Arbour Academy

Part of KINGS ACADEMY TRUST

Maths Policy

Belonging – Engaging – Compassion – Learning

ARBOUR ACADEMY MISSION STATEMENT

"Caring for young people and their families, providing them with opportunities to learn and flourish.".

Policy developed by:	C Panini
Policy to be reviewed:	
Summary of changes	

Maths Policy – Rationale

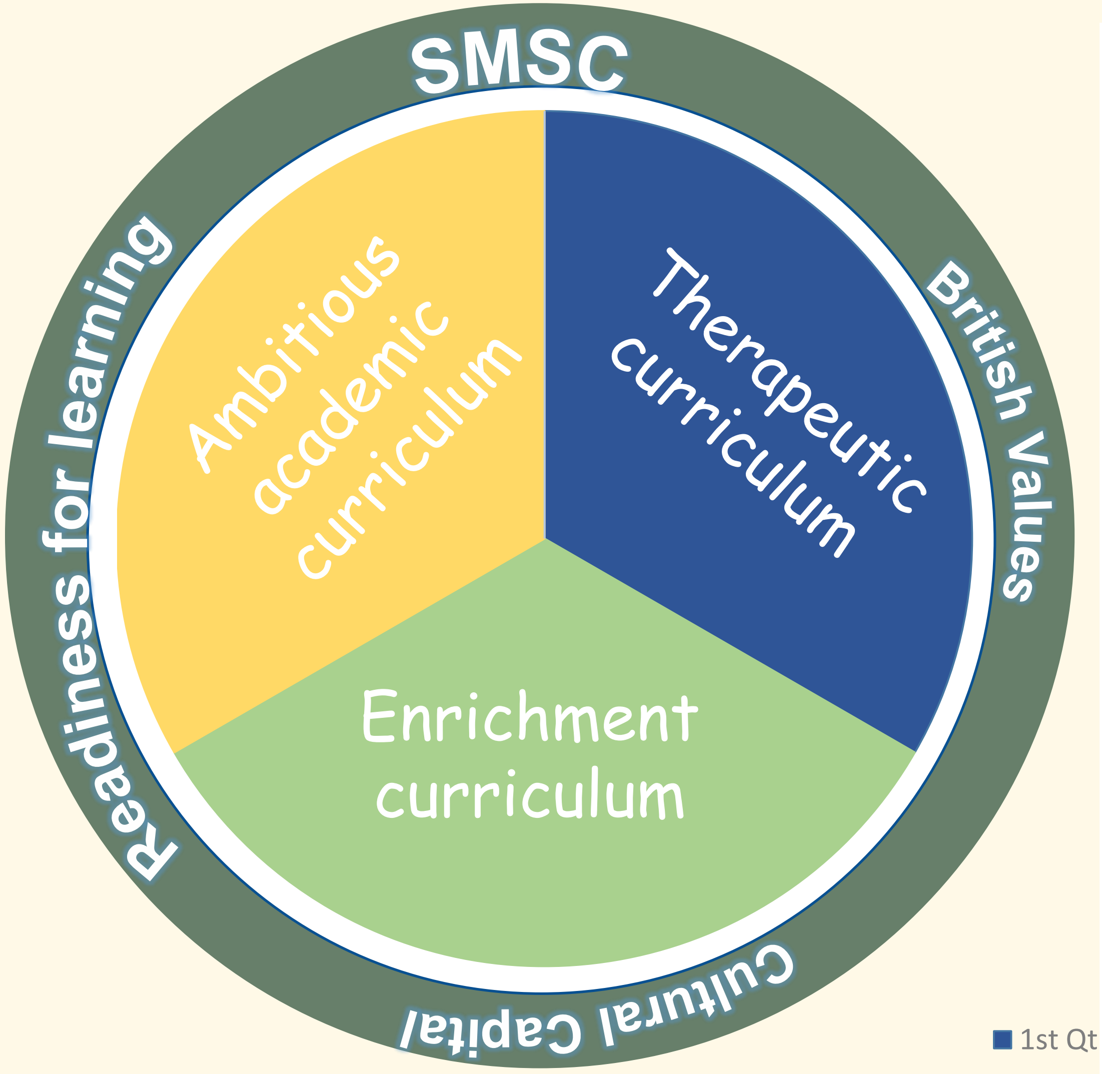
The rationale of this Maths policy is to:

- introduce the key aims and objectives of the Maths department.
- to explain the curriculum design and coverage.
- to explain the effective Teaching and Learning strategies involved in Maths

Maths Policy - Vision (Why)

- To be mathematically proficient individuals.
- To be fluent in basic numerical techniques.
- To be confident in applying their mathematical knowledge to real life scenarios.
- To see how the study of Mathematics can be a useful tool for future success.

Main aims of the Arbour curriculum



Provide an **ambitious academic curriculum** so that students can access a wide range of qualifications and vocational options that can support and impact on their further education and their employability.

To provide wide-ranging out of school opportunities to offer our students the best understanding of how to be successful in 21st Century Britain. At Arbour Academy we explore and develop all opportunities that allow pupils to experience activities beyond the classroom in line with their more socially advantaged peers

We offer a therapeutic curriculum to support our students' holistic development, fostering emotional well-being alongside academic progress. By integrating therapeutic approaches into our curriculum, we create a nurturing environment where students can thrive socially, emotionally, and academically.

To ensure that our students are in the best position to be ready to access and participate in their academic lessons. To develop our student's **cultural capital**, for us this is providing students with the opportunities to experience people, places and things that contribute towards the essential knowledge that pupils need in order to be educated citizens. To promote pupil's physical health and personal development which includes the spiritual, moral, cultural, mental development of pupils at the school to prepare our students for the opportunities, responsibilities and experiences of later life

Curriculum Intent

The intent for the Maths curriculum is laid out in the Curriculum framework and progression mapping documents. These are the things that we intend our students will study over their time at Arbour. The progression mapping documents detail the steps of progress that we want our children to achieve.

- The starting points for our students is varied, even within classes. It is difficult to define the educational end points. We have structured the curriculum in a way to allow us to teach as close to age related expectations as possible, while tracking backwards and forwards as needed.
- Planning a coherent curriculum; everything is taught for a reason and will facilitate both the current and a future topic. It is based on the principles of mastery including fewer topics in greater depth in order to develop proficiency with core content.
- Ensuring that the curriculum documents the facts, concepts, methods and strategies that make up the planned curriculum. These are curated and developed using academic research and best practice.
- Planning the curriculum in order to make connections within and between the maths. This creates opportunities to link concepts, structures and so support fluency and deepen conceptual understanding; and
- Providing opportunities to promote mathematical thinking and develop mathematical habits of mind are explicitly build into the curriculum to develop problem solving strategies

Curriculum Organisation

- **National Curriculum** - Arbour Academy follows the National Curriculum as set out by the government from Key Stages 2, 3 and 4. This is due to the needs of the pupils and due to the fact that the pupils have missed significant learning throughout their lives the curriculum is adapted to meet their academic ability rather than their chronological age. The curriculum has been carefully structured to build in opportunities for consolidation and repetition of key learning.
- **Lessons per week** – All students are timetabled for 5 Maths lessons a week of 45 minutes each. However, some students may be on a bespoke timetable or accessing therapeutic or alternative provision which means they do not access all the scheduled lessons. Ideally this is for a short time and students will be encouraged to keep up or do more independent study where appropriate.
- **Scheme & Coverage** – We use the White Rose Maths scheme as a basis for our teaching, so we have a consistency in the Maths department. The curriculum sequencing ensures concepts are taught in a logical order.

Approach to teaching Maths at Arbour

At Arbour we follow the Whole school approach to Teaching & Learning. These can be seen on the following slide.

- Do it now tasks are used to complete retrieval practice of previously introduced content. We use the flashback four, as advocated in the White Rose Maths scheme, to repeat content regularly and aid pupils to remember in the long term.
- Information is delivered in small steps. This helps pupils keep up, not catch up. Small steps mean that pupils are provided with the building block on which to build their future learning.
- Modelling is a key component of Maths' delivery at Arbour. We use the "I do, we do, you do" approach.
- Teaching is sequenced logically and build in incremental steps at Arbour. Where pupil absence means part of a sequence is missed, teachers help students fill the gaps so that they can still experience success and progression. This is done through retrieval practice and recap, or through use of the TA revising prior or missed content with the student possibly in the intervention lesson.
- In Maths, we aim to address misconceptions as close to the time of them occurring as possible and the teacher/TA intervenes as soon as possible to correct work. Feedback in books will often take the form of a teacher demonstrating where the misconception occurred and how to address this. When a teacher or teaching assistant notices a common misconception across the class, the class will be brought back together for more guided practice.

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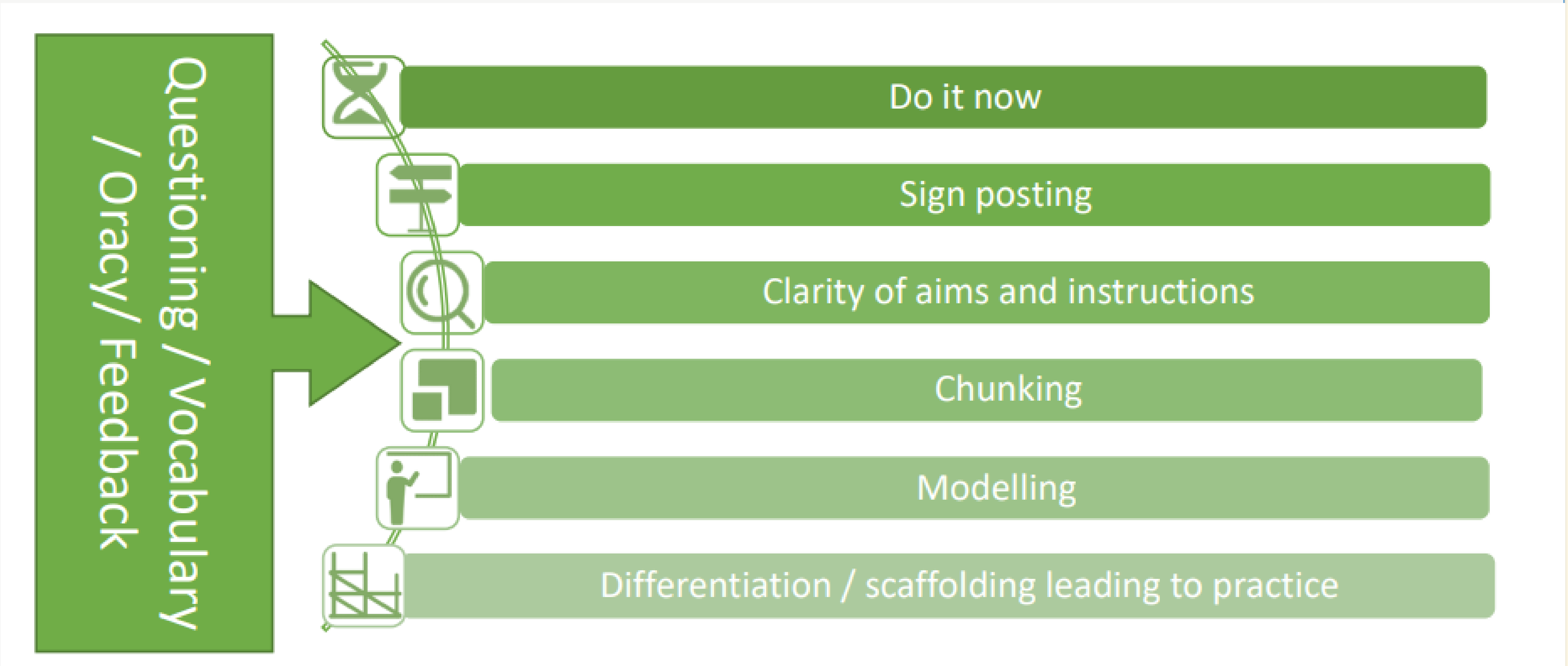

Meeting the needs of all learners

•**Differentiated Instruction**: We implement differentiated instruction strategies to accommodate the diverse learning styles, abilities, and interests of all students. We employ various instructional methods, materials, and assessments to ensure equitable access to learning opportunities. We strive to make all of our teaching adaptive.

•**Scaffolding**: We prioritize the use of scaffolding techniques to provide tailored support and guidance to students as they develop new skills or understanding. We gradually release support to foster independent learning, ensuring that each student progresses at their own pace.

•**Formative Assessment**: We utilize formative assessment practices to gather ongoing feedback on students' learning progress. We employ a variety of assessment tools and techniques to identify areas of strength and areas needing improvement, informing instructional decisions to meet individual student needs.

•**Flexible Grouping**: We promote flexible grouping strategies to address the diverse learning needs, interests, and readiness levels of students. We organize students into different groups and adapt instructional approaches, including whole-group instruction, small-group activities, and individualized interventions, as appropriate.

•**Curriculum Adaptation**: We recognize the importance of curriculum adaptation to meet the diverse needs and abilities of all learners. We modify instructional materials, resources, and learning activities to ensure accessibility and relevance for every student, adjusting the pace, depth, or complexity of the curriculum as needed.

•**Responsive Classroom Management**: We prioritize responsive classroom management practices to foster a supportive and inclusive learning environment. We establish clear expectations, build positive relationships with students, and address behavior challenges proactively to create a safe and conducive space for learning.

Assessment at Arbour

- At Arbour, we assess against the intended curriculum. The assessments are aligned to the taught content.
- We leave a delay between the end of the unit and the administration of the text. We need to assess whether the learning has made a change to long term memory.
- Students' performance allows us to determine whether the pupils are working at the expected level – have the students learned what we expected them to have?

Assessment Type		Frequency
Initial benchmarking exercise	A GL is completed before students start to attend classes	On entry and shared with all staff with verbal feedback in briefing
End of unit tests	Tests based specifically on the work covered during a topic. These are not completed at the immediate finish of the topic so that we can test that long term remembering has been achieved.	Half termly
Pupil assessment	Self assessment sheets for pupils to assess their progress against unit objectives	Ongoing
Low Stake assessments	Ongoing teacher assessment used to direct planning on the outcomes of low stakes testing.	Ongoing
KS4 exams. Year 11 Mocks	Past papers using published mark scheme and grade boundaries	Set as homework. All pupils to complete mocks in Jan of year 11
Data capture	Formal data captured across all strands of the curriculum using formative and summative methods.	Once per half term (+ baselining new students)

Qualification Pathways		
Class	Typical Arbour Entry Point	Qualifications
Year 11	This will depend on when a student arrives at the centre. Information may be gathered from a pupil's former school. The classes will be equally split and are mixed ability.	All students enrolled in year 11 class are entered ideally for the GCSE Maths. This is typically at Foundation level with the expectation that they will achieve a 4 or higher. However, due to various factors such as late enrolment at Arbour and significant knowledge gaps this may not always be immediately achievable, Those students will have a strong basis to go on to achieve this asap after they leave Arbour. Students will also where appropriate be entered for a functional skills qualification, starting at level 1. Some students may not be ready for these options and may sit an entry level qualification Certain students may present with a solid foundational understanding, allowing them to advance to the Higher tier and in this instance they will be pushed to do so. Students may be offered the opportunity to pursue a GCSE in Statistics, typically at Foundation tier. This subject will be integrated into their curriculum during their final year.

The table above indicates the intended outcomes for each Year 11 class. This is based upon pupils' entry points to Arbour. Discretion is applied and students capable of achieving higher level qualifications will always be pushed to do so. Careful consideration will be given to enter pupils for qualifications in their best interests and give them the greatest chance of successful further study or employment.

Cross Curricular Links

- Our whole school curriculum has been designed with collaboration between all subject leads at is core. We want students learning to be joined up and connected where strong links are possible. For us, this will allow our students, many of whom have difficulties with retrieval, the best opportunity to experience content across different specialisms. This repetition and opportunities for retrieval practice will allow for deeper learning.
- We have been provided with the opportunity to familiarize ourselves with the content from different subjects and the plan and build upon any links established.

Subject enhancements

At Arbour, we believe in providing a wide reaching Maths education that goes beyond the classroom. We recognize the value of subject enhancements, such as trips, in-school visits, projects, theme days, and the inclusion of famous mathematicians throughout the curriculum. These enhancements aim to deepen students' understanding of mathematical concepts, foster a love for the subject, and highlight the importance of Mathematics the world around us. By incorporating these activities, we create a holistic learning experience and promote cultural capital among our students.

Trips: Trips offer students the opportunity to witness Mathematical concepts in real-life situations and develop practical skills. The following table highlights the proposed trips and activities by year group and their focus:

Year	Trip	Focus
Year 10/11	Maths inspiration Show	Real life applications, careers in Maths, instilling a sense of awe and wonder and usefulness of Maths
All pupils	Jodrell Bank	Applications of Maths and links to Science
Year 10/11	University enrichment days	To encourage students to consider studying Maths beyond year 11

In-school visits bring experience of experts and external organizations to our students, providing hands-on experiences and developing practical skills whilst encouraging excitement about the world them. The following table showcases the in-school visits and their focus:

Year	Visits	Focus
All years	UKMT Maths challenge	To stretch and challenge suitable students
All years	The School Puzzle Company	Promote a love of problem solving

In School Projects and Celebration days

Year	Project / Celebration Day	Focus
All	MacMillan Coffee Morning	Handing money and giving change.
Numeracy Day	TBC	A day to focus on enrichment activities in Maths
My Money week	Outside agency to deliver financial education	Equipping students with the practicalities of managing money
Loaves and Fishes	Charity xmas shoeboxes	Costing and budgeting

British Values and SMSC

Design

At Arbour the development of SMCS is not only through specific topics in the curriculum but also how we teach and how we conduct ourselves as professionals. The development of critical thinking skills enable students to analyse, evaluate and reflect upon their solutions- encouraging a positive mindset is essential when learning to cope with new mathematical methods and/or difficult problems. We foster a positive approach which supports pupils perseverance when working through Maths problems.

Spiritual Development within Mathematics

By sharing our passion for Mathematics we promote an awareness of the beauty of Maths all around us, for example the symmetry of snowflakes or the stripes of a zebra.
Developing a logical approach and the ability to recall and reason, along with questioning the way in which the world works promotes the spiritual growth of our students. In Maths lessons, students are always encouraged to delve deeper into their understanding of Mathematics and how it relates and can be used to explain aspects of their environment.

Moral Development within Mathematics

The moral development of pupils is evident in much of the curriculum where Maths is used in real life contexts and the students are able to apply the skills required to solve various problems and understand how decisions are made dependent on the outcomes of the problem.
Examples are:

How people manipulate statistics to promote their own (biased) opinions
Comparing the rates of interest on borrowing money where the role of "loan sharks" could be explored and discussed.

Social Development within Mathematics

Students are encouraged to communicate mathematically when discussing, explaining and presenting ideas, through which they are able to develop their mathematical reasoning skills. Pupils learn to work collaboratively to solve a problem.
We also look at Statistics, in particular how the census is used by governments to plan ahead for health, education and social requirements

Cultural Development within Mathematics

Mathematics is the universal language of the world and we aim to develop a realisation that many topics we learn today have travelled across the world and are used internationally.
In certain topics the lives of specific mathematicians will be mentioned such as Newton, Pythagoras and Fibonacci.
Students may learn how different number and measuring systems have evolved eg our imperial and metric measurements.

Mathematics has deep links to music, art and sport. Factors and multiples build rhythm and design percussion. Furthermore ratios mathematically explain pitch and tuning and trigonometric functions describe and illuminate the structure of sound waves.