



**Grange  
Academy**

*Belong · Believe · Achieve*

**Article 28:** *You have the right to a good quality education. You should be encouraged to go to school to the highest level you can.*

# Maths Policy

**Policy Status:** Statutory

**Review Cycle:** Annually

**Owner:** Shannon Poulter  
Maths Lead

**Date:** March 2022

**Approved by:** Angela Morris  
Acting Head of School

**Date:** March 2022

**Review Date:** March 2023

## Vision

*“Learning is consistently challenging and achievable for all pupils. Highly effective monitoring and intervention ensures swift and sustained progress, enabling all pupils to achieve their potential.”*

## Introduction

At Grange Academy we want to provide a high-quality mathematics education that creates a foundation for understanding the world, enables our pupils to reason mathematically, provides opportunities for them to appreciate the beauty and power of mathematics, and also have a sense of enjoyment and curiosity about the subject. All of our pupils are given the opportunity to develop their mathematical potential through a rich, engaging curriculum. We want our pupils to feel confident in using and applying mathematics in a wide range of situations, including real life contexts in order to live as independently as possible later in life. Learning mathematics allows pupils to make sense of the world around them through developing their ability to calculate, reason and solve problems. It enables pupils to think creatively and enhance their communication. Through their growing knowledge and understanding, pupils learn to develop an awareness and interest in themselves, others and their environment.

Grange Academy aims to ensure that all pupils, irrespective of gender, race and culture, have access to a wide range of stimulating problems and activities which will include the appropriate curriculum and Education Health Care Plan aims. We aim to provide a continuous, progressive and challenging mathematical diet producing competent and confident young mathematicians.

## Programme of Study

### Intent:

*By the time our pupils leave Grange Academy, they will:*

- Be fluent in the fundamentals of mathematics appropriate to their ability
- Be able to reason mathematically
- Be able to solve every day mathematical problems
- Be confident using money, time and number in a range of life skill situations
- Have qualifications (as appropriate) in line with their ability to enable future success

*In order to develop mastery within our mathematics curriculum we regularly plan opportunities which will enable pupils to:*

- Use spoken and written language with confidence to explain and justify mathematical reasoning.
- Pupils are taught key skills through computer games and programmes that underpin and aid their understanding of more complex mathematical tasks.
- Pupils are taught through the Concrete-Pictorial-Abstract (CPA) approach to ensure a deep understanding of mathematical concepts.
- Develop mathematical thinking and reasoning skills including generalising, classifying and comparing and modifying.
- Through these approaches' pupils will, when working mathematically to solve problems, develop the skills needed to confidently understand and clarify information. They will consider what they know that will help them to solve problems, realizing what they need to do next. Pupils will apply strategies, organizing information in a way that helps find patterns and ultimately solutions. They will be able to communicate and present their findings effectively.

## Implementation

*Our pupils will have a range of opportunities to:*

- Develop an enjoyment and enthusiasm for learning through practical activity, exploration and discussion.
- Increase logical thinking and reasoning skills through a natural curiosity and investigative approach
- Develop the ability to solve problems through decision-making and reasoning in a range of contexts
- Develop the appropriate mathematical language associated with number, shape and position
- Use and apply mathematics in practical tasks, in real life problems and in acquiring further knowledge, skills and understanding in the subject itself
- Understand and use the four operations of number in relevant contexts
- Understand relationships between numbers, learn basic number facts and develop a range of computational methods
- Understand place value in our counting system
- Use their mathematical skills in simple problem solving
- Collect, interpret and represent data in tabular, graphical and diagrammatic form
- Develop mental and written methods of calculation
- Recognise, describe and represent shapes and patterns in terms of their properties, location and movement
- Measure quantities including length, area, volume/capacity, angle, temperature, time and mass

## Impact

*We will judge the success of our mathematical teaching by:*

- The motivation and interest displayed by our pupils
- Progress through the Grange Steps
- Success in EHCP targets and pre/post assessments
- Data analysis
- Book and planning scrutiny
- Observations of the teaching of mathematics
- Success in formal qualification
- Pupils are able to access post-16 qualifications as applicable
- Application of mathematical concepts in real life to develop independence.

## Teaching and Learning

All pupils are entitled to a broad mathematics curriculum in which their learning needs are identified and met. Pupils should experience a range of practical and written activities on number, measurement, geometry and statistics.

We have a whole school approach to teaching maths (see table) which is taught through topic-based activities and as discrete lessons.

<b>Term 1 (1<sup>st</sup> half)</b>	Number – Place Value
<b>Term 2 (2<sup>nd</sup> half)</b>	Shape, Space and Measure
<b>Term 2 (1<sup>st</sup> half)</b>	Number – Addition & Subtraction
<b>Term 2 (2<sup>nd</sup> half)</b>	Time and Data
<b>Term 3 (1<sup>st</sup> half)</b>	Number – Multiplication and Division
<b>Term 3 (2<sup>nd</sup> half)</b>	Money, Algebra (for those pupil on Grange Steps 25+) and Problem Solving

Classrooms should be rich in discussion both between pupils and teachers with pupils. Some facts will need to be memorised (learnt by rote) to develop fluency. Other concepts will require pupils to develop a deeper understanding to support mathematical reasoning and understanding through exploration, problem solving and investigation. This is why CPA is of the utmost importance

Our medium- and long-term planning is informed by our termly overview, however this is dynamic to ensure teachers can meet individual pupils needs and enable them to make progress. We complete a pre-assessment to identify children's ability levels in a topic and any gaps/misconceptions that need to be addressed. We then develop learning objectives and appropriate differentiated activities, whilst taking into account EHCP targets. Calculation methods are taught according to the Calculation Policy.

Mathematics is taught for four lessons of 50 minutes per week as well as during form times in Secondary.

All pupils use a pencil for mathematical calculations and squared exercise books to aid setting out of calculations.

Pupils are taught suitable setting out of work.

## **Cross Curricular Links**

Mathematics is an integral part of our daily lives and therefore manifests itself in many areas of the curriculum. We endeavour, at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning.

Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g., through cooking, music, and maths investigations and games. Bespoke Maths days are delivered throughout the year to boost engagement and understanding as well as making maths fun and help to develop a positive, 'can-do' attitude towards it. Links with Computing are continually developed through use of laptops, iPads and appropriate software. Cross curricular links are explicitly planned for in Medium Term Planning.

## **Assessment, Recording and Reporting**

To develop learning, pupils will be continuously assessed using a variety of strategies - observation, questioning, marking in accordance with our school Marking Policy. This is alongside our pre and post assessments completed at the beginning and end of each topic. At Grange Academy we use the Grange steps to inform our planning and assess pupil progress. Teachers discuss pupils' targets and progress in mathematics with parents regularly, in conjunction with their bi-weekly phone calls, summative sheets or parent consultation evenings.

## Resources

Pupils should engage in activities from a variety of sources – manipulatives, pictorial representations, abstract representations and the environment. Through regular and frequent access to computers and iPads they will develop fluency in key skills. They should also have the confidence to solve real and challenging problems.

Each classroom has a variety of teaching aids to support mathematics. All classes have access to a wide variety of equipment, manipulatives and word banks. All classes have access to Purple Mash, Times Tables Rock Stars / Numbots schemes and online resources to develop their mathematical fluency.

Pupils are encouraged to choose resources which are relevant to their developmental understanding and learning preferences.

## Intervention

Interventions are provided to boost pupils' progression in maths and are tightly planned, with success criteria set and assessments made frequently to ensure progress is evident. Interventions are led by our SENDCO and is carried out by a qualified teacher or by a Learning Support Assistant, however it is the responsibility of the teacher to decide how it is planned and delivered. Communication is paramount to ensure the intervention is being carried out correctly and effectively.

On rare occasions, if there is a Higher Ability pupil who is able to achieve a GCSE Maths level then appropriate work and additional tuition will be planned as appropriate.

Data analysis taken from Teacher Markbooks and from pre/post assessment data is used to identify pupils who require additional support in specific areas.

## Outside Agencies

The Maths Lead works in conjunction with other co-ordinators across BILTT to discuss mathematics each term. In addition, the Maths Lead liaises with outside maths consultants as appropriate.

## Management

The role of the Maths Lead:

- Review and monitor planning
- Monitor maths teaching and evaluate pupils' work
- Arrange liaison with outside consultants
- Work alongside staff to support if required
- Attend relevant courses to be aware of latest ideas
- Disseminate innovative ideas and expectations to all staff
- Arrange appropriate INSETs for colleagues
- Be responsible for ordering all maths resources
- Carry out a curriculum review and relay findings to the Local Authority Board and staff
- Update the policy document and schemes of work as necessary
- Provide workshops for parents

## **Induction of staff**

New members of staff will be introduced to the policy, planning requirements, specific targets and resources by the Lead NQTs receive additional LA training as part of their induction.

## **Liaison across the school**

Regular meetings will take place between leaders, teachers and LSAs who teach maths to ensure best practice.

## **Evaluation**

The mathematics policy will be reflected in our practice. This will be monitored and evaluated by the Head of School, the Senior Leadership Team and the Maths Lead in the form of lesson observations, discussion and regular scrutiny of pupil's work.

## **Whole School Issues**

This policy will be considered annually when updating our School Improvement Plan and Maths Action plan. Training sessions will be planned to support whole school responses and where possible individual professional needs.

This policy should be considered alongside our policies on:

- Display
- Equal Opportunities
- Marking Policy
- ICT

## **Homework**

Homework ideas are shared with parents/ carers at the start of a term. Additional work is available for those requiring extra support or challenge in consultation with parents/carers. Pupils are encouraged to use the online platforms available in school whilst at home.