Pensby Primary School

Maths

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RATIONALE:

The purpose of this policy is to ensure that Pensby Primary School's Maths curriculum enables all children to become confident and competent mathematicians so that they can use their knowledge to make sense of the world around them and recognise that maths is essential to everyday life. It is our belief that children should view maths as an interconnected subject so that they are able to use and apply their existing knowledge to new situations, moving confidently and fluently between different representations of mathematical ideas as excited mathematicians.

AIMS:

Our curriculum aims to ensure that all pupils:

- develop confidence and competence with numbers and the number system, becoming fluent in the fundamentals of mathematics through varied practice;
- display positive attitudes and a 'can do' approach to their mathematical practice;
- learn through practical activity, exploration and discussion;
- are able to recall and apply their mathematical knowledge rapidly and accurately;
- make connections across mathematical procedures and concepts;
- reason mathematically by following a line of enquiry, identifying patterns, relationships and generalisations;
- use mathematical language confidently to explain and justify their decisions;
- develop a conceptual understanding of mathematics so that they are able to solve increasingly complex problems over time.

ORGANISATION & CONTENT OF THE CURRICULUM:

At Pensby Primary School, we follow the mastery curriculum designed by Power Maths. Built around a child-centred lesson design that models and embeds a growth mindset approach to maths, our ambitious curriculum and lesson structures focus on helping all children to build a deep understanding of maths concepts. Our lessons are structured to spark curiosity and excitement in our children and nurture greater confidence in maths and problem solving through the 'I do, we do, you do' approach. Maths teaching is structured in three parts in order to target key intervention groups: pre-teaching groups, strengthening groups and deepening groups and sessions and interventions are planned that meet a wide range of needs.

We use Learning by Questions (LbQ) in Key Stage Two as an additional element to our maths curriculum, interactively developing skills in varied fluency, reasoning and problem solving and allowing teachers to identify gaps in knowledge quickly and efficiently through the use of immediate feedback and assessment. The use of LbQ supports Pensby Primary's whole school approach to the teaching of maths in using live data as a means of enhancing the assessment for learning element of the Power Maths curriculum.

Remote Learning

In line with our remote learning policy, the skills and knowledge of the maths curriculum is taught using the Power Maths curriculum and delivered through Seesaw and LbQ. We support the continued use of representations and structures as aids for learning and model, where appropriate, new skills and concepts for the children.

EYFS

Following the Power Maths scheme and through active learning, we aim to help children make sense of the world around them so that they are able to recognise, create, describe and explore patterns with number and shapes. In EYFS, children compare sizes and count objects, using a variety of methods to problem-solve and discover: sharing, showing and talking about their findings. Core skills and mastery approached are developed using Power Maths journals and provide children with real-life experiences as they learn, helping them

to take small steps to build their confidence and ensuring that number work remains challenging and stimulating.

Key Stage One
In Key Stage One, children continue to build upon the core skills developed in EYFS through the use of Power Maths and maintain the teaching methods using concrete, pictorial and abstract representations so that mathematical concepts are easily accessible to all children. The Key Stage One curriculum provides continuity between EYFS and Years One and Two so that children can see their next steps and understand what they need to do in order to make further progress. Our curriculum celebrates success and achievement, allowing children to gain confidence in their mathematical ability and understanding and ensuring our children leave Key Stage One with high levels of numeracy and mastery.

Key Stage Two
To provide continuity between Key Stage One and Key Stage Two, our curriculum continues to support concrete and pictorial representations through the use of Power Maths and additionally, LbQ, ensuring that mathematical concepts and abstract practice are easily accessible to all children. Because Power Maths and LbQ follow a similar mastery approach to the teaching of maths, our curriculum ensures continuity and clarity for all children. The structure of both systems allows children to see their next steps and ensures they understand what they need to do in order to make further progress. Our curriculum celebrates success and achievement, allowing children to gain confidence in their mathematical ability and understanding, ensuring our children leave Pensby Primary with high levels of numeracy.

INCLUSION & INTEGRATION

Integration at Pensby Primary School ensures that all children, regardless of their ability gain access to a curriculum that is supportive of their needs. In conjunction with Stanley School, we encourage integration across both schools so that our school communities develop a greater sense of community, one that celebrates diversity and is built upon mutual respect and tolerance. With well-planned support, all children are able to gain access to a full and comprehensive curriculum that celebrates all children's interests and skills.

LINKS WITH OTHER AREAS OF THE CURRICULUM

At Pensby Primary, we believe that maths skills should be developed across the whole curriculum so that the skills of maths are not taught in isolation. It is our belief that we can develop greater opportunities for everyday maths reasoning and problem solving if maths skills are developed in DT, Science, History, Art and Geography, allowing children to develop their knowledge, skills and understanding and become motivated to learn through a series of interconnected topics. Enrichment opportunities are planned throughout the year so that our maths curriculum is enriched in a variety of ways, including: curriculum days, STEM days and linked days to other areas of the curriculum.

MONITORING

Monitoring of Maths will occur each term and will include:

- Lesson observations;
- Pupil interviews;
- Staff interviews;
- Book scrutiny; both including children's workbooks and journals;
- Attainment and progress is monitored by class teachers and subject leads as part of our internal assessment systems and noted on Depth of Learning;
- Support to implement new whole school maths scheme, Power Maths

- At the end of the academic year a subject leader report will be written and considered by SLT and Governors. The report will measure attainment and progress of all children.
- This policy will be reviewed by the Maths subject Leaders annually. At every review, the policy will be approved by the headteacher/Governors.

ASSESSMENT & RECORDING

EYFS

Regular observations and assessments of learning are recorded using an on-line journal (Seesaw) and contribute to a summative assessment at the end of EYFS using the Early Years Outcomes.

KS1 and KS2

Formative assessments of pupils' learning are made and assessed through observations and classwork and shared as evidence on SeeSaw. These assessments contribute to a summative judgement at the end of each term against the Maths statements found on Depth of Learning. Formal assessments, at the end of Key Stage One and Key Two, follow the assessment framework for maths and are standardised against national data.

Appendix 1

APPENDIX 2: Teaching for Mastery Work Group

In September 2020, Pensby Primary School joined the Teaching for Mastery Work Group led by mastery specialists. The programme aims to develop a teaching for mastery approach throughout the maths curriculum, partly informed by the teaching of maths in high performing South East Asian jurisdictions and following National developments in the teaching of maths.

Maths leads at Pensby Primary are in the embedding stage of the programme, working together to develop teaching for mastery approaches in the classroom, supported by professional development training and coaching as part of a Teacher Research Group. The action plan for maths has been updated to identify the pathway of steps for the development year and through a series of staff meetings, the aims are to be shared with staff so that they are clear about the purpose of the engagement with the NCETM development group. The 5 Big Ideas will be shared with staff and mapped out across each of the key stages, looking at each idea in depth across the year.

Development Year Phase One & Two:

Maths leads at Pensby Primary are in the embedding stage of the programme, working together to develop teaching for mastery approaches in the classroom, supported by professional development training and coaching as part of a Teacher Research Group. As part of the initial development stage, both leads are to engage in lesson study using NCTEM professional development materials to unpack subject knowledge and in order to model this process for staff.

In order to meet the requirements of the programme, the action plan for maths has been updated in order to identify the pathway of steps for the development year. Staff meeting time has been allocated and through a series of staff meetings, these aims will be shared with staff so that they are clear about the purpose of the engagement with the NCETM development group. Additional staff meeting time has been planned to further develop the 5 Big Ideas and will be shared with staff and mapped out across each of the key stages, looking at each idea in depth across the year.

NCTEM materials relevant to a mastery approach will be shared and made available to all teaching staff so that the planning of maths sessions alongside Power Maths and LbQ targets a full mastery approach and ensures that all children develop a deep understanding of the mathematical skills, building solid foundations in the children's mathematical knowledge.

The Embedding Year

During this year, subject leads will enhance their mathematical subject knowledge and that of teaching staff within the school in order to emphasise the key areas of maths: mathematical thinking, fluency, variation and representation & structure. With support of our NCETM lead, subject leads will observe and reflect on lessons using a mastery approach and recognise how school-wide structures, training and CPD enable our staff to develop their mastery approaches. Under the umbrella statement, subject leads and school leaders will work together to develop fluency through a focus on lesson structure and the use of representation and modelling within lessons.

What would you expect to see in classrooms?

At Pensby Primary, you can expect to see high levels of pupil engagement and involvement. Lessons usually begin with an interesting and engaging problem to solve and the teacher's role is to make this accessible to all. Concrete materials (usually in the form of representations or manipulatives) should be used (in virtually every lesson where it is appropriate) to support the children's thinking as they explore. Pupil talk should be encouraged at every opportunity, enabling peer support, challenge and/or refinement of ideas. Through these, learning should be highly visible. Teachers use pupils' ideas to create a series of class discussions in which all are encouraged to participate, often attempting to see into the minds of those offering the ideas. Different ideas are embraced and discussed. The class will spend a significant length of time reflecting on their own and others ideas: they do this through journaling and exploring the thinking of others as presented in the textbook. Towards the end of each lesson, the children practise what they have learned, usually through a number of examples guided by the teacher and ultimately, independently. The sequence of examples presented in the textbook is usually adhered to, the inbuilt variation enabling the children to practise the same kind of problem in a number of different ways. Differentiation is precise and robust. Struggling learners are mainly supported through affective environment, concrete materials, peer dialogue and problems that are in real life situations. Gifted learners are challenged from the outset, being asked to prove or justify their ideas, create real-life authentic problems of their own or seek patterns within the problem/concept being explored. For example, in a year 5 lesson where pupils have an opportunity to practise long multiplication, it is likely that some pupils will already be secure using this algorithm. In this instance, you are likely to see these pupils being challenged to think of different combinations of numbers that produce the same product (**x**=704). In this way challenge is provided through deepening conceptual understanding rather than acceleration onto new content.