

The Ivory Federation

Propps Hall Junior, Infant and Nursery School Springhead Infant and Nursery School Rushcroft Primary School

Multiplication Tables Policy

RATIONALE

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. Pupils knowing their multiplication tables by heart is key to building confidence in mathematics and essential for long multiplication and long division. Pupils need these mathematical skills as the basic building blocks for the more complex maths they will encounter as they progress through their education.

PURPOSE

An effective multiplication tables policy aims to ensure that the teaching of times tables is embedded into the daily teaching of mathematics, laying the foundations for the ability to conquer more challenging methods in KS2. Planning and teaching should enable and provide children with the opportunity to: memorise multiplication tables up to 12×12 , recall multiplication facts with confidence, understand and communicate multiplication patterns, develop mathematical fluency, recall inverse division facts, and apply multiplication knowledge to larger numbers. The early memorisation of the multiplication tables is vital to ensure that pupils are developing fluency in mathematics before tackling more complex methods, without these foundations children will not be as successful. In our schools we use a 'Tackle your tables' as a scheme to support the teaching of multiplication tables which predominantly focus on both practical and written communication of facts. Effective teaching of multiplication tables can only be achieved through recall and the exploration of patterns in a fun, active, and practical way.

By the end of each year group we aim to ensure that all pupils:

- Year 1: know and can apply the 2, 5 and 10 multiplication tables
- Year 2: know and can apply the 2, 3, 5 and 10 multiplication tables
- Year 3: know and can apply the 2, 3, 4, 5, 8 and 10 multiplication tables
- Year 4, 5 and 6: know and can apply all multiplication tables

By the end of each year group we also aim to ensure that all pupil are applying their multiplicative reasoning in a range of contexts as shown in Appendix A.

BROAD GUIDELINES

- Teachers will actively encourage all children to be aspirational in becoming fluent in their multiplication tables.
- The teaching of multiplication tables should be taught and embedded into most maths lesson to allow children to become fluent in a quick recall of the multiplication tables.
- Multiplication tables to be taught in a fun, active way through song, games and the exploration of patterns.
- Alongside taught lessons, teachers are expected to encourage children to apply their multiplication skills across the curriculum.
- Times Tables Rock Stars is used to support the teaching of multiplication from Year 1 to Year 6. It is a carefully sequenced programme of daily times tables practice. Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised. Children have their own accounts which enables teachers to track progress.
- Teachers will follow the maths curriculum to ensure that the application of multiplication tables is progressive and appropriate to the year group that they are in, enabling each child to develop their multiplicative reasoning skills with confidence.
- Teachers will ensure that there are planned sessions each week for 'Times Table Rockstars'

CONCLUSION

The consistent approach that we have in school and the value that we place on the progressive skills required for children to be successful and confident in knowing their multiplication tables is enabling. The effective implementation of this policy will develop skills progressively and enable pupils to become fluent in the rapid recall of multiplication tables up to 12×12 by Year 4. It will also develop pupil's multiplicative reasoning skills, further enabling them to apply their mathematical knowledge to a range of contexts with confidence as they progress through their education.

Linked Policy: Calculation

Policy revised July 2020

APPENDIX A

Year 1	- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens - solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher - recognise and know the value of different denominations of coins and notes - recognise, find and name a half as one of two equal parts of an object, shape or quantity - recognise, find and name a quarter as one of four equal parts of an object, shape or quantity - tell the time to the hour and half past the hour and draw the hands on a clock face to show these times
Year 2	- count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward - recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers - calculate mathematical statements for multiplication and division within the - multiplication tables and write them using the multiplication (3), division (4) and equals (5) signs - show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot - solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts - recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value - find different combinations of coins to equal the same amounts of money - tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times - know the number of minutes in an hour and the number of hours in a day - recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity - write simple fractions for example, $\frac{1}{2}$ of 6 5 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$
Year 3	- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number - recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators - solve problems that involve all of the above (fractions) - recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables - write and calculate mathematical statements for multiplication and division using the multiplication tables that students know, including for two-digit numbers times one-digit numbers using mental and progressing to formal written methods - solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects - count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 - know the number of seconds in a minute and the number of days in each month, year and leap year
Year 4	- count in multiples of 6, 7, 9, 25 and 1000 - recall multiplication and division facts for multiplication tables up to 12 X 12 - 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 - multiply two-digit and three-digit numbers by a one-digit number using formal written layout - solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling and harder correspondence problems such as n objects are connected to m objects - solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number - solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
Year 5	- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling - identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - multiply numbers up to 4 digits by a one- or two-digit number using a formal written method including long multiplication for two-digit numbers - multiply and divide numbers mentally drawing upon known facts - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) - solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign - 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 scaling by simple fractions and problems involving simple rates - solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25 - identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths

	• multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
Year 6	• use, read, write and convert between standard units, converting measurements of length, mass and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • solve problems involving addition, subtraction, multiplication and division • express missing number problems algebraically • use simple formulae • generate and describe linear number sequences • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables • solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate • interpret and construct pie charts and line graphs and use these to solve problems • 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 • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to 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 • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison • calculate and interpret the mean as an average • convert between miles and kilometres • solve problems involving the relative sizes of two quantities, where missing values can be found by using integer multiplication and division facts • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times 3\frac{1}{2}$ or $5\frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 4$ or $2\frac{5}{6} \div 1\frac{1}{6}$]