Benedict Biscop CE Academy

MATHS POLICY

Review Date:	Autumn 2021
Next Review Due:	Autumn 2023
Person in Charge:	Maths Leader
Governance:	Chair of RA Committee

Other policies that link and should be read in conjunction with this policy:

- Teaching and Learning Policy
- Assessment Policy
- Marking Policy
- English Policy
- Display Policy
- Presentation Policy
- Educational Visits Policy
- Calculation Policy

Introduction

The curriculum at Benedict Biscop CE Academy is based on Christian values, taught both explicitly and implicitly throughout the day and made real in our everyday lives.

The curriculum at Benedict Biscop CE Academy is organised throughout the school around areas of learning linked to the Early Years Foundation Stage plus Religious Education.
The Arts [Art, Dance, Drama, Music,]
English/Communication and Language
Mathematics/ Mathematical Development
STEM [Science, Technology/Computing, Engineering, Mathematics]
Humanities/Knowledge and Understanding [Geography and History]
Personal Social and Emotional Development
Physical Development [PE]

As a school that respects the rights of the children and adults in our school family, community and beyond, we aim for each school policy to adhere to articles set out in the convention. Article 28 states: You have the right to a good quality education. You should be encouraged to go to school to the highest level you can.

Other articles pertinent to policies relevant to teaching and learning across school are:

Article 3: All adults should do what is best for you. When adults make decisions, they should think about how their decisions will affect children.

Article 12 : You have the right to give your opinion, and for adults to listen and take it seriously.

Article 29: Your education should help you use and develop your talents and abilities. It should also help you learn to live peacefully, protect the environment and respect other people.

Article 31: You have the right to play and rest.

In the academic year 2013-2014, this curriculum has been reviewed in line with the new National Curriculum changes; which are effective September 2014. Amendments have been made accordingly annually to ensure fit for purpose in our context.

Computing

Information Technology is not seen as a separate area of the curriculum, but as a tool for accessing learning across every area of the curriculum and the specific skills of IT will be taught through all other curriculum areas. Key skills IT deals with the application of IT to specific purposes. It is not just about using software packages or using operating systems, neither is it concerned only with keyboarding skills and student's ability to copy-type or follow instructions. Rather, key skills IT is about how students use their knowledge about IT to find, develop and present information, whether it is text, image or numbers, or all of these in an integrated task.

Computing includes the ability to use a range of information sources and IT tools to find, analyse, interpret, evaluate and present information for a range of purposes across the curriculum.

IT teaching offers opportunities for children to:

- develop IT capability, including their knowledge and understanding of the importance of information and of how to select and prepare it;
- develop and evaluate their skills in using hardware and software to manipulate information in their processes of problem solving, recording and expressive work;
- develop their ability to apply their IT capability and IT to support their use of language and communication, and their learning in other areas;
- explore their attitudes towards IT, its value for themselves, others and society, and their awareness of its advantages and limitations.
- Specific to Knowledge and Understanding, children should understand how IT can be used to communicate and handle information, control and monitor events, and model real and imaginary situations.
- New technologies are purchased by school and used to develop the skills of children with Special Education Needs and Disabilities. School acts on advice of outside Agencies and other Professionals when purchasing new programs for this group of individuals.
- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.

Mathematical Development

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It allows children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

Aims

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

The essential characteristics of Mathematicians at Benedict Biscop CE Academy are:

- An understanding of the important concepts and an ability to make connections within mathematics.
- A broad range of skills in using and applying mathematics.
- Fluent knowledge and recall of number facts and the number system.
- The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
- The ability to think independently and to persevere when faced with challenges, showing a confidence of success. The ability to embrace the value of learning from mistakes and false starts.
- The ability to reason, generalise and make sense of solutions.
- Fluency in performing written and mental calculations and mathematical techniques.
- A wide range of mathematical vocabulary.
- A commitment to and passion for the subject.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should

make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. National Curriculum, 2014

The essential characteristics of Mathematicians at Benedict Biscop CE Academy are embedded through the INSPIRE maths approach (introduced, September 2015)

What is INSPIRE Maths?

- 'Inspire Maths' is built on the proven approach to teaching mathematics in Singapore, recognised globally as one of the most impactful ways to teach and learn maths following a mastery approach.
- 'Inspire Maths' has been developed with leading UK educational experts and correlated to the new National Curriculum in England. It was selected by the Department for Education and NCETM for the national textbook research project with Maths Hubs
- The programme follows a concrete – pictorial – abstract approach which ensures deep understanding of mathematical concepts during individual lessons and over time.
- Carefully-designed spiral progression in the programme builds up knowledge over time, enabling all children to become confident mathematicians.
- Inspire maths sessions promote discussion and exploration, with a strong emphasis on mathematical language, speaking in full sentences, and reasoning (by children consistently being required to explain how they know).
- INSPIRE maths include specific questions, which draw out children's understanding and identify and misconceptions immediately.
- Inspire Maths is a high-quality textbook programme which can be used from Y1- Y6 and helps every child to achieve maths mastery. The pupil textbooks introduce concepts in a highly scaffolded way, helping children to make meaningful connections between mathematical ideas.
- Each child records their learning in a practice book. The practice books reinforce the concepts that have been introduced and encourage extensive opportunities for independent practice. This builds fluency through frequent and varied practice leading towards mastery of concepts. Practice books include a variety of questions and word problems (including non-routine) for consolidation, and challenging questions.
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- The Teacher's Guides provide a clear pathway to quickly identify gaps for immediate intervention and opportunities for further practice or enrichment.

Time Allocation

Throughout the school year we aim to seek a balance between all subject areas. Mathematical Development will be taught daily. It is essential that teachers plan in other subjects, for pupils to develop and apply their mathematical skills, in order to deepen understanding and widen knowledge and skills, preparing children for later life.

Curriculum Planning For Mathematical Development

Long-term

INSPIRE maths long-term plans give a detailed outline of what we teach in the long-term, identifying the key objectives in mathematics that we teach in each year. **Medium-term**

INSPIRE maths medium-term plans give details of main teaching objectives for each term, define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are kept and reviewed by the subject leader.

Short-term

It is the class teacher who completes the weekly overview for the teaching of mathematics. These weekly overviews, list specific learning objectives for each lesson and give details of how the lessons are to be taught. This then feeds into lesson design where slides are created: sequencing learning, key questions and support. The class teacher keeps these individual

These include:

- the specific learning objectives for each lesson and detail how the lessons are to be taught.
- success criteria which are shared with the children to ensure children understand their next steps to learning. activities to engage the children and to lead their development through active participation.
- links to concrete- pictorial- abstract approach.

Homework is used to support mathematics through tasks such as:

- Specific tasks set regularly by teachers which reinforce and develop concepts taught during lessons ✦ Developing mental calculations i.e. tables, number bonds, calculations in all four operations ✦ Activities such as gathering data or completing work started in school.
- Suggested INSPIRE maths activities.
- TTRockStars given weekly to support rapid recall of times tables.

All classrooms are fully resourced in order to support children's learning. Each child has access to a "mathematics tool-kit" which provides the essential equipment needed to support concrete application as well and key vocabulary and abstract representations such as number lines and hundred squares. These "tool-kits" are updated by staff, where appropriate, to support the individual concept being taught. e.g. money.

Planning is recorded on the intranet and is accessible by all staff. In this way subject/curriculum leaders can monitor and develop learning within their curriculum area. Scrutinies of planning and work are carried out by all staff with feedback given to ensure children access the full curriculum. Staff will be given immediate feedback for improvement.

We will ensure that we plan to meet the needs of the following clearly identifiable groups:

- Gifted and talented learners
- Learners from different ethnic groups
- Learners for whom English is an Additional Language
- Learners with Special Needs and disabilities
- Girls and Boys
- Learners from different faiths
- Learners with emotional, behavioural or social needs
- Learners who are at risk of disaffection or exclusion
- Learners who are "Looked After" in public care Learners who are 'disadvantaged and others.

Maths Meetings

Maths Meetings are a vital part of learning. They are in addition to the daily Mathematics lesson and take place for 15-20 minutes at least 3 times a week. Their purpose is to provide regular opportunities for our children to practise and consolidate skills of arithmetic and develop mental fluency. All children are expected to participate using full sentence responses in order to develop their understanding of mathematical language and support reasoning. Maths Meetings also allow opportunities for teachers to act immediately upon their formative assessment. These sessions enable either the class teacher or an additional adult to provide prompt and timely 'corrective teaching' for those children not yet secure with key concepts.

Early Years and Foundation Stage

We teach the children in Foundation Stage that Mathematics is an integral part of the themed work (linked to children's interests) covered during the year. This comes under the Mathematics section of the Early Years Outcomes which covers, numbers, shape, space, measure and pattern. As the reception class is part of the Foundation Stage, we relate the mathematical aspects of the children's work to the objectives set out in the Early Years Outcomes which underpin the curriculum planning for children aged three to five. Mathematics makes a significant contribution to the Early Years Outcomes objectives by developing a child's basic mathematical skills, forming the foundation for later learning.

Spiritual, Moral, Social and Cultural Development

Learning through Mathematical development contributes to the children's spiritual development. We also provide children with the opportunity to discuss moral questions, what is right and wrong. Children learn how society has changed and develop skills to become good citizens. They study their own rich cultural heritage and developing an understanding of how this culture is enriched by the multi-cultural British society of today, based on British values of democracy, rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs.

Assessment

Assessment is an ongoing and essential part of mathematics.

Short term

Short-term assessments are an informal part of every lesson. Their purposes are to:

- Check that children have grasped the main teaching points in a particular lesson, whether they have any misunderstandings and whether they are ready to move on to the next activity;
- Check that children are remembering number facts and can use mental calculation strategies;
- To give information which will help to adjust day-to-day lesson plans and brief support staff about which children to assist.
- For these short-term assessments, what will be assessed will be closely matched to teaching objectives.
- There are two main ways for short-term assessment:
- During every lesson teachers will absorb and react to children's responses through small group and individual discussions and questioning.

Specific tasks or short informal tests which would be followed up immediately by marking and feedback.
Short-term assessments don't need to be recorded, since they are for immediate action and attention.
However, teachers will keep informal jottings of children who under or over achieve particular objectives. These will help to clarify patterns in performance over time leading to medium-term planning.

Medium Term

Medium-term assessments will focus on what teachers are unsure about, not what they know already. This process is fully embedded through the INSPIRE maths approach with regular "review" tasks built into each concept. They are mainly to:

- Review and record the progress children are making over time in relation to key objectives, what they know and don't know, whether they can apply their skills in a new context, and whether weakness remain;
- Identify children's progress against specific individual targets, including those in IEPs, so feedback can be given and new targets set;
- Help teachers to plan over the next half term;
- Provide information to feed into end-of-year assessments.

Long Term

Each term, teachers will assess and review pupils' progress and attainment against school and national targets, drawing on class records and supplementary notes. Year 2 and 6 will complete half termly assessments to monitor progress and to ensure the children are familiar with the test.

Children in Y2 and Y6 will carry out compulsory National Curriculum mathematics tests. Pupils in Y1,Y3, Y4 and Y5 carry out optional tests. Levels achieved are used to set individual targets for the following year.

Baseline assessments are carried out in the first term of Reception.
Records of results and new targets are passed on to the next teacher.

Inclusion

The governors and staff of the academy are committed to providing an inclusive range of high quality learning opportunities for everyone involved with the school and Community. We will ensure that everyone has an equal opportunity to access the full range of provision available in Mathematics and will actively seek to remove barriers to learning and participation. The teaching and learning, achievements, attitudes and well-being of every child are important. We follow the necessary regulations (set out in the SENd Code of Practice (2014**)** to ensure that we take the experiences and needs of all our children into account when planning for learning.

Teaching Mathematical Development to Children with Special Needs

At our school we teach creative development to all children, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Mathematics teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs through differentiated activities. Assessment against the National Curriculum allows us to consider each child's attainment and progress against age related expectations.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – 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. This ensures that our teaching is matched to the child's needs.

Intervention is provided, as set out in the renewed SEN code of Practice (2014), through quality first teaching and where a child is in receipt of a statement of Special Educational Needs or Education Health Care (EHC) plan a specific education plan will be in place linked to specific targets. The targets may include, as appropriate, specific targets relating to Knowledge and Understanding of the world.

We enable pupils to have access to the full range of activities involved in learning Maths. Where children are to participate in activities outside the classroom, for example, an educational visit, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Role of the Curriculum Leader/Subject Leader

The role of all subject leaders will consist of:

- Lead curriculum development in the area throughout the school
- Plan progressive curriculum throughout the school linked to identified themes ensuring that key skills are developed
- Monitor progress through curriculum area and ensure this is tracked on a termly basis
- Develop annual Curriculum action plan which feeds directly into the School Improvement Plan
- Review the policy and scheme of work which will inform action plan
- Carry out an audit of resources annually which will inform action plan
- Organise, maintain, order resources using the allocated annual budget available.
- Ensure children's work is recorded and moderated across the school in the curriculum area.
- Lead professional development across school in response to need
- Provide support and advice to colleagues
- Keep up to date with developments in curriculum area and feed information into Senior Leadership Team ✦ Link with relevant School Governor and ensure they are informed of curriculum developments on termly basis.

The Subject Leader has the responsibility for overseeing and resourcing the subject. There is an annual budget for resourcing Maths so that effective teaching can take place and the school's policy can be maintained. This may vary from year to year according to curricular priority and resources available.

Monitoring and Review

The curriculum leader is responsible for monitoring planning, the standard of children's work and the quality of teaching. Curriculum leader carries out planning and work scrutinies. This involves interviewing children across key stages. Children are asked focused questions about their learning with their work. This enables curriculum leaders to monitor progress within their subject. The curriculum leader supports colleagues in the teaching of Maths, by giving them information about current developments in the subject and by providing a strategic lead and direction for the curriculum area in the school. The curriculum leader is also responsible for devising an annual action plan devised by the curricular team [Summer term] and evaluating this on a termly basis, evaluating strengths and weaknesses in the curriculum area and indicating areas for further improvement. The curriculum leader is responsible for providing an annual overview to the Governing Body. Curriculum leaders meet with governors on a termly basis to discuss current developments in their subject. Key questions are discussed during these meetings.
Through monitoring and evaluating our practice, constantly reviewing what we do, we will address the following key questions, as identified in our inclusion Policy:

- Do all our children achieve as much as they can?
- Are there differences in the achievement of different groups of children?
- What are we doing for those children who we know are not achieving their potential?
- Are our actions effective?
- Is the curriculum promoting outstanding learning?

Leadership

The senior leadership team and the curriculum leader or teacher responsible for the subject should have a clear view of the purpose of curriculum development in this area and how learning outcomes can be achieved. Effective communication is necessary at all times. Sharing ideas, involving others in leadership and management considerations can ensure that all staff understand the requirements and that individual's talent are put to full use. All staff have a responsibility in maintaining a positive approach to teaching, maintaining high moral stance, clear vision. Effective interaction and collaboration calls for active participation from all.

Health and Safety

The teacher will be responsible for planned activities within Mathematics that are appropriately risk assessed to comply with health and safety requirements. They are also responsible the health and safety of themselves, classroom assistants, visitors and pupils within their class.

Signed **Signed**

Chair of LGB **Headteacher**