Unit Overview and Guidance

- The exemplification has been taken from the NCETM Resource Toolkit, with additions in order to ensure full coverage.
- White Rose planning links (with questions categorised into the three aims of the national curriculum i.e. fluency, problem solving and reasoning) are hyperlinked to each of the objectives.
- NCETM reasoning questions have been incorporated and are identified in pale purple boxes
- The 'big Ideas' sections from the NCETM 'Teaching for Mastery' documents have been included at the start of each unit. Hyperlinks to the full NCETM 'Teaching for Mastery' documents have also been included for easy reference.
- Hyperlinks to NRich activities have also been added to this version. These are found by clicking on the blue buttons like this one 1 at the bottom of relevant objective.
- Some additional content has been added in order to support mixed-aged planning. Any additional content is in italics and strikethrough has been used to identify when an objective has been altered.
- Each unit is sub-divided into sections for ease of planning. Sub-categories in this unit are;
    1. Multiplication and division
    2. Derive and recall x÷
    3. Checking
    4. Number Types
    5. Solving Problems
    6. Ratio and Proportion (Year 6)

	Yr 3	Yr 4	Yr 5	Yr 6
NCETM Teaching for Mastery Questions, tasks and activities to support assessment	**The Big Ideas** It is important for children not just to be able to chant their multiplication tables but also to understand what the facts in them mean, to be able to use these facts to figure out others and to use in problems. It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×). They understand what multiplication means, see division as both grouping and sharing, and see division as the inverse of multiplication.	**The Big Ideas** It is important for children not just to be able to chant their multiplication tables but to understand what the facts in them mean, to be able to use these facts to figure out others and to use them in problems. It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×). They understand what multiplication means and see division as both grouping and sharing, and to see division as the inverse of multiplication. The distributive law can be used to partition numbers in different ways to create equivalent calculations. For example, 4 × 27 = 4 × (25 + 2) = (4 × 25) + (4 × 2) = 108. Looking for equivalent calculations can make calculating easier. For example, 98 × 5 is equivalent to 98 × 10 ÷ 2 or to (100 × 5) – (2 × 5). The array model can help show equivalences.	**The Big Ideas** Pupils have a firm understanding of what multiplication and division mean and have a range of strategies for dealing with large numbers, including both mental and standard written methods. They see the idea of factors, multiples and prime numbers as connected and not separate ideas to learn. They recognise how to use their skills of multiplying and dividing in new problem solving situations. Fractions and division are connected ideas: $36 \div 18 = \frac{36}{18} = 2$; $\frac{18}{36} = \frac{1}{2}$ Factors and multiples are connected ideas: 48 is a multiple of 6 and 6 is a factor of 48.	**The Big Ideas** Standard written algorithms use the conceptual structures of the mathematics to produce efficient methods of calculation. Standard written multiplication method involves a number of partial products. For example, 36 × 24 is made up of four partial products 30 × 20, 30 × 4, 6 × 20, 6 × 4. There are connections between factors, multiples and prime numbers and between fractions, division and ratios. **The Big Ideas (Ratio and Proportion)** It is important to distinguish between situations with an additive change or a multiplicative change (which involves ratio). For example, if four children have six sandwiches to share and two more children join them, although two more children have been added, the number of sandwiches then needed for everyone to still get the same amount is calculated multiplicatively.
	Teaching for Mastery Year 3	Teaching for Mastery Year 4	Teaching for Mastery Year 5	Teaching for Mastery Year 6

NUMBER: Multiplication and Division (NMD - 5 weeks)

Strand		Yr3	Yr4	Yr5	Yr6
Multiplication and Division	Mental Calculations	**write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental** **Multiplication – equal groups** **Comparing statements** One orange costs nineteen pence. How much will three oranges cost? Mark drives 19 miles to work every day and 19 miles back. He does this on Mondays, Tuesdays, Wednesdays, Thursdays and Fridays. How many miles does he travel to work and back in one week?	**use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers** **Multiply by 10** **Multiply by 100** **Divide by 10** **Divide by 100** **Multiply by 1 and 0** **Divide by 1** **Efficient multiplication** Practise mental methods and extend this to three-digit numbers to derive facts for example 200 × 3 = 600 into 600 ÷ 3 = 200. Plants are sold in trays of 20. Hannah buys 7 trays. How many plants does she buy? Eggs are sold in trays of 30 eggs. The trays can be stacked in six layers. How many eggs are in this picture?	**multiply and divide numbers mentally, drawing upon known facts** Rehearse multiplication facts and use these to derive division facts, to find factors of two-digit numbers and to multiply multiples of 10 and 100, e.g. 40 × 50. Use and discuss mental strategies for special cases of harder types of calculations for example to work out 274 + 96, or 8006 – 2993, 35 × 11, 72 ÷ 3, 50 × 900. etc Use factors to work out a calculation such as 16 × 6 by thinking of it as 16 × 2 × 3. Record their methods using diagrams (such as number lines) or jottings and explain methods to each other. Compare alternative methods for the same calculation and discuss any merits and disadvantages.	**perform mental calculations, including with mixed operations and large numbers** **Mental calculations** **Reason from known facts** **Division Using Factors** Use mental strategies to calculate in their heads, using jottings and/or diagrams where appropriate for example, to calculate 24 × 15, they multiply 24 × 10 and then halve this to get 24 × 5, adding these two results together. They record their method as (24 × 10) + (24 × 5). Alternatively, they work out 24 × 5 = 120 (half of 24 × 10), then multiply 120 by 3 to get 360. 1 2 **use their knowledge of the order of operations to carry out calculations involving the four operations** **Order of operations** e.g. 60 – 42 ÷ 6 = ☐
	Written Calculations - Multiplication	**write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods** **Multiply 2-digits by 1-digit (1)** **Multiply 2-digits by 1-digit (2)** **Divide 2-digits by 1-digit (1)** **Divide 2-digits by 1-digit (2)** **Divide 2-digits by 1-digit (3)**	**multiply two-digit and three-digit numbers by a one-digit number using formal written layout** **Written methods** **Multiply 2 digits by 1 digit** **Multiply 3 digits by 1 digit** **Divide 2 digits by 1 digit (1)** **Divide 2 digits by 1 digit (2)** **Divide 3 digits by 1 digit** e.g. 68 x 7 and 358 x 9	**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 4-digits by 1-digit** **Multiply 2-digits (area model)** **Multiply 2-digits by 2-digits** **Multiply 3-digits by 2-digits** **Multiply 4-digits by 2-digits** Move from expanded layouts (such as the grid method) towards a compact layout for HTU × U and TU × TU calculations. Suggest what the approximate answer to be before starting a calculation and use this to check that the answer sounds sensible. For example, 56 × 27 is approximately 60 × 30 = 1800. 1 2	**multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication** **Multiply 4-digits by 2-digits** Look at long-multiplication calculations containing errors, identify the errors and determine how they should be corrected. Solve word problems such as: Printing charges for a book are 3p per page and 75p for the cover. I paid £4.35 to get this book printed. How many pages are there in the book? Write down the calculations that you did. Seeds are £1.45 for a packet. I have £10 to spend on seeds. What is the greatest number of packets I can buy? **multiply one-digit numbers with up to two decimal places by whole numbers** **Multiply decimals by integers** What is 3.86 multiplied by nine?

NUMBER: Multiplication and Division (NMD - 5 weeks)

<table>
<tr><td rowspan="2">Multiplication and Division</td><td>Written Calculations - Division</td><td></td><td></td><td>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

Divide 4-digits by 1-digit

Divide with remainders

Extend written methods for division to include HTU ÷ U, including calculations with remainders. Suggest an approximate answer before starting a calculation and use this to check that the answer sounds sensible. Increase the efficiency of the methods being used for example:

196 ÷ 6 is approximately 200 ÷ 5 = 40

32 r4 or 4/6 or 2/3 (as well as using short division methods)

Know that, depending on the context, answers to division questions may need to be rounded up or rounded down. Explain whether to round up or down to answer problems such as:

- Egg boxes hold 6 eggs. A farmer collects 439 eggs. How many boxes can he fill?

- Egg boxes hold 6 eggs. How many boxes must a restaurant buy to have 200 eggs?

1</td><td>Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.

Short division

Long division (1)

Long division (2)

Long division (3)

Long division (4)

Every day a machine makes 100 000 paper clips, which go into boxes. A full box has 120 paper clips. How many full boxes can be made from 100 000 paper clips?

Each paper clip is made from 9.2 centimetres of wire. What is the greatest number of paper clips that can be made from 10 metres of wire?

A DJ has two different sized storage boxes for her CDs. Small boxes hold 15 CDs. Large boxes hold 28 CDs. The DJ has 411 CDs. How could the DJ pack her CDs?

use written division methods in cases where the answer has up to two decimal places

Divide decimals by integers

Children should be able to calculate 601 divided by 36, to two decimal places etc.</td></tr>
<tr><td>NCETM Reasoning</td><td>Use a fact
20 x 3 = 60.
Use this fact to work out
21 x 3 = 22 x 3 = 23 x 3 = 24 x 3 =
Prove It
What goes in the missing box?
<table><tr><td>x</td><td>?</td><td>?</td></tr><tr><td>4</td><td>80</td><td>12</td></tr></table>How close can you get?
☐ ☐ × ☐
Using the digits 2, 3 and 4 in the calculation above how close can you get to 100? What is the largest product? What is the smallest product?</td><td>Use a fact
63 ÷ 9 = 7
Use this fact to work out
126 ÷ 9 = 252 ÷ 7 =
Prove It
What goes in the missing box?
6 ☐ x 4 = 512
Prove it.
How close can you get?
☐ ☐ ☐ x 7
Using the digits 3, 4 and 6 in the calculation above how close can you get to 4500? What is the largest product? What is the smallest product?</td><td>Use a fact
3 x 75 = 225
Use this fact to work out
450 ÷ 6 =
225 ÷ 0.6 =
To multiply by 25 you multiply by 100 and then divide by 4. Use this strategy to solve
48 x 25 78 x 25
4.6 x 25
Prove It
What goes in the missing box?
12 ☐ 3 ÷ 6 = 212 12 ☐ 3 ÷ 7 = 212
22 ☐ 3 ÷ 7 = 321 r 6 323 x ☐ 1 = 13243</td><td>Use a fact
0.7 x 8 = 5.6. How can you use this fact to solve these calculations?
0.7 x 0.08 = 0.56 ÷ 8 =
Prove It
What goes in the missing box?
18 ☐ 4 ÷ 12 = 157; 38 ☐ 5 ÷ 18 = 212.5
33 ☐ 2 ÷ 8 = 421.5; 38 x ☐ .7 = 178.6
Can you find? Can you find the smallest number that can be added to or subtracted from 87.6 to make it exactly divisible by 8/7/18?
Which is correct? Which of these number sentences is correct? 3 + 6 x 2 =15;
6 x 5 – 7 x 4 = 92; 8 x 20 ÷ 4 x 3 = 37</td></tr>
</table>

NUMBER: Multiplication and Division (NMD - 5 weeks)

Derive and Recall x÷	Derive and Recall x÷	**recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables** **Multiply by 3** **Divide by 3** **The 3 times table** **Multiply by 4** **Divide by 4** **The 4 times table** **Multiply by 8** **Divide by 8** **The 8 times table** **Related facts** Multiply seven by three; what is four multiplied by nine? Etc. Circle three numbers that add to make a multiple of 4 11 12 13 14 15 16 17 18 19 Leila puts 4 seeds in each of her pots. She uses 6 pots and has 1 seed left over. How many seeds did she start with? At Christmas, there are 49 chocolates in a tin and Tim shares them between himself and 7 other members of the family. How many chocolates will each person 1 2	**recall multiplication and division facts for multiplication tables up to 12 × 12** **Multiply and divide by 6** **6 times table and division facts** **Multiply and divide by 9** **9 times table and division facts** **Multiply and divide by 7** **7 times table and division facts** **11 and 12 times table and division facts** Children should be able to continue to practise recalling and using multiplication tables and related division facts to aid fluency. One orange costs eleven pence, how much will three oranges cost? 1 2 3 4 5 6 7 8 9		
	NCETM Reasoning	**Missing numbers** 24 = ☐ x ☐ Which pairs of numbers could be written in the boxes? **Making links** Cards come in packs of 4. How many packs do I need to buy to get 32 cards?	**Missing numbers** 72 = ☐ x ☐ Which pairs of numbers could be written in the boxes? **Making links** Eggs are bought in boxes of 12. I need 140 eggs; how many boxes will I need to buy? **Making links** 4 × 6 = 24 How does this fact help you to solve these calculations? 40 x 6 = 20 x 6 = 24 x 6 =	**Missing numbers** 6 x 0.9 = ☐ x 0.03 6 x 0.04 = 0.008 x ☐ Which numbers could be written in the boxes? **Making links** Apples weigh about 170 g each. How many apples would you expect to get in a 2 kg bag?	**Missing numbers** 2.4 ÷ 0.3 = ☐ x 1.25 Which number could be written in the box?

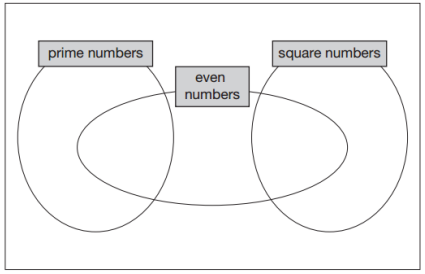
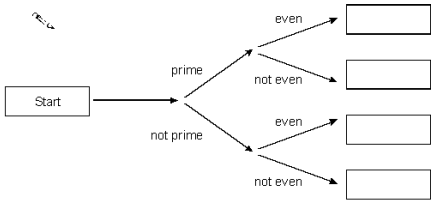
NUMBER: Multiplication and Division (NMD - 5 weeks)

Checking	Checking	**estimate the answer to a calculation and use inverse operations to check answers** Matthew sys if he has 75 sweets shared by 5 friends, they will each have 17 sweets. Write down a multiplication questions that you could do to check this?		**use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy** Use rounding to approximate and check e.g. 2593 + 6278 must be more than 2500 + 6200 2403 – 1998 is about 2400 – 2000 Write approximate answers to calculations, e.g. write an approximate answer for 516 ÷ (15 + 36)	**use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy** Children should be able to: Give the best approximation to work out 4.4 × 18.6 and explain why. Answer questions such as: roughly, what answer do you expect to get? How did you arrive at that estimate? Do you expect your answer to be greater or less than your estimate? Why? 1
	NCETM Reasoning	**Use the inverse** Use the inverse to check if the following calculations are correct 23 x 4 = 82 117 ÷ 9 = 14 **Size of an answer** Will the answer to the following calculations be greater or less than 80 23 x 3= 32 x 3 = 42 x 3 = 36 x 2=	**Use the inverse** Use the inverse to check if the following calculations are correct: 23 x 4 = 92 117 ÷ 9 = 14 **Size of an answer** Will the answer to the following calculations be greater or less than 300 152 x 2= 78 x 3 = 87 x 3 = 4 x 74 =	**Use the inverse** Use the inverse to check if the following calculations are correct: 4321 x 12 = 51852 507 ÷ 9 = 4563 **Size of an answer** The product of a two digit and three digit number is approximately 6500. What could the numbers be?	**Use the inverse** Use the inverse to check if the following calculations are correct: 2346 x 46 = 332796 27.74 ÷ 19 = 1.46 **Size of an answer** The product of a single digit number and a number with two decimal places is 21.34 What could the numbers be?

NUMBER: Multiplication and Division (NMD - 5 weeks)

Number Types	Multiples and factors	***(Year 4 objective) Begin to recognise and use factor pairs and commutativity in mental calculations within the multiplication facts that they have learnt*** See Yr 4 for examples	**recognise and use factor pairs and commutativity in mental calculations** **Multiply 3 numbers** **Factor pairs** Children should be able to write statements about the equality of expressions (e.g. use the distributive law 39 × 7 = 30 × 7 + 9 × 7 and associative law (2 × 3) × 4 = 2 × (3 × 4). They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations e.g. 2 x 6 x 5 = 10 x 6. *e.g. Understand and use when appropriate the principles (but not the names) of the commutative, associative and distributive laws as they apply to multiplication:* *Example of commutative law 8 × 15 = 15 × 8* *Example of associative law 6 × 15 = 6 × (5 × 3) = (6 × 5) × 3 = 30 × 3 = 90* *Example of distributive law 18 × 5 = (10 + 8) × 5 = (10 × 5) + (8 × 5) = 50 + 40 = 90*	**identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers** **Multiples** **Factors** **Common factors** Use the vocabulary factor, multiple and product. Identify all the factors of a given number; for example, the factors of 20 are 1, 2, 4, 5, 10 and 20. Answer questions such as: • Find some numbers that have a factor of 4 and a factor of 5. What do you notice? • My age is a multiple of 8. Next year my age will be a multiple of 7. How old am I?	**identify common factors and common multiples** **Common factors** **Common multiples** How can you use factors to multiply 17 by 12? Start from a two-digit number with at least six factors, e.g. 72. How many different multiplication and division facts can you make using what you know about 72? What facts involving decimals can you derive? What if you started with 7.2? What about 0.72? use their knowledge of the order of operations to carry out calculations involving the four operations Find answers to calculations such as 5.6 □ = 0.7 or 3 × 0.6, drawing on their knowledge of number facts and understanding of place value. They should be able to approximate, use inverses and apply tests of divisibility to check their results. 1 2 3 4 5
	Squares and Cubes			**recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)** **Square numbers** **Cube numbers** Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes Use knowledge of multiplication facts to derive quickly squares of numbers to 12 × 12 and the corresponding squares of multiples of 10. They should be able to answer problems such as: Tell me how to work out the area of a piece of cardboard with dimensions 30 cm by 30 cm Find two square numbers that total 45 1 2 3 4	***(Year 5 objective) recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)*** **Square and cube numbers** *Children should know the square numbers up to 12 × 12 and derive the corresponding squares of multiples of 10, for example 80 × 80 = 6400.* *e.g. 3^2 + 10 =*

NUMBER: Multiplication and Division (NMD - 5 weeks)

Number Types	Prime 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** **Prime numbers** Recognise that numbers with only two factors are prime numbers and can apply their knowledge of multiples and tests of divisibility to identify the prime numbers less than 100. Explain that 73 children can only be organised as 1 group of 73 or 73 groups of 1, whereas 44 children could be organised as 1 group of 44, 2 groups of 22, 4 groups of 11, 11 groups of 4, 22 groups of 2 or 44 groups of 1. Explore the pattern of primes on a 100-square, explaining why there will never be a prime number in the tenth column and the fourth column Use the numbers to complete the sentences below. You can use a number more than once 5, 6, 7, 8, 9, 10 ☐ and ☐ are factors of 20 ☐ and ☐ are prime numbers ☐ and ☐ are multiples of 3 1 2 3 4 5 6 7 8 9	**identify prime numbers** **Primes** *Write each number in its correct place in the diagram* *16 17 18 19*  *Use the sorting machine below to decide where each of the following numbers will go –* ***17, 15, 72***  1
	NCETM Reasoning	**True or false?** All the numbers in the two times table are even. There are no numbers in the three times table that are also in the two times table.	**Always, sometimes, never?** Is it always, sometimes or never true that an even number that is divisible by 3 is also divisible by 6. Is it always, sometimes or never true that the sum of four even numbers is divisible by 4. **Making links** How can you use factor pairs to solve this calculation? 13 x 12 (13 x 3 x 4, 13 x 3 x 2 x 2, 13 x 2 x 6)	**Always, sometimes, never?** Is it always, sometimes or never true that multiplying a number always makes it bigger Is it always, sometimes or never true that prime numbers are odd. Is it always, sometimes or never true that when you multiply a whole number by 9, the sum of its digits is also a multiple of 9 Is it always, sometimes or never true that a square number has an even number of factors?	**Always, sometimes, never?** Is it always, sometimes or never true that dividing a whole number by a half makes the answer twice as big? Is it always, sometimes or never true that when you square an even number, the result is divisible by 4 Is it always, sometimes or never true that multiples of 7 are 1 more or 1 less than prime numbers?

NUMBER: Multiplication and Division (NMD - 5 weeks)

Solving Problems (including Ratio and Proportion – Year 6)

Solving Problems

solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects

Scaling

How many ways

Miss West needs 28 paper cups. She has to buy them in packs of 6

How many packs does she have to buy?

Tom is laying tiles. He has 84 tiles; how many complete rows and columns could he make?

Fill in the missing digits in these calculations

2□	2□	1□4
x 8	x □	x □
176	112	736

1 2 3 4 5 6 7

solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Correspondence problems

Children should be able to solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

e.g. 185 people go to the school concert. They pay £l.35 each. How much ticket money is collected?

Programmes cost 15p each. Selling programmes raises £12.30. How many programmes are sold?

solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates

Cream cheese costs £3.60 per kilogram Bobby spends 90p on a pot of cream cheese. How much cheese does Bobby buy?

Here are the ingredients for chocolate ice cream

cream	400 ml
milk	500 ml
egg yolks	4
chocolate	120 g
sugar	100 g

Stefan only has 300ml of cream, how much chocolate should he use?

solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

1 2 3 4 5 6

Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

1 2 3 4

solve problems involving multiplication and division

Division to solve problems

solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

Introducing the ratio symbol

Calculating ratio

Ratio and proportion problems

Children recognise proportionality in context when relations between quantities are in the same ratio, such as recipes and similar shapes.

Children consolidate their understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems. They might use notation such as ***a:b*** to record their work.

This map has a scale of 1 cm to 6 km. The road from Ridlington to Carborough measured on the map is 6.6 cm long.

What is the length of the road in kilometres?

Here is a recipe for pasta sauce: -

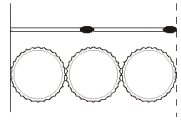
Sam makes the pasta sauce using 900 g of tomatoes.

What weight of onions should he use? What weight of mushrooms?

A recipe for 3 portions requires 150 g flour and 120 g sugar.

Desi's solution to a problem says that for 2 portions he needs 80 g flour and 100 g sugar.

What might Desi have done wrong? Work out the correct answer.

Solving Problems (including Ratio and Proportion – Year 6)	Solving problems				Purple paint is made by mixing red and blue paint  How many tins of red paint are needed to make 25 tins of purple? Two matchsticks have the same length as three bottle tops -  How many bottle tops are same length as 50 matchsticks? **solve problems involving similar shapes where the scale factor is known or can be found** **Using scale factors** **Calculating scale factors** Solve simple problems involving direct proportion by scaling quantities up or down, for example: Two rulers cost 80 pence. How much do three rulers cost? Use the vocabulary of ratio and proportion to describe the relationships between two quantities solving problems such as: Two letters have a total weight of 120 grams. One letter weighs twice as much as the other. Write the weight of the heavier letter. The distance from A to B is three times as far as from B to C. The distance from A to C is 60 centimetres. Calculate the distance from A to B.  1 2 3 4 5

Solving Problems (including Ratio and Proportion – Year 6)	NCETM Reasoning				**What else do you know?** In a flower bed a gardener plants 3 red bulbs for every 4 white bulbs. How many red and white bulbs might he plant? If she has 100 white bulbs, how many red bulbs does she need to buy? If she has 75 red bulbs, how many white bulbs does she need to buy? If she wants to plant 140 bulbs altogether, how many of each colour should she buy? **Do, then explain** Purple paint is made from read and blue paint in the ratio of 3:5. To make 40 litres of purple paint how much would I need of each colour? Explain your thinking. **Unpicking** A recipe needs to include three times as much apple than peach. The total weight of apples and peaches in a recipe is 700 grams. How much apple do I need?