BRENZETT CHURCH OF ENGLAND PRIMARY SCHOOL

Name of Policy:	**Maths Policy**
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Updated By Who:	Nick Sermon/ Steph Greenwood
Policy Originated from:	Brenzett Primary School
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Policy Approved By:	SLT:
	Staff:
	Governors:

Our Vision Statement

Through belonging, everyone flourishes in a purposeful, nurturing and inspiring learning environment that puts community and family at the heart of everything we do. All are seen as unique individuals, valued and precious in the eyes of Christ, who are aspirational champions of their own success, working together to succeed.

Biblical story connected to Brenzett C of E Primary School

Luke 15:4-7

"Suppose one of you has a hundred sheep and loses one of them. Doesn't he leave the ninety-nine in the open country and go after the lost sheep until he finds it? **5** And when he finds it, he joyfully puts it on his shoulders **6** and goes home. Then he calls his friends and neighbours together and says, 'Rejoice with me; I have found my lost sheep.' **7** I tell you that in the same way there will be more rejoicing in heaven over one sinner who repents than over ninety-nine righteous persons who do not need to repent.

Our Key Christian Values are:

- **Community**
- **Compassion**
- **Friendship**
- **Forgiveness**
- **Respect**
- **Trust**

Statement of Intent

'Recognising its historic foundation, the school will preserve and develop its religious character in accordance with the principles of the Church of England and in partnership with the Church at parish level and the Diocese of Canterbury.

The school aims to serve its community by providing an education of the highest quality within the context of Christian belief and practice. It encourages an understanding of the meaning and significance of faith and promotes Christian values through the experience it offers all pupils.'

Inclusion and Equal Opportunities

This policy should be read while referencing our school's Single Equality Scheme. All children have equal access to the curriculum regardless of their race, gender, or disability. Our behaviour policy underpins all that we do at Brenzett and should be closely linked to our other policies.

MISSION STATEMENT

Within a safe, secure and caring Christian environment we seek to teach the children of our

small rural community to enjoy life and learning; to have enquiring minds and to be resilient in their approach to learning. We aim to equip our children with the skills and attitudes required to prosper in a changing society and to achieve their full potential.

AIMS OF THIS POLICY

- To ensure pupils receive their entitlement;
- To establish expectations for teachers of this subject;
- To promote continuity and coherence across the school;
- To state the school's approaches to this subject in order to promote public, and particularly parents' and carers', understanding of the curriculum.

Our Approach

Mastery of Maths means a deep, long-term, secure and adaptable understanding of the subject of Maths. This is something that we want pupils to acquire so our curriculum aims to help all pupils, over time, achieve mastery of the subject. At the heart of the mastery approach is the firm belief that all children can succeed in Maths and the belief that you are either 'good' at Maths or 'not good' is debunked.

Pupils are taught the content that is set out in the year group programmes of study in the National Curriculum 2014. Teachers endeavour to include the information set out in the non-statutory – notes and guidance sections. Children do not learn 'out of their year group' without prior discussions with the Maths Curriculum Leader. The expectations are that pupils must be confident and competent in the content of their current academic year group, having had opportunities to broaden and deepen their skills, knowledge and understanding. The National Curriculum in England - Key stages 1 and 2 framework document (September 2013) states:

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Differentiation

Differentiation, in the traditional sense of the word, is not supported at Brenzett. This means that previously, children were seated in perceived 'ability groups' and given tasks to complete depending on their 'ability' in Maths. Research findings indicates that this is not beneficial and does not improve standards. As a school, we promote a growth mindset and we do not impose a 'ceiling' on pupils' expected levels of achievement.

All children are expected to begin their learning in the same way, usually through fluency-based questions. Once they have demonstrated a secure knowledge of this, pupils are then advised to apply this knowledge by completing questions requiring reasoning. The questions that children answer are carefully selected because they build on the previous ones; each question 'earns its place'. Pupils, who need further support or practice at the initial stages, should be provided with additional support and further explanation to enable success. It is sometimes necessary for pupils to receive extra teaching in the afternoons to improve their competence and confidence levels. Further, teachers may feel it beneficial for children to complete extra 'practice' at home.

Carefully structured teaching, planned in small steps provides both the necessary scaffold for all to achieve, and the necessary detail and rigour of all aspects of the mathematics to facilitate deep thinking. The small steps are connected and concepts built, leading to generalisation of the mathematics, and the ability to apply it to multiple contexts and solve problems.

Teachers' Planning

Teachers are expected to plan using the White Rose Maths materials as a starting point. These set out the small steps involved in teaching specific topics. Teachers should cross-reference the objectives on the White Rose materials with those on the school's Key Assessment Criteria document to ensure appropriate coverage. Pupils spend a substantial period of time learning about one 'topic'; this allows children to gain a thorough and in-depth understanding of the content and greater opportunities to improve their working memory.

When planning, teachers embed the Concrete – Pictorial – Abstract (CPA) approach. This means that when introducing content, pupils should begin to learn by using manipulatives such as Dienes, place value counters, bead strings, cubes, counters etc. Once pupils have a secure understanding at this stage, they are then taught how to use pictorial representations. These images should also be used in the questions posed. Manipulatives and pictorial representations allow pupils to develop their reasoning and problem solving skills; they should also use them in 'partner teaching' activities. Finally, pupils are expected to work with questions presented more abstractly – with digits for example. Children should be encouraged to use pictorial representations and concrete apparatus to support consolidation or reasoning.
Children are taught to use different ways of representing problems. For example, bar models can be used to show fractions of quantities or missing number problems.
Part-part-whole models can also be used in this way. These often help children to 'make sense' of the problem being posed to them.

The idea of **variation** is central to mastery and emphasises the importance of presenting mathematical ideas to pupils in different ways, using a range of examples and non-examples of concepts, as well as deliberately choosing tasks to avoid 'mechanical repetition'.

Teachers and Teaching Assistants are aware of the mathematical vocabulary that they should use with pupils and that pupils are themselves, expected to know, understand and use. A list of key terms is included in Appendix 1. We teach children precise mathematical language and insist upon its use, to support children's ability to think mathematically. Having the language and using it, empowers children's ability to think

about the concept.

Memorisation and repetition of key facts (times tables and number bonds etc) are important aspects of learning. Evidence from cognitive science research suggests that learning key facts automaticity 'frees up' working memory to focus on more complex problem solving rather than reaching cognitive overload trying to calculate simple operations. Teachers are expected to plan daily opportunities for children to practise and develop their fluency and recall skills.

EYFS

Teachers in Year R plan teaching and learning opportunities so that by the end of the reception year, children meet the objectives set out in the Early Years Outcomes document. These objectives focus on number and shape, space & measures.

Assessments

Staff adopt a 'responsive teaching' approach, using assessment techniques during the lesson to inform subsequent lesson planning and interventions. Year 1 complete PIXL tests in the summer term. In Years 3, 4 and 5, pupils complete PIXL assessments three times a year. Years 2 and 6 complete past SATs papers. At the end of Year 2, pupils complete the End of Key Stage One National Curriculum tests.

Calculation guidance

Teachers use the school's Calculation Guidance document to inform their teaching of calculations and to ensure a progress across the Key Stages.

Appendix One

Mathematical Vocabulary

This appendix sets out the Maths vocabulary to be used in Key Stage 1 and Key Stage 2. The lists are intended as a guide as to what pupils should know, and are not exhaustive.

It is expected that key vocabulary is displayed in the classroom at appropriate times during the academic year, and is promoted through mathematical talk in lessons.

New maths vocabulary for year 1

Number and place value	Addition and subtraction	Multiplication and division	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions	General/problem solving
Number Zero, one, two, three to twenty, and beyond None Count (on/up/to/from/ down) Before, after More, less, many, few, fewer, least, fewest, smallest, greater, lesser Equal to, the same as Odd, even	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Double, near double Half, halve Equals, is the same as (including equals sign) Difference between How many more to make..?, how	Odd, even Count in twos, threes, fives Count in tens (forwards from/backwards from) How many times? Lots of, groups of Once, twice, three times, five times Multiple of, times, multiply, multiply by Repeated addition	Full, half full, empty Holds Container Weigh, weighs, balances Heavy, heavier, heaviest, light, lighter, lightest Scales Time Days of the week: Monday, Tuesday, etc. Seasons: spring, summer, autumn, winter Day, week, month, year, weekend Birthday, holiday Morning, afternoon, evening,	Position Over, under, underneath, above, below, top, bottom, side on, in, outside, inside around, in front, behind Front, back Before, after Beside, next to, Opposite Apart Between, middle, edge, centre Corner	Group, sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round Hollow, solid Corner (point, pointed) Face, side, edge Make, build, draw	Whole Equal parts, four equal parts One half, two halves A quarter, two quarters	Listen, join in Say, think, imagine, remember Start from, start with, start at Look at, point to Put, place, fit Arrange, rearrange Change, change over Split, separate Carry on, continue, repeat, what comes next? Find, choose, collect, use, make, build

Pair Units, ones, tens Ten more/less Digit Numeral Figure(s) Compare (In) order/a different order Size Value Between, halfway between Above, below	many more is…than..?, how much more is..? Subtract, take away, minus How many fewer is…than..?, how much less is..?	Array, row, column Double, halve Share, share equally Group in pairs, threes, etc. Equal groups of Divide, divided by, left, left over	night, midnight Bedtime, dinnertime, playtime Today, yesterday, tomorrow Before, after Next, last Now, soon, early, late Quick, quicker, quickest, quickly , fast, faster, fastest, slow, slower, slowest, slowly Old, older, oldest, new, newer, newest Takes longer, takes less time Hour, o'clock, half past Clock, watch, hands How long ago?, how long will it be to…?, how long will it take to…?, how often? Always, never, often, sometimes, usually Once, twice First, second, third, etc. Estimate, close to, about the	Direction Journey Left, right, up, down, forwards, backwards, sideways Across Close, far, near Along, through To, from, towards, away from Movement Slide, roll, turn, whole turn, half turn Stretch, bend			Tell me, describe, pick out, talk about, explain, show me Read, write, record, trace, copy, complete, finish, end Fill in, shade, colour, tick, cross, draw, draw a line between, join (up), ring, arrow Cost Count, work out, answer, check same number(s)/different number(s)/missing number(s) Number facts, number line, number track, number square, number cards Abacus, counters, cubes, blocks, rods, die, dice, dominoes, pegs, peg board Same way, different

			same as, just over, just under Too many, too few, not enough, enough Length, width, height, depth Long, longer, longest, short, shorter shortest, tall, taller, tallest, high, higher, highest Low, wide, narrow, deep, shallow, thick, thin Far, near, close Metre, ruler, metre stick Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear(er), costs more, costs less, cheaper, costs the same as How much?, how many? Total				way, best way, another way In order, in a different order Not all, every, each

New maths vocabulary for year 2						
Number and place value	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions	Data/statistics	General/problem solving
Numbers to one hundred Hundreds Partition, recombine Hundred more/less	Quarter past/to m/km, g/kg, ml/l Temperature (degrees)	Rotation Clockwise, anticlockwise Straight line Ninety degree turn, right angle	Size Bigger, larger, smaller Symmetrical, line of symmetry Fold Match Mirror line, reflection Pattern, repeating pattern	Three quarters, one third, a third Equivalence, equivalent	Count, tally, sort Vote Graph, block graph, pictogram, Represent Group, set, list, table Label, title Most popular, most common, least popular, least common	Predict Describe the pattern, describe the rule Find, find all, find different Investigate

New maths vocabulary for year 3							
Number and place value	Addition and subtraction	Multiplication and division	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions	Data/statistics
Numbers to one thousand	Column addition and subtraction	Product Multiples of four, eight, fifty and one hundred Scale up	Leap year Twelve-hour/twenty-four-hour clock Roman numerals I to XIII	Greater/less than ninety degrees Orientation (same orientation, different orientation)	Horizontal, vertical, perpendicular and parallel lines	Numerator, denominator Unit fraction, non-unit fraction Compare and order Tenths	Chart, bar chart, frequency table, Carroll diagram, Venn diagram Axis, axes Diagram

New maths vocabulary for year 4						
Number and place value	Multiplication and division	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions and decimals	Data/statistics
Tenths, hundredths Decimal (places) Round (to nearest) Thousand more/less than Negative integers Count through zero Roman numerals (I to C)	Multiplication facts (up to 12x12) Division facts Inverse Derive	Convert	Coordinates Translation Quadrant x-axis, y-axis Perimeter and area	Quadrilaterals Triangles Right angle, acute and obtuse angles	Equivalent decimals and fractions	Continuous data Line graph

New maths vocabulary for year 5						
Number and place value	Addition and subtraction	Multiplication and division	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions, decimals and percentages
Powers of 10	Efficient written method	Factor pairs Composite numbers, prime number, prime factors, square number, cubed number Formal written method	Volume Imperial units, metric units	Reflex angle Dimensions	Regular and irregular Polygons	Proper fractions, improper fractions, mixed numbers Percentage Half, quarter, fifth, two fifths, four fifths Ratio, proportion

New maths vocabulary for year 6							
Number and place value	Addition and subtraction	Multiplication and division	Geometry (position and direction)	Geometry (properties of shape)	Fractions, decimals and percentages	Algebra	Data/statistics
Numbers to ten million	Order of operations	Order of operations Common factors, common multiples	Four quadrants (for coordinates)	Vertically opposite (angles) Circumference, radius, diameter	Degree of accuracy Simplify	Linear number sequence Substitute Variables Symbol Known values	Mean Pie chart Construct