Aligned to the White Rose Maths progressions and schemes of learning

Assessment in Power Maths

Pearson

What does assessment look like in Power Maths?

Assessment is integrated throughout the Power Maths lessons and unit structure. This helps you to make regular assessments of children's understanding to inform your teaching and measure progress. For children, assessment is a chance for them to review key concepts and reflect on their learning.

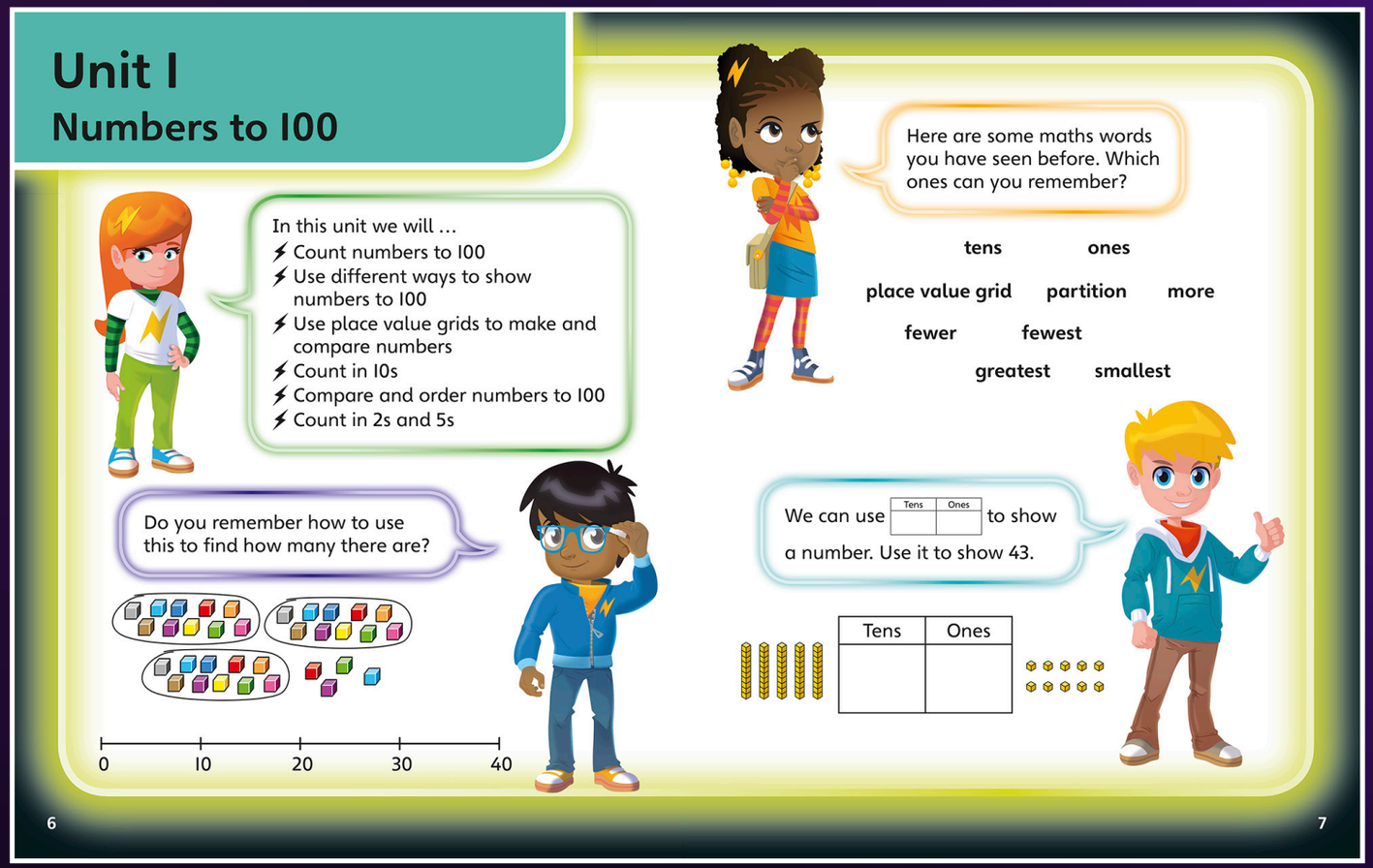
Opportunities for assessment include:

- **Formative assessment** within every lesson
- **Summative assessment** at the end of each unit, half-term and year
- **Teacher notes** that help you identify and address misconceptions
- **Unit assessment grids** to help you to track progress

Prerequisite skills

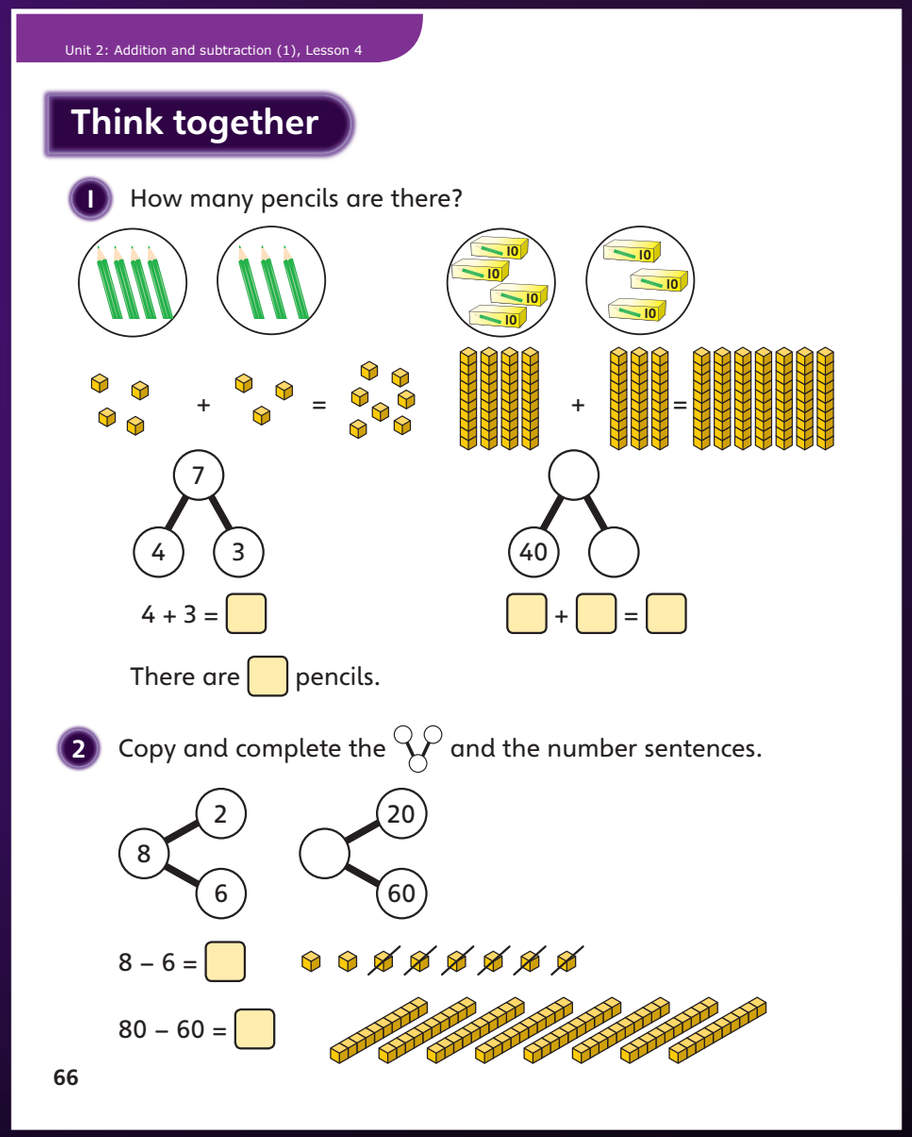
Before starting to teach a new unit, it's important to make sure that children have secured the **prerequisite skills** and **vocabulary**.

- Each unit begins with a **start of unit check**, designed to resurface the skills and vocabulary that children will need to build on in the upcoming unit.
- As a whole class, children discuss the vocabulary they already know, and review prior learning through mathematical representations.
- Look out for any continued misconceptions or gaps in understanding and plan to deliver interventions before teaching the unit.



Formative assessment

Guided practice



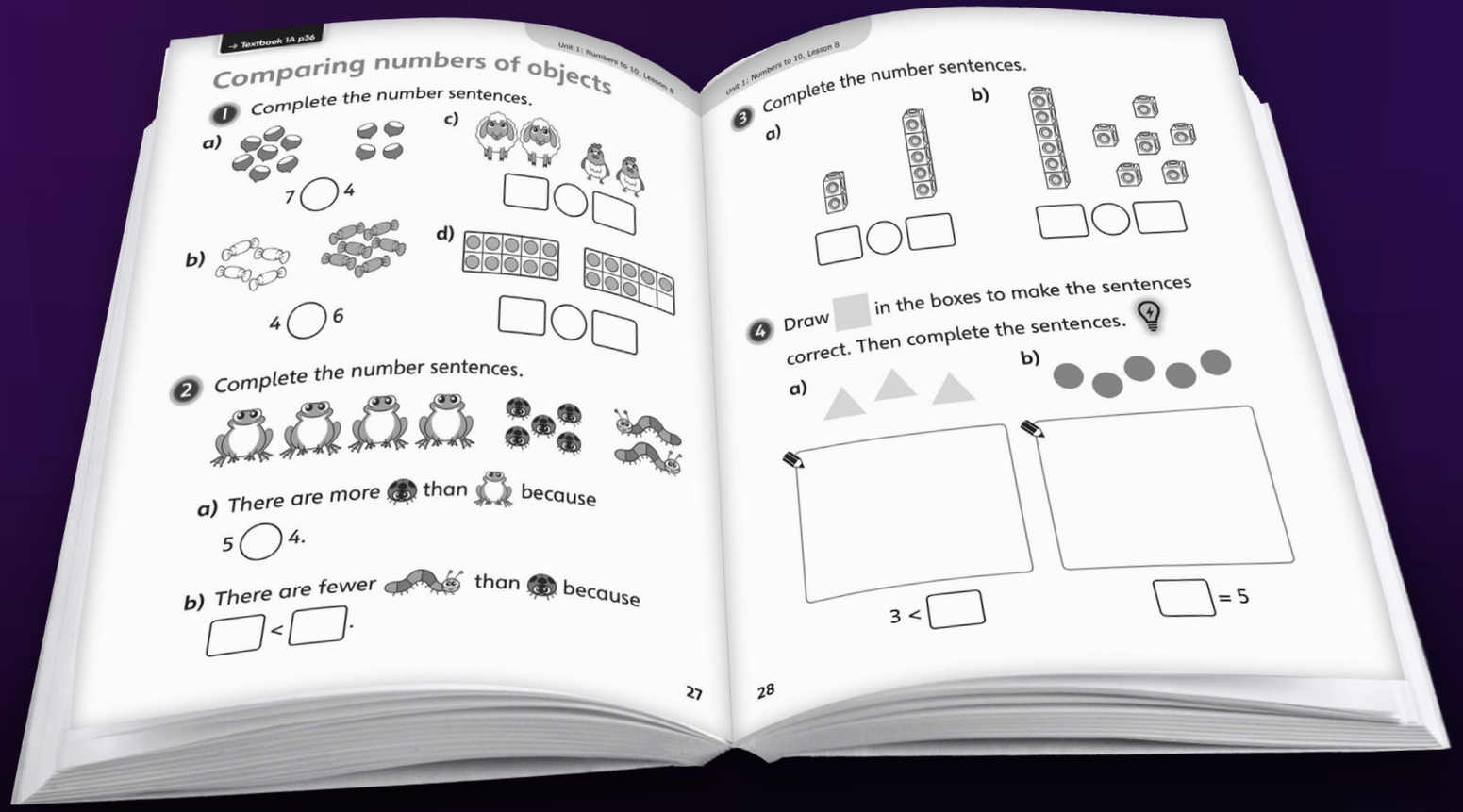
Guided practice is a valuable opportunity to assess children's understanding during the lesson.

- The **Think together** section of the lessons provide opportunities for guided practice.
- The practice is carefully scaffolded to support all children to consolidate their understanding.
- Use children's responses to identify who has grasped the concept and who may still have areas of weakness in their understanding.

Formative assessment

Independent practice

Independent practice is a further opportunity to assess children's understanding.
The independent practice in the **Practice Books** provides a written record of understanding. Exercises are built on the principles of varied and intelligent practice, so children can demonstrate the depth of their understanding. They provide opportunities for you to gather rapid feedback on areas of strength, weakness and misconceptions.

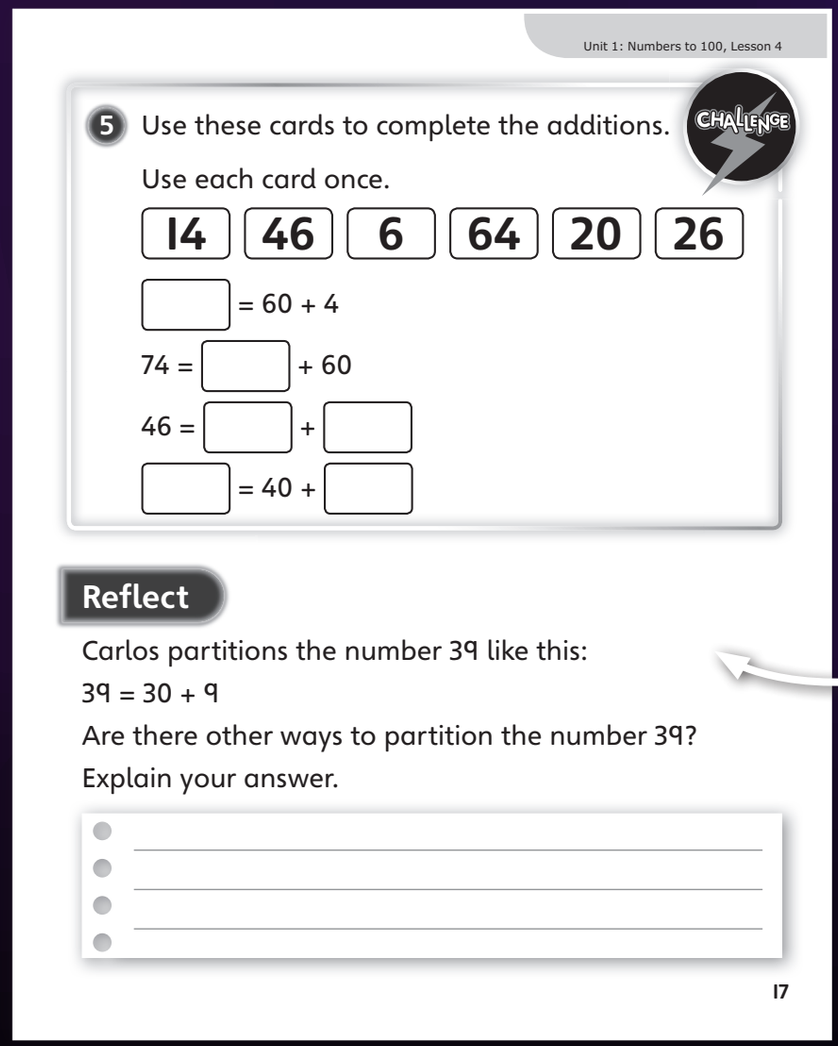


Formative assessment

Reflection

By reflecting on learning, teachers and children gain valuable information about whether children have mastered the concept and the depth of their understanding.

- At the end of each lesson there is a **Reflect** question in the **Practice Book**.
- Use children's responses to gain an insight into the depth of their understanding and plan your next teaching steps.



Unit 1: Numbers to 100, Lesson 4

5 Use these cards to complete the additions. CHALLENGE

Use each card once.

14	46	6	64	20	26

☐ = 60 + 4

74 = ☐ + 60

46 = ☐ + ☐

☐ = 40 + ☐

Reflect

Carlos partitions the number 39 like this:

39 = 30 + 9

Are there other ways to partition the number 39?

Explain your answer.

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Reflect questions are an opportunity for children to review and reason about their learning: *What* have they learned? *Why* does it work? *How* do they know?

Formative assessment

Teacher support

The **Teacher Guides** contain **assessment checkpoints** that show you how to maximise the assessment opportunities in each lesson.

Strengthen identifies common misconceptions and suggests how to address them.

Deepen gives pedagogy pointers to support children who have grasped the concept quickly.

it is not true if the division precedes the multiplication, as in $10 \div 5 \times 2$. Use this to illustrate that children should work through multiplications and divisions in the order they appear.

STRENGTHEN For question 2 b), if children are struggling to know which multiplication to solve first in the three-part calculation, ask:

- *What happens if you solve the first multiplication first?*
- *What happens if you solve the second multiplication first?*

DEEPEN Children could be given calculations that include all four operations. They could also be given a sequence of three or four numbers (for example, 3 4 5 = 23) and asked:

- *Find the missing operations.*

ASSESSMENT CHECKPOINT At this point in the lesson, children should be able to explain that the operations of multiplication and division are carried out before the operations of addition and subtraction. Children should be able to solve calculations that involve up to three operations and should be able to explain why people may find more than one solution. Question 2 gives you the opportunity to assess children's recognition of the order of multiplication and addition or subtraction operations. Children should recognise in both calculations that the multiplications should be done first.

ANSWERS

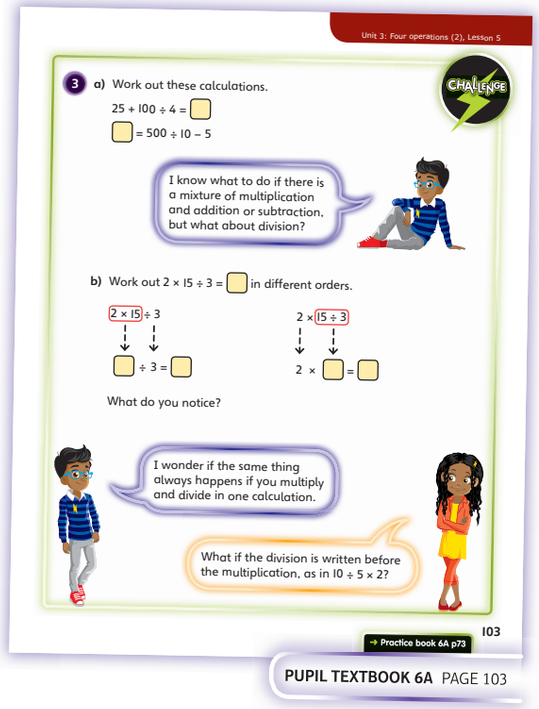
Question 1 : $(3 \times 5) - 2 = 13$ is correct

Question 2 a): Solve 25×2 first, then subtract from 100, giving an answer of 50.

Question 2 b): Solve 11×2 and 3×11 first, then add the two results, giving an answer of 55.

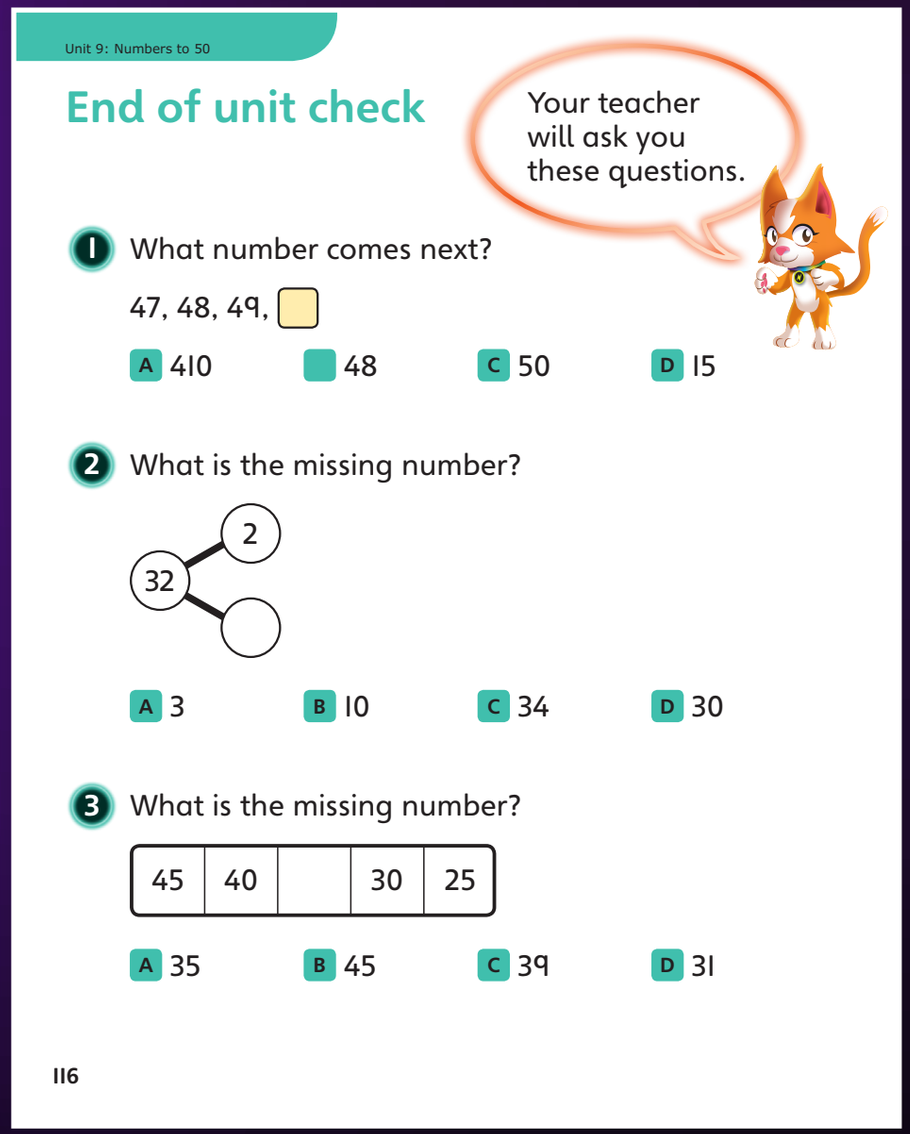
Question 3 a): $25 + 100 \div 4 = 50$
$45 = 500 \div 10 - 5$

Question 3 b): Both ways of solving the calculation result in the same solution (10).



Summative assessment

End of unit checks



Unit 9: Numbers to 50

End of unit check

Your teacher will ask you these questions.

1 What number comes next?

47, 48, 49, ☐

A 410 B 48 C 50 D 15

2 What is the missing number?

A 3 B 10 C 34 D 30

3 What is the missing number?

45	40		30	25

A 35 B 45 C 39 D 31

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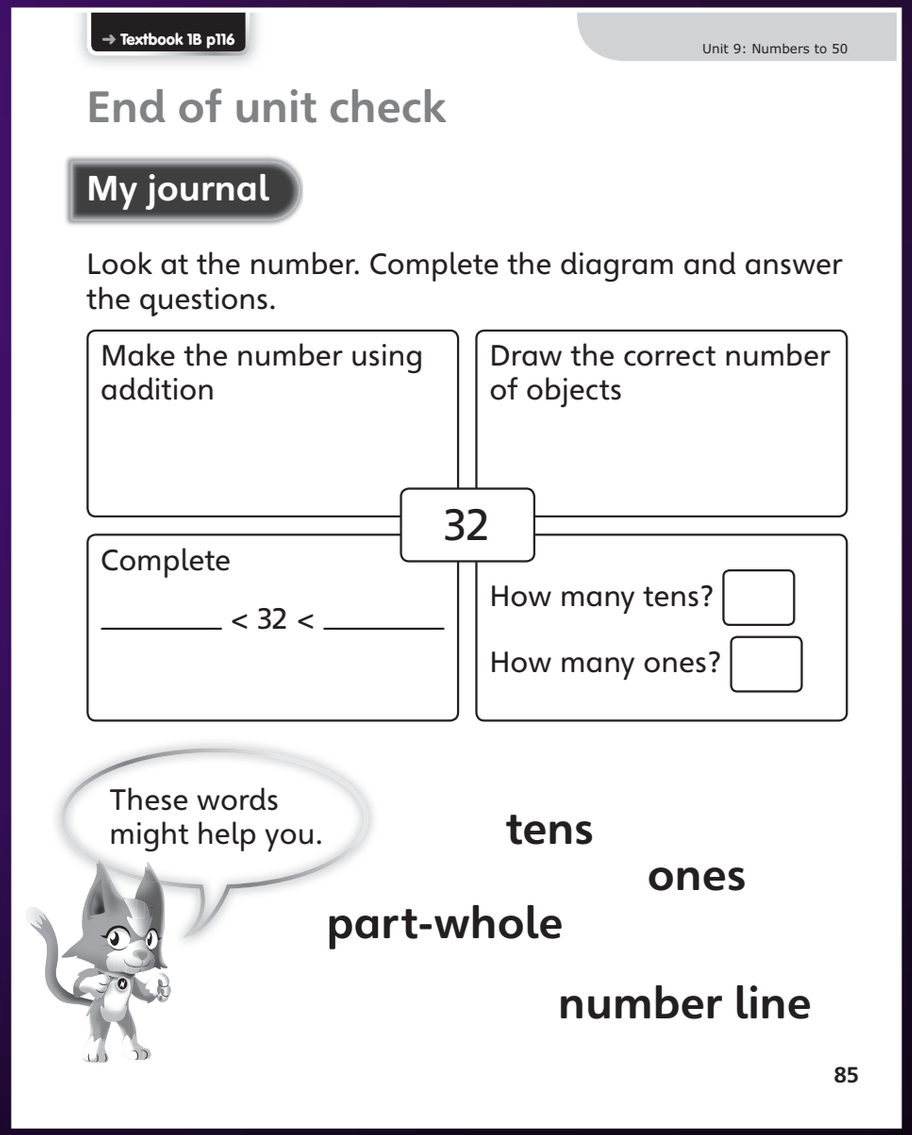
Before moving on to the next unit, it's important to assess whether children have mastered the concepts they have been taught.

- Built into every Power Maths unit are **end of unit checks**, which provide an opportunity for you to identify the depth of children's understanding of the concepts taught in each unit.
- The questions are carefully structured to identify both understanding and misconceptions.
- Certain answers highlight particular misconceptions and you can use this information to plan individual or whole-class interventions before moving on to the next unit.
- You can also choose to follow the end of unit check with a Deepen or Strengthen activity.

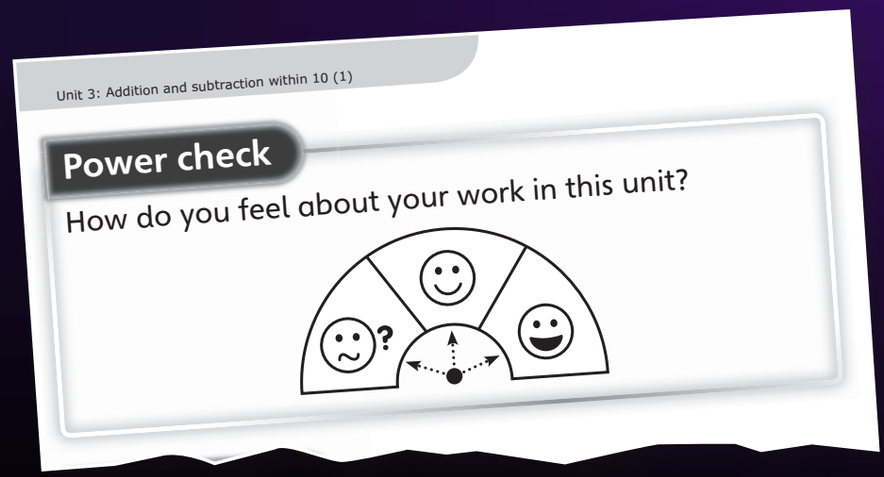
Summative assessment

My journal



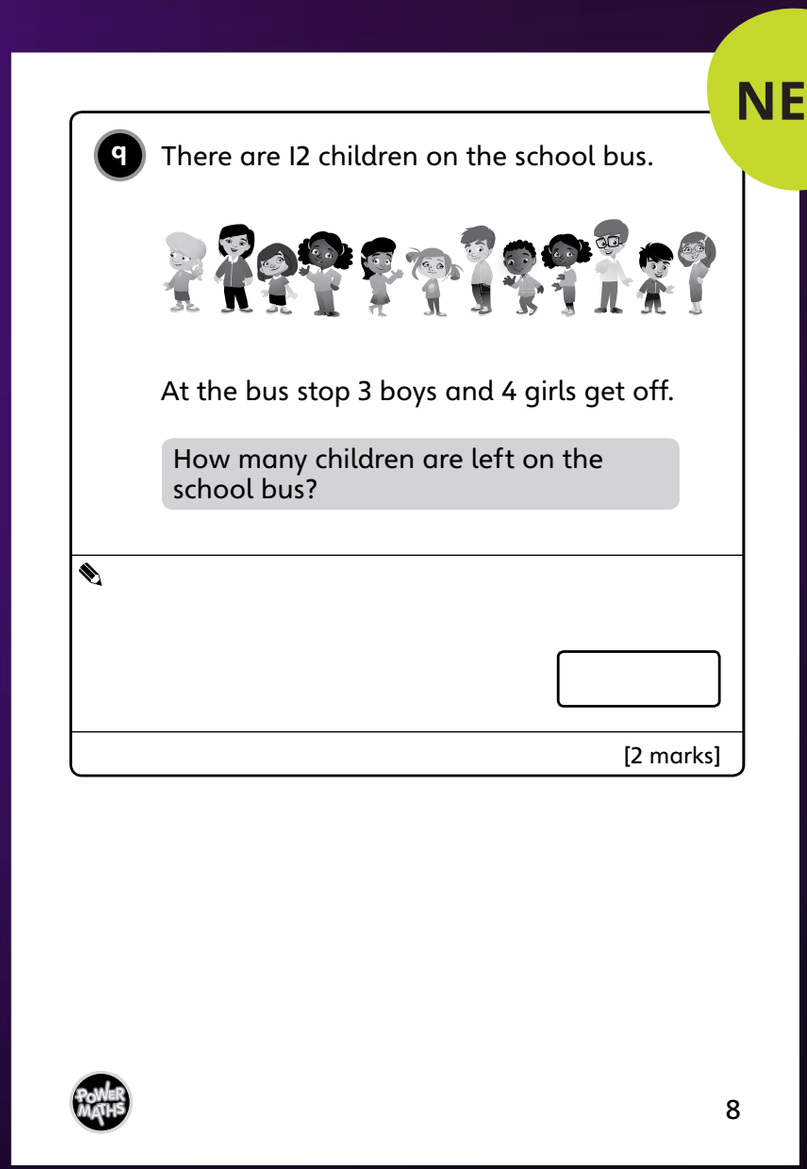
Journalling is a technique commonly used in Singapore. It gives teachers the opportunity to assess the depth of children's understanding.

- The **Practice Books** include a **My Journal** task at the end of each unit. These give children the opportunity to review key learning and vocabulary, and to reason.
- Draw on children's reasoning to gauge the depth of their understanding.
- It is followed by a confidence indicator, so children can communicate how confident they feel about the concept.



Summative assessment

Half-termly and end of year tests



NEW

9 There are 12 children on the school bus.

At the bus stop 3 boys and 4 girls get off.

How many children are left on the school bus?

[2 marks]

8

The **Progress Tests** in Power Maths are SATs-style tests designed to help you reliably track children's progress against Age Related Expectations.

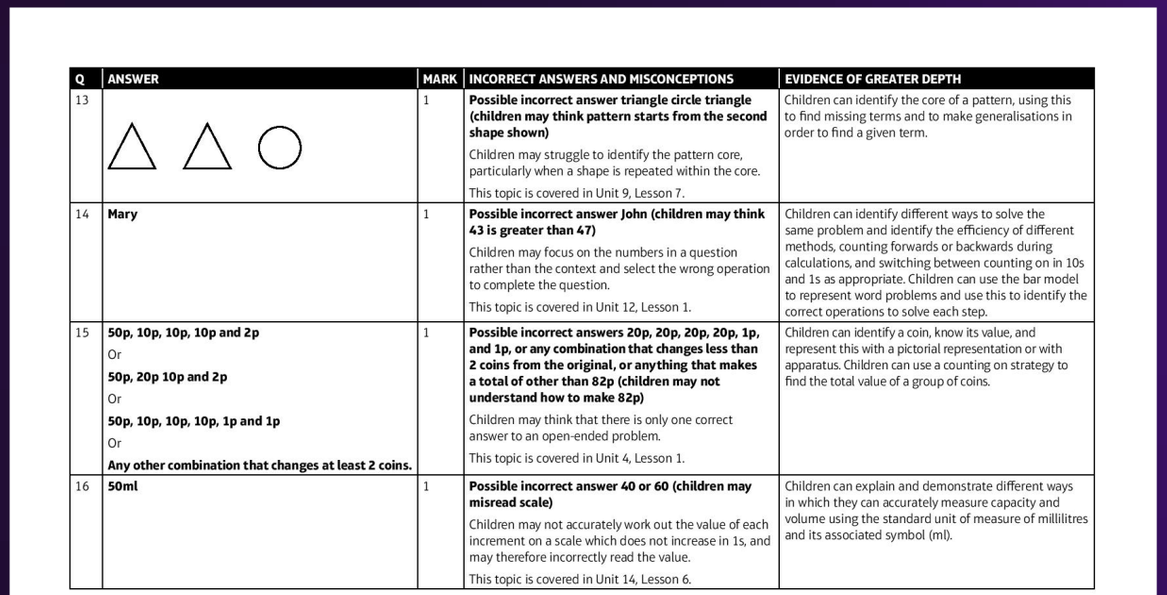
- Progress tests at half-termly intervals to fit in with your school's progress reporting.
- Designed to prepare children for the SATs by slowly building the test durations and the number of marks awarded.
- End of year progress tests cover content from each year and the preceding year.
- Mapped to our innovative 6-step reporting scale to help you with more granular progress tracking.
- Confidently identify misconceptions using our diagnostic assessment tools.

Summative assessment

Diagnostic assessment tools

The **diagnostic assessment tools** help you to confidently identify any misconceptions. They include:

- Mark schemes with correct answers.
- Likely incorrect answers.
- Strategies to address any misconceptions with specific links to Power Maths.
- Evidence to support judgements about those children who might have reached Greater Depth.



Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
13	△ △ ○	1	**Possible incorrect answer triangle circle triangle (children may think pattern starts from the second shape shown)** Children may struggle to identify the pattern core, particularly when a shape is repeated within the core. This topic is covered in Unit 9, Lesson 7.	Children can identify the core of a pattern, using this to find missing terms and to make generalisations in order to find a given term.
14	**Mary**	1	**Possible incorrect answer John (children may think 43 is greater than 47)** Children may focus on the numbers in a question rather than the context and select the wrong operation to complete the question. This topic is covered in Unit 12, Lesson 1.	Children can identify different ways to solve the same problem and identify the efficiency of different methods, counting forwards or backwards during calculations, and switching between counting on in 10s and 1s as appropriate. Children can use the bar model to represent word problems and use this to identify the correct operations to solve each step.
15	**50p, 10p, 10p, 10p and 2p** Or **50p, 20p 10p and 2p** Or **50p, 10p, 10p, 10p, 1p and 1p** Or **Any other combination that changes at least 2 coins.**	1	**Possible incorrect answers 20p, 20p, 20p, 20p, 1p, and 1p, or any combination that changes less than 2 coins from the original, or anything that makes a total of other than 82p (children may not understand how to make 82p)** Children may think that there is only one correct answer to an open-ended problem. This topic is covered in Unit 4, Lesson 1.	Children can identify a coin, know its value, and represent this with a pictorial representation or with apparatus. Children can use a counting on strategy to find the total value of a group of coins.
16	**50ml**	1	**Possible incorrect answer 40 or 60 (children may misread scale)** Children may not accurately work out the value of each increment on a scale which does not increase in 1s, and may therefore incorrectly read the value. This topic is covered in Unit 14, Lesson 6.	Children can explain and demonstrate different ways in which they can accurately measure capacity and volume using the standard unit of measure of millilitres and its associated symbol (ml).

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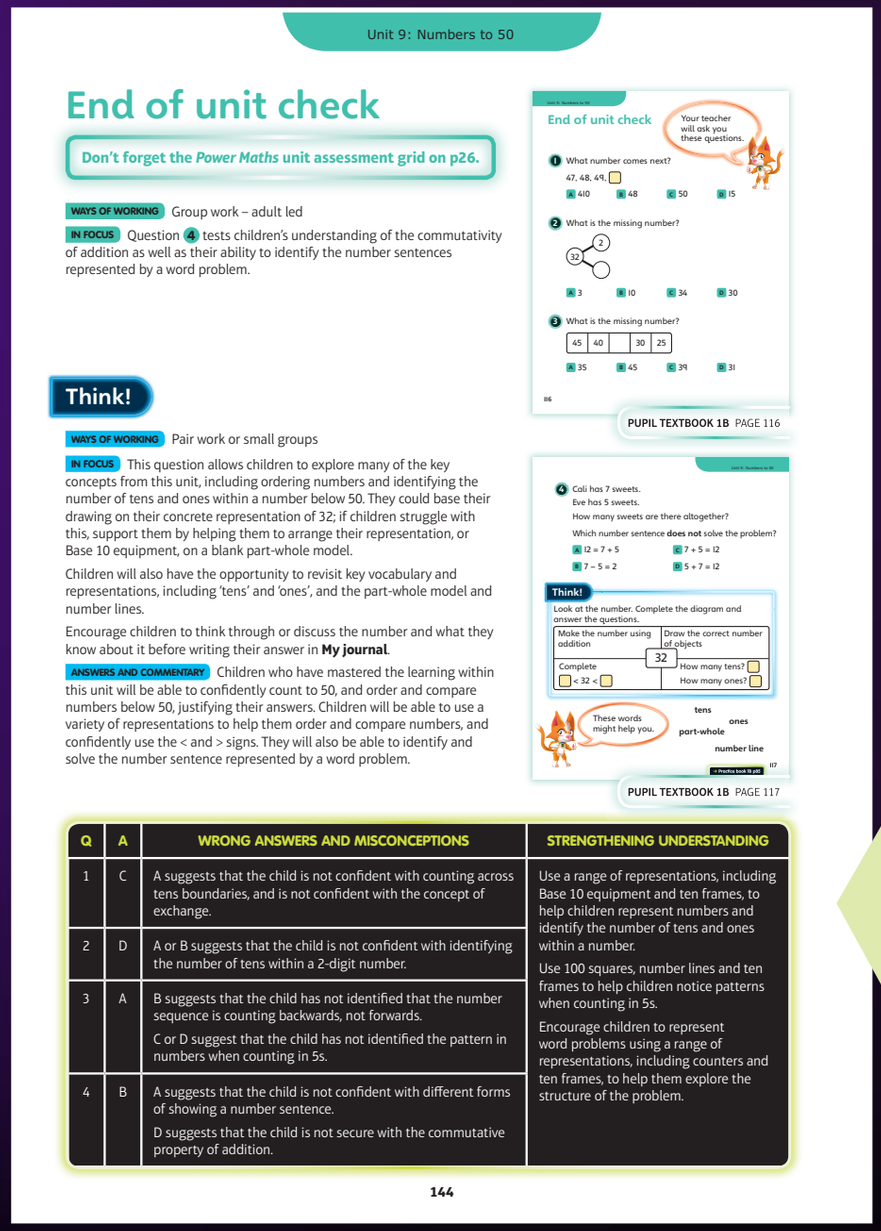
Summative assessment

Teacher support



Unit 9: Numbers to 50

End of unit check

Don't forget the *Power Maths* unit assessment grid on p26.

WAYS OF WORKING Group work – adult led

IN FOCUS Question 4 tests children's understanding of the commutativity of addition as well as their ability to identify the number sentences represented by a word problem.

Think!

WAYS OF WORKING Pair or small groups

IN FOCUS This question allows children to explore many of the key concepts from this unit, including ordering numbers and identifying the number of tens and ones within a number below 50. They could base their drawing on their concrete representation of 32; if children struggle with this, support them by helping them to arrange their representation, or Base 10 equipment, on a blank part-whole model.

Children will also have the opportunity to revisit key vocabulary and representations, including 'tens' and 'ones', and the part-whole model and number lines.

Encourage children to think through or discuss the number and what they know about it before writing their answer in **My journal**.

ANSWERS AND COMMENTARY Children who have mastered the learning within this unit will be able to confidently count to 50, and order and compare numbers below 50, justifying their answers. Children will be able to use a variety of representations to help them order and compare numbers, and confidently use the < and > signs. They will also be able to identify and solve the number sentence represented by a word problem.

End of unit check

Your teacher will ask you these questions.

1 What number comes next?
47, 48, 49, ☐
A 410 B 48 C 50 D 15

2 What is the missing number?
32 and 2
A 3 B 10 C 34 D 30

3 What is the missing number?
45 | 40 | | 30 | 25
A 35 B 45 C 39 D 31

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PUPIL TEXTBOOK 1B PAGE 116

4 Cali has 7 sweets.
Eve has 5 sweets.
How many sweets are there altogether?
Which number sentence **does not** solve the problem?
A 12 = 7 + 5 C 7 + 5 = 12
B 7 – 5 = 2 D 5 + 7 = 12

Think!
Look at the number. Complete the diagram and answer the questions.
Make the number using addition — Draw the correct number of objects
32
Complete ☐ < 32 < ☐
How many tens? ☐
How many ones? ☐

These words might help you.
tens
ones
part-whole
number line

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PUPIL TEXTBOOK 1B PAGE 117

Q	A	WRONG ANSWERS AND MISCONCEPTIONS	STRENGTHENING UNDERSTANDING
1	C	A suggests that the child is not confident with counting across tens boundaries, and is not confident with the concept of exchange.	Use a range of representations, including Base 10 equipment and ten frames, to help children represent numbers and identify the number of tens and ones within a number. Use 100 squares, number lines and ten frames to help children notice patterns when counting in 5s. Encourage children to represent word problems using a range of representations, including counters and ten frames, to help them explore the structure of the problem.
2	D	A or B suggests that the child is not confident with identifying the number of tens within a 2-digit number.	
3	A	B suggests that the child has not identified that the number sequence is counting backwards, not forwards. C or D suggest that the child has not identified the pattern in numbers when counting in 5s.	
4	B	A suggests that the child is not confident with different forms of showing a number sentence. D suggests that the child is not secure with the commutative property of addition.	

The **Teacher Guides** support you in recognising mastery of each concept, and in identifying and addressing misconceptions.

- Explains the misconceptions revealed by children's choice of answers.
- Provide advice on how to strengthen children's understanding of a topic, to make sure no child is left behind.

Q	A	WRONG ANSWERS AND MISCONCEPTIONS	STRENGTHENING UNDERSTANDING
1	C	A suggests that the child is not confident with counting across tens boundaries, and is not confident with the concept of exchange.	Use a range of representations, including Base 10 equipment and ten frames, to help children represent numbers and identify the number of tens and ones within a number. Use 100 squares, number lines and ten frames to help children notice patterns when counting in 5s. Encourage children to represent word problems using a range of representations, including counters and ten frames, to help them explore the structure of the problem.
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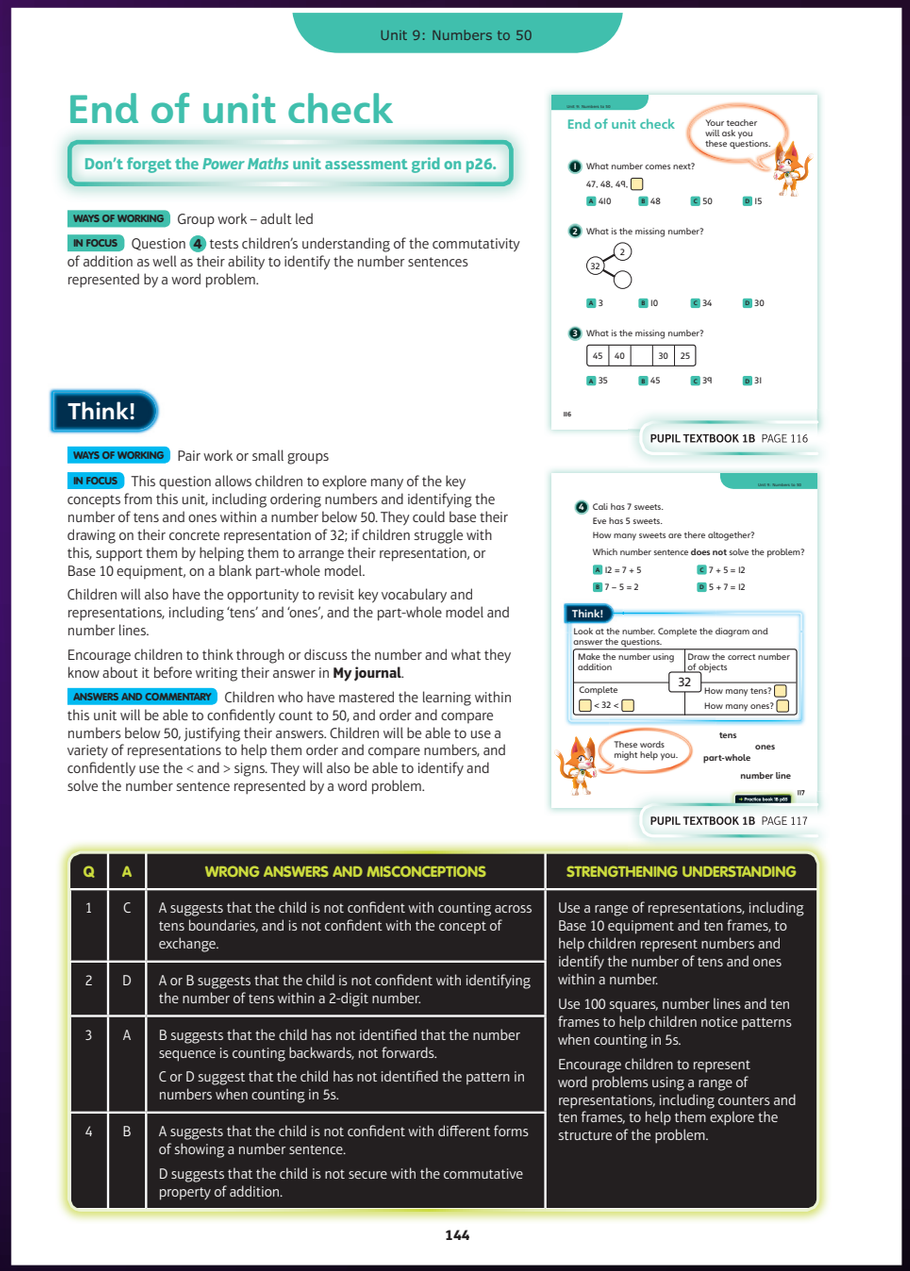
Tracking progress



Q	A	WRONG ANSWERS AND MISCONCEPTIONS	STRENGTHENING UNDERSTANDING
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4	B	A suggests that the child is not confident with different forms of showing a number sentence. D suggests that the child is not secure with the commutative property of addition.	

The **Teacher Guide** provides a **unit assessment grid**, which is a framework for track recording the insights you've gained from formative and summative assessments. You can also use it to progress within and across units.