**A Q.I. Guide to Maths for Year 6**

**Four Operation Methods**

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| Pupils should be taught to:  perform mental calculations, including with mixed operations and large numbers.  use their knowledge of the order of operations to carry out calculations involving the four operations  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  use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. | |
| Addition strategies  **CONSOLIDATE STRATEGIES FROM Year 5:**  **Number line addition**    125.64 + 56.7 = 182.34  + 50 +6 + 0.7 = 182.34  125.64 175.64 181.64 182.34  Use **rounding and adjusting**  £34.59 + £1.99 =£36.58  + £2  -1p  34.59 36.58 36.59  Use **compact** **column addition** to add any pair of two-place decimal numbers including amounts of money. Ensure that children know the importance of ‘lining up’ the decimal points particularly when adding mixed amounts e.g. 16.4 m. + 7.68 m. Understand and apply concept of ***exchanging.***  £62.53 + £7.86 = £70.39  62 . 53  + 7. 86  1 1  7 0 . 3 9  1 6 . 4 **0 (note place holder)**  + 7 . 6 8  1 1  2 4 . 0 8m  **Develop use of column addition to add numbers with up to 5 digits.**  **Use column addition to add decimal numbers with up to 3-digits.**  62.536 + 7.867 = 70.403  62 . 536  + 7. 867  1 1 1 1  7 0 . 4 0 3 | Subtraction strategies  Use **complementary addition** for subtraction of integers up to 10,000. E.g. 2504 – 1878 as    +22 +100 +504 = 626  1878 1880 1900 2000 2504  Use **complementary addition** for subtractions including decimal numbers and amounts of money.  E.g. £7.30 – £3.55 =  £3.55 + = £7.30      +5p +40p +£3.30 = £3.75  £3.55 £3.60 £4.00 £7.30  0.5 – 0.31 =  0.31 + = 0.50  +0.09 +0.1 = 0.19    0.31 0.40 0.50  Continue to develop **compact** **column subtraction** with different numbers of digits and decimals, involving more complex problems.  (Note: Children should understand the importance of lining up ones digits under ones digits, tens under tens etc.) Understand and apply concept of ***exchanging.***  4 1 3 1  ~~5~~ 7 6 ~~4~~ . 0  - 8 2 1 . 6  4 9 4 2 . 4 |
| Pupils should be taught to:  multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.  divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.  perform mental calculations, including with mixed operations and large numbers.  identify common factors, common multiples and prime numbers.  use their knowledge of the order of operations to carry out calculations involving the four operations.  solve problems involving addition, subtraction, multiplication and division.  use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. | |
| Multiplication strategies  **Grid’ method** e.g. 6 x 3865 = 23,190     |  |  |  |  |  | | --- | --- | --- | --- | --- | | x | **3000** | **800** | **60** | **5** | | **6** | 18000 | 4800 | 360 | 30 |   Grid’ method. E.g. 572 x 38 =   |  |  |  |  | | --- | --- | --- | --- | | x | **500** | **70** | **2** | | **30** | 15000 | 2100 | 60 | | **8** | 4000 | 560 | 16 |         **17100**  **4576**  **1 1**  **21736**  Add the numbers in the grid mentally where possible and then use column addition.  **Short Multiplication**  24 x 6 = 144 342 x 7 = 2394  2 4 342  X 6 x 7  2 2 1  144 2394  **Long multiplication**  124 x 26  124  X 26  1 2  744  248**0 Note place holder**  1 1  3224    1243 x 26  1243  X 26  1 2 1  7458  2486**0 Note place holder**  1 1 1  32318 | Division strategies  **Short division**    **Long division (chunking)**  or 28.8 (4/5 = 0.8) |