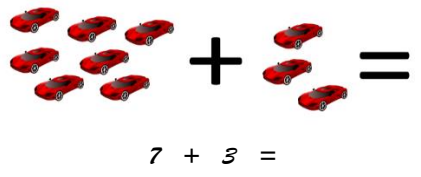
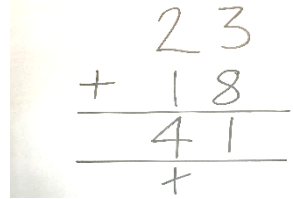
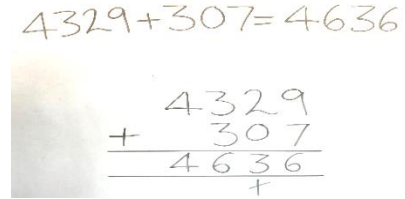
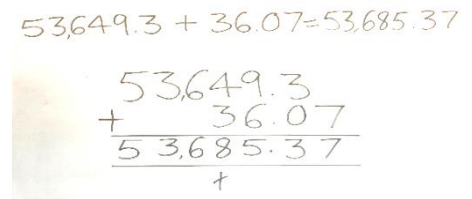
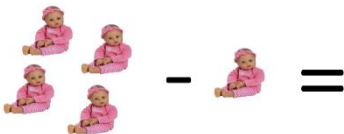
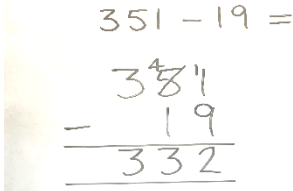
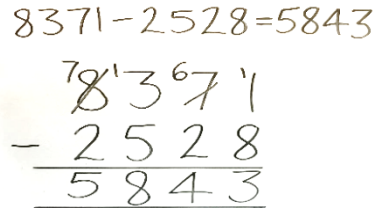
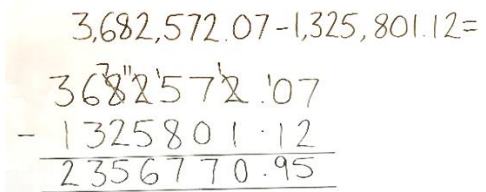




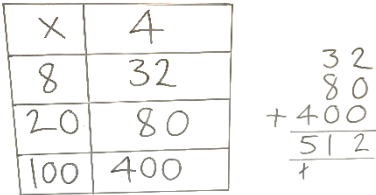
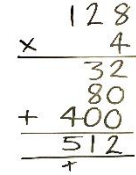
The Widden mathematics strategy is a current working document which is overseen by the mathematics learning leads but led by the classroom teachings staff and teaching assistants. The primary aim of this strategy is to provide a high degree of agreed direction in the development of mathematical understanding through teaching agreed methods and practices.

ADDITION				
	KEY STAGE 1		KEY STAGE 2	
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6
CORE METHOD	Mental methods Counting up in units. One more. Written methods Adding single digit numbers together up to 20. Understand concept by using a range of physical apparatus.	Mental methods Adding units, tens or hundreds to numbers (1-3 digits). No tricky columns Written methods Column addition (2-4 digits). Introduce some tricky columns Understand concept by using a range of physical apparatus. Progress to use of symbols/ pictures for understanding.	Mental methods Adding units, tens or hundreds to numbers (1-3 digits). No tricky columns for subtracting Written methods Column addition up to 100,000 <i>Introduce decimal places: tenths and hundredths.</i> <i>All written methods. Inc.d ifferring colums</i>	Mental methods Adding and subtracting units, tens, hundreds and/ or thousands to numbers (1-4 digits). Work with and without tricky columns Written methods Column addition up to billions Including decimal places: tenths, hundredths, thousandths, tens of thousandths All written methods. Inc. differing columns.
CORE LANGUAGE	Add/ together/ equals What is one more? Units/ tens Equals	Add/ addition/ together/ altogether Place value/ carry across/ next column Equals/ total	Add/ addition/ together/ altogether/ total Decimal point/ place value/ carry across/ next column Equals/ total	Add/ addition/ together/ altogether/ total Decimal point/ place value/ carry across/ next column Equals/ total
WRITTEN METHOD				
ADDITIONAL LANGUAGE				

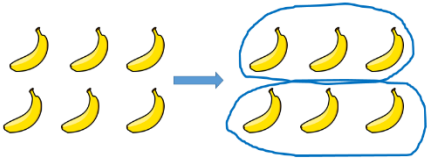
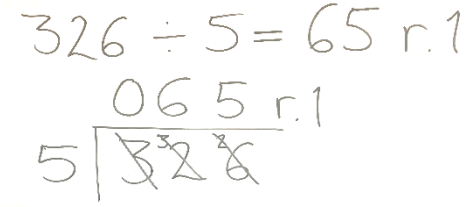
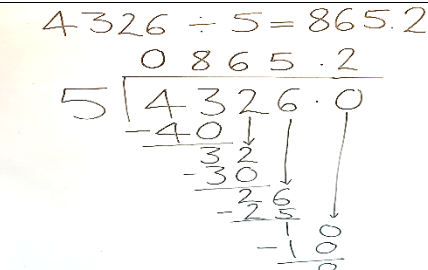


SUBTRACTION				
	KEY STAGE 1		KEY STAGE 2	
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6
CORE METHOD	Mental methods Counting backwards in units. One less. Written methods Subtracting single digit numbers from larger single or double-digit numbers. Understand concept by using a range of physical apparatus.	Mental methods Subtracting units, tens or hundreds to numbers (1-3 digits). No tricky columns. Written methods Column subtraction (2-4 digits). Introduce some tricky columns. Understand concept by using a range of physical apparatus. Progress to use of symbols/ pictures for understanding.	Mental methods Subtracting units, tens or hundreds from numbers (1-3 digits). No tricky columns for subtracting. Written methods Column subtraction from up to 100,000 <i>Introduce decimal places: tenths and hundredths.</i> <i>All written methods.</i>	Mental methods Subtracting units, tens, hundreds and/ or thousands from numbers (1-4 digits). Work with and without tricky columns Written methods Column subtraction from up to billions. Including decimal places: tenths, hundredths, thousandths, tens of thousandths All written methods.
CORE LANGUAGE	Add/ together/ equals What is one more? Units/ tens Equals	Take away/ subtract/ difference Place value/ carry across/ next column/ steal Equals/ total	Take away/ subtract/ subtraction/ difference/ less than Decimal point/ place value/ next column/ steal Equals/ total	Take away/ subtract/ subtraction/ difference/ less than Decimal point/ place value/ next column/ steal Equals/ total
WRITTEN METHOD	 $4 - 1 =$	 $351 - 19 =$	 $8371 - 2528 = 5843$	 $3,682,572.07 - 1,325,801.12 =$
ADDITIONAL LANGUAGE				

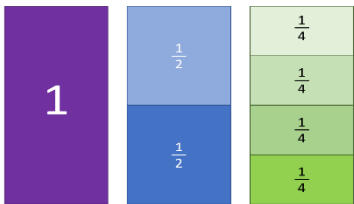
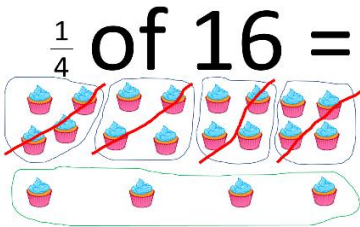
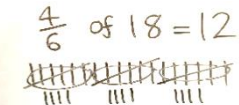
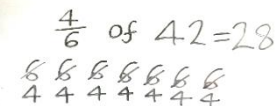
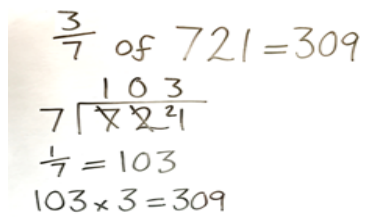


MULTIPLICATION				
	KEY STAGE 1		KEY STAGE 2	
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6
CORE METHOD	Mental methods Counting upwards in 2's, 5's and 10's. Written methods Use of physical apparatus and pictures to count upwards in 2's, 5's and 10's. At Y1 begin to use symbols to represent quantity and function.	Mental methods Count upwards in 2's, 3's, 4's, 5's and 10's. Written methods Use of pictures to represent quantities. Written methods using symbols for multiplication problems up to 12x12.	Mental methods Count upwards in all times tables (12x12). Written methods Grid method for multiplying 2 and 3-digit numbers. Grid method for multiplying 2-digit numbers by 2/3-digit numbers.	Mental methods Multiply 2-digit numbers by a one-digit number by mentally partitioning numbers. Written methods Column multiplication for multiplying numbers up to and including 6 digits.
CORE LANGUAGE	Add the same number lots of times/ times Units/ tens Equals	Times/ multiply/ multiplication Place value: <i>units, tens, hundreds, thousands/</i> carry across/ column Equals/ total	Times/ multiply/ multiplication/ products/ pull numbers apart/ add them back together Place value: <i>units, tens, hundreds, thousands/</i> carry across/ column Equals/ total	Times/ multiply/ multiplication/ products/ hide the zero/s / Place value: <i>units, tens, hundreds, thousands/</i> carry across/ column Equals/ total
WRITTEN METHOD	$2 \times 4 = 8$ 	$6 \times 4 = 24$ $12 \times 5 = 60$	$128 \times 4 = 512$ 	$128 \times 4 = 512$ 
ADDITIONAL LANGUAGE	'I love what you are doing – do the same thing lots of times'	'I love what you are doing – do the same thing lots of times'	'I love what you are doing – do the same thing lots of times' Multiply each product	Multiply each product



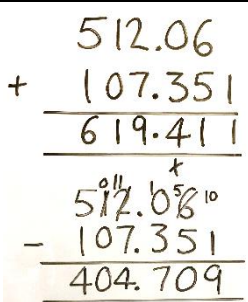
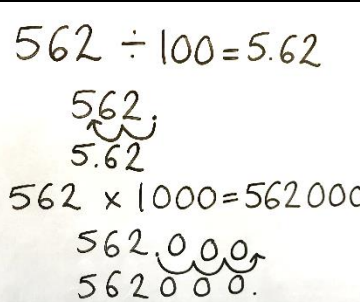
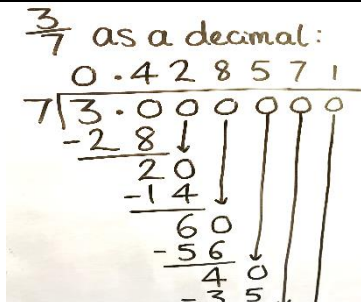
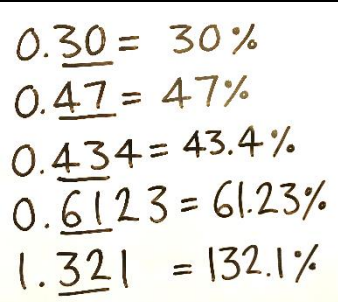
DIVISION				
	KEY STAGE 1		KEY STAGE 2	
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6
CORE METHOD	Mental methods Counting backwards in 2's, 5's and 10's. Written methods Use of physical apparatus and pictures to count backwards in 2's, 5's and 10's. Y1: introduce use of symbols to represent quantity and function. Use of inverse to solve simple division problems: apparatus and symbols.	Mental methods Count backwards in 2's, 3's, 4's, 5's and 10's. Written methods Use of pictures to represent quantities; apparatus used where necessary. Written methods using symbols for division problems up to 12x12. Focus on times tables known for inverse. Introduce short/ bus stop division.	Mental methods Count backwards in all times tables (12x12). Written methods Short division/ bus stop method for dividing numbers with integers and remainders. Once established build up to 4-6 digits divided by 1 digit.	Mental methods Divide larger numbers using inverse times table facts. Written methods Long division method. Used for finding remainders and for dividing remainders and working into decimal places. <i>Links into ratio.</i>
CORE LANGUAGE	Take away the same number lots of times/ share/ how many times can we share?/ piles Equals	Take away the same number lots of times/ share/ how many times can we share?/ piles/ bus stop Place value: <i>units, tens, hundreds, thousands/ column</i> Equals/ total	Divide/ division/ share/ bus stop/ how many times can we take X from X? Place value: <i>units, tens, hundreds, thousands/ column</i> Equals/ total	Times/ multiply/ multiplication/ products/ hide the zero/s / How many times can we take X from X?/ show the decimal point and some zeroes. Place value: <i>units, tens, hundreds, thousands/ carry across/ column/ decimal point/ tenths/ hundredths/ thousandths</i>
WRITTEN METHOD	$6 \times 2 = 3$ 	$6 \div 3 = 2$ $3 \times \square = 6$ $120 \div 10 = 12$ $10 \times \square = 120$	$326 \div 5 = 65 \text{ r.1}$ 	$4326 \div 5 = 865.2$ 
ADDITIONAL LANGUAGE			Split/ between	Split/ between



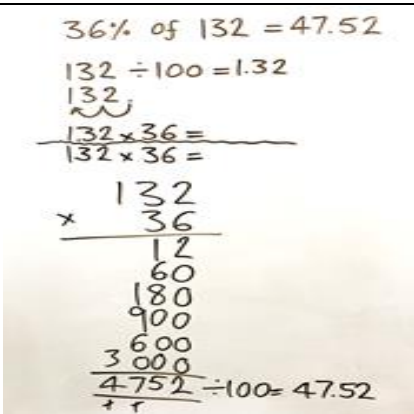
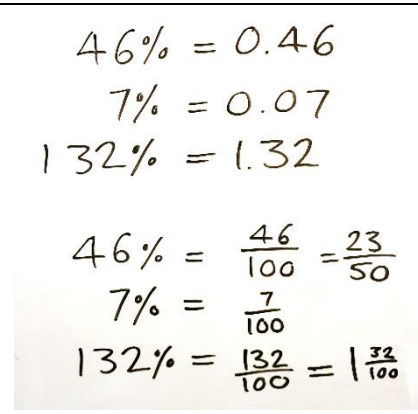
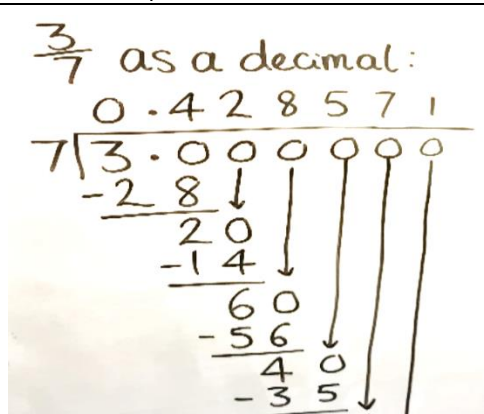
FRACTIONS				
	KEY STAGE 1		KEY STAGE 2	
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6
CORE METHOD	Mental methods Count in halves and quarters to one whole. Written methods Can cut/ split objects into $\frac{1}{2}$'s and $\frac{1}{4}$'s. Begin to use of symbols to show how many parts the object is split into and how many parts of a whole they have.	Mental methods Can count in halves, thirds, quarters and fifths to one whole. Written methods 'Zonking' to find a fraction of a whole number (1-digit progressing to 2-digit) with use of physical apparatus, progressing to lines as pictures.	Mental methods Count up and down in all fractional quantities up to 12ths. Add and take away fractions with the same denominator (no mixed fractions). Written methods 'Zonking' to find a fraction of a whole number (up to 4 digit) with lines (1) or mentally using times tables facts (2).	Mental methods Add, subtract and multiply numbers with the same denominators. Convert fractions with different denominators. Written methods 'Zonking' to find a fraction of a whole number (up to 4 digit) zonking mentally using times tables facts and then short division. Long division to divide fractions. $\frac{1}{2} \div 8 =$
CORE LANGUAGE	'Cut up a whole number' Fraction/ halves/ quarters/ total	'Divide a whole number' Fraction/ numerator/ denominator/ halves/ thirds/ quarters/ fifths 'Zonk'/ zonking/ 'Every time I see X I replace it with X'/ 'How many are here?'	'Put the number on the maths table' 'Zonk' (into groups of the denominator) 'Think sticks – every time I see X I replace it with X'. 'Look at the maths table and count – how much is here?'	'Put the number in the bus stop' 'Divide by the denominator' 'Multiply the answer by the numerator' 'What is the answer?'
WRITTEN METHODS			1.  2. 	
ADDITIONAL LANGUAGE	Part/ piece		Note: adding, subtracting and multiplying fractions (including multiplying a fraction by a fraction) are simple so not included here. KS2 will encounter equivalent fraction problems and the language should focus on 'making the denominators the same' and 'doing the same to the top and the bottom'.	

Y5/6 dividing a fraction by a fraction: <https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-dividing-fractions/v/dividing-fractions-example>



DECIMALS					
	KEY STAGE 1		KEY STAGE 2		
	EYFS & YEAR 1	YEAR 2	YEARS 3 & 4	YEARS 5 & 6	
CORE METHOD			Mental methods Adding to and subtracting from numbers up to 2 decimal places. E.g. 34.56 take away 3 tenths? Written methods Column addition and subtraction with decimal points aligned. Introduction to tricky columns with decimal points. Movement of decimal point to show multiplication or division by a power of ten (10, 100, 1000)	Mental methods Adding to and subtracting from numbers up to 3 decimal places. E.g. 234.563 take away 4 hundredths? Written methods Column addition and subtraction with decimal points aligned, emphasis on dealing with tricky columns. Movement of decimal point to show multiplication or division by a power of ten (10, 100, 1000, 10,000, 100,000, 1,000,000) Finding a decimal equivalent for a fraction and a percentage (up to 3 decimal places)	
CORE LANGUAGE			Decimal point/ columns: tenths, hundredths, thousandths Powers of ten/ multiply/ divide 'Line up the decimal points' Use of same language from addition and subtraction: 'carry across', 'steal', 'total'	Convert to a fraction – 'How many parts do we have and what do we need to divide them by?/ bus stop/ long division (other associated language) Convert to a percentage – 'Find two decimal places and underline them – this is your percentage'. 'If you have more than 2 decimal places these are tenths, hundredths etc. of a percentage – show with a decimal point'	
WRITTEN METHOD			 	 	
ADDITIONAL LANGUAGE			Divide – 'Decimal point moving to make the number smaller' Multiply – 'Decimal point moving to make the number bigger'	Note: for multiplying decimals they must multiply by powers of ten before completing the operation and then dividing by the same number of powers of ten: https://www.khanacademy.org/math/algebra-basics/basic-alg-foundations/alg-basics-operations-with-decimals/v/multiplying-decimals	



PERCENTAGES					
	KEY STAGE 1		KEY STAGE 2		
	EYFS & KS1	YEARS 3 & 4	YEAR 5 & 6		
CORE METHOD			Written methods Finding a percentage of a number. Dividing by 100 and multiplying by required percentage.	Converting percent to decimals and fractions. https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-decimal-conversions/v/representing-a-number-as-a-decimal-percent-and-fraction	Converting decimals to percentages. Converting fractions to percentages (long division to convert a fraction to a decimal > decimal to a percentage)
CORE LANGUAGE			Percent – ‘per cent, meaning out of 100’ ‘Divide the number by 100 and then multiply it by the percentage you require’	Percent to decimals – ‘100 per-cent equals 1 so 46% equals 0.46’ Percent to fractions – ‘100 per-cent equals 1 so 46% equals 46/100’	Decimals to percent – Refer to Y5/6 decimals. Fractions to percent – ‘Long division to find a decimal – convert the decimal to a percent’
WRITTEN METHOD					
ADDITIONAL LANGUAGE					