Crowmoor School



Y6 Calculations Policy

2017

Year 6 Addition

Focus: Adding several numbers with an increasing level of complexity

In year 6 children need to use all the previous adding skills developed to add several numbers with a variety of different decimal places. Many of these problems will be in the context of money or measures.

|  |  |
| --- | --- |
|   23.361 9.080 59.770 + 1.300 93.511 2 1 2 | Children need to use their knowledge of the decimal point to line up their amounts correctly in the column. Zeroes should be added to support place value, showing that there is no value to add. |
|   81,059 3,668 15,301 + 20,551 120,579 1 1 1 1  | Children should also continue to add multiple integers with 4 digits or more. |
| Key VocabularyAdd, more, plus, and, make, altogether, total, equal to, equals, the same as, double, most, count on, numberline, sum, tens, units/ones, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact, thousands, hundreds, digits, inverse, decimal place, decimal point, tenths, hundredths, thousandths, integer |

Subtraction Year 6

Focus: Subtracting with increasingly complex numbers including decimals

In year 6, children need to use mental methods and the compact column method of subtraction to solve an increasingly complex range of calculation including those with integers, those with decimals and those with mixed numbers.

|  |  |
| --- | --- |
|  | Children will use the compact method to solve problems involving integers up to 6 digits and beyond and solve problems where they will need to use ‘exchanging’ several times. |
|  | They will also solve problems in context involving increasingly large decimals. They will need to continue using their knowledge of decimal points to line up their numbers and place zeroes in any empty places so they fully understand the value of that column. |
| Key VocabularyEqual to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is\_?, count on, strategy, partition, tens, units/ones, exchange, decrease, hundreds, value, digit, inverse, tenths, hundredths, decimal place, decimal |

Multiplication Year 6

Focus: Multiplying up to 4 digits by 1 or 2 digits

In year 5 children will continue to use short multiplication to solve increasingly richer problems that involve multiplying by 1 digit. They will then move on to long multiplication for problems that involve multiplying by 2 digits. Approximation will play an important part - with children making approximations before using long multiplication to help check their answer is correct.

|  |  |
| --- | --- |
|  | Children will use short multiplication in a range of increasingly challenging problems. Solving using the grid method and then comparing to the short multiplication method will help cement the children’s understanding of the shirt multiplication method. |
|  18 X 13 24 (3X8) 30 (3X10) 80 (10X8) 100 (10X10) 234 1 | Children may choose to use the longer method whereby they articulate each stage to save confusion and to ensure all options are multiplied. The general rule is X the top number of digits to the bottom number of digits and that will tell you how many separate calculations you should have. |
|  18 X 13 180 (10X18) 54 (3X18) 234 1 | As with above but this time children times each digit by the whole bottom digit. This is an efficient method providing children can operate with the two by one digit number efficiently. |
|  | When multiplying by more than 1 digit, children need to use long multiplication.Like with short multiplication, they will solve the problem using the grid method first and then make comparisons until their understanding is secure. In the example below the top row shows 18 x 3 and the bottom shows 18 x 10. The final row shows the total of both calculations. |

|  |  |
| --- | --- |
|  | Once long multiplication methods are secure, children are ready to move on to more challenging problems which require greater levels of mental calculation. The problem to the right show 1234 x 6 on the top line, 1234 x 10 on the bottom line and the total of both calculations on the final row. |
| Key VocabularyGroups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, units/ones, value, inverse, square, cube, factor, integer, decimal, short/long multiplication, carry |

Division Year 6

Focus: Using short division to divide 4 digit numbers and express remainders as decimals and long division for dividing 2 digit numbers

In year 6, children will use short division to divide decimal numbers by single digit numbers.

The final step of division will be long division which will be used to divide numbers by 2 digits.

|  |
| --- |
| The focus in year 6 is not so much the method of short division but how the remainders are expressed- children need to express remainders as decimals and fractions- depending on the context of the question. |
|  | Children will continue to solve division problems where a number up to 4 digits is divided by a single digit number including answers with remainders. These division problems need to be contextual so the children learn how to express the remainder- as a number, a fraction, a decimals, rounded up or rounded down. |
|  | The remainder in this answer would have been 1 but it has been expressed as a decimal. To do this, children need to insert a decimal point next to the units and carry the remainder over the decimal point. Zeroes are inserted to the right of the decimal point to show that there was no value. |
|  | To divide by 2 digit numbers, the children will use the method of long division. Any remainders would need to be expressed in a way that matched the context of the problem. |
| Key VocabularyShare, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, carry, remainder, multiple, divisible by, factor, quotient, prime number, prime factors, composite number (non-prime), common factor |