National Centre for Excellence in the Teaching of Mathematics

Number: Addition and Subtraction

| | NUMBER BONDS | | | | | | |
|--|--|--|--|--------|--|--|--|
| Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | |
| represent and use number bonds and related subtraction facts within 5 and some within 10 | 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 tens 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 | |









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| | WRITTEN METHODS | | | | | | | |
|-----------|---|---|---|--|--|---|--|--|
| Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | | |
| | 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 | | | | | |
|---|--|--|---|--|--|---|
| Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| solve simple problems verbally involving numbers up to 10 | 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 |







