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| Year 5ES | End of year expectations for mental calculation | End of year expectations for written methods and problem solving | Written strategies/ recordings/methods/images | Vocabulary& Links |
| * Multiply and divide numbers mentally drawing upon known facts
* Multiply and divide whole numbers and those involving decimals by 10, 100 & 1000
* Recognise and use square & cube numbers (& notation**)**

*(Pupils should be taught through-**out that percentages, decimals**and fractions are different ways**of expressing proportions)* | * Multiply numbers up to 4 digits by a 1- or 2- digit number using a formal written method, including

long multiplication for 2- digit numbers(*Compact methods for multiplication are efficient but often do not make the value of each digit explicit. When introducing multiplication of decimals, it is sensible to take children back to an expanded form such as the grid method where the value of each digit is clear, to ensure**that children understand the process.)*FRACTIONSmultiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths andhundredths*Pupils connect multiplication by a fraction to using fractions as operators (fractions of), and to division, building on work**from previous years. This relates to scaling by simple fractions, including fractions > 1.* | **¼ x ½**Scaling by ½“finding a half of a quarter”  | • Identify multiples & factors, including finding all  factor pairs of a number, & common factors of  two numbers• Know and use the vocabulary of prime numbers,  prime factors and composite (non-prime)  numbers• Establish whether a number up to 100 is prime  and recall prime numbers up to 19• Solve problems involving multiplication and  division including using their knowledge of  factors and multiples, squares and cubes, and  including understanding the meaning of the  equals sign• Solve problems involving multiplication and  division including scaling by simple fractions and  problems involving simple ratios• Use all four operations to solve problems involving measure [for example, length, mass,  volume, money] using decimal notation, including  scaling.• Convert between different units of metric  measure; problems including money,.Other links: ratio,*Pupils use their knowledge of place value and multiplication and division to convert between standard units. Pupils calculate the perimeter of rectangles and related composite shapes, including using the relations of perimeter or area to find unknown lengths. Missing measures questions such as these can be expressed algebraically, for example 4 + 2b = 20 for a rectangle of sides 2 cm and b cm and perimeter of 20cm. Pupils calculate the area from scale drawings using given measurements.* |