Sheep Dip Lane Academy

Exceed Learning Partnership
• EVERY CHILD • EVERY CHANCE • EVERY DAY •

Policy: Mathematics Policy V2
Sheep Dip Lane Academy

Responsible Governing Board	**Local Governing Board**
Responsible Persons	**Principal & Maths Subject Lead**
Date of last review	**January 2022**
Review Date	**January 2025**

Sheep Dip Lane Academy: Mathematics Policy

Version Control

Version	*Revision Date*	*Revised by*	*Section Revised*
V1	September 2020	S Ogle	Page 2 Curriculum Recovery added
V2	January 2022	S Ogle	All sections – revised document Recovery Curriculum removed Headteacher changed to Principal throughout

Curriculum Intent

Our intent in Mathematics is to provide a sound foundation for the development of mathematics skills throughout school with depth of learning. This includes showing pupils how the different areas of Maths are interconnected, linked to real life and allow them to explore these links fully.

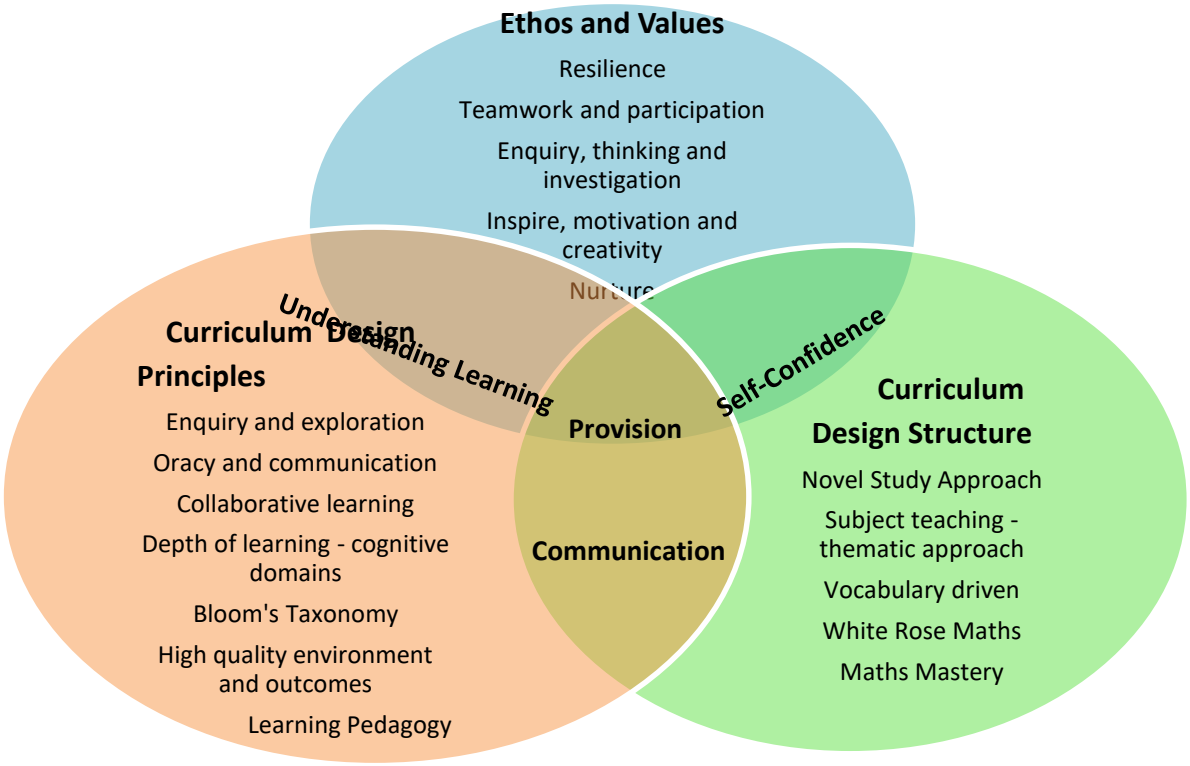
We recognise that a good mathematician needs fluency and automaticity in number work which is achieved through varied and frequent practice including - but not limited to – place value/number facts, times tables, calculation skill and the ability to apply these quickly and accurately

They also require the ability to apply these skills in reasoning and problem-solving tasks which become increasingly progressive as children move through the academy. Children need the skills to break down these problems into small steps and persevere in seeking solutions.

At Sheep Dip Lane Academy, we recognise that all learners can achieve and we expect all learners to move through the curriculum at roughly the same pace. Children who grasp concepts quickly should be challenged in their learning, not through acceleration through content, but by broadening their experiences with deeper problem-solving tasks and application. Children who are yet to be fully confident with a concept must first secure their understanding through additional practise before moving on. They may require concrete models or same day intervention to build confidence with mathematical concepts.

Inclusion is at the heart of our Mathematics teaching and all children are given the support and opportunities they need to thrive in this subject and grant them the necessary skills and knowledge to be successful in later life.

Our Curriculum Design Principles and Structure



Ethos and Values

At Sheep Dip Lane Academy, the curriculum has been designed to:

- Recognise and build on children's prior learning, provide first hand experiences, allow children to develop the skills, knowledge and values they need to embrace the opportunities and challenges they face; to enable them to be create the future world they want to live in
- Recognise every child as a unique individual, celebrate and welcome differences within our community
- Develop with children their ability to learn, underpinned by the teaching of basic skills, knowledge, concepts and values
- Bring learning to life through real life contexts and experiences with provision that uses enhancement opportunities to engage learners
- Enable children to feel safe and happy, have opportunities to enquire, explore and investigate in order to be highly motivated and develop a love for learning
- Use learning pedagogy that promotes positive attitudes towards learning

It is our vision that we thrive together and are part of a great close-knit community. Our curriculum enables us to celebrate local traditions and play an active role in respecting and supporting each other through community events, so that children leave Sheep Dip as active citizens who can make appropriate decisions, evaluate situations and have the characteristics to make meaningful contributions to the society in which we all live in.

At Sheep Dip Lane Academy, we recognise the challenges our learners often face, which makes it essential that we are enabling the children we serve to proactively change the world through learning. We understand that employers are calling for education to expand its focus beyond the tradition cognitive domain. Our school curriculum must emphasise **teamwork**, **resilience**, **creativity**, **self-motivation** and **mind set**. Children will need to develop skills that are not yet considered crucial to current jobs today – such as **persuasion, emotional intelligence and teaching others**. In essence technical skills will need to be supplemented with strong social and collaborative skills.

At the heart of our design for learning, is the need to ensure our children see themselves as citizens of the world, members who contribute to local, national and global issues which may impact on their lives.

We see our curriculum as a vehicle for connecting with the bigger cause. This means we enable our pupils to form meaningful relationships with their learning, see patterns and apply skills into a context where learning can make a

difference. This will ensure that our pupils see that their learning has human significance. They will understand that their global learning is relevant to future decisions and the active contribution they can make to the world.

Rationale

We believe that mathematics makes an essential contribution to children's learning:

- It prepares children to become confident and competent with using and applying numbers and measures and develops spatial awareness
- It enables children to develop an understanding of the number system and how it applies throughout everyday life
- It develops mathematical skills that are key life skills
- It allows children to think logically about problem solving

Equal Opportunities

This policy outlines the teaching, organisation and management of the mathematics taught and learned at Sheep Dip Lane Academy.

Mathematics is a core subject in the basic curriculum to which all children are entitled. It is intended that mathematics will be taught to all children throughout school in ways appropriate to their ability. It will be taught as a single subject, as a morning maths activity and in cross-curricular topics.

The equal opportunities policy applies to the teaching of mathematics, as to all other subjects. All children are respected as individuals having different needs and teaching of mathematics is reflected to ensure that all children's needs are appreciated and catered for. This in turn enables children to achieve their full potential.

Aims

The overall aim of the school is to provide opportunities, through a broad and balanced mathematics curriculum, for children to acquire a range of mathematical skills and concepts in situations which are enjoyable, interesting and challenging so that their knowledge can be applied. This will ensure each child's mathematical ability will be fully developed and that each child will achieve success.

Mathematics is a tool for life. To function in society we all need to be able to communicate mathematically. We must ensure that the children in our care leave our school achieving high standards in numeracy.

In our teaching of mathematics, we will:

- Stimulate an enjoyment and love of maths
- Encourage a positive attitude towards mathematics
- Through the sharing of mathematical thoughts encourage a respect for the ideas and opinions of others
- Emphasise mental skills in order to promote autonomy of thought and use of children's own methods
- Aim to develop confidence and fluency in the language of mathematics
- Provide opportunities to use mathematics in everyday situations
- Give children opportunities to use mathematics in everyday situations
- Help children to understand that mathematics is a powerful tool for communication
- Instil confidence at using mathematics
- Encourage children to take responsibility for their own learning
- Challenge children further by providing an element of challenge in their learning

Entitlement

A large part of the time that children are in school is spent on mathematical activities. These activities are concerned with fulfilling and extending the requirements of the National Curriculum for mathematics and the White Rose progression documents. The activities may be taught to whole classes, groups or groups of similar ability.

There will be a daily mathematics lesson and each teacher will plan their short term, medium term and long term units in consultation with the White Rose maths scheme. At the end of each term the mathematics subject leader is responsible for evaluating coverage and attainment in each year group.

Implementation

Our staff implement this through following the White Rose Maths curriculum, supported by numerous other resources including NCETM, Mathletics and Time Table Rockstars. Staff focus on quality first teaching and having the highest expectations of all learners. This is achieved through a progression of understanding from concrete to pictorial and, finally, abstract thinking. Mathematical concepts are introduced using concrete apparatus and pictures to allow all learners to fully grasp them. Only when children are confident using apparatus and pictures do they move to the abstract way of working. This allows for fluid differentiation in classes where all learners can work on the same learning but use different methods to complete it.

Children are assessed regularly in lessons to adapt support and at summative termly points throughout their time at Sheep Dip Lane. This allows for any gaps to be filled swiftly through same day interventions. This ensures that all children have their needs met for the mathematics curriculum.

Impact

The impact of this CPA progression is that children have much more confidence in being able to approach and discuss mathematical concepts and problems. Children are encouraged to discuss and explain their thinking as the method they used is seen as just as important as whether they got the correct answer or not. Mathematical vocabulary is of equal importance to number skills and children are encouraged to always use correct mathematical terminology.

The CPA approach of our curriculum allows all children the ability to access their age-related curriculum because they are given the tools to approach, tackle and succeed with challenging problems. This means children are given opportunities to see how the maths they use in the classroom can be applied to the outside world.

All children will have opportunities to:

- Work at their own ability level
- Work in pairs and in small and larger groups
- Have interventions to support their progress
- Work on the areas of number, measures, shape, space, data handling and using and applying
- Use calculators and computers
- Use a wide range of mathematical tools
- Rehearse mental strategies and skills
- Practise times tables and varied fluency

Tasks and activities

- Will bring together different areas of mathematics
- Will be balanced between those which develop knowledge, skills and understanding, and those which develop the ability to tackle practical problems
- Will be balanced between those of short duration and those that have scope for development over an extended period
- Will promote the use of mental calculation
- Encourage confidence in the use of mathematical tools

- Will involve both independent and co-operative work
- Will be both of the kind that have exact results/answers and those that have many possible outcomes
- Will encourage a positive attitude towards mathematics
- Will be balanced between different modes of learning:

Listening – understanding explanations, instructions, questions, answers
Reading – using books, work sheets, comparing methods or solutions
Writing – making jottings, pencil and paper calculations, drawing sketches and diagrams, recording results, reporting and reasoning
Talking – oral work, describing, reporting, explaining, clarifying ideas, giving examples, predicting, questioning, discussion with the teacher and peers
Reflecting – considering approaches to problems, thinking about own work in relation to the learning objectives and using Assessment for Learning statements in books
Carrying out practical work – sorting, counting, measuring, constructing models, making a survey
Observing – spotting patterns, watching what is happening, noting similarities or differences, looking for consistencies or inconsistencies and error spotting
Drafting – plotting a series of steps to success needed for a particular task

Tasks and activities should also help children to develop their personal qualities:
- Motivation and willingness to 'have a go' - Resilience
- Flexibility and creative thinking
- Perseverance, reliability and accuracy
- Willingness to check, monitor and control their own work
- Independence
- Ability to co-operate within a group
- Working in a systematic way following the calculation policy
- Expectation to use a known fact to help work out unknown facts

When communicating their mathematics, children need to:
- Understand what needs to be done
- Follow instructions
- Discuss difficulties and errors
- Ask questions
- Debate possible courses of action with others
- Present and explain their methods and results to others in a variety of ways
- Discuss the implications and accuracy of the conclusions reached
- Discuss other possible interpretations of the conclusions
- Relate results to everyday life

Classroom Organisation and Expectations

Classroom organisation for mathematics will be such that the children are encouraged to show independence in choosing resources/materials needed for a task and to promote self-motivation/organisation.
All classrooms will have numeracy working walls which are up-to-date and relevant to the children's current learning. They will have mathematical vocabulary up on display so that the teacher and the children can refer to these when explaining their reasoning and each classroom will have access to or contain visual aids that support children in their learning. Children's maths work should be celebrated and individual pieces should be evident on display throughout the year.

We will aim to:
- Stress the importance of, and encourage the use of, mental calculation as a first resort to any problem
- Ensure the environment is stimulating and supportive – displays updated regularly and support staff used appropriately
- Create challenging activities in which the child can experience success
- Value the achievement of each child

- Build upon the knowledge and skills which children have gained formally and informally
- Give the children mathematical experiences that match their ability and stage of development and maintain a good pace
- Organise both collaborative and individual activities
- Make clear to the children the purpose and relevance of any mathematical activity
- Keep records of the children's progress and achievements and set realistic targets
- Encourage independent use of a variety of apparatus and equipment
- Use maths in cross-curricular topics wherever appropriate
- Value the contributions made to mathematics by all cultures, both nowadays and in the past
- Help children reflect on each new experience
- Ensure children meet the same mathematical ideas in a wide variety of contexts
- Establish routines to help children structure the organisation of an activity
- Rehearse skills and strategies daily

Teaching Strategies

Mathematics teaching at all levels should include opportunities for:-

- Exposition by the teacher (using board, flip chart, computer or interactive white board) to include:
  - Directing – sharing the teaching and learning objectives, drawing attention to particular points
  - Instructing – giving information on how to do a particular process/activity
  - Demonstrating – showing, describing and modelling mathematics
  - Explaining and illustrating – accurate, well-paced explanations referring to previous work or methods
  - Evaluating children's responses – identifying mistakes and using them as positive teaching points
  - Summarising – reviewing during the lesson what is being taught/learned
- Discussion between teacher and children
- Interactive involvement of children through carefully planned questioning
- Appropriate practical work
- Consolidation and practice of fundamental skills, vocabulary and routines
- Problem solving, including the application of mathematics to everyday situations
- Investigation work
- Rehearsal of mental strategies

Mathematics is a search for patterns and relationships

We will aim to:

- Provide opportunities to discover and investigate patterns and describe and record relationships
- Encourage exploration and experimentation, trying things out in as many different ways as possible
- Encourage ways of ordering or arranging, combining or separating; looking for similarities or differences
- Help children generalise from their discoveries using correct vocabulary
- Help children understand and see connections between mathematical ideas

Mathematics is a creative activity, involving imagination, intuition and discovery

We will aim to:

- Value and allow time for trial-and-adjustment approaches
- View unexpected results as a source of further enquiry rather than mistakes
- Encourage the creation of mathematical structures and designs
- Encourage the formation and manipulation of mental images
- Foster initiative, originality and divergent thinking
- Encourage questions, conjectures and predictions
- Encourage children to find and explain their own methods

Mathematics is a way of solving problems

We will aim to:

- Help children identify information and ways to obtain it
- Encourage logical reasoning, consistency and systematic working
- Ensure the development and use of skills and knowledge necessary for solving problems
- Help children know how and when to use different mathematical tools
- Help children discover and invent their own mathematical problems
- Challenge children quickly when they have completed fluency tasks

Mathematics is a means of communicating information or ideas

We will aim to:

- Make time for both informal conversation and formal discussion about mathematical ideas
- Introduce appropriate and varied mathematical vocabulary
- Create opportunities for describing properties, for giving examples, for clarifying or explaining, for predicting results.
- Encourage reading and writing about maths, and representing and structuring ideas using pictures, symbols, diagrams and graphs.
- Value and support the diverse cultural and linguistic backgrounds of all

Mathematic daily maths meetings

We will aim to:

- Hold engaging daily maths meetings everyday
- Encourage fluency in number
- Encourage automaticity in number
- Build basic mathematical skills to gain fluent and engaged learners
- Help children to be confident mathematicians

Foundation Stage

The development of mathematical thought is an important area of experience for children in the Early Years. Learning in mathematics should be primarily first-hand, experiential and active, bearing in mind the requirements of the EYFS curriculum. Play and talk are essential to the learning process.

Early Years

Of particular importance will be the development of skills in:

- Appropriate mathematical language
- Making comparisons
- Sorting
- Understanding one to one correspondence
- Conservation of number
- Recognition of numbers
- Writing numbers correctly
- Basic ordinal language
- Early use of estimation
- Naming basic 2D and 3D shapes
- Copying and recognising patterns
- Early use of conventional time units
- Early use of non-standard and standard measures

- Use of calculator
- Reading and recognising simple graphs
- Early use of appropriate ICT

We recognise that some children will be ready to embark upon the National Curriculum during their time in the Foundation Stage. We need to be aware of this and ensure that such children undertake work that is appropriate to their ability.

Children in Foundation Stage and KS1 will also take part in NCETM's Mastering Number Programme which will enable children to build fluency and automaticity in number. We recognise these as the basic building blocks to learning, this knowledge and skill set will continue with them through their primary education.

Years 1 – 6

Children will follow the requirements of the National Curriculum and the programmes set out in the White Rose progression for their appropriate year group. The sections of the programmes of study interrelate. Developing mathematical language, reasoning and skills in applying mathematics should be set in the context of the other areas of mathematics. Measurement should be associated with handling data and shape and space. Calculating skills should be developed in number and through work on measures and handling data. Algebraic ideas of pattern and relationships should be developed in all areas of mathematics.

Recording, Assessment and Reporting

Pupil Recording

Mental work does not exclude a written record of methods or results. It should be noted that jottings and rough workings do not need to be set out with the same formality as standard written methods. **However** – children should always be encouraged to form numerals correctly and legibly and reversals should always be pointed out and corrected by the child.

As the children move through Key Stage 2, they will be taught to record their work in a variety of forms, including standard written algorithms.

The children use books, paper, worksheets, models, whiteboards, iPads and computers for mathematics. They will be encouraged to have good work habits, to set out neatly and to show their methods of calculating (algorithm) so that the work can be talked through easily. They will make a 2cm margin in their books, write a short version of the date and write their learning objective neatly and complete their working out to a high standard.

The children's books/folders will demonstrate the wide variety of mathematics work undertaken throughout the year. These may contain examples of symbolic, graphical, diagrammatic, pictorial, written and group work. They may also contain a teacher's note about oral work.
Various extended learning opportunities will be made available for children identified as being more able in the subject.

Assessment

Assessment will take place at three connected levels: short-term, medium-term and long-term. These assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

Short-term assessments will be an informal part of every lesson to check children's understanding and give information, which will help teachers to adjust day-to-day lesson plans.

Medium-term assessments will take place in 'assess and review' lessons timetabled each half term and will assess some of the ideas linked to the key objectives that have been covered during the half term. The outcomes will be recorded and passed on to the mathematics subject leaders.

Long-term assessments will take place three times throughout the school year to assess and review children's progress and attainment. These will be made through compulsory National Curriculum mathematics tests for children in Years 2 and 6 and supplemented by the optional tests for children in Years 3, 4 and 5. Statistics will be collated to ascertain termly progress for each cohort children. Data from these assessments will be used to set targets for individuals and groups of children.

Reporting

Teachers will also draw upon their class record of attainment against key objectives supplementary notes and knowledge about their class to produce an annual report. Accurate information will then be reported to parents and the child's next teacher.

Differentiation/Inclusion

Mathematics tasks will challenge the more able child as well as letting the less able child achieve and succeed. Teachers may wish to make preassessments in each area of maths to allocate support and challenge to the pupils appropriately. They may also make teacher assessments about capabilities to group children accordingly.

All children, other than those with statements of special educational needs under the Education Act 1993 which specify otherwise, will study mathematics throughout the period of their time in school. Special time and attention will be given to children with learning difficulties and particularly able children.

More Able Children

The Curriculum and organisation of the school allows each child to learn at a pace that is appropriate to them. These children are stretched through greater depth question which are promoted and used to challenge these children.

Out-of-hours Homework

Teachers will provide additional learning for children to do at home to support them with their learning. This will be explored through our online learning platform, Seesaw. Teachers could encourage timetables practise or calculation methods through Mathletics and Time Table Rockstars online learning platforms.

Staff Development

Provision is made for staff training through local courses, subject leaders, examples of good practice and expertise. School has a subject leader who assesses the abilities of the staff and them with the CPD they require.

Citizenship

All children will have the same opportunity to follow the mathematics curriculum, with each child learning at a pace that is appropriate to them. Through work carried out in mathematics children will have the opportunity to:

- Develop confidence and responsibility for making the most of their abilities.
    - Look after their money
    - Realise that future needs may be met through saving
- Develop good relationships and respect for the differences in each other.

AFL (Assessment for Learning)

AFL is built into each mathematics lesson through a broad range of strategies. The assessment opportunities used provide the basis for teachers to help children overcome their difficulties and progress their learning.

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The Role of the Subject Leader

The subject leader will endeavour to:

- Ensure understanding of the requirements of the PNS and National Curriculum Mathematics
- Keep up to date with developments in mathematics teaching
- Teach demonstration lessons
- Observe colleagues and monitor plans and quality of standards with the Principal
- Lead by example in the way of teaching in own classroom
- Prepare policy documents and schemes of work as necessary
- Advise colleagues, help develop expertise and monitor the teaching of mathematics throughout school
- Encourage the development of valid mathematical activities that are appropriate, differentiated and enable progression
- Encourage use of ICT as appropriate in supporting teaching/motivating children
- Liaise with FS, Key Stage 1 and 2 staff, Principal, Governors, parents and advisers as necessary
- Work co-operatively with the SENCO
- Discuss regularly with the Principal and the Numeracy Governor the progress of implementing the PNS in the school
- Use the maths budget to buy appropriate resources and equipment
- Collect, maintain and organise resources and ensure accessibility
- Contribute to the school INSET programme.
- Assess the needs of staff and provide CPD opportunities

Policy Agreed:

Date of Policy: January 2022 To be reviewed: January 2025

Signed: Principal 

Signed: Governor / Chair of Governors