Number: Addition and Subtraction

National Centre for Excellence in the Teaching of Mathematics

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NUMBER BONDS						
30-50 months •Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. •Realises not only objects, but anything can be counted, including steps, claps or jumps. **40-60 months** •Counts up to three or four objects by saying one number name for each item. •Counts actions or objects which cannot be moved. •Counts objects to 10, and beginning to count beyond 10. •Counts out up to six objects from a larger group. Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. • Counts an irregular arrangement of up to ten objects • Estimates how many objects they can see and checks by counting them. •Uses the language of 'more' and 'fewer' to compare two sets of objects. •Finds the total number of items in two groups by counting all of them. •Says the number that is one more than a given number. •Finds one more or one less from a group of up to five objects, then ten objects.	represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
MENTAL CALCULATION						
	add and subtract one-digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers
	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				use their knowledge of the order of operations to carry out calculations involving the four operations

Maths: Number Early Learning Goal

Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

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WRITTEN MTHODS						
• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. •Records, using marks that they can interpret and explain. •Begins to identify own mathematical problems based on own interests and fascinations.	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)		add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS						
		recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

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PROBLEM SOLVING						
<u>Characteristics of effective learning</u> **Playing & exploring** Finding out and exploring: •Engaging in open-ended activity •Showing particular interests **Playing with what they know** •Representing their experiences in play •Taking on a role in their play •Acting out experiences with other people **Being willing to 'have a go'** • Initiating activities •Seeking challenge •Showing a 'can do' attitude •Taking a risk, engaging in new experiences, and learning by trial and error **Active Learning** Keeping on trying •Persisting with activity when challenges occur •Showing a belief that more effort or a different approach will pay off •Bouncing back after difficulties	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	solve problems with addition and subtraction: * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement)	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving addition, subtraction, multiplication and division