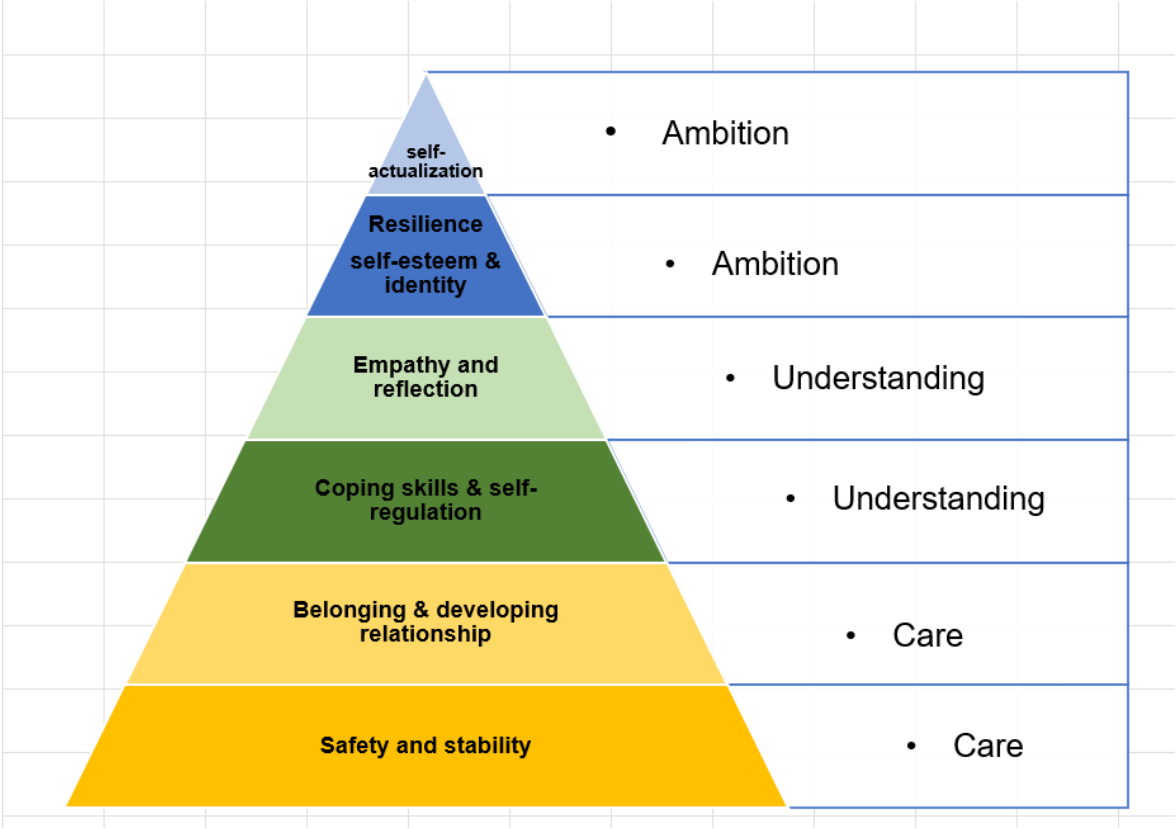
Maths at Stone Lodge

Pupils are assessed against our PON in this subject. Alongside rigorous academic assessments, this supports learning and professional dialogue on how to further support accessing this subject for the pupil. Where pupils are identified as at the bottom of the PON triangle, it may mean that intervention is not necessarily needed for closing the gap but may be needed to support self-esteem and to build confidence to engage with the subject again.



Maths at Stone Lodge Therapeutic School

Mastering maths means pupils of all ages acquiring a deep, long-term, secure and adaptable understanding of the subject. The mastery pedagogy works on the premise that great teaching, based on formative assessment, particularly great questioning, is key to all pupils meeting expectations. Precise assessment, teaching to closes gaps in learning and thinking about ability differently are all part of the mastery pedagogy. With this approach progression is more focused on understanding and developing greater depth in the national curriculum than on mere progression to the next set of content. Learning is deep learning that sticks and can be recalled over time.

Following this approach allows students to focus on securing their understanding of mathematical concepts and therefore develop confidence in their mathematical abilities whist ensuring individual progress is

continually made. We follow the White Rose Maths curriculum at Stone Lodge school which promotes the following aspects of a Mastery pedagogy

It is our aim to teach all students to become fluent in the fundamentals of mathematics so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Application of mathematical knowledge to routine and non-routine problems will be regularly included in lesson content to improve student problem solving skills.

It is our intention to continually promote the use of numerical skills and development of a deeper mathematical understanding in all Maths lessons. The national curriculum will covered during lessons including

- Number
- Algebra
- Ratio, proportion and rates of change
- Geometry and measure
- Probability
- Statistics

Lesson structure

We structure lessons to promote the Rosenshine pedagogy and to support the cognitive load of our pupils. All lessons follow a set structure

Connect	Explain	Example	Attempt	Apply	Challenge
Activate prior learning	Instruct vocabulary Explain core concepts	High-quality modelling Explicit direct instruction (My turn)	Guided practice Gradually reduce scaffold (Our turn)	Independent practice Application of new concept (Your turn)	Deepen understanding Sophisticate thinking

A lack of resilience due to repeated failure is often a barrier to many students learning and encouragement will be given to students to rebuild resilience thought success. This will often be achieved by building confidence and improving depth of understanding of basic mathematical concepts at a lower level before progressing to more complex content.

Students are expected to attempt written work within lessons. However a variety of activities will be provided which may include the following options: Computer work using maths software, maths activity games, mental arithmetic tasks, maths puzzles and resources/sheets.

At the end of KS3	At the end of KS4	Post 16
Learners will have completed their Entry Level Maths qualification. This sets them up for further KS4 study.	Learners will have completed their GCSE qualification. Throughout lessons much of the content of the functional skills level 1 and 2 qualification is covered. A decision is made on an individual	Learners will have the skills to complete further study or work post 16. They will hopefully have developed an interest in Maths and will have developed problem

	basis to enter able pupil to sit the functional skill exams when they are ready. This allows pupils to gain experience of exam condition and helps to encourage them to engage in preparations for their GCSE.	solving skills which will benefit them in many aspects of their life.

Literacy opportunities	Maths opportunities	Life skills and out of school experiences
• Reinforce the use of appropriate terminology. • Encourage pupils to develop their reading and comprehension skills. • Where possible refer to specific English terminology such as pre-fixes. • Support pupils that have difficulty with reading to enable them to access the full curriculum. • Use word walls for technical terms to develop familiarity and enable more effective spelling. • Support the development of pupils' handwriting and presentation skills. • Help to develop speaking and listening skills through discussion of personal experience, existing knowledge and creative thinking and communication.	Links between topics, Mathematical concepts and cross curricular ideas will be encouraged where possible and mathematical understanding will always be of great focus.	We will support life skills and out of school experiences by putting tasks into context. E.g. relating percentages to loans, interest rates, mortgages, sales and discounts.

Pedagogy

- Coherence: Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.
- Representation and Structure: Pictorial and concrete representations are used in lessons to expose the mathematical structure being taught, the aim being that students gain understanding and can then perform the maths without the resource.
- Mathematical Thinking: If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student, thought about, reasoned with and discussed with others.
- Fluency and variation: Fluency in Maths is encouraged through intelligent practice (rather than just mechanical repetition). Once a student has grasped a concept, they will be practice their skills over varied activities in lessons which develop their understanding. Rather than memorising a single procedure students will be taught to understand why they are doing what they are doing and know when it is appropriate to use different methods.
- Independence: students are encouraged to work independently at times during lessons and apply the skills of knowledge independently.
- Application: links between topics should be made where possible and students will apply skills and knowledge to different contexts and other areas of the curriculum.
- Consistency: students should be encouraged to consistently use their mathematical skills, knowledge and understanding.
- Re-visit: topics will be regularly revisited to consolidate learning with the aim that after a break, students will still feel confident that they can work on the skills they have learnt without difficulty.
- Explanation: students will be encouraged to explain their understanding during lessons. Teachers will use this opportunity to assess understanding and identify and correct misconceptions.

How does your subject allow you to develop the pupils understanding of PSHE and British values? Please give examples

- Respecting others' viewpoints in discussions.
- Take turns and instructions from others, work together to support each other particularly with problem solving questions.
- Considering other cultures, customs, beliefs and religions in class discussions.

How does your subject and its delivery help pupils develop their essential skills? Please give examples

Listening – Listening to discussions, examples and question given by both the teacher and listening to the opinions and views of peers.

Speaking – Students are encourages to actively participate in lessons by giving answers to questions ad discussing answers with the class.

Problem Solving – Problem solving skills are developed in every lesson through class discussions, individual work and group work.

Creativity – Opportunities in lessons for pupils to undertake problem solving challenges that encourage development of creative thinking, exploration of problems and use of imagination to solve problems.

Staying positive – pupils are encouraged to self-assess their learning and progress. We provide an environment that values participation and views failure simply as a step towards success by reflection on it. We discuss pupil's achievements and offer constructive praise and feedback to enable continuing development. We encourage them to incorporate personal experience and knowledge in to lessons. We encourage pupils to reflect on the day's work and offer strategies to maximize the benefit.

Aiming High – We aim for all students to proceed towards college courses or employment. We attempt to help pupils identify goals for their future and enable them to link the skills offered within the mathematics curriculum that are relevant to this end. They are also encouraged to set targets for improvement for the next lessons

Leadership – students are encouraged to support each other and will often guide each other through calculations.

Teamwork – We encourage pupils to value skills and knowledge of their peers. To share knowledge and skills they already have or are developing. Pupils are encouraged to take on the role of facilitator where they feel confident to do so. Peer marking is common practice and pupils are positively encouraged to discuss and explore different methods or reaching the same answers.

How else does your curriculum and delivery help the pupils prepare for life after Stone Lodge Therapeutic School; including their careers? Please give examples

We aim for all students to proceed towards college courses or employment. We attempt to help pupils identify goals for their future and enable them to link the skills offered within the mathematics curriculum that are relevant to this end.

Opportunities are taken in lessons to introduce financial concepts that relate to the real world. These may in include but are not limited to;

- Tax, VAT, percentages
- Proportion, currency conversion
- Charts and graphs.

Discussions in lessons to promote the importance of maths including

- employment issues and wages for different jobs/agencies.
- the Importance of maths as a qualification demonstrating ability to learn
- the importance of essential numeracy skills for employment or chosen college courses and everyday life.
- Linking the possession of a qualification to the opportunity to gain higher income form future employment.

Assessment

Pupil's progress will be assessed using a variety of methods. This will include written work, oral and practical tasks.

End of Key stage Pixl assessments are used to base line all new pupils and identify pupil gaps in prior learning. Individual student needs are discussed with the Maths lead and Intervention lead and an intervention plan is put in place to address these gaps during lessons and one to one interventions.

Questioning will be used at the start of learning sequences to assess students existing knowledge and identify gaps in pre-requisite knowledge.

Continual assessment will be made throughout lessons to check students understanding and progress and to set differentiated tasks appropriately. Students will be given feedback both orally throughout lessons and in the form of live marking. Emphasis will be made to feed back to students both positive comments about what they are achieving well and constructive areas of improvement.

End of topic assessments and termly assessments including exam style question will be used to monitor pupils progress and prepare students for functional skills and GCSE exams.

Cultural Capital

Out of the classroom ideas

- Using maps, orienteering
- Pick your own fruit, and smoothly making
- Shopping with a budget
- Weights and measures, cookery lesson.

Trips to include Bletchley park, Silverstone museum, LEGOLAND discovery centre.

Professional Development

Subject knowledge enhancing – some self-led

Following respected Maths teachers and leaders on twitter

Pixl Maths CPD courses

Membership to Pixl networking app where best practice ideas and resources are shared

AQA courses
