	Maths Policy		**Date Adopted:** Summer 2021 **By whom:** School
Date for review: Summer 2023	**Applicable to:** Whole school	**Staff member responsible:** Nicole Luckhurst	**Governor committee responsible:** Genevieve Lebordais

Aims

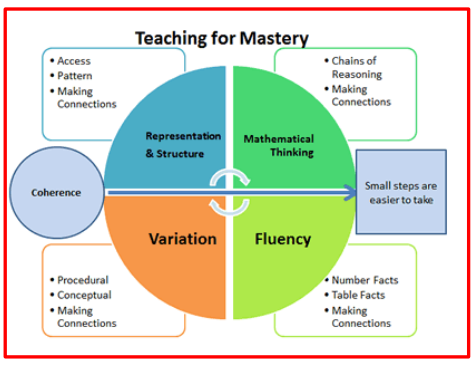
<u>What is mathematics and why is it important?</u>

Mathematics is a means by which we observe and make sense of our world. In this subject, students learn to explain, predict and represent events and tackle everyday problems. Mathematics is of central importance to modern society. It is key to jobs in our digital economy and critical to science, technology, finance and engineering. Mathematics is necessary for any employment or independent life and we encourage our children to recognise this.

At Bridgetown we aim not only to prepare our children for the next stage of their education, but also to lay the foundations for successful lives after school. Our aim is to prepare our children for the jobs of tomorrow, which will require greater mathematical skills than in the past, including thinking mathematically in order to use technology that doesn't yet exist.

The aims of our maths teaching at Bridgetown Primary School are aligned with the aims of the National Curriculum: fluency, reasoning and problem solving – both in the mathematics lesson and across the curriculum. We recognise that pupils need to learn basic number facts and acquire fluency in procedures, alongside developing conceptual understanding if they are to be able to solve increasingly complex problems in life and later in the workplace.

At Bridgetown we teach for mastery, this means that elements of the '5 big ideas' in mastery are central to every lesson:



Coherence

Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

Variation

Variation is twofold. It is firstly about how the teacher represents the concept being taught, to draw attention to key points and mathematical structures. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships.

Lessons are carefully crafted in order to allow all pupils to access these concepts and ideas and explore the rich connections between them. We have high expectations of our pupils and strive to make the mathematics curriculum accessible to all. Following the teaching for mastery approach, pupils will move through the NC Programme of Study at broadly the same pace. We recognise that all children need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations.

At Bridgetown we recognise the importance of developing a 'growth mindset'. All staff believe everyone is capable of learning mathematics, given sufficient time, good teaching, appropriate resources and effort. We aim to ensure all pupils leave us with sound mathematical skills, which will enable them to realise their potential wherever they live and whatever their background.

Aspects of mathematics teaching at Bridgetown:

➢ A coherent journey through the curriculum is planned (learning in small steps daily);

➢ Learning is through a concrete – pictorial – abstract approach;

➢ Teachers carefully choose representations which expose the structure of the mathematics and plan to address difficult points in order to develop deep understanding of concepts;

➢ Children are taught to think mathematically and reason logically – looking for patterns and relationships;

➢ Communication - precise mathematical language is used in oral/written explanations;

➢ Adults use skilful questioning to reveal, probe and address misconceptions;

➢ Variation is used to explore the essential features of concepts;

➢ Mathematical skills are practised, applied and assessed across the curriculum;

➢ A mathematically rich environment supports learning;

➢ Fluency and flexibility are developed in every lesson (including looking at relationships and making connections);

➢ Children grasping a concept rapidly will be challenged through rich and sophisticated problems;

➢ Skilful assessment identifies children who are struggling to grasp concepts leading to guided groups and catch up sessions with qualified teachers, and if required, structured interventions

Planning

We believe that the key to success with all learners is quality first teaching. Staff use Dfe Maths guidance published in 2020 to help ensure progression and inform planning, teaching and learning. 'Ready to Progress criteria' are used to help plan sequences of lessons and aid curriculum prioritisation.

In order to support planning and teaching, all year groups use and adapt the 'Power Maths' scheme, which is a mastery programme designed to spark curiosity and excitement and nurture confidence in maths. Staff adapt individual lessons and adjust lesson sequences where necessary, to ensure that the teaching meets the need of pupils: the Power Maths scheme is not simply 'followed'.

Lesson Structure

Lessons are structured around the concrete – pictorial –abstract approach, providing opportunities throughout for discussion, using mathematical vocabulary, developing mathematical thinking and using multiple representations. There should be opportunities to record independently in every lesson (in different ways).

Teaching is episodic and whole-class based with everyone covering the same content. There is an emphasis on 'keeping up not catching up' and where appropriate a teacher or teaching assistant may choose to pre-teach lesson content with individuals or small groups. At least 10 minutes per day of fact fluency is taught in addition to a daily maths lesson.

Written work

Pupils in Year 2 onwards complete Power Maths Practice Books. These are supplemented by 'maths journals' to record additional learning. Pupils in Reception record their maths

learning in written form once a week and in Year 1 at least twice a week, building up to 4 times each week in the Summer Term. The aim of our curriculum is to explore the 'big ideas' in mathematics, encourage deeper thinking and independence as well as a secure understanding of key mathematical structures. It is not to produce a page of calculations, which is abstract to any real life situation. To support this approach we do not erase incorrect answers or approaches as they provide a valuable clue to the path a child is taking and is valuable assessment information.

Learning in books is presented and marked in accordance with guidance in the Bridgetown Primary School marking and feedback policy.

Record Keeping/ Assessment

Maths work books provide evidence of progress, along with teacher assessment notes. Learning should be recorded in as many ways as possible to provide the child with a range of experiences.

Assessment is an ongoing process in the classroom which forms the basis of future action. Formative assessment takes place throughout every lesson based upon the practical, written and oral work completed by pupils. There are also opportunities for peer/self assessment.

Each child should be involved in the review of his/her progress and be able to contribute to discussions about different aspects of his/her work.

Summative assessment takes place in the form of 'end of unit' checks. These help teachers to identify pupils who may need additional support or whether additional lessons for the whole class may be required to secure a concept.

End of term 'PUMA' assessments are used to track progress and inform future teaching and learning. These may highlight individuals who are need of targeted interventions.

Role of Teaching assistants

There is an expectation for the teacher to provide planning to the teaching assistant with enough notice for them to read it and prepare any resources necessary. It is the responsibility of teaching assistants working within any maths lesson to ensure they have read, and if required, discussed the planning with the class teacher and prepared any required resources. They are expected to provide feedback to the teacher on a daily basis for the children they have observed within the classroom. This feedback may be verbal or if preferred, written on their copy of the maths plan or on 'post-it' notes.

Teaching assistants may be deployed in a variety of ways to support teaching and learning e.g. to pre-teach an activity with pupils prior to a lesson; they may circulate during the 'think together' part of the lesson to ask questions and check understanding; during independent task they may support individuals or small groups. Teaching assistants should not always work with the same groups of children during every lesson.

Classroom Environment

The classroom environment should be mathematically rich and support current learning. Maths Working Walls should be interactive, clearly visible and provide the children with key vocabulary and visual prompts e.g number lines, 100 squares, tens frames, part whole models. They may also include number facts, prompts and challenges appropriate to the age/stage. Maths working walls should be linked to current learning and changed regularly to avoid becoming 'wallpaper'. Knowledge organisers, maths dictionaries, iPad apps, and a range of concrete materials should be available for every child when appropriate. Resources / manipulatives are carefully selected by staff to support the mathematical structure being taught.

Cross Curricular Links

Although maths is taught as a discrete subject, staff are encouraged to exploit any cross-curricular links and provide opportunities for children to demonstrate their mastery of concepts or skills in other subjects (eg: science, ICT, PE, topic, art, music, etc).

Maths days and maths weeks throughout the year provide further cross curricular opportunities.

Maths, Science and D&T leaders along with Senior Leaders work together with parents to develop STEM within school and at home.

Homework

Learning conversations will be set linked to current maths learning. Priority is given to fact fluency, focusing on additive facts and corresponding subtraction facts in Year1 & 2 and multiplicative facts and corresponding division facts in Years 3 and 4.

In preparation for secondary school, pupils in Year 5 and 6 may be given a written maths homework task, there will be a staggered approach to this.

Rockstar Times tables

From KS2 onward, children are expected to practise times tables at home, at least three times a week. These are then tested three times a week in school. Year 2 will be introduced to Rockstar times tables when their teachers feel it is appropriate during the summer term. Class teachers will inform children and parents of the times tables they will be expected to learn.

Family Partnerships

It is vital that parents and carers are actively involved in their children's learning. Maths Workshops will take place throughout the year providing parents with an opportunity to understand strategies used in class and learn about fun, purposeful maths activities that can be extended into the home. Each workshop is planned by the maths leader and may be supported by class teachers.

Each term a maths newsletter keeps parents informed of maths developments in school, provides ideas for maths which pupils can do at home and signposts parents / carers to websites / programmes and activities which they can access to further support their child at

home. Weekly challenges on the school newsletter encourage children to think mathematically by completing open ended 'low threshold, high celling' tasks.

The maths page of the Bridgetown website is updated regularly sharing pupils' achievements and celebrating success in maths. It is also a useful source of information relating to current maths practice.

Resources

Each class/year group has a range of general mathematical equipment (eg: dictionaries, base ten, dice, tens frames, counters, counting sticks, Cuisenaire, numicon etc). A wide range of additional resources are available in the maths store.

Class computers have access to interactive whiteboards. Recommended websites are listed on the school website and shared with staff via email updates. There are online resources to support the delivery of Power Maths during lessons via their online interactive tools.

Equal Opportunities

The provision of maths teaching is regardless of race or gender and should allow all children to reach their full potential.

Inclusion

We aim to provide a rich mathematical education, which will develop the potential of all pupils. In line with NCETM guidance on the teaching of mathematics, we recognise that, 'There is no such thing as 'special needs mathematics' or 'gifted and talented mathematics'. Mathematics is mathematics and the key ideas and building blocks are important for everyone.' However a child who is assessed to have special education needs in maths will be placed on the school's SEN register and receive additional support.

Various enrichment activities, including the First Primary Maths Challenge and the Primary Mathematics challenge are organised throughout the year for pupils who frequently grasp concepts rapidly in the daily mathematics lesson, these focus on deepening their understanding through rich and varied problem solving rather than acceleration. The maths leader is available for advice on the type of challenging and stimulating problems most likely to prepare these pupils for an exciting future in mathematics.