REDBRIDGE PUBLISHING

Fix the Gap

SATs Maths Misconception Mastery

Targeted teaching, practice and reassessment across 9 KS2 maths mastery areas - including bonus Algebra and Geometry modules.

9 mastery modules	115+ fresh questions	18 worked examples
9 recheck sets	visual data & geometry	1 teaching guide

How this pack works

Use the free Find the Gap diagnostic first. Then select the matching module: Teach -> Practise -> Reason -> Recheck. Algebra and Geometry are included as bonus full-SATs domains because they are not isolated in the free diagnostic. This pack is independent and is not an official Standards and Testing Agency resource.

How to use this pack

Do not work through every page simply because it is there. The value comes from selecting the module that matches the pupil's diagnostic evidence.

1. Diagnose	Use the free 40-question Find the Gap diagnostic or another reliable assessment.
2. Select	Choose one or two modules that match repeated errors, not isolated slips.
3. Teach	Read the misconception notes and model the worked examples.
4. Practise	Complete the secure-method questions before the reasoning questions.
5. Recheck	Use the three-question recheck without coaching. If the same pattern remains, reteach before adding more practice.

Module map

1. Number & Place Value (Diagnostic questions 1-5)
Use this module when the diagnostic shows confusion with digit value, rounding, ordering or the size of numbers and decimals.

2. Calculation (Diagnostic questions 6-15)
Use this module when errors come from the four operations, order of operations, decimal calculation or choosing an efficient method.

3. Fractions, Decimals & Percentages (Diagnostic questions 16-25)
Use this module when the diagnostic shows weak equivalence, fraction operations, percentage of amounts or switching between representations.

4. Ratio & Proportion (Diagnostic questions 26-29)
Use this module when pupils can calculate but struggle to scale quantities, split ratios or recognise multiplicative relationships.

5. Measurement (Diagnostic questions 30-33)
Use this module when errors involve converting units, perimeter/area/volume, elapsed time or choosing the right measure.

6. Statistics (Diagnostic questions 34-36)
Use this module when pupils can read values but struggle with means, missing data, totals or comparing information in tables and charts.

7. Reasoning & Multi-step Problems (Diagnostic questions 37-40)
Use this module when calculation skills are secure but marks are lost through interpretation, operation choice, remainders or incomplete multi-step working.

8. Algebra (Bonus full-SATs domain)
Use this module when pupils struggle with missing values, simple formulae, sequences or translating relationships into symbols.

9. Geometry & Position (Bonus full-SATs domain)
Use this module when pupils struggle with angle facts, properties of shapes, circles or coordinates and translations.

Accessibility

Use the pupil's normal access arrangements. An adult may read wording aloud where that is the pupil's usual support, but should not explain the mathematics. The challenge should come from the maths, not avoidable reading difficulty.

Mastery tracker

Record the diagnostic result, the date the module was taught, and whether the recheck is secure.

Area	Diagnostic clue	Taught	Recheck	Next step
Number & Place Value				
Calculation				
Fractions, Decimals & Percentages				
Ratio & Proportion				
Measurement				
Statistics				
Reasoning & Multi-step Problems				
Algebra				
Geometry & Position				

☐ Secure ☐ Nearly there ☐ Reteach

MODULE 1

Number & Place Value

Use this module when the diagnostic shows confusion with digit value, rounding, ordering or the size of numbers and decimals.

What this gap often looks like

- Treating a digit as its face value instead of its place value.
- Rounding from the wrong digit.
- Comparing decimals by number of digits rather than value.
- Losing placeholder zeros when reading or constructing numbers.

Teaching priority

Rebuild the place-value chart first. For decimals, align decimal points and use placeholder zeros before comparing.

Mastery goal

Read, compare and round numbers accurately, explaining the place value behind each decision.

Worked examples

Model the thinking aloud before asking the pupil to practise.

Example 1: Place value

In 6,407,315, the digit 4 is in the hundred-thousands column, so its value is 400,000.

Method: Name the column before writing the value. Do not count digits from the right without naming the place.

Example 2: Rounding

2,749,650 to the nearest 10,000 is 2,750,000. The thousands digit is 9, so the ten-thousands digit rounds up.

Method: Underline the place you are rounding to, then inspect only the digit immediately to its right.

Before you move on

Ask the pupil to explain the method in their own words. If they cannot explain it, the method is not yet secure.

Practice A - Secure the method

Work independently. Show enough working that someone else can follow your method.

1 What is the value of the digit 6 in 8,654,219?

Answer:

2 Write 9,000,000 + 300,000 + 40,000 + 700 + 2 as one number.

Answer:

3 Round 5,684,201 to the nearest 100,000.

Answer:

4 Put these in ascending order: 0.407, 0.47, 0.704, 0.44.

Answer:

5 What number is 10,000 less than 2,003,501?

Answer:

6 What number is halfway between 7.25 and 7.45?

Answer:

Practice B - Reasoning

These questions test whether the method transfers to less obvious contexts.

7 Use the digits 1, 3, 5, 7 and 9 once each. What is the smallest five-digit number greater than 50,000?

Answer / explanation:

8 A whole number rounds to 460,000 to the nearest 10,000. What is the greatest possible number?

Answer / explanation:

9 A pupil says 6.08 is greater than 6.8 because 608 is greater than 68. Explain the mistake.

Answer / explanation:

10 A venue has capacity for 3,500,000 visits across a season. 2,846,735 visits have been used. How many remain?

Answer / explanation:

Recheck

Complete these without looking back at the worked examples.

11 Round 7,451,209 to the nearest 100,000.

Answer:

12 Which is greater: 0.608 or 0.68?

Answer:

13 What is the value of the digit 9 in 2,094,615?

Answer:

☐ Secure - move on ☐ Nearly there - short practice ☐ Reteach - return to worked examples

Decision rule

3/3 secure: move on. 2/3: do a short retrieval set. 0-1/3: reteach the worked method before adding more questions.

MODULE 2

Calculation

Use this module when errors come from the four operations, order of operations, decimal calculation or choosing an efficient method.

What this gap often looks like

- Losing place value when regrouping in column methods.
- Using “add/remove zeros” rules without thinking about place value.
- Ignoring operation priority.
- Choosing an operation from a keyword without checking the context.

Teaching priority

Ask the pupil to estimate first, calculate second and check third. Estimation catches many place-value and operation slips.

Mastery goal

Choose and execute an efficient calculation method, then use estimation or inverse operations to check it.

Worked examples

Model the thinking aloud before asking the pupil to practise.

Example 1: Long multiplication

307 x 46 = 307 x 40 + 307 x 6 = 12,280 + 1,842 = 14,122.

Method: Partition the multiplier into tens and ones. Keep the tens place-value shift visible.

Example 2: Division

2,856 ÷ 42 = 68. Check: 42 x 68 = 2,856.

Method: Estimate first, divide carefully, then multiply back to check the quotient.

Before you move on

Ask the pupil to explain the method in their own words. If they cannot explain it, the method is not yet secure.

Practice A - Secure the method

Work independently. Show enough working that someone else can follow your method.

14 Calculate 8,064 - 2,789.

Answer:

15 Calculate 307 x 46.

Answer:

16 Calculate 2,856 ÷ 42.

Answer:

17 Calculate 72 ÷ 8 + 5 x 6.

Answer:

18 Calculate 6.25 x 8.

Answer:

19 Calculate 4,500 ÷ 1,000.

Answer:

Practice B - Reasoning

These questions test whether the method transfers to less obvious contexts.

20 A club buys 18 boxes of 48 pens. It gives away 296 pens. How many pens remain?

Answer / explanation:

21 How much must be added to 8,765 to make 25,000?

Answer / explanation:

22 Noor calculates 96 - 7 x 8 and gets 712. Explain her error and give the correct answer.

Answer / explanation:

23 3,024 cards are shared equally between 36 packs. How many cards are in each pack?

Answer / explanation:

Recheck

Complete these without looking back at the worked examples.

24 Calculate 6,003 - 846.

Answer:

25 Calculate 417 x 32.

Answer:

26 Calculate 2,736 ÷ 36.

Answer:

☐ Secure - move on ☐ Nearly there - short practice ☐ Reteach - return to worked examples

Decision rule

3/3 secure: move on. 2/3: do a short retrieval set. 0-1/3: reteach the worked method before adding more questions.

Continue with the full pack

The complete product contains nine modules: the seven diagnostic-linked areas plus bonus Algebra and Geometry & Position, with full answers and intervention guidance.

Full pack

Designed to be used directly after the free Find the Gap diagnostic. The complete pack contains more than 115 fresh questions, nine rechecks and visual data/geometry tasks.