Hampshire County Council
Improvement and Advisory Service

HIAS MOODLE+ RESOURCE

Year 5 Unit Plan 5.2
Multiplication and Division

Autumn term

HIAS Maths Team
September 2026
Final version

Overview

This document contains…

Year 5 Unit Plans linked to the Hampshire Medium Term Overview

Points to consider when using this resource:

These unit plans provide an example of how medium-term planning could be developed into units of work. These unit plans will need to be adapted to meet the needs of pupils. The unit plan provides an outline of a possible learning journey with suggestions of types of tasks that could be used. They also identify required prior learning, some common misconceptions and an indication of key skills pupils need to secure competency. It is assumed that teachers will make use of appropriate mathematical representations (manipulatives, visuals and symbolic) to support conceptual understanding for pupils alongside procedural fluency.

National Curriculum Links:

Multiplication and Division

Pupils should be taught to:

- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- Know and use the vocabulary of prime numbers, prime factors and composite (non prime) numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- Multiply and divide numbers mentally drawing upon known facts
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

<table>
<tr><td colspan="2">This unit revisits key Year 4 objectives to ensure pupils have a secure foundation before moving on to the Year 5 curriculum. It develops pupils' fluency and understanding in multiplication and division by building on place value and known facts. Pupils learn to calculate mentally by dividing and multiplying efficiently, using the distributive law to break calculations into manageable parts when multiplying. The unit also deepens understanding of multiplication and division as scaling, helping pupils' reason about whether quantities become larger or smaller.</td><td>Notional Time:

10 sessions</td></tr>
<tr><td>Check and Refresh - skills and knowledge that pupils need to know</td><td>Verbal coding- precise mathematical language to model during worked examples</td><td>Mastering Key Facts in Key Stage 2 – developing fluency and automaticity</td></tr>
<tr><td>Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to scaling a number by 10 or 100.

Understand and apply the distributive property of multiplication.</td><td>[5] is equal to [3] plus [2], so [5] sixes is equal to [3] sixes plus [2] sixes.

[5] sixes is [4] sixes and one more [6].
[13] sevens is [10] sevens plus [3] sevens.

__multiplied by a ten / hundred / thousand is equal to __.
__is a ten / hundred / thousand times the size of ___.
__ divided by a ten / hundred / thousand is equal to ___.</td><td>Recap of Year 4
Recall and use multiplication and division facts for multiplication tables up to 12 x 12.
Year 5
Multiply and divide numbers mentally drawing upon known facts.</td></tr>
<tr><td>Mathematical Concepts- important pieces of information learners should take away from the unit</td><td>Watch out for</td><td>DfE Ready -to- progress criteria</td></tr>
<tr><td>Place value underpins efficient mental calculation
Pupils understand that multiplication and division can be done mentally by adjusting the value of digits (for example ×10, ×100, ÷1000), not by changing the digits themselves.

Known facts and the distributive law can simplify calculations
Pupils use known and derived facts (e.g. doubling, halving, related facts) and apply the distributive law to break calculations into manageable parts.

Multiplication and division describe scaling
Pupils recognise that multiplication and division change the size of a quantity. They can solve scaling problems, explaining whether a result becomes larger or smaller and why, and can apply this reasoning in both multiplication and division contexts.</td><td>Pupils physically "moving digits left or right" when multiplying or dividing by 10, 100 or 1000, rather than understanding that each digit's value changes.

Pupils adding zeros when multiplying and "taking zeros away" when dividing, particularly with decimals.

Pupils thinking the decimal point itself moves, rather than recognising the digits move relative to place value.

Pupils partitioning numbers but forgetting to multiply all parts or failing to recombine accurately.

Pupils believing any multiplication increases value without considering decimals. E.g. being surprised that 0.4 × 6 is smaller than 6.</td><td>4MD-1

4MD-3

5MD-1

Formative assessment questions - key questions to support pupil reasoning and teacher assessment
What is the same and what is different?
What if I change…?
Can you give me an example of… and another…and another?
Which is harder and which is easier…?
If I know this, then what else do I know?</td></tr>
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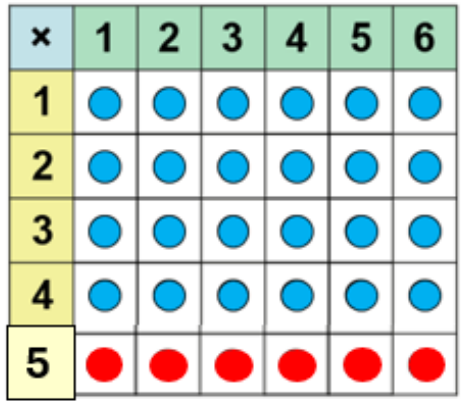
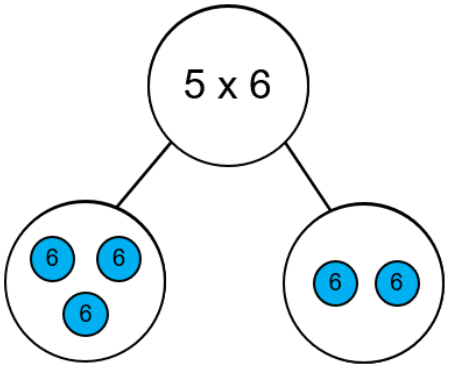
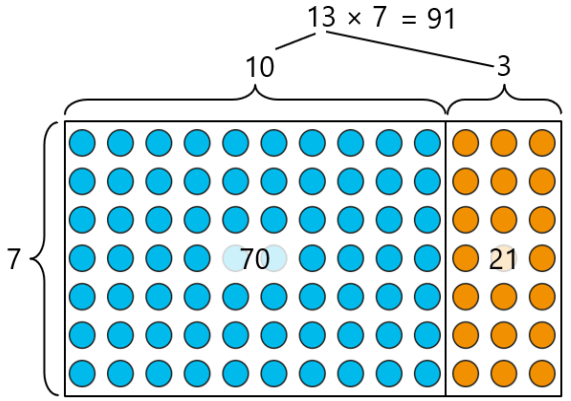
Visual coding: key representations







13 × 7 = 10 × 7 + 3 × 7
= 70 + 21
= 91

5 x 6 = 4 x 6 + 6

5 sixes is 4 sixes and one more 6.

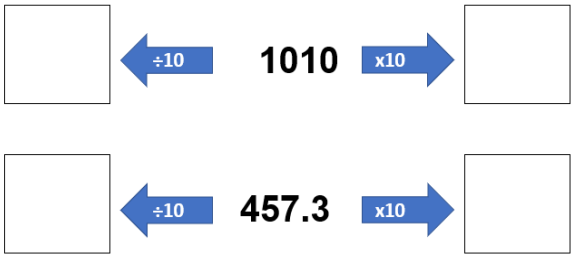
5 is equal to 3 plus 2, so 5 sixes is equal to 3 sixes plus 2 sixes.

Ones				-ths		
1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
	7	3	1 •			
7	3	1	0 •			

X 10

Ones				-ths		
1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
		6	4 •			
			6 • 4			

÷ 10



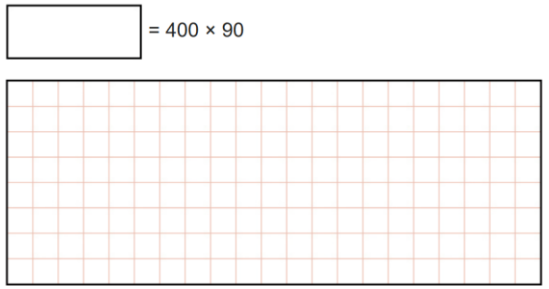
Ones						-ths		
100000s	10000s	1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
			2	9	4 •			
2	9	4	0	0	0 •			

x 1000

Ones						-ths		
100000s	10000s	1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
			2	9	4 •			
					0 • 2	9	4	

÷ 1000

Autumn unit 5.2 (2 weeks)	Spring unit 5.11 (2 weeks)	Summer unit 5.12 (1 week)	Summer unit 5.17 (2 weeks)	Summer unit 5.18 (3 weeks)
I can use place value, known and derived facts to multiply mentally. I can use place value, known and derived facts to divide mentally. I can solve problems using the distributive law to multiply one-digit numbers by one digit. I can solve problems using the distributive law to multiply two-digit numbers by one digit. I can solve scaling problems involving multiplication. I can solve scaling problems involving division. I can multiply and divide whole numbers and those involving decimals by 10. I can multiply and divide whole numbers and those involving decimals by 100. I can multiply and divide whole numbers and those involving decimals by 1000.	I can multiply a three-digit number by a one-digit number using the grid method. I can multiply a three-digit number by a one-digit number using short multiplication. I can multiply a four-digit number by a one-digit number using short multiplication. I can multiply a two-digit number by a two-digit number using long multiplication. I can multiply a three-digit number by a two-digit number using long multiplication. I can multiply a four-digit number by a two-digit number using long multiplication. I can divide three-digit numbers by one-digit numbers using short division. I can divide four-digit numbers by one-digit numbers using short division.	I can identify multiples. I can identify factors, including find all factor pairs of a number. I can find common factors of two numbers. I can use the vocabulary of prime numbers, prime factors and composite numbers. I can recall prime numbers up to 19. I can recognise and use square numbers and the notation for squared. I can recognise and use cube number and notation for cubed.	I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers I can use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers I can recognise prime numbers up to 100 and recall prime numbers up to 19. I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 I can multiply and divide numbers mentally drawing upon known facts. I can multiply numbers up to 4 digits by a one- or two-digit number using a formal written method. I can divide numbers up to 4 digits by a one-digit number using the formal written method of short division I can interpret remainders appropriately for the context.	I can use rounding to check answers to calculations and determine levels of accuracy. I can add and subtract numbers mentally with increasingly large numbers. I can add and subtract whole numbers with more than 4 digits, including using formal written methods. I can solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. I can recognise prime numbers up to 100 and recall prime numbers up to 19. I can solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes. I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. I can solve problems involving multiplication and division, including scaling, by simple fractions and problems involving simple rates.

<table>
<tr><th colspan="2">Proposed lesson sequence to support development of mathematical concepts</th></tr>
<tr><th colspan="2">Developing fluency and automaticity – ongoing daily practice</th></tr>
<tr><td>Mastering Key Facts in Key Stage 2</td><td>Autumn Term Ongoing Mental Fluency Practice
Recap of Year 4: Recall and use multiplication and division facts for multiplication tables up to 12 x 12.
Year 5: Multiply and divide numbers mentally drawing upon known facts.</td></tr>
<tr><td>Counting Fluency</td><td>Count forwards or backwards in steps of powers of 10 for any given number up to 1000000 Course: Primary Counting Progression | Maths Moodle</td></tr>
<tr><td>I can…</td><td>Mathematical Concepts, Key Skills and Suggested Tasks</td></tr>
<tr><th colspan="2">10 sessions – Multiplication and Division</th></tr>
<tr><td>I can use place value, known and derived facts to multiply mentally.</td><td>In this step, pupils build up their Year 4 knowledge and secure efficient strategies for mental multiplication using knowledge of place value and known facts to derive new facts. Many calculations are quicker and more appropriate to solve mentally. A key focus should be placed on:
choosing efficient strategies,
explaining how they adapted what they already know,
checking that answers are reasonable
Checking for understanding questions:
Encourage pupils to consider what known fact should they use to help them calculate? = 400 x 90. For example, if I know 4 x 9 = 36, I also know 4 x 90 = 360, 40 x 90 = 3600, 400 x 90 = 36000.
Repeat for other calculations, focussing on a range of tables (up to 12 x 12).
 
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<tr>
<td>I can use place value, known and derived facts to divide mentally.</td>
<td>This step promotes efficient mental division, encouraging pupils to think flexibly rather than depend on one set procedure. For example, understanding that dividing by 8 can be broken down into dividing by 4 and then by 2 (e.g. 48 ÷ 8 → 48 ÷ 4 ÷ 2) demonstrates secure understanding and fluency. Many division calculations are faster and more appropriate to work out mentally using these strategies.

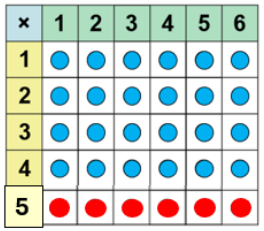
Checking for understanding questions:

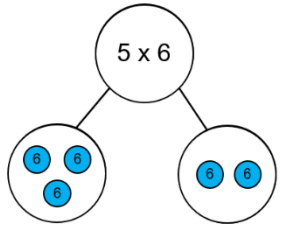
• ‘Same-structure, different numbers’
• Encourage pupils to spot patterns rather than recalculating every time
• Example sequence:
  ○ 72 ÷ 8 =
  ○ 720 ÷ 8 =
  ○ 7200 ÷ 8 =
• What stays the same? What changes? Why?
• What is the known fact that you used to help you?

Design tasks that encourage pupils to reason mathematically, using precise language to justify their thinking. Where appropriate, encourage pupils to explain, prove, or represent their thinking, identifying the known fact that they used to help them.</td>
</tr>
<tr>
<td>I can solve problems using the distributive law to multiply one-digit numbers by one digit.</td>
<td>In this step, which is a revisit of Year 4 knowledge, when pupils use the distributive law, they:
• partition a number into manageable parts
• use facts they already know
• avoid counting or inefficient methods
For example: 7 × 9 , I know 7 x 10 = 70, so 7 x 9 is 70 – 9 = 63 or 6 × 8, I’ll partition 8 into 5 and 3, (6 × 5) + (6 × 3) = 30 + 18 = 48

Checking for understanding questions:

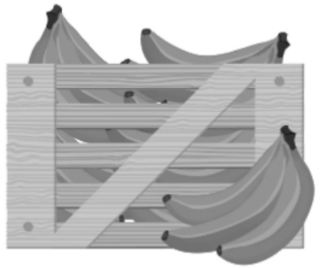
• If I have four sixes, what would I need to do to find five sixes?
• Do I need to start from zero and count up in sixes?
• Use your counters to make an array to represent 4 x 6.
• Now change your array to make 5 x 6. Explain what you have done.
• 5 sixes is 4 sixes and one more 6. 5 x 6 = 4 x 6 + 6
• Provide pupils with a range of problems to solve using this method.

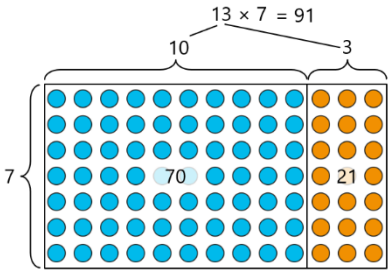
 

• Can you see 3 groups of 6 as a part? Can you see 2 groups of 6 as a part? How many groups of 6 do we have in total?
• 5 is equal to 3 plus 2, so 5 sixes is equal to 3 sixes plus 2 sixes.
• Repeat using other calculations, including real-life contexts.

</td>
</tr>
</table>

I can solve problems using the distributive law to multiply two-digit numbers by one digit.	This step builds on the previous step where pupils will use the distributive law, to: • partition a number into manageable parts • use facts they already know • avoid counting or inefficient methods and progresses to multiply two-digit numbers by one-digit within the context of problem-solving. **Key questions:** • How could we use the 'partitioning method' used in the previous step to calculate 13 x 7? • Which factor shall we partition? • How should we partition13? Why? • **13 sevens is 10 sevens plus 3 sevens.** • Repeat for different calculations before encouraging pupils to solve a range of problems. • For example: There are **5 bananas** in a **bunch**. There are **17 bunches** in a **crate**.  How many bananas are there altogether in a **crate**? • How could you use the 'partitioning method' to solve the problem? • Which factor will you partition? Why? • 17 fives is 10 fives plus 7 fives. Design tasks that encourage pupils to reason mathematically, using precise language to justify their thinking. Include a mix of routine and non-routine problems to deepen understanding. Where appropriate, encourage pupils to explain, prove, or represent their reasoning in different ways using the 'partitioning method.' Contains material developed by NCETM and licensed under Open Government Licence v3.0' http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ Contains material developed by the Standards and Testing Agency for 2018 national curriculum assessments and licensed under Open Government Licence v3.0' http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/



13 × 7 = 10 × 7 + 3 × 7
= 70 + 21
= 91

I can solve scaling problems involving multiplication.	In this step, which builds on prior learning in Year 4, pupils solve a range of scaling problems involving multiplication. These usually include language such as: • *times as many* • *times as long* • *times as heavy* • *times the size* Examples pupils might solve: • *A stick is 6 cm long. Another stick is 4 times as long. How long is it?* • *A model is made at 3 times the size of the original.* The key idea is that: The original amount is being multiplied by a scale factor. **Key question:** A toy car is 12 cm long. A larger model of the car is **3 times as long**. How long is the larger model? Vary the problem using 'What if?' questions to deepen pupils' understanding.
I can solve scaling problems involving division.	This step is about helping pupils understand that division can change the size of a quantity by scaling it down, not just splitting something into equal groups. In scaling problems involving division, pupils are: • finding a quantity that is a fraction or factor of another • reasoning about how much *smaller* something becomes • comparing quantities multiplicatively, not subtractive Examples pupils might solve: • *This rope is 12 m long. A second rope is one third as long.* • *A photograph is scaled down by a factor of 4.* **Key question:** A rope is 24 metres long. A shorter rope is one third as long as the original rope. How long is the shorter rope? Design tasks that encourage pupils to reason mathematically, using precise language to justify their thinking. Include a mix of routine and non-routine problems to deepen understanding. Where appropriate, encourage pupils to explain, prove, or represent their reasoning in different ways.

I can multiply and divide whole numbers and those involving decimals by 10.	This step is about strengthening pupils' place-value understanding, not about learning a trick or rule. Pupils are learning that when you multiply or divide by 10: • the digits stay the same • but their value changes because they move one place value column This applies to whole numbers and decimals. **Checking for understanding questions:** • What do you notice when multiplying / dividing by 10? • What is a placeholder? • When do you use placeholders? • What happens to the digits in a number when you multiply by 10? • What happens to the digits in a number when you divide by 10? • How can you use a place value chart to show multiplying / dividing by 10? • What is ___ multiplied by 10? What is ___ divided by 10? Design tasks that include both multiplying and dividing by 10 for whole numbers and those involving decimals. Encourage pupils to use place value counters and a place value chart to show / prove their thinking and explain their reasoning.

Ones				-ths		
1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
	7	3	1 •			
7	3	1	0 •			

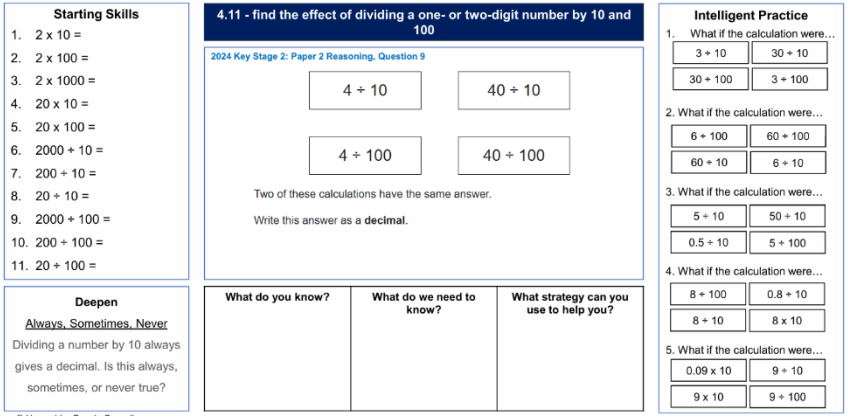
X 10

÷10 **1010** x10

÷10 **457.3** x10

Ones				-ths		
1000s	100s	10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
		6	4 •			
			6 •	4		

÷ 10

I can multiply and divide whole numbers and those involving decimals by 100.	This step deepens pupils' understanding of place value by extending what they know about ×10 and ÷10 to ×100 and ÷100. The key idea is that: • Multiplying or dividing by 100 changes the value of each digit, not the digit itself. Pupils learn to reason about how numbers increase or decrease by a factor of 100, including when decimals are involved.  **Starting Skills** 1. 2 x 10 = 2. 2 x 100 = 3. 2 x 1000 = 4. 20 x 10 = 5. 20 x 100 = 6. 2000 ÷ 10 = 7. 200 ÷ 10 = 8. 20 ÷ 10 = 9. 2000 ÷ 100 = 10. 200 ÷ 100 = 11. 20 ÷ 100 = **4.11 - find the effect of dividing a one- or two-digit number by 10 and 100** 2024 Key Stage 2: Paper 2 Reasoning, Question 9 4 ÷ 10 40 ÷ 10 4 ÷ 100 40 ÷ 100 Two of these calculations have the same answer. Write this answer as a **decimal**. **Intelligent Practice** 1. What if the calculation were… 3 ÷ 10 30 ÷ 10 30 ÷ 100 3 ÷ 100 2. What if the calculation were… 6 ÷ 100 60 ÷ 100 60 ÷ 10 6 ÷ 10 3. What if the calculation were… 5 ÷ 10 50 ÷ 10 0.5 ÷ 10 5 ÷ 100 4. What if the calculation were… 8 ÷ 100 0.8 ÷ 10 8 ÷ 10 8 x 10 5. What if the calculation were… 0.09 x 10 9 ÷ 10 9 x 10 9 ÷ 100 **Deepen** Always, Sometimes, Never Dividing a number by 10 always gives a decimal. Is this always, sometimes, or never true? **What do you know?** **What do we need to know?** **What strategy can you use to help you?** Example taken from the Reasoning and Intelligent Practice resource Task 4.11
I can multiply and divide whole numbers and those involving decimals by 1000.	This step is about helping pupils understand how multiplying and dividing by 1000 changes the value of a number by using place value, including when decimals are involved. It focuses on pupils understanding multiplication and division by 1000 as scaling, where each digit becomes 1000 times larger or smaller. This also ensures pupils use place value to reason about what happens to numbers when they are multiplied or divided by 1000, rather than relying on adding or removing zeros. **Checking for understanding questions:** • What do you notice when multiplying / dividing by 1000? • What is a placeholder? • When do you use placeholders? • What happens to the digits in a number when you multiply by 1000? • What happens to the digits in a number when you divide by 1000? • How can you use a place value chart to show multiplying / dividing by 1000? • What is ___ multiplied by 100? What is ___ divided by 1000? **Ones** | **-ths** 100000s | 10000s | 1000s | 100s | 10s | 1s | 1/10s | 1/100s | 1/1000s 2 9 4 • (1/10s 1/100s 1/1000s) 2 9 4 0 0 0 • x 1000 **Ones** | **-ths** 100000s | 10000s | 1000s | 100s | 10s | 1s | 1/10s | 1/100s | 1/1000s 2 9 4 • (1/10s 1/100s 1/1000s) 0 • 2 9 4 ÷ 1000 Design tasks that include both multiplying and dividing by 1000 for whole numbers and those involving decimals. Encourage pupils to use place value counters and a place value chart to show / prove their thinking and explain their reasoning.

HIAS Resources to support:

- Reasoning and Intelligent Practice Tasks: Reasoning and Intelligent Practice Tasks
- Faded Scaffolds and Intelligent Practice: Faded Scaffolds and Intelligent Practice
- Paired Examples: Paired Examples
- Entry and Exit tickets: Entry and Exit Tickets
- Interleaving, Recall and Retrieval: Interleaving, Recall and Retrieval (hants.gov.uk)
- Connect4Maths: Connect4Maths - Primary
- Moderation Documents: Moderation Documents
- KS1 Key Facts: Key Stage 1 Key Facts Document
- Mastering Times Tables: Mastering Times Tables

NCETM Resources to support:

- Exemplification of ready -to -progress criteria (RTPS): Exemplification of ready-to-progress criteria | NCETM
- NCETM Professional Development materials spine 1: Number, Addition and Subtraction | NCETM ;
- The NCETM Mastery Task booklets can be used as a source of tasks to support end of year teacher assessment for both EXS and GDS Teaching for Mastery Booklets Yr1-6

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