Year 4 Curriculum Overview

Number - number and place value

Pupils should be taught to:

- count in multiples of 6, 7, 9, 25 and 1,000
- find 1,000 more or less than a given number
- count backwards through 0 to include negative numbers
- recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)
- order and compare numbers beyond 1,000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1,000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value

READY TO PROGRESS CRITERIA

Year 3 conceptual prerequesite	Year 4 ready-to-progress criteria	Future applications
Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10.	4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.	Solve multiplication problems that involve a scaling structure, such as '10 times as long'.
Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.	4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning.	Compare and order numbers. Add and subtract using mental and formal written methods.
Reason about the location of any threedigit number in the linear number system, including identifying the previous and next multiple of 10 and 100.	4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding	Compare and order numbers. Estimate and approximate to the nearest multiple of 1,000, 100 or 10.
Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	Read scales on graphs and measuring instruments.

SMALL STEPS

Autumn - Place Value		
White Rose Maths		NCETM
Represent numbers to 1000 Hundreds tens and ones number line to 1000 round to the nearest 10 round to the nearest 100 Count In thousands Number line to 10000	**Begin by encouraging spending time on numbers within 1000 to ensure the children are secure on this knowledge before moving into 10000. Using equipment or digital manipulatives may help children increase their understanding.**	1.22 composition and calculation: 1000 and four digit numbers

Find 1, 10, 100 more or less 1000 more or less compare numbers Order numbers Round to the nearest 1000 Count in 25s Negative numbers **(leave to year 5)** Roman numerals ***(leave to year 5)***		

Some of the ready to progress criteria will be covered in other areas - fluency sessions; statistics; measures; etc.

Stem Sentences

To compare two numbers, we compare digits with the same place value, starting with the largest place value digit.	Generalisation	

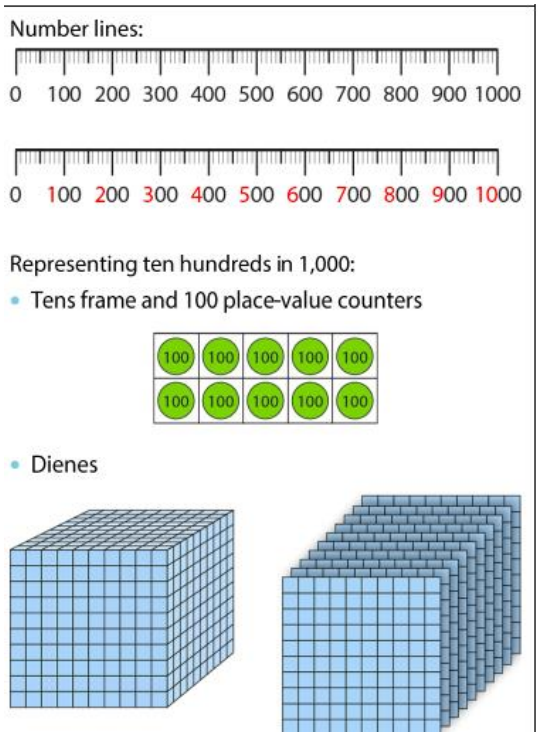
___ hundred plus ___ hundred is equal to ___ hundred. We know there are ten hundreds in one thousand, so ___ hundred plus ___ hundred is equal to ___ thousand ___ hundred.	Structure	Six hundred plus five hundred is equal to eleven hundred. We know there are ten hundreds in one thousand, so six hundred plus five hundred is equal to one thousand one hundred.
We know there are ten hundreds in one thousand, so ___ thousand ___ hundred is equal to ___ hundred. ___ hundred minus ___ hundred is equal to ___ hundred.		We know there are ten hundreds in one thousand, so one thousand one hundred is equal to eleven hundred. eleven hundred minus six hundred is equal to five hundred.

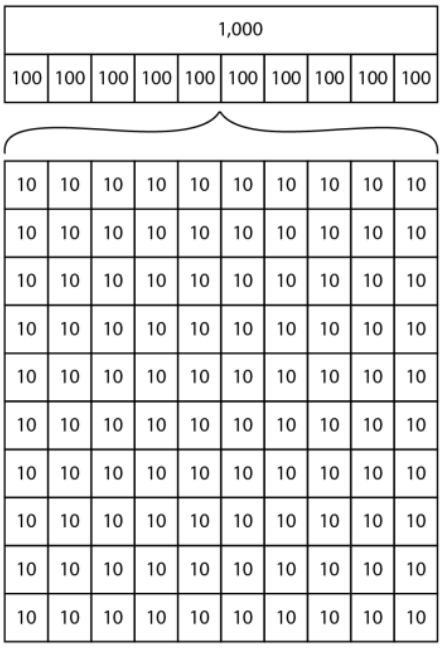
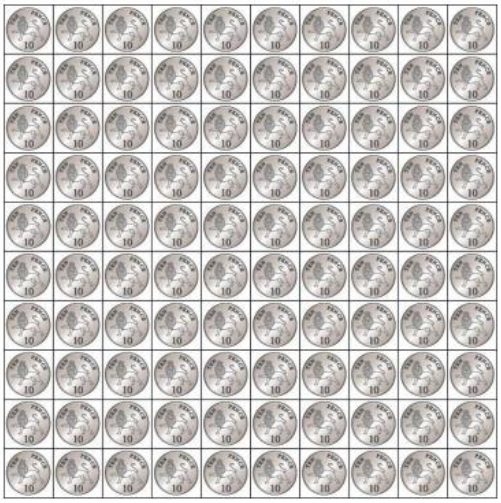
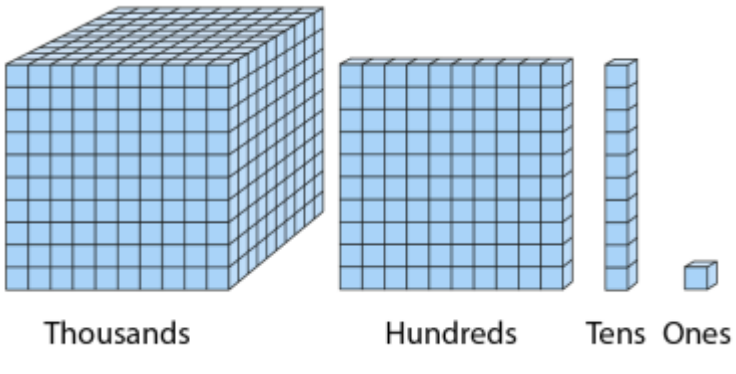
Addend plus addend equals sum. Sum equals addend plus addend.	Language	

Rounding		
___ is between ___ and ___. ___ is the previous multiple of ten/ hundred/ thousand. ___ is the next multiple of ten/ hundred/ thousand.	Structure/ language	43 is between 40 and 50. 40 is the previous multiple of ten. 50 is the next multiple of ten.

'a' is between ___ and ___. The previous multiple of one ten/ hundred/ thousand is ___. The next multiple of one ten/ hundred/ thousand is ___. 'a' is nearest to ___ ten/ hundred/ thousand. 'a' is ___ when rounded to the nearest ten/ hundred/ thousand.	Structure	1321 is between 1000 and 2000. The previous multiple of one thousand is 1000. The next multiple of one thousand is 2000. 1321 is nearest to 1000. 1321 is 1000 when rounded to the nearest thousand.

When rounding to the nearest ___, if the ___ digit is 4 or less we round down. If the ___ digit is 5 or more, we round up.	Generalisation	When rounding to the nearest thousand, if the hundreds digit is 4 or less we round down. If the hundreds digit is 5 or more, we round up.
___ is greater/ less than ___ so ___ thousand is greater/ less than ___ thousand.	Structure	54 < 58 5400 < 5800 58 is greater than 54, so 58 hundreds (5thousand 8hundred) is greater than 54 hundreds.

There are ten hundreds in one thousand	

There are one hundred tens in one thousand	Bar model: 
There are one hundred tens in one thousand	Additive and multiplicative equations: $1{,}000 = 10 \times 100$ $1{,}000 = 100 \times 10$ $1{,}000 \div 100 = 10$ $1{,}000 \div 10 = 100$ Representing 100 tens in 1,000: • Coins 
There are one hundred tens in one thousand	

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- Learn it as a fact by repeating the generalised sentences:
  - ***'There are ten hundreds in one thousand.'***
  - ***'There are one hundred tens in one thousand.'***
  - ***'There are one thousand ones in one thousand.'***

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Decoding the digits in 1,000:

1,000 is **1,000** (1 thousand)

1,000 is **1,000** (10 hundreds)

1,000 is **1,000** (100 tens)

1,000 is **1,000** (1,000 ones)

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Children can use part–part–whole models to help them with unitising. The following stem sentences can be used to support the children with writing the solutions:

- ***'___ hundred plus ___ hundred is equal to ___ hundred.'***
- ***'We know there are ten hundreds in one thousand, so ___ hundred plus ___ hundred is equal to ___ thousand ___ hundred.'***

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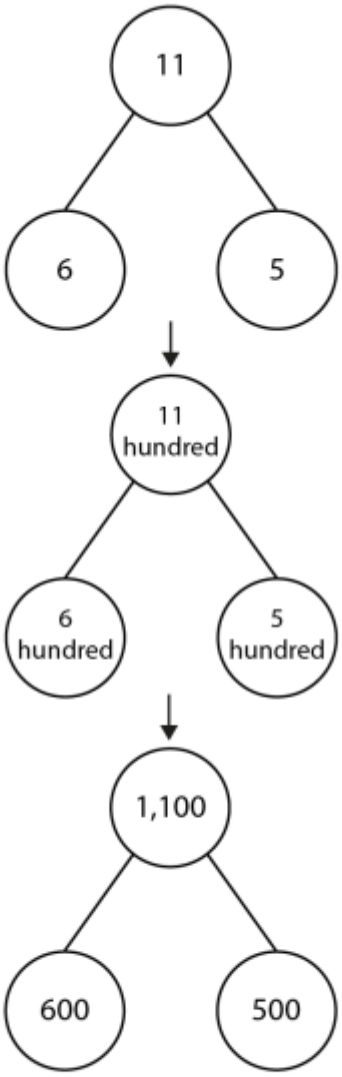
Part–part–whole models:



- *'Six hundred plus five hundred is equal to eleven hundred.'*
- *'We know there are ten hundreds in one thousand, so six hundred plus five hundred is equal to one thousand one hundred.'*

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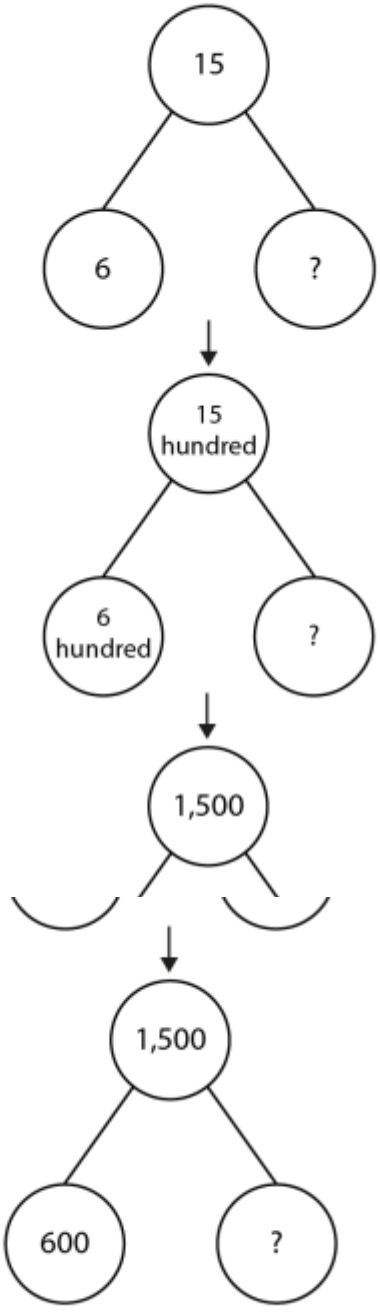
- *'We know there are ten hundreds in one thousand, so ___ thousand ___ hundred is equal to ___ hundred.'*
- *'___ hundred minus ___ hundred is equal to ___ hundred.'*

- Bar model

1,500	
1,000	500
?	600

- Part–part–whole models



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<td>Rounding</td>
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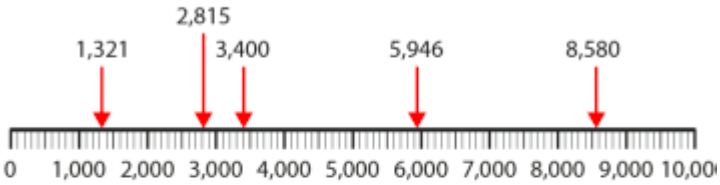
‘a is between ___ and ___.’
‘The previous multiple of one thousand is ___. The next multiple of one thousand is ___.’
‘a is nearest to ___ thousand.’
‘a is ___ when rounded to the nearest thousand.’

Repeat the process for numbers b, c and d, using the stem sentences

Rounding to the nearest multiple of 1,000:
previous multiple of 1,000 | next multiple of 1,000
1,000 < a < 2,000

Rounding to the nearest multiple of 1,000:
‘Look at the numbers the arrows point to. Write the mutiples of one thousand that come immediately before and after each number. Circle the multiple of one thousand each number is closest to.’


previous multiple of 1,000 | next multiple of 1,000
1,000 < 1,321 < 2,000

‘One thousand three hundred and twenty-one is between one thousand and two thousand.’
‘The previous multiple of one thousand is one thousand. The next multiple of one thousand is two thousand.’
‘One thousand three hundred and twenty-one is nearest to one thousand.’

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<td>When rounding to the nearest 1000 if the hundreds digit is 4 or less we round down. If the hundreds digit is five or more round up.</td>
<td>Use with obvious amendments for rounding to nearest ten and hundred as well - as set out below:</td>
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	• *'When rounding to the nearest ten, the ones digit is the digit to consider. If it is four or less we round down. If it is five or more we round up.'* • *'When rounding to the nearest hundred, the tens digit is the digit to consider. If it is four or less we round down. If it is five or more we round up.'* • *'When rounding to the nearest thousand, the hundreds digit is the digit to consider. If it is four or less we round down. If it is five or more we round up.'*	

Year 4 Curriculum Overview

Number - addition and subtraction

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

READY TO PROGRESS CRITERIA

Year 3 conceptual prerequesite	Year 4 ready-to-progress criteria	Future applications
Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10), for example: 80 + 60 =140 140 - 60 = 80	4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: 8 + 6 = 14 and 14 - 8 = 6 So 800 + 600 = 1400 1400 - 800 = 600	Apply place-value knowledge to known additive and multiplicative number facts, extending to a whole number of larger powers of ten and powers of ten smaller than one, for example: 800 000 + 600 000 = 1 400 000 1 400 000 - 600 00 = 800 000

SMALL STEPS

Autumn - addition & subtraction	
White Rose Maths	NCETM
Add and subtract ones tens hundreds and thousands Are two 3 digit numbers not Crossing 10 or 100 Add two 4 digit numbers no exchange Add two 3 digit numbers Crossing 10 or 100 Add two 4-digit numbers one exchange Add two 4 digit numbers more than 1 exchange Subtract a 3-digit number from a 3-digit number no exchange Subtract two 4 digit numbers no exchange Subtract a 3-digit number from a 3-digit number no exchange Subtract two 4-digit numbers 1 Exchange Subtract two 4-digit numbers more than one exchange Efficient subtraction Estimate answers Checking strategies	1.22 Composition and calculation: 1000 and four digit numbers

STEM SENTENCES

Enigma-Stem-Sentence-bank-Number-Addition-Subtraction.pdf

In column addition, we start at the right hand side.	Generalisation	
If the column sum is equal to ten or more, we must regroup.	Generalisation	

Year 4 Curriculum Overview

Number - multiplication and division

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

READY TO PROGRESS CRITERIA

Year 3 conceptual prerequesite	Year 4 ready-to-progress criteria	Future applications
Recall multiplication and division facts in the 5 and 10, and 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.	4NF-1 Recall multiplication and division facts up to 12 x 12, and recognise products in multiplication tables as multiples of the corresponding number.	Use multiplication facts during application of formal written methods. Use division facts during application of formal written methods.
Use known division facts to solve division problems.	4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, for example: 74 ÷ 9 = 8 r2 and interpret remainders appropriately according to the context.	Correctly represent and interpret remainders when using short and long division.
Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10), for example: 30 x 4 = 120 120 ÷ 4 = 30	4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: 3 x 4 =12 and 12 ÷ 4 = 3 So 300 x 4 =1200 and 1200 ÷ 4 = 300	Apply place-value knowledge to known additive and multiplicative number facts, extending to a whole number of larger powers of ten and powers of ten smaller than one, for example: 0.03 x 4 = 0.12 0.12 ÷ 4 = 0.03
Multiply two-digit numbers by 10, and divide three-digit multiples of 10 by 10.	4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size	Convert between different metric units of measure. Apply multiplication and division by 10 and 100 to calculations involving decimals, for example: 0.03 x 100 = 3 3 ÷ 100 = 0.03
Understand the inverse relationship between multiplication and division. Write and use multiplication table facts with the factors presented in either order.	4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	Recognise and apply the structures of multiplication and division to a variety of contexts.
	4MD-3 Understand and apply the distributive property of multiplication.	Recognise when to use and apply the distributive property of multiplication in a variety of contexts.

SMALL STEPS

Autumn: Multiplication and Division		
White Rose Maths		NCETM
• Multiply by 10 • Multiply by 100 • Divide by 10 • Divide by 100 • Multiply by 10 • Divide by 10 • Multiply and divide by 6 • 6 times-table and division facts • The 3 times-table • Multiply and divide by 9 • 9 times-table and division facts • Multiply and divide by 7 • 7 times-table and division facts • Divide 2-digits by 1 digit (1) • Divide 2-digits by 1 digit (2)	A **lot of this should be covered in year 3 however there may be significant gaps this coming academic year 21 to 22 therefore it is important to cover these and ensure the children understand them.** **Multiply and divide by powers of 10 can be covered in fluency sessions and should be repeated over the year.** **It is vital to have plenty of practice of times table facts. It will help children with their future learning in many areas of mathematics.**	2.10 Connecting multiplication and division, and the distributive law 2.11 Times tables: 11 and 12 **Segments 2.10 and 2.11 complete the learning of times tables which began in year 2, before moving on to strategies for multiplication and division with larger numbers.** **If necessary please refer to the year 3 times tables sections of the ncetm program programme of study to recap previous learning or things that the children are not confident in.** **Work should continue throughout the year on maintaining fluency in times tables facts prior to the Year 4 multiplication tables check.**

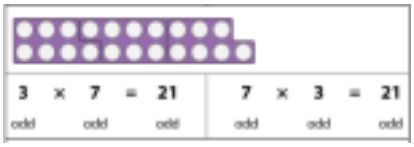
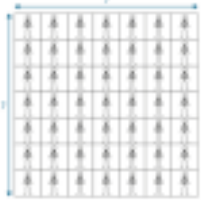
Spring: Multiplication and Division		
White Rose Maths		NCETM
• 11 and 12 times-table • Multiply 3 numbers • Factor pairs • Efficient multiplication • Written methods Multiply 2-digits by 1-digit Divide 2-digits by 1-digit	**Children need to spend time exploring different representations of multiplication with no exchange before moving on. They need to use manipulatives to support understanding and make links with repeated addition.** **Similarly with division, children will first need to explore examples with no exchange or remainders, making links to the inverse.**	2.12 division with remainders 2.13 calculation multiplying and dividing by 10 or 100 2.14 multiplication: partitioning leading to short multiplication 2.15 division: partitioning leading to short division

STEM SENTENCES

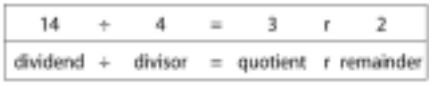
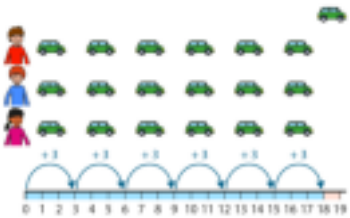
Enigma-Stem-Sentence-bank-multiplication-and-division-with-links.pdf

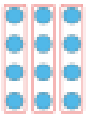
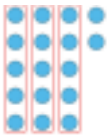
A COLLECTION OF STEM SENTENCES FROM ENIGMA MATHS HUB BASED ON THE NCETM PD MATERIALS

When the divisor is equal to one, the quotient id equal to the dividend.	**Generalisation**	$2 \div 1 = 2$ $5 \div 1 = 5$ $10 \div 1 = 10$
For a number to be divisible by three, the sum of the digits of the number must be divisible by three.	**Generalisation**	e.g. 453 4 + 5 + 3 = 12 m (12 is divisuble by 3 1 + 2 = 3 (Keep adding and if you get 3, 6 or 9 then it is divisible by 3)

For a number to be divisible by three, it must be divisible by 3 and divisible by 2 (even)	**Generalisation**	
For a number to be divisible by nine, the sum of the digits of the number must be divisible by nine.	**Generalisation**	e.g. 63 6 + 3 = 9 567 5 + 6 + 7 = 18 1 + 8 = 9
Odd and Even factors		
Odd factor x odd factor = odd product	**Generalisation .**	
Even factor x odd factor = even product	**Generalisation**	
Odd factor x even factor = even product.	**Generalisation**	
Even factor x even factor = even product.	**Generalisation**	
Square Numbers		
We can write this as ___ times __ is equal to ___. Both factors are the same, so we can also write this as __ squared is equal to ___	Structure	There are seven netball teams, each with seven players.  We can write this as 7 times 7 is equal to 49. 7 x 7 = 49 Both facotrs are the same, so we can also write this as 7 squared is equal to 49 $7^2 = 49$ 

When both factors have the same value, the product is called a square number. **Square numbers can be represented by square shaped arrays.**	**Generalisation**	

Division with remainders.		
___ is divided into groups of __ . There are __ groups with a remainder of ___	Structure	 14 is divided into groups of 5. There are 2 groups of 5 with a remainder of 4. 14 = 5 + 5 + 4 14 = 2 x 5 + 4 The '14' represents the total number of counters The '2 x 5' represents 2 groups of 5 The '4' represents the remaining counters.
____ divided into equal groups of __ is equal to ___, with a remainder of ___.	Structure	A baker has fourteen cakes. He sells cakes in boxes of four. How can he box the cakes?  Fourteen divided into equal groups of four is equal to three, with a remainder of two. So, the baker can make three boxes of cakes with two let over.
Dividend ÷ divisor = quotient r remainder	**Generalisation**	
_____ divided between ____ is equal to ___ each with a remainder of _____.	Language / structure.	Partitive division  Nineteen divided between three is equal to six each with a remainder of one.

The largest multiple of ____ that is less than or equal to ___ is ____.	Language / structure.	$0 \times 5 = 0$ $1 \times 5 = 5$ $2 \times 5 = 10$ $\mathbf{3 \times 5 = 15}$ $4 \times 5 = 20$ The largest multiple of five that is less then or equal to nineteen if fifteen.
The remainder is always less than the divisor.	**Generalisation**	
___ is a multiple of __, so when it is divided into gropus of __ there are none left over: there is no remainder.	Structure	 12 is a multiple of 4, so when it is divided into gropus of 4 there are none left over: there is no remainder.
___ **is not** multiple of __, so when it is divided into gropus of __ there are some left over: there is a remainder.	Structure	 17 **is not** multiple of 5, so when it is divided into gropus of 5 there are some left over: there is a remainder.

A COLLECTION OF STEM SENTENCES FROM ENIGMA MATHS HUB BASED ON THE NCETM PD MATERIALS

If the dividend is a multiple of the divisor there is no remainder. If the dividend is not a multiple of the divisor. There is a remainder.	**Language / Generalisation**	
Connecting multiplication and division.		
The product in the multiplication equation has the same value as the dividend in the matching division equation.	Structure / language/ generalisation.	a x b = **c** **c** ÷ a = b
The factors in the multiplication equation have the same values as the divisor and the quotient in the matching division equation.	Structure / language/ generalisation.	a x b = **c** **c** ÷ a = b
Distributive law		

___ is equal to ___ plus ___ so ___ times ___ is equal to ___ times ___ plus ___ times ___	Structure	
Partition __ x __ into __ x___ and __x___		Derive multiplication facts beyond known times tables. Partition 7 x 13 into 7 x 10 and 7 x 3 7 x 13 = 7 x 10 + 7 x 3 = 70 + 21 = 91
__ x __ = __ x__ add __ x __ OR __ x __ = __ x __ subtract __ x __	Structure	Working flexibly 6 x 18 can be partitioned into 6 x 10 add 6 x 8 Or 6 x 20 subtract 6 x 2.
Multiplying and dividing by 10, 100 or 1,000		
For every one pencil of Emily's Jamie has ten. ___ multiplied by ten is equal to ___ __ is ten times the size of ___		Emily has three pencils; Jamie has ten times as many. How many pencils does Jamie have? For every one pencil of Emily's Jamie has ten. Think of 3 and make it ten times the size. Think of 3 and multiply by ten. 3 multiplied by ten is equal to 30 30 is ten times the size of 3 30 pencils is ten times as many as 3 pencils. Jamie has 30 pencils.

To find ten times as many , multiply by ten. **All multiples of ten have a ones digit of zero.**	**Generalisation**	
We had ___ ones. We now have ___ tens.	Structure / language	
To multiply a whole number by ten, place a zero after the final digit of that number.	**Generalisation**	It is important to use the phrase 'place a zero' rather than 'add a zero.' The placed zero is a place value holder.
___ is ten times as many as ___ Emily has ___ pencils	Structure.	Jamie has 30 pencils; he has ten times as many as Emily. How many pencils does Emily have? 30 is tens times as many as 3 Emily has 3 pencils
To find the inverse of ten times as many, divide by ten. **To divide a multiple of ten by ten, remove the zero from the ones place.**	**Generalisation**	
___ multipled by one hundred is equal to ___ ___ is one hundred times the size of _____		I have 15, This is one ten and five ones. How much is one hundred times this amount? 15 multipled by one hundred is equal to 1500 1500 is one hundred times the size of 15
All multiples of 100 have both a tens and ones digit of zero.	**Generalisation**	
To multiply a whole number by a hundred, place two zeros after the final digit of that number.	**Generalisation**	It is important to use the phrase 'place a zero' rather than 'add a zero.' The placed zero is a place value holder.
____ divided by one hunderd is equal to ____	Structure	200 divided by one hunderd is eqaul to 2 200 ÷ 100 = 2

Multiplying by one hundred is equivalent to multiplying by ten, and then multiply by ten again.	**Generalisation**	
Dividing by one hundred is equivalent to dividing by ten, and then divide by ten again.	**Generalisation**	

If one factor is made ten times the size, the product will be ten times the size.	**Generalisation**	
If the dividend is made ten times the size, the quotient will be ten times the size.	**Generalisation**	
If one factor is made one hundred times the size, the product will be one hundred times the size.	**Generalisation**	
If the dividend is made one hundred times the size, the quotient will be one hundred times the size.	**Generalisation**	
To multiply multiples of ten, one hundred or one thousand, remove the zeros, find the product of the single digits numbers then replace the zeros.	**Generalisation**	
Short multiplication		
Partition ___ into ___ and ___ Multiply the ones ___ x ___ Multiple the tens ___ x ___	Structure	Partition 34 into 30 and 4 Multiply the ones ___ x ___ Multiple the tens ___ x ___

___ hundreds x ___ = ___ hundreds ___ tens x ___ = ___ tens ___ ones x ___ = ____ ones	Language / structure.	
Partition ___ into ___ and ___ ___ x ___ ones = ____ ones Write the ___ in the ones column (and __ in the tens column) ___ x ___ tens = ____ tens Write the ___ in the tens column (and __ in the hundreds column)	Structure	

____ x ____ ones = ___ ones + ___ tens ___ x ___ tens = ____ tens + ___ hundreds.	Structure	
If there are ten or more ones, we must regroup the ones into tens and ones. **If there are ten or more tens, we must regroup the tens into hundreds and tens.**	**Generalisation**	

____ ____s are ____ *(writing down ___ below the tens column and ___ in the ones colum.)* ___ ____s are _____, plus ____ is _____ *(write down ___ below the hundred column and +___ in the tens colum)* ____ ____s are _____; plus ____ is _____ *(writing down ____ in the thousands column and ____ in the hundreds column)*	Language and structure.	Four sevens are twenty-eight (writing down 2 below the tens column and 8 in the ones colum. Four sixes are twenty four, plus two is twenty six (write down 2 below the hundred column and 6 in the tens colum) Four threes are twelve; plus two is fourteen (writing down 1 in the thousands column and 4 in the hundreds column)
____ ones x ___ = _____ ones S0 ___ hundredths x ___ = ____		
In short multiplication, if there is a decimal point in the number being multiplied put a decimal point in the product line, line it up with the decimal point in the number being multiplied.	**Generalisation**	

Short Division		
____ tens divided by ___ is equal to ___tens each. ____ ones divided by ___ is equal to ___ one each. ___ tens and ____ ones make _____ each	Structure	84 ÷4 = 21 Eight tens divided by four is equal to two tens each. Four ones divided by four is equal to one one each. ___ tens and ____ ones make _____ each
If dividing the tens gives a remaider of one or more tens, we must exchange the remaing tens	**Generalisation**	

for ones.		
____ tens are one ten each. That's ____. ____ tens are two tens each. That's _____. There are ____tens left over. Exchange the remaining tens for ones. ____ tens and ___ one is equal to _____ ones. _____ ones divided between ____ is equal to ____ ones each. ____ tens and ____ ones makes ____ Each child gets _____ marbles.	Language / structure	81 ÷ 3 = Three tens are one ten each. That's thirty. Six tens are two tens each. That's sixty. There are two tens left over. Exchange the remaining tens for ones: Two tens and one one is equal to twenty one ones. Twenty one ones divided between three is equal to seven ones each. Add the partial quotients 2 tens and 7 ones makes 27. Each child gets twenty-seven marbles.
____ tens and ____ ones divided between ___ is equal to ____ tens and ____ one. Each child gets _____		21 ÷ 4 Eight tens and four ones divided between four is equal to two tens and one one. Each child gets twenty-ones sticks.
473 = ___ hundreds + ___ tens + ___ ones. ____ hundreds ÷ ___ = ___ **hundred(s)** r ___ hundred (s). ___ hundred(s) + ___ tens = ____ tens ___ tens ÷ ___ = ___ **tens** r ___ tens __ tens + ___ ones = ___ ones ___ ones ÷ ___ = ___ **ones r** ___ **ones** So _____ ÷ ____ = ____ r__	Language and structure.	473 = 4 hundreds + 7 tens + 3 ones. 4 hundreds ÷ 3 = **I hundred** r 1 hundred. 1 hundred + 7 tens = 17 tens 17 tens ÷ 3 = **5 tens** r 2 tens 2 tens + 3 ones = 23 ones 23 ones ÷ 3 = **7 ones r 2 ones** So 473 ÷ 3 = 157r2

If dividing the hundreds gives a remainder of one or more hundred, we must exchaneg the remaining hundreds for tens.	**Generalisation**	

Scaling		
The ____ is ___ times the length of the _____.	Structure / language	The plain ribbon is three times the length of the spotty ribbon. 5cm x 3 = 15cm The 5cm represents the length of one spotty ribbon The 3 represents the number of spotty ribbons that are equal to the length of the plain ribbon. The 15cm represents the length of three spotty ribbins. It also represents the length of the plain ribbon.
If two objects are the same length, one object is one times the length of the other.	**Generalisation**	
___ multiplied by ___ is equal to ____ ____ is ___ times the size of ____		12 multiplied by 10 is equal to 120 120 is 10 times the size of 12
___ divided by ___ is equal to ____ ____ is ___ times the size of ____		5cm is ¼ times the size of 20cm

The ___ is ___ times the mass of _____		The mass of the mother bear is four times the mass of her cub. 25kg x 4 = 100 kg The mass of the mother bear is one hundred kilograms. The mass of the cub is one quarter times the mass of his mother. 100kg x ¼ = 25kg 100 ÷ 4 = 25kg The mass of the bear cub is twenty-five kilograms.

Year 4 Curriculum Overview

Number - fractions (including decimals)

Pupils should be taught to:

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundreds
- recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- round decimals with 1 decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to 2 decimal places
- solve simple measure and money problems involving fractions and decimals to 2 decimal places

READY TO PROGRESS CRITERIA

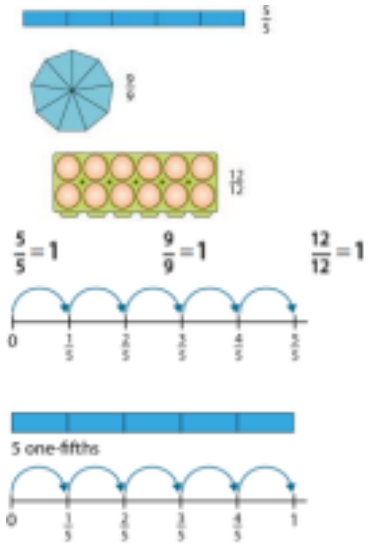
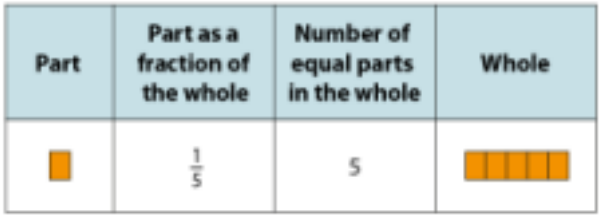
Year 3 conceptual prerequesite	Year 4 ready-to-progress criteria	Future applications
Reason about the location of fractions less than 1 in the linear number system.	4F-1 Reason about the location of mixed numbers in the linear number system.	Compare and order fractions.
Identify unit and non unit fractions.	4F-2 Convert mixed numbers to improper fractions and vice versa.	Compare and order fractions. Add and subtract fractions where calculation bridges whole numbers.
Add and subtract fractions with the same denominator, within 1 whole, for example: ⅖ + ⅖ = ⅘	4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers, for example: 7/5 + ⅘ = 11/5 3 ⅞ - 2/8 = 3 ⅝ 7 ⅖ + ⅘ = 8 ⅕ 8 ⅕ - ⅘ = 7 ⅖	

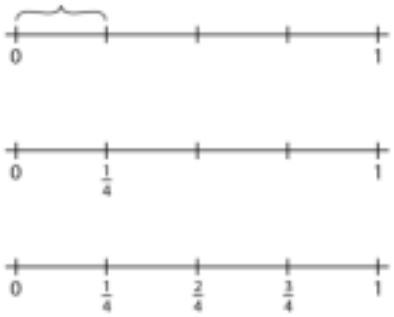
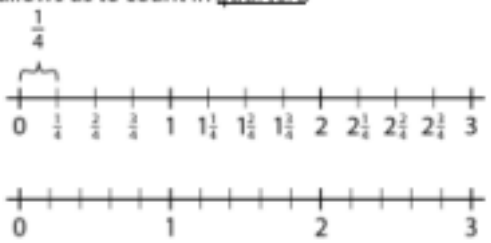
SMALL STEPS

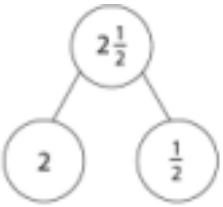
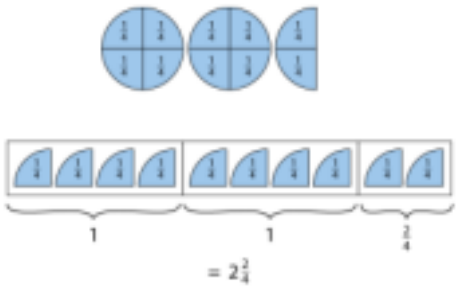
Spring: Fractions		
White Rose Maths		NCETM
Count in fractions • Fractions greater than 1 • Add 2 or more fractions • Subtract 2 fractions • Subtract from whole amounts	**The White Rose plans include a lot of revision of Year 3 learning objectives. It is important to recognise how children may not understand fractions as they come into Year 4. Therefore, it is recommended to do a lot of revision before deciding whether the children and class are ready to move on to Year 4 content.**	3.5 working across one whole: improper fractions and mixed numbers 3.6 multiplying whole numbers and fractions **Ensure to look at the fractions work set**

		for year 3 in segments 3.1 - 3.4 And look at the DFE guidance material to check children are ready to progress to Year 4 learning content.

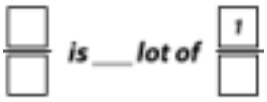
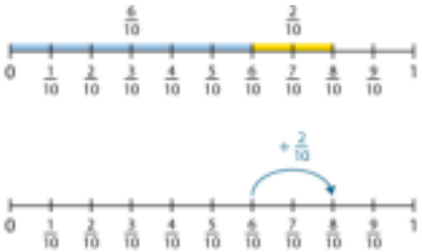
STEM SENTENCES I have left Year 3 ones in as well as useful to know what they "should" already know.
Enigma-Stem-Sentence-bank-Fractions-with-links.pdf

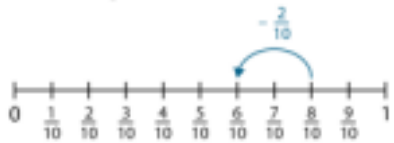
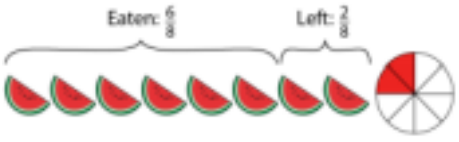
Year 3: 3.3 **2:7**	The denominator is ___ because the whole has been divided into ___ equal parts. The numerator is ___ because ___ of the parts have been identified.	Structure / language	 The denominator is 5 because the whole has been divided into 5 equal parts. The numerator is 3 because 3 of the parts have been identified.
	Making a whole		
Year 3: 3.3 **3:3** **6:1**	**When the numerator and the denominator are the same the fraction is equivalent to one whole.**	**Generalisation**	
Year 4: 3.6 **5:1**	**If we know the size of a unit fraction, we can work out the size of the whole.**	**Generalisation**	
Year 4: 3.6 **5:11**	**Divide by the numerator to find one part. Multiply the denominator to find the whole.**	**Generalisation**	8 ÷ 2 = 4 4 x 3 = 12
	Counting in fractional steps		

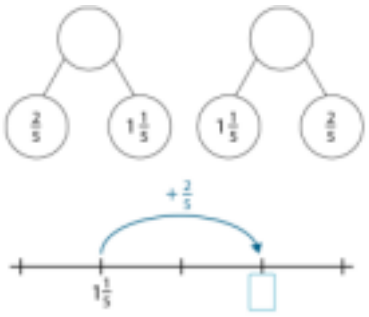
Year 4: 3.5 **2:3**	The line is divided into __ equal parts. This allows us to count in ___.	Structure	
Year 4: 3.5 **2:4**	The interval is divided into __ equal parts. This allows us to count in ___.	Structure	*'Each interval on the line is divided into four equal parts. This allows us to count in quarters'* 

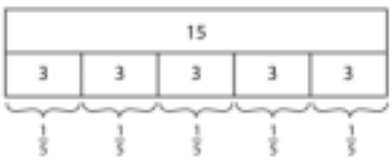
Improper fractions and mixed numbers			
Year 3: 3.5 **1:2**	Quantities made up of both whole numbers and a fractional part can be expressed as mixed numbers.	Generalisation	
Year 3: 3.5 **5:4** **5:5** **5:6**	Each whole is divided into four equal parts. We have __ of these equal parts. |This represents ___ quarter(s)	Structure/ language	 Each whole is divided into four equal parts. We have 11 of these equal parts. This represents 11 quarter(s)
Year 4: 3.5 **5:8**	The denominator is ___. This means that each whole has been split into __ equal parts. __ parts make each whole. The numerator is ___. This means there are ___ equal parts. It is possible to make ___ full groups of ___ quarters and there are ___ more quarters.	Structure/ language	 The denominator is 4. This means that each whole has been split into 4 equal parts. 4 parts make each whole. The numerator is 10. This means there are 10 equal parts. It is possible to make 2 full groups of 4 quarters and there are 2 more quarters

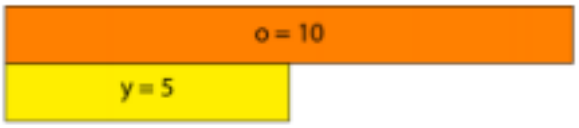
Year 4 3.5 **5:13**	Our unit is ___ so we will be thinking about groups of ____. There are _____ in one whole.	Structure / language	
Year 4: 3.5 **5:14**	How many groups of in ___ groups and ___ more ___	Structure / language	
Year 4: 3.5 **5:16**	There are ___ groups of ___ sixths which is ___ sixths and __ more sixths, so that is ___ sixths	Structure / language	

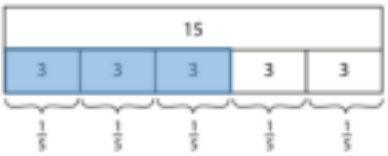
	Adding and subtracting Fractions		
Year 3: 3.3 **5:2**		Language / structure	 $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{3}{5}$ $\frac{3}{5}=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ 3/5 is 3 lots of 1/5.
Year 3: 3.4 **1:7**	_____ tenths and __ more tenths make _____ tenths.	Structure	 6 tenths and 2 more tenths make 8 tenths.

Year 3: 3.4 **1:9**	'□/□ is ___ lots of □/□' '□/□ is ___ lots of □/□' 'I know that ___ + ___ = ___' '...so, I know that □/□ + □/□ = □/□'	Structure	'$\frac{6}{10}$ is six lots of $\frac{1}{10}$.' '$\frac{2}{10}$ is two lots of $\frac{1}{10}$.' 'I know that $6+2=8$.' '...so, I know that $\frac{6}{10}+\frac{2}{10}=\frac{8}{10}$.'
Year 3: 3.4 **1:12**	**When adding fractions with the same denominators, just add the numerators.**	**Generalisation**	
Year 3: 3.4 **2:3**	___/10 is ____ lots of 1/10 ___/10 is ____ lots of 1/10 I know that ___ = ___ = ___ So I know that __/10 - __/10 = __/10	Structure	 Method 3 – verbal reasoning: • '$\frac{8}{10}$ is eight lots of $\frac{1}{10}$.' • '$\frac{2}{10}$ is two lots of $\frac{1}{10}$.' • 'I know that $8-2=6$.' '...so, I know that $\frac{8}{10}-\frac{2}{10}=\frac{6}{10}$.'
Year 3: 3.4 **2:5**	**When subtracting fractions with the same denominators, just subtract the numerators.**	**Generalisation**	$\frac{8}{9}-\frac{3}{9}=\frac{5}{9}$ $\frac{8}{10}-\frac{2}{10}=\frac{6}{10}$
Year 4: 3.4 **4:3**	**To subtract from one whole, first convert the whole to a fraction where the denominator and numerator are the same.**	**Generalisation**	'A watermelon is cut into 8 equal pieces.' '$\frac{6}{8}$ of the watermelon is eaten' 'What fraction of the watermelon is left?' $1-\frac{6}{8}=\frac{2}{8}$ $\frac{8}{8}-\frac{6}{8}=\frac{2}{8}$ 

Year 4: 3.5 **4:2**	The parts are ___ and __. The total or whole is ___.	Language / structure.	 'The **parts** are $\frac{2}{5}$ and $1\frac{1}{5}$. The **total** or **whole** is $1\frac{3}{5}$.'

Multiplying whole numbers and fractions			
Year 4: 3.6 **1:5**	The whole has been divided into ___ equal parts, and one of these parts is _____.	Structure	 $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}=9\times\frac{1}{9}$ • 'The whole has been divided into nine equal parts, and one of these parts is $\frac{1}{9}$.'
Year 4: 3.6 **1:8** **1:10**	_____ lot(s) of _____ is equal to _____.	Structure / language	 • $\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}$ • $4\times\frac{2}{9}$ • $\frac{2}{9}\times4$ • 'Four lots of $\frac{2}{9}$ is equal to $\frac{8}{9}$.'
Year 4: 3.6 **1:9** **1:16**	**To multiply a fraction and a whole number, we multiply the numerator by the whole number and keep the denominator the same.**	**Generalisation**	
Year 4: 3.6 **1:14**	___ lots of ___ is equal to ___ lots of ___.	Structure	Commutativity: $3\times\frac{4}{5}=\frac{12}{5}=2\frac{2}{5}$ $\frac{4}{5}\times3=\frac{12}{5}=2\frac{2}{5}$ 3 x 4/5 = 4/5 x 3
Year 4: 3.6 **3:4** **3:5**	'___ *is divided into* ___ *equal parts;* ' *Each part is* $\frac{1}{\square}$ *of the whole;* ' $\frac{1}{\square}$ *of* ___ *is* ___.'	Structure / language	 'Each part is $\frac{1}{5}$ of the whole; $\frac{1}{5}$ of 15 is 3.'

Year 4: 3.6 **3:6**	__ of __ = ___ ___ lots of ___ = ____	Structure / language	 '$\frac{1}{2}$ of 10 = 5' '2 lots of 5 = 10.'
Year 4: 3.6 **3:7**	**When a whole number is multiplied by a unit fraction, it makes the whole number smaller**	**Generalisation**	

Year 4: 3.6 **4:2**	**To calculate a fraction of a quantity, find the unit fraction of the quantity. Then multiply the unit fraction by the numerator.**	**Generalisation**	Calculate $\frac{5}{5}$ of 15  Find the unit fraction ($\frac{1}{5}$) of 15 by dividing 15 into five equal parts. $\frac{1}{5}$ of 15 is 3 so $\frac{3}{5}$ of 15 is 9.
Year 4: 3.6 **4:6**	**When a whole number is multiplied by a proper fraction, it makes the whole number smaller**	**Generalisation**	

Spring: Decimals		
White Rose Maths Recognise tenths and hundredths Tenths as decimals Tenths on a place value grid Tenths on a number line Divide 1-digit by 10 Divide 2-digits by 10 Hundredths Hundredths as decimals Hundredths on a place value grid Divide 1 or 2-digits by 100 Bonds to 10 and 100 Make a whole	**It is more important in Year 4 to ensure children have a strong understanding of fractions and if necessary decimals can be left to Year 5 or the amount of time spent on them can be dramatically reduced.**	NCETM 1.23 composition and calculation: tenths 1.24 composition and calculation: hundredths and thousandths 1.25 Addition and subtraction: Money

Write decimals Compare decimals Order decimals Round decimals Halves and quarters		

STEM SENTENCES

Decimals		
The whole is divided into ten/ a hundred equal parts and ___ of them is/ are shaded; this is ___ tenth(s)/ hundred(s) of the whole.	Structure	The whole is divided into ten equal parts and one of them is shaded; this is one tenth of the whole.
If a digit is moved one/ two column(s) to the left, the number represented becomes ten/ one hundred times bigger/ ten/ one hundred times the size. If a digit is moved one/ two column to the right, the number represented becomes ten/ one hundred times smaller; we can also say it becomes one tenth/ one hundredth the size.	Structure/ language	
One tenth/ hundredth can be written as 0.1/ 0.01 so ___ tenths/ hundredths can be written as 0.___/ 0.0___.	Structure	One tenth can be written as 0.1 so three tenths can be written as 0.3.
I say ___ point ___ but I think ___ and ___ tenth(s). I say ___ point ___ ___ but I think ___ and ___ hundredths.	Language	I say forty-three point six but I think 43 and six tenths. I say five point zero six but I think 5 and six hundredths.

___ tenths plus ___ tenths is equal to ten tenths, which is equal to one. One is equal to ten tenths; ten tenths minus ___ tenths is equal to ___ tenths.	Structure	Four tenths plus six tenths is equal to ten tenths, which is equal to one. One is equal to ten tenths; ten tenths minus four tenths is equal to six tenths.

___ hundredths plus ___ hundredths is equal to ten hundredths, which is equal to one tenth. One tenth is equal to ten hundredth; ten hundredths minus ___ hundredths is equal to ___ hundredths.	Structure	Four hundredths plus six hundredths is equal to ten hundredths, which is equal to one tenth. One tenth is equal to ten hundredth; ten hundredth minus four hundredths is equal to six hundredths.
When one tenth is divided into ten equal parts, each part is one hundredths of the whole; ten hundredths is equal to one tenth.	Generalisation	
Ten hundredths is equal to one tenth. Ten tenths is equal to one. One tenth is equal to ten hundredth. One is equal to ten tenths.	Structure	

One centimetre is one hundredth of a metre, so we can write one centimetre as zero-point-zero-one. Ten centimetres is one tenth of a metre, so we can write ten centimetres as zero-point-one.	Structure	
Ten groups of ten pence is equal to one pound, so ten pence is one tenth of a pound. One hundred groups of one penny is equal to one pound, so one penny is equal to one hundredth of a pound. Ten groups of one penny is one tenth of ten pence.	Structure	
The number to the left of the decimal point represents the number of whole pounds. The number to the right of the decimal point represents the number of additional pennies.	Structure	

Year 4 Curriculum Overview

Measurement

Pupils should be taught to:

- convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence
- read, write and convert time between analogue and digital 12- and 24-hour clocks
- solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days

There is no ready to progress criteria for measurement.

SMALL STEPS

Spring Measure: Length, Perimeter and area	
White Rose Maths (autumn and Spring)	NCETM
Equivalent lengths m and cm equivalent lengths mm and cm Kilometres Add Lengths Measure perimeter Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes	2.16 Multiplicative contexts: area and perimeter 1
What is area? Counting squares Making shapes Comparing area	

STEM SENTENCES

Summer Measure: Money	
White Rose Maths Pounds and pence Ordering money Estimating money Convert pounds and pence Add money Subtract money Find change Four operations	NCETM 1.25 addition and subtraction: money

STEM SENTENCES

Summer Measure: Time	
Telling the time to 5 minutes Telling the time to the minute Using a.m. and p.m. 24-hour clock Hours, minutes and seconds Years, months, weeks and days	**The first four objectives are from Year 3 however it is imperative to check for whole class understanding of these as they may not be covered if the children were not secure in O'clock and half past, Quarter past and quarter to in Year 3.** **Focus around converting between different units of time.**

Analogue to digital – 12 hour Analogue to digital – 24 hour	

STEM SENTENCES

Geometry - properties of shapes

Pupils should be taught to:

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to 2 right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry

READY TO PROGRESS CRITERIA

Year 3 conceptual prerequesite	Year 4 ready-to-progress criteria	Future applications
Draw polygons by joining marked points.	4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.	Draw polygons, specified by coordinates in the 4 quadrants.
Measure lines in centimetres and metres. Add more than 2 addends. Recall multiplication table facts.	4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. *Find the perimeter of regular and irregular polygons.* **Partly covered in Measures**	Draw, compose and decompose shapes according to given properties, dimensions, angles or area.
	4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	Draw polygons, specified by coordinates in the 4 quadrants: draw shapes following translation or reflection in the axes.

SMALL STEPS

Summer: Geometry	
White Rose Maths: Properties of Shape:	
Turns and angles Right angles in shapes Compare angles Identify angles Compare and order angles Recognise and describe 2-D shapes • Triangles • Quadrilaterals • Lines of symmetry • Complete a symmetric figure	

STEM SENTENCES

Geometry - position and direction

Pupils should be taught to:

- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon

Summer: Geometry	
White Rose Maths: Position and Direction	
Position & Direction • Describe position • Draw on a grid • Move on a grid • Describe movement on a grid	

STEM SENTENCES

Year 4 Curriculum Overview

Statistics

Pupils should be taught to:

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

No ready to progress criteria

SMALL STEPS

Summer Statistics	
White Rose Maths	
Interpret charts Comparison, sum and difference Introducing line graphs Line graphs	**Also this links to NPV-4** **Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts**

STEM SENTENCES