

WHOLE-SCHOOL ACTION PLAN 2023-24
Mathematics



Current situation: Mathematics is core subject of the National Curriculum, during whole school moderation meetings, data analysis, subject surveys and snack and chat conversations, maths showed a positive picture in many areas such as arithmetic and times tables knowledge. Further investigation showed that children did not always raise to the challenge, speak like a mathematician and attain at the higher levels when reasoning mathematically was required. Our children typically attain inline with or above the national standard. More often than that they make at least expected progress from their starting points. We have decided that this is not enough and that with the correct exposure they could be stronger mathematicians.

In 2023 assessment for maths is as follows:

EYFS	KS1	KS2	Times table check Y4
25 out of 28 children met the expected standard	National Average	National Average	National Average score 2023 = 20.5
	School	School	Longton Average score 2023 = 22.8

Therefore, this action plan has been devised to improve the children’s understanding of the subject and give it a higher status throughout school. For children to develop an understanding of mathematics and be able to transfer the ‘Vipers’ approach of unpicking a piece of text in English to unpicking a ‘word problem’ in maths.

IMPACT:

It is important to note that the action plan has been written in preparation for Autumn 2023. Depending on successful applications to the maths hub etc. the path taken may vary. However, the outcomes need to be as stated in the intended impact or better.

- Teaching and learning in Maths will be at least good across all year groups
- The proportion of pupils working at ARE in Y1, 3, 4 and 5 by the end of the academic year is at least 85%
- As a minimum, 85% pupils will make at least ‘good’ progress from their starting point in each year group
- Increased percentage of Y2 and Y6 children reaching age related expectations in Maths and increased percentage working above age related expectations in Maths.
 - Y2 Year 1 Y2 33%
 - Y3 KS1 20% Y3 33%
 - Y4 KS1 20% Y4 36%
 - Y5 KS1 21% Y5 35%
 - Y6 KS1 11% Y6 29%

We are looking at approximately 10 children in each class attaining 110 plus on a standardised test.

100% of children who achieved GDS in mathematics at the end of KS1 continue to exceed age related expectations

- Attainment for Y2/6 is at or above the national average – target is at least 85%
- Learning for all children is deepened through the use of investigative maths work, problem solving and reasoning
- Children will demonstrate resilience and creativity in tackling problems and challenges
- Feedback, self-assessment and pupil voice are strengthened to allow children to master mathematical skills such as: reasoning, hypothesising and problem solving.
- The skills of Assistant teachers in delivering small group interventions is strengthened so that pupil progress is accelerated.
 - Children make accelerated progress in maths so that significant catch up interventions in upper KS2 become unnecessary (gaps in knowledge are plugged)
 - Difficulties are identified early and intervention is planned and implemented in a timely manner.
 - Staff are clear as to how manipulatives and visual images can support teaching and learning in all age ranges and how they can be used effectively in their year groups

Monitoring Evidence:

- Pupils' work will show clear progression of skills over time
 - Within lessons, pupils are moved on in a timely manner so that good progress is made and they experience deeper learning
 - Work will be reasonably adjusted to ensure that the majority of pupils reach at least ARE, with good levels of challenge to raise attainment of more-able pupils
 - Children's work will include open ended tasks, problem solving activities and reasoning to ensure all children make at least good progress in maths
 - Pupils will clearly understand and be able to articulate what they need to do to improve their own work in maths
 - All pupils undertake and experience the full curriculum offer and reasonable adjustments are made – including pupils with SEND.
 - Modifications to the intended curriculum are evident following quality question level analysis.
 - Review QLA overtime
 - Quality of homework sent weekly

Evaluation Questions:

- Is problem solving, reasoning and fluency embedded?
- Are staff skilled in delivering this?
- Does Mathematical development have prominence in the EYFS?
- Are assessment expectations clear?
- Are we able to show measurable progress against teacher judgments?
- Are reasonable adjustments effective?

Are adults and children able to speak as mathematicians?

Priorities for mathematics

- 1) Review and streamline WRM programme to secure deeper learning
- 2) Strengthen opportunities for pupils to use and apply their mathematical skills in problem solving activities and tasks in which they are required to demonstrate their reasoning skills
- 3) Secure excellent rates of progress and challenge for more able pupils in maths
- 4) Close gaps in the performance of SEND and lower ability pupils by developing their mastery of 'basic' mathematical concepts and improving fluency
- 5) Ensure that children learn times tables by heart and develop knowledge and speed recall of the four operations and essential number bonds
- 6) To further enhance skills of Assistant teachers in delivering small group interventions so that pupil progress is accelerated

1. Review and streamline WRM programme to secure deeper learning

- Discuss with members of staff which areas they feel they need to spend longer on and ones that are not covered adequately because of certain areas taking too long
- Use mapping grids to ensure full use of NCETM spines and DfE Ready to Progress Criteria match opportunities for developing deeper understanding
- Adjustments to WRM yearly overview to take into account concepts needing further deepening
- To apply for support from the local maths hub and fully embrace if successful in the application. Diaries involvement and impact.
- To apply to be part of the EFT research in to strengthening KS1 mathematics and fully embrace if successful. Diaries involvement and impact.

2. Strengthen opportunities for pupils to use and apply their mathematical skills in problem solving activities and tasks in which they are required to demonstrate their reasoning skills

- Routine, robust problem-solving activities provided to ensure children have the opportunity to secure 'deeper' learning - all maths lessons contain an element of reasoning
- Teachers to ensure that their questioning provides opportunities for the pupils to develop their reasoning skills
- Use of Convince Me, Always Sometimes, Never questions (Primary Solutions) to develop reasoning

- All classes deliver a discrete 'Problem Solving'/investigational lesson to teach skills such as 'strategic thinking', 'trial and error' etc. as least fortnightly – using mathematical vipers.
- Think Boards/Working Walls are used to support pupils in class
- Promotion of activities associated with specific learning objectives across all key stages through: NRICH, NCETM, I See Maths, Beam – Talk it Solve it & We Can Do It, Gareth Metcalfe I See Problem Solving and I See Reasoning
- Monitor and support wider curriculum planning to ensure meaningful maths opportunities are created across the curriculum and that mathematical vocabulary is developed through the use of real life contexts.
- All pupils, but especially the more able, are consistently challenged and achieve good progress
- All staff regularly provide opportunities for high achieving pupils to achieve greater depth
- Undertake training such as Gareth Metcalfe online year group training and unpick training and apply knowledge

3. Secure excellent rates of progress and challenge for more able pupils in maths

See above plus ...

- Carefully track data of all children who achieved GDS at the end of KS1 and provide intervention for those not making sufficient progress to date
- At least two MA enrichment workshops for Mathematical challenges throughout the year to extend the more able children
- CPD on specific challenges for more able and clear differentiation; use of open ended questioning as a tool
- Develop the use of projects in maths in which MA pupils can work independently and make choices over recording methods etc.

- Differentiation: Teachers to offer levels of challenge for pupils so that they can choose and challenge themselves, never sticking with consolidation for an easy option.

4) Prompt identification of gaps in performance, especially SEND and disadvantaged children by developing their mastery of 'basic' mathematical concepts and providing focused intervention

High quality first teaching, feedback and block assessment for learning sessions by the class teacher • Daily Maths lessons following updated WRM Scheme of Learning with highlighted key teaching points and recap of essential concepts. • Daily recap of previous learning through WRM Flashback 4, Deepening Understanding Morning Work, Third Space Learning Fluent in 5, TTRS, etc. to aid fluency of key number facts and practice of appropriate vocabulary • Use of WRM True or False questions to aid AfL and clarify common misconceptions. • Teacher to develop and use stem sentences and generalisations to aid pupils' short term memory and help make connections. • Use Knowledge Organisers (Maths resources folder) to promote memory retention of key facts and vocabulary via games and quizzes.

Ensure that models and images are being used effectively by staff to illustrate concepts relating to number in particular –use the manipulatives to visual to abstract progression route

- Consistent use of representations, e.g. tens frames, number squares, number lines, part whole models to enable pupils to visualise concepts to develop conceptual understanding.
- Use daily AfL through questioning or quizzes etc., e.g. to identify misconceptions and carry out same day interventions, referring to NCETM Mastery material and DfE Maths Non-Statutory guidance.
- Develop KS1 pupils' fluency in relation to basic number facts +, -, x and efficient methods of calculation through the use of Numbots
- Teachers to display and use modelling and worked examples of calculations to support children in moving learning forward in maths and aid their reasoning and understanding of concepts
- Embed the following: same-day interventions; increased problem solving; Fix-it, Reinforce, Challenge marking; Early Morning Maths; Distribute calculation support leaflets/videos for parents and carers

- Track progress and attainment closely each term and implement timely intervention groups for children not achieving age related expectations or not making sufficient progress based on rigorous data analysis and discussion of individual needs (use pre-teaching /– NGfL Support programme / Rapid Maths / Hamilton Trust Maths Support Activities / Deepening Understanding Arithmetic Intervention)

5) Ensure that children learn and retain times tables by heart and develop knowledge and speed recall of the four operations and number facts throughout school not just in Y3 and Y4

Children to learn times tables by heart through regular, dedicated practice in school – embed the spirit of self-challenge

- In preparation for the multiplication assessment, provide further interactive resources that children can use to practise these skills at home i.e. multiplication tables apps, useful websites sent home for parents/carers, links to maths websites on website class pages, Rockstars
- Calculation workshop for parents- includes how to support with times tables
- Morning maths activities are routine across the whole school, focusing primarily on number facts and the four operations
 - Improved confidence in securing times tables and corresponding division facts.
 - All children are reciting their relevant times tables by heart by end of the academic year, with Y4 pupils secure with all facts up to 12x12 Pupils can confidently and accurately apply their knowledge of multiplication facts

6) To further enhance skills of Assistant teachers in delivering small group interventions (Rapid Maths / Hamilton Trust) so that pupil progress is accelerated

Ensure that interventions are closely linked to whole class teaching as well as narrowing the gap in regards to basic skills – ATs to work closely with class teacher re: planning, assessment and target setting

- Underperforming Groups - ATs to use tracking data with class teacher to identify pupils who need narrowing the gap interventions in maths and ensure interventions are well targeted to meet pupils' needs
- Deliver Rapid Maths / Hamilton Trust Intervention sessions across all year groups.

Costs/budget:

Monitoring/evaluation of the above:

Monitoring will be part of the improvement journey.

- Usual procedures: snack and chat, learning walks, lesson observations, book chats, pupil interviews, conversations with staff, analysis of assessment data, progress meetings, case studies etc.
- Link governors to visit school and produce termly reports to be shared with the whole governing body (e.g. raising aspirations and Data). Governors to remain a 'critical friend' offering insightful challenge to all staff members whilst celebrating achievements.
- Self-monitoring and peer-monitoring.
- Parent responses.
- Evidence of CPD and the impact it has on teaching and learning for all staff.