Bythams Primary School



Maths: Progression of Skills



MATHEMATICS ESSENTIAL SKILLS Reception -Y6: PLACE VALUE

EYFS	KEY ST	AGE 1	LOWER KE	Y STAGE 2	UPPER KEY	Y STAGE 2		
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations		
Identifying and representing numbers								
Have a deep understanding of number to 10, including the composition of each number; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;	Identify and represent numbers beyond 50 using concrete objects, pictorial representations and the number line. Confidently use the language of: equal to, more than, less than (fewer), most and least in other mathematical concepts with examples. Begin to recognise the place value of two-digit numbers (tens and ones to 20).	Identify, represent and estimate numbers to 100 using different representations, including the number line. Recognise the place value of each digit in a two-digit number (tens and ones).	Identify, represent and estimate numbers to 1000 using different representations, including more complex number lines. Recognise the place value of each digit in a three-digit number (hundreds, tens and ones), showing some awareness of thousand.	Identify, represent and estimate numbers using different representations, showing some awareness of five- digit numbers. Recognise the place value of each digit in a four-digit number, beginning to show awareness of five- digit numbers.	Recognise the place value of each digit in numbers up to at least 1,000,000 with increasing fluency.	Recognise the place value of each digit in numbers up to at least 10,000,000 with increasing fluency. Identify the value of each digit in numbers with up to three decimal places.		



		Compari	ng, reading and writing	numbers		
Subitise (recognise quantities without counting) up to 5; Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;	Read and write numbers to 100 in numerals. Read and write numbers from 1 to 20 in words (not necessarily spelt correctly).	Read and write numbers to at least 100 in numerals and words. Use place value to compare and order numbers from 0 up to 100. Use <, > and = signs to compare numbers up to 100.	Read and write numbers up to 1000 in numerals and words. Compare and order numbers up to 1000. Read Roman numerals to 12	Order and compare numbers up to and including 10,000 with increasing fluency. Use the notation for negative numbers and identify numbers less than 0. Use the > and < signs to accurately compare pairs of numbers, including positive and negative integers. Read Roman numerals to 100 (I to C) and understand how, over time, the numeral system	Read, write, order and compare numbers up to at least 1,000,000 using > and < signs to make number sentences with more than two numbers, with increasing fluency. Interpret negative numbers in context. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Read, write, order and compare numbers up to and including 10,000,000 using > and < signs to make number sentences with more than two numbers, with increasing fluency. Use negative numbers in context, and calculate intervals across zero.



				changed to include the concept of zero and place value.		
			Counting			
Verbally count beyond 20, recognising the pattern of the counting system.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Given a number, identify 1 more and 1 less with numbers up to 100.Count in different multiples, including ones, twos, fives and tens.	Count fluently in steps of 2, 3 and 5 from 0, and count in tens from any number, forward or backward.	Count from 0 in multiples of 4, 8, 10, 50 and 100. Find 10 or 100 more/less than a given number.	Count in multiples of 6, 7, 9, 25 and 1000. Count backwards in ones through zero to include negative numbers (introduced in Y5 in WRM scheme). Find 10, 100 or 1000 more or less than a given number, (beginning to work with five-digit numbers).	Count forwards or backwards in steps of powers of 10 for any given number up to at least 1,000,000 with increasing fluency. Count forwards and backwards with positive and negative whole numbers through zero, in context, and apply to solving simple problems (e.g. involving temperature).	Use the whole number system, including counting, saying, reading and writing numbers accurately.



			Roundin	g		
			Round numbers up to 1000 to the nearest 10.	Round any four-digit number to the nearest 10, 100 or 1000.	Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000, 100,000.	Round any whole number to a required degree of accuracy.
			Problem solving	•		
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	Use place value and number facts to solve simple concrete and pictorial problems, involving all of the above.	Use place value and number facts to solve problems that involve all of the above.		Solve number and practical problems that involve all of the above.	Solve number and practical problems that involve all of the above.	Solve number and practical problems that involve all of the above.



MATHEMATICS ESSENTIAL SKILLS Reception -Y6: ADDITON AND SUBTRACTION

EYFS	KEY STAGE 1		LOWER KEY STAGE 2		UPPER KEY STAGE 2	
GLD	End of Y1 expectations			End of Y5 expectations	End of Y6 expectations	
	•	Adding	and subtracting mentally		•	





Read, write and	Show, with	Add and subtract	Where appropriate,	Add and subtract	Use their knowledge
interpret simple	examples, that	numbers with up to	add and subtract	whole numbers with	of the order of
mathematical	addition of two	three digits, using	numbers with up to	more than five digits	operations to carry
statements, involving	numbers can be	the formal written	four digits using the	(including decimal	out calculations,
addition (+),	done in any order	methods of columnar	formal written	numbers), using	involving the four
subtraction (-) and	(commutative) and	addition and	methods of	formal written	operations,
equals (=) signs,	subtraction of one	subtraction, carrying	columnar addition	methods of	identifying how the
recognising that	number from	and exchanging	and subtraction,	columnar addition	position of the
addition and	another cannot.	when necessary.	including adding	and subtraction.	brackets can affect
subtraction are related	Record addition and		decimal numbers		the answer.
operations.	subtraction in		through the context		Continue to add and
	columns to support		of money.		subtract in columns
	their understanding				with increasingly
	of place value in				large numbers
	preparation for				(including decimals)
	formal written				to improve
	methods with larger				procedural fluency.
	numbers.				
	Estir	mating and Checking		•	
	Recognise and use	Estimate, by	Estimate, by	Use rounding to	Use estimation /
	the inverse	rounding to the	rounding to the	estimate and check	rounding /
	relationship	nearest 10, the	nearest 10, 100 and	answers to	approximation to
	between addition	answer to addition	1000, and use	calculations and	check answers to
	and subtraction and	and subtraction	inverse operations	determine, in the	calculations and
	use this to check	calculations with	to check answers to	context of a	determine, in the
	calculations and	numbers up to 1000	a calculation with	problem, levels of	context of a
	missing number	and use inverse	increasingly large	accuracy, including	problem, an
	problems.	operations to check	numbers.	rounding by 10, 100,	appropriate level
		answers.		1000, 10,000 and	of accuracy.
				100,000.	



		Check their calculations by adding numbers i a different order (e.g. 5 + 2 + 1 = 1 5 + 2 = 1 + 2 + 5).	as strategies to che		Estimate within addition and subtraction problems by rounding decimal numbers to the nearest whole number, choosing how to round depending on the context. Check answers using inverse operations.	Estimate by rounding decimal numbers with three or more decimal places to the nearest whole number or to one or two decimal places, depending on the context of the problem. Check answers using inverse operations.
			Problem so	lving and applying		
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	Solve simple one step problems that involve addition and subtraction, using concrete objects and pictorial representations, including missing number problems (e.g. 4 + ? = 9, 7 = ? - 9). Use addition and subtraction in familiar and practical contexts.	Apply their increasing knowledge of mental and written methods to solve simple problems with addition and subtraction, using concrete objects and pictorial representations (including those involving numbers, quantities and measures).	Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction with numbers up to 1000.	Solve addition and subtraction two-step problems (with increasingly large numbers) in contexts, deciding which operations and methods to use, explaining their choices.	Solve addition and subtraction multi-step problems in contexts, involving all of the above, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, involving all of the above, deciding which operations and methods to use, explaining their choices



Reception	KEY ST	AGE 1	LOWER KE	Y STAGE 2	UPPER KE	Y STAGE 2				
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations				
	Multiplication tables									
Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	Count in multiples of 2, 5 and 10 up to and including 100 (where appropriate).	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables,	Recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables.	Recall multiplication and division facts for multiplication tables up to 12 x 12.	Improve speed of recall for multiplication and division facts for multiplication tables up to 12 x 12 and	Improve speed of recall for multiplication and division facts for multiplication tables up to 12 x 12.				
Automatically recall	Use mental strategies	including recognising odd and even numbers. Mult Calculate	iplying and dividing ment Use the 2, 3, 4, 5, 8	ally Use place value,	consolidate the related division facts. Derive multiplication and division facts for multiples of 10 and 100. Multiply and divide	Derive multiplication and division facts for 10, 100 and 1000 and for decimal numbers (e.g. 0.6 x 7 =4.2 and 0.6 x 0.7 = 0.42).				
(without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some	to double and half one and two-digit numbers to and including 50, using concrete objects and	mathematical statements for multiplication and division within the 2, 5 and 10 multiplication tables.	ose the 2, 3, 4, 5, 8 and 10 multiplication tables, including for two-digit numbers times one-digit numbers.	known and derived facts to multiply and divide mentally with numbers up to 12 x 12, including:	numbers mentally, drawing upon known facts, including multiplying by multiple of 10 and 100.	complex mental calculations, including those with mixed operations, increasingly large numbers, negative				



number bonds to 10,	pictorial		Multiply one-digit	 multiplying by 	numbers and
including double facts.	representation.		numbers by 2, 3, 4, 5,		decimals.
Explore and represent			8 and 10, using	 dividing by 1 	
patterns within			mental strategies.	– multiplying	
numbers up to 10,				together three	
including evens and				numbers.	
odds, double facts and					
how quantities can be					
distributed equally.					
distributed equally.					
	l	Multiplying a	and dividing using writte	n methods	



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Use written strategies		Write and calculate	Multiply two-digit	Multiply multi-digit	Continue to multiply
to double and half	examples, that	mathematical	and three-digit	numbers (those with	multidigit numbers
one and two-digit	multiplication of two	statements for	numbers by and	up to 4 digits) by a	(those with up to four
numbers to and	numbers in the 2, 5	multiplication and	one-digit number,	two digit whole	digits) by a two-digit
including 50, using	and 10 times table	division using	using formal written	number, using the	whole number, using
concrete and pictorial	can be done in any	multiplication tables	layout	formal written	the formal written
representation.	order (commutative)	that they know (2, 3,	(demonstrating	method of long	method of long
	and division of one	4, 5, and 10).	improved procedural	multiplication.	multiplication to
	number by another	Progress to formal	fluency). Divide	Divide numbers with	improve procedural
	cannot (e.g. 2 x 6	written methods to	two-digit and	up to four digits by a	fluency. Divide
	= 12 therefore 6 x 2 =	multiply twodigit	threedigit numbers	one-digit number,	numbers with up to
	12	numbers by a one-	by any onedigit	using the formal	four digits by a two-
	12 ÷ 6 = 2	digit number	number using a	written method of	digit whole number,
	5 x 3 = 15 therefore 3	(multiplying by 2, 3, 4,	formal written	short division and	using the formal
	x 5 =	5 and 8).	layout (including	interpret remainders	written method of
	15		remainders).	appropriately	long division, and
	15 ÷ 5 = 3			according to context	interpret remainders
	6 x 10 = 60 therefore			(including fractions,	as whole number
	10 x 6			decimals and	remainders, fractions,
	= 60			rounding).	or by rounding as
	60 ÷ 10 = 6).				appropriate for the
					context.
					Use their knowledge
					of the order of
					operations to carry
					out calculations
					involving the four
					operations. Identify
					how the position of
					the brackets can
					affect the answer.
	Ē	stimating and checking	•		
		0			



				- Contraction
Recognise	and use Recognise and use	Recognise and use	Use estimation to	Continue to use
the inverse	e the relationship	the inverse	check answers to	estimation to check
relationshi	p between between	relationship between	calculations and	answers to
multiplicat	ion and multiplication and	multiplication and	determine, in the	calculations and
division	division	division	context of	determine,
in calculati	ons when performing	when performing	a problem, levels of	in the context of a
(working w	vithin the 2, calculations to check	calculations, up to 12	accuracy.	problem, levels of
5 and 10 ti	mes answers and written	x 12, to check		accuracy.
tables).	methods (when	answers and written		
	multiplying and	methods (including		
	dividing by 2, 3, 4, 5,	two and three-digit		
	8 and 10).	numbers, multiplied		
		and divided by any		
		one-digit number).		
	Properties of number			



Explore and represent patterns within numbers up to 10, numbers up to 10, multiples of 2 are always even, multiples of 3 always of 4).Identify multiples of 4 to their properties (e.g. and ke are connections between and 8 are connected and 8 are connected and 9 are connected.Identify multiples of to numbers up to 10, including infining all factor pairs of 0 to won numers (e.g. 20, and 8 are connected and 9 are connected.Identify multiples of to multiples of and 8 are connected. and 9 are connected. Recognise and use factor pairs of numbers. pairs of numbers, miltiple of and 3 are connected. Recognise and use factor pairs and composite numbers, prime to any 5 of numbers. prime and recall prime and reca						OTHAMS S
numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.Recognise that multiples of 2 are always even, multiples of 5 always and ways end in 0.12, 3, 4, 5, 8, and 10 by their properties (e.g., and wars connected) and 8 are connected).finding all factor pairs of numbers and common factors of and 0 are connected).finding all factor pairs of numbers and and 0, 60, 80 and 100 are common factors of and 8 are connected).finding all factor pairs of numbers.finding the lease common factors of and 8 are connected).New quantities can be distributed equally.0 of Sind multiples of 10 always end in 0.0, 61, 80 and 100 are common factors of and 9 are connected).numbers, including up inter and 8 are connected).numbers, including up inter and 8 are connected).numbers, including up inter and s are connected).Recognise and use to rumber up to 100 is prime and recall prime and the notation of squared and cubed numbers.finding all and multiples of 2, and and s are connected).finding all and multiples of 2, and and ratios, including up inter to 100 is prime and recall prime and recall prime and recall prime numbers up to 10, and and ratios, including cancelling fractors and ratios, including cancelling fractors and ratios to their simplest form. Continue to establish whether and the notation of squared and cubed numbers.finding all finding all find		, ,		, ,		•
including evens and odds, double facts and how quantities can be distributed equally.multiples of 2 are always even, multiples of 5 always end with 0 or 5 and always end in 0.their properties (e.g., and make are always multiples of 5 are always multiples of 4.factor pairs of increasing large cartain times tables common factors of and 8 are connected and multiples of 3.6 and 9 are connected. and 9 are connected. and 9 are connected. and 9 are connected. norman multiples of 10 always end in 0.factor pairs of increasing large common multiples of 3.6 and 8 are connected. and 9 are connected. norman set common multiples of 3.6 and 9 are connected. ronneers up to 12 to 20 as it is the smallest ocabulary of prime norman set common multiple of a do 3 re connected. norman set common multiples of 10 and 9 are connected. ronneers up to 12 to 20 as it is the smallest to common multiple of 10 and 9 are connected. norman set common multiples of 10 and 9 are connected. ronneers up to 12 to 20 as it is the smallest. Including using factor trees to find prime factors and prime prime and reacing ronneers up to 12 sus equare numbers. Use factors to find equivalent fractions and the notation for squared and cubed numbers. Including cancelling rint and tency. Recognise and use to 20 are prime and recall prime numbers.common multiple of two numbers (e.g. 20) to 20 are prime and the notation for squared and cubed numbers.common multiple of and the notation for squared and cubed numbers.common factors of two numbers (e.g. 20) to 20 are prime and recall prime numbers.common factors of two numbers (e.g. 20) to 20 are prime and the notation for squared and	patterns within	5 and 10.	numbers, multiples of	numbers up to 12 x		
odds, double facts and how quantities can be distributed equally.always even, multiples of 5 always end with 0 or 5 and always end in 0.multiples of a always multiples of 4.connections between are always multiples of 4.increasing large cartain times tables (cartain times tables) and 8 are connected) and 8 are connected. and 9 are connected. and 9 are connected. Tables of 3, 6 and 9 are connected. and 9 are connected. Tables of 10 and 9 are connected. Tables of 10 and 100 are connected. Tables of 10 and 100 are connected. Tables of 10 and 9 are connected. Tables of 10 and 2 are connected. Tables of 10 and 2 are connected. Tables of 20 are its and community in mental calculations for numbers up to 100 to 12; and cubetwo numbers (e.g. 20, 4 and 5. The least common multiples of and 3 are connected. Tables of 10 and a composite and unmbers up to 100; and the notation for numbers up to 10; and the notation for square numbers up to 10; and the notation for square numbers up to 10; and the notation for numbers up to 10; and the notation for square numbers up to 10; and the notation for numbers beyond 1	numbers up to 10,	Recognise that	2, 3, 4, 5, 8 and 10 by	12 by their properties	finding all	finding the lease
how quantities can be distributed equally.multiples of 5 always end with 0 or 5 and multiples of 10 always end in 0.8 are always multiples of 4).certain times tables (e.g. multiples of 2, and 8 are connected). Becognise and use (common factors of pairs of numbers, prime factor pairs and common factors of pairs of numbers, prime factor pairs and common factors of pairs of numbers, prime factor pairs and number, prime number, prime prime and recall prime and recall prime numbers, prime prime and recall prime and recall prime and recall prime and actors of factors and composite stabilsh whether an unser, prime factor pairs and common factors of factor pairs and common factors of factor pairs and common factors of prime and recall prime and recall precognise and use square and cubed40,	including evens and	multiples of 2 are	their properties (e.g.	and make	factor pairs of	common multiple of
distributed equally. distributed equally. end with 0 or 5 and multiples of 10 always end in 0. of 4). end with 0 or 5 and multiples of 10 always end in 0. of 4). end with 0 or 5 and multiples of 10 always end in 0. of 4). end with 0 or 5 and multiples of 2, 4 and 8 are connected and 9 are connected). Recognise and usen factor pairs and composite factor pairs and composite factors and prime factors to find equivalent fractions and the notation for square and cubed numbers. of the is milles the is the smallest numbers prime factors and prime factors to find equivalent fractions and tatios to their simplest form. Continue to establish whether numbers up to 10(?) and the notation for square and cubed factors to find equivalent fractions and ratios, to form. Continue to establish whether numbers. factors and ratios to their simplest form. Continue to establish whether numbers by ond 100 are equipped factors of the on- square and cubed factors of the on- stablish whether numbers to 30 to maintatin funcy, Recognise and use square numbers to 20(?) and cube	odds, double facts and	always even,	multiples of	connections between	increasing large	two numbers (e.g. 20,
multiples of 10 always end in 0.and 8 are connected and multiples of 3, 6 and 9 are connective in Recognise and use the factor pairs and commutativity in mental calculations for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)pairs of numbers. Recognise and use the numbers, prime factors and composite including using factor pairs of numbers. Establish whether a number up to 100 is prime numbers up to 12 x 12 (e.g. 48 = 2 × 19. Recognise and use square numbers. up to 12(²) and cube numbers. to 10(²) and the notation for squared and cubed numbers.4 and 5. The least common multiple is 20 as it is the smallest number, least including using factor factors and orprime factors and orprime factors and prime factors and ratios, including using factor trees to find prime squared and cubed numbers.4 and 5. The least avaite symptome pairs of numbers. to 100 is pairs of numbers, the symptome factor station of any number (e.g. 48 = 2 × 2 × 2 × 2 × 3 = 2 × 2 × 2 × 2 × 3 = 2 × 10 are the rotation for squared and cubed numbers.4 and 5. The least avaited symptome the pairs of numbers.10 difference squared and cubed numbers up to 10(²) and the rotation for squared and cubed numbers.4 and 5. The least avaited symptome the pairs of numbers.4 and 5. The least avaited symptome the pairs of numbers.20 a the pairs of number up to 100 is prime numbers up to 10(²) and the notation for to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use <br< td=""><td>how quantities can be</td><td>multiples of 5 alway</td><td>s 8 are always multiples</td><td>certain times tables</td><td>numbers and</td><td>40, 60, 80 and 100 are</td></br<>	how quantities can be	multiples of 5 alway	s 8 are always multiples	certain times tables	numbers and	40, 60, 80 and 100 are
always end in 0. always end in 0. and multiples of 3, 6 and 9 are connected). Secondulary of prime factor pairs and commutativity in mental calculations for numbers up to 120 x 12 (e.g. 12 = 4 x 3 = 3 x 4) Figure 1 and the pairs of the pairs of any prime and the pairs of any prime any prime any prime prime any p	distributed equally.	end with 0 or 5 and	of 4).	(e.g. multiples of 2, 4	common factors of	common multiples of
and 9 are connected). Recognise and use factor pairs and commutativity in mental calculations for numbers, prime factors and composite (non-prime) numbers. Establish whether a prime and recall prime numbers up to 10 12 = 4 x 3 = 3 x 4) 2 0 as it is the smallest numbers, prime factors and composite (non-prime) numbers. Establish whether a prime and recall prime numbers up to 10 ⁽⁴⁾ and the notation for squared and cubed numbers. Prime and ratios, including cancelling fractions and ratios, including cancelling fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether umbers. Prime and recall prime numbers. Prime and ratios, including cancelling fractions and ratios, including cancelling fractions and ratios, including cancelling fractions and ratios, including cancelling fractions and ratios, prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20 ⁽²⁾ and cube		multiples of 10		and 8 are connected	pairs of numbers.	4 and 5. The least
Recognise and use factor pairs and commutativity in mental calculations for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)number, immers, incuding using factor incuding using factor incusing factor in		always end in 0.		and multiples of 3, 6	Recognise and use the	common multiple is
factor pairs and commutativity in mental calculations for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)factors and composite (non-prime) numbers. Establish whethera number up to 100 is prime and recall equivalent fractions and the notation for squared and cubed numbers.common factors of pairs of numbers. Iteres to find prime factors and prime factors and prime factors and prime factors and prime (sec as 2 a x 4)12 = 4 x 3 = 3 x 4)12 = 4 x 3 = 3 x 4)19. Recognise and use square numbers up to 12(²) and cube and the notation for squared and cubed numbers.Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and cube square numbers to 30 to maintain fluency. Recognise and cube for actors and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and cube for actors and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and cube form combers to 30 to maintain fluency.				and 9 are connected).	vocabulary of prime	20 as it is the smallest
commutativity in mental calculations for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)(non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Recognise and use square numbers up to 12(²) and cube quivalent fractions and the notation for and the notation for squared and cubed numbers.pairs of numbers, including using factor factors and prime factors and prime factors and prime (e.g. 48 = 2 × use square numbers up to 12(²) and cube quivalent fractions and the notation for squared and cubed numbers.use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use square numbers to 30 to maintain fluency.				Recognise and use	numbers, prime	number). Identify
mental calculations for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)Establish whether a number up to 100 is prime numbers up to 19. Recognise and uuse square numbers up to 12(2) and cube and the notation for and the notation for squared and cubed numbers.including using factor trees to find prime factors aton of any number (e.g. 48 = 2 × 2 × 2 × 2 × 3).12 = 4 x 3 = 3 x 4)19. Recognise and use square numbers up to 12(2) and cube and the notation for squared and cubed numbers.Use factors to find equivalent fractions and the notation for squared and cubed numbers.Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use square numbers to 20(2) and cube				factor pairs and	factors and composite	common factors of
for numbers up to 12 x 12 (e.g. 12 = 4 x 3 = 3 x 4)number up to 100 is x 12 (e.g. 12 = 4 x 3 = 3 x 4)trees to find prime factors and prime factors and prime up to 12 (a) 19. Recognise and use square numbers up to 12 (a) and the notation for squared and cubed numbers.trees to find prime factors and prime factors and prime tactorisation of any 19. Recognise and use square numbers up to 12 (a) and the notation for squared and cubed numbers.trees to find prime factors and prime factors and prime tactors and prime (e.g. 48 = 2 × 2 × 2 × 2 × 3).Use factors to find equivalent fractions and the notation for square and cubed numbers.including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube				commutativity in	(non-prime) numbers.	pairs of numbers,
x 12 (e.g. 12 = 4 x 3 = 3 x 4)prime and recall prime numbers up to 19. Recognise and use square numbers up to 12(²) and cube numbers up to 10(³) and the notation for squared and cubed numbers.factors and prime factorisation of any number (e.g. 48 = 2 × Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use square and use and the notation for squared and cubed numbers.prime and recall prime numbers up to 19. Recognise and use square numbers Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube				mental calculations	Establish whether a	including using factor
12 = 4 x 3 = 3 x 4)prime numbers up to 19. Recognise and use square numbers up to 12[²] and cube up to 12[²] and cube and the notation for squared and cubed numbers.factorisation of any number (e.g. 48 = 2 × 2 × 2 × 2 × 3). Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube				for numbers up to 12	number up to 100 is	trees to find prime
19. Recognise and use square numbers up to 12(²) and cube numbers up to 10(³) and the notation for squared and cubed numbers.number (e.g. 48 = 2 × 2 × 2 × 2 × 3). Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube				x 12 (e.g.	prime and recall	factors and prime
111				12 = 4 x 3 = 3 x 4)	prime numbers up to	factorisation of any
Use factors to find equivalent fractions and the notation for squared and cubed numbers. Use factors to find equivalent fractions and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube					19. Recognise and	number (e.g. 48 = 2 ×
numbers up to 10(³) and the notation for squared and cubed numbers.					use square numbers	2 × 2 × 2 × 3).
and the notation for squared and cubed numbers. and ratios, including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube					up to 12(²) and cube	Use factors to find
squared and cubed numbers.including cancelling fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(2) and cube					numbers up to 10(³)	equivalent fractions
numbers. fractions and ratios to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube					and the notation for	and ratios,
to their simplest form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube					squared and cubed	including cancelling
form. Continue to establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube					numbers.	fractions and ratios
establish whether numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						to their simplest
numbers beyond 100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						form. Continue to
100 are prime and recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						establish whether
recall prime numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						numbers beyond
numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						100 are prime and
numbers to 30 to maintain fluency. Recognise and use square numbers to 20(²) and cube						recall prime
Recognise and use square numbers to 20(²) and cube						-
Recognise and use square numbers to 20(²) and cube						maintain fluency.
square numbers to 20(²) and cube						
20(²) and cube						-
						-
						• •

	PR	ogression of skill	S		THE STREAM
					and use the notation for squared and cubed numbers in context, including algebra (e.g. $n^2 + 30 =$ 79, what is the value of <i>n</i> ?)
	 	Place Value			
Have a deep understanding of number to 10,	Multiply numbers to 20 by 10, beginning to understand the effect.	Recall and use multiplication and division facts for x10	Multiply and divide increasingly large numbers by 10,	Multiply and divide whole numbers and those involving	Continue to multiply and divide whole numbers and those
including the composition of each number		and know the effect on the place value of the numbers being multiplied (e.g. 45 × 10 =	including solving problems which involve measures in context.	decimals by 10, 100 and 1000 in context and apply to problem solving.	involving decimals by 10, 100, 1000 and 10,000 in context and apply to problem solving.

THE A



			450 therefore 450 ÷ 10= 45).			
			Problem Solving			
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	Solve, with teacher support, simple one- step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays.	Solve problems involving multiplication and division, using materials, arrays, repeated addition and mental methods for all the above. Solve problems in contexts when multiplying by 2, 5 and 10, including doubling and halving.	Solve problems, including missing number problems, involving multiplying and dividing by 2, 3, 4, 5, 8 and 10. Solve problems including measuring and scaling contexts (e.g. 8 times as high, 10 times as long). Solve problems including correspondence in which <i>n</i> objects are connected to <i>m</i> objects (e.g. 3 hats and 4 coats, how many different outfits are possible?).	Solve problems involving multiplying and adding, using the distributive and associative law, including two-step problems in context. Solve increasingly complex problems in context, including integer scaling. Solve harder correspondence problems with an increasing number of combinations and outcomes in which <i>n</i> objects are connected to <i>m</i> objects.	Solve problems involving multiplication and division where larger numbers are used, decomposing them into their factors in context. Solve multi- step problems involving addition, subtraction, multiplication and division and a combination of these. Explain the equals sign to indicate equivalence, including in missing number problems (e.g. 33 = 5 × ?). Solve more complex problems involving multiplication and division, including scaling by simple fractions involving simple rates to support the	Solve problems involving addition, subtraction, multiplication and division. Systematically arrange the information in a problem, identifying and recording the steps needed to solve it, using symbols where appropriate. Interpret solutions in the original context, checking their accuracy. Organise written work systematically for a range of problem types. Independently review their work and strategies suggesting other problem solving strategies which they could have used.



		introduction of ratio in Y6 (e.g. adapting a simple recipe for more or fewer	
		servings).	

MATHEMATICS ESSENTIAL SKILLS Reception -Y6: FRACTIONS, RATIO AND PROPORTION

EYFS	KEY STAGE 1		LOWER KEY STAGE 2		UPPER KEY STAGE 2		
GLD					End of Y6 expectations		
	Recognise, represent and name fractions						



						(Memo-
up to 10 in different n contexts, recognising tw when one quantity is fi greater than, less a than or the same as q the other quantity o (6 fi q o fi d d c t b	Recognise, find and name half as one of two equal parts and find half of discrete and continuous quantities by problem solving, using shapes, objects and quantities (e.g. recognise and find half of a length, quantity, set of objects or shape). Recognise, find and name a quarter as one of four equal parts and find a quarter of discrete and continuous quantities by problem solving, using shapes,	Recognise, find, name and write fractions $1/_{3}$, $1/_{4}$, $2/_{4}$ and $3/_{4}$ of a length, shape, set of objects or quantity, meeting $2/_{4}$ and $3/_{4}$ as the first example of non-unit fractions.	Recognise and show, using diagrams, equivalent fractions with small denominators to tenths. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators to tenths, and instantly recognise fractions equivalent to a half.	Recognise and show, using diagrams, families of common equivalent fractions. Use factors and multiples to find and recognise equivalent fractions and simplify where appropriate. Recall and write decimal equivalents to $1/2$, $1/4$ and $3/4$ and recognise and write decimal equivalents of any number of tenths or hundredths with increasing fluency.	Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths and cancel fractions to their simplest form using factors. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $2^{2}/5 + 4/5 = 6/5 = 1 1/5$).	Use common factors to simplify fractions. Use common multiples to express fractions in the same denomination and cancel fractions to their simplest form with increasing fluency. Associate any fraction with division to calculate decimal fraction equivalents (e.g. 0.33333) for a simple fraction (e.g. $1/_3$).
(e a	objects and quantities e.g. recognise and find a quarter of a length, quantity, set of objects					
	or shape).					
			Compare and c	order fractions		
Compare quantities up to 10 in different			Compare and order unit fractions with the	Compare and order unit fractions with	Compare and order non-unit fractions	Compare and order fractions, including
contexts, recognising			same denominator, to	increasingly large	whose denominators	fractions > 1, those
when one quantity is			tenths, and place	denominators	are all multiples of the	with mixed numbers,
greater than, less			them on a blank	(including	same number with	decimals and
than or the same as			number line.	hundredths) and	more than four	percentages.
				order on the number	fractions in a set.	
the other quantity						
the other quantity				line.	Use the greater than and less than symbols	



				number sentences incorporating fractions.	
		Cour	nting		
	Count in fractions up to 10, starting from any number and using the $1/2$ and $2/4$ equivalence on the number line (e.g. 1 $1/4$, 1 $2/4$ (or 1 1/2), 1 $3/4$, 2).	Count up and down in tenths fluently, recognising that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.	Count fluently in fractions, including hundredths, recognising that hundredths arise when dividing an object or number by one hundred and dividing tenths by ten.	Continue to practice counting forwards and backwards in fractions to improve fluency.	Continue to practice counting forwards and backwards in fractions to improve fluency.
		Finding fractio	ns of amounts		
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	Write simple fractions with numbers up to and including 100 (e.g. $1/2$ of 30 = 15, $1/2$ of 40 = 20, $1/2$ of 50 = 25, $1/2$ of 100 = 50. Recognise the equivalence of two quarters ($2/4$) and one half ($1/2$).	Recognise, find and write fractions of a discrete set of objects: unit and non- unit fractions including; halves, thirds, quarters, fifths, eighths and tenths	Continue to find fractions of amounts, with unit and non unit fractions, applying knowledge of the appropriate multiplication tables.	Continue to develop their understanding of fractions as numbers, measures and operators by finding fractions of numbers and quantities.	Use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (e.g. if ${}^{1}\!/_{4}$ of a length is 36 cm then the whole



		Adding and subt	racting fractions		length is 36 x 4 = 144 cm).		
		Add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ and $\frac{1}{3} + \frac{2}{3}$ make a whole).	Add and subtract fractions with the same denominator to become fluent through a variety of increasingly complex problems beyond one whole (e.g. $\frac{5}{8} + \frac{7}{8} = 1$ $\frac{1}{2}$, therefore $1 \frac{1}{2} - \frac{7}{8} = \frac{5}{8}$).	Fluently add and subtract fractions with the same denominator and denominators that are multiples of the same number.	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.		
Multiplying and dividing fractions							
				Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	Multiply simple pairs of proper fractions, with any denominator, writing the answer in its simplest form. Divide proper fractions by		



			whole numbers (e.g.
			$\frac{1}{3} \div 2 = \frac{1}{6}$.
	Ratio and proportion		
			Solve more complex
			problems involving the
			relative sizes of two
			quantities where
			missing values can be
			found by using integer
			multiplication and
			division facts, including
			working backwards
			(e.g. In a class, 18 of the
			children in the class are
			boys. How many
			children are there
			altogether?).
			Solve more complex
			problems involving
			similar shapes where
			the scale factor is
			known or can be found
			(e.g. scale drawings of
			shapes with a scale
			factor of 2, meaning the
			new shape is twice the
			size, or a scale factor of
			3, meaning the shape is
			3 times the size). Solve
			increasingly complex
			problems involving
			unequal sharing and
			grouping, using
			knowledge of fractions
			and multiples (e.g. 2

Brohlem solving			diamond rings and 4
Droblem solving			silver rings cost £1,440. A diamond ring and a silver ring cost £660. How much does a silver
FIDDIEITI SOIVIIIg	Problem solving		

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Problem solv	ving		
Solve more com problems, invol of the above.		Solve problems that involve all of the above, including problems which require knowing percentage and decimal equivalents	Solve problems in context, involving all of the above.



		of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.	

MATHEMATICS ESSENTIAL SKILLS Reception - Y6: DECIMALS AND PERCENTAGES

EYFS	KEY	STAGE 1	LOWER K	EY STAGE 2	UPPER KE	EY STAGE 2
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations
		Recog	nise, read and write and	d compare decimals.		
				Recognise and write decimal equivalents of any number of tenths or hundredths, including plotting tenths and hundredths on a number line. Recall and write decimal equivalents to ½, 1/4 and 3/4. Compare and order numbers with the same number of decimal places up to two decimal places.	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Read and write decimal numbers, up to three decimal places, as fractions (e.g. $0.771 = \frac{771}{1000}$). Read, write, order and compare numbers with up to three decimal places (e.g. can you order 2.321, 2.4, 2.34, 2.401 and 2.5?).	Identify the value of each digit in numbers given to three decimal places. Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places and, solve related problems with increasing fluency.



T						
			Rounding decimal	numbers		
				Round any decimal with one decimal place to the nearest whole number to estimate when problem solving, including mixed digit numbers (e.g. 1345.4 – 1345 345.6 – 346 34.6 – 35).	Round any decimals with two decimal places to the nearest whole number and to one decimal place (e.g. 380.64 – 380.6 – 381 34.65 – 34.7 – 35 1456.54 – 1456.5 – 1457).	Round decimals with three decimal places to the nearest whole number and to one or two decimal places and decide independently how decimal numbers should be rounded when estimating (e.g. 34.365 – 34 34.365 – 34.4 34.365 – 34.37).
	1	Mu	ultiplying decimal numbe	rs	L	
					Multiply whole numbers and those involving decimals by 10, 100 and 1000, in context and apply to problem solving.	Multiply numbers with up to two decimal places by whole numbers, using formal and informal written methods.



Dividing decimal numbers									
			Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths with increasing fluency and solve simple problems mentally.	Divide whole numbers and those involving decimals by 10, 100 and 1000, in context and apply to problem solving.	Use written division methods in cases where the answer has up to two decimal places.				
		Percentages							
				Recognise the percent symbol (%), knowing that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator hundred, and as a decimal. Recall from memory 50%, 25%, 75% and 10% as a fraction and a decimal.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.				



			· · · · ·	THAMS 9
	Problem Solving			
		Solve simple measure and money problems involving fractions and decimals to two decimal places.	Solve problems involving number up to three decimal places, including converting between units of measure in context. Solve problems which require knowing percentage and decimal equivalents of ½, ¼, ¾, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	Solve problems, involving all of the above, which require answers to be rounded to specified degrees of accuracy. Solve problems involving the calculation of percentages of whole numbers or measures, such as 15% of 360 and the use of percentages for comparison. Use advanced mental strategies (e.g. when finding 90% take away 10% from the total, or when finding 60% find a half and 10% and add them together).

MATHEMATICS ESSENTIAL SKILLS Reception - Y6: GEOMETRY

	EYFS	KEY STAGE 1	LOWER KEY STAGE 2	UPPER KEY STAGE 2
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						(Income)				
GLD	End of Y1	End of Y2	End of Y3	End of Y4	End of Y5	End of Y6				
	expectations	expectations	expectations	expectations	expectations	expectations				
Identifying, recognising and naming shapes.										
There are no specific	Recognise and name	Identify and describe	Recognise and name	Identify and name	Identify 3-D shapes,	Recognise, describe,				
shape/space	common 2-D shapes,	the properties of 2-D	symmetrical and non-	regular and irregular	including cubes and	draw and build				
measure ELGs for	including: rectangles,	shapes, including the	symmetrical polygons	polygons, including	other cuboids, from	simple 3-D shapes,				
EYFS, however	squares, circles and	number of sides and	and polyhedral and	quadrilaterals	2-D representations,	including making nets				
Practitioners and	triangles in different	symmetry in a	describe their	(square, rectangle,	including constructing	with increasing				
teachers will still be	orientations and sizes	vertical line (e.g.	properties using	parallelogram,	the net of a cube or	accuracy.				
required to teach	and fluently relate	quadrilaterals and	accurate language	rhombus, trapezium,	cuboid.	Illustrate and name				
children about	them to everyday	polygons).	when describing the	isosceles trapezium,		parts of circles,				
shape, space and	objects. Recognise	Identify and describe	angles, edges vertices	kite) and equilateral,		including radius,				
measures, as part of	and name common 3-	the properties of 2-D	and measurements.	isosceles, scalene and		diameter and				
a well-rounded	D shapes, including:	shapes on the surface	Continue to identify,	right angle triangles.		circumference and				
curriculum	cuboids, cubes,	of 3-D shapes (e.g. a	name and describe 3-	Continue to identify,		begin to recognise				
	pyramids and spheres	circle on a cylinder	D shapes, including:	describe and name 3-		that the				
	in different	and a triangle on a	cones, cylinders,	D shapes (cones,		circumference can be				
	orientations and sizes	pyramid) and use	prisms, pyramids,	cylinders, prisms,		calculated using a				
	and fluently relate	basic language, such	cubes, cuboids,	pyramids, cubes,		given formula.				
	them to everyday	as: sides, edges,	spheres.	cuboids, spheres,						
	objects.	vertices and faces.		hemispheres,						
				tetrahedrons).						
			Properties of shapes							
		Compare, sort and	Continue to compare,	Compare and classify	Use the properties of	Compare and classify				
		describe common 2-D	sort and describe the	geometric shapes,	quadrilaterals	geometric shapes				
		shapes and 3D shapes	properties of 2-D	including	(squares, rectangles,	based on				
		and everyday objects	shapes and 3-D	quadrilaterals	rhombuses,	their properties and				
		by the number of	shapes using precise	(square, rectangle,	parallelograms) and	sizes and explain				
		sides, faces, edges,	terminology, including	parallelogram,	triangles to deduce	how unknown				
		vertices and lines of	length of lines and	rhombus, trapezium,	related facts and find	angles in any				
		symmetry. Identify	acute and obtuse for	isosceles trapezium,	missing lengths and	triangles,				
		and describe the	angles greater or	kite) and triangles	angles.	quadrilaterals, and				
		properties of 3-D	lesser than a right	(isosceles, equilateral,	Distinguish between	regular polygons can				
		shapes, including the	angle.	scalene, right angle	regular and irregular	be derived from				
		number of edges,		triangle), based on	polygons based on	known				



vertices and faces	their properties and	reasoning about equal	measurements.
using precise	sizes.	sides and angles.	Express these
terminology.			relationships
			algebraically (e.g. d =
			$2 \times r, a = 180 - (b + 1)$
			c)).

	Drawing shapes		
Draw lines and shapes	Draw 2-D shapes	Draw and construct	Draw any 2-D shapes
using a ruler.	accurately and	quadrilaterals and	using given
	connect decimals and	triangles using given	dimensions with
	rounding to drawing	dimensions and angles	increasing accuracy
	and measuring	with increasing	(to the nearest
	straight lines in	accuracy.	millimetre), using
	centimetres in a		conventional markings
	variety of contexts		for parallel lines and
	(e.g. rounding mm on		right angles.
	a ruler to the nearest		
	cm). Make 3-D		
	shapes using		
	modelling materials		
	and name and		
	describe their		
	properties using		
	accurate language		
	when describing the		



	angles, edges, vertices and measurements.			
	A I			
[Angles	· · ·		
	Recognise angles as a	Identify and estimate	Recognise that angles are measured in	Recognise angles
	property of shape or a description of a turn	acute and obtuse angles in polygons to	degrees: estimate	where they meet at a point, are on a
	and recognise if	compare length of	and compare acute,	straight line or
	angles are obtuse or	sides to decide if a	obtuse and reflex	vertically opposite,
	acute.	polygon is regular or	angles with	and derive missing
	Identify right angles	irregular, and	increasing accuracy	angles with
	and recognise that	compare and order	and fluency.	increasing fluency.
	two right angles make a half-turn, three	angles up to two right	Draw given angles and measure them in	
	make three quarters	angles by size.	degrees (°), including	
	of a turn and four a		acute, obtuse and	
	complete turn.		reflex angles with	
	Identify whether		increasing accuracy	
	angles are greater		and fluency.	
	than or less than a		Identify:	
	right angle.			



	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.		-angles at a point and one whole turn (total 360°) -angles at a point on a straight line and ½ a turn (total 180°) – other multiples of 90° and 45° turns.	
	Symmetry			
		Identify lines of symmetry in any 2-D shape presented in different orientations. Complete a symmetric figure with respect to a vertical, horizontal or diagonal line of symmetry.	Continue to draw simple symmetric figures, of increasing complexity, with respect to a specific line of symmetry, including diagonal mirror lines.	Continue to draw symmetric figures with respect to a specific line of symmetry, including diagonal lines and reflecting in four quadrants.



MATHEMATICS ESSENTIAL SKILLS Reception -Y6: MEASUREMENT

EYFS	KEY STAGE 1		LOWER KEY STAGE 2		UPPER KEY STAGE 2			
GLD	End of Y1	End of Y2	End of Y3	End of Y4	End of Y5	End of Y6		
	expectations	expectations	expectations	expectations	expectations	expectations		
	Length and height (including area and perimeter)							
There are no specific	Compare, describe	Compare and order	Measure, compare,	Convert between	Convert between	Use, read, write and		
shape/space measure	and solve practical	lengths/heights and	add and subtract	different units of	different units of	convert between		
ELGs for EYFS, however	problems for lengths	record the results	lengths (m/cm/mm)	measure:	metric measure (e.g.	standard units,		
Practitioners and teachers	and heights (e.g.	using >, < and =.	with increasing	centimetres to	kilometres and	converting		
will still be required to	long/short,	Choose and use	fluency, including	millimetres,	metres; centimetres	measurements of		
teach children about	longer/shorter,	appropriate standard	with mixed units.	centimetres to	and metres;	length from a smaller		



shape, space and	tall/short,	units to estimate and	Measure the	metres, kilometres	centimetres and	unit of measure to a
measures, as part of a	double/half).	measure	perimeter of simple	to metres and vice	millimetres) fluently,	larger unit and vice
well-rounded curriculum	Measure with a ruler	length/height in any	2-D shapes in	versa with increasing	with increasingly	versa, using decimal
	and begin to record	direction (m/cm) to	m/cm/mm and	fluency.	large numbers.	notation up to three
	lengths and heights	the nearest	record results	Measure and	Recognise and use	decimal places with
	in standard units of	appropriate unit	independently.	calculate the	approximate	increasing fluency.
	measure.	using rulers and tape	, ,	perimeter of any	equivalences	Convert between
		measures with		rectilinear figure in	between metric	miles and kilometres
		increasing accuracy.		centimetres and	units and common	accurately and
		,		metres and express	imperial units, such	connect to a linear
				the formula for	as inches and feet,	graphical
				perimeter	with increasing	representation.
				algebraically as $2(a +$	fluency. Measure	Recognise and
				b), where a and b are	and calculate the	explain, using
				the dimensions in the		examples how
				same unit. Find the	composite	shapes with the
				area of rectilinear	rectilinear shapes in	same areas can have
				shapes by counting	centimetres and	different perimeters
				whole and half	metres, including	and vice versa.
				centimetre squares	finding missing	Calculate the area of
				and recognise that	lengths (e.g. missing	parallelograms and
				area relates to arrays	measures questions	triangles. Use
				and multiplication.	can be expressed	formulae for the
					algebraically: 4 + 2b	area of rectangles,
					= 20 for a rectangle	squares, irregular
					of sides 2cm and b	shapes triangles and
					cm and perimeter of	parallelograms.
					20 cm). Calculate	
					and compare the	
					area of rectangles	
					(including squares),	
					using standard units,	
					square centimetres	
					(cm ²) and square	
					metres (m²).	
					Estimate the area	



						arthams
	Compare, describe and solve practical problems for mass or weight (e.g. heavy/light, heavier than, lighter than). Measure using simple scales and equipment and begin to record mass/weight in standard units of measure.	 >, < and =. Choose and use appropriate standard units to estimate and 	Mass and weight Measure, compare, add and subtract mass (kg/g) with increasing fluency, including with mixed units.	Convert between different units of measure: grams to kilograms and vice versa with increasing fluency.	of irregular shapes, including finding missing lengths and calculating the area of scale drawings. Convert between different units of metric measure (e.g. grams, kilograms and tonnes) fluently, with increasingly large numbers. Recognise and use approximate equivalences between metric units common imperial units, such as ounces and pounds, with increasing fluency.	Use, read, write and convert between standard units, converting measurements of mass from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to three decimal places with increasing fluency.
			Capacity and volume		!	
There are no specific	Compare, describe		Measure, compare,	Convert between	Convert between	Use, read, write and
shape/space measure	and solve practical	\cdots	add	different units of	different units of	convert between
ELGs for EYFS, however	problems for		and subtract	measure: millilitres to	metric measure (e.g.	standard units,
Practitioners and	capacity/volume		volume/capacity	litres with increasing	litres and millilitres)	converting
teachers will still be	(e.g. full/empty,		(l/ml) with	fluency.	fluently, with	measurements of
required to teach	more than, less		increasing fluency,		increasingly large	volume from a
children about shape,	than, half, quarter).		including with		numbers. Recognise	smaller unit of
space and measures, as	Measure using simple		mixed units.		and use approximate	measure to a larger
part of a well-rounded curriculum	scales and equipment and begin to record	(°C) and			equivalences between metric units	unit, and vice versa, using decimal
curriculum	capacity and volume	capacity/volume (litres/ml) to the			and common	notation up to three
	in standard units of	nearest appropriate			imperial units, such	decimal places with
	measure.	unit, using			as pints, with	increasing fluency.



thermometers and measuring vessels.		Estimate volume (e.g. using 1 cm ³ blocks to build cuboids, including cubes) and capacity (e.g. using water) with increasing accuracy.	the formulae for volume of shapes (cubes, cuboids and square-based pyramids). Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm ³) and cubic metres (m ³) and extending to other units, such as mm ³ and km ³ .
	Time		



Understanding the World -Sequence a number of term exits in sequence intervals equence intervals equence intervals the people around the nand their roles in osciety;Solve problems different units of intre, including measure: hours to tandard units, calculate the time tandard units, convert time, including minutes.Solve problems difference site time, including measure: hours to time, including minutes, time differences time differences <br< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>STTHAMS SO</th></br<>							STTHAMS SO
 - Talk about the lives of the people around the mand their roles in society; - Know some similarities and differences between nex, first, today, yesterday, similarities and differences between now, drawing on their nex, first, today, yesterday, similarities and afternoon and experiences and what has been read in class; relating to dates, nas been read in class; roluting storytelling; - Understand the past through settings, storytelling; - Tell hat with settings - Week, weeks, months and years for time (e.g. quicker, slower, earlier, later). Tell the time to the hour and haf past the hour hours, minutes, seconds). - Now Sine admonth, year and hapy to simple - Now Sine admonth, year and hapy to solving - Now Sine	-		•	•		•	
the people around them and their roles in scoiety; - know some similarities and and, fraxt today, - know some similarities and inferences between things in the past and experiences and what has been read in class; uhours had yeast storytelling;times in first so five minutes. Tell and with int 2 hours. Tell and wirte the and use language and use language and use language and sue language through settings, characters and events through settings, characters and what storytelling;times in the past mortow, morning, and use language and use language and acek methy and base bare read in class; with increasing fluency; for time (e.g. practical problems increasing fluency; for time (e.g. and apply to simple areiting, later, later	World –	of events in	sequence intervals	events (e.g. to	different units of	involving converting	convert between
them and their roles in society;as: before and after, next, first, today, next, first, today, of the minutes, similarities and differences between afternoon and evening. Recognise hand sea language experiences and what has been read in class; - Understand the past books read in class and storytelling;minutes, including days of the minutes in a hour, hours and alf past through setting in the to the hour and half past the hands an alphy to simple earlier, later).including simple time from a smaller unit of minutes = 2 hours minutes = 3 hours and year mory and year or ecording them with increasing fluency.number e.g 128 minutes = 2 hours minutes = 2 hours minutes = 3 hours 34 minutes). analogue clock, Read write and converting the with increasing fluency.number e.g 128 minutes = 3 hours 34 minutes. and write and converting the with increasing fluency.measurements of time from a smaller unit of mass error conversions to tell if an answer 24-hour clocks with increasing fluency.measurements of time from a smaller unit of mass error solve problems increasing fluency.measurements of time from a smaller unit and vice versa, and digital 12 and 24-hour clocks with increasing fluency.measurements of time from a smaller unit and vice versa, and digital 12 and 24-hour clocks with increasing fluency.measurements of time from a smaller unit and vice versa, and apply to simple time interms of seconds in a minute, minutes, manutes in a hour, <br< td=""><td>- Talk about the lives of</td><td>chronological order</td><td>of time, including</td><td>calculate the time</td><td>measure: hours to</td><td>between units of</td><td>standard units,</td></br<>	- Talk about the lives of	chronological order	of time, including	calculate the time	measure: hours to	between units of	standard units,
society; - Know some similarities and differences between things in the past and ow, drawing on their experiences and what has been read in class; - luderstand the past through settings, characters and events ercord time (hours, months, seconds).write the time to five minutes, tudiding quarter past/to the analogue clock, Roman numerals from 1 to XII, and 12- read time with increasing fluency. Solve problems involving converting for time (e.g. quicker, slower, earlier, later).mext, first, today, yesterday, tunit of measure to a larger unit, and vice versa, analogue clock, Read, write and convert time between analogue from 1 to XII, and 12- 24-hour clocks with increasing fluency. Solve problems involving converting from hours to minutes, seconds).time from a smaller unit of measure to a larger unit, and vice versa, and and gue clock, Read, write and convert time between analogue from 1 to XII, and 12- 24-hour clocks with increasing fluency. Solve problems involving converting from hours to minutes, seconds, in a minute, minutes, and hours in a day, and apply to simple time in terms of seconds in a minute, minutes, seconds).time differences with increasing fluency. Clocks. Estimate and read time with increasing fluency. Solve problems involving converting from hours to minutes, seconds, sears to monthy, weeks to days.time differences minutes, minutes, minutes, minutes, minutes, minutes, minutes, seconds).time from a smaller unit of minutes minutes in an hour, hours in a day, and hours in a day, minutes, seconds).time differences minutes in an hour, hours in a day and days in each month, year and laep year and a	the people around	using language, such	times to five	taken for a journey),	minutes (any	time, including	converting
 - Know some yesterday, similarities and differences between things in the past and now, drawing on their experiences and what has been read in class, including days of the week, weeks, wroths and years - Understand the past and brows and use approximate roads in a minute, seconds in a minute, seconds in a minute, minutes, seconds). - Understand the past and no class and storytelling; - Tell the time to the hour and draw the hands on a clock face to show these times, minutes, seconds). - Understand the past incluss, error dime (hours, minutes, seconds). - Understand the past incluss, error dime membry of time (e.g. quicker, slower, earlier, later). - Tell the time to the hour and draw the hands on a clock face to show these times, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and draw the hands on a clock face to show these times. Massure and record time (hours, minutes, seconds). - Tell the time to the hour and lapat times. Massure and record time (hours, minutes, seconds). - Tell the time to the hours and raw t	them and their roles in	as: before and after,	minutes. Tell and	including finding	number e.g. – 128	interpreting simple	measurements of
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- Understand the past through settings, characters and events encountered in books read in class and storytelling;	experiences and what	relating to dates,	on a clock face	Roman numerals	between analogue		conversions to
through settings, characters and events encountered in books read in class and storytelling;	has been read in class;	including days of the	independently to	from I to XII, and 12-	and digital 12 and		tell if an answer
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hour and half past the hour and draw the hands on a clock face to show these times. Measure and record time (hours, minutes, seconds).Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. Recall the number of seconds in a minute, minutes in an hour, hours in a day and days in each month, year and leap year and apply to solvingImage: Clock and part of the par		earlier, later).	time problems.	seconds, minutes and	days.		
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the hands on a clock face to show these times. Measure and record time (hours, minutes, seconds).morning, afternoon, noon and midnight. Recall the number of seconds in a minute, minutes in an hour, hours in a day and days in each month, year and leap year and apply to solving		hour and half past		Use vocabulary such			
face to show these times. Measure and record time (hours, minutes, seconds).noon and midnight. Recall the number of seconds in a minute, minutes in an hour, hours in a day and days in each month, year and leap year and apply to solving		the hour and draw		as o'clock, a.m./p.m.,			
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days in each month, year and leap year and apply to solving		minutes, seconds).		minutes in an hour,			
year and leap year and apply to solving				hours in a day and			
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				year and leap year			
time problems.				and apply to solving			
				time problems.			

1	I	Manay	<u> </u>	I		
Money						



						THAMS
Number Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;	Recognise and know the value of different denominations of coins (including counting coins), 1p, 2p, 5p, 10p, 20p, 50p, £1, £2 and notes.	Recognise and use symbols for pounds (£) and pence (p), combine amounts to make a particular value and record pounds and pence separately. Find different combinations of coins (beyond five pounds) that equal the same amounts of money. Solve simple problems in a practical context, involving addition and subtraction of money of the same unit, including giving	Add and subtract amounts of money to give change, using both £ and p in practical contexts, including formal written methods (carrying and exchanging when necessary).	Estimate, compare and calculate different measures, including money in pounds and pence, with increasing fluency when using decimal notation.	Continue to solve problems involving money, using all four operations.	Solve problems involving money, including all four operations and fractions and percentages of amounts.
		change.				
		Γ	Problem Solving		1	
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	Solve simple problems involving all of the above.	Solve simple problems involving all of the above.	Solve simple problems involving all of the above.	Solve problems involving all of the above.	Use all four operations to solve problems for all of the above, using decimal notation, including scaling.	Solve problems for all of the above, involving the calculation and conversion of units of measure, using decimal notation to three decimal places where
						places where appropriate.



MATHEMATICS ESSENTIAL SKILLS Reception -Y6: STATISTICS

EYFS	KEY STAGE 1		LOWER KE	EY STAGE 2	UPPER KEY STAGE 2			
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations		
	Recording and organising							
		Construct simple pictograms, tally charts, block diagrams and simple tables	Present data using bar charts, pictograms and tables.	Present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	Read and complete information in a range of tables, including timetables, recording work systematically. Construct simple line graphs within a given context and connect work on coordinates to their interpretation of time graphs.	Construct pie charts and line graphs and use these to solve problems, making connections to angles, fractions and percentages.		
			Interp	reting				



					SYTHAM			
	Interpret simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and compare categorical data.	Interpret data using bar charts, pictograms and tables.	Interpret discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	Read, complete and interpret information in tables, including timetables. Connect interpretations of time graphs to work on coordinates and scales, thinking about and using appropriate units. Interpret simple line graphs within a given context and connect work on coordinates to their interpretation of time graphs.	Interpret pie charts and line graphs and use these to solve problems, making connections to angles, fractions and percentages.			
		Using statistics an	d problem solving					
			u problem solving					
		Solve one-step and two-step questions, using information presented in scaled bar charts, pictograms and tables (e.g. 'How many more?' and 'How many fewer?').	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and graphs.	Solve comparison, sum and difference problems using information presented in a line graph. Decide which representations of data are the most appropriate to support the conclusion and state the reasons why.	Solve comparison, sum and difference problems using information presented in line graphs, pie charts and graphs with two sets of data.			
Averages								



			Calculate the mean
			with increasingly large
			numbers, including
			decimals and negative
			numbers.

MATHEMATICS ESSENTIAL SKILLS Reception -Y6: ALGEBRA

EYFS	KEY ST	AGE 1	LOWER KEY STAGE 2		UPPER KEY STAGE 2	
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations
			Formulae, expressi	ions and equations		
						Express missing number problems algebraically using all four operations and mixed operations (e.g. $3n + 5 = 20$, what is the value of n? If n = 9, what is $9n + 2$?). Use and choose simple formulae in other contexts



	1	1		
				(e.g. to find missing
				numbers, lengths,
				coordinates and
				angles). Find pairs of
				numbers that satisfy
				an equation involving
				two unknowns,
				including solving
				problems ad puzzles
				(e.g. here
				are three
				equations: -
				a + b + c =
				30
				- a + b = 24
				– <i>b</i> + <i>c</i> = 14
				What are the values
				of <i>a, b</i> and <i>c</i> ?).
				Enumerate
				possibilities of
				combinations of two
				variables, including
				solving problems and
				puzzles (e.g. what two
				numbers can add up
				to).
	•	Sequences		
				Generate and
				describe linear
				sequences.
		Problem Solving		
				Solve multi-step
				number and practical
				problems that involve
				all of the above.
	•	•	•	



MATHEMATICS ESSENTIAL SKILLS Reception -Y6: PROBLEM SOLVING

EYFS	KEY S	TAGE 1	LOWER KE	EY STAGE 2	UPPER KEY STAGE 2	
GLD	End of Y1 expectations	End of Y2 expectations	End of Y3 expectations Interpretation	End of Y4 expectations	End of Y5 expectations	End of Y6 expectations
	Begin to make simple mathematical connections and apply their knowledge to similar situations. Talk about a simple problem, with adult support (e.g. responding to simple questions).	Make mathematical connections and apply their knowledge to similar situations. Use concrete resources and pictorials to find a starting point, identifying key facts/relevant information. Describe ways of solving simple problems orally or using concrete resources and pictures.	Interpret and use mathematical symbols and diagrams. Use pictures, diagrams and symbols to communicate their thinking/demonstrate a solution or process. Describe ways of solving problems, explaining choices and decisions orally or using concrete resources and pictures.	Interpret and describe methods, choices and solutions to puzzles and problems, orally and in writing, using pictures, diagrams and symbols. Recognise information in one- step problems that is key to solving the problem.	Interpret problems, giving clear explanations and reasoning, orally and in writing, using diagrams and symbols. Recognise and obtain information that is key to solving a problem. Pose similar problems for a partner to solve.	Explain and interpret problems using diagrams, graphs and text; refine ways of recording using images and symbols. Recognise and obtain necessary information to carry through a task and solve mathematical problems. Continue to pose similar problems for a partner to solve.



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					1		
	Reasoning						

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Listening, attention	Begin to describe	Describe solutions to	Describe methods	Represent a puzzle or	Test and explain	Respond to 'What if?
and understanding:	simple methods	number and practical	they use in their work	problem using	mathematical	questions using
Listen attentively and	used for basic	problems, drawing on	for simple number	number sentences,	statements (e.g. when	mathematical
respond to what they	number problems.	experience, talking	problems and begin	statements or	you divide an even	reasoning. Reword
hear with relevant	Listen to others'	about their own	to test and explain	diagrams; use these	number by an odd	a mathematical
questions,	explanations and	ideas, methods and	simple mathematical	to solve the problem;	number there is	problem and explain
comments and	try to make sense	choices.	statements (e.g. the	present and interpret	always a remainder).	to others how the
actions when being	of them.	Talk about simple	number 12 is even so	the solution in the	Put a mathematical	problem can be
read to and during		problems and	12 counters can't be	context of the	problem into their	solved. Listen to
whole class		compare answers.	shared between 3	problem. Discuss	own words. Talk	others' explanations
discussions			children).	their work, beginning	about findings and	of problems and
and small group			Listen to others'	to explain their	solutions with	compare and
interactions;			explanations of	reasoning.	reference to	evaluate answers,
- Make comments			simple problems and		methods used.	methods and
about what they have			compare answers.			strategies used.
heard and ask						Draw simple
questions to clarify						conclusions and give
their						an explanation of
understanding;						



					reasoning with examples, including related conjectures.
	Record	ding, presenting and orga	anising		
Use role play and concrete resources to represent a simple problem. Represent a mathematical problem using concrete resources or pictures to communicate their ideas. Make simple jottings to record results using pictorial representation.	Use role play and concrete resources to represent a simple problem, identifying key facts/relevant information. Draw pictures, diagrams and symbols to communicate thinking or demonstrate a solution or process. Make simple jottings to record results using pictorial representation and number symbols.	Begin to develop their own methods of recording. Present solutions to simple problems in an organised way (e.g. partitioning numbers to add or subtract). Begin to explain decisions, methods and results in pictorial, spoken or written form, using mathematical language and number sentences.	Begin to organise written work systematically (e.g. record results in order). Present solutions to simple problems in an organised way and explain decisions, methods and results in pictorial, spoken or written form, using mathematical language and number sentences.	Organise written work systematically for a range of problem types (e.g. adjust accordingly when using trial and error). Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem.	Organise written work systematically, from the onset, for a range of problem types. Decide upon the best way to represent their conclusions, using appropriate recording. Tabulate systematically the information in a puzzle or problem. Identify and record the steps or calculations needed to solve it, using symbols where appropriate. Interpret solutions in



respond to what they hear with relevantresources (e.g. cubes, counters, numicon)ap co co and pictorialap co co nu nu comments andcomments and actions when being read to and during whole classrepresentation to problems.pla an problems.	TTHANS SO						
and small grouppro-interactions;mail- Make commentssuabout what they haveto	Jse structured apparatus (e.g. counters, money, numicon, dienes, olace value cards, 100 equare/number line) and pictorial representation to solve simple problems. Begin to make their own suggestions of ways to tackle simple problems.	roblem solving strategie Choose and use structured apparatus, appropriate to task, to support problem solving. Make their own suggestions and use their own strategies to tackle problems. Identify simple patterns in results.	s Begin to use trail and error when problem solving. Try different approaches and find ways of overcoming difficulties that arise when they are solving problems. Identify simple patterns in results and use them to find other possible outcomes.	Search for a solution by trying out ideas of their own and adjust accordingly. Begin to adopt a suggested model or systematic approach. Identify patterns as they work and use these patterns to find other outcomes. Make generalisations with the assistance of probing questions and prompts. Evaluate their work and strategies independently.	the original context and check their accuracy. Identify information that is necessary to solve a problem and determine what is missing. Break a problem into simpler steps before solving. Identify patterns as they work and form their own generalisations/rules in words. Review their own work and strategies independently and suggest other problem solving strategies which they could have used. Begin to understand and use simple		
					Begin to understand and use simple formulae and symbols to represent and solve problems.		
Estimating and checking							



					-
Estimate relati	ve sizes Check their work and	Begin to estimate the	Estimate and check	Use rounding	Use a range of
and amounts.	make appropriate	answer to a	answers and ensure	techniques to	rounding techniques
	corrections.	calculation.	solutions make sense	estimate an answer	to estimate, calculate
		Compare their	in the context of the	and then decide if it is	and check, including
		estimate and the	problem.	reasonable.	rounding decimals
		actual answer.			and fractions.