or anticlockwise. Children could have explained their answer in various ways, e.g.
No, because the fly could have made a three-quarter turn anticlockwise.

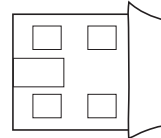
Reflect

Children should have drawn the picture rotated so that the door is: at the top; on the left; on the left:

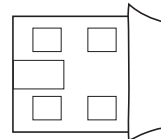
Half turn clockwise



Three-quarter turn anticlockwise



Quarter turn clockwise



Describing movement and turns

→ pages 12-14

- Children should have put an X in the middle square of the top row.
- Go 2 spaces forwards. Make a quarter turn clockwise. Go 2 spaces forwards.
- Children should have matched the diagrams to the instructions as follows:
 - Top diagram → Bottom set of instructions
 - Middle diagram → Top set of instructions
 - Bottom diagram → Middle set of instructions
 - Different instructions are possible, the most obvious being:
 - Quarter turn anticlockwise, forwards 1, quarter turn clockwise, forwards 1.
 - Forwards 1, quarter turn anticlockwise, forwards 1, quarter turn clockwise.
- Tom is correct. Children could have explained their reasoning in different ways, e.g.
I started facing in one direction and made a quarter turn clockwise. I faced the start direction again and made a three-quarter turn anticlockwise. I ended up facing the same direction both times.
A whole turn is the same as 4 quarter turns. If you make a three-quarter turn anticlockwise, this leaves you with one quarter turn anticlockwise to get back to where you started. So, you could get to the same position by making a quarter turn in the opposite direction, which is clockwise.



Reflect

Answers will depend on the children's choice of turn. Children should be able to describe their partner's chosen turn in two ways by recognising that it is possible to reach any position by turning clockwise or anticlockwise, e.g.

Half turn clockwise








Half turn anticlockwise

Quarter turn anticlockwise

Three-quarter turn clockwise

Making patterns with shapes

→ pages 15–17

1. Children should have circled:
 - a)  (inverted triangle)
 - b)  (left-pointing triangle)
2. Children should have drawn:
 - a)  (large square)
 - b)  (triangle with right angle top left)
3. Children should have drawn:
 - a)  (two semicircles with arcs facing inward)
 - b)  (white triangle on left, black on right, right angles together at the base)
4. a) Two possibilities:
 The semicircle turns a quarter turn clockwise.
 The semicircle turns a three-quarter turn anticlockwise.
 b) Two possibilities:
 The triangle turns a half turn clockwise.
 The triangle turns a half turn anticlockwise.
5. Children should have circled the fifth shape: 

Reflect

Answers will vary, e.g.



End of unit check

→ pages 18–19

My journal

Some children may ask qualitative rather than mathematical questions, such as 'Does it have packaging?', or may not realise that the question must be answerable with either 'Yes' or 'No'. However, suitable questions would include:

It is in the top / bottom row?

Is it in the first / second / third / fourth column?

Is it in the left / right group of four?

Is it one space away from the apple?

Power play

The quickest route to a grey circle will depend on successive dice rolls. Children may need supervision in interpreting the dice rolls correctly.



Unit 12: Problem solving and efficient methods

My way, your way!

→ pages 20–22

- $55 - 27 = 28$ (or possibly $27 + 28 = 55$). There are 28 girls.
- $19 + 49 = 68$ (or $49 + 19 = 68$). The shopkeeper sells 68 apples in total.
- $78 - 37 = 41$ (or possibly $37 + 41 = 78$). Stacey's mum is 41 years older than Stacey.
- $32 - 12 = 20$ (or possibly $12 + 20 = 32$). 'Starry Night' is 20 minutes long.
- Kimi gets 32p change.

Reflect

Oskar has £75 in total. Children could have used a range of methods, such as counting on in tens or adding tens and ones.

Using number facts

→ pages 23–25

- Missing numbers as follows:
 - 53 63
73 27
 - 91 41
71 13
- Children should have matched:
 - $30 + 5 \rightarrow 20 + 15$
 - $50 + 5 \rightarrow 30 + 25$
 - $60 + 5 \rightarrow 50 + 15$
 - $90 + 5 \rightarrow 60 + 35$
- 48 g
- Children should have completed the calculations and matched them to descriptions as follows:
 - $75 + 7 = 82 \rightarrow$ one less
 - $65 + 8 = 73 \rightarrow$ 10 less
 - $75 + 18 = 93 \rightarrow$ 10 more
 - $65 + 19 = 84 \rightarrow$ one more
 - $45 + 38 = 83 \rightarrow$ equal to
- 20

Reflect

The difference between the missing numbers is 20. Children might have explained how they knew in different ways, e.g.

When you add the first number to 45 you get 60. When you add the second number to 45 you get 80, which is 20 greater than 60. This means the second number must be 20 greater than the first number.

I worked out that the missing numbers are 15 and 35, and the difference between 15 and 35 is 20.

Using number facts and equivalence

→ pages 26–28

- Children should have written the calculations into the table as follows:
 - Correct: $32 + 30 = 62$, $58 - 20 - 10 - 10 - 10 = 8$
 - Incorrect: $2 + 45 = 65$, $17 + 53 = 60$, $75 - 15 = 90$, $40 - 40 = 40$
- Children should have written $58 + 4 = 62$, although some children might have written $58 + 40 = 98$.
- a) Answers may vary but children should have been able to justify their choice, e.g.
 - No, it is not the most efficient way. Since 100 is a round number it is easy to find the difference between 76 and 100 by counting from 76 to 100, jumping on to the next ten.
 - No, it is not the most efficient way. This column method involves lots of exchange so it will be more efficient to use a mental method.
- b) Children could have used different methods, e.g.
 - Counting backwards from 100 in ones and tens (in either order) using a number line.
- Sofia knows that $45 + 30$ is 75. 29 is one less than 30 so $45 + 29$ will be one less than 75. So, Sofia should have subtracted 1 from 75, not added 1.

Reflect

The correct answer is 60.

Children might explain the errors in different ways, e.g.

Someone might get the wrong answer of 50 if they used a column method incorrectly. When they added the ones (7 and 3), they would get 10 ones. This would need to be exchanged for 1 ten. This ten then needs to be added to the 4 tens and 1 ten. It looks like they forgot to add this ten.

Someone might get the answer 34 if they subtracted 13 from 47 rather than adding it.



Using a 100 square

→ pages 29–31

- 59
 - 36
 - 82
 - 14
- 49
 - 64
 - 20
 - 10
- Missing numbers:
 - 43
 - 29
 - 80
 - 57
- Children should have drawn two more jumps of 10, from 37 to 47 and from 47 to 57. They then need to jump 8, possibly in 1s, or possibly jumping 3 from 57 to 60, and then another 5 from 60 to 65.
 $27 + 38 = 65$
 - On the 100 square and the number line, children should have jumped back 1 ten from 52 to 42 and then 4 ones, from 42 to 38 (or a 2 from 42 to 40, and another 2 from 40 to 38). Some children might have counted back the 1s before the 10.
 $52 - 14 = 38$
- Children might notice different patterns in the shaded numbers, e.g.
 As you move down the rows, the 10s digits go up by 1 and the 1s digits go down by 1.
 The 10s and 1s digits add up to 9.

Reflect

$12 + 43 = 55$

Children should have noticed that they get the same answer if they swap the numbers around within the addition calculation, that is: $43 + 12$ gives the same answer as $12 + 43$.

Getting started

→ pages 32–34

- $9 + 2 = 11$ or $2 + 9 = 11$, $7 - 6 = 1$
- There are many different ways to complete the number sentences e.g.
 $7 + 9 = 16$, $0 + 16 = 16$, $10 + 6 = 16$
 $1 + 1 + 14 = 16$, $3 + 5 + 8 = 16$, $10 + 2 + 4 = 16$
- 36
 - 98
- $6 + 8 + 3 = 17$ (numbers could have been added in any order)
 The bag of sweets costs 17p.
 - $9p + 8p + 6p = 23p$ (prices could have been added in any order)
 - There are two possible answers (prices could have been added in any order):
 $9p + 8p + 3p + 3p = 23p$
 $8p + 6p + 6p + 3p = 23p$
- For the first calculation, children could have written any single digit into the first box. They should have written the bond to 16 in the second box. E.g.
 $40 + 16 = 56$, $41 + 15 = 56$, $45 + 11 = 56$ or $49 + 7 = 56$
 For the second calculation, the following answers are possible: $65 = 8 + 57$, $65 = 18 + 47$, $65 = 28 + 37$, $65 = 38 + 27$, $65 = 48 + 17$, $65 = 58 + 7$

Reflect

The ? can only be 14, but children could have filled the grid in a number of ways, e.g.

1	9	10
7	5	12
8	14	

3	7	10
5	7	12
8	14	

8	2	10
0	12	12
8	14	

Methods for completing the grid could have varied.

It is sensible to start by completing one known bond, for example writing a pair of numbers that total 10 into the first row. Once two numbers have been placed in this way, the other numbers must be written in to give the correct totals for the remaining rows and columns.

In some cases, children may have started with a number bond that will not work, for example placing 9 and 1 in that order in the first row. In these cases, they will have needed to start again, trying a different number bond.



Missing numbers

→ pages 35–37

- $8 + 12 = 20$, $12 + 8 = 20$ (in either order)
 $20 - 12 = 8$, $20 - 8 = 12$ (in either order)
 - $35 + 16 = 51$, $16 + 35 = 51$ (in either order)
 $51 - 16 = 35$, $51 - 35 = 16$ (in either order)
- $46 - 27 = 19$ (some children could have written $27 + 19 = 46$)
 - $53 + 39 = 92$ or $39 + 53 = 92$
- Missing numbers:
 - 21
 - 25
 - 34
 - 68
- The first number must end in 1. The second box should have been completed with the tens digit of the first number plus 2. Some of the possible solutions are: $1 + 23 = 24$, $11 + 23 = 34$, $21 + 23 = 44$, $31 + 23 = 54$

Reflect

Answers will vary depending on the calculation and method chosen, e.g.

$32 + 18 = 50$: I worked out 50 subtract 18 by counting back 10 from 50 and then 8 from 40. I got the answer 32 so $32 + 18 = 50$.

$81 - 35 = 46$: I found the difference between 46 and 81 by drawing a number line and jumping back from 81 to 46.

Mental addition and subtraction (I)

→ pages 38–40

- $12 + 5 = 17$, $22 + 5 = 27$, $32 + 5 = 37$, $52 + 5 = 57$
 $92 + 5 = 97$, $72 + 5 = 77$
 - $27 - 4 = 23$, $37 - 4 = 33$, $57 - 4 = 53$
The final calculation could have answered in a number of ways, e.g.
 $87 - 4 = 83$
 $97 - 14 = 83$
 $107 - 24 = 83$
- Children should have put a cross by the calculations:
 $45 + 3 = 47$, $?2 + 4 = 38$, $26 + 2 = 29$, $64 - 3 = 62$
- 34 44
54 74
44
 - 62 52
43 23
50
- 84
 - 53
 - 61
 - 33

- Children should have been able to justify their choice, e.g.

I would choose Poppy's method because the numbers 68 and 75 are close together so it is efficient to use a counting method to find the difference.

Reflect

Answers will vary depending on the calculation and method chosen by each child, e.g.

$34 + 4 = 38$: I know that $4 + 4 = 8$, and 34 is 3 tens more than 4.

$34 + 20 = 54$: I started with 34 and added 2 tens to get to 54.

$79 - 5 = 74$: I know that $9 - 5 = 4$ so $79 - 5$ will be 74.

$79 - 55 = 24$: I just worked out $79 - 5 = 74$, and this answer will be 50 less.

Mental addition and subtraction (2)

→ pages 41–43

- | | |
|----|----|
| 35 | 25 |
| 51 | 18 |
| 56 | 17 |
| 96 | 13 |
- To work this out, I can add 20 and then subtract 2.
 $78 + 20 - 2 = 96$.
 - To work this out, I can add 60 and then subtract 1.
 $26 + 60 - 1 = 85$.
- 32
 - 13
 - 41
 - 74

Children could have explained their method in different ways, e.g.

I subtracted 1 from each number. This meant that the first number ended in 9 so it was easy to subtract the second number part by part. When you change the numbers in a subtraction by the same amount the difference remains the same.

- Children should have matched:

$35 + 19$	→	$34 + 20$
$90 - 55$	→	$89 - 54$
$40 - 27$	→	$39 - 26$
$47 + 18$	→	$45 + 20$
- $65 - 39 = 26$



Reflect

Children could have explained methods in different ways, e.g.

Adding 18: Add 20 and then subtract 2.

Subtracting 19: Subtract 20 and then add 1 back on.

Efficient subtraction

→ pages 44–46

- 78
 - 17
 - 3
- 41
 - 64
 - 12
 - 0
- $92 - 80 = 12$. Tilly has 12 stamps.
 - $71 - 44 = 27$ (or possibly $44 + 27 = 71$). Marek's score is 27 points.
- | | |
|----|----|
| 38 | 40 |
| 39 | 41 |

Children should have noticed that the answers increase by 1 (from left to right, by row).

- No. Maryam's method is not efficient as she has had to do a lot of crossing out.

Children could have suggested several alternatives, e.g.

Find the difference between 76 and 68 by counting up from 68 to 76.

Reflect

Children could have suggested different methods. E.g.

$82 - 4 = 78$: Start at 82 and count back 2 to 80 and then another 2 to 78.

$82 - 75 = 7$: Find the difference between 82 and 75 by starting at 75 and jumping up to 82. This involves a jump of 5 from 75 to 80 and then a jump of 2 from 80 to 82, so the answer is 7.

$82 - 29 = 53$: Work out $82 - 30 = 52$ and then add 1 to the answer to get 53.

Solving problems – addition and subtraction

→ pages 47–49

- 45p
 - $100p - 45p = 55p$. He will get 55p change.
- 27
 - 18
- $27 - 11 = 16$ (or possibly $11 + 16 = 27$). 16 children like rugby more than tennis.
- Cooper spends more because the badge costs more than the party blower.
Alternatively, children could have found the totals and written:
Cooper spends more because 47p is more than 32p.
- Fruit salad 72p, fruit juice 13p.

Reflect

Children could have written any story to represent one of the calculations e.g.

$28 + 6 = 34$: There are 28 Year 2 children in class but then 6 children from Year 1 join the class for a story. How many children listen to the story?

$28 - 6 = 22$: There are 28 children in the Year 2 class. 6 children are away with a stomach bug. How many Year 2 children are at school?

Solving problems – multiplication and division

→ pages 50–52

- 12
- 40
- 6
- 45
- 30

Reflect

Children could have written any correct word problem for one of the calculations, e.g.

$4 \times 10 = 40$. It costs £10 for an adult to go to the cinema. How much will it cost for 4 adults?

$40 \div 10 = 4$. A group of adults pay £40 altogether to watch a film in the cinema. Cinema tickets cost £10 for each adult. How many adults are in the group?



Solving problems using the four operations

→ pages 53–55

- Different answers are possible, e.g.
 $10 + 10 = 20$, $17 + 3 = 20$
 $15 - 5 = 10$, $100 - 90 = 10$
 $4 \times 5 = 20$, $1 \times 20 = 20$
 $30 \div 3 = 10$, $100 \div 10 = 10$
- Zac has 67p left.
- 25 sweets are left.
- Tia has 40 m left to swim.
- There are 3 two pence coins in his other hand.

Reflect

Children could have written any word problem that needs both steps e.g.

There are 18 sweets. Sam and Tomasz share the sweets equally between them. Sam eats 5 of his sweets. How many sweets does Sam have left?

End of unit check

→ pages 56–57

My journal

First I work out that, since there are 10 boxes of 4 oranges, there must be 40 oranges.

Then I see how many 5s there are in 40.

I got the answer 8.

Power play

There are 2 + 2 tens and 6 + 4 ones. So the total is $20 + 20 + 10$. They have 50 pieces of bread in total.

Together, they drop $10 + 3 + 7$ pieces, which makes 20 pieces. $50 - 20 = 30$. In total, 30 pieces are left now.

The 5 birds each get an equal share of 30. Share 30 out, 1 group of 5 at a time. You can do this 6 times, so there are 6 pieces for each bird.

Or: $30 \div 5 = 6$

$3 \times 6 = 18$

3 of the birds get 18 pieces altogether.



Unit 13: Time

Telling and writing time to the hour and the half hour

→ pages 58–60

- Children should have matched:
half past 2 → 2nd clock
half past 1 → 4th clock
2 o'clock → 1st clock
9 o'clock → 3rd clock
- It is half past 8.
It is 3 o'clock.
It is half past 4.
- Children should have drawn hands as follows:
half past 11: minute hand pointing to 6, hour hand half way between 11 and 12
8 o'clock: minute hand pointing to 12, hour hand pointing to 8
half past 6: minute hand pointing to 6, hour hand half way between 6 and 7
1 o'clock: minute hand pointing to 12, hour hand pointing to 1
- Sam has mixed up the hour hand and the minute hand.
- The possible answers are: 1 o'clock, 3 o'clock, 5 o'clock, 7 o'clock, 9 o'clock, 11 o'clock.

Reflect

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

An o'clock time always has the minute hand pointing to 12.

A half past time always has the minute hand pointing to 6.

Telling the time to the quarter hour

→ pages 61–63

- Children should have coloured the following quarter of the clock:
quarter past 11: between 12 and 3
quarter to 5: between 9 and 12
- Children should have matched:
quarter past 2 → 2nd clock
quarter to 11 → 4th clock
quarter past 7 → 1st clock
half past 2 → 3rd clock

- quarter past 5
 - quarter to 3
 - quarter to 5
- Children should have drawn hands as follows:
quarter past 6: minute hand pointing to the 3, hour hand just past the 6
quarter past 8: minute hand pointing to the 3, hour hand just past the 8
quarter to 10: minute hand pointing to the 9, hour hand just before the 10
quarter to 4: minute hand pointing to the 9, hour hand just before the 4
- Malik has drawn the minute hand pointing to the 3, which shows a 'quarter past' time not a 'quarter to' time. The minute hand should be pointing to the 9. The hour hand should be just before the 2.
- Quarter past a time means that it is quarter of an hour after that o'clock time.
Half past a time means that it is half an hour after that o'clock time.
Quarter to a time means that it is quarter of an hour before that o'clock time.

Reflect

The fourth clock shows quarter to 6. This is because the minute hand is pointing to the 3 and the hour hand is just before the 6.

Telling time to 5 minutes

→ pages 64–66

- Children should have matched:
1st picture → twenty past 3
2nd picture → ten past 5
3rd picture → ten to 7
4th picture → twenty-five past 8
- Children should have drawn hands:
five past 6: minute hand pointing to 1
ten to 4: minute hand pointing to 10
twenty-five past 10: minute hand pointing to 5
twenty-five to 11: minute hand pointing to 7
- 2nd bus (circled)
 - 1st bus (circled)
 - twenty to 1



4. 10.

Children could have described how they know in different ways, e.g.

I know that the minute hand moves from one marked number to another in 5 minutes. The minute hand points to 12 at an o'clock time, so the minute hand points to 11 at five to an hour and it points to 10 at ten to an hour.

5. Children could have explained in different ways, e.g.

There are 60 minutes in an hour. 35 and 25 total 60. So, thirty-five minutes past one hour is the same as twenty-five minutes to the next hour.

An analogue clock would be read as 25 to 8 while a digital clock would be read as 7.35. These are both the same time.

Reflect

Children could have explained how they found the answer in different ways, e.g.

I know that the minute hand points to the 12 at an o'clock time. I know that the minute hand moves from one marked number to another in 5 minutes. I counted round the numbers clockwise from 12 in 5s and at worked out that, at twenty past, the minute hand will point to the number 4.

Minutes in an hour

→ pages 67–69

- 65
- Children should have shaded the whole hour on one clock and 25 minutes on the other.
- Children should have shaded the whole hour on one clock and 15 minutes on the other. The film lasts for 75 minutes.
 - Children should have shaded the whole hour on one clock and 30 minutes on the other. The film lasts for 1 hour and 30 minutes.
- Children should have written a time between 60 and 77 minutes, e.g. 61 minutes, 65 minutes or 1 hour and 10 minutes.

Reflect

There are 60 minutes in one hour. Children could have given different explanations for how they know, e.g.

Each space between two numbers on the clock represents 5 minutes and there are 12 of them to make 1 hour. If I count 12 fives I get to 60.

Finding durations of time

→ pages 70–72

- 50 minutes, 55 minutes, 40 minutes
- 35 minutes
- 25 minutes
- Children should have drawn 10 minutes past 11 on the first clock and half past 11 on the second. The spelling test was 20 minutes long.
- Children could have suggested any times with a difference of 35 minutes, e.g.
6 o'clock and twenty-five to 7, or ten to 4 and twenty-five past 4.

Reflect

The journey took 25 minutes. Children could have described their method in different ways. E.g.

I set the hands to show 5 minutes past 8 on a clock and then moved the minute hand clockwise, counting up in 5s as the hand passed each number until it said half past 8. I counted 25 minutes by the time I reached half past 8.

I know that half an hour is the same as 30 minutes so half past 8 is the same as 30 minutes past 8. I know that $5 + 25 = 30$ so knew that it would take 25 minutes to get from 5 minutes past 8 to half past 8.

Comparing durations of time

→ pages 73–75

- 2, 3, Dino Drama is longer.
- 2 hours and 10 minutes is less than 2 hours and 35 minutes. The Sports Afternoon is shorter.
- Mia's cake takes longer to bake. Children could have explained how they knew in different ways, e.g.
I used the clocks and worked out that Mia's cake takes 50 minutes to bake but Hamza's cake only takes 40 minutes.
- The partner's time was longer.
- Children could have suggested any times after 3 o'clock.

Reflect

Children could have explained the method in different ways, e.g.

I need to count up from the start time to the finish time for each activity. I counted up in 5 minute intervals. I found that the tennis took 50 minutes and the rugby took 55 minutes, so the rugby took longer.



Finding the end time

→ pages 76–78

- Twenty-five minutes to 4. If children completed the clock face, they should have drawn the minute hand at 7 and the hour hand between 3 and 4 (just past half way).
- Children should have shaded the sector of the middle clock from the number 5 clockwise to the number 12. They should have drawn the hands on to the right-hand clock to show 7 o'clock.
Their walk ended at 7 o'clock.
- Children should have drawn the hands on the left-hand clock to show twenty minutes past 4. They should have shaded the sector of the middle clock from the number 4 clockwise to the number 8. They should have drawn the hands on to the right-hand clock to show twenty minutes to 5.
The helicopter lands at twenty minutes to 5.
- Children should have drawn the hands on the first clock to show ten minutes to 9 and on the second clock to show quarter to 9.
Kasim arrives earlier.
- Children could have suggested any times between quarter past 4 and 5 o'clock.

Reflect

Children could have described their method in different ways. E.g.

I would make the start time on a clock and then move the minute hand clockwise, counting in jumps of 5 minutes until I reach the length of time of the activity. Then I would look at the clock to see what time the activity would end.

Finding the start time

→ pages 79–81

- The spelling test started at ten past 2.
- Children should have shaded the sector of the middle clock from the number 7 anticlockwise to the number 4. They should have drawn the hands on to the right-hand clock to show twenty past 8.
The cartoon started at twenty past 8.
- Children should have shaded the sector of the middle clock from the number 8 anticlockwise to the number 2. They should have drawn the hands on to the right-hand clock to show ten past 5.
The bus journey started at ten past 5.

- Children should have drawn hands on the first clock to show ten past 9 and on the second clock to show quarter past 9.

Joe started reading first.

- Children could have suggested any times between ten past 3 and twenty-five past 3.

Reflect

Children could have described their method in different ways, e.g.

I would make the end time on a clock and then move the minute hand anticlockwise, counting in jumps of 5 minutes until I reach the time that the activity took. Then I would look at the clock to see what time the activity must have started.

Hours in a day

→ pages 82–84

- Children should have matched up times as follows:
1st column, 1st clock → 2nd column, 4th clock
1st column, 2nd clock → 2nd column, 3rd clock
1st column, 3rd clock → 2nd column, 2nd clock
1st column, 4th clock → 2nd column, 1st clock
- Saturday, 9:30
- The paint will be dry at twenty past 1 on Friday.
At half past 2 on Friday afternoon, you **can** sit on the bench.
- She will be allowed to eat a biscuit on Tuesday morning at quarter past 10.
She **cannot** eat a biscuit.
- Possible answers are: 12 o'clock, 1 o'clock, 10 o'clock, 11 o'clock, 12 o'clock, 1 o'clock, 10 o'clock, 11 o'clock.
Astrid is right.

Reflect

Astrid has forgotten that the hour hand goes around the clock twice in one day.

There are 48 hours in 2 days.



End of unit check

→ pages 85–86

My journal

Children could have answered the questions in more than one way. E.g.

I know the time is twenty-five minutes past 6 because the hour hand is just past the 6 and the minute hand is pointing to the 5, which means 5 lots of 5 minutes after 6 o'clock.

I know the time is twenty minutes to 3 because the hour hand is pointing nearly to the 3 and the minute hand is pointing to the 8, which means 5 jumps of 5 minutes to 3 o'clock.

Power puzzle

Children should have selected:

twenty past 4, twenty to 5, 5 o'clock, twenty past 5, forty minutes past 5, 6 o'clock, twenty minutes past 6, twenty minutes to 7, 7 o'clock



Unit 14: Weight, volume and temperature

Comparing mass

→ pages 87–89

- lighter, heavier, heavier
- square > triangle, triangle > star (or triangle > star, square > triangle)
- a) missing numbers from left to right: 2, $\frac{1}{2}$, 5
b) triangular prism, sphere
- Children should have numbered the items from left to right: 2, 1, 3.

Reflect

The statements mean:

The tin is heavier than the bag (or the bag is lighter than the tin).

The box is lighter than the bag (or the bag is heavier than the box).

This means that the tin is heavier than the box (or the box is lighter than the tin).

Measuring mass in grams (I)

→ pages 90–92

- 15, 40
- Children should have found three of the following five combinations:
25 g + 25 g
25 g + 10 g + 10 g + 5 g
25 g + 10 g + 5 g + 5 g + 5 g
10 g + 10 g + 10 g + 10 g + 5 g + 5 g
10 g + 10 g + 10 g + 5 g + 5 g + 5 g + 5 g
- a) 40, 55. The pear has a mass of 32 g.
b) Children should have drawn the needle pointing to 95 g.
- a) The mass of 10 cubes should be double the mass of 5 cubes.
b) The actual measurement of 15 cubes should be three times the mass of 5 cubes.

Reflect

Children could have explained the methods in different ways, e.g.

Rav needs to place the cheese on the scales and read off the measurement the arrow points to.

Alia needs to estimate how much cheese will have a mass of 30 g, cutting off her estimate. She needs to weigh the piece she has cut off and then add more to or remove pieces from this until the scales show 30 g.

Measuring mass in grams (2)

→ pages 93–95

- Missing numbers:
a) clockwise round the scale: 700 g, 800 g, 900 g
b) from left to right along the scale: 0 g, 500 g, 1000 g (or 1 kg)
- 100 g, 400 g, 1000 g (or 1 kg)
- a) 100, 300, 700
b) Children should have drawn needles pointing at the following masses: 400g, 600 g, 0 g (1000 g)
- 200, 250. Bag A is heavier.

Reflect

Children could have explained their reasoning in different ways, e.g.

The black-spotted guinea pig weights just over 600 g. The golden guinea pig weights just under 600 g. This means that the black-spotted guinea pig is heavier than the golden guinea pig but they both have a mass of 600 g when given to the nearest 100 g.

Measuring mass in kilograms

→ pages 96–98

- a) 3 kg, 15 kg, 30 kg
b) hedgehog < dog, dog > badger, fox < dog
- Children should have drawn arrows pointing to:
a) 8 kg, 12, kg, 20 kg
b) 28 kg, 32 kg, 20 kg
- Children should have circled:
2 kg, 20 g, 200 g
- From lightest to heaviest: B, C, A



Reflect

Children could have chosen many different objects to complete the sentences, e.g.

A pen and a ruler each have a mass of less than 1 kg.

A large cake and a litre of orange juice each have a mass of approximately 1 kg.

A small dog has a mass of approximately 10 kg.

Comparing volume

→ pages 99–101

- more, more, less
- B, A, C
- 2, 10, 5
- Children should have matched:
 - A (half filled) < 10 cups
 - B (filled) = 10 cups
 - C (half filled) > 10 cups
 - D (three-quarters filled) > 10 cups
- There are 11 spoonfuls of rice left in the packet.

Reflect

Children could have suggested different methods, e.g.

You could compare the weights of each container of rice using scales.

You could pour rice from one container into another, having emptied the second container. If the rice from the first container will not all fit then the first container holds more rice. If the rice fits with space left over then the second container holds more rice. You will need to test each container against other containers until you are sure of the order.

Measuring volume in millilitres (1)

→ pages 102–104

- 50 ml
 - 70 ml
 - 10 ml
 - 5 ml
- Children should draw the level of water:
 - 20 ml: 2nd line from bottom
 - 90 ml: 2nd line from top
 - 20 ml: 20 ml mark
 - 90 ml: 90 ml mark

- $20 \div 5 = 4$ teaspoons
 - $40 \div 5 = 8$ teaspoons
- 40
 - Children should have drawn a mark to show 30 ml (3rd line from bottom)
- 40, 50, 70

Reflect

Children could have suggested different methods, e.g.

Fill up a teaspoon and put the liquid in a container. Do this 4 times altogether and you will have 20 ml because each teaspoon holds 5 ml.

Pour liquid into a measuring jug until it reaches the 20 ml mark.

Measuring volume in millilitres (2)

→ pages 105–107

- Missing numbers from top to bottom
 - 1000 ml (or 1 litre), 900 ml, 800 ml
 - 800 ml, 400 ml, 200 ml
- 400
 - 700
 - 300
- D
 - B, C (either way round); some children may also write D or E, as with these jugs Kasim would have enough liquid and there would be some left over.
- 700 ml is 500 ml and 200 ml added together, so Jack could fill both bottles and then he will have 700 ml altogether.
 - The simplest solution is that Kat could fill the 200 ml bottle and pour it into the jug four times.

Some children may also work out that Kat could start by filling the 500 ml bottle, then use it to fill the 200 ml bottle. 500 subtract 200 is 300, so there would be 300 ml left in the big bottle, which Kat would then pour into the jug. Kat would then refill the 500 ml bottle and empty this into the jug. 300 add 500 is 800, so this gives her the 800 ml she needs.



Reflect

Children should have matched the bottle to 250 ml, the cup to 110 ml, and the bucket to 700 ml.

Children should have used their previous experience of these objects and their relative capacities to support their decisions, e.g.

If you pour the liquid from a bottle into a cup, you can usually fill up a cup and still have some liquid left. So, a bottle is likely to have a larger capacity than a cup.

It would take several bottles to fill a bucket, a bucket is likely to have a larger capacity than a bottle.

Measuring volume in litres

→ pages 108–110

- 8, 15, 29
- B: $40 - 10 = 30$ l
C: $25 - 10 = 15$ l
D: $30 - 10 = 20$ l
 - A, C, 3
- Children should have circled: 5 l, 250 ml, 100 l
- 7 subtract 4 is 3, so Ollie could fill the 7 l bucket and then pour water into the 4 l bucket until it is full. This would leave him with 3 l in the big bucket.
 - Ollie could fill the 4 l bucket and pour this into the 7 l bucket. If he fills the 4 l bucket again and pours water into the 7 l bucket, he will only be able to pour in 3 l until it is full because 4 l and 3 l make 7 l. So, he will have 1 l left in the small bucket.

Reflect

Children could have written many different things, e.g.

I have learned that 1000 ml is the same as 1 litre.

I have learned how to read measuring jugs.

I have learned how to estimate the capacity of containers.

Measuring temperature using a thermometer

→ pages 111–113

- 25 °C
 - 19 °C
 - 20 °C
 - 23 °C
- Warmest to Coolest: 11 °C, 8 °C, 4 °C, 2 °C or B, A, C, D

- Check the accuracy of children's drawings, which should show the following temperatures:

Paris 23 °C, Warsaw 25 °C, London 14 °C, Madrid 28 °C, Lisbon 30 °C, Rome 29 °C

- Madrid is 5 degrees warmer than Paris.
Warsaw is 5 degrees cooler than Lisbon.
Lisbon is 2 degrees warmer than Madrid, or Warsaw is 2 degrees warmer than Paris.
- Children could have written different answers, e.g.
London is 9 degrees cooler than Paris.
Lisbon is 1 degree warmer than Rome.

Reflect

Children should have estimated any reasonable spring or summer temperature, e.g.

I estimate that the temperature is 25 °C because the sun is shining so it looks like it is a hot day.

I estimate that the temperature is 20 °C because I think it is spring because of the flowers and it is sunny so it is quite a warm spring day.

Reading thermometers

→ pages 114–116

- Children should have drawn lines up to:
 - the top mark
 - the 5th mark from the bottom
 - the 3rd mark from the bottom
- Children should have ticked the middle thermometer.
- Children should have ticked:
 - 2nd thermometer
 - 1st thermometer
 - 1st thermometer
 - 1st thermometer
- Children should have matched:
 - Beach → 30 °C
 - Fridge → 4 °C
 - Pan → 90 °C
 - Autumn day → 10 °C

Reflect

Children could have explained how they read the scales on a thermometer in different ways. E.g.

I start by working out the value of each space between the marks. I work out whether each space is worth 1 degree, 2 degrees, 5 degrees, 10 degrees or 20 degrees by counting up in equal steps (of 1, 2, 5, 10 or 20) from zero along the marks and seeing which count matches the next given temperature. Once I know what each space is worth I can use this and the marked temperatures to work out what temperature the thermometer is showing.



End of unit check

→ pages 117–118

My journal

Children could have completed the statements in more than one way, e.g.

First I work out the mass of B which is $10 + 10 - 5$, or 15 kg.

Then I notice that 3 lots of A are the same as B so A is $15 \div 3$, or 5 kg.

Next I notice that 5 lots of A equal B + C, so C must be $25 - 15$, or 10 kg.

Power puzzle

Children should have noted that a jug containing 0 ml of water weighs the same as the jug, a jug containing 100 ml of water weighs 100 g more than the mass of the jug, a jug containing 200 ml weighs 200 g more and so on. This should help them to realise that 1 ml of water weighs 1 g.