



### **Redwell Primary School's mental maths programme**

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

#### **Year R**

- *Counting in ones, to 10, to 20, beyond, forwards and backwards*
- *Showing numbers with fingers*
- *Recognising numbers to 10, to 20 and beyond*
- *Count using fingers*
- *Knowing simple doubles 1+1...5+5*
- *Counting on/back from a given number*
  
- *Knowing that 5 fingers are on each hand, 10 altogether*
- *Matching to numbers*
- *Ordering numbers within 10/20 or beyond*
- *Finding missing numbers*
- *Comparing numbers, one more, one less*
- *Partitioning a given number of objects into two groups*
- *Counting in twos to 10, to 20*
- *Counting in tens to 100*
- *Quick recall of simple addition/subtraction facts*
- *Telling time o'clock*
- *Days of week*
- *Name/recognise 2D and 3D shapes – triangle, square, circle, rectangle, cone, cube, cuboid, cylinder, sphere*
- *Making number stories for addition/subtraction*

## Year 1

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- *Counting in ones, tens, twos (even), twos (odd), fives, hundreds forwards and backwards*
- *Pairs of numbers which make 10, with instant recall*
- *Add any unit to 10, with instant recall*
- *Quick recall of addition and subtraction facts within 10*
- *Partitioning numbers to 10*
- *Doubling numbers 0 – 10 or beyond*
- *Finding 1 more/1 less or 10 more/10 less than a given number*
- Understanding place value, tens and units
- Recognising numbers to 20, to 50, to 100 and beyond
- Recognising odd and even numbers
- Ordering numbers to 20, to 50, to 100 or beyond on a number track
- Partitioning teen numbers into 10 and ...
- Using terminology difference, sum, total, plus, subtract
- Finding halves and quarters of shape and simple numbers
- Telling the time o'clock and half past in analogue and digital form
- Ordinal numbers
- Whole turns, half turns
- Sequencing numbers
- Days of week/months of year
- Coin recognition/totalling coins
- Naming and recognising all 2D and 3D shape
- Use a wide range of non-standard measures

## Year 2

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- *Pairs of numbers which make 10, 100 and 20 with instant recall*
  - *Addition/subtraction facts within 20, with instant recall*
  - *Add any unit to 10 or a multiple of 10 with instant recall*
  - *Counting in twos, fives, tens forwards and backwards from any number*
  - *Doubling any number within 20, with instant recall*
  - *Halving any number within 20, with instant recall*
  - *Partitioning two digit numbers into tens and units*
  - *Adding three or more single digits mentally*
  - *Multiply by 2, 5, and 10 and remember multiplication facts with quick recall*
  - *Rounding to the nearest ten*
  - *Recognising the next ten*
  - *Solve number problems by drawing jottings*
  - *Solve number problems (addition, subtraction, difference) by using open ended number lines, including money and measures*
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- Place value to 100
  - Rehearse odd/even recognition
  - Telling the time o'clock, half past, a quarter past, a quarter to and any time past or to the hour analogue/digital form
  - Adding/subtracting hours, half hours, quarter hours multiples of five minutes
  - Using 'near doubles' as strategies for addition
  - Use terminology multiplication, division, multiples
  - Recognise multiples of 2, 5 and 10
  - Use a wide range of standard measures
  - Understand the role of =, <, >
  - Classify 2D/3D shapes, describing properties, including sides, corners, vertices, edges
  - Describe and extend number sequences
  - Add a single unit to a TU number
  - Add a multiple of 10 to a TU number
  - Add/subtract 9, 11, 19, 21...
  - Right angles and turns
  - Finding halves, quarters of shapes, numbers/sets

### Year 3

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- Multiply by 2, 5 and 10 with instant recall
  - Multiply by 3, 4, and remembering multiplication facts with quick recall
  - Recognise division as the inverse of known multiplication facts
  - Multiply/divide two 2 digit numbers by 2,3,4,5 or 10 with whole numbers and remainders
  - Rounding to nearest 10, 100, 1000
  - Using mental methods of adding/subtracting two 2 digit numbers doubling/halving of any given number
  - Partitioning three and four digit numbers into TH, H, T and U
  - Recognising the next 100, 1000
  - Apply skills learnt to solve number problems by drawing jottings and using open ended number lines
  - Solve two step problems
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- Finding thirds, fifths of shapes and numbers/sets
  - Multiply any number by 10
  - Negative numbers
  - Rounding to the nearest hundred
  - Recognising the next hundred
  - Add/subtract 1 unit, 1 ten or 1 hundred from any HTU number
  - Place value to 1000
  - Simple equivalent fractions
  - Finding other fractions that are several parts of a whole
  - Decimal notation – money
  - Mental recall of +/- facts to 20 in solving problems involving numbers 0-1000
  - Recognise a wider range of sequences
  - Classify 3D/2D shapes using mathematical properties such as reflective symmetry

#### Year 4

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- *recall multiplication and division facts for multiplication tables up to  $12 \times 12$*
  - *find 1000 more or less than a given number*
  - *count backwards through zero to include negative numbers*
  - *recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)*
  - *order and compare numbers beyond 1000*
  - *identify, represent and estimate numbers using different representations*
  - *round any number to the nearest 10, 100 or 1000*
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- solve number and practical problems that involve all of the above and with increasingly large positive numbers
  - read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value
  - use mental methods to add and subtract numbers in simple calculations to 4 digits
  - estimate and use inverse operations to check answers to a calculation
  - use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
  - recognise and use factor pairs and commutativity in mental calculations
  - count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
  - recognise decimal equivalents to one quarter, one half, three quarters
  - round decimals with one decimal place to the nearest whole number
  - compare numbers with the same number of decimal places up to two decimal places

## Year 5

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- *read, order and compare numbers to at least 1 000 000 and determine the value of each digit*
- *count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000*
- *interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero*
- *round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000*
- *solve number problems and practical problems that involve all of the above*
- *add and subtract numbers mentally with increasingly large numbers*
- *multiply and divide numbers mentally drawing upon known facts*
- *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000*
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and recall the prime numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- compare and order fractions whose denominators are all multiples of the same number
- identify and name equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements  $> 1$  as a mixed number
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- read and write decimal numbers as fractions
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with two decimal places to the nearest whole number and to one decimal place
- read, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and recognise percentages as a fraction with denominator 100, and as a decimal

## Year 6

These skills do not have to be taught in the order listed.

*The core skills are highlighted in blue and should be rehearsed on a regular basis.*

- *read, order and compare numbers up to 10 000 000 and determine the value of each digit*
- *round any whole number to a required degree of accuracy*
- *use negative numbers in context, and calculate intervals across zero*
- *solve number and practical problems that involve all of the above.*
- *perform mental calculations, including with mixed operations and large numbers*
- *identify common factors, common multiples and prime numbers*
- *use mental strategies to support solving addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why*
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- multiply simple pairs of proper fractions, writing the answer in its simplest form
- identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
- solve problems involving the calculation of percentages for 1%, 10%, 5%, 20%, 15%... [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- use, read and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places