

Bilton C of E Junior School

Policy for: Maths Policy

Formed by: Mrs. Thompson

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Date reviewed	Reviewed by	Page number of changes	Summary of changes made

Bilton C of E Junior School

Mathematics Policy

Bilton C of E Junior School

2018

Aims

Mathematics helps us to make sense of our world. It is a powerful, universal language used to explain, predict and represent events and tackle everyday problems. Mathematics is of central importance to our modern society. IT is an essential part of everyone's daily life and critical to science, technology, finance and engineering. Mathematics is necessary for employment and independent life.

At Bilton CE Junior we aim not only to prepare our children for the next stage of their education, but also to lay the foundations for successful futures beyond 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 Bilton Junior School are aligned with the aims of the National Curriculum: Fluency, reasoning and problem solving – both in mathematics lessons and across the curriculum. We recognise that pupils need to learn number facts and acquire fluency in procedures alongside developing conceptual understanding if they are able to solve increasingly complex problems.

A mastery approach to the teaching of mathematics has been adopted, and we have high expectations of all our pupils. We endeavour to make the mathematics curriculum accessible to all pupils; moving them through the programme of study at broadly the same pace, with opportunities to work on the objectives more deeply for those who rapidly grasp concepts. All pupils need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations. Catch up sessions with teachers and additional sessions help prevent pupils from falling behind.

Adopting a growth mindset is central to our approach. Pupils at Bilton CE Junior School are encouraged to believe they are all capable of learning mathematics to a high level and that having belief in yourself is critical, as is valuing mistakes and taking the time to think deeply.

There are aspects of mathematics teaching which will be seen in every classroom at Bilton CE Juniors:

- A positive attitude toward and sense of excitement about Mathematics
- Learning through active enquiry and concrete materials, with pupils representing their ideas and moving between concrete, pictorial, iconic and abstract recording
- Use of multiple representations to ensure depth of understanding
- Applying and practising mathematical skills across the curriculum
- Precise mathematical language used by all, speaking clearly in full sentences

Bilton C of E Junior School

- Independence and having a go before asking for support from peers or adults
- Fluency and flexibility in number
- Targeted and skilful questioning to reveal, probe and address misconceptions
- Challenges that develop deeper learning
- Scaffolding provided for pupils when required
- Assessment during learning identifies pupils who are struggling to grasp a concept leading to using of a guided group and/or catch up session (before the next Maths lesson)
- Use of high quality workbooks to ensure a coherent journey of small step progression and intelligent practice through the curriculum.

Planning

At Bilton CE Junior School, we believe the key to success with all learners is quality first teaching. This is promoted through ongoing bespoke professional development from the maths lead who is a Specialist Maths Teacher and a Mastery Specialist.

Teachers in each year group plan together with the support of the Maths leader. Planning is guided by assessment of learning. High quality text books are used to support teachers in breaking down the learning into small coherent steps and to support them in making decisions about the most appropriate models and images. All Year groups are using Powermaths Scheme and practice books to plan and teach.

Lessons are planned directly onto Smart-notebooks / Powermaths online resources, which are saved centrally for each year group. Lessons may be monitored by the Maths leads before the lessons are taught in order to support teachers. Each lesson- in every year group- is focussed around the concrete (model)-pictorial (image) – abstract approach as children learn new concepts. Teachers skilfully highlight connections between mathematical topics and support the learning of mathematical vocabulary.

Whilst year groups follow Powermaths textbooks, they supplement the lessons with further opportunities for problem solving by providing extra challenges from sources such as Youcubed / Nrich and NCETM mastery materials. Activities are chosen to match the lesson objective and the needs and context of the pupils. Learning Intentions are seen by teachers but are not shared with children at the start of the lesson in order to encourage the pupils to think carefully about the anchor task and what they are learning.

Lesson Structure

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

The main teaching activity should be whole-class based with everyone covering the same content. Children are taught in classes, not grouped by attainment, in line with the mastery approach. Guided groups are led by qualified teachers, whilst teaching assistants may circulate during the main part of the lesson, or take the lead on some whole class activities. Whilst some teaching assistants deliver 'on track' maths interventions which we are using to address gaps in learning, we are aiming for the

Bilton C of E Junior School

'catch up sessions' to be delivered by the teachers where possible, based upon the teachers assessment of the learning which has taken place within the lesson.

Lessons are structured with assessment opportunities throughout. This provides opportunities to evaluate what has been learnt, review success and address misconceptions. It should also provide opportunity for peer/self assessment so children understand what they attained and where to go next.

The aim of a mathematics lesson is to teach a child a skill or strategy that will provide a solution to a task. It is not simply to produce a page of correct number work, which is abstract to any real life situation. We do not erase incorrect answers or approaches as they provide a valuable clue to the path a child is taking and becomes valuable informal assessment.

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). It is the responsibility of teaching assistants supporting individuals or groups of children within a maths lesson to ensure they have 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 been working with. This feedback may be verbal or if preferred, written on their copy of the maths plan or on 'post-it' notes.

Learning in books is presented and marked in accordance with guidance in the marking policy.

Classroom Environment

The classroom environment should be mathematically rich and support current learning. Maths working walls are used daily as a part of the maths lesson and so must be clearly visible. Key vocabulary, reference to the models and images that the children have been working with during the lesson, links to other areas of mathematics and sentence stems should all be included. Learning mats, maths dictionaries, and a range of concrete materials should be available.

Homework

Appropriate homework activities are set for each year group. Year 3, 4 and 5 homework is set via Mathletics (online resource) which children should be completing each week. Year 6 complete homework books where activities are set and marked together each week. Teachers may also set other homework tasks, which may be games to play, facts to learn, or paper based questions to answer and return.

Parent Partnerships

It is vital that parents and carers are actively involved in their children's learning. Over the year, all parents will be invited into a maths lesson to support their child. The parents can talk to the teacher about how to support their child at home and better understand the pitch and expectations for that year group. There is also support offered to parents via the school website and parent workshops.

Bilton C of E Junior School

Resources

Each class/year group has a range of general mathematical equipment (eg: dictionaries, base ten, dice, counting sticks, place value counters etc). A wide range of additional resources are available centrally stored in the maths cupboards.

Equal Opportunities

The provision of maths teaching is regardless of race or gender and should allow all children to reach their full potential. In order to achieve this, activities should be set in a familiar context where possible. Children with special educational needs should be taught on an individual/small group basis when applicable (as guided by SENCO).

Record Keeping/ Assessment

Maths books provide evidence of progress. 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. Formal and informal teacher assessments are based upon the practical, written and oral work completed by the children. Summative assessment takes place termly and at the end of the year written tests are analysed in order to support end of year assessment judgements. Refer to the assessment guidance for further information.

Special Educational Needs

We aim to provide a rich mathematical education, which will develop the potential of all pupils. Any child who is assessed to have special education needs in Mathematics will have a Maths target created through meeting with parents, child and teacher. Our assessment process looks at a range of factors such as classroom organisation, teaching materials, teaching style, and differentiation so that we can take some additional or different action to enable the child to learn more effectively. Ongoing assessment for learning, and summative assessment allows us to consider each child's attainment and progress against expectations. This ensures that our teaching is matched to the child's needs. Where appropriate, specific strategies and intervention programmes relating to Mathematics are implemented.

There may be children who regularly grasp concepts rapidly and have been assessed as having mastered objectives from their year. Planning for these pupils will focus on enrichment prior to acceleration and the development of mathematical thinking rather than covering content more quickly. Various enrichment activities are organised throughout the year for these pupils in addition to the daily Mathematics lesson. The maths leader is available to advise on the type of challenging and stimulating problems and probing questions most likely to prepare these pupils for an exciting future in mathematics.

i) Growth Mindset features:

- Everyone can learn mathematics to the highest levels

Bilton C of E Junior School

- Mistakes are valuable
- Questions are important
- Mathematics is about creativity, pattern spotting and sense making
- Communication and making connections are vital components of mathematics
- In a mathematics classroom the focus is not on performing or giving quick answers
- Depth of understanding is more important than speed

ii) QFT includes:

- Highly focused lesson design with sharp objectives
- High demands of pupil involvement and engagement with their learning
- High levels of interaction for all pupils
- Appropriate use of teacher questioning, modeling and explaining
- An expectation that pupils will accept responsibility for their own learning and work independently
- Regular use of encouragement and authentic praise to engage and motivate pupils
- An emphasis on learning through dialogue, with regular opportunities for pupils to talk both individually and in groups