



Number - Number and Place Value

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- recognise the place value of each digit in a two-digit number (10s, 1s)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems

READY TO PROGRESS CRITERIA

Year 1 conceptual prerequisites	Year 2 ready-to-progress criteria	Future applications
Know that 10 ones are equivalent to 1 ten. Know that multiples of 10 are made up from a number of tens, for example, 50 is 5 tens.	2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose twodigit numbers using standard and nonstandard partitioning.	Compare and order numbers. Add and subtract using mental and formal written methods.
Place the numbers 1 to 9 on a marked, but unlabelled, 0 to 10 number line. Estimate the position of the numbers 1 to 9 on an unmarked 0 to 10 number line. Count forwards and backwards to and from 100	2NPV-2 Reason about the location of any twodigit number in the linear number system, including identifying the previous and next multiple of 10.	Compare and order numbers. Round whole numbers. Subtract ones from a multiple of 10, for example: $30 - 3 = 27$

SMALL STEPS

Autumn	
White Rose Maths	NCETM
Place Value <ul style="list-style-type: none"> • Count objects to 100 • Read and write numbers to 100 in numerals and words • Represent numbers to 100 • Tens and ones using a part-whole • Tens and ones using addition • Use a place value chart • Compare objects • Compare numbers • Order objects and numbers 	You may wish to start Year 2 by reviewing learning from segments 1.8 - 1.10 Composition of numbers: multiples of 10 up to 100 Composition of numbers 20 - 100 Composition of numbers 11-19

STEM SENTENCES

One part is ____.
 The other part is ____.
 The whole is ____

There are ___ tens and ___ ones.
There are ___ altogether.

The digit ___ has a value of ___ tens,

The whole is ___ and the parts are _

The number ___ is written as ___
These words represent the number _

___ is greater than ___

___ is less than ___

___ is equal to ten plus ___.	Structure	Twelve is equal to ten plus two.
This is ten ones. It is also one ten	Structure	

___ ones are equal to ___ ten. We have ___ group(s) of ten. We have ___ ten(s).	Structure	Ten ones are equal to one ten. We have one group of ten. We have one ten.
This is the number ___. The ___ represents ___ tens.	Structure	This is the number ten. The 1 represents one ten.

<p>There are ___ tens which is ___ and ___ ones which is ____. This makes ___ altogether.</p> <p>The ___ represents ___ tens. It has a value of ___.</p> <p>The ___ represents ___ ones. It has a value of ___.</p>	Structure	<p>There are two tens which is twenty and three ones which is three. This makes twenty-three altogether: 23. The '2' represents two tens. It has a value of twenty. The '3' represents three ones. It has a value of three.</p>
All multiples of ten end with a zero.	Generalisation	
There are one hundred ones in one hundred.	Structure	

We have ___ tens. We call this ___.	Language/structure	
This is the number ____. We write the ___ then the ___.	Structure	<p>This is the number forty-two. We write the four then the two.</p>

<p>This is ____. Ten more than ___ is ____.</p> <p>____ is ten more than ____.</p> <p>This is ____. Ten less than ____ is ____.</p> <p>____ is ten less than ____.</p>	Structure	<p>This is thirty. Ten more than thirty is forty.</p> <p>Forty is ten more than thirty.</p> <p>This is forty. Ten less than forty is thirty.</p> <p>Thirty is ten less than forty.</p>
<p>I know that ___ plus ___ is equal to ____.</p> <p>So, ___ tens plus ___ tens is equal to ___ tens.</p>	Structure	<p>I know that 2 plus 5 is equal to 7.</p> <p>So, 2 tens plus 5 tens is equal to 7 tens.</p>

To compare two digit numbers, we need to compare the tens digits; if the tens digits are the same, we need to compare the ones digits.	Generalisation structure	
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To compare two numbers, we compare digits with the same place value, starting with the largest place value digit.	Generalisation	
When we find ten more, the tens digit changes and the ones digit stays the same. When we find ten less, the tens digit changes and the ones digit stays the same.	Generalisation	

Number - addition and subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
 - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two-digit number and 1s
 - a two-digit number and 10s
 - 2 two-digit numbers
 - adding 3 one-digit numbers
- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

READY TO PROGRESS CRITERIA

Year 1 conceptual prerequisites	Year 2 ready-to-progress criteria	Future applications
Develop fluency in addition and subtraction facts within 10.	2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.	All future additive calculation. Add within a column during columnar addition when the column sums to less than 10 (no regrouping). Subtract within a column during columnar subtraction when the minuend of the column is larger than the subtrahend (no exchanging).
Learn and use number bonds to 10, for example: $8 + ? = 10$ Partition numbers within 10, for example: $5 = 2 + 3$	2AS-1 Add and subtract across 10, for example: $8 + 5 = 13$ $13 - 5 = 8$	Add and subtract within 100: add and subtract any 2 twodigit numbers, where the ones sum to 10 or more, for example: $26 + 37 = 63$ Use knowledge of unitising to add and subtract across other boundaries, for example: $1.3 - 0.5 = 0.8$ Add within a column during columnar addition when the column sums to more than 10 (regrouping), for example, for: $126 + 148$ Subtract within a column during columnar subtraction when the minuend of the column is smaller than the subtrahend (exchanging), for example, for: $453 - 124$
Solve missing addend problems	2AS-2 Recognise the subtraction	Solve contextual subtraction

<p>within 10, for example:</p> $4 + \square = 10$	<p>structure of 'difference' and answer questions of the form, "How many more...?".</p>	<p>problems for all three subtraction structures (reduction, partitioning and difference) and combining with other operations.</p>
<p>Add and subtract within 10, for example:</p> $6 + 3 = 9$ $6 - 2 = 4$ <p>Know that a multiple of 10 is made up from a number of tens, for example, 50 is 5 tens.</p>	<p>2AS-3 Add and subtract within 100 by applying related onedigit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.</p>	<p>Add and subtract using mental and formal written methods.</p>
<p>Add and subtract within 10. Know that a multiple of 10 is made up from a number of tens, for example, 50 is 5 tens.</p>	<p>2AS-4 Add and subtract within 100 by applying related onedigit addition and subtraction facts: add and subtract any 2 twodigit numbers.</p>	<p>Add and subtract numbers greater than 100, recognising unitising, for example: 32 ones + 23 ones = 55 ones So 32 tens + 23 tens = 55 tens 320 + 230 = 550</p>

SMALL STEPS

Autumn	
White Rose Maths	NCETM
<p>Addition and Subtraction</p> <ul style="list-style-type: none"> • Fact families - addition and subtraction bonds to 20 • Check calculations • Compare number sentences • Know your bonds • Add by making 10 • Subtraction - crossing 10 • Find and make number bonds • Add three 1-digit numbers • Related facts • Add and subtract 1s • 10 more 10 less • Add and subtract 10s • Add a 2-digit and 1-digit number - crossing ten • Subtract a 1-digit number from a 2- digit number - crossing ten • Bonds to 100 (tens and ones) <p>Also Includes Money unit and add/sub with money</p>	<p>1.11 addition and subtraction bridging 10</p> <p>1.12 as difference</p> <p>1.13 addition and subtraction: 2-digit and single digit numbers</p> <p>1.14 addition and subtraction two digit numbers and multiples of 10</p>

STEM SENTENCES

[Enigma-Stem-Sentence-bank-Number-Addition-Subtraction.pdf](#)

I can "make ten" by adding ____
Ten more/less than ____ is ____

		The picture tells me I need to add/subtract
		The parts are known/unknown. The whole is known/unknown.
		I can partition ___ into ___ and
		___ ones/tens add ___ ones/tens is equal to ___
		I will regroup one ten for ten or
		___ plus ___ is equal to ___
		___ subtract ___ is equal to ___
		When we subtract, we start with the
		___ and ___ have a difference of ___

I know that ___ minus ___ is equal to ____. So, ___ tens minus ___ tens is equal to ___ tens.	Structure	I know that 5 minus 2 is equal to 3. So, 5 tens minus 2 tens is equal to 3 tens.
I know that ___ plus ___ is equal to ten so ___ plus ___ is equal to ____.	Structure	I know that 6 plus 4 is equal to 10 so 16 plus 4 is equal to 20.
I know that ___ minus ___ is equal to ten so ___ minus ___ is equal to ____.	Structure	I know that 10 minus 3 is equal to 7 so 20 minus 3 is equal to 17.

SPRING	
White Rose Maths	NCETM
Add two 2-digit numbers - not crossing ten - add ones and add tens • Add two 2-digit numbers - crossing ten - add ones and add tens • Subtract a 2-digit number from a 2- digit number - not crossing ten • Subtract a 2-digit number from a 2- digit number -	1.15 Addition: two digit and two digit numbers 1.16 Subtraction: two-digit and two-digit numbers

crossing ten - subtract ones and subtract tens

STEM SENTENCES

We had ___ tens and ___ ones. Ten more gives us ___ tens and ___ ones.	Structure	
We had ___ tens and ___ ones. Ten less gives us ___ tens and ___ ones.	Structure	

One part is ten, the other part is ___ and the whole is ___.	Structure	One part is ten, the other part is 36 and the whole is 46.
There are ten tens in one hundred.	Structure	
___ plus ___ is equal to ___ so ___ tens plus ___ tens is equal to ___ tens. ___ plus ___ is equal to 100.	Structure	7 plus 3 is equal to 10 so 7 tens plus 3 tens is equal to 10 tens. 70 plus 30 is equal to 100.

Ten minus ___ is equal to ___. So ten tens minus ___ tens is equal to ___ tens. 100 minus ___ is equal to ___	Structure	10 minus 3 is equal to 7. So 10 tens minus 3 tens is equal to 7 tens. 100 minus 30 is 70.
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Written algorithms for addition and subtraction

<p>For Dienes: We line up the ones; ___ one(s) plus ___ one(s). We line up the tens; ___ ten(s) plus ___ ten(s).</p> <p>For the column addition calculation: The ___ is in the ones column- it represents ___ one(s); the ___ is in the ones column- it represents ___ one(s). The ___ is in the tens column- it represents ___ ten(s); the ___ is in the tens column- it represents ___ ten(s).</p>	Structure	<p>We line up the ones; three ones plus five ones. We line up the tens; four tens plus two tens.</p> <p>The '3' is in the ones column- it represents three ones. The '5' is in the ones column- it represents five ones. The '4' is in the tens column- it represents four tens. The '2' is in the tens column- it represents two tens.</p>
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SUMMER	
White Rose Maths	NCETM
Four operations with Measures • Problem solving with Measures	Revision of 2.1 Counting, unitising and coins

Number - multiplication and division

Pupils should be taught to:

- recall and use multiplication and the division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

READY TO PROGRESS CRITERIA


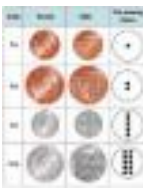


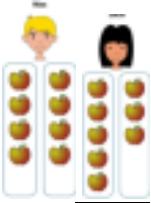
Year 1 conceptual prerequisites	Year 2 ready-to-progress criteria	Future applications
Count in multiples of 2, 5 and 10.	2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables	Use multiplication to represent repeated addition contexts for other group sizes. Memorise multiplication tables
Count in multiples of 2, 5 and 10 to find how many groups of 2, 5 or 10 there are in a particular quantity, set in everyday contexts.	2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).	Division with other divisors.

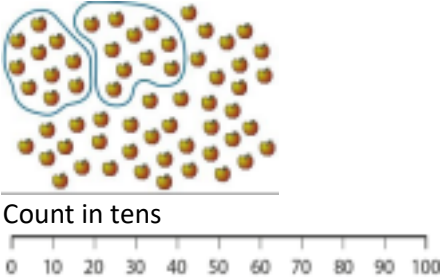
SMALL STEPS

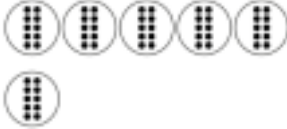
Spring	
White Rose Maths	NCETM
Multiplication and Division <ul style="list-style-type: none"> • Multiplication sentences using the \times symbol • Multiplication sentences from pictures • Use arrays • 2 times-table • 5 times-table • 10 times-table <ul style="list-style-type: none"> • Make equal groups – sharing • Make equal groups - grouping • Divide by 2 • Divide by 5 • Divide by 10 Spring 2 Statistics <ul style="list-style-type: none"> • Draw pictograms (2, 5 and 10) • Interpret pictograms (2, 5 and 10) • Block diagrams 	2.2 Structures: multiplication representing equal groups 2.3 times tables: groups of 2 and commutativity (part 1) 2.4 times tables: groups of 10 and of 5 and factors of 0 or 1 2.5 commutativity (part 2), doubling and halving 2.6 structures: quotitive and partitive division


STEM SENTENCES


[Enigma-Stem-Sentence-bank-multiplication-and-division-with-links.pdf](https://www.ncetm.org.uk/Enigma-Stem-Sentence-bank-multiplication-and-division-with-links.pdf)

Unitizing		
Example of stem sentence	Type of stem sentence	Examples from the NCETM PD Materials
This counter has ____ dots. It is worth ____	Structure	<p>How much is each counter worth?</p>  <p>This counter has 2 dots. It is worth 2. e. g The counter has 2 dots. It is worth 2.</p>
This is a ____ pence coin, It has value of ____p	Structure	 <p>This is a 5p coin. It has a value of 5p.</p>
<p>I say two pence but I think two one pennies</p> <p>I say five pence but I think five one pennies.</p> <p>I say ten pence but I think ten one pennies.</p>	Generalisation	 <p>I say ten pence but I think ten one pennies.</p>
Each _____ has ____ parts Count in groups of ____	Language/ structure	<p>Each bike has 2 wheels. Count in groups of 2.</p> 
Counting in Equal Groups		
<p>The groups are equal because there are the same number in each group.</p> <p>The groups are unequal because there is a different number in each group.</p>	Generalisation	<p>The groups are equal because</p>  <ul style="list-style-type: none"> • 'Max has some apples.' • 'The apples have been grouped.' • 'The groups are <u>equal</u> because there are the <u>same number</u> of apples in each group.' <ul style="list-style-type: none"> • 'Lucia has some apples.' • 'The apples have been grouped.' • 'The groups are <u>unequal</u> because there are a <u>different number</u> of apples in each group.'

Put into groups of _____	Structure	Put into groups into 10 
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One group of _____ Two group of _____ Three groups of _____ _____ group(s) of _____	Structure	Counting and unitising  One group of 10, two groups of 10, three groups of 10... One ten, two tens, three tens, ... 10,20, 30
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There are _____ equal groups of _____ There are _____ in each group. There are _____ groups of _____		How many equal groups are there? How many cakes are there in each group?  There are five equal groups of cakes. There are three cakes in each group. There are five groups of three.
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_____ group(s) of _____ _____ group(s) of _____ make _____	Language/ structure	One group of two, two groups of two, three groups of two.... Two, four six One two, two twos, three threes, ...  Ten groups of 2 make 10
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There are _____ coins Each coin has a value of _____p _____ lots of _____p is _____p altogether	Structure/ language	There are nine coins Each coin has a value of 2p This is 18p.
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<p>The _____ cost _____p</p> <p>Each coin has a value of _____p So I need _____ coins.</p> <p>Count in _____ s to check</p>	<p>Structure/ language</p>	<p>How many five-pence coins would you need to buy this rubber?</p> <p style="text-align: center;">rubber</p> <p>The rubber cost 10p Each coin has a value of 5p So I need 2 coins. Check by counting in 5 s 5, 10.</p>
<p>_____ represents the number of _____</p> <p>_____ represents the number of _____ in each _____</p>	<p>Structure</p>	<p>6 represents the number of nests 3 represents the number of eggs in each nest.</p>

Repeated Addition.

<p>_____ add _____ add _____</p> <p>_____ + _____ + _____</p>	<p>Structure</p>	<p>3 add 3 add 3 add 3 3 + 3 + 3 + 3</p>
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Factors and products.

<p>There are _____ groups of _____</p> <p>_____ x _____ + _____</p> <p>_____ = _____ x _____</p>	<p>Structure / language</p>	<p>How many shows are there? Count in groups of two.</p> <p>3 x 2 = 6 or 6 = 3 x 2 There are three groups of two; there are six altogether.</p>
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<p>_____ is a factor</p> <p>_____ is a factor</p> <p>The product of _____ and _____ is _____</p> <p>_____ is the product of _____ and _____</p>	<p>Language / structure.</p>	<p>How many wheels altogether?</p> <p>Two, four, six, eight. There are eight wheels Four is a factor Two is a factor The product of four and two is eight Eight is the product of four and two.</p>
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<p>What does the ____ represent? ____ is the product of ____ and ____ The product of ____ and ____ is ____.</p>	<p>Structure/ language</p>	<p>What does the 3 represent? What does the 2 represent? What does the 6 represent?</p> <p>Six is the product of two and three The product of two and three is six.</p>
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<p>____ has one more group of ____ than ____</p> <p>____ has one fewer group of ____ than forty.</p>	<p>Structure/ language</p>	<p>Using the language of groups.</p> <p>Forty has one more group of ten than thirty Thirty has one fewer group of ten than forty.</p>
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Commutativity

<p>There are ____ groups of ____.</p> <p>There are ____ altogether</p> <p>There are ____ , ____ times. There are ____ altogether</p>	<p>Structure</p>	<p>$2 + 2 + 2 + 2 = 8$</p> <p>There are four groups of two eggs. There are eight eggs altogether $4 \times 2 = 8$</p> <p>There are two eggs, four times. There are eight eggs altogether $2 \times 4 = 8$</p>
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<p>____ represents the number of groups.</p> <p>____ represents the number in each group.</p> <p>____ groups of ____</p>		<p>5 represents the number of groups 2 represents the number in each group. 5 groups of 2</p> <p>2 represents the number of groups 5 represents the number in each group. 2 groups of 5</p>
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<p>If there are ____ equal groups, we can use the ____ times table.</p> <p>____ is a factor so we can use the ____ times table.</p>	<p>Structure</p>	<p>5 groups of 6 = 6 groups of 5 If there are 5 equal groups, we can use the 5 times table. 5 is a factor so we can use the 5 times table.</p>
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The product of ___ and ___ is equal to the product of ___ and ___ ___ times ___ is equal to ___ times ___	Structure.	The product of 3 and 5 is equal to the product of 5 and 3 3 times 5 is equal to 5 times 3. $3 \times 5 = 5 \times 3$
The order of the numbers does not matter.	Generalisation	$4 \times 5 = 5 \times 4$
No of groups x group size = product Group size x no of groups = product.	Generalisation	

Connecting the times tables		
There are ___ groups of ___ There are ___ groups of ___	Structure	There are 5 groups of ten There are 10 groups of 5.
For every group of 10, there are two groups of 5. Products in the ten times table are also in the five times table. Even multiples of 5 are also multiples of 10.	Generalisation / structure.	

When 0 is a factor, the product is zero.	Generalisation / language	
The product of ___ and one is _____. The product of one and _____ is _____	Structure	The product of 3 and 1 is 3 The product of 1 and 3 is 3.
When 1 is a factor, the product is equal to the other factor.	Generalisation / language.	

Doubling and Halving.		
2 groups of _____ is equal to ___ x 2	Structure	There are two boxes. Each box contains four cakes. 2 groups of 4 is equal 4×2

If there are two equal groups we can use the two times table	Generalisation	
There are two groups of ____ There are ____, two times This is the same as double ____	Structure	There are two groups of 5 There are five, two times This is the same as double 5.
If we need to double/find twice the amount, we can use facts from the two times table.	Generalisation	
Doubling a whole number always gives an even number.	Generalisation	
Double __ = double__ + double __	Structure	Partition to double Double 15 = double 10 + double 5 = 20 + 10 = 30
When one of the factors is two, the product is double the other factor.	Generalisation	

There are ____ altogether; half of ____ is equal to ____		There are 6 altogether; half of 6 is equal to 3.
Half of __ = Half of __ + half of __	Language/ structure	Partitioning to half Half of 12 = half of 10 + half of 2 = 5 + 1 = 6
When one of the factors is 2, the other factor is half of the product.	Generalisation	
I know that double ____ is ____; so half of ____ is ____	Language / structure.	Link between doubling and halving I know that double four is equal to eight; so half of eight is equal to four.
Division as grouping.		

___ divided into groups of ___	Structure/ language	Quotitive division 15 divided into groups of 5.
There are ___ groups of ___; there are ___ altogether. ___ is divided into groups of ___. There are ___ groups. ___ is divided into ___ groups of ___	Structure	There are three groups of two; there are six altogether. Six divided into groups of two. There are three groups Six is divided into three groups of two
___ is divided into groups of ___ with a remainder of ___	Structure	Division with a remainder $14 = 5 + 5 + 4$ $14 = 2 \times 5 + 4$ Fourteen is divided into two groups of five with a remainder of four.
___ is divided into groups of ___. There are ___ groups.	Structure	There are eight socks. If I put them into pairs, how many pairs will there be? Eight is divided into groups of 2. There are four groups There are four groups of two in eight.
The ___ represents the total number of seeds The ___ represents the number of seeds in each group/pot	Structure	There are fourteen seeds. Two seeds are planted in each pot How many pots are needed? Fourteen divided into groups of two The 14 represents the total number of seeds The 2 represents the number of seeds in each group/pot.
Dividend ÷ divisor = quotient.	Generalisation / language	

<p>___ is the dividend ___ is the divisor ___ is the quotient.</p>	<p>Language</p>	<p>I buy ten loaves of bread. I can fit five loaves into each bag. How many bags do I need?</p> <p>$10 \div 5 = 2$</p> <p>The dividend is ten. It represents how many loaves I have altogether.</p> <p>The divisor is five. It represents the number in each bag. The quotient is 2. It represents how many bags I will need.</p>
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Division as sharing

<p>___ divided between _____</p>	<p>Language / structure</p>	<p>Partitive division</p> <p>20 divided between 5</p>
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<p>___ are shared equally between _____. Each child gets _____</p>	<p>Language / structure</p>	<p>I have twenty conkers and I share them equally between five children. How many conkers does each child have?</p> <p>Twenty conkers are shared equally between five children. Each child gets four conkers.</p>
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<p>___ divided between ___ is equal to ___ each.</p>	<p>Structure</p>	<p>There are twenty-four bean bags. If they are shared equally between two teams, how many bean bags does each team get?</p> <p>Sharing one at a time ...</p> <p>$24 \div 2 = 12$</p> <p>Twenty four divided between two is equal to twelve each.</p>
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<p>One ___ is one each. That's ___ Two ___ is two each. That's ___</p> <p>_____ divided between ___ is equal to ___ each.</p>	Structure	<p>One five is one each. That's five Two fives is two each. That's ten Three fives is three each. That's fifteen. Four fives is four each. That's twenty. $20 \div 5 = 4$ Twenty divided between five is equal to four each.</p>
<p>If the divisor is two, we can use the two times table to find the quotient.</p> <p>If the divisor is five, we can use the five times table to find the quotient.</p> <p>If the divisor is two, the quotient is half of the dividend.</p>	Generalisation	
Rules of divisability		
A number is divisible by two if the ones digits is even.	Generalisation	
A number is divisible by ten if the ones digits is zero.	Generalisation	
A number is divisible by five if the ones digits is five or zero.	Generalisation	
When the divisor is equal to one, the quotient is equal to the dividend.	Generalisation	
<p>When zero is a factor, the product is zero.</p> <p>When the dividend is zero, the quotient is zero.</p>	Generalisation	<p>$0 \times 5 = 0$ One of the facotrs is zero so the product is zero. Zero groups of five is zero.</p>
When one is a factor, the product is equal to the other factor.	Generalisation	<p>$1 \times 10 = 10$ One of the facotrs is one so the product is ten.</p>

When the dividend is zero, the quotient is zero.	Generalisation	
When the dividend is equal to the divisor, the quotient is one.	Generalisation	

When the divisor is equal to one, the quotient is equal to the dividend.	Generalisation	
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 $4 + 5 + 3 = 12$ (12 is divisible 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	

SUMMER:
REVISION OF FOUR OPERATIONS
WORD PROBLEMS
PROBLEM SOLVING WITH MEASURES

Number - fractions

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

THERE IS NO READY TO PROGRESS CRITERIA FOR FRACTIONS

Small Steps Guidance

Spring		
White Rose		NCETM
Make equal parts Recognise a half Find a half Recognise a quarter Find a quarter Recognise a third Find a third Unit fraction Equivalence of 1/2 and 2 quarters Find three quarters Count in fractions	Note Concrete manipulatives and real-life representations are important in the early stages of learning with fractions. Don't worry too much about formal learning at this stage, instead focus on activities and play based learning. This content will be formalised and built upon in year 3.	3.0 Guidance on the teaching of fractions in Key stage 1

STEM SENTENCES

Geometry - properties of shapes

Pupils should be taught to:

- identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects

position and direction

Pupils should be taught to:

- order and arrange combinations of mathematical objects in patterns and sequences
- use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

READY TO PROGRESS CRITERIA

Year 1 conceptual prerequisites	Year 2 ready-to-progress criteria	Future applications
Recognise common 2D and 3D shapes presented in different orientations.	2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.	Identify similar shapes. Describe and compare angles. Draw polygons by joining marked points Identify parallel and perpendicular sides. Identify regular polygons Find the perimeter of regular and irregular polygons. Compare areas and calculate the area of rectangles (including squares) using standard units. Compare areas and calculate the area of rectangles (including squares) using standard units.

SMALL STEPS

Spring - White Rose
Geometry : Properties of Shape <ul style="list-style-type: none"> • Recognise 2-D and 3-D shapes • Count sides on 2-D shapes • Count vertices on 2-D shapes • Draw 2-D shapes • Sort 2-D shapes • Count faces on 3-D shapes • Count edges on 3-D shapes • Count vertices on 3-D shapes • Sort 3-D shapes • Make patterns with 3-D shapes

Summer - White Rose	
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Geometry: Position and Direction

Describe position

Describe movement

Describe turns

Describe movement and turns

Making patterns with shape

Note: time should be spent ensuring that children are able to confidently describe position before moving on to look at the movements and turns.

The concept of position is quite difficult to grasp especially when taught remotely so children might need to spend a little longer on the basics.

STEM SENTENCES

Measurement

Pupils should be taught to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- know the number of minutes in an hour and the number of hours in a day

There are no Ready To Progress Criteria for Measures

Small Steps

Autumn - White Rose	
Measurement: money Recognising coins and notes Count money - pence Count money pounds (notes and coins) Count money - notes and coins select money make the same amount compare money find the total find the difference find change 2-step problems	Note: children learning money in 1. starting this block ensure that children are familiar with coins and notes

White Rose	
Measures: time Telling time to the hour Telling time to the half hour O'clock and half past Quarter past and quarter to Telling time to 5-minutes Writing time Hours and days Find durations of time Compare durations of time	Note: children may have missed the time block in year one making this their first formal experience of telling the time. Children should revisit the basics specifically focusing on telling the time to the hour and half hour before looking at the two combined.

White Rose	
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<p>Measures: length and height Compare lengths and heights Measure Length Measure length (cm) Measure Length (m) Compare Length Order length</p>	<p>Note: Is important to spend time recapping what is meant by length and height. Children should revisit the idea of measuring length with non-standard units such as cubes before moving on to measure length in centimetres and metres</p>
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<p>White Rose</p>	
<p>Measures: Mass Capacity and Temperature Introduce weight and mass Measure mass in grams Measure measure mass in kilograms Introduce capacity and volume Measure capacity Compared volume Millilitres & Litres Temperature</p>	<p>Note: Children should revisit the idea of mass and capacity initially focusing on non-standard units such as cubes and jugs respectively. They will then look at measuring using non-standard units. Practical activities are encouraged to support understanding.</p>

Statistics

Pupils should be taught to:

- interpret and construct simple pictograms, tally charts, block diagrams and tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask-and-answer questions about totalling and comparing categorical data

This block leads on nicely from multiplication and division does not have any ready to progress criteria.

SMALL STEPS

Spring - White Rose	
Statistics Make tally charts Draw pictograms Interpret pictograms Block diagrams	NOTE: Have fun with the children, gaining information about each other and creating pictograms and block diagrams practically.