

*Individual Growth, Individual People'*

Head Teacher: Mr Matt Joyce



# Maths Policy

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## **INTRODUCTION**

Every student attending Newark Orchard School is entitled to a broad and balanced curriculum, which includes maths as part of the National Curriculum and the National Strategies.

The teaching of mathematics will enable pupils to develop the skills and knowledge required for life, further study or training, enhance communication skills and promote problem solving and logical thinking. We encourage pupils to acquire basic numeracy skills to think and reason mathematically and develop their ability to apply functional problem-solving skills.

Students will use a range of resources, talk about and record their work. They will be encouraged to apply their knowledge, understanding and skills in maths in practical tasks and as functional life skills.

## **PRINCIPLES**

The principle of entitlement for all students at Newark Orchard School has been fundamental in framing the working policy for mathematics.

All students are entitled to a broad and enriching maths curriculum appropriate to their age, level of understanding and needs.

Students of differing abilities and whose experiences are wide ranging are entitled to develop at their individual needs, level and stage of development.

Within the delivery of the national curriculum, issues relating to gender, race, culture and disability should be incorporated providing equality of opportunity.

Maths should be incorporated across the whole curriculum.

Parental partnership and community involvement should be given full regard in the delivery of the maths curriculum.

## **Intent**

At Newark Orchard Special School, we strive for our students to be successful and proficient mathematicians. Maths is a life skill – we use it all the time for example when we are baking, when shopping, whilst driving and when solving problems. We use maths when we are drawing, when building, whilst waiting for the bus and when going on holiday. We even use maths when we do not realise it.

The National Curriculum for mathematics underpins our vision for the teaching of mathematics and therefore our main aim is to ensure that our pupils have opportunities to;

- Become fluent in the fundamentals of mathematics.
- Reason mathematically by following a line of enquiry.
- Can solve problems by applying their mathematics to a variety of problems.

We embed our teaching in practical contexts and promote our students' life skills acquisition by carefully combining our mathematics teaching with the life skills curriculum. Our students progress through their time at Newark Orchard School on the pathway that best supports their needs and abilities.

We ensure each year we build on the previous year's learning and as a staff we have taken time to think about the journey each child takes through our school to ensure they are ready for their next steps.

## Implementation

The journey through mathematics is key and underpins everything we do, to ensure this is progressive for our students we ensure the use of resources and language is consistent across our school and lessons are structured in similar ways, across the different learning pathways at Newark Orchard School.

The Engagement pathway is at the start of this journey, here the focus is on developing a strong sense of number and the recognition that maths is all around us. Pattern spotting and making is an integral part of this as this underpins everything in mathematics. Maths in the Explorer pathway, as with all subjects, takes place both indoors and outdoors through a wide range of practical and "hands on" activities. Children then have the opportunities to apply and explore these concepts through the continuous provision provided as well as through adult directed tasks.

In Primary, KS3 and beyond our lessons are carefully planned to build on previous learning with each lesson structured into small steps with opportunities for discussion to ensure learners build a deep understanding of the topic with the support of a 3-year rolling cycle. These small steps are often

marked with the students which ensures they receive immediate feedback and therefore misconceptions can be easily addressed. We understand the conceptual journey is key for the learner to deeply understand a concept and therefore we follow the concrete, pictorial, abstract approach. We use a variety of resources specifically selected to provide motivation and connection with our learners. These can include pictorial images and stories alongside representations to further support understanding before moving onto the abstract mathematics and ensuring our children are fluent and proficient in each skill. During lessons, Teachers and Teaching Assistants support learners to help them consolidate their understanding as well as question their thinking, encouraging them to look for connections and make generalisations.

## **Impact**

We look to progress data when judging the impact of our mathematics curriculum as well as pupil's enthusiasm, positive learning experiences and love of numbers. We track students using the Engagement Profile and Solar Steps. As teachers and practitioners, we use the impact of today's learning to inform tomorrow's developments. Newark Orchard school aims for all learners to use mathematical knowledge to live as independently as possible, using math concepts to shop, socialise, travel and manage finances. These pathways will ultimately guide our pupils towards lifelong mathematical learning and in some cases accreditations and qualifications for employment. Students will see mathematics as a tool for communication and is embedded in the world we live in.

## **MATHS IN THE CURRICULUM**

There are three main stages of number development:

- 1 Concrete
- 2 Pictorial
- 3 Abstract

These main stages of development will be delivered within the framework of a maths timetable, which is based on the National Strategies.

Each student follows an individual programme which addresses and extends targets from the annual PEP and EHC. Teaching staff are responsible for designing their own teaching schemes within the relevant frameworks and according to individual students needs and their next steps. This planning is then monitored and fed back on by the maths coordinators.

Students not yet on the Solar Steps will follow an engagement approach to teaching and learning with the Explorers Curriculum (see planning, assessment, recording). Basic maths concepts would be introduced through play wherever possible.

A cross-curricular integrated approach through identified topics will also focus on mathematical concepts to develop knowledge, skills and understanding. The students will have a range of opportunities to participate in both structured and incidental mathematical activities individually, in groups or as a class. This primary stage then dovetails into the KS3/4 and KS5 curriculum.

Students will be encouraged to communicate observations, feelings and experiences, to answer and ask mathematical questions and to develop problem-solving skills. Links will be made throughout the core and foundation subjects.

## RESOURCES

A bank of age appropriate resources is available in school in a dedicated and organised cupboard. There is a range of books and materials, equipment and games. New resources are regularly acquired to support student needs, including Numicon and relevant materials. A list of on-line sites and an inventory of resources available around the school are being continuously developed. Maths coordinators prompt teachers to resources when conducting the medium-term scrutiny.

Students are also given the opportunity to develop and apply their ICT capability in their mathematical studies. A wide variety of software is available in school and the internet is widely used as a source of mathematical materials and activities. Each class has an iPad or touch screen. Internet links are shared by teams and maths coordinators.

## ASSESSING AND RECORDING

The National Curriculum, Solar and the engagement profiles of the Explorers curriculum provide the framework for assessing attainment at each key stage. In KS4 and beyond, levels are recorded and sent to parents in the end of year report.

Assessment of termly, weekly and daily targets is made to inform subsequent planning. Recording systems have been developed which allow students across the ability spectrum to share a broadly similar format. End of term assessments are collected electronically, feeding into solar and a termly review of student's progress is made and shared with governors.

The whole school recording has been developed to give clear information on the progress and achievement of each individual student. This system will allow student progress to be monitored and tracked across all the key stages. This will also support target setting and smooth transition between classes and departments. Use of the Solar package also allows for small step target setting, monitoring, tracking and analysis.

In primary, key stage 3 and 4 students will be given the opportunity to cover all Programmes of Study of the National Curriculum, allowing for open and exploratory work to be undertaken, thus providing balance and variety. The delivery of the maths curriculum will be through appropriate groupings, each group working at the appropriate level based on the Framework for teaching mathematics.

As well as timetabled coverage, maths is delivered across subject boundaries including computing, technology, food, art, Science, geography and modern languages. The students have opportunities for applying mathematical concepts and functional skills in relevant and interesting situations, both within school and the community; this applies in particular, to the Extended school's concept.

At key stage 4, students who attain a higher level at the end of key stage 3 in maths are given the opportunity to access GCSE maths, accreditations and functional skills.

Within the group structure, provision across the departments has been made for students with profound and multiple learning difficulties to access a sensory approach to the development of early mathematical skills (Solar Step targets). These groups have a high adult/student ratio, as they have students who have difficulty accessing the curriculum without 1-1 adult support and need a different style and approach to maths learning.

Across the school, teachers and students use different media including cameras, videos, written reports and computer programmes to record achievement. Within Engagement and Primary classes lessons will be recorded on Tapestry.

## ACCREDITATION

Pupils within the 14-19 department, work towards modular based awards based on the student's own level of achievement and learning needs. These are accredited by the AQA entry level certificate, the AIM awards functional skills awards and Unit Award Scheme where appropriate. A small number of pupils who exhibit the appropriate potential, may access a GCSE mathematical course.

Pupils are constantly reviewed and offered a suitable accreditation path if appropriate.

Students have also been able to access module Step Up qualifications in mathematics, which can be added to other Step Up qualifications as part of foundation learning. In addition, functional skills qualifications will be available from Entry Level 1 upwards. Also, qualifications in Independent Living for some students will hold mathematical elements within them.

## FOUNDATION STAGE

At Foundation Stage, pupils follow a broadly similar programme to the students in the rest of the primary department, with planning, assessing and recording through Individual Education Programmes. These follow national Early Years Foundation Stage guidance. The outcomes cover important aspects of mathematical understanding and provide the foundation for numeracy. They focus on achievement through practical activities and on using and understanding language in the development of simple mathematical ideas.

## HOMEWORK

The Homework Policy reflects the individual needs of the students in each key stage. Parents/carers need to refer to the Homework Ideas on the school website.

## REVIEW PROCEDURES

This policy will be monitored on a regular basis following consultation with class teachers and will be reviewed according to the Governors' schedule.

## INSET AND SUPPORT

There has been an emphasis on strategies which support pupils with Dyscalculia and resources have been purchased to enhance the learning in this area as many of our pupils need the support of concrete apparatus and visual cues.

The quality of the teaching and learning of mathematics will be monitored by the Subject Leader and by the Senior Leadership Team during classroom observations and 'learning walks'. This will assist the school in the self-evaluation process identifying areas of strength and areas of development.

In monitoring the Teaching and Learning of mathematics, the Subject Leader will:

- Implement subject policies, plans and practises, which reflect the school's commitment to high achievement and effective teaching and learning.
- Monitor the progress made by pupils and progress towards achieving subject plans and targets.
- Evaluate the impact of actions taken on teaching and learning, and use this analysis to guide further improvement using a variety of tools including planning sampling, work sampling, teacher discussion, data analysis, pupil interviews, drop-ins, observing learning and rates of progress in lessons.
- Offer support to teachers in planning, teaching and assessment.
- Keep up to date with statutory requirements and relevant initiatives.
- Ensure that there is continuity and progression in the planning and teaching of mathematics throughout the school.
- Set targets for subject development.
- Ensure that the whole school assessment, recording and reporting is followed in relation to mathematics.
- Prepare detail of subject development, including the identification of training needs, to inform the school development plan.
- Manage the annual budget allocation for Mathematics.
- Organise and maintain a catalogue of resources.