Number and the number system including counting, comparison, cardinality and ordinality		
FS	**Y1**	**Y2**
- Recognises one to five objects without needing to count (perceptual and conceptual subitising) and recognises iconic images of numbers up to ten e.g. dice patterns, ten frames etc. - Understands counting including: - Drawing on subitising to say how many e.g. I can see 5…6,7 8, 9 - Accurately reciting number names forwards 1 to 20 and backwards 10 to 1, starting a count forwards from any one-digit number and knowing that when counting forwards numbers increase in value - The purposes of counting (to find out how many and to make a group to match a number) - Counting accurately a given set of objects up to 20 and counting out a group of up to ten from a larger given set, to match a context (e.g. count out spoons for five people having soup) - Can make sensible estimates of a range of numbers up to 20 - Orders different representations of numbers (including the numerals) up to 20	- Pupils represent and explain what happens when counting forwards and backwards in ones starting with any number and using their understanding of decade structure of the number system and how they know one more or less than any given number, in different contexts (including measures) - Pupils represent and explain how to distinguish between 'teen' (10 and a bit) and 'ty' numbers - Pupils reason about the location of numbers to 20 within the linear number system, in relation to the ends and midpoint	- Pupils count fluently forwards and backwards in tens, starting at any one- or two-digit number, and represent and explain how they know ten more or less than any number under 100, in different contexts (including measures). They count fluently in threes in different contexts and explain what is happening when counting. - Pupils compare, represent and explain the value of the digits in two-digit numbers in different contexts (including scales). They place and identify these numbers on a number line, using their understanding of how close the numbers are to decade numbers, explaining and justifying their decisions. - Pupils represent and explain how to compose and decompose two-digit numbers using standard and non-standard partitioning

Additive reasoning including composition		*See below 'choosing from and using…'*
FS	Y1	Y2
- Understands and uses the concept of more and less and associated language (including fewer) when solving problems - Understands additive composition: - of numbers to 5 - of 6 to 10 - recognising numbers bigger than 5 as 5 and a bit - doubles (numbers made of two equal parts)	- Pupils represent and explain how numbers up to ten can be composed and decomposed in different contexts (including measures) - Pupils represent and explain addition and subtraction problems in different contexts. They solve these problems by taking account of the numbers involved, appropriately choosing from and using what they know and understand*, explaining their decisions and justifying their solutions	- Pupils represent and explain how their understanding of composition of numbers up to ten and place value can be extended and applied to larger numbers in different contexts (including measures) e.g. 3+4: 3+14, 13 +4, 3 +54, 53+4, 30+40, 16+7 (16 + 4 + 3) , 23 – 7 (23 – 3 – 4). - Pupils represent and explain commutativity, the relationship between subtraction and addition and subtraction as 'take away', 'difference' and 'how many more to make' in different contexts (including measures and statistics). - Pupils represent and explain addition and subtraction problems involving pairs of two-digit numbers, in different contexts (including measures and statistics). They solve these problems mentally by taking account of the numbers involved, appropriately choosing from and using what they know and understand*, explaining their decisions and justifying their solutions

Multiplicative reasoning		*See below 'choosing from and using…'*
FS	Y1	Y2
See doubles in additive reasoning above	• Pupils count fluently in twos, fives and tens in different contexts beginning with any multiple, explain what is happening when counting and explain how they know which numbers are multiples of two (even numbers) and which are not (odd numbers), which are multiples of five and which are multiples of ten ('ty' numbers).	• Pupils represent and explain the difference between odd and even numbers and use this understanding to identify large multiples of two. • Pupils represent and explain commutativity and the relationship between multiplication and division in different contexts. • Pupils represent (including with arrays) and explain multiplication and division problems (involving 2s, 5s and 10s) in different contexts (including interpreting data and time). They solve these problems by appropriately choosing from and using what they know and understand*, explaining their decisions and justifying their solutions.
Fractions		
FS	Y1	Y2
See doubles in additive reasoning above	• Pupils represent and explain what happens when doubling and halving in different contexts (including measures) and use this understanding to solve problems.	• Pupils represent and explain how to find halves and quarters and the relationship between them, in the context of discrete objects, continuous measures, shapes, movement (turn) and time and use this understanding to solve problems.

Geometric reasoning including patterns		
FS	Y1	Y2

• Pupils can make pictures and patterns using 2D shapes
• Pupils can use 3D shapes to construct (e.g. block play)
• Pupils show awareness of similarities and differences in 2D and 3D shapes
	• Pupils recognise and identify shapes in different orientations in their environment, describe what is the same and what is different about them and justify their thinking:
	   o 2D – rectangles (including squares), triangles and circles
	   o 3D – cuboids (including cubes), pyramids and spheres
	• Pupils compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.
		• Pupils use precise language to describe the properties of 2D and 3D shapes in different orientations in their environment and compare shapes by reasoning about similarities and differences:
		   o 2D – number of sides, length of sides and line symmetry
		   o 3D – shape of faces and number of faces, vertices and edges
		
		• Pupils compose 2D and 3D shapes from smaller shapes and pupils decompose 2D and 3D shapes including manipulating shapes to place them in particular orientations

Teaching guidance for 'choosing from and using…'

The expectation is that as children move through the primary years they will have an increasing mathematical understanding and bank of known facts which they access when making decisions about how to solve a problem. Children's choices when calculating should reflect their understanding of additive and multiplicative relationships, make use of what they know and be appropriate for the numbers involved. They should have a sense of the size of the missing number and recognise when their solution cannot be correct.

Teachers will need to ensure that children tackle a variety of problems which involve unknown numbers in different places and require different decisions. To help plan for and assess this, the knowledge and understanding which children should be choosing from and using to solve problems, for both additive reasoning and multiplicative reasoning, is set out below for each year group.

	Additive Reasoning	**Multiplicative Reasoning**
Y1	- number facts - understanding of equivalence - understanding of one more and one less. - understanding the effect of adding and subtracting 0	- understanding doubling and halving - counting in 2s, 5s and 10s - understanding of equivalence
Y2	- number facts - understanding of equivalence - understanding of place value - understanding of commutativity of addition - understanding of the structures of addition and subtraction and the relationship between them	- understanding doubling and halving - counting in 2s, 5s and 10s - understanding of equivalence - understanding of the array - number facts - understanding of commutativity of multiplication - understanding of multiplication and division and the relationship between them