Maths Mastery
Fluency, Reasoning, Problem-Solving

Strategic question: How can we ensure a mastery approach is intrinsic to the teaching and learning of maths across the school?

Rationale and Evidence: Maths Mastery approach has been shown to improve outcomes for all pupils and enable them to progress and become confident and competent mathematicians. We want to raise the profile of maths across the school and allow children to become better problem solvers so they are able to approach their learning more independently. Children need to understand the importance of using reasoning skills to tackle challenges and enjoy maths as a meaningful subject. This will be achieved by equipping staff with the skills to deliver a subject so crucial for the future.

Research:

Barton, Craig., *How I Wish I'd Taught Maths: Lessons learned from research, conversations with experts, and 12 years of mistakes*, (2018)
Willingham, D. T., *Why Don't Students Like School?: A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for the Classroom*, (2010)
Barton, C., https://variationtheory.com/
Third Space Learning, https://thirdspacelearning.com/blog/why-follow-mastery-maths-ks1-ks2-6-benefits/
Third Space Learning, https://thirdspacelearning.com/blog/every-school-leader-know-mastery-mixed-ability-maths-class/
Whitburn, J., Effective Classroom Organisation in Primary Schools: Mathematics (Updated), (2001)
Didau, D., https://learningspy.co.uk/learning/why-mastery-learning-may-prove-to-be-a-bad-idea-2/
Education Endowment Foundation, https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/mastery-learning

SLT Lead: Jack Curry, Danny Holliday

Strategic aim	Key tasks	Lead Person/ People	Accountabilities, timescales and measureable milestones						Desired impact	Evidence (Process, Product, Outcomes)
			T1	T2	T3	T4	T5	T6		
MM1. To develop a whole school vision with regards to the teaching of	a. PDM to clarify the maths vision and how it links to our values and context b. PDMs to further develop understanding of the 5 big ideas c. On-going CPD and coaching for all staff and mastery specialist	JC, JR JC, JR DH, JC, JR	a. 10.18 b. 12.18	c. →	→	→	→	→	a -Teaching staff will begin to feel confident using the mastery approach b,c,d - Teachers become more knowledgeable through regular CPD	PDM slides White Rose resources PDMs Watching

maths	d. Establish gap tasks to complete between PDMs e. Introduce new non-negotiables for: mastering mastery	JC, JR JC, JR	 e. 10.18	d. 12.18					Teacher subject knowledge improves and staff are more confident to seek support e - CPD is shared more widely Mastery expectations are clear and consistently applied across the school in all maths lessons	demonstration lessons PDMs/research articles Peer observation Planning and slides
MM2. To support staff to develop their skills, knowledge and understanding of the maths mastery approach	a. PDM to set planning expectations with regards to White Rose and resource creation b. PDM to model suggested lesson plan c. Maths Mastery specialist to continue to attend relevant training d. Collaborative planning with maths leads (JC/JR) e. Establish a team of maths masters for extra CPD and peer support, including observations f. Open maths lessons – informal drop-ins for support staff g. Open classroom in 2CW/5JR h. Introduce maths mastery lesson observation proforma i. Model lessons through PDMs j. Provide regular articles and research to support a greater understanding of the approach and its principles	JC, JR JC, JR JC Key teachers JC Maths team JC JC, JR JC, SA, JR JC,JR	 c. → e. 10.18 j. →	a.11.18 b.11.18 f. → g.11.18 h. 11.18	 d. → 	 i. 3.19 	 	 	a, b - Teachers planning slides and resources are consistent with the mastery approach and there is Increased subject knowledge c - Mastery profile is raised, d - Lead maths teachers/support staff disseminate good practice to their teams	PDM slides White Rose Resources Planning, slides and resources Model lesson slides Learning Walks Evidence in books Small data Regular training Model lessons Support with planning
MM3. To embed the fluency of integral maths skills to enable the further development of a reasoning approach	a. Language: teachers to plan stem sentences within lessons, use accurate maths vocabulary and the vocabulary of reasoning b. Identify the appropriate manipulatives for use across the school c. Update maths resources as necessary to meet the plan d. Develop a clear implementation plan of a range of pictorial representations e. Continue to implement and embed the use of reasoning stickers f. Develop pre-teaching groups for key children across each phase g. Review calculation policy to compliment the mastery approach	All staff JC, JR JC, JR JC, JR All staff Key staff JC, JR Maths mastery	a.10.18 a.10.18 c. 10.18 e. → 	 f.11.18 	 	 d. 3.18 	 g. 5.18	 	a - Teachers will use the key mastery vocabulary. Children will begin to use the same terminology b - Children will be able to use manipulatives to work independently c – All year groups will be provided with appropriate resources d - Book looks will reflect the pictorial recording of maths e - Teachers will use reasoning stickers to challenge children f – Pre-teaching groups will ensure all children make appropriate progress and are	Key banks of vocabulary Classroom environment Books Observation Book looks TA training Calculation Policy

		team							able to access whole class teaching g - Calculations policy will reflect the progression of methods across the school	
MM4. To ensure all children make good to outstanding progress in maths thus raising overall attainment	a. Analysis of KS2 SATs papers to identify gaps in reasoning questions b. Introduce regular low stakes quizzes c. Review weekly time tables to ensure adequate maths coverage d. Create maths assessment grids for books by year groups with assessment statements related to reasoning, problem solving and application of skills specifically highlighted (trialling in LKS2) e. Careful monitoring of children's progress towards achieving 'reasoning' statements f. Monitor "high potential" mathematicians to ensure their good progress g. Careful monitoring of SEND, EAL children's progress towards reasoning statements h. Establish Pre-teaching groups (see SEND core priority and MM3)	JC/DH/LW/JR Teachers SLT DH, JR, JC SLT SLT FH, BT, FH, BT, JC,JR	b.10.18 c.10.18 e. →	a. →					a - Analysis will inform planning b - Quizzes will provide information to close gaps c - Timetables will ensure adequate time is given over to maths mastery approach d - Regular assessment will ensure gaps do not widen and there is evidence to support reasoning statements e - Children will be able to apply their skills in a variety of ways f - High achieving pupils will be identified across the school. Additional provision will enable them to excel g - All children will become confident at reasoning tasks h - SEN, EAL children will be able to access all reasoning and problem solving tasks with support i - Pre-teaching groups (see SEND core priority)	Hand outs/ resources Timetables, monitoring Assessment grids Monitoring Small data Small data Interventions Pupil voice Data Reports