Bierton CE Combined School

Maths Curriculum Map: Multiplication and Division

Progression of knowledge & skills		
Year 1	**Year 2**	**Year 3**
N.C. Link • 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 • make connections between arrays, number patterns, and counting in 2s, 5s and 10s.	**N.C. Link** • 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 (×), division (÷) and equals (=) signs • show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 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	**N.C. Link** • 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 they 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
When is this topic taught in our school? Spring: Week 12 (total one week) Summer: Weeks 1 -2 (two weeks)	**When is this topic taught in our school?** Autumn: Weeks 5 – 8 (total four weeks)	**When is this topic taught in our school?** Autumn: Weeks 8 – 12 (total five weeks)
Curriculum Prioritisation: • With visual prompts or physical resources, count in 2, 5 and 10.	**Curriculum Prioritisation:** ○ **Introduction to multiplication** ○ **Introduction to division structures** ○ **Multiplication and division – doubling, halving, quotative and partitive division** • 2MD–1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. • 2MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division	**Curriculum Prioritisation:** ○ **2, 4, 8 times tables** • 3MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. • 3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.

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		• 3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
Year 4	**Year 5**	**Year 6**
N.C. Link • recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 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 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	**N.C. Link** • identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 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 • 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 1,000 • 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	**N.C. Link** • 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 4 operations • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

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	• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	
When is this topic taught in our school? Autumn: Weeks 8 – 12 (total five weeks) Spring: Weeks 1 – 3 (total three weeks)	When is this topic taught in our school? Autumn: Weeks 6 – 9 (total four weeks)	When is this topic taught in our school? Autumn: Weeks 2 – 5 (total four weeks)
Curriculum Prioritisation: ○ **3, 6, 9 times tables** ○ **7 times table and patterns** ○ **Understanding and manipulating multiplicative relationships** • 4NF–1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number. • 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) • 4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • 4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • 4MD–3 Understand and apply the distributive property of multiplication.	Curriculum Prioritisation: ○ **Short multiplication and short division** ○ **Calculating with decimal fractions** ○ **Factors, multiples and primes** • 5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. • 5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. • 5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. • 5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	Curriculum Prioritisation: ○ **Calculating using knowledge of structures** ○ **Multiples of 1,000** ○ **Multiplication and division** ○ **Ratio and proportion** ○ **Solving problems with two unknowns** ○ **Order of operations** • 6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. • 6AS/MD–3 Solve problems involving ratio relationships. • 6AS/MD–4 Solve problems with 2 unknowns.

Cultural Capital opportunities

- Year 5 – Space – Hidden Figures (Black Mathematicians)
- Year 6 – WW2 – Alan Turing and the Enigma Code

Achievement for All

As stated in our vision and pedagogy, at Bierton CE Combined School, we aspire for all children to achieve and 'keep up' rather than 'catch up'. In order to promote this, we implement a range of strategies throughout the school.

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Strategies:

- Live marking and feedback within each lesson identifies children who require support and clarification of misconceptions
- Pre-teaching interventions at the start of the school day
- Interventions during the school day
- Focused support in class
- Additional opportunities provided to help children make connections and consolidate their learning
- Continued use of concrete manipulatives to embed core facts

Opportunities beyond the National Curriculum

- Children in Early Years and Key Stage 1 have access to Numbots.
- Children in Year 2 begin to use Times Table Rock Stars in the Spring Term.
- Children in Key Stage 2 have access to Numbots and Times Table Rock Stars.
- Maths Medley / Fun with Numbers after school clubs offer enrichment activities.
- Maths No Problem provides 'white space' days to explore topics in further detail.
- Cross-curricular opportunities provided in other subjects (e.g. statistics in Science and topic).
- Children throughout the school celebrate Number Day
- Challenges provided throughout the year to promote enthusiasm and engagement.
- Year 6 children participate in Young Enterprise.