Leeds East Primary Partnership

Progression in Maths vocabulary

Beechwood Primary School

Cross Gates Primary School

Grange Farm Primary School

Seacroft Grange Primary School

White Laith Primary School

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Introduction

These materials have been produced by the five schools in the Leeds East Primary Partnership, in order to assist teachers in making precise language choices and having this at the centre of their mathematics teaching to aid children's thinking and reasoning skills. These materials were produced as part of the Trust's focus on developing Maths during academic year 2020/21 and beyond. This document is the outcome of a working group comprising Maths subject leaders and Head teachers from all five schools. In addition, a sample of teachers within the Trust have piloted the use of the interaction cue cards and all teachers within the trust have collaboratively created the key selected vocabulary and resources they felt children required at each stage of their development in primary school.

For the Early Years Foundation Stage, teachers should refer to the detailed guidance set out in the either 'Development Matters' or 'Birth to 5' non statutory guidance alongside this document.

In the Progression in Maths vocabulary section (p.10), we have: prioritised Place value, the 4 operation strands and fractions, percentages and decimals. We have identified the appropriate National Curriculum objectives and language definition; exemplified what pupils need to do and provided example generalisations and sentence stems and offered high quality resources to encourage the use of this language in context. This is intended to support teachers in planning and delivering high-quality, contextualised, effective teaching sequences.

This document is intended as a guide, it is not intended to direct individual programmes of study within different school settings, classroom practice or methodology.

Teachers may choose to use success criteria in lessons to help pupils to understand what they have learnt and help them to judge whether a pupil has met the objectives for a strand of learning in Mathematics. Using success criteria does not mean that a pupil's learning is not independent; they would simply need to avoid modelling or over-scaffolding the expected outcome.

Moderation is a crucial part of teacher assessment. It allows teachers to benchmark their judgements, while helping to ensure that national standards are consistently applied and outcomes are reliable. Schools across the LEPP Trust should ensure that their teacher assessment judgements are moderated internally and across all the Trust Schools, using the statutory frameworks in Years EY, 2 & 6 as their main reference and as a basis for discussion. This will support accuracy and provide valuable opportunities for ongoing professional development.

Maths: Key Principles

Guiding principles:

1. All school staff should model and have high expectations of pupils' use of mathematical vocabulary and sentences. Staff and parents should be supported in their use and understanding of language as necessary.

2. Oracy, including oral rehearsal of key sentence stems involving precise mathematical vocabulary underpins children's reasoning development and should continue to feature highly throughout the teaching sequence.

3. Vocabulary should be introduced and used in sentences, supported by concrete, pictorial and abstract representations.

4. Mathematical thinking and talk should be supported by practical resources and **all** children should be encouraged to explore informal representations.

5. -Planned opportunities for pupil talk should incorporate the use of specific strategies to ensure maximum engagement e.g. say it show it, I say-you say, think pair share.

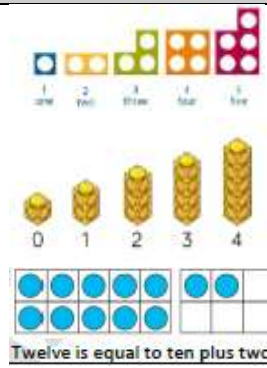
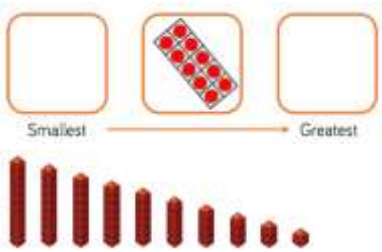
6. High language challenge should be introduced in the context of lower academic challenge i.e. using easier number contexts e.g. Y3 'multiplicand' introduced using examples from x2, x5, x10.

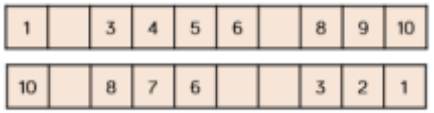
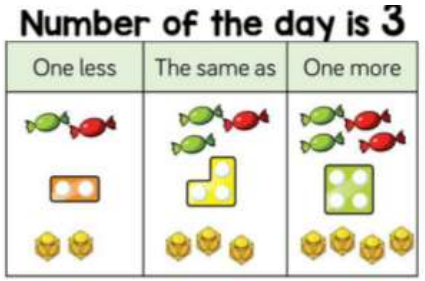
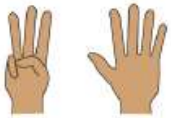
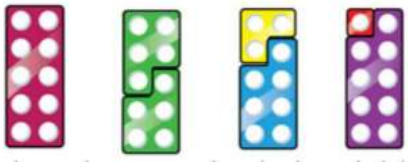
7. Provision throughout school should allow opportunities for children to be playful and creative with key mathematical concepts as well as within more structured teaching sequences when working towards specific tasks and outcomes.

8. The use of practical activities and supportive learning environments are recognised as essential components of effective teaching and learning. Visible and accessible examples and resources should be available to enable children to imitate and manipulate.

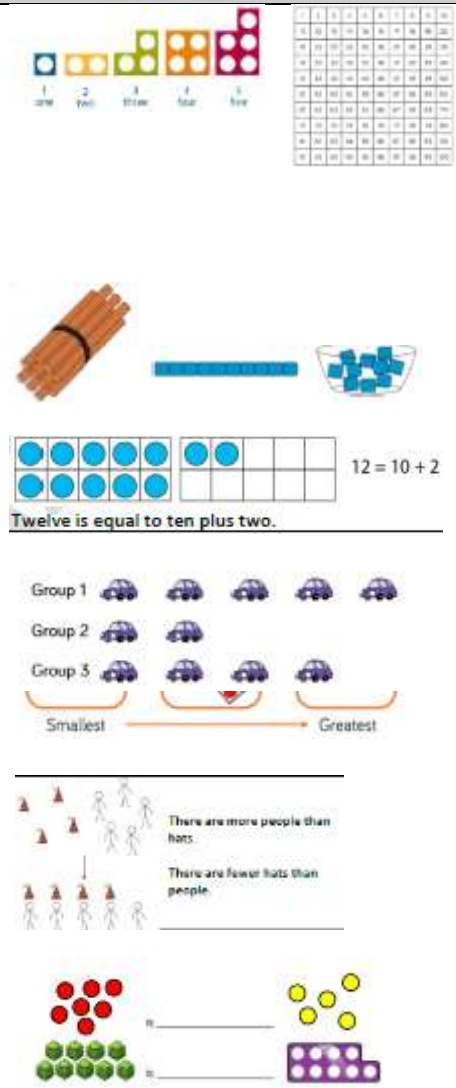
9. Additional support/Intervention should continue to be used to enable children to close any gaps in understanding. The use of high quality language along with CPA approaches should be integrated into all teaching and provision.

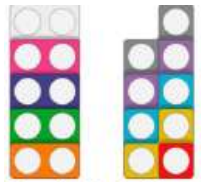
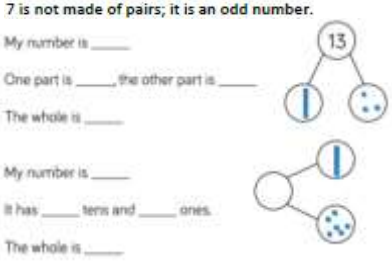
Place Value

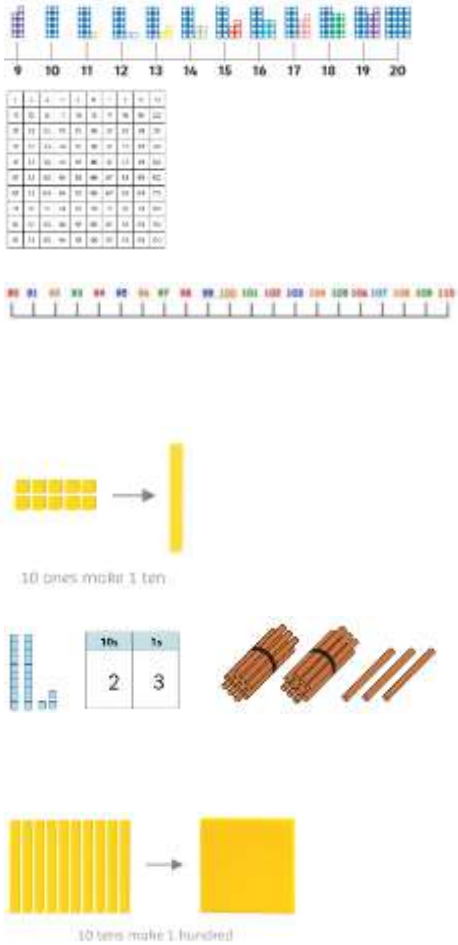
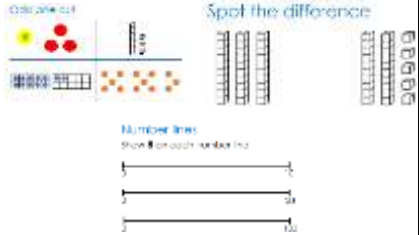
Year group	Key vocabulary	Definition (Adapted from glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
EYFS FS1&2	*Yellow indicates new language zero teen number first, second, third…last tens and ones compare equal /equal to odd, even represent part whole sort count order **Previously taught vocabulary** **PRE - NUSERY** number, sort, large/larger/largest, smaller/smallest, order, count (up) to, count on (from, to), count back (from, to) before/after, more/more than, less/less than, one more/ one less, greater/greater than, greatest, fewer/fewer than, least, most/bigger, pairs	**Zero** – nought or nothing **Compare** - Look for similarities and/or differences between at least two objects or sets. *LINK TO RECEPTION SORTING AND COMPARING VIDEO CGPS *LINK TO COMPARISON GREATER THAN **Equal to** - The symbol is read as 'is equal to' which means the same value as or equivalence between expressions **Odd** – an amount / number that cannot be made of pairs	"…seven, eight, nine, ten, eleven, twelve, thirteen… The (ordinal number/ item) is (information). • The 1st bear is red. The 8th car is yellow. This is ten ones. It is also one ten. Ten ones are equal to one ten. Twelve is equal to ten plus two. I will **sort** these objects based on their size. I can **compare** these two sets – this set has more. *LINK TO NURSERY PLACE VALUE VIDEO _ has the greatest amount of _ _ has the smallest amount of _ _ is the greatest/smallest number. There are more __ than __ There are fewer __ than __ __ is greater than __ __ is less than __ __ is equal to __	 	**Resources – loose part provision/ access to resources through continuous provision** numicon, dienes, part-whole models, five / ten frames, concrete objects, visualiser **Activities** subitising, tally, multiple images/representations (CPA), Dotty 6 (NRICH), balancing scales using numicon Third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/#0-maths-games-for-year-1- **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources

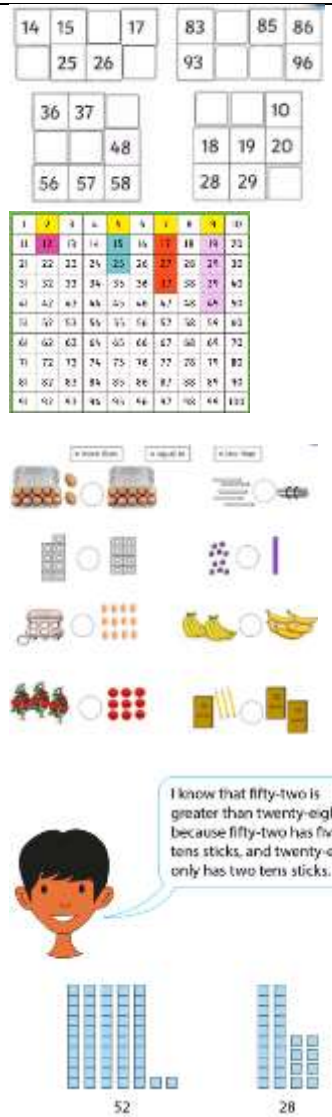
		Even - an amount / number that is made of pairs **Represent** - To show a mathematical concept using words, numerals and symbols, pictures, diagrams, or concrete manipulatives. *LINK TO REC MANIP 1 VIDEO* *LINK TO REC MANIP 2 VIDEO* *LINK TO NURSERY SORTING **Part** – part of a whole set, amount or number. A visual representation to show how numbers are composed **Whole** – a complete set, amount or number **Sort** - To classify a set of objects/ pictures into specified categories.	My sets are **equal** because there are four bears in this set and there are four bears in this set. __ comes before __ __ comes after __ One more/less than __ is __ __ is one more/less than __. __ is more than __but less than __. __ is in between __ and __ The number of the day is 3. One less than 3 is 2. One more than 3 is 4. *LINK TO NURSERY VIDEO* __ is made of pairs. It is an even number. __ is not made up of pairs. It is an odd number. 8 represented as 3 fingers and 5 fingers. One part is __ The other part is __ The whole is __	   	https://whiterosemaths.com/resources/primary-resources/primary-sols/ https://whiterosemaths.com/resources/classroom-resources/interactive-whiteboard-resources/ • NRICH https://nrich.maths.org/8934 • Mathematics shed http://www.mathematicshed.com/lego-maths-shed.html • I see maths http://www.iseemaths.com/wp-content/uploads/2016/12/Visual-Representations.pdf https://www.iseemaths.com/games-resources/ • Number talk images http://ntimages.weebly.com/ • Same but different maths https://www.samebutdifferentmath.com/ • You cubed https://www.youcubed.org/resources/jo-teaching-visual-dot-card-number-talk/ • Number talks http://www.meaningfulmathmoments.com/number-talks.html

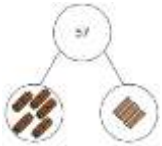
		Order - Describes the placement of items according to given criteria or in a pattern. **Subitise** - to perceive the number of (a group of items) at a glance and without counting * LINK TO REC VIDEO SUBITISING			https://thelearnersway.net/ideas/2019/4/7/number-talks-for-number-sense

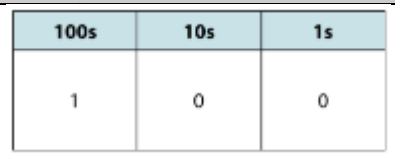
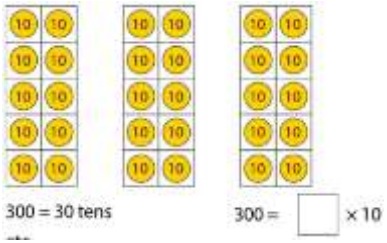
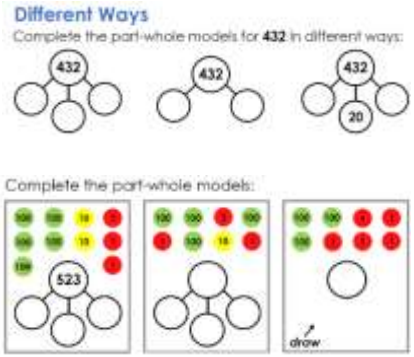
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	in between counting in steps of estimate nearly multiple value numeral/ digit partition equal value ordinal **Previously taught vocabulary PRE - NUSERY** number, sort, large/larger/largest, smaller/smallest, order, count (up) to, count on (from, to), count back (from, to) before/after, more/more than, less/less than, one more/ one less, greater/greater than, greatest, fewer/fewer than, least, most/bigger, pairs **Previously taught vocabulary FS1 & 2** zero, teen number, first, second, third…last, tens and ones, compare, equal /equal to, odd, even, represent, part, whole, sort, count, order	**Estimate** – to find a rough or approximate answer **Multiple** – a number you get when you multiply a certain number by an integer **Numeral** - a symbol used to denote a number **Digit** - One of the symbols of a number system **Partition** – to split a number into component parts * LINK TO Y1 PARTITIONING VIDEO **Equal Value** - Symbol: =, read as 'is equal to' or 'equals'. and meaning 'having the same value	"…seven, eight, nine, ten, eleven, twelve, thirteen… twenty, twenty-one, twenty-two…" "…seven, eight, nine, one-ten, one-ten-one, one-ten-two, one-ten-three… two-tens, two-tens-one, two-tens two…" This is ten ones. It is also one ten. Ten ones are equal to one ten. Twelve is equal to ten plus two. __ comes before __ __ comes after __ One more/less than __ is __ __ is one more/less than __. __ is more than __but less than __. __ is in between __ and __ _ has the greatest amount of _ _ has the smallest amount of _ _ is the greatest/smallest number. *LINK TO Y1 PARTITION There are more __ than __ There are fewer __ than __ __ is greater than __ __ is less than __		**Resources** numicon, dienes, part-whole models, ten frames, arrays, concrete objects, visualiser **Activities** subitising, tally, multiple images/representations (CPA), Dotty 6 (NRICH), Estimation station, chalking outside, balancing scales using numicon, third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/#0-maths-games-for-year-1- **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources https://whiterosemaths.com/resources/primary-resources/primary-sols/

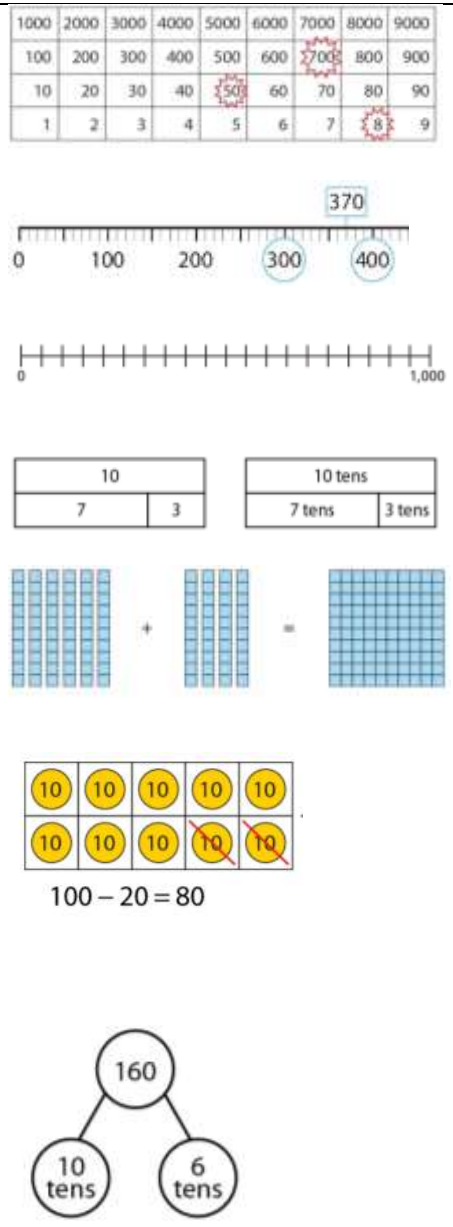
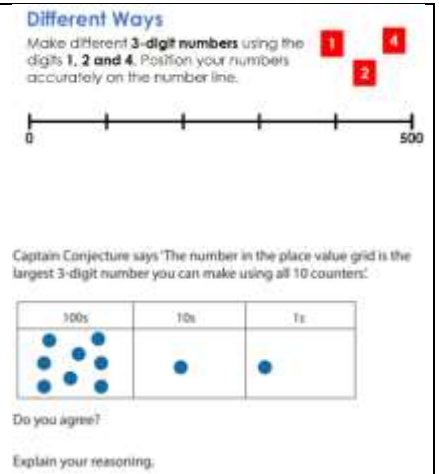
		as'. **Ordinal** - A term that describes a position within an ordered set	__ is equal to __ __ is made of pairs. It is an even number. __ is not made up of pairs. It is an odd number. This represents __ because __. I can partition __ into __ and __. One part is __ The other part is __ The whole is __ *LINK TO YEAR 1 REP 1 VIDEO*	 6 is made of pairs; it is an even number. 7 is not made of pairs; it is an odd number.  *LINK TO YEAR 1 REP 2 VIDEO*	https://whiterosemaths.com/resources/classroom-resources/interactive-whiteboard-resources/ • NRICH https://nrich.maths.org/8934 • Mathematics shed http://www.mathematicshed.com/lego-maths-shed.html • I see maths http://www.iseemaths.com/wp-content/uploads/2016/12/Visual-Representations.pdf https://www.iseemaths.com/games-resources/ • Number talk images http://ntimages.weebly.com/ • Same but different maths https://www.samebutdifferentmath.com/

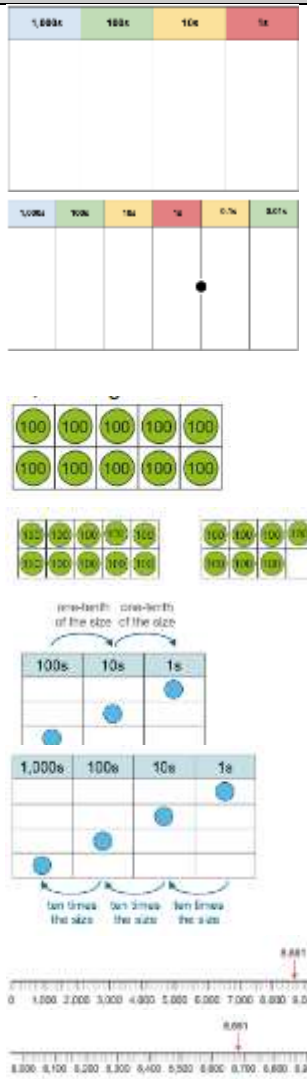
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
2	zero (place holder) hundreds exchange/ regroup sequence counting in multiples of equality/inequality > greater than < less than standard partitioning non-standard partitioning predict quantity equivalent **Previously taught vocabulary PRE - NUSERY** number, sort, large/larger/largest, smaller/smallest, order, count (up) to, count on (from, to), count back (from, to) before/after, more/more than, less/less than, one more/ one less, greater/greater than, greatest, fewer/fewer than, least, most/bigger, pairs **Previously taught vocabulary FS1 & 2** zero, teen number, first, second, third…last, tens and ones, compare, equal /equal to, odd, even, represent, part, whole, sort, count, order	**Exchange/regroup:** Change a number for another of equal value **Sequence**: A succession of terms formed according to a rule. There is a definite relation between one term and the next and between each term and its position in the sequence. Example: 2, 4, 6, 8. **Equality**: When one number, or quantity, is equal to another. Equivalent: may look different but represents equal values **Inequality**: When one number, or quantity, is not equal to another. **Partitioning and non-standard partitioning:** To split a number into component parts. Example: the two-digit number 38 can be	"…seven, eight, nine, ten, eleven, twelve, thirteen… twenty, twenty-one, twenty-two…" "…seven, eight, nine, one-ten, one-ten-one, one-ten-two, one-ten-three… two-tens, two-tens-one, two-tens two…" "…ninety eight, ninety nine, one hundred, one hundred and one, one hundred and two" This is ten ones. It is also one ten. Ten ones are equal to one ten. One ten can be exchanged/ regrouped for ten ones. Twenty three is equal to twenty plus three. The value of the digit '2' in '23' is two tens. This is one hundred ones. It is also ten tens. Ten tens are equal to one hundred. One more/less than __ is __ __ is one more/less than __. _ is more than _but less than _. __ is in between __ and __		**Resources** numicon, dienes, part-whole models, ten frames, arrays, concrete objects, visualiser Interactive 100 square https://www.topmarks.co.uk/learning-to-count/paint-the-squares **Activities** subitising, tally, multiple images/representations (CPA), Estimation station, loose parts/counters/base 10 readily accessible. **Websites**: Gareth Metcalfe – I See Reasoning  NRICH

Previously taught vocabulary Year 1 in between, counting, in steps of, estimate, nearly, multiple, value, numeral, digit, partition, equal value, ordinal		partitioned into 30 and 8 or 20 and 18. **Quantity**: Something that has a numerical value, for example: 5 bananas. **Predict**: A prediction is a reasonable guess as to what will happen	Ten more/ten less than _ is _. __ is ten more/ten less than __. Count in steps of __ from __. __ is ten more than __but ten less than __. _ has the greatest amount of _. _ has the smallest amount of _. Twenty more than 5 is 25. Thirty more than 7 is 27. __ is the greatest/smallest number. There are more __ than __ There are fewer __ than __ __ is greater than __ (_ > _) __ is less than __ (_ < _) __ is equal to __ (_ = _) *LINK TO YEAR 2 NUM 1 VIDEO* *LINK TO YEAR 2 NUM 2 VIDEO* 63 represented as 6 bags of 10 apples and 3 single apples. This represents __ because __. I can partition _ into _and _. 57 can be partitioned into 5 tens and 7 ones. There are 5 lots of 10s straws and 7 lots of 1s straws		‘Two digit targets’ https://nrich.maths.org/6343/note ‘Number detective’ https://nrich.maths.org/204?utm_source=primary-map Primary Stars https://primarystarseducation.co.uk/resources/year-2-overview/ NCETM https://www.ncetm.org.uk/media/dnobtk14/mastery_assessment_yr2.pdf White Rose Maths Hub https://whiterosemaths.com/ Number talk images http://ntimages.weebly.com/photos.html Same but different maths https://www.samebutdifferentmath.com/ YouCubed https://www.youcubed.org/resources/jo-teaching-visual-dot-card-number-talk/

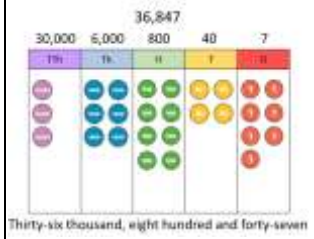
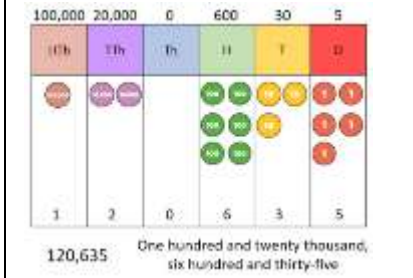
			34 can be partitioned in to 3 tens and 4 ones. 34 can be partitioned into 2 ten and 14 ones. One part is __ The other part is __ The whole is __	  	Meaningful Maths Moments http://www.meaningfulmathmoments.com/number-talks.html Third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
3	approximate(ly) round/ round to/ rounding efficient one hundred more/ less ten times bigger, ten times smaller halfway ascending/descending increase/ decrease previous and next multiples of 100 and 10. **Previously taught vocabulary Year 1** in between, counting, in steps of, estimate, nearly, multiple, value, numeral, digit, partition, equal value, ordinal **Previously taught vocabulary Year 2** zero (place holder), hundreds, exchange/ regroup, sequence, counting in multiples of, equality/inequality, > greater than, < less than, standard partitioning, non-standard partitioning, predict, quantity, equivalent	**Round to:** making a number simpler but staying close to where it was **Efficient strategy**: can be mental or written and carried out with as few steps as possible **Ascending:** arrangement of values from smallest to largest **Descending** – arrangement of values from largest to smallest **Increase**: becoming greater or larger in size, amount, number, or degree. It also means 'to rise'. **Decrease**: Make something smaller (in size or quantity).	There are 10 tens in one hundred. There are one hundred ones in one hundred. 15 tens is equal to one hundred and 5 tens which is equal to 150. The 1 represents one hundred. The ___ represents __ tens. The 3 represents 3 ones. In 163, the value of the digit 6 is six tens or sixty. The tens digit is larger than the ones digit. The digit 1 is in the hundreds column. 163 and 635 have the same digits but the digits have a different value. There are 30 tens in 300. 300 is equal to 30 lots of ten. The previous multiple of 100 is 300. The next multiple of 100 is 400.	 	**Websites:** https://nrich.maths.org/13786 https://whiterosemaths.com/resources?year=year-3 https://thirdspacelearning.com/maths-resources/ https://www.iseemaths.com/wp-content/uploads/2018/10/I-See-Reasoning-LKS2-Sample.pdf https://www.ncetm.org.uk/media/oaqfcvjq/ mastery_assessment_y3.pdf 

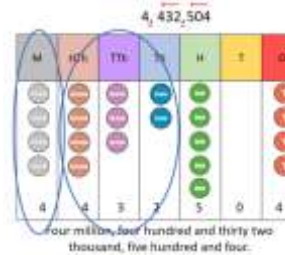
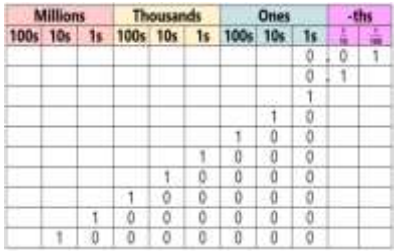
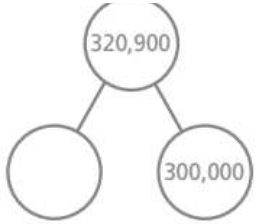
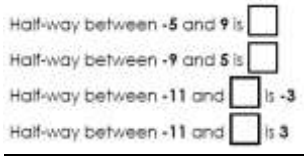
			The previous multiple of 10 is ___. The next multiple of 10 is ___. __ is between __ and ___ I know that _ plus _ is equal to ten. So I know that __ tens plus __ tens is equal to ten tens. __ plus __ is equal to one hundred. I know that ten minus _ is equal to __. So I know that ten tens minus __ tens is equal to __ tens. One hundred minus __ is equal to __. I know that 16 subtract 10 is equal to 6 so I know that 16 tens subtract 10 tens is equal to 6 tens. One part is 10 tens. The other part is 6 tens. The whole is 16 tens or one hundred and sixty. We can partition the whole in different ways.		

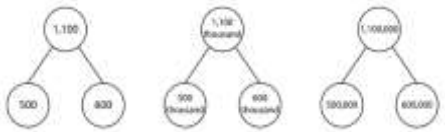
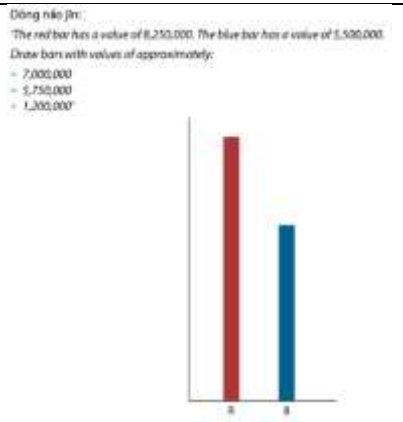
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
4	positive/negative number integer/negative integer cardinal/cardinality thousands tenths/hundredths decimal point roman numerals **Previously taught vocabulary Year 2** zero (place holder), hundreds, exchange/ regroup, sequence, counting in multiples of, equality/inequality, > greater than, < less than, standard partitioning, non-standard partitioning, predict, quantity, equivalent **Previously taught vocabulary Year 3** approximate(ly), round/ round to/ rounding, efficient, one hundred more/ less, times bigger, times smaller, halfway, ascending/descending, increase/ decrease, previous and next multiples of 100 and 10.	**Integer** – any positive or negative whole number and 0 **Cardinality** – the number in a set **Decimal point** – placed after the ones digit to separate the whole number from the fraction	There are ____ thousand(s), ____ hundred(s), ____ ten(s) and ____ one(s). The number is ____. Given number 1536. The digit 5 is in the hundreds column. It has a value of 500. The 5 represents five hundreds. "10 hundreds is equal to 1 thousand." "There are 10 hundreds in 1000." "18 hundreds is equal to 10 hundreds and 8 more hundreds." "10 hundreds is equal to 1,000." "So 18 hundreds is equal to 1,000 and 8 more hundreds, which is 1,800." *One hundred is ten times the size of ten. One is one tenth the size of ten* "1000 is 10 times the size of 100." "1,800 is 10 times the size of 180."		**Resources** place value charts, number lines, place value counters, bar models, base 10, dienes, Numicon, Gattegno chart, part-whole models, WRH interactive whiteboard, WRH digital tools **Activities** Nrich Nice or Nasty Coded 100 square Coded 100 square http://www.danemill.com/documents/Workshops/201819/The+Ultimate+Maths+Vocabulary+Activity+Guide.pdf Websites • NRICH • WRM – Interactive, problem solving and reasoning

			"The previous multiple of 1,000 is 8,000. The next multiple of 1,000 is 9,000." "The previous multiple of 100 is 8,600. The next multiple of 100 is 8,700." "8,681 rounded to the nearest thousand is 9,000." When rounding to the nearest 10, if the ones digit is ___ or less, round to the previous multiple. If the ones digit is ___ or more, round to the next multiple. For positive and negative numbers, the larger the number, the further away from zero it is. (34 is further from zero than 2 and -34 is further from zero than -2).		https://whiterosemaths.com/resources/digital-tools/ • NCETM - Ncetm curriculum tools https://www.ncetm.org.uk/media/x45na0cs/mastery_assessment_y4.pdf • Unique classrooms - https://www.uniqueclassrooms.com/store/c23/Talk_for_Maths.html • Thinking talking - http://thinkingtalking.co.uk/word-aware/ • I See maths - https://www.iseemaths.com/i-see-reasoning-y4/ • www.mathsbot.com • Diagnostic questions https://diagnosticquestions.com/Quizzes/Collections • Classroom secrets – fluency

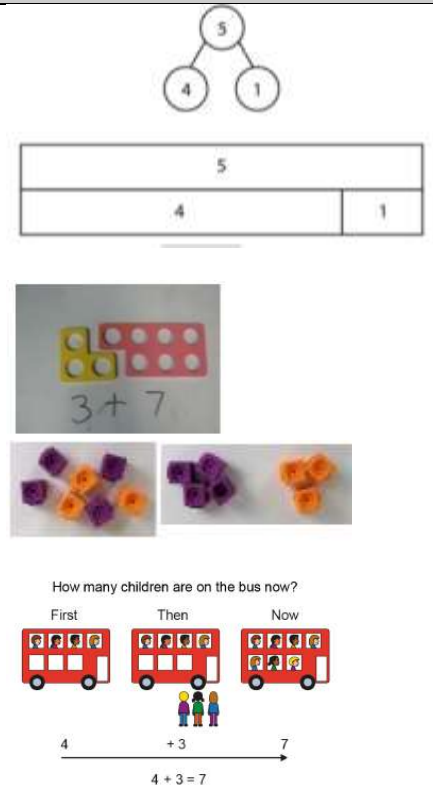
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
5	ten-thousands hundred-thousands millions prime numbers composed/decomposed formula divisibility ≥greater than or equal to ≤less than or equal to **Previously taught vocabulary Year 2** zero (place holder), hundreds, exchange/ regroup, sequence, counting in multiples of, equality/inequality, > greater than, < less than, standard partitioning, non-standard partitioning, predict, quantity, equivalent **Previously taught vocabulary Year 3** approximate(ly), round/ round to/ rounding, efficient, one hundred more/ less, times bigger, times smaller, halfway, ascending/descending, increase/ decrease, previous and next multiples of 100 and 10.	**Prime numbers –** A whole number greater than one that has exactly two factors, itself and 1. **Composed/ decomposed –** To either put together or break down a number using its parts. **Formula**- A formula is a way to represent calculations. It uses letters to represent variables and shows the relationships between them. To use a formula we must know some of the values to replace the letters and find the value for the remaining one. **Divisibility -** The property of being divisible by a given	There are ___ one thousands in ten thousand. There are ___ hundreds in ten thousand. There are ___ ten-thousands in one hundred thousand. There are ___ one thousands in one hundred thousand. There are ___hundred-thousands in one million. There are ___tens of thousands in one million.	  To multiply a number by 10 each digit moves ☐ to the left on a place value grid. To multiply a number by 100 each digit moves ☐ to the left on a place value grid. To multiply a number by 1,000 each digit moves ☐ to the left on a place value grid. 	**Resources** Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno chart, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities** Round the four dice: https://nrich.maths.org/10426 https://nrich.maths.org/6342/note Nrich activity using dice for rounding. https://nrich.maths.org/10945/note https://www.twinkl.com.qa/resource/t-n-5759-3-digit-place-value-dominos place value dominos game – explaining which cards match and why. https://whiterosemaths.com/wp-content/uploads/2020/08/Year-5-Autumn-block-1-Place-Value.pdf p33 - negative numbers https://whiterosemaths.com/wp-content/uploads/2020/08/Year-

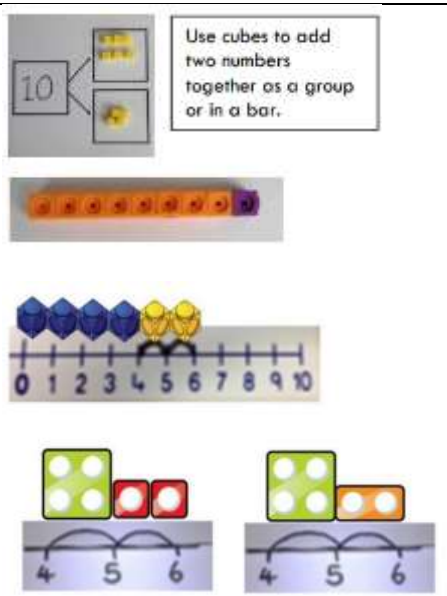
Previously taught vocabulary Year 4 positive/negative integer, thousands, tenths/hundredths, decimal point, roman numerals		number. Example: A test of divisibility by 9 checks if a number can be divided by 9 with no remainder.		To divide a number by 10 each digit moves ☐ to the right on a place value grid. To divide a number by 100 each digit moves ☐ to the right on a place value grid. To divide a number by 1,000 each digit moves ☐ to the right on a place value grid.	5-Autumn-block-1-Place-Value.pdf Counting in Powers of 10 pg 28 Compare and order pg 30 https://resources.whiterosemaths.com/wp-content/uploads/2020/09/Y5-Autumn-Block-1-WO2-Roman-numerals-2019.pdf Q4 **Websites** https://whiterosemaths.com/wp-content/uploads/digital-tools/pv-chart/

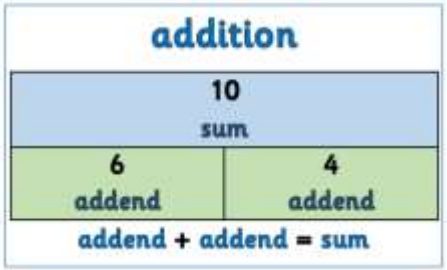
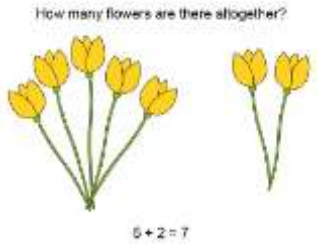
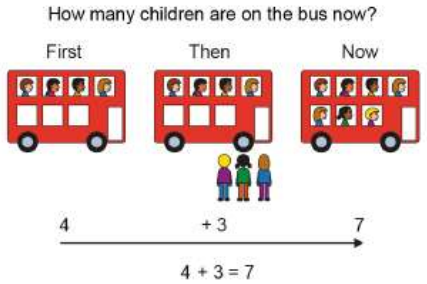
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
6 **Previously taught vocabulary Year 2** zero (place holder), hundreds, exchange/ regroup, sequence, counting in multiples of, equality/inequality, > greater than, < less than, standard partitioning, non-standard partitioning, predict, quantity, equivalent **Previously taught vocabulary Year 3** approximate(ly), round/ round to/ rounding, efficient, one hundred more/ less, times bigger, times smaller, halfway, ascending/descending, increase/ decrease, previous and next multiples of 100 and 10.	ten millions		There are one thousand thousands in one million There are 10 millions in 10 million There are ____ thousands in a million. There are _____ ten thousands in 10 million. How could you represent this in a different way/in a variety of ways? The representation shows... Can you represent ten million on a place value grid?	  **Gattegno Chart**  	**Resources**- Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno chart, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities** 

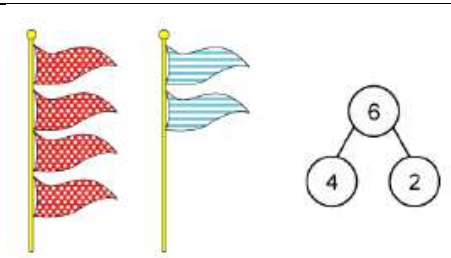
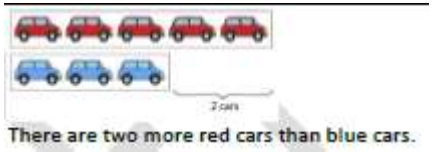
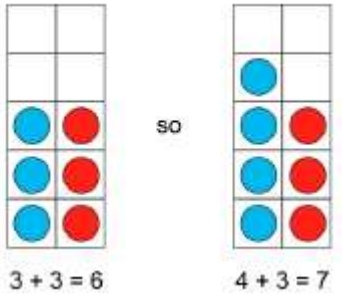
Previously taught vocabulary Year 4 positive/negative integer, thousands, tenths/hundredths, decimal point, roman numerals **Previously taught vocabulary Year 5** ten-thousands, hundred-thousands, millions, prime numbers, composed/decomposed, ≥greater than or equal to, ≤less than or equal to					 Websites www.thirdspacelearning.com -Rapid reasoning -flashback five https://www.ncetm.org.uk/classroom-resources/assessment-materials-primary/ https://www.teachstarter.com/gb/teaching-resource/number-talks-number-sense-task-cards-3/ https://whiterosemaths.com/ https://www.topmarks.co.uk/maths-games/rocket-rounding

Addition

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
EYFS FS1&2	symbol equal /equal to sum increase part whole double represent number facts **Previously taught vocabulary PRE-NURSERY** plus, and, add, total, altogether, first/then/now, represents, more, one more, count on, count forwards, greater/greatest, bigger/biggest/most, number pairs	**Symbol** - A letter, numeral or other mark that represents a number, an operation or another mathematical idea **Equal - Symbol: =**, read as 'is equal to' or 'equals' and meaning 'having the same value as'. **Sum** - The result of one or more additions **Increase** – a number or quantity or value will become greater **Part** – part of a whole set, amount or number. A visual representation to show how numbers are composed	Five is equal to four plus one. Four plus one is equal to five. Four and one are the addends. Five is the sum. 7 is the **whole** and it has 2 parts. One part is 4. The other part is 3. The **whole is 7** *LINK TO ADDITION VIDEO "First 4 children were sitting on the bus. Then 3 more children got on the bus. Now 7 children are sitting on the bus." "We can write this as 4 plus 3 is equal to 7." ___ and ___ are the addends. ___ is the sum. Addend plus addend equals the sum. "How many more to make?" One more than ___ is ___		**Resources** number tracks/lines, part-whole models, ten frames, rekenrek, hundred squares, concrete objects, balance scales, bar model, visualiser **Books** How many legs…? How many seeds in a pumpkin, One is a snail Ten is a crab **Activities** missing number questions, odd one out, third space learning games **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above)

		Whole – a complete set, amount or number **Double** – when there are two of the same image, number, quantity and the total is counted. **Represent** - To show a mathematical concept using words, numerals and symbols, pictures, diagrams, or concrete manipulatives.	___ is one more than___ There are ___ more ___ than ___. ___ is greater than ___. The number is increasing by __.		• NRICH https://nrich.maths.org/8937 • Mathematics shed • I see maths • Same but different maths • You cubed • Number talks

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	near double number bonds/ number pairs fact families/ related facts / inverse Addend Sum calculate/calculation equation estimate equal value **Previously taught vocabulary FS1 & 2** symbol, equal /equal to, sum, increase, part, whole, double, represent, number facts **Previously taught vocabulary PRE-NURSERY** plus, and, add, total, altogether, first/then/now, represents, more, one more, count on, count forwards, greater/greatest, bigger/biggest/most, number pairs	**Near double** – one away from a double **Number bonds/ number pairs** – a pair of numbers with a particular total **Related facts:** An association between two or more number facts. **Addend** – a number to be added to another number **Sum** – the result of an addition calculation **Calculation**: To work out an answer, usually by adding, multiplying etc. **Equation**: A mathematical statement showing that two expressions are equal. The expressions are	__ plus/add __ is equal to __ ___ and ___ are the addends. ___ is the sum. Addend plus addend equals the sum. Sum equals addend plus addend. *LINK TO YEAR 1 ADDITION VIDEO* "There are 5 flowers in one bunch. There are 2 flowers in the other bunch. There are 7 flowers altogether." "We can write this as 5 plus 2 is equal to 7." "The 5 represents the number of flowers in 1 bunch. The 2 represents…The 7 represents…" "First 4 children were sitting on the bus. Then 3 more children got on the bus. Now 7 children are sitting on the bus." "We can write this as 4 plus 3 is equal to 7." "There are 6 flags. 4 are spotty and 2 are stripy." 6 is the whole. 4 is a part. 2 is a part.	  	**Resources** number tracks/lines, part-whole models, ten frames, rekenrek, hundred squares, concrete objects, balance scales, bar model, visualiser **Activities** missing number questions, odd one out, third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/#0-maths-games-for-year-1- , two dice https://nrich.maths.org/150, how many https://nrich.maths.org/6927, **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above)

		linked with the symbol = Examples: 7 – 2 = 4 + 1 **Estimate** – to find a rough or approximate answer **Equal value**: may look different but represents equal values	4 plus/add 2 is equal to 6 *LINK TO YEAR 1 ADDITION USING PART-WHOLE MODEL CPGS "How many more to make?" One more than ___ is ___ ___ is one more than___ There are ___ more ___ than ___. ___ is greater than ___. The number is increasing by __.	 	• NRICH https://nrich.maths.org/8937 • Mathematics shed • I see maths • Same but different maths • You cubed • Number talks 

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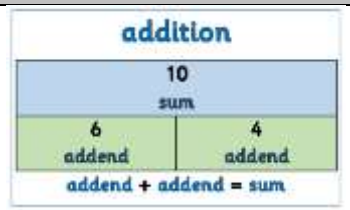
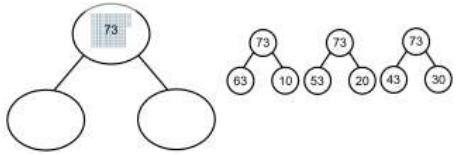
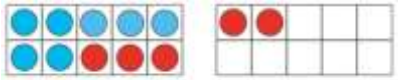
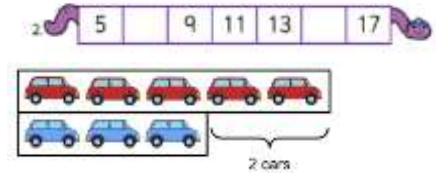
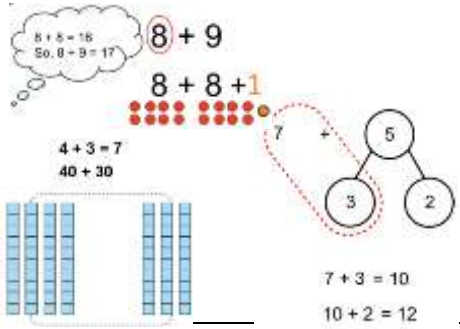
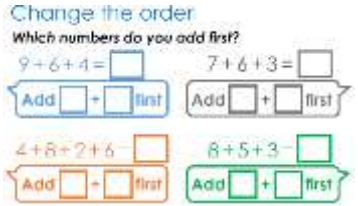
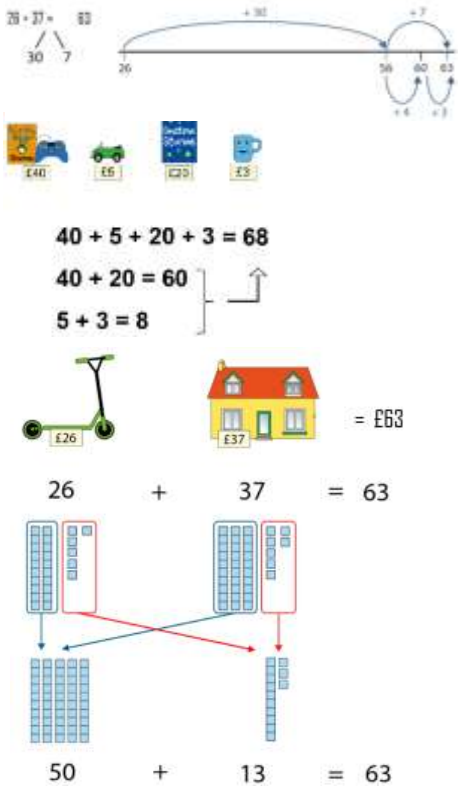
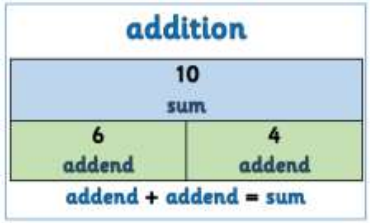
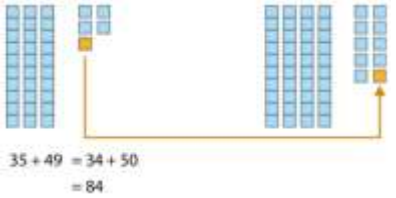
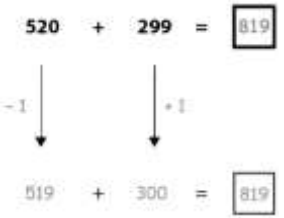
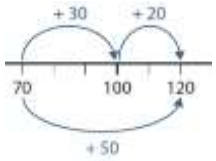
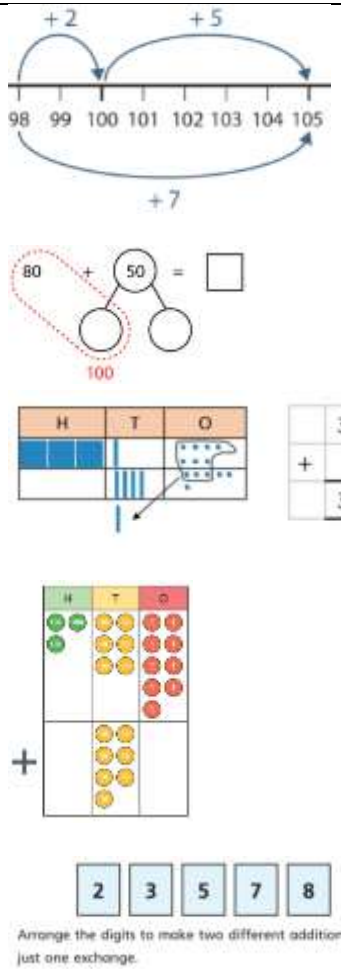
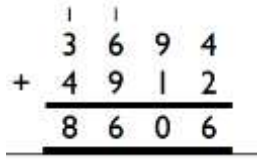
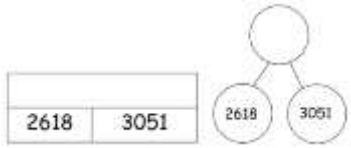
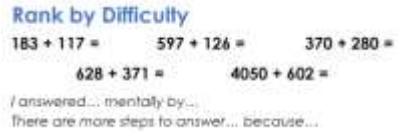
2	exchange/ regroup balanced equation commutative equivalent **Previously taught vocabulary PRE-NURSERY** plus, and, add, total, altogether, first/then/now, represents, more, one more, count on, count forwards, greater/greatest, bigger/biggest/most, number pairs **Previously taught vocabulary FS1 & 2** symbol, equal /equal to, sum, increase, part, whole, double, represent, number facts **Previously taught vocabulary Year 1** near double, number bonds/ number pairs, fact families/ related facts/ inverse, addend, sum, calculate/calculation, equation, estimate, equal value	**Exhange/regroup:** Change a number for another of equal value **Balanced equation –** equation that has the same value on each side e.g. 2 + 5 = 3 + 4 **Commutative:** Addition numbers are commutative where a + b = b + a, for example, 2 + 3 = 3 + 2. **Equivalent** - may look different but represents equal values	__ plus/add __ is equal to __. ___ and ___ are the addends. ___ is the sum. Addend plus addend equals the sum. Sum equals addend plus addend. 70+3 = 63 + 10 = 53 + 20 Seven plus five is equal to seven plus three plus two. The number is increasing by __. ___ is greater than ___. There number of red cars is greater than the number of blue cars by two. I know that double 8 is equal to 16, so 8 plus 9 is equal to 17. I know that __+__=___, so I also know that __+__=___. We partition 5 into 2 and 3.	   7 + 5 = 7 + 3 + 2  	**Resources** Counters, ten frames, base 10, rekenrek, part-whole models, place value cards, digit cards, fact family house outlines, bead strings, numicon, number lines, hundred squares **Activities**: Place value grids, ten frame dice, missing number questions, White Rose reasoning and problem solving challenges. **Websites**: Gareth Metcalfe – I See Reasoning KS1  NRICH 'Noah' https://nrich.maths.org/136/note

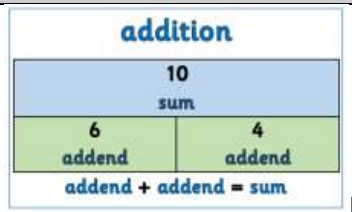
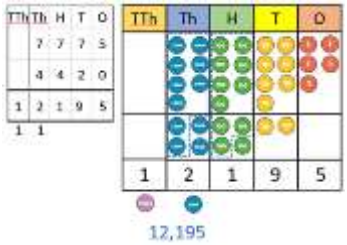
			7+3=10 10+2=12 Partition the second addend into tens and ones. Add the tens, then add the ones. First I partition both numbers. Then I add the tens. Then I add the ones. Then I combine all of the tens and all of the ones. 'If I know… then I also know…'		'2,4,6,8' https://nrich.maths.org/175/note 'Number Round up' https://nrich.maths.org/188?utm_source=primary-map 'Strike it out' https://nrich.maths.org/strike-it-out Primary Stars https://primarystarseducation.co.uk/resources/year-2-overview/ White Rose Maths Hub https://whiterosemaths.com/ Number talk images http://ntimages.weebly.com/photos.html Same but different maths https://www.samebutdifferentmath.com/ YouCubed https://www.youcubed.org/resources/jo-teaching-visual-dot-card-number-talk/

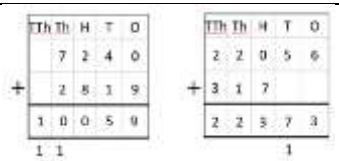
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
3	complement column column addition approximate(ly) efficient **Previously taught vocabulary Year 1** near double, number bonds/ number pairs, fact families/ related facts/ inverse, addend, sum, calculate/calculation, equation, estimate, equal value **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, commutative, equivalent	**complement**- in addition a number and its complement make a total eg 30 is the complement to 70 to make 100 **Column**: Vertical arrangement **Column addition**: A formal method of setting out an addition in ordered columns. Each column represents a place value **efficient method**: a means of calculation (which can be mental or written) that achieves a correct answer with as few steps as possible	Addend plus addend plus addend is equal to the sum. I have added __ to the addend, so I need to subtract __ from the other addend First we add __. __ plus __ is equal to ___. Then we adjust- __ minus ___ is equal to ___. 195 is close to 200 and 306 is close to 300 so my estimate is 200 add 300 which is equal to 500. 24 add 6 is equal to 30 and 30 add 70 is equal to 100. We can use number bonds to ten to calculate complements to 100. To add 50 to 70, I will partition the 50 and bridge through 100. First I add 30, then I add 20	 *LINK TO YEAR 3 ADDITION BAR MODEL VIDEO*   Bridging: 	**Websites:** www.mathsbot.com https://nrich.maths.org/13787 https://thirdspacelearning.com/maths-resources/ https://www.iseemaths.com/wp-content/uploads/2018/10/I-See-Reasoning-LKS2-Sample.pdf https://www.ncetm.org.uk/media/oaqfcvjq /mastery_assessment_y3.pdf White Rose Maths Hub Sort these into those that can be calculated mentally and those you would use column addition to calculate: 164 + 36 237 + 156 349 + 84 120 + 130 Explain reasoning

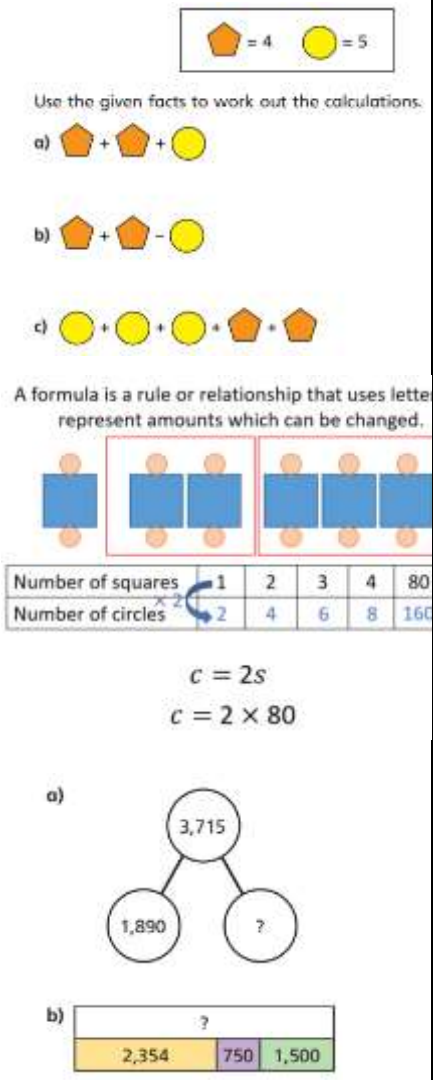
			98 add 2 is equal to 100 so I can partition the addend 7 into 2 and 5. In column addition we line up the ones. In column addition, we start at the right hand side. The ones/ tens/ hundreds column represents ____ ones plus ___ ones is equal to __ ones. 7 ones plus 6 ones is equal to 13 ones. 13 ones is equal to one ten and 3 ones. If the column sum is equal to ten or more, we must exchange/ regroup. *LINK TO YEAR 3 COLUMN ADDITION VIDEO*		Classroom secrets Which additions are harder to calculate and which are easier? (give reasoning) Find some additions that would have the digit 2 in the ones column.

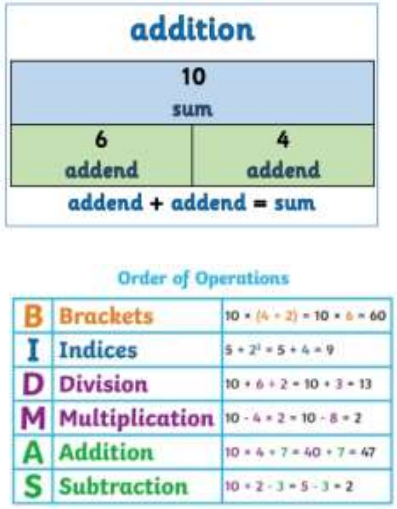
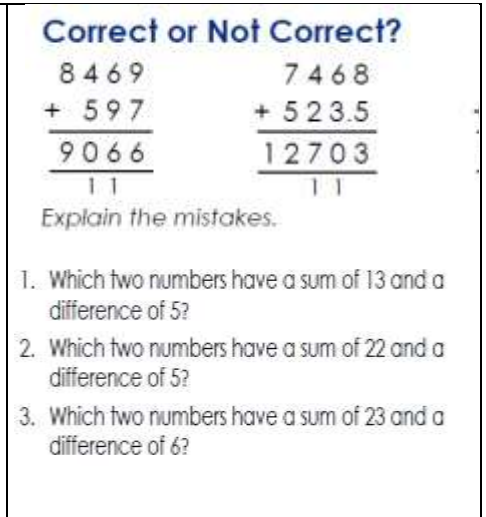
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
4 **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, commutative, equivalent **Previously taught vocabulary Year 3** complement, column, column addition, approximate(ly), efficient	expression/ expressed as	**Expression** - a number sentence which has at least two numbers and one mathematical operation	Addend plus addend equals the sum. Sum equals addend plus addend. ____ and ____ are the addends. ____ is the sum. *LINK TO YEAR 4 MISSING ADDEND VIDEO* "8 plus 6 is equal to 14, so 8 hundreds plus 6 hundreds is equal to 14 hundreds." "14 hundred is equal to 1,400." In column addition we line up the digits in columns. In column addition, we start at the right hand side in the ones column. If the column sum is equal to ten or more, we must exchange/ regroup. The two given numbers are the addends. The missing value is the sum. To find the sum we can add these numbers together.	 8 + 6 = 14 and 14 – 6 = 8 so 800 + 600 = 1400 and 1400 – 600 = 800  	**Resources** place value charts, number lines, place value counters, base 10, Numicon, Gattegno chart, bar models, part-whole models, WRM interactive whiteboard and digital tools **Activities**  I See Reasoning document year 4: • agree/disagree? • read the picture • different ways • explain the mistake • how many ways? • mental or written method? • small difference questions • correct/incorrect? • which answer? • rank by difficulty

					• part-complete • extend (like next step) Skills games (e.g. Success 4 Arithmetic) https://nrich.maths.org/13787 **Websites** - NRICH - NCETM - Ncetm addition and subtraction teacher guides - Ncetm - curriculum tools, teaching for mastery - WRM – Interactive, problem solving and reasoning - I see maths - www.mathsbot.com - https://diagnosticquestions.com/Quizzes/Collections - Classroom secrets – fluency - Unique classrooms - Thinking talking - Diagnostic questions

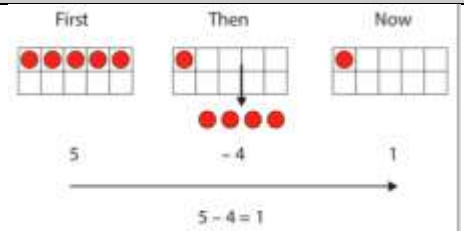
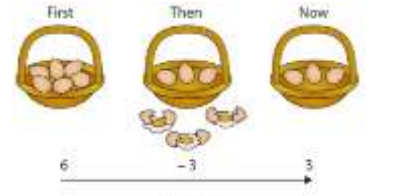
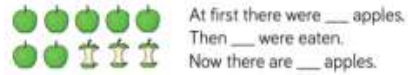
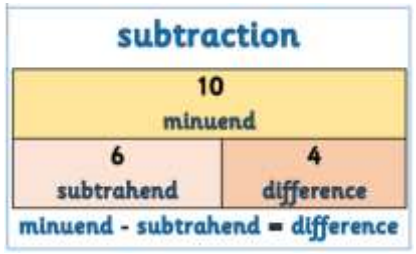
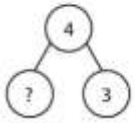
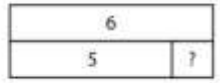
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
5	whole exchange decimal exchange **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, commutative, equivalent **Previously taught vocabulary Year 3** complement, column, column addition, approximate(ly), efficient **Previously taught vocabulary Year 4** expression/ expressed as	**Exchange** - Change a number or expression for another of equal value. The process of exchange is used in some standard compact methods of calculation.	If one addend is increased and the other is decreased by the same amount, the sum stays the same. (same sum) I have added ___ to this addend so I must subtract ___ from the other addend to keep the sum the same. If one addend is increased (or decreased) and the other is kept the same, the sum increases (or decreases) by the same amount. The ___ is in the tens column- it represents ___ ten(s); the ___ is in the tens column- it represents ___ ten(s). In column addition, we start at the right-hand side. If the column sum is equal to ten or more, we must regroup I've added/ subtracted ___ to/ from this addend and kept the other addend the same so I must	 For Dienes: We line up the ones; ___ one(s) plus ___ one(s). We line up the tens; ___ ten(s) plus ___ ten(s). 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). 	**Resources:** Place value charts, number lines, place value counters, Base 10, Numicon, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities:** https://nrich.maths.org/1130?utm_source=primary-map reach 100: find four different digits that give four two-digit numbers which add to a total of 100. Using place value charts and place value counters to show the process of addition (in particular exchanging) Nrich p Maze 100: Can you find a way through in which the numbers add to exactly 100? Twinkl Year 5 Flying Machines Column Addition Activity Pack https://resources.whiterosemaths.com/wp-content/uploads/2020/09/Y5-Autumn-Block-2-WO5-Multi-step-addition-and-subtraction-problems-2019.pdf

			add/ subtract ___ to/ from the sum.		**Websites** https://whiterosemaths.comdigital-tools PV chart and bar model https://www.ncetm.org.uk/classroom-resources/primm-1-29-using-equivalence-and-the-compensation-property-to-calculate/ https://www.ncetm.org.uk/classroom-resources/primm-2-22-combining-multiplication-with-addition-and-subtraction/ (multi-step problems)

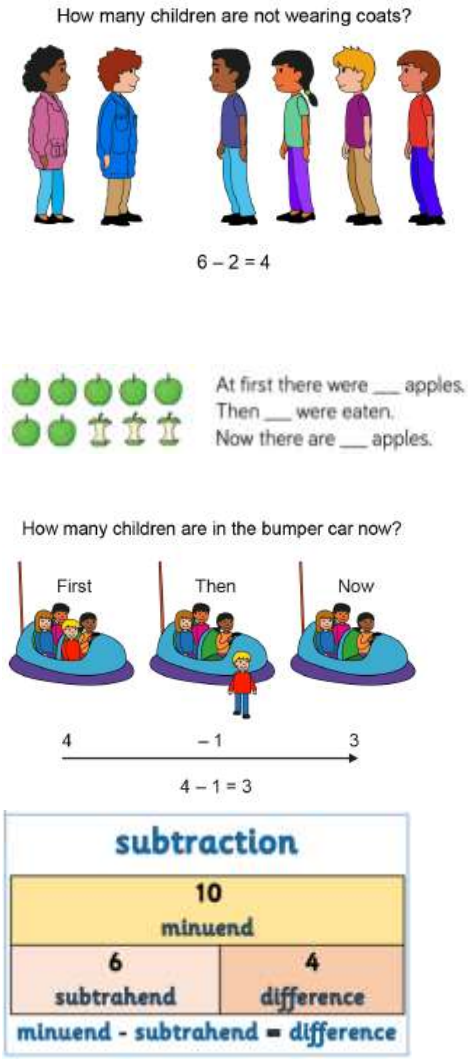
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
6	algebra formula/formulae unknown variable substitute brackets BODMAS/ BIDMAS/ order of operations **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, commutative, equivalent **Previously taught vocabulary Year 3** complement, column, column addition, approximate(ly), efficient **Previously taught vocabulary Year 4** expression/ expressed as **Previously taught vocabulary Year 5** whole exchange, decimal exchange	**Algebra** – The part of mathematics that deals with generalised arithmetic. Letters are used to denote variables and unknown numbers and to state general properties. **Formula**- A formula is a way to represent calculations. It uses letters to represent variables and shows the relationships between them. To use a formula we must know some of the values to replace the letters and find the value for the remaining one. **Unknown variable** – A quantity that can take on a range of variables. Usually denoted by a letter. **Substitution** - Numbers	When estimating, you find an approximate answer. The unknown variable could be... because... If I substitute ..... for..... then the equation becomes .... If one addend is increased by an amount and the other addend is decreased by the same amount, the sum remains the same. If one addend is changed by an amount and the other addend is kept the same, the sum changes by that amount.		**Resources** Place value charts, number lines, place value counters, Base 10, Numicon, bar models, part whole models, WRM interactive whiteboard and digital tools **Websites and activities** https://classroomsecrets.co.uk/category/maths/year-6/spring-block-3-algebra/ https://whiterosemaths.com/ https://whiterosemaths.com/wp-content/uploads/digital-tools/bar-model/ Nrich activities https://thirdspacelearning.com/blog/maths-vocabulary-ks2-5-activities-fluency-develop-reasoning-skills/

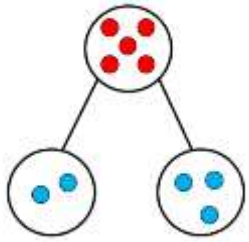
		can be substituted into an algebraic expression **Brackets** – Tells us which part of the equation to do first. **Order of operations –** The order in which operations are applied in a calculation. The agreed order is often referred to as BODMAS or BIDMAS			

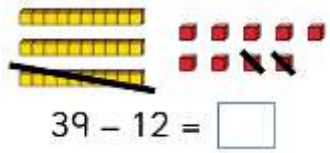
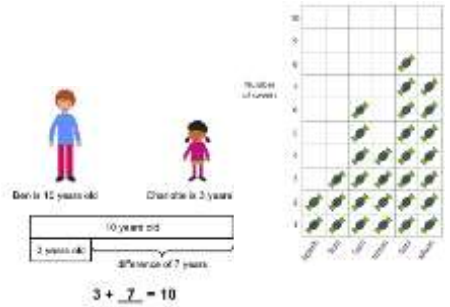
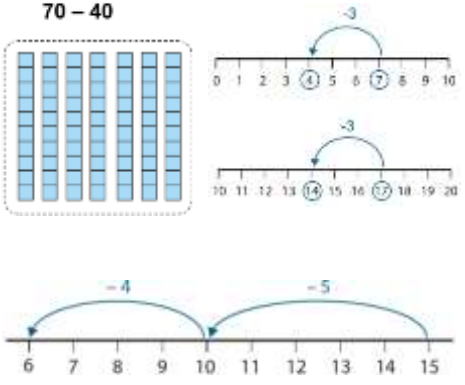
Subtraction

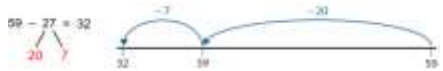
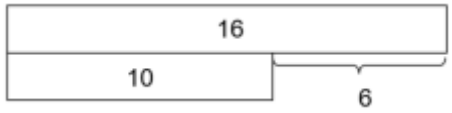
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
EYFS FS1&2	subtract take/take away minus difference/difference total equal/ equal to decrease part whole represent number facts **Previously taught vocabulary Year PRE NURSERY** first/then/now, , between, less/ one less, fewer/fewest, backwards, count back, smaller/smallest, leaves/left/gone	**Subtract/ take away/ minus** – The process of taking an amount or a number away from another **Difference** - To find the difference between two numbers **Decrease** - make or become smaller or fewer in size or amount **Part** – part of a whole set, amount or number. A visual representation to show how numbers are composed **Whole** – a complete set, amount or number **Represent** - To show a mathematical concept	___ subtract/minus ___ is equal to ___. 6 is **equal to** 8 **subtract** 2. OR 8 subtract 2 is equal to 6. **First** Harry has 6 eggs, **then** Harry drops 3 of the eggs. **Now** how many eggs does Harry have? There are 7 cars and 5 cars are **taken away.** We can write this as 7 subtract 5 **Subtracting** one give one **less** ___ is the minuend. ___ is the subtrahend. ___ is the difference. Minuend subtract the subtrahend is equal to the difference. The difference between ___ and ___ is ___. ___ and ___ have a difference of ____.	    Part-part-whole diagrams:  	**Resources** number tracks/lines, part-whole models, ten frames, rekenrek, hundred squares, concrete objects, balance scales, visualiser **Books** How many legs…? How many seeds in a pumpkin, One is a snail Ten is a crab **Activities** **Ensure number play including addition and subtraction are part of the EYFS school day e.g. snack time, within provision etc** missing number questions, odd one out, third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/#0-maths-games-for-year-1- Websites • Primary Stars

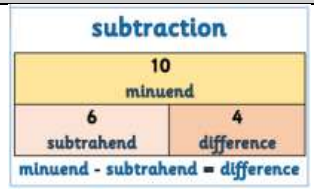
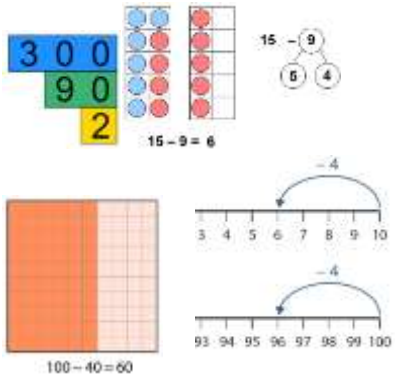
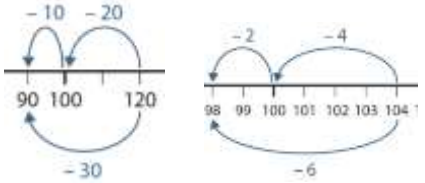
		using words, numerals and symbols, pictures, diagrams, or concrete manipulatives.	One less than ___ is ___. ___ is one less than ___. ___ is less than ___. There are fewer ___ than ___. "How many fewer?" The number is decreasing by ___. When we subtract we start with the whole.		• NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above) • NRICH https://nrich.maths.org/8937 • Mathematics shed • I see maths • Number talks

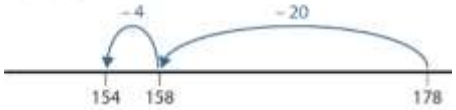
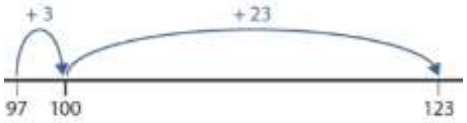
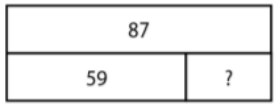
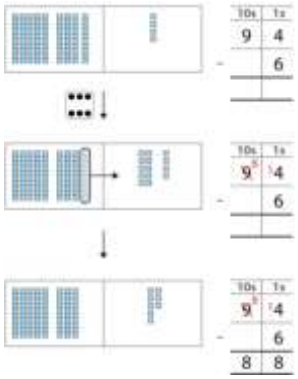
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	least missing number symbol fact families/ related facts / inverse minuend subtrahend calculate/calculation equation estimate equal value **Previously taught vocabulary Year PRE NURSERY** first/then/now, , between, less/ one less, fewer/fewest, backwards, count back, smaller/smallest, leaves/left/gone **Previously taught vocabulary FS1 & 2** subtract, take/take away, minus, difference/difference, total, equal/ equal to, decrease, part, whole, represent, number facts	**Related facts:** An association between two or more number facts. **Inverse**: inverse refers to the **opposite of another operation** **Minuend** – It is the whole amount from which the subtrahend will be subtracted **Subtrahend** – A quantity which is subtracted from another **Equation**: A mathematical statement showing that two expressions are equal. The expressions are linked with the symbol = Examples: 7 – 2 = 4 + 1 **Estimate** – to find a rough or approximate	___ subtract/minus ___ is equal to ___. "There are 6 children altogether. 2 children are wearing coats. 4 children are not wearing coats." "We can write this as 6 minus 2 is equal to 4." "The 6 represents the total number of children." "The 2 represents …." "The 4 represents …" "First there were 4 children in the bumper car. Then 1 child got out. Now there are 3 children in the bumper car." "We can write this as 4 minus 1 is equal to 3." ___ is the minuend. ___ is the subtrahend. ___ is the difference. Minuend subtract the subtrahend is equal to the difference. *LINK TO YEAR 1 SUBTRACTION VIDEO*		**Resources;** number tracks/lines, part-whole models, ten frames, rekenrek, hundred squares, concrete objects, balance scales, visualiser **Activities:** missing number questions, odd one out, third space learning games https://thirdspacelearning.com/blog/maths-games-ks1/#0-maths-games-for-year-1- **Websites:** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above) • NRICH https://nrich.maths.org/8937 • Mathematics shed • I see maths • Number talks

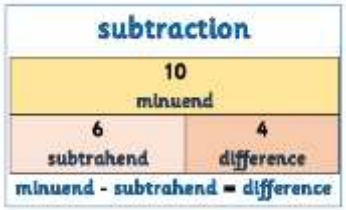
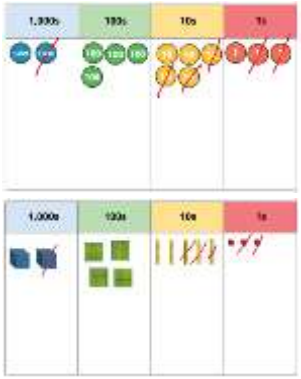
		answer **Equal value:** may look different but represents equal values	The difference between ___ and ___ is ___. ___ and ___ have a difference of ____. There are two fewer blue cars than red cars. The difference between the number of blue cars and the number of red cars is two. One less than ___ is ___. ___ is one less than ___. ___ is less than ___. There are fewer ___ than ___. "How many fewer?" The number is decreasing by ___. When we subtract we start with the whole.	  5 - 2 = 3 5 – 3 = 2	

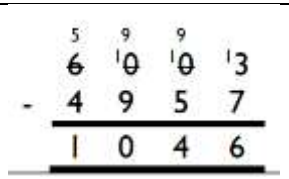
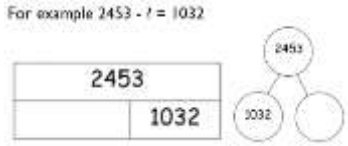
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
2	exchange/ regroup balanced equation not commutative equivalent **Previously taught vocabulary Year PRE NURSERY** first/then/now, , between, less/ one less, fewer/fewest, backwards, count back, smaller/smallest, leaves/left/gone **Previously taught vocabulary FS1 & 2** subtract, take/take away, minus, difference/difference, total, equal/ equal to, decrease, part, whole, represent, number facts **Previously taught vocabulary Year 1** least, missing number, symbol, fact families/ related facts / inverse, minuend, subtrahend, calculate/calculation, equation, estimate, equal value	**Exchange/regroup**: Change a number for another of equal value **Balanced equation** – equation that has the same value on each side e.g. 2 + 5 = 3 + 4 **Not commutative**: Subtraction is not commutative since, as counter examples, 2 – 3 ≠ 3 – 2. **Equivalent** - may look different but represents equal values	___ subtract/minus ___ is equal to ___. The difference between ___ and ___ is ___. ___ and ___ have a difference of ____. One less than ___ is ___. ___ is one less than ___. Ten less than ___ is ___. ___ is ten less than ___. The number is decreasing by ___. If I know ____, then I also know___ When we subtract we start with the whole. The minuend is 15. The subtrahend is 9. We partition the subtrahend into 5 and 4. 15-5=10 10-4=6 First I partition the subtrahend into tens and ones. Then I subtract the tens, then subtract the ones.	  37 32 27 22 17 ____ 7 2 7 – 4 = 3 70 – 40 	**Resources** Counters, ten frames, base 10, rekenrek, part-whole models, place value cards, digit cards, fact family house outlines, bead strings, numicon, number lines, hundred squares Interactive 100 square https://www.topmarks.co.uk/learning-to-count/paint-the-squares **Activities**: Place value grids, ten frame dice, missing number questions, White Rose reasoning and problem solving challenges. **Websites:** Gareth Metcalfe – I See Reasoning KS1 NRICH

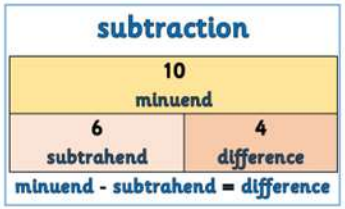
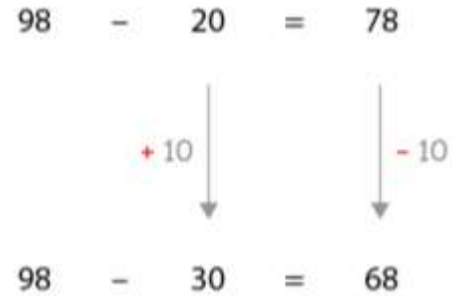
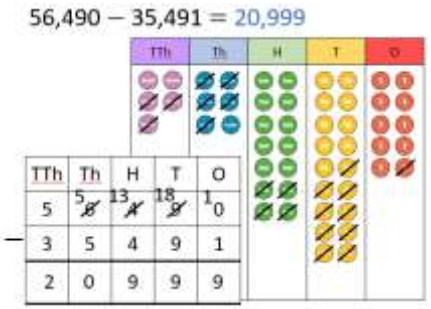
			We subtract from the whole number.	 10 + ☐ = 16 16 – 10 = ☐  	'Find the difference' https://nrich.maths.org/6227/note 'Subtraction slip' https://nrich.maths.org/14740?utm_source=primary-map Primary Stars https://primarystarseducation.co.uk/resources/year-2-overview/ NCETM https://www.ncetm.org.uk/media/dnobtk14/mastery_assessment_yr2.pdf White Rose Maths Hub https://whiterosemaths.com/ Number talk images http://ntimages.weebly.com/photos.html Same but different maths https://www.samebutdifferentmath.com/

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
3	remaining column column subtraction approximate(ly) efficient **Previously taught vocabulary Year 1** least, missing number, symbol, fact families/ related facts / inverse, minuend, subtrahend, calculate/calculation, equation, estimate, equal value **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, not commutative, equivalent	**Remaining** – an amount left over when completing a calculation **Column**: Vertical arrangement **Column subtraction**: A formal method of setting out a subtraction in ordered columns. Each column represents a place value. **efficient**: : a means of calculation (which can be mental or written) that achieves a correct answer with as few steps as possible.	To calculate 392 subtract 70, we can use the number bond 9 – 7. I know that 10 minus 4 is equal to 6 so I know that 100 (10 tens) minus 40 (4 tens) is equal to 60 or 100 minus 4 is equal to 96. Minuend minus subtrahend is equal to the difference. We can find the difference when the minuend and subtrahend are close together. I can count back from the minuend and partition. To subtract 6 from 104 I will partition the 6. 104 has 4 ones so I will take away the 4 ones part first then I have 2 ones remaining to take away. If we exchange the values of the subtrahend and difference, the minuend remains the same	 *LINK TO YEAR 3 ADDITION BAR MODEL VIDEO*  Bridging: 	• Actions and chants – children develop actions similar to Talk4Writing actions such as an ‘a’ for addend. Make this universal across school. • Representing/draw/build/show what a word means • Acting out and oral rehearsal of key words. https://thirdspacelearning.com/maths-resources/ http://www.littlemeltonprimaryschool.co.uk/wp-content/uploads/2021/03/ISeeReasoning-LKS2.pdf http://www.meaningfulmathmoments.com/same-or-different.html https://diagnosticquestions.com/WhiteRose www.mathsbot.com https://nrich.maths.org/13787

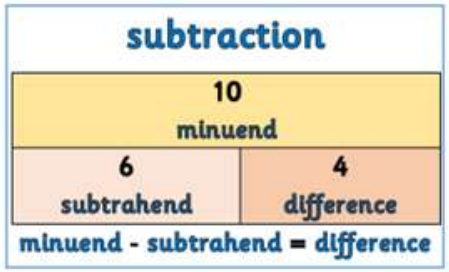
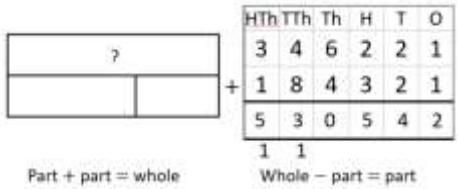
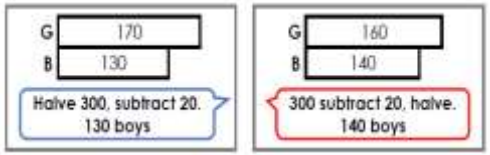
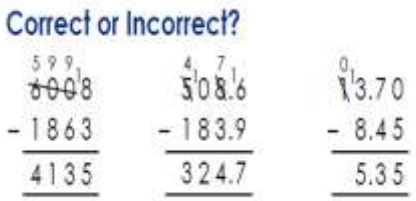
			The ones column represents __ ones minus __ ones is equal to __ ones. The tens column represents __ tens minus __ tens is equal to __ tens. One ten can be exchanged/ regrouped for ten ones. One hundred can be exchanged/ regrouped for ten tens. These calculations require one/ more than one exchange/ regrouping. *LINK TO YEAR 3 COLUMN SUBTRACTION VIDEO* *LINK TO YEAR 3 COLUMN SUBTRACTION VIDEO*	Partitioning the subtrahend without bridging: 178 – 24  finding the difference by counting up:   87 – 59 = 28 and 87 – 28 = 59 	Spot the Mistake What should the answer be? Which of these calculations need an exchange? How many different ways can you find 138 – 90. Use diagrams and equations to explain your methods. Which strategy do you prefer?

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
4	expression/ expressed as **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, not commutative, equivalent **Previously taught vocabulary Year 3** remaining, column, column subtraction, approximate(ly), efficient	**Expression** - a number sentence which has at least two numbers and one mathematical operation	Minuend subtract the subtrahend is equal to the difference. "If we exchange the values of the subtrahend and difference, the minuend remains the same." "14 minus 6 is equal to 8, so 14 hundreds minus 6 hundreds is equal to 8 hundreds." "8 hundred is equal to 800." In column subtraction we line up the digits in columns. In column subtraction, we start at the right hand side in the ones column. If the subtrahend is bigger than the minuend, we must exchange/regroup. One ten can be exchanged/ regrouped for ten ones. One hundred can be exchanged/ regrouped for ten tens. One thousand can be exchanged/regrouped for ten hundreds.	 8 + 6 = 14 and 14 – 6 = 8 so 800 + 600 = 1,400 and 1,400 – 600 = 800 	**Resources** place value charts, number lines, place value counters, base 10, dienes, Numicon, Gattegno chart, bar models, part-whole models, WRM interactive whiteboard and digital tools **Activities** • I see reasoning year 4 • Skills games (e.g. Success 4 Arithmetic) • https://nrich.maths.org/13787 **Websites** • NCETM – NCETM teacher guides, teaching for mastery Ncetm curriculum tools

			LINK TO YEAR 4 MISSING ADDEND VIDEO The largest number is the minuend. To find the difference we can take away the subtrahend.	  	• WRM – Interactive, problem solving and reasoning • I see maths • www.mathsbot.com • Classroom secrets – fluency • Unique classrooms • Thinking talking • Diagnostic questions

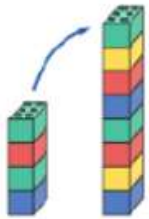
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
5	decomposition **Previously taught vocabulary Year 2** exchange/ regroup, balanced equation, not commutative, equivalent **Previously taught vocabulary Year 3** remaining, column, column subtraction, approximate(ly), efficient **Previously taught vocabulary Year 4** expression/ expressed as	**Composed/ decomposed –** To either put together or break down a number using its parts.	I've added ___ to the minuend/ subtrahend, so I need to add ___ to the subtrahend/ minuend to keep the difference the same. I've subtracted ___ from the minuend/ subtrahend so I need to subtract ___ from the subtrahend/ minuend to keep the difference the same.	  	**Resources**- Place value charts, number lines, place value counters, Base 10, Numicon, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities** https://nrich.maths.org/11014?utm_source=primary-map https://nrich.maths.org/5865 https://vimeo.com/425569172 White Rose Maths - Year 5 - Week 7 - Lesson 2 - Subtract whole numbers with more than 4 digits (column method) https://resources.whiterosemaths.com/wp-content/uploads/2020/09/Y5-Autumn-Block-2-WO2-Subtract-whole-numbers-with-more-than-4-digits-column-method-2019.pdf **Websites** https://whiterosemaths.com/wp-content/uploads/digital-tools/bar-model/

					https://www.stem.org.uk/resources/elibrary/resource/32757/column-subtraction https://www.oxfordowl.co.uk/for-school/numicon-teaching-assessment-resources

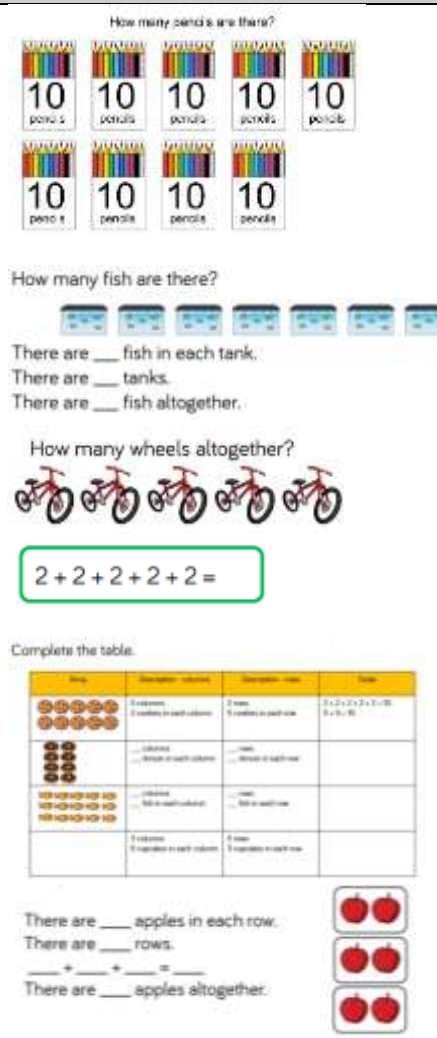
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
6	algebra formula/formulae unknown variable substitute brackets BODMAS/ BIDMAS/ order of operations **Previously taught vocabulary Year 2** Exchange/ regroup, balanced equation, not commutative, equivalent **Previously taught vocabulary Year 3** Remaining, column, column subtraction, approximate(ly), efficient **Previously taught vocabulary Year 4** Expression/ expressed as	**Algebra** – The part of mathematics that deals with generalised arithmetic. Letters are used to denote variables and unknown numbers and to state general properties. **Formula**- A formula is a way to represent calculations. It uses letters to represent variables and shows the relationships between them. To use a formula we must know some of the values to replace the letters and find the value	If you have increased or decreased the minuend and subtrahend by the same amount, the difference stays the same. *LINK TO SUBTRACTION VIDEO	  	**Resources** Place value charts, number lines, place value counters, Base 10, Numicon, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities and websites** https://whiterosemaths.com/ https://whiterosemaths.com/wp-content/uploads/digital-tools/bar-model/ https://nrich.maths.org/8955  

Previously taught vocabulary Year 5 decomposition		for the remaining one. **Unknown variable** – A quantity that can take on a range of variables. Usually denoted by a letter. **Substitution** - Numbers can be substituted into an algebraic expression **Brackets** – Tells us which part of the equation to do first. **Order of operations** – The order in which operations are applied in a calculation. The agreed order is often referred to as BODMAS or BIDMAS			

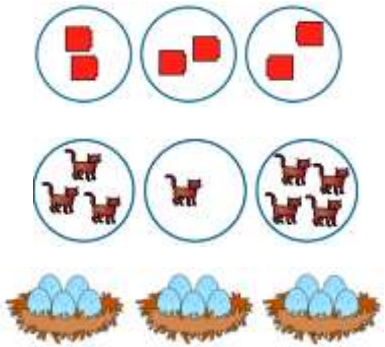
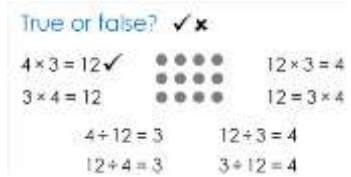
Multiplication

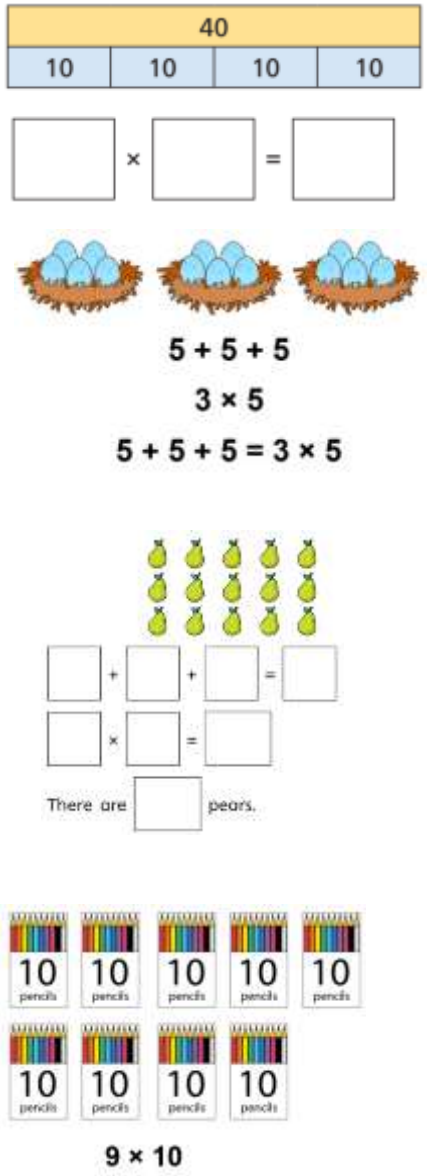
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to….	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
EYFS FS1 & 2 **Previously taught vocabulary** **PRE - NUSERY** Groups, groups of, equal groups, not equal groups, lots of, altogether	double repeat number pattern symbol represent number facts equal/ equal to	**Double** – when there are two of the same image, number, quantity and the total is counted. **Repeat** – To do again or more than once **Pattern** – An arrangement of numbers, symbols, objects, shapes, colours etc. that follow a rule **Represent** - To show a mathematical concept using words, numerals and symbols,	"Can you count in 5s, 2s, 10s?" "1 group of 10, 2 groups of 10, 3 groups of 10…" In time, shortened to: "1 ten, 2 tens, 3 tens…" "The pencils are in groups of 10, so we will count in tens." Each _____ has ____ parts Count in groups of _____ There are (number) groups/lots/sets of (number/ item). The groups are **equal** because there are the same number in each group. The groups are **unequal** because there is a different number in each group.	 double 4 is 8 4 × 2 = 8 	**Resources** number tracks/lines, numicon, ten frames, counters, rekenrek, hundred squares, concrete objects, balance scales, visualiser **Books** **'Best of times'** Greg Tang **'2x2 = Boo'** Loreen Leedy '**Twice my size'** Adrian Mitchel **Activities** missing number questions, odd one out, lots of biscuits https://nrich.maths.org/6883?utm_source=primary-map **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above)

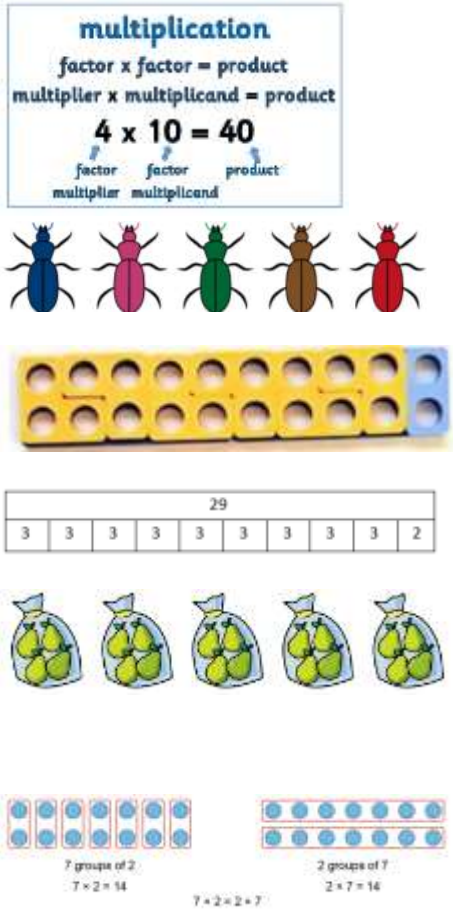
		pictures, diagrams, or concrete manipulatives. **Equal to** - The symbol is read as 'is equal to' which means the same value as or equivalence between expressions	There are ___ equal groups of ___. There are ___ in each group. There are ___ groups of ___. There are ___ altogether.		• NRICH • Mathematics shed • I see maths

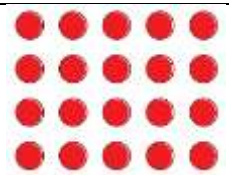
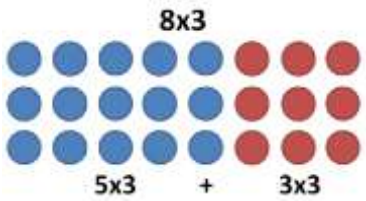
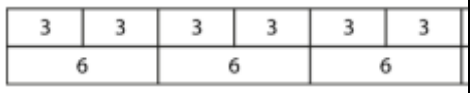
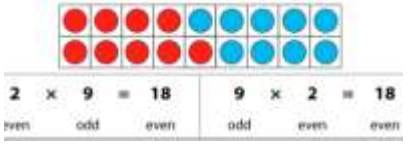
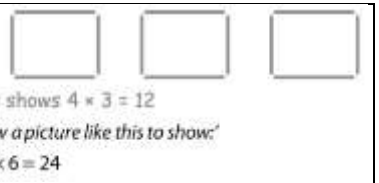
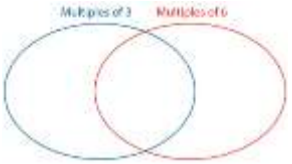
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	multiplication multiply times times tables repeat repeated addition odd even array row/column quantity/amount calculate/calculation equation estimate equal value fact families/ related facts / inverse **Previously taught vocabulary PRE - NUSERY** groups, groups of, equal groups, not equal groups, lots of, altogether **Previously taught vocabulary FS1 & 2** double, repeat, number pattern, symbol, represent, number facts, equal/ equal to	**Repeated addition** – repeatedly adding the same number or amount **Odd** – an amount / number that is not a multiple of 2 **Even** - an amount / number that is a multiple of 2 **Array** -an ordered collection of counters, numbers etc. in rows and column **Equation**: A mathematical statement showing that two expressions are equal. The expressions are linked with the symbol = Examples: 7 – 2 =	"Can you count in 5s, 2s, 10s?" "Ten, twenty, thirty…" "1 group of 10, 2 groups of 10, 3 groups of 10…" In time, shortened to: "1 ten, 2 tens, 3 tens…" "The pencils are in groups of 10, so we will count in tens." There are ___ equal groups of ___. There are ___ in each group. There are ___ groups of ___. There are ___ altogether. There are ___ in each row. There are ___ rows. ___ + ___ + ___...=___ There are ____ altogether		**Resources** number tracks/lines, numicon, ten frames, counters, rekenrek, hundred squares, concrete objects, balance scales, visualiser **Activities** missing number questions, odd one out, lots of biscuits https://nrich.maths.org/6883?utm_source=primary-map **Websites** • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above) • NRICH • Mathematics shed • I see maths

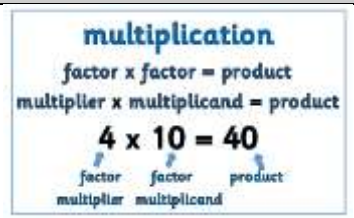
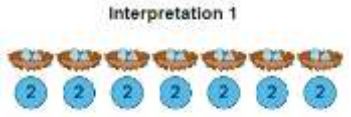
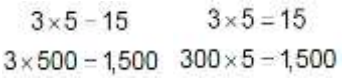
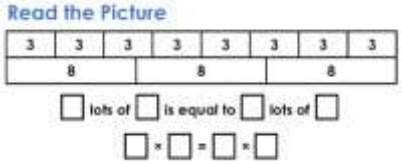
		4 + 1 **Estimate** – to find a rough or approximate answer **Equal value**: may look different but represents equal values **Related facts:** An association between two or more number facts.			

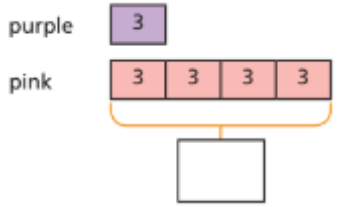
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
2 **Previously taught vocabulary PRE - NUSERY** groups, groups of, equal groups, not equal groups, lots of, altogether **Previously taught vocabulary FS1 & 2** double, repeat, number pattern, symbol, represent, number facts, equal/ equal to **Previously taught vocabulary Year 1** multiplication, multiply, times, times tables, repeat, repeated addition, odd, even, array, row/column, quantity/amount, calculate/calculation, equation, estimate, equal value, fact families/ related facts / inverse	product commutative exchange/ regroup balanced equation equivalent	**Product**: The result of multiplying one number by another. Example: The product of 2 and 3 is 6 since 2 × 3 = 6 **Commutative:** Addition numbers are commutative where a + b = b + a, for example, 2 + 3 = 3 + 2. **Exchange/regroup**: Change a number for another of equal value **Balanced equation** – equation that has the same value on each side e.g. 2 + 5 = 3 + 4 **Equivalent** - may look different but represents equal values	Equal groups have the same amount in each group. The groups are equal because _____. The groups are not equal because _____. Five plus five plus five is equal to fifteen. We can represent equal groups by using repeated addition. "The pencils are in groups of 10, so we will count in tens." "Can you count in 10s, 2s, 5s, 3s?" "Ten, twenty, thirty…" "Twenty, eighteen, sixteen…" The number is increasing by ___ each time. The number is decreasing by ___ each time. "1 group of 10, 2 groups of 10, 3 groups of 10…" In time,		**Resources:** Counters, rekenrek, fact family house outlines, bead strings, numicon, number lines, hundred squares Interactive 100 square https://www.topmarks.co.uk/learning-to-count/paint-the-squares **Websites**: Gareth Metcalfe – I See Reasoning KS1 'True or False'  NRICH

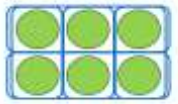
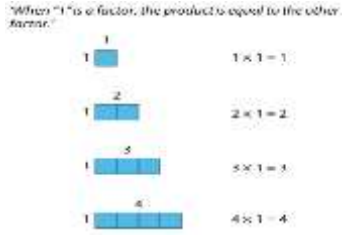
			shortened to: “1 ten, 2 tens, 3 tens…” There are ___ equal groups of ___. There are ___ in each group. There are ___ groups of ___. There are ___ altogether. *LINK TO Y2 MULTIPICATION VIDEO I have ____ groups. Each group has ____. 2x10 = 10x2 We can represent repeated addition using multiplication. __+__+__ = __ x __ There are ___ in each row. There are ___ rows. There are ___ in each column. There are ___ columns. There are ____ altogether. 9x10 9 represents the number of groups. 10 represents how many are in each group. 9 groups of 90 = 90		‘Pairs of legs’ https://nrich.maths.org/7462/solution ‘Noah’s Ark’ https://nrich.maths.org/7210&part Primary Stars https://primarystarseducation.co.uk/resources/year-2-overview/ NCETM https://www.ncetm.org.uk/media/dnobtk14/mastery_assessment_yr2.pdf White Rose Maths Hub https://whiterosemaths.com/ Number talk images http://ntimages.weebly.com/photos.html Same but different maths https://www.samebutdifferentmath.com/

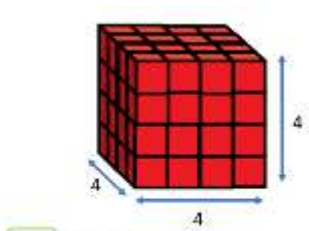
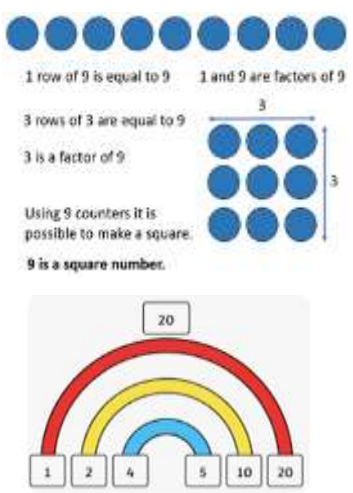
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
3	multiple multiplier multiplicand product factor scaling/ scale times greater than/ smaller than inequality efficient approximate(ly) **Previously taught vocabulary Year 1** multiplication, multiply, times, times tables, repeat, repeated addition, odd, even, array, row/column, quantity/amount, calculate/calculation, equation, estimate, equal value, fact families/ related facts/ inverse **Previously taught vocabulary Year 2** product, commutative, exchange/ regroup, balanced equation, equivalent	**Multiple** – the numbers you get when you multiply a certain number by an integer e.g. the multiples of 5 are 5, 10, 15 etc. **Multiplier** – how many groups **Multiplicand** – the size of the group **Product**: the result of multiplying 2 or more factors **Factor**: numbers that divide exactly into another number **Scale** - to enlarge or reduce a number, quantity or measurement by a given amount (called a scale factor)	There are __ equal groups with __in each group. There are __ 3s. 29 is not a multiple of 3. Five is a factor. Four is a factor. The five represents… The four represents… The product of five and four is twenty. Twenty is the product of 5 and 4. Factor multiplied by factor is equal to product. The order of the factors does not affect the product. When zero is a factor, the product is zero. When one is a factor (4 x 1), the product is equal to the other factor.		https://thirdspacelearning.com/maths-resources/ https://diagnosticquestions.com/WhiteRose http://www.littlemeltonprimaryschool.co.uk/wp-content/uploads/2021/03/ISeeReasoning-LKS2.pdf http://www.meaningfulmathmoments.com/same-or-different.html https://nrich.maths.org/8956 White Rose Maths Hub NCETM, classroom secrets, Supermovers, Number rocks, “The product is 30. What could the factors be?”

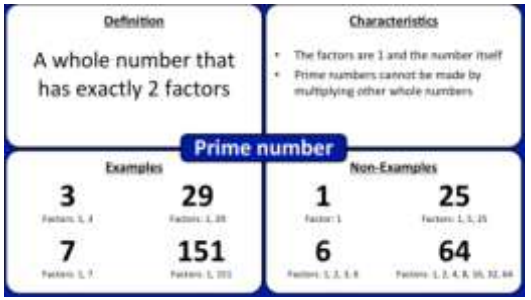
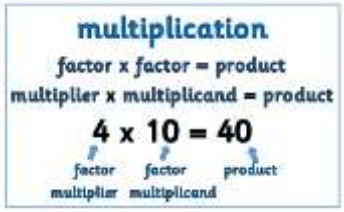
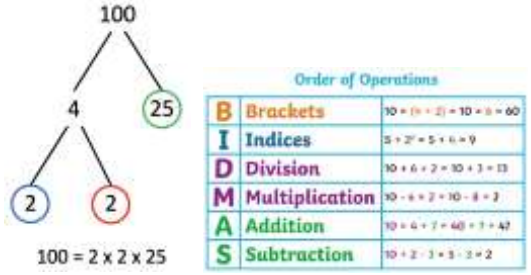
		Efficient: a means of calculation (which can be mental or written) that achieves a correct answer with as few steps as possible. **Approximate**: An approximation is **anything that is similar, but not exactly equal, to something else**.	The multiplier (8) can be partitioned into 5 and 3. 8 groups of 3 is equal to 5 groups of 3 and 3 groups of 3. Products in the six times table are also in the three times table. Products in the 3 times table are half products in the 6 times table. For every one group of 6 there are two groups of 3. If both factors are odd, the product is odd. If one of the factors is even, the product is even. 2 x 34: there are two lots of 3 tens and s of 4 ones	    	 How would you solve: 4 x 2 x 8 x 0 x 10 On a blank hundred square, colour multiples of 8 red and multiples of 4 blue. Always, Sometimes, Never • Multiples of 4 are also multiples of 8 • Multiples of 8 are also multiples of 4 

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to….	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
4	column multiplication factor pair sequence expression/ expressed as **Previously taught vocabulary Year 2** product, commutative, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** multiple, multiplier, multiplicand, product, factor, scaling/ scale, times greater than/ smaller than, inequality, efficient, approximate(ly)	**Column multiplication –** a formal method of setting out a multiplication calculation **Factor pair** – a pair of two integers that give a specific product when multiplied together **Expression** - a number sentence which has at least two numbers and one mathematical operation	Factor x factor = product. ____ is a factor ____ is a factor ____ is the product. *LINK TO Y4 ARRAYS VIDEO "2 groups of 7 is equal to 14." "7 groups of 2 is equal to 14." "2 groups of 7 is equal to 7 groups of 2." "The 2 represents number of eggs in each nest/group". "The 7 represents the number of nests/groups." "The 14 represents the total number of eggs/product." "The 2 represents the number of nests/groups." "The 7 represents the number of eggs in each nest/group." "The 14 represents the total number of eggs/product." *LINK TO Y4 FACTORS OF A NUMBER VIDEO	  Figure 121: 7 groups of 2 – 7 nests of 2 eggs and seven 2-value counters Figure 122: 2 groups of 7 – 2 nests of 7 eggs and two 7-value counters 	**Resources:** place value charts, number lines, place value counters, base 10, cuisenaire rods, Numicon, Gattegno chart, bar models, number rods, WRM interactive whiteboard and digital tools **Activities:**  • I see reasoning activities year 4 • Skills games (e.g. Success 4 Arithmetic) • https://nrich.maths.org/13788 • Top mark – times table games **Websites:** • NCETM – Ncetm multiplication and division teacher guides Curriculum tools, teaching for mastery • WRM • I see maths • www.mathsbot.com

			The product of _3_ and _5_ is equal to the product of _5_ and _3_. _3_ x _5_ = _5_ x _3_ The order of the factors does not affect the product. 3 and 5 are a factor pair of 15. “3 times 5 is equal to 15.” “3 times 5 hundreds is equal to 15 hundreds.” “3 hundreds times 5 is equal to 15 hundreds.” “15 hundreds is equal to 1,500.” “If I multiply one factor by 100, I must multiply the product by 100.” “23, made 100 times the size, is 2,300.” “23 multiplied by 100 is equal to 2,300.” “First we had 23 ones. Now we have 23 hundreds.”	Scaling 	• https://diagnosticquestions.com/Quizzes/Collections • http://ntimages.weebly.com/photos.html • Classroom secrets – fluency • Unique classrooms • Thinking talking • Diagnostic questions

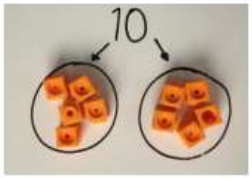
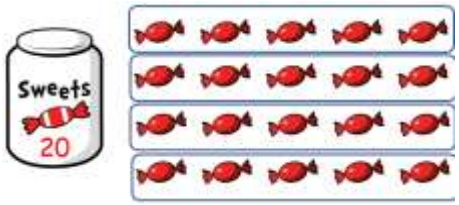
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
5	composite number powers of 10 square cube prime common factor prime factor common multiple **Previously taught vocabulary Year 2** product, commutative, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** multiple, multiplier, multiplicand, product, factor, scaling/ scale, times greater than/ smaller than, inequality, efficient, approximate(ly) **Previously taught vocabulary Year 4** Column multiplication, factor pair, expression/ expressed as	**Composite number –** any number that is not a prime number Square number – A number that is multiplied by its self e.g. 6 x 6 6^2 **Cube number** – A number that is multiplied by itself, twice e.g. 4 x 4 x 4 4^3 **Prime number** - A whole number greater than 1 that has exactly two factors, itself and 1. Examples: 2 (factors 2, 1), 3 (factors 3, 1). 51 is not prime (factors 51, 17, 3, 1). **Common factor** – a number which is a factor of two or more other numbers Prime factor – factors of a number that are prime	'2' is a factor of '6' because 2 × 3 = 6 '6' is a multiple of '2' because 2 × 3 = 6 '2' is a factor of '6' because 6 ÷ 3 = 2 '6' is a multiple of '2' because 6 ÷ 3 = 2 ___ is a factor of ___ because _____x _____ = _____. ___ is a multiple of ___ because _____x _____=_____. *LINK TO MULTIPLYING BY 1000 VIDEO • *'"1" is a factor of all positive integers.'* • *'Every positive integer is a factor of itself.'* • *'The smallest factor of a positive integer is always "1".'* • *'The largest factor of a positive integer is always itself.'*	 There are 25 prime numbers between 1 and 100 What is a factor?  2 rows of 3 are equal to 6 2 × 3 = 6 3 columns of 2 are equal to 6 3 × 2 = 6 **2 and 3 are factors of 6** *LINK TO YEAR 5 MULTIPLY VIDEO*  **multiplication** factor x factor = product multiplier x multiplicand = product 4 x 10 = 40 factor factor product multiplier multiplicand	**Resources:** Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno charts, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities:** • NRICH Activities - One wasn't square, What do You need?, Mystery Matrix, Factors and Multiples Game, Factor Multiple Chains, • https://nrich.maths.org/14870 - Playing with Factors and Multiples • NCETM Resources – Find Factors and Multiples PPT • https://whiterosemaths.com/homelearning/year-5/week-8-number-multiplication-division/ • https://resources.whiterosemaths.com/wp-content/uploads/2019/10/Y5-Autumn-Block-4-WO7-Multiply-by-10-100-and-1000-2019-1.pdf Q8&9

		Common multiple - an integer which is a multiple of a given set of integers .			• https://resources.whiterosemaths.com/wp-content/uploads/2019/11/Y5-Spring-Block-1-WO5-Multiply-4-digits-by-2-digits-2019.pdf Q5,7 &8 • https://www.topmarks.co.uk/maths-games/hit-the-button **Websites:** https://nrich.maths.org/2469 - article Multiplication Series: Illustrating Number Properties with Arrays NCETM - https://www.ncetm.org.uk/in-the-classroom/national-curriculum-resource-tool/?topic=1827&year=1536 NCETM Video example - https://www.ncetm.org.uk/in-the-classroom/national-curriculum-resource-tool/?topic=1827&year=1536

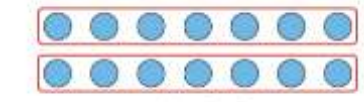
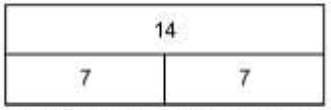
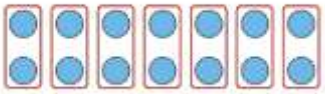
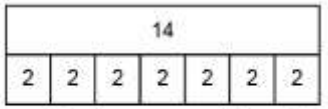
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE T	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
6	algebra formula brackets BODMAS/ BIDMAS/ order of operations **Previously taught vocabulary Year 2** product, commutative, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** multiple, multiplier, multiplicand, product, factor, scaling/ scale, times greater than/ smaller than, inequality, efficient, approximate(ly) **Previously taught vocabulary Year 4** column multiplication, factor pair, expression/ expressed as	**Algebra** – The part of mathematics that deals with generalised arithmetic. Letters are used to denote variables and unknown numbers and to state general properties. **Formula**- A formula is a way to represent calculations. It uses letters to represent variables and shows the relationships between them. To use a formula we must know some of the values to replace the letters and find the value for the remaining	The common factors of 16 and 20 are 1, 2 and 4 – the HCF is 4. For 5 cubed, it is the same as _____. This can be read as 5 to the power of 3. The LCM of 3 and 6 is ____. When completing this calculation, I will complete _____ first, followed by _____.	  	**Resources:** Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno charts, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities and websites:** https://whiterosemaths.com/wp-content/uploads/2020/08/Year-6-Autumn-block-2-Four-Operations.pdf https://www.ncetm.org.uk/classroom-resources/primm-2-21-factors-multiples-prime-numbers-and-composite-numbers/ http://ntimages.weebly.com/photos.html https://nrich.maths.org/8956Abundant numbers Factors and Multiples game Common multiples - Remainders

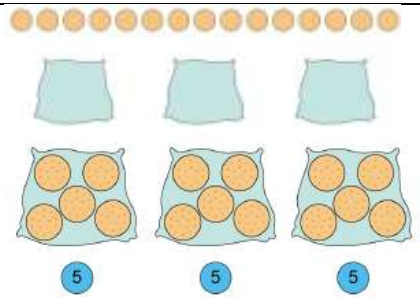
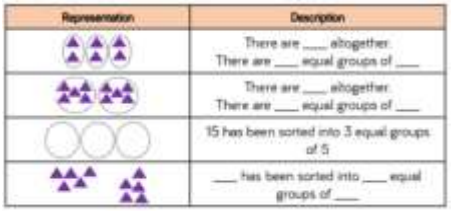
Previously taught vocabulary Year 5 composite number, powers of 10, square, cube, prime, common factor, prime factor, common multiple		one. **Brackets** – Tells us which part of the equation to do first. **Order of operations** – The order in which operations are applied in a calculation. The agreed order is often referred to as BODMAS or BIDMAS			

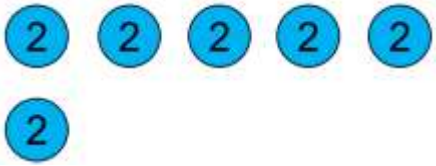
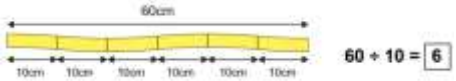
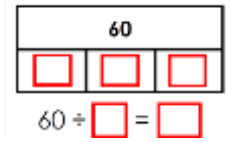
Division

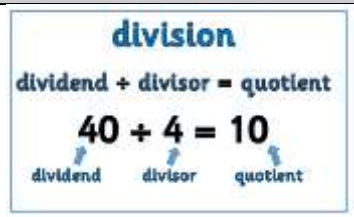
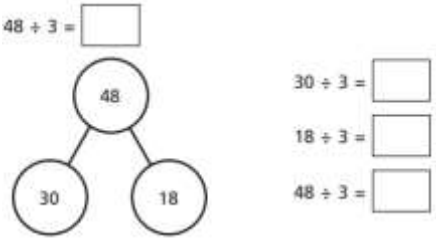
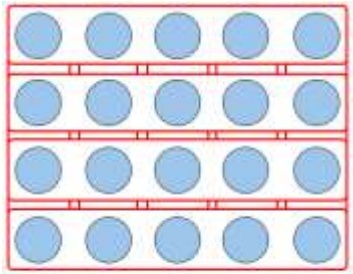
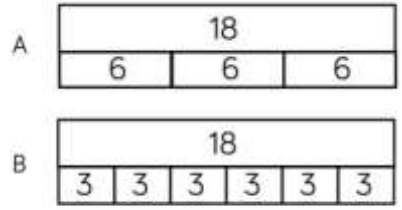
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
EYFS FS1&2	share sharing sharing equally half halve halving represent number facts equal/ equal to **Previously taught vocabulary** **PRE - NUSERY** grouping, groups of, lots of, equal groups, unequal groups, equal parts	**Groups** - To share or group into equal/ unequal parts **Share** – Splitting into parts or groups When a quantity is shared between people, you're calculating is how much each person gets 1st step is for children to share an amount into groups of any size. 2nd step is for children to share an amount into equal groups. **Half** – A whole shared into 2 equal groups. One group is a half	**Sharing** (*Information for teachers, not expected vocabulary for children* When using the sharing method, the dividend and the amount of groups is known but the quantity in each group is not known.) I have shared the cubes into two equal groups. There are 5 in each group. I have half and you have half. Half of 10 is 5. **Grouping** ((*Information for teachers, not expected vocabulary for children* When using the grouping method, the dividend and the quantity in each group is known but the amount of groups is not known.)	Sharing using a range of objects *I have 10 cubes; can you share them equally in 2 groups?*  **10 is shared into 2 equal groups of 5**  	**Resources:** number tracks/lines, ten frames, counters rekenrek, hundred squares, concrete objects, balance scales, visualisers **Activities:** missing number questions, odd one out, share bears https://nrich.maths.org/2358?utm_source=primary-map, lots of biscuits https://nrich.maths.org/6883?utm_source=primary-map **Websites**: • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above) • NRICH • Mathematics shed • I see maths

			I have divided the sweets into groups of 5. There are 4 groups.	**Equal and unequal groups** 	

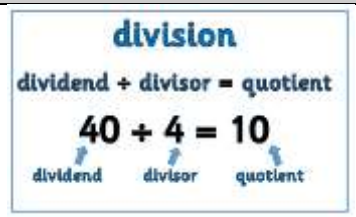
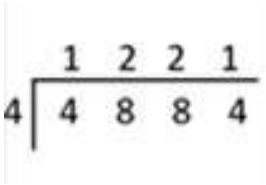
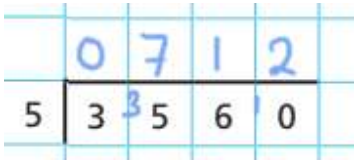
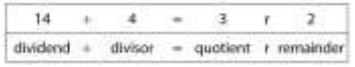
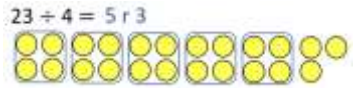
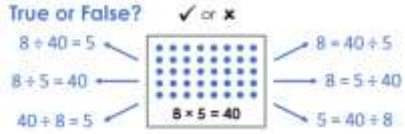
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	divide dividing array calculate/calculation equation estimate equal value fact families/ related facts / inverse **Previously taught vocabulary PRE - NUSERY** grouping, groups of, lots of, equal groups, unequal groups, equal parts **Previously taught vocabulary FS1 & 2** share, sharing, sharing, equally, half, halve, halving, represent, number facts, equal/ equal to	**Division**: An operation on numbers interpreted in a number of ways. Division can be sharing – the number to be divided is shared equally into the stated number of parts; or grouping – the number of groups of a given size is found.	**Sharing** There are _8_ altogether. If I share into _2_ equal groups, how many will be in each group? I have _8 cakes_ . I share them between _2 plates_ . How many will be on each plate? I shared _8_ into _2_ equal groups. There are _4_ in each group. (The groups are equal.) There are _8_ altogether. I shared them into _2_ groups. There are _4_ in each group. (The groups are equal.) **Grouping** I have _15_ . I divide them into groups of _5_ . How many groups will I have? There are _15 biscuits_ altogether. How many groups of _5_ are there? In _15_ , how many groups of _-5_ are there? There are _15_ altogether. I divided them into groups of _5_ . There are _3_ groups.	Partitive division (sharing)  14 ÷ 2 = 7  Figure 89: using an array and bar model to show that 14 shared between 2 is equal to 7 __ cakes shared equally between 2 is __ Quotative division (grouping)  14 ÷ 2 = 7  Figure 88: using an array and bar model to show that 14 divided into groups of 2 is equal to 7	**Resources;** number tracks/lines, ten frames, counters rekenrek, hundred squares, concrete objects, balance scales, visualiser **Activities:** missing number questions, odd one out, share bears https://nrich.maths.org/2358?utm_source=primary-map, lots of biscuits https://nrich.maths.org/6883?utm_source=primary-map **Websites**: • Primary Stars • NCETM • White Rose Maths Hub – SOL, premium resources, Interactive whiteboard resources (see above) • NRICH • Mathematics shed • I see maths

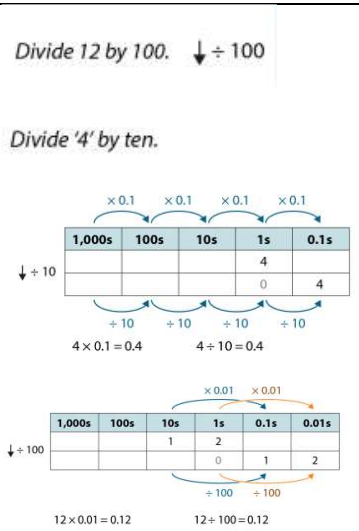
			I divided _15_ into groups of _5_ . There are _3_ groups.	 **“The 15 represents the total number of biscuits.”** **“The 5 represents the number of biscuits in each bag.”** **“The 3 represents the number of bags.”** **“15 divided into groups of 5 is equal to 3.”** 	

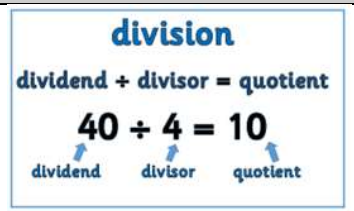
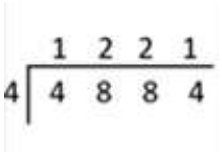
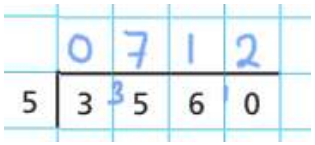
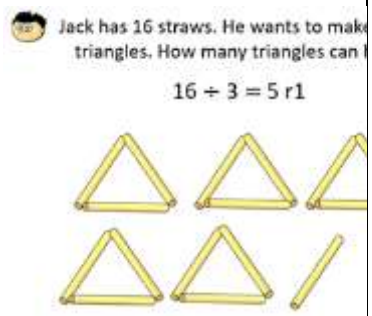
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
2	dividing by division not commutative thirds quarters left over remaining remainder exchange/ regroup balanced equation equivalent **Previously taught vocabulary PRE - NUSERY** grouping, groups of, lots of, equal groups, unequal groups, equal parts **Previously taught vocabulary Year 1** divide, dividing, array, calculate/calculation, equation, estimate, equal value, fact families/ related facts / inverse **Previously taught vocabulary FS1 & 2** share, sharing, sharing, equally, half, halve, halving, represent, number facts, equal/ equal to	Division is the inverse operation to multiplication **Remainder**: the amount left over after sharing into equal groups. Example: 16 divided by 5 = 3 remainder 1.	**Sharing** I have shared the seeds into 7 equal groups. There are 2 seeds in each group. **Grouping** In _12_ , how many groups of _2_ are there? In _12_ , there are _6_ groups of _2_ . *LINK TO Y2 VIDEO SHARING AND GROUPING A piece of ribbon is 60cm long. I want to cut it into smaller pieces that are 10cm long. How many pieces will I get? I have divided _60_ into groups of _10_ . There are _6_ groups.	 12 ÷ 2 = 6   	**Resources**: counters, rekenrek, fact family house outlines, bead strings, Numicon, number lines, hundred squares Interactive 100 square https://www.topmarks.co.uk/learning-to-count/paint-the-squares **Websites**: Gareth Metcalfe – I See Reasoning KS1 'True or False' NRICH 'Double or Halve?' https://nrich.maths.org/10654?utm_source=primary-map NCETM https://www.ncetm.org.uk/media/dnobtk14/mastery_assessment_yr2.pdf Number talk images http://ntimages.weebly.com/photos.html Same but different maths https://www.samebutdifferentmath.com/ Meaningful Maths Moments http://www.meaningfulmathmoments.com/number-talks.html

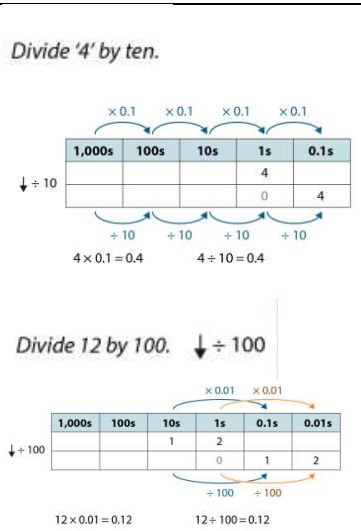
Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
3	grouping grouped into … in each group divided by/ into/ between dividend divisor quotient scaling efficient approximate(ly) **Previously taught vocabulary Year 1** divide, dividing, array, calculate/calculation, equation, estimate, equal value, fact families/ related facts / inverse **Previously taught vocabulary Year 2** dividing by, division, not commutative, thirds, quarters, left over, remaining, remainder, exchange/ regroup, balanced equation, equivalent	**Factor** - when a number can be expressed as the product of two numbers, these are factors of the first **Dividend** - the number that is divided. E.g. in 15 ÷ 3, 15 is the dividend A whole number is *divisible by* another if there is no remainder after division and the result is a whole number. **Divisor**- the number by which another is divided. Example: In the calculation 30 ÷ 6 = 5, the divisor is 6. **Quotient**- the result of a division. In the example of 46 ÷ 3 = 15 remainder 1, then 15 is the quotient of 46 by 3 and	*See previous Years for sentence stems* "If we exchange the values of the divisor and quotient, the dividend remains the same." **Sharing** The divisor represents the amount of groups. The quotient represents the quantity in each group. **Grouping** The divisor represents the quantity in each group. The quotient represents the amount of groups. **Partitioning when dividing** *LINK TO PARTITIONING WHEN DIVIDING VIDEO 48 can be partitioned into 40 and 8. We can divide the 4 tens into two groups and we can divide the 8 ones into two groups.	   4 × 5 = 5 × 4	**Birthday Sharing** https://nrich.maths.org/14052 Jack has 18 seeds. He plants 3 seeds in each pot. Which bar model matches the problem?  Explain your choice. https://thirdspacelearning.com/maths-resources/ http://www.meaningfulmathmoments.com/same-or-different.html Put 33 cubes into groups of 3. Put 33 cubes into 3 groups. What is the same? What is different? Draw a bar model to represent each.

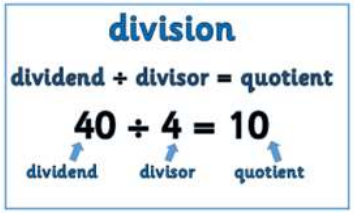
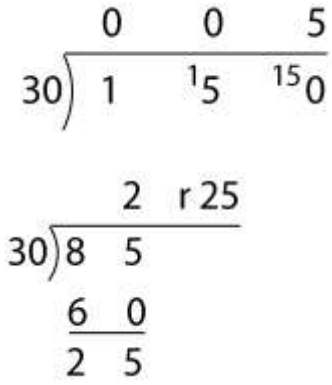
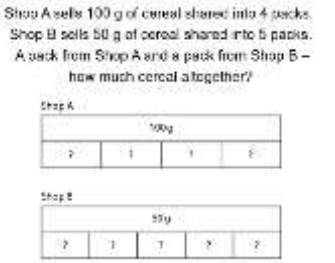
		1 is the remainder	In 48, how many groups of 3? I know there are more than ten groups because 3 multiplied by 10 is 30. If we use non-standard partitioning, 30 is a part and 18 is the other part. 30 divided by 3 is 10 and 18 divided by 3 is equal to 6.	Ron has shared some grapes equally between two friends. Ron's friends Each friend receives fewer than 50 grapes. Complete the sentences to describe the number of grapes Ron started with. He must have started with... He could have started with... He can't have started with...	

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to….	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
4	short division expression **Previously taught vocabulary Year 2** dividing by, division, not commutative, thirds, quarters, left over, remaining, remainder, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** grouping, grouped into, … in each group, divided by/ into/ between, dividend, divisor, quotient, scaling, efficient, approximate(ly)	**Short division –** The representation for division of a dividend by a single digit divisor. **Expression** - a number sentence which has at least two numbers and one mathematical operation	*See previous Years for sentence stems* "If we exchange the values of the divisor and quotient, the dividend remains the same." **Sharing** The divisor represents the amount of groups. The quotient represents the quantity in each group. **Grouping** The divisor represents the quantity in each group. The quotient represents the amount of groups. **Remainders when dividing** "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."	    	**Resources:** place value charts, number lines, place value counters, base 10, Cuisenaire rods, Numicon, Gattegno chart, bar models, number rods, WRM interactive whiteboard and digital tools **Activities:**  • I see reasoning activities year 4 • Skills games (e.g. Success 4 Arithmetic) • https://nrich.maths.org/13788 **Websites:** • WRM • NCETM – Curriculum tools, teaching guides, teaching for mastery • I see maths • www.mathsbot.com • http://ntimages.weebly.com/photos.html

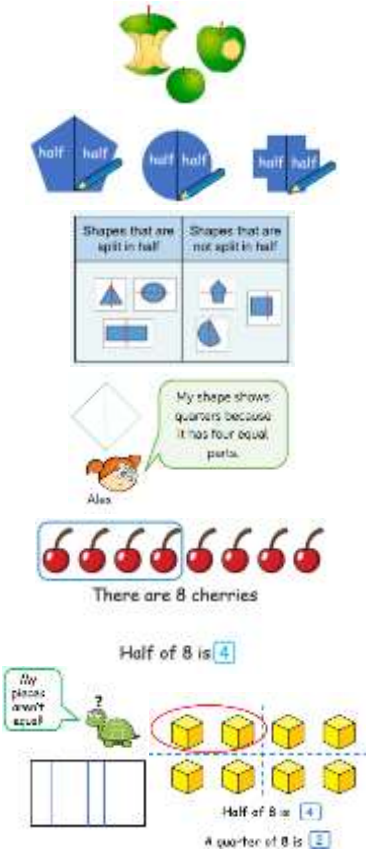
			"The remainder is always less than the divisor." There are _23_ scouts altogether. _4_ scouts can fit in each tent. How many tents will be needed for _23_ scouts? _23_ divided into groups of _4_ is <u>5 groups of 4 with 3 remaining.</u> There are _23_ altogether. I divided them into groups of _4_ . There are _5_ groups and _3_ remaining. They would need _6_ tents. **<u>Dividing by 10/100/ 1000</u>** When a number is divided by ten, the digits move one place to the right. When a number is divided by 100, the digits move two places to the right. When a number is divided by one thousand, the digits more three places to the right.		• Classroom secrets – fluency • Unique classrooms • Thinking talking • Diagnostic questions

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
5	common factor prime factor common multiple composite number **Previously taught vocabulary Year 2** dividing by, division, not commutative, thirds, quarters, left over, remaining, remainder, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** grouping, grouped into, … in each group, divided by/ into/ between, dividend, divisor, quotient, scaling, efficient, approximate(ly) **Previously taught vocabulary Year 4** short division, expression/ expressed as	**Divisibility rules** - Are procedures used to check whether a number is divisible by another number without necessarily performing the actual division. **Long division –** The representation and algorithm for division by more than a single digit. **Composite number -** non prime number	*See previous Years for sentence stems* "If we exchange the values of the divisor and quotient, the dividend remains the same." **Sharing** The divisor represents the amount of groups. The quotient represents the quantity in each group. **Grouping** The divisor represents the quantity in each group. The quotient represents the amount of groups. **Remainders when dividing** "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."	   	**Resources:** Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno charts, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities:** Investigating the rules of divisibility https://nrich.maths.org/10490 https://whiterosemaths.com/homelearning/year-5/week-8-number-multiplication-division/ https://resources.whiterosemaths.com/wp-content/uploads/2019/10/Y5-Autumn-Block-4-WO8-Divide-by-10-100-and-1000-2019.pdf https://resources.whiterosemaths.com/wp-content/uploads/2019/11/Y5-Spring-Block-1-WO7-Divide-with-remainders-2019.pdf Q4,5,7 &8 https://nrich.maths.org/1129?utm_source=primary-map

			"The remainder is always less than the divisor." _16_ divided into groups of _3_ is 5 groups with 1 remaining. There are _16_ altogether. I divided them into groups of _3_ . There are _5_ groups and _1_ remaining. Jack can make 5 triangles.		https://nrich.maths.org/2004?utm_source=primary-map https://nrich.maths.org/14253 **Websites:** •https://www.storyofmathematics.com/rules-of-divisibility

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents and online resources to support talk
6	long division brackets BODMAS/ BIDMAS/ order of operations **Previously taught vocabulary Year 2** dividing by, division, not commutative, thirds, quarters, left over, remaining, remainder, exchange/ regroup, balanced equation, equivalent **Previously taught vocabulary Year 3** grouping, grouped into, … in each group, divided by/ into/ between, dividend, divisor, quotient, scaling, efficient, approximate(ly) **Previously taught vocabulary Year 4** short division, expression/ expressed as **Previously taught vocabulary Year 5** common factor, prime factor, common multiple, long division, composite number	**Brackets** – Tells us which part of the equation to do first. **Order of operations –** The order in which operations are applied in a calculation. The agreed order is often referred to as BODMAS or BIDMAS *(Brackets Orders / Indices (powers) Division & Multiplication Addition & Subtraction)*	*See previous Years for sentence stems* "If we exchange the values of the divisor and quotient, the dividend remains the same." **Sharing** The divisor represents the amount of groups. The quotient represents the quantity in each group. **Grouping** The divisor represents the quantity in each group. The quotient represents the amount of groups. **BODMAS/ BIDMAS** *The order that I will complete the calculation is _____* *(See sentence stems and language around BIDMAS in multiplication section.)*	  	**Resources:** Place value charts, number lines, place value counters, Base 10, Numicon, Gattegno charts, bar models, part whole models, WRM interactive whiteboard and digital tools **Activities and websites:** https://whiterosemaths.com/wp-content/uploads/2020/08/Year-6-Autumn-block-2-Four-Operations.pdf http://ntimages.weebly.com/photos.html https://nrich.maths.org/8956 NRICH White Rose Hub

Fractions, decimals and percentages

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
1	equal part whole fraction half equal halves halving quarter divide share split	**Whole** – An entire single object (e.g. an apple) or an entire group of objects (e.g. Five pencils) **Part** – A portion of a whole object of a group of objects. **Fraction** – Equal parts of a whole. **Half**– When the whole has been divided into two equal parts, each part is one half of the whole **Quarter** – When the whole has been divided into four equal parts, each part is one quarter of the whole	When the whole has been divided into _____ equal parts, each part is one _____ of the whole. The whole has been divided into ____ equal parts. ___ halves make a whole. "A half is one of two equal parts" ___ can be shared equally into two. Half of ___ is ___ There are _8_ cherries. Half of _8_ is _4_ ___ quarters make a whole. "A quarter is one of four equal parts" ___ can be shared equally into four. A quarter of ___ is ___ There are _8_ blocks. A quarter of _8_ is _2_	A whole apple. A part of an apple.  	**Resources:** Shapes, counters, multilink, unifix, objects **Activities:** Two halves - https://nrich.maths.org/13080 Making longer, making shorter - https://nrich.maths.org/5590 Happy halving – https://nrich.maths.org/217 Halving - https://nrich.maths.org/1788/note Fair feast - https://nrich.maths.org/2361/note **Websites**: NCETM - https://www.ncetm.org.uk/media/35fp13yk/ncetm_spine3_segment00_y2.pdf NRICH - https://nrich.maths.org/8939

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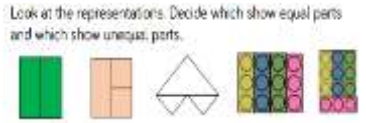
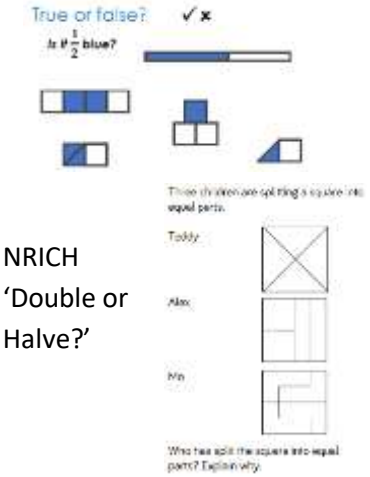
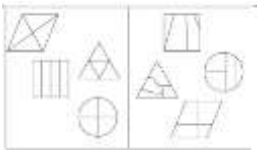
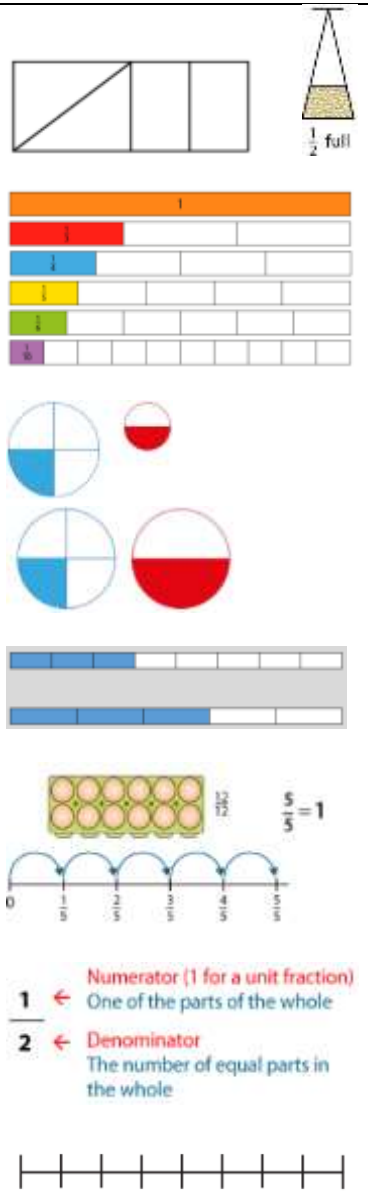
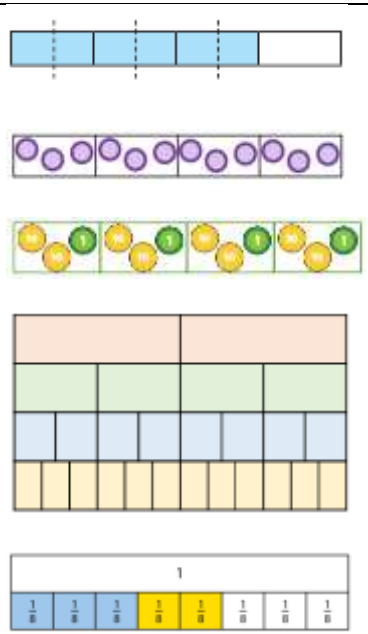
2	two quarters = one half three quarters four quarters = one whole one third two thirds three thirds = one whole thirds quarters equal / unequal whole divide **Previously taught vocabulary Year 1** equal part, whole, fraction, half, equal halves, halving, quarter, divide, share, split	**Fraction**: Equal parts of a whole number. **Third**: When the whole has been divided into three equal parts, each part is one third of the whole. When the whole has been divided into four equal parts, three parts is three quarters of the whole.	When the whole has been divided into _____ equal parts, each part is one _____ of the whole. The whole has been divided into ____ equal/unequal parts. ___ part has been shaded. Each part is one ____ (quarter/third etc) of the whole. ___ halves make a whole. ___ quarters make a whole. ____ thirds make a whole. Two quarters is equivalent to one half. The whole is ___. Half of ___ is ____.	 'If the class is a whole, Ben is a part.' 	**Resources:** Fraction wall, counters, numicon **Websites**: Gareth Metcalfe – I See Reasoning KS1 'True or False'  NRICH 'Double or Halve?'

Year group	Key vocabulary	Definition (Adapted from NC glossary) Pupils need to....	SAY IT/ TALK IT / REHEARSE IT	SHOW IT – Models and images to support understanding of language	REASON IT – Key documents / activities & resources to support talk
3	denominator numerator unit fraction non-unit fraction interval equivalent scale fifths sixths sevenths eighths ninths tenths **Previously taught vocabulary Year 1** equal part, whole, fraction, half, equal halves, halving, quarter, divide, share, split **Previously taught vocabulary Year 2** two quarters = one half, three quarters, four quarters = one whole, one third, two thirds, three thirds = one whole, thirds, quarters, equal / unequal, whole, divide	**Interval** - all possible points in the closed continuous interval between 0 and 1 on the real number line, including the end points zero and 1 **Equivalent**-an equivalent fraction is one that is equal in terms of size/value to another **Scale**-a measuring device usually consisting of points on a line with equal intervals. **Tenth**- When the whole has been divided into ten equal parts, each part is one tenth of the whole **Unit fraction**- a fraction that has 1 as the numerator and whose denominator is	When the whole has been divided into _____ equal parts, each part is one _____ of the whole. If _____ is the whole then _____ is part of the whole. eg If the week is the whole, then Tuesday is part of the whole. If ____ is the whole then _____ is **not** part of the whole. (eg If the week is the whole, then January is not part of the whole.) The whole has been divided into ___ equal / unequal parts. One of the parts has been shaded. Each part is one ___ (quarter, fifth etc) of the whole. Equal parts of the whole do not have to look the same. There are ___ equal parts so the denominator is ___. ____ of the	 If Europe is the whole, then the United Kingdom is part of the whole. (*Please note that the purpose of this is to recap part and whole concepts- equal parts are to be reinforced as below*)  	**Websites:** https://www.ncetm.org.uk/classroom-resources/primm-301-preparing-for-fractions-the-part-whole-relationship/ https://www.ncetm.org.uk/classroom-resources/primm-302-unit-fractions-identifying-representing-and-comparing/ https://www.ncetm.org.uk/classroom-resources/primm-303-non-unit-fractions-identifying-representing-and-comparing/ https://www.ncetm.org.uk/classroom-resources/primm-304-adding-and-subtracting-within-one-whole/ https://mathsbot.com/manipulativeMenu- bar modelling and fraction wall tools https://www.iseemaths.com/wp-

		a non-zero integer. Example: $\frac{1}{2}$ $\frac{1}{3}$	equal parts are shaded so the numerator is ___ . The whole has been divided into __ equal parts. Each part is one ___ of the whole. When comparing unit fractions, the bigger the denominator the smaller the fraction. When we compare fractions, the whole has to be of equal size. When the numerators are the same, then the larger the denominator, the smaller the value of the fraction. When the numerator is equal to the denominator, the fraction is equal to ___. A unit fraction is any fraction where the numerator is 1. The scale has been split into ___ equal parts so the denominator is ___. The arrow is pointing to the __ mark so the numerator is ____. Each interval has a value of ____.		content/uploads/2016/12/Fractions-Cards.pdf http://fractiontalks.com/ https://nrich.maths.org/8957 http://www.meaningfulmathmoments.com/fractions.html https://diagnosticquestions.com/WhiteRose

			The bar model is split into ___ equal parts so each part is ____ of the whole. If I split each part into two parts, I can see that ___ is equivalent to __ The counters are divided into 4 equal groups so the bar model shows quarters. There are __ counters in each quarter. So in 3 quarters there are ___ counters. ___ is equivalent to ____. If a fraction is equivalent to one half, the denominator is double the numerator. 3 eighths represents 3 eighths of an apple. 2 eighths represents 2 eighths of an apple. The sum is 5 eighths.		

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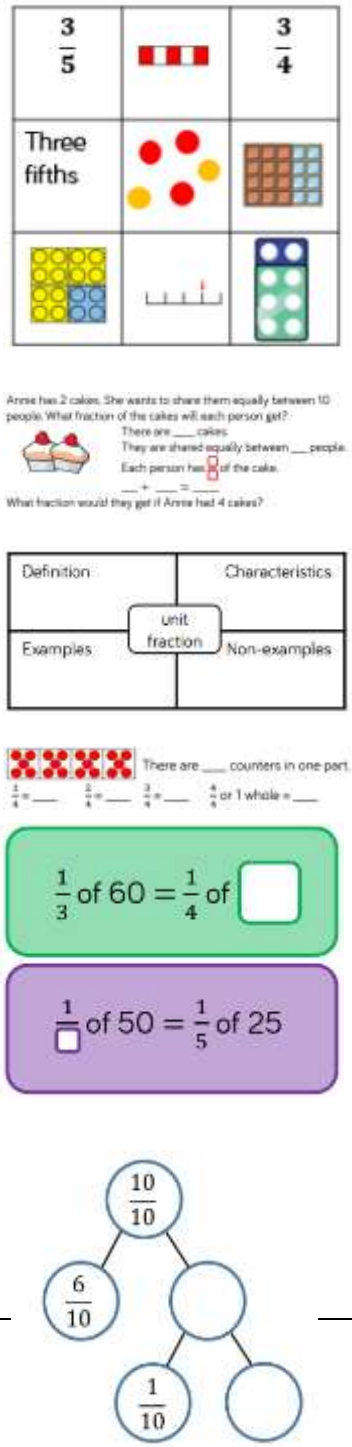
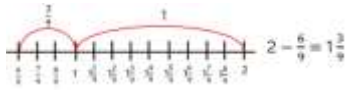
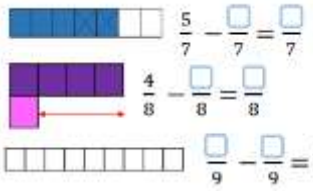
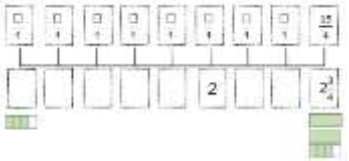
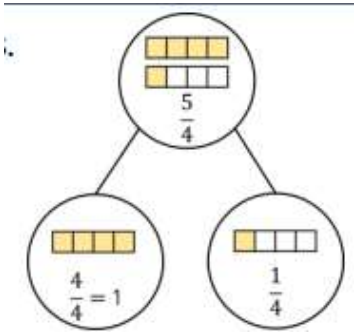
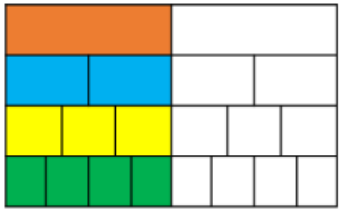
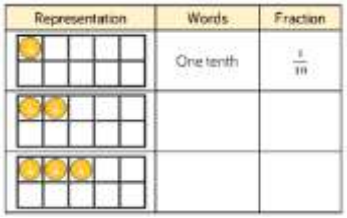
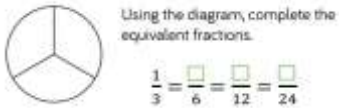
4	Decimal Decimal point Hundredth Decimal/ fraction equivalent **Previously taught vocabulary Year 2** two quarters = one half, three quarters, four quarters = one whole, one third, two thirds, three thirds = one whole, thirds, quarters, equal / unequal, whole, divide **Previously taught vocabulary Year 3** Denominator, numerator, unit fraction, non-unit fraction, interval, equivalent, scale, fifths, sixths, sevenths, eighths, ninths	**Decimal** – the number of tenths and/or hundredths are represented as digits following a decimal point **Decimal point** – placed to the right of the ones column. Used to show tenths and hundredths **Hundredth** – When the whole has been divided into one hundred equal parts, each part is one hundredth of the whole **Decimal/ fraction equivalent** – a decimal and fraction that have the same value	When the whole has been divided into _____ equal parts, each part is one _____ of the whole. A unit fraction always has a numerator of _____ A non-unit fraction has a numerator that is _____ than _____ An example of a unit fraction is _____ An example of a non-unit fraction is ____ *LINK TO UNIT FRACTIONS VIDEO If I know one quarter of a number, how can I find three quarters of a number? If I know one of the equal parts, how can I find the whole? What is the whole? What fraction of the whole are we finding? How many equal parts will I divide the whole into? What does the denominator tell us? What does the numerator tell us? What is the same and what is different about two thirds and two fifths? How many parts is the whole divided into and why?		**Resources:** place value charts, number lines, place value counters, base 10, Cuisenaire rods, Numicon, Gattegno chart, bar models, number rods, WRM interactive whiteboard and digital tools **Activities:** • Fractions wall • WRM Sort the fractions into the table. Fractions equal to one whole / Fractions less than one whole Unit fractions Non-unit fractions **Websites**: • WRM • NCETM – Curriculum tools, teaching guides, teaching for mastery

			Which operation do we use to find a fraction of an amount? How many equal groups do we need? Which part of the fraction tells us this? *LINK TO YEAR 4 FRACTIONS VIDEO* Dexter uses a number line to find the difference between 2 and $\frac{6}{9}$ Which models show take away? Which models show finding the difference? What's the same? What's different? Can we represent these models in a number story There are ____ quarters altogether. ___ quarters = ____ whole and ____ quarter. If I multiply the numerator by a number, what do I have to do to the denominator to keep it equivalent? Is this always true?	   	• I see maths • www.mathsbot.com • http://ntimages.weebly.com/photos.html • Classroom secrets – fluency • Unique classrooms • Thinking talking • Diagnostic questions   

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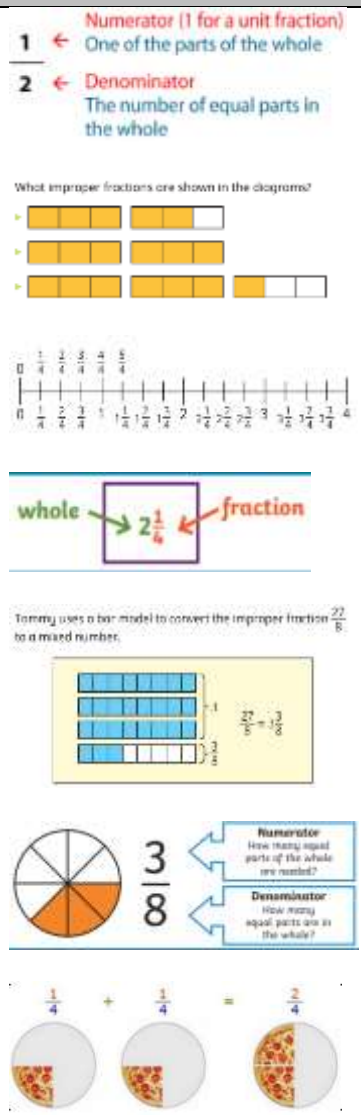
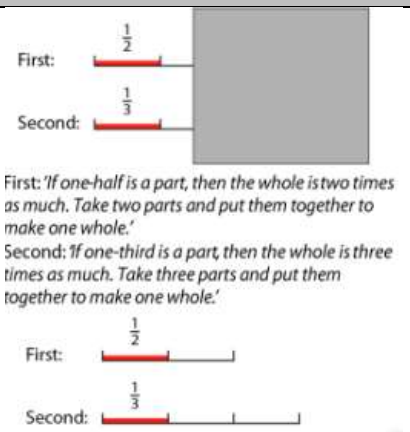
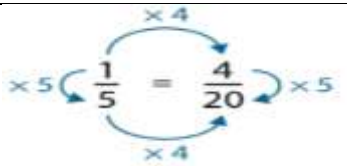
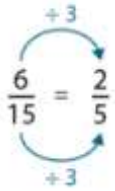
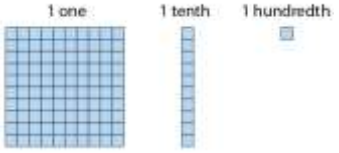
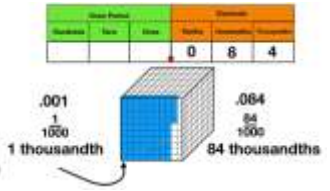
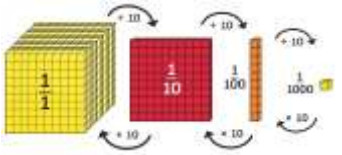
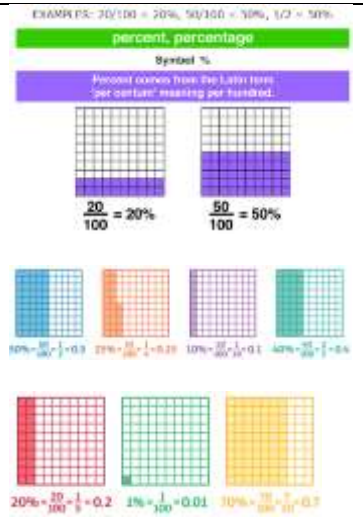
5	unit fraction improper fraction mixed number numerator common denominator equivalent simplify/reduced to/ cancel hundredth thousandths percentage/ per cent % **Previously taught vocabulary Year 3** Denominator, numerator, unit fraction, non-unit fraction, interval, equivalent, scale, fifths, sixths, sevenths, eighths, ninths **Previously taught vocabulary Year 4** Decimal, Decimal point, Hundredth Decimal/ fraction equivalent	**A unit fraction:** any fraction where the numerator is one. A fraction where the numerator (the top number) is greater than or equal to the denominator (the bottom number). So it is usually "top-heavy". Example: $\frac{5}{3}$ (five thirds) and $\frac{9}{8}$ (nine eighths) are improper fractions. A whole number and a fraction combined into one "mixed" number. Example: $1\frac{1}{2}$ (one and one half) is a mixed number. *LINK TO IMPROPER FRACTIONS AND MIXED NUMBERS VIDEO The top number in a fraction.	When the whole has been divided into _____ equal parts, each part is one _____ of the whole. The whole has been divided into ___ equal parts ___ of the parts has been shaded. *LINK TO Y5 FRACTIONS OF AMOUNTS VIDEO An improper fraction is a fraction where the numerator is __ the denominator. There are _____in 1 whole, so there are __ in 2/3/4 wholes. There are _____ in one whole, so there are _____ in _____wholes. I can regroup to make _____wholes with _____ parts left over. As a mixed number, this is _____ and _____. When two fractions have the same denominator, the one with the _____ numerator is the greater fraction.		 https://assets.whiterosemaths.com/new-schemes/Y5%20Autumn%20Block%204%20SOL%20Fractions%20A.pdf **Comparing fractions:** https://www.ncetm.org.uk/classroom-resources/primm-307-finding-equivalent-fractions-and-simplifying-fractions/ https://assets.whiterosemaths.com/new-schemes/Y5%20Autumn%20Block%204%20SOL%20Fractions%20A.pdf

		Shows how many parts we have. **Common denominator:** When fractions have the same denominator To compare fractions with different numerators and denominators convert to **common denominators**. *LINK TO COMMON DENOMINATOR VIDEO **Equivalent fractions:** When two or more fractions have the same value. *LINK TO FRACTIONS TO DECIMALS VIDEO 1 *LINK TO FRACTIONS TO DECIMALS VIDEO 2 *LINK TO PRECANTAGE OF AN AMOUNT VIDEO	When two fractions have the same numerator, the one with the _____ denominator is the greater fraction. To find a common denominator, identify the lowest common multiple of the denominators then create an equivalent fraction. We can find a common denominator for two non-related fractions by multiplying their denominators. If you multiply the two denominators 3 and 5 you will get the common denominator product of ____. The numerator has been scaled up/down by _____ The denominator has been scaled up/down by ___ These fractions are /are not equivalent. The highest common factor is ____so divide the numerator and denominator by ____ The whole is divided into a hundred equal parts and ___ of them is/ are shaded; this is ___ hundredth(s) of the whole.	 Highest common factor = 3     	https://www.ncetm.org.uk/classroom-resources/primm-307-finding-equivalent-fractions-and-simplifying-fractions/ **General FDP Resources:** place value charts, number lines, place value counters, base 10, Cuisenaire rods, Numicon, Gattegno chart, bar models, number rods, WRM interactive whiteboard and digital tools **Useful Websites** WRM NCETM – Curriculum tools, teaching guides, teaching for mastery I see maths Classroom secrets – for additional fluency Diagnostic questions

			I say ___ point ___ ___ but I think ___and ___ hundredths. The whole is divided into a thousand equal parts and ___ of them is/ are shaded; this is ___ thousandth(s) of the whole. $50\% = \frac{1}{2}$ so to find 50% we can divide by ____. $10\% = \frac{1}{10}$ so to find 10% we can divide by _____. *LINK TO Y6 PERCENTAGES OF AMOUNT VIDEO * LINK TO ORDERING FRACTIONS		

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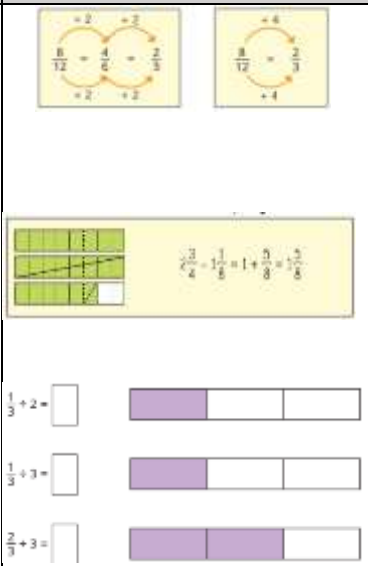
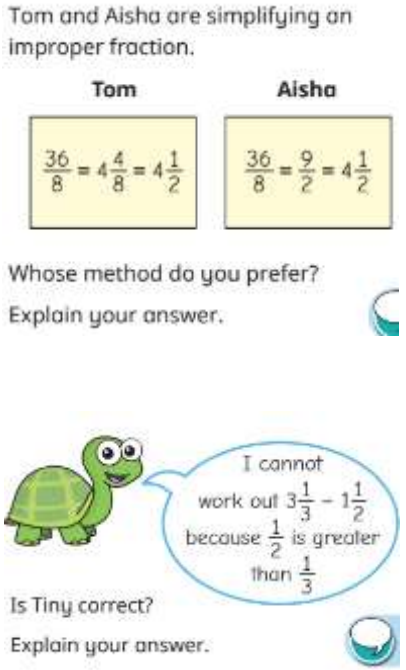
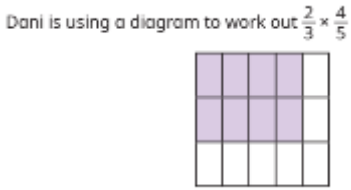
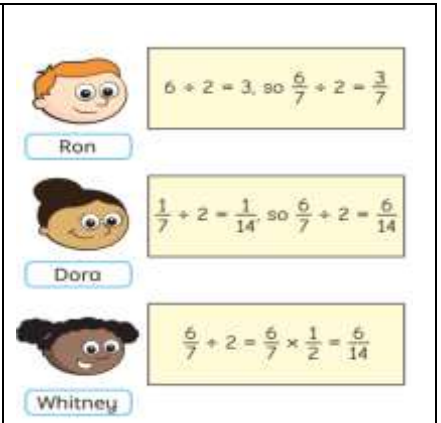
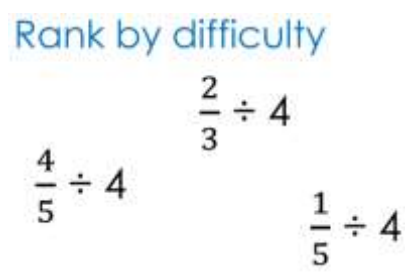
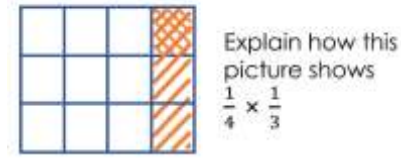
6 **Previously taught vocabulary Year 3** Denominator, numerator, unit fraction, non-unit fraction, interval, equivalent, scale, fifths, sixths, sevenths, eighths, ninths **Previously taught vocabulary Year 4** Decimal, Decimal point, Hundredth Decimal/ fraction equivalent **Previously taught vocabulary Year 5** Improper fraction, mixed number, thousandths, percentage/ per cent %, simplify/reduced to/ cancel, unit fraction, mixed number	Simplify Subtract and add mixed numbers Divide Fractions Multiply fraction by fractions	**Simplified:** A simplified fraction can be when the numerator and denominator have a common factor other than one. **Simplest form**: To write a fraction in its simplest form, divide both the numerator and denominator by their highest common factor. **Divide fractions:** Children are expected to be able to divide fractions by an integer where the integer is divisible by the numerator. They are	Both the numerator and the denominator can be divided by _____ To simplify the fraction, I will divide the numerator and denominator by _____ What is the highest common factor? *LINK TO YEAR 6 FRACTIONS VIDEO* What is the **lowest common factor** of the denominators? The mixed number can be partitioned into and _____ _____ can be written as wholes and _____. If you divide _____ into equal groups, then each group is because _____÷ _____= _____ _____ ones divided by _____ is equal to _____ones, so		

		also expected to be able to divide where the integer is not divisible by the numerator. **Multiply fractions:** Children are expected to multiply fractions by fractions and understand that the fraction will become smaller (the denominator will be a greater number).	_____eighths divided by _____is equal to _____eighths. To show_____ , I have split my diagram into _____equal sections. To find the product, I need to _____ When multiplying a pair of fractions, I need to multiply the _____and multiply the _____ . *LINK TO YEAR 6 FRACTIONS VIDEO