



Tuition, Medical and Behaviour Support Service

Curriculum Policy Mathematics

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Responsibility:	Charlotte Maclachlan

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Detail of key TMBSS challenges to achievement	
Challenge number	Detail of challenge
1	Students join at any time during the school year and are with us for varying amounts of time. Some will stay with us for only a few months.
2	Students are sometimes taught in groups alongside students from a different key stage.
3	The starting point of each student differs, due to the transient nature of the student cohort and their differing prior knowledge.
4	Students start with a negative view of education as many students have been permanently excluded from at least one other educational setting or they have had difficulty accessing mainstream education.
5	Many students have significant learning gaps as they have a history of poor attendance and engagement with education. These pupils need to engage at a much earlier stage of development alongside a trusted adult.
6	Absence from education means that classroom routines such as remaining seated in a classroom, waiting to leave the lesson until agreed breaks, focusing on the lesson without external distractions have been lost.
7	Many students have undiagnosed SEN. They often present with challenging work avoidant behaviour until their barriers to learning can be diagnosed and they are supported to re access education.
8	Social communication skills are dependent upon trust for the adults and the relationship. Many students will only share their work, have a reciprocal conversation when they feel safe. On first joining TMBSS many pupils are angry and rejecting of others, hypervigilant and fearful to engage.
9	When dysregulated many students expressive and receptive language becomes limited, and they resort to basic offensive descriptors and gestures to destroy the learning environment.
10	Before being available for learning, some students need their biological and physiological needs such as food, drink, warmth, and even sleep to be met.
11	Many students have experienced multiple ACE's which leads them to be at a significant risk of impairments across various cognitive functions, memory, attention and language/verbal ability; poorer academic performance and social outcomes.
12	When first joining TMBSS some students are in a crisis situation, due to issues such as their own or parental mental ill-health, exploitation, addiction problems or domestic violence within the home. These students are often unable to access their education until they have built trusted relationships within a safe environment, and they can be signposted to outside agencies to receive support.

Implementations to address challenges in Maths		
TMBSS Curriculum implementation	Evidence that supports this approach	Challenge number(s) addressed
<p>All maths staff have participated in an in-house INSET to increase awareness of strategies to improve reading, speaking & listening and vocabulary in maths.</p> <p>Reading Profiles have been rolled out to all centres and Maths staff use this information to plan appropriate and accessible material for pupils.</p>	<p>Many arrive with reading ages lower than chronological and have limited engagement with reading.</p> <p>The service is determined that every pupil will learn to read, regardless of their background, needs or abilities.</p> <p>Students are able to read to an age-appropriate level and fluency (if not, they will be incapable of accessing the rest of the curriculum, and they will fall rapidly behind their peers</p>	1,2,3,5,7,11
<p>Due to the learning gaps that many of our pupils arrive with and the fact that we teach both mixed and vertical ability classes we have adapted our KS3 scheme of work to adapt to these differences. There is one scheme of work that works on a 3-year rolling program which starts at the point the pupil is at and encourages challenge throughout the course. These fill the gaps of prior learning whilst also incorporating the KS3 National Curriculum Programme of Study.</p> <p>The majority of our KS4 pupils follow a two-year course and to accommodate pupils that arrive in the service in Y11, potentially having missed large gaps in their KS4 learning, an appropriate 1 year scheme of work has been developed.</p> <p>All subject specific planning follows a formulaic sequence of learning with KS3 including a cyclical pathway to adapt to the changing student cohort.</p>	<p>Students are able to access the most important knowledge or concepts that they need to know and focus on these.</p> <p>In KS3 we have '8 themes' which are visited twice a year to support recall of information.</p> <p>In KS4 pupils may be encouraged to take a qualification in Year 10, and to progress to a higher award in Year 11 to help confidence in the subject and consolidation of work.</p>	1,2,3,5,11

TMBSS Curriculum implementation	Evidence that supports this approach	Challenge number(s) addressed
<p>Baseline assessment places a pupil on a 'band' in KS3 and an appropriate GCSE pathway in KS4 for tracking purposes. The scheme of work is primarily decided from baseline assessment, but at times it is also appropriate to consider teacher assessment and previous school input.</p> <p>If age SS is ≤ 90 then staff fill in a 'baseline cover sheet' to highlight areas that need focusing on in intervention. Pupils gets placed on focused intervention.</p>	<p>Delays and gaps in learning that have arisen can be identified and then appropriate focused targeted interventions put in place, led by the class teacher but also supported by support staff using a range of activities including the Concrete, Pictorial, Abstract approach.</p> <p>Leaders identify, assess and plan how to meet the needs of students, including pupils with SEND when they first begin to attend the service</p>	1,2,3,5,7,11
<p>Information on students prior educational achievements is gained from their previous educational provision.</p>	<p>Teaching is sequenced so that new knowledge and skills build on what has been taught before and pupils can work towards clearly defined end points.</p>	1,2,3,5,
<p>Maths lessons provide a sequence of lessons that builds mathematical understanding, improves fluency, builds problem solving capacity and develops mathematical reasoning, making connections between subjects and improving knowledge acquisition and retention.</p>	<p>All students make progress, in that they know more, remember more and are able to do more.</p> <p>They are learning what is intended in the curriculum and subject content is broken down into appropriately sized steps and sequenced to build towards those end points</p>	1,2,3,4,5,6,7

TMBSS Curriculum implementation	Evidence that supports this approach	Challenge number(s) addressed
<p>Enrichment activities are considered essential to academic success and social and emotional development and are given high priority.</p> <p>Within the 'Maths' area there is access to mathematical ideas linked to enrichment that is on offer across the service:</p> <ul style="list-style-type: none"> • Citizenship • Cooking • Cycling & Running • Gardening • Sports Activities • Outdoor Education • History <p>Within the subject itself we support enrichment via problem solving lessons, mathematical reasoning, SMSC and links to any external Mathematical opportunities which become available.</p>	<p>Students gain the knowledge they need to take advantage of opportunities, responsibilities and experiences in later life equipping students with the knowledge and cultural capital they need to succeed in life in real-life scenarios.</p>	<p>4,5,6,7,8,10,11,12</p>
<p>Students are transitioning between educational placements so the need for continuity is considered when sequencing the curriculum.</p>	<p>The curriculum supports readiness for the next phase of education, training or employment so that pupils are equipped to make the transition successfully, including, for secondary schools, through careers information education, advice and guidance</p>	<p>1,2,3,5</p>
<p>Problem Solving and Mathematical reasoning is embedded into learning to allow students to engage with peers appropriately in varied forms and contexts, modelled extensively by supportive adults.</p>	<p>Activities are planned to expose students to new ideas, provide opportunities to explore new interests and promote positive relationships within problem solving tasks which encourage group work skills.</p>	<p>4,5,6,7,8,9,10,11,12</p>

TMBSS Curriculum implementation	Evidence that supports this approach	Challenge number(s) addressed
Alternative provisions are widely used to enhance the curriculum of many students, by promoting social and emotional wellbeing, re-engaging them to improve attendance and providing them with experiences that promote access to suitable post 16 destinations, including Maths teaching & activities.	Students are being prepared for their next stage of education, training or employment at each stage of their learning, including relevant Maths skills to support qualifications taken.	4,5,6,7,8,9,10,11,12

Once in the TMBSS a student will be on a personal program. This program will however follow an appropriate scheme of work. Baseline assessment places a student on a 'band' in KS3 and an appropriate GCSE pathway in KS4 for tracking purposes. The scheme of work is primarily decided from baseline assessment, but at times it is also appropriate to consider teacher assessment and previous school input. Where students come to us unable to access the formal curriculum they are engaged in a series of 'pre-formal curriculum' activities that are recorded in line with the National Curriculum and enable them to move towards our formal curriculum when appropriate.

Schemes of work can be accessed in the 'Maths Area' under 'All Schemes of work'. Each scheme has links to appropriate teacher manuals where more detailed lesson plans along with common misconceptions can be found. There are also links to problem solving tasks and termly assessments. Literacy and cross-curricular links are added to this on a regular basis.

Tracking data is input once a term into '4matrix' for analysis. There is a termly assessment for Y10-11 provided by the Maths co-ordinator. Evidence from this along with teacher assessment using bookwork and ITP's inform the termly data given. ITP's can inform teacher assessment by observing which colour code has the most 'loa's' defined by a '✓'.

For KS3 AWL termly data is based upon learning accessed from the KS3 scheme of work. This will be evidenced by either 'Teacher Assessment' or 'Assessment tasks' on a termly basis. Numeracy Ninja tests or other appropriate numeracy activities are also embedded in the scheme of work. From the AWL input the Maths co-ordinator is able to see if a student is maintaining their band.

Students that fall below expected progress from termly data analysis two terms in a row are followed up by the Maths co-ordinator using a 'case study' pro-forma if appropriate. This is filled in by the Centre Manager and class teacher. The Maths co-ordinator is then expected to overview progress for this student from Termly Analysis and Intervention data (see Appendix 1).

The Maths Intervention Policy outlines expectations in Maths for all students that have been identified as requiring intervention. The link to this document can be found [here](#). A Maths profile has been developed, and is now accessible across all Centres, for students with an age standardised score <85 requiring intervention to enable staff across the curriculum to support specific learning gaps in Maths.

From the Spring term in Y11 students are encouraged to complete a weekly past paper. This is done in both timed conditions and with teacher support with encouragement to complete at home. Students are given time to address errors individually and common errors are always addressed as a class.

There is a half-termly departmental meeting and Book/Work Scrutiny's take place termly. In addition to this staff attend either an 'in-house' or external CPD over the year.

The Maths co-ordinator takes part in some lesson observations to assess the quality of teaching within the department. Due to the locations of our teaching sites this is not always possible. In these instances, the Maths co-ordinator has access to the written lesson observations conducted by the appropriate member of the SLT as part of the staff appraisal procedure.

Sharing of ideas and resources within the department is strongly encouraged as is teaching the 'why's' and the 'how's'. Due to our unique situation in the Service with all departments being geographically isolated. The Maths co-ordinator has set up a platform called 'Mathstime'. This is available to view at any time and is an area where resources can be shared. It also acts as a direct point of contact to the Maths co-ordinator for all staff.

Aims

To foster an interest and enjoyment of mathematics and its use in the day to day world in which we live. This includes integrating SMSC and British Values whenever possible. A platform across the Service is available to record this and staff are strongly encouraged to use it.

Confidence with mathematics supports students in numerous ways with living in modern society. Students need mathematical skills in order to successfully manage their everyday lives, e.g. shopping, budgeting and money management. Mathematical skills are important across the curriculum e.g. problem solving, data handling, time management, use of maps and charts, measuring and design. A growth mindset approach is encouraged within the department and many students enjoy mathematics and achieve well. Maths is a core skill, essential for access to employment opportunities and further education. Students may also have the opportunity to continue a personal interest in mathematics through Sixth Form and F.E. College courses.

Objectives

Across both Key Stages it is expected that students study the following assessment objectives:

- Use and apply standard techniques
become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that students develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason, interpret and communicate mathematically
reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Solve problems within mathematics and in other contexts
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.

Methodology

The work needs to reflect the transient nature of the student cohort. Their special educational needs, behavioural and medical needs, and the varied lengths of time over which tuition is provided.

Students entering TMBSS will undergo a baseline assessment to establish where they are academically in comparison to other students of their age nationally and highlight where they have experienced an interruption in their maths education. The baseline assessment is the 'Access Maths Test' by Hodder Education.

Particular learning needs will be taken into account, as will learning deficits caused by absence from education.

Students will be advised of appropriate examination opportunities and encouraged to work towards awards which will reflect their age and ability.

Students are given the opportunity to study:

- Using and applying mathematics
- Number and algebra
- Geometry and measure
- Statistics and Probability
- Ratio, Proportion and Rates of change

Since September 2015 GCSE students have been working from the new GCSE specification. Our department is following the AQA specification accredited by Ofqual.

Students will follow individual programmes of study dependent on their needs, gaps in knowledge and the time available

Planning

Planning will be determined by the initial base-line tests and student progress during placement with TMBSS. In this respect, arrangements are quite flexible and groups may change according to personal and social issues, progress and prior learning within the topic. Historical factors often result in significant gaps in student's learning; therefore, some students will work on an individual programme designed to revise and reinforce previous learning, whilst others will work in groups to cover gaps in learning, and all students will work towards examination at an appropriate level.

Key Stage 3

Due to the learning gaps that many of our students arrive with and the fact that we teach both mixed and vertical ability classes we have recently adapted our KS3 scheme of work to adapt to these differences whilst also getting the best out of each individual student. Each student has a 'band' from baseline assessment, but the new scheme allows movement between bands on a topic-by-topic basis. There is one scheme of work that works on a 3-year rolling program which starts at the point the student is at and encourages challenge throughout the course. These fill the gaps of prior learning whilst also incorporating the KS3 National Curriculum Programme of Study. This has been uploaded to the shared 'Maths' area under 'All Schemes of work'.

Although content changes in the GCSE in September 2015 were significant, we have now moved back to a 3-year KS3 SOW to ensure all students are GCSE learning ready in Year 10.

At KS3 it is expected that students will move on to full-time education, usually in a mainstream setting. The programmes of study will enable students to access the new National Curriculum at the appropriate level and in line with mainstream education.

Key Stage 4

At KS4 the majority of students will follow the AQA specification for the GCSE Mathematics specification 8300. If a student is unable to access these qualifications then they will be entered for the AQA Entry Level exam. This can also be used as a stepping stone in Year 10 with a view to working towards a GCSE in Year 11. In some cases it is also appropriate for a student to have work completed entered for AQA Unit Awards so that a portfolio of achieved Mathematical skills is built up for them.

The majority of our KS4 students follow a two-year course and to accommodate students that arrive in the Service in Y11, potentially having missed large gaps in their KS4 learning, an appropriate 1-year scheme of work has been developed.

The Maths co-ordinator also tracks all Year 11 PLP students to ensure all are appropriately entered for exams.

Planning will be consistent with the National Curriculum framework at KS3 and KS4, and may be designed to link to the student's school programme when the student is likely to return to school.

Schemes of work at various levels are available from the Maths Co-ordinator and Education Centres and are also available on the shared 'Maths' area under 'All Schemes of work'.

Assessment

At KS3 all students will be following a 3-year rolling scheme of work. This will incorporate, but is not exclusive to, the bands 'Working towards', 'Emerging', 'Developing', 'Secure' or 'Mastered' depending on their baseline assessment.

'Working Towards' are students that are well below average measured nationally against students of their own age. 'Emerging' students are in the lower average range measured nationally against students of their own age. 'Developing' & 'Secure' students are in the average/age appropriate range measured nationally against students of their own age and 'Mastered' students are well above average measured nationally against students of their own age.

Students are assessed termly on their numeracy skills within these schemes. This follows the 'Numeracy Ninja' framework and works towards ensuring all students are able to access all GCSE content when they start the GCSE course.

In KS4 Students will be advised as to the most appropriate level of award according to individual ability. Students will have access to Entry Level, AQA Unit Awards and/or GCSE qualifications at either Foundation or Higher Tier level. This will be assessed from both their initial baseline, school information and teacher assessment. Students may be encouraged to take a qualification in Year 10, and to progress to a higher award in Year 11. Assessment has followed the AQA specification for GCSE from September 2015 and AQA Entry Level from September 2018. Where appropriate students will be entered for AQA Unit Awards to build a portfolio of work.

Where students are identified as Gifted and Talented we ensure that they have access to specialist teaching, opportunities to attend external Maths days as these become available along with full access to the legacy materials from the Further Maths Support program.

Marking

We follow the TMBSS marking policy and this is scrutinised termly in departmental moderation meetings. A recent addition to this has been 'PS' to highlight where students are accessing problem solving work.

Resources

Key Stage 3

Students have access to core texts for all levels including a new for KS3 updated version of Collins 'Maths Frameworking', 'Maths Connect' Series, 'Mathswise' and ICT packages. All KS3 students also have access to a program of AO2 and AO3 tasks. For students whose ability is lower than KS3 there is cross-phase support from the KS1/2 Maths co-ordinator alongside a 'working towards' scheme of work. All materials can be accessed via links on the schemes of work.

Key Stage 4

Students have access to all KS3 resources as well as the AQA recommended texts for GCSE. Entry level candidates have access to a large number of resources provided by AQA. Both GCSE and Entry Level materials can be accessed via links on the schemes of work. All KS4 students have access to ICT packages available and AO1,AO2 and AO3 tasks.

Maths equipment is readily available to all students, and students have access to computers as needed.

ICT Packages

All staff are familiar with the e-safety policy and ensure that E-Safety is reinforced, when appropriate, in all teaching of Mathematics.

- 'MyMaths'
- 'Mathsbox'
- 'GoTeachMaths'
- TES KS3/4 Mathematics Resources
- '10ticks' KS1/2/3/4 Resources

AO2/3 TASKS

- Problem Solving Folder in 'Maths' area
- Practical Maths Investigations
- Nuffield Foundation tasks
- Further Maths Support Programme- Problem Solving booklets
- Bowland Maths Projects
- CAME tasks
- ATM 'Maths Snacks' videos

In order to provide opportunities for pupils to learn functional problem-solving skills and apply their mathematical knowledge staff provide **all and not just some** pupils with a rich range of resources that help them apply their numerical, algebraic and geometrical knowledge in various contexts and situations. These can be accessed from the shared 'Maths' area and links are also embedded into schemes of work.

Literacy in the curriculum

All maths staff have participated in an in-house INSET to increase awareness of strategies to improve reading, speaking & listening and vocabulary in maths. All students have access to a mathematical dictionary during lessons. In the shared 'Maths' area under 'Literacy in Maths' the following is available:

- Guided Reads
- Taboo
- Hangman
- Top Trumps
- Maths Pictionary
- Mathematical word searches
- Recommended Reading list
- 'Reading' CPD incorporating 'Reading', 'Vocabulary' and 'Speaking & Listening' in Maths

- Resources related to 'predict/clarify/question/summarise' reading strategies

We are working towards embedding these strategies in lessons as well as using some as a starter or plenary to lessons. Reading Profiles have been rolled out to all Centres and Maths staff use this information to plan appropriate and accessible material for students. The Maths Co-ordinator hyperlinks literacy resources into all schemes of work.

Numeracy across the curriculum

We are all teachers of numeracy. All staff have a responsibility to promote the development of effective numeracy skills and an understanding and appreciation of the importance of numeracy.

Our aim is to ensure that students receive positive messages about numeracy when used across the curriculum.

Strategies (Teachers of subjects other than Mathematics)

- Ensure teachers are familiar with mathematical language, notation, conventions and techniques relating to their own subject, and encourage students to use these correctly.
- Give other subject leads access to 'MyMaths' to ensure consistency in teaching of traditional 'maths topics' across the board.

Staff within the Maths department also teach a wide range of other subject areas. Within TMBSS, therefore, this also helps to ensure a consistent approach to the teaching of numerical skills across the curriculum. The Maths co-ordinator has put a wide range of subject specific numeracy resources in the Maths area on the teacher shared server for all staff to access along with 'Numeracy Display Mats' available in each class focusing on key essential numeracy skills.

The department uses 'Numeracy Ninjas' or other appropriate numeracy activities across the Service and it is now integrated in our Intervention programs and KS3 scheme of work. Research provided by 'Numeracy Ninja's' backs up the positive impact that we have seen with our own students. This programme has been developed to specifically target key numeracy skills that then enable students to access the wider content of the GCSE specification.

Enrichment

Within the 'Maths' area there is access to mathematical ideas linked to enrichment that is on offer across the Service:

- Citizenship
- Cooking
- Cycling & Running
- Gardening
- Sports Activities
- Outdoor Education
- History

Within the subject itself we support enrichment via problem solving lessons, mathematical reasoning, SMSC and links to any external Mathematical opportunities which become available.

Remote Learning

Due to the exceptional circumstances that we found ourselves in starting March 2020 we have had to adapt our teaching and learning to incorporate remote learning when needed. As a department we ensure that we continue to follow a student's scheme of work in a combination of the following ways:

- Tasks set on MyMaths
- Weekly packs of work sent out with envelopes provided for return
- Past Papers provided for Y11 students
- Teams lessons if appropriate

Appendix 1

'Below Expected' Termly Analysis Flowchart:

