Dryden School
Business and Enterprise College

Maths Policy

At Dryden we deliver a curriculum that excites, stimulates and challenges ALL pupils and that fosters a resilience and love of learning in Maths that can be successfully applied to the real world.

In Maths, we aim to enable our pupils to develop skills and knowledge to help them make sense of the world around them. At Dryden School, Maths is about exploring, mastering skills in counting and developing an understanding of number. It involves exploring number, shape and pattern and measurement through activities which contextualise the skills and knowledge. Mathematics is about developing a curiosity in the world around us, and offering solutions to problems. It is also functional, aiming to develop skills which will enable greater independence as our learners grow.

We will provide a maths curriculum that reflects the varying needs and learning styles of the pupils. Children will have equal access to a wide variety of mathematical experiences in order to give them the skills, knowledge and independence to cope with everyday life and prepare them for adulthood. We aim to ensure that all pupils leave Dryden School having acquired the necessary problem solving skills and the self- confidence to apply their knowledge in order to cope with maths in real life contexts.

Maths at Dryden School focuses on giving students useful skills that enable them to function with greater independence both now and for adulthood. Maths is taught in discreet lessons but also cross curricular. Each class should have classroom systems in place to practice and generalise skills ("Use it or Lose it") e.g. class calendars/timetables.

This Mathematics Curriculum has been written with a number of principles in mind

- The importance of 'stage not age'. In order to personalise learning and maximise opportunities for progress, it is not the age of the student that is significant but the stage at which they are currently working. Whilst the learning opportunities will change and progress throughout the school, the principle of delivering at a level appropriate to the student's level of development is of paramount importance.
- The understanding that Maths is not confined to a Maths lesson on the timetable but is regarded as a subject with many cross curricular opportunities.
- The understanding that the teaching of Maths is enhanced by advancements and developments in ICT and augmentative communication aids

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Aims of our Maths Curriculum

•To raise levels of achievement, develop their self-confidence and raise self-esteem in Mathematics.

•To promote enjoyment of learning and foster a positive attitude to mathematics through practical activity, exploration and discussion.

•To create a stimulating environment, this will value individual efforts and bring pupils success at their own level.

•To provide practical apparatus for pupils to confidently select and use, which will help them to apply their knowledge and understanding to real life problems in a range of contexts.

•To develop confidence and competence with numbers and the number system.

•To encourage pupils to think clearly and logically, developing as mathematical thinkers with an understanding of 'why' and not just 'how' answers are achieved.

•To develop and encourage cross curricular links where appropriate that will help pupils appreciate the relevance of mathematics across the curriculum, and in the outside world.

•To develop their use of mathematical language

Teaching & Learning

The approach to the teaching of Mathematics in school is based on 1 one hour Maths sessions per week and throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought.

The curriculum is delivered by class teachers. All work is differentiated in order to give appropriate levels of work and children are taught in ability groups within their individual classrooms. Planning is based upon the National Curriculum (2014). Rolling programmes inform weekly planning. Class teachers are responsible for the relevant provision of their own classes and individually develop weekly plans which give details of learning objectives and appropriate differentiated activities. Although planned in advance, they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

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Breadth of Study

Careful planning and preparation ensures that throughout the school pupils engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- Maths in real life contexts
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Implementation

We carry out curriculum planning in mathematics in three phases (long-term, medium-term and short-term). Our mathematics curriculum is delivered using the Routes for Learning, National Curriculum Programmes of study and Adult Outcomes Framework as tools to ensure appropriate pace, progression and coverage of the subject. This coverage is reviewed continually by class teachers and planning is adjusted accordingly to ensure appropriate coverage of all mathematical strands. Once they understand a mathematical concept, they are then required to solve problems and carry out investigations to deepen their conceptual understanding while also becoming more sophisticated in their Mathematical approach.

Our successful approach to the teaching and learning of maths, results in a fun and engaging curriculum that embeds understanding and knowledge through hands on, practical activities. Introductions to concepts using concrete materials and practical activities supports learning through memorable activities and 'games' which children can recall at a later date, relating the learning to new situations.

Role of Subject Leader

The Mathematics Subject Leader monitors standards of planning and teaching and carries out scrutinies of children's work and teachers' planning. Support is given, if necessary, to ensure all staff are adhering to the agreed policy and planning format. Findings from monitoring are discussed with the Senior Leadership Team and shared with teaching staff as appropriate.

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Curriculum Content

At Dryden School we have 4 curriculum pathways to meet the wide range of pupil need and to ensure maximum opportunity for learning is captured.

Willow Pathway (PMLD learners)— this route focusses on our pre-formal learners, in particular those with profound and multiple learning difficulties.

Ivy Pathway (Key stage 3 &4) — this route focusses on our semi-formal learners.

Hazel Pathway (Key Stage 3&4)— this route focusses on our formal learners who are beginning to access the National Curriculum

Elder Pathway (Post 16)- this route seeks to prepare students for adult life. Emphasis s places upon functionality and students learning to work with increased independence.

PMLD learners : PMLD learners Maths curriculum is incorporated into their current teaching topic. Learners follow a sensory curriculum linked to the current topic which focuses on transferable skills.

Key Stage 3 : The principal focus of mathematics teaching in Key Stage 3 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources. Key stage 3 focuses on building on foundational knowledge, particularly proficiency in number.

Key Stage 4 : The focus of Maths in Key stage 4 is continuing to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. Key stage continues to building on foundational knowledge, particularly proficiency in number whilst applying these skills to a 'real life' learning context whilst working towards adult independence.

Post 16 : The foucs of Maths in Post 16, seeks to not only build upon those skills acquired at KS3 and KS4, but also to encourage the consolidation and application of their existing skills in practical, everyday situations.

'Acquiring new foundational knowledge takes time and effort. However, the rewards go beyond the immediate benefits of being able to recall and apply useful facts and methods. Foundational knowledge, particularly proficiency in number, gives pupils the ability to progress through the curriculum at Increasing rates later on. The path of learning that begins with a diligent focus on core declarative and procedural knowledge is not a straight line, therefore, but a curve. This is a function of the curriculum's intelligent design. Furthermore, if this core content has been sequenced well and pupils have learned it thoroughly, they are less likely to forget and are therefore unlikely to need to 're-learn' it later. A focus on core knowledge can be achieved by focusing on depth over breadth, covering fewer core topics but in more detail.' **OFSTED research review series: Mathematics 2021**

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Willow Pathway

All children with PMLD will have access to the Maths Curriculum. Children will experience activities that are well differentiated in order to develop their cognitive skills. Activities will concentrate on the development of concepts such as cause and effect, person and object permanence, visual tracking and the ability to co-ordinate eye and hand. Pupils who have sensory impairments will access activities which have been adapted to meet their particular need.

Curriculum

PMLD learners Maths curriculum is incorporated into their current teaching topic. Learners follow a sensory curriculum linked to the current topic which focuses on transferable skills. To ensure targets are met staff use observation, repetition and focus on small step targets in a variety of contexts. E.g. If staff are focusing on turn taking with a learner they would draw on this skill in sensory stories, at break times, in circle time rather than only in a stand alone Maths lesson. Planning is informed by pre-formal 'I can' statements.

Assessment

Students are assessed on their 'I can' statements and EHCP targets once in each term. Levels of engagement are used for observation to carry out formative assessments and these act as evidence when assessing at midway points.

Levels of Engagement:

Maths at a very low level focuses on how passive/resistant a student is and we look for how they respond to what is happening around them/to them. We look at a student's awareness and concentration during an activity and their reactions to changes in activity/stimuli (see Engagement model - **Realisation**) Moving up slightly is how they attend to activities and engage themselves with what you are doing. Do they communicate preference and are they able to terminate an activity when they have had enough? Do they show curiosity and a willingness to engage rather than just experience something happening to them? (see Engagement model - **Exploration**). Next, we consider how well the student communicates intentionally. This can be through eye contact, gesture, action, or physical communication. Are they able to turn take, copy what you are doing, complete short tasks? Do they sustain an activity long enough to properly interact with it? Do they wait their turn, and show some anticipation of what is to come next (see Engagement model - **Persistence/ Anticipation**). At the top end of what we look for is initiation. Does the student show conventional communication? Are they able to initiate what is about to happen (e.g. through a song or object of reference)? Are they able to show learned responses over time and anticipate known events (e.g. in a daily routine). Do they actively explore activities for long periods of time and are they able to problem solve independently (e.g. to retrieve a reward or get a desired result)? (see Engagement model - **Initiation**).

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Ivy & Hazel Pathway

The New Curriculum, implemented in 2014 covers the Key areas of Number, Geometry, Statistics and Measure, with using and applying mathematics running through all of these. There is a greater focus on conceptual and procedural understanding, fluency and mastery (having a thorough understanding of a topic and to be able to apply it), and the use of manipulatives.

Our curriculum follows these principles, working on a rolling programme basis within KS3 and KS4.

Number	Measurement	Geometry	Statistics
Number and Place Value • Counting, • Comparing & Ordering Numbers • Reading & Writing Numbers • Number Bonds • Place Value • Counting in Multiples • Recognising & Describing Patterns. **Calculation** • Addition • Subtraction • Multiplication • Division	**Weight and Volume** • Measuring Mass/ Weight, • Measuring Volume/ Capacity **Length and Height** • Measuring Length • Measuring Height **Time** • Time **Money** • Money	**Shape** • 2D Shape • 3D Shape **Position, Direction & Movement** • Position, Direction & Movement	• Problem Solving • Data Handling ***Data Handling & Problem Solving to be incorporated into sessions throughout the year.***

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Assessment for Learning

Formative assessment is used to guide the progress of individual pupils in mathematics. It involves identifying each child's progress against key objectives determining what they have learnt and what should be the next stage in their learning.

- Teachers make short term assessments which are used to appropriately pitch lessons and to ensure all children are challenged. These short term assessments are found in teachers weekly plans and can be handwritten, they may take the form of additional support to be allocated, specific questions to ask the need to provide more in depth learning experiences. They use this information to plan personalised learning activities.
- Assessing pupil progress through 'I can statements' . Teachers assess these statements once a term alongside their EHCP maths targets. These objectives are directly linked to National Curriculum expectations in KS3 & KS4, Adult outcomes in Post 16 and Routes for Learning for PMLD students.
- We use data gathered termly (plotted in October, February and June) to track how much progress is made by each child throughout the year. This data is shown on our online system: Earwig. Information on pupil progress is passed the next teacher at the end of the year in order for children to transition smoothly to the next academic year.

Differentiation

Differentiation is achieved by enabling all children to access what is being taught. Questioning and scaffolding vary to further support individual progress within lessons. All pupils are given opportunities to extend and further apply their learning once they show a solid understanding of lesson objectives and core skills. In all classes, children have a range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by delivering a variety of activities in Maths sessions and grouping children in classes according to ability and supporting with suitable Teaching Assistant support.

Evaluation and monitoring

The Maths lead and SLT are responsible for monitoring and evaluating curriculum progress. Maths is monitored regularly in school through:

- Lesson observations
- Work Scrutiny
- Learning walks
- Assessment and analysis of data
- Earwig Assessment
- Staff discussions

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Elder Pathway: Post 16 Curriculum—Functional Maths

Rationale

Maths is required in all aspects of everyday life and as such we deliver maths in a range of functional contexts. We are very aware that the majority of our students do not generalise skills spontaneously and need to be supported to do this.

Maths, at Post 16, seeks to not only build upon those skills acquired at KS3 and KS4, but also to encourage the consolidation and application of their existing skills in practical, everyday situations.

We promote the students ability to understand and interact with their environment, enabling them to function with increasing independence.

Delivery

Maths pervades the whole curriculum and opportunities to reinforce the skills and knowledge acquired will take place across all subject areas and in some cases specific units are delivered within other subjects eg Measurement through D&T Changing rooms unit.

Maths is an integral part of curriculum areas such as Food Technology (EG measuring in spoons, cups or by weight through cookery; Sports and Leisure (EG scoring, responding to positional language) and Vocational Skills (EG Using a till in the Charity shop)

We promote the acquisition of splinter skills, which will enable students to function independently at a higher level in a variety of situations – eg students who cannot recognise coins learn that a £1 coin is sufficient for a drink at McDonalds and can identify one independently.

We try to equip students with known facts which will enable them to respond with confidence when required eg number bonds to 10.

We have prioritised the maths skills and concepts that we feel will support students to function more independently both in the home and the workplace. (See Maths document)

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Classroom systems

Eg Students are encouraged to use the class calendar to write in key dates and to read the calendar to check for forthcoming events. Review of the week – students evaluate own performance and that of their peers – set targets for following week.

Tutorial time each morning supports work on individual targets and promotes the development of independent work skills.

Post 16 Assessment

Students have maths based personal annual learning outcomes in Post 16. Teachers derive their own targets from their own framework.

The Framework which covers the four Adult Outcomes –

1. Employment
2. Community Inclusion
3. Health
4. Independent Living

These are broken down into a number of broad 'I can statements' which refer to skill sets that we wish our students to acquire. The assessor will annotate the I can statement detailing the level the student is currently working at and, if a target is appropriate, write one. Any progress towards this target should be added with the date. If the students level of performance is satisfactory or if it is not a priority at present this will also be noted.

Review

The mathematics policy will be reflected in our practise. The policy will be reviewed September 2022. R. Wilson