



Mathematics Policy

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Policy: Curriculum

Governors: No



Maths Policy

This Maths Policy is implemented from Reception – 6. The children in Pre-School, Reception access the Early Years Framework, which has recently been updated for September 2021.

Mathematics in Early Years is taught through child-initiated and adult led activities. Pupils receive daily Maths sessions, with direct teaching focusing on mathematical vocabulary, reasoning and developing problem solving. Continuous and Enhanced Provision allows pupils to explore each concept more fully through purposeful play and there is also opportunity for both adult and child led learning. Teachers and teaching assistants interact with each child through their play, developing their understanding further, through targeted questioning. The mathematical concepts that they explore are structured with the following topics:

- Exploring number to 10
- Counting
- Unitising
- Subitising
- Addition and subtraction – more and less
- Doubles and halves
- Equal sharing
- Patterns – repeated patterns, shape and colour
- Patterns and relationships – time, event, making connection
- Spatial reasoning – position, shape, length, weight, capacity and volume
- Composition of numbers

Our Whole School Curriculum Intent

At Finlay, we intend to teach a curriculum that is engaging, relevant and purposeful to all learners. We ensure that our curriculum allows all pupils to achieve and succeed in line with National expectations. We aim for our curriculum to allow all children to develop their knowledge, skills and understanding in line with the National Curriculum (Key Stage 1 and 2) and the Early Years Framework (Pre-School and Reception)

In addition to this, we have identified five core values which are integral to the learning experiences we provide for all of our children. We therefore aspire for our curriculum to allow pupils at Finlay Community School to leave with a **SMILE:** Social Awareness, Mental and Physical Health and Wellbeing, Independence, Life Skills and Excellent Aspirations.

1. Maths Intent:

At Finlay, we intend for our children to be equipped with a uniquely powerful set of tools, including mathematical fluency, logical reasoning and problem solving. It is integral to all aspects of life and we endeavour to ensure that children develop an enthusiastic and determined attitude towards Mathematics that will stay with them throughout their life. In Mathematics, we prepare children by, where possible, providing experiential opportunities, encouraging a love of learning and enthusiasm for Maths. Children progress effectively, learning skills and knowledge in a considered and planned order, making links with



previous learning at an age appropriate level. We intend for children to be rounded Mathematicians and to be able to interpret the numerical world around them.

In line with our whole school curriculum intent, a structured, cohesive approach to teaching Maths, allows our children to develop basic life skills that allow them to achieve and succeed in later life.

2. Implementation:

2.1: What skills are taught in Maths?

Maths allows us to teach our children the following skills:

- critical thinking
- problem solving
- analytical thinking
- quantitative reasoning
- ability to manipulate precise and intricate ideas
- construct logical arguments and expose illogical arguments
- communication
- time management
- teamwork
- independence

The areas that we focus on are:

Key Stage 1

At KS1 children's learning will be structured with the following topics:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Geometry – properties of shapes
- Geometry – position and direction
- Statistics – Year 2

Key Stage 2

At Lower KS2 the children will follow the topics above, whilst decimals will be introduced in Year 4.

In Upper KS2 the programme of study is as follows:

- Number and place value
- Addition, subtraction, multiplication and division
- Fractions, decimals and percentages
- Ratio and proportion – Year 6

- Algebra – Year 6
- Measurement
- Geometry – properties of shapes
- Geometry – position and direction
- Statistics

2.2: How often is Maths taught?

Maths is taught every day across the school. The children are discretely taught the skills required for approximately 45 minutes, five times a week.

2.3: How is Maths taught? What does this look like in the classroom?

The curriculum we follow – Can Do Maths

We use a mastery approach to teaching and learning in maths, and all staff have a mindset that ‘our children can...’

The curriculum has been carefully sequenced with long term plans and unit plans with small steps that need to be taught. Teaching small steps allow children to make progress quickly but also allows you to linger longer on the concepts that are being taught. More information about the Can Do Maths scheme and the sequencing of the curriculum can be found in our intent guide, which is available in the curriculum file in school, or on our school website.

USING CAN DO MATHS TO SUPPORT THE TEACHING OF THE NATIONAL CURRICULUM REQUIREMENTS – WHAT DOES A LESSON LOOK LIKE?



USING CAN DO MATHS TO SUPPORT THE TEACHING OF THE NATIONAL CURRICULUM REQUIREMENTS – TEACH IT AND PRACTISE IT

Hook – start the lesson by showing the children a problem/question – What do you notice? Allow children to share a range of ideas but do not get distracted here – focus it in to what your intended manageable small step of learning is.

Teach it – Model how to understand the small step, explain your thinking, verbalise the language, show using different representations, use manipulatives, ask questions to provoke discussion – there should be active engagement within this teaching. Allow children to articulate the learning to each other/ rich discussion. Share your STEM sentence – My Turn, Your Turn – I say it, you say it. Questioning is important here to scaffold and challenge. https://www.youtube.com/watch?v=n0_xDd5UyAU

Prove that... Convince me that... Teach your friend... Are you able to show me that...? What is the same? What is different? What can you see? What do you notice...? What would happen if...? Why is that accurate...? Can you show me another way...? Can you explain your reasoning...? Can you draw/show me using...? How do you know that...?

You (Teacher and TA) should be using live assessment to intervene with any children who appears unsure/ finding it easy and needs a challenge question asked.

Remember the importance of the additional adult here.

Practise it – Example ‘What it is’ question to assess whether children are ready to begin the seamless transition into the Do It task. You may need to regroup here to provide more intervention.

USING CAN DO MATHS TO SUPPORT THE TEACHING OF THE NATIONAL CURRICULUM REQUIREMENTS – INDEPENDENT TASK

Year 3 Unit Number and Place Value

Curriculum Progression Manageable Steps			
What it is What it also is What it's not What problems can I solve?	Represent 3-digit numbers Using place value resources to represent the following numbers: 234 340 420 570 705	Recognise the value of digits in 3-digit numbers Find the value of the underlined digit: 3 <u>6</u> 5 3 <u>6</u> 5 34 <u>5</u> 5 <u>3</u> 0 <u>3</u> 24	Partition 3-digit numbers in different ways Fill in the missing numbers: 654 = 600 + <input type="text"/> + 4 437 = <input type="text"/> + 30 + 7 842 = <input type="text"/> + 40 + <input type="text"/> 427 = 400 + 10 + <input type="text"/> 573 = 400 + <input type="text"/> + 13
	Colin thinks that he has represented 243: 	Colin thinks that the five in 563 is worth hundreds. Explain why he is incorrect.	Colin thinks 376 can only be partitioned as 300 + 70 + 6 Colin thinks he has written two hundred and thirty-six. 20036
	Investigate how many different 3-digit numbers you can represent with five pieces of Base Ten equipment. How many more numbers can you make with one more piece?	Make as many different 3-digit numbers as you can using the digits 2 and 5. Circle the numbers that have 5 hundreds.	Always/Sometimes/Never true: There are at least 10 ways to partition a 3-digit number. Use the number words to fill in the gaps in as many ways as you can: <input type="text"/> <input type="text"/> <input type="text"/> hundred and ty Write the numbers using numerals.

This curriculum progression document is what you will use to create your manageable steps. I would look at this document first when deciding what to cover in your teach it task.

DO IT – What it is? What it also is? Five and fly... The what it also is provides a different way of looking at the same skill but will provide the first level of challenge – children should still be able to succeed and this helps build resilience.

TWIST IT – What it's not... This is a common misconception and requires children to spot the mistake. Children should reason using the word because. Children should also do the calculation themselves first to then spot the mistake.
Do it, Notice it (what is different) Advise...

DEEPEN IT – Problem solving... This should be open ended/have more than one solution;

CHALLENGE IT – Further challenge for high flyers – resources like Gareth Metcalfe I see Reasoning, Classroom secrets etc can be good for this

Teaching Assistants should be used in all parts of the lesson, to provide immediate intervention or to challenge children further when doing a whole class input.

We use a helicopter not Velcro model for adult support in lessons, where adults move around the classroom giving individualised feedback to all pupils, and do not stay sat with one child/group.

Knowledge Organisers

Knowledge organisers are added to the children's books one a half term and are also send home for parents to refer to. The children should have quizzes based on the information on their knowledge organisers on a regular basis and use this as a tool for learning.

Knowledge Organisers should show:

- Key maths facts
- Examples of calculations
- Mathematical concepts
- STEM sentences

There are six knowledge organisers per year group. These can be found in our resource bank and curriculum file. Examples of these can be found in our intent guide.

Intervention

Intervention is an essential part of teaching and learning, and is vital in ensuring all children keep up, and do not have to catch up.

Pre-teaching and same day intervention should be used to ensure children remain on track. This can be delivered by the class teacher or teaching assistant.

KEEP UP NOT CATCH UP



Deliberate Practice documents and KeePuppl documents should be shared with your TAs – this is because these resources can be used for intervention.

Every week, please email your TA in advance of the week's learning: A Lesson plan, worksheets, Deliberate practice document and KeepUppl documents

On your provision maps, please keep a slot each day for 'Keep up not catch up' and 'Pre-teach' maths intervention.

This can be to address gaps from the morning's work so all children are ready to move on together in the morning.

This can also be to pre-teach new content so children are confident before the next lesson.

This is essential to ensuring this approach works for all children.

Intervention work will be completed in maths books for pre-teach and keep up so it helps children in lessons too ☺





Daily Maths

As well as a Maths Lesson, each class carries out a Daily Maths session.

In Key Stage 1, we have enrolled in the NCETM Mastering Number course. We have appointed three lead teachers to undertake the training sessions and then implement this in their year group. The sessions are taught daily and are focussed on developing children's early number sense, so they are confident by the time they lead Key Stage 1. Lots of the activities are practical or completed on whiteboards, so staff keep a whole class book of evidence of their sessions. Staff are actively encouraged to take photos and videos and upload to Seesaw, then printing off the post with a QR code for their book.

In Key Stage 2, this consists of a set of arithmetic questions which are answered, marked and recorded daily. This gives the children the opportunity to work on these skills regularly and not just in week blocks. This allows them the opportunity for lots of repetition in learning and to support them with their natural recall and retention. The questions include opportunity for consolidate of concepts taught in maths lessons too in order to provide deliberate practice. This is a timed session and once children have completed a certain amount of questions, the amount of questions increase. Teachers are able to clearly see where the gaps are and these are either addressed at the end of each session or with a TA in the afternoon. Children are also often extended with some reasoning questions as an application alongside their set fluency questions.

2.4: How is this recorded?

Every child has an exercise book for Maths, and an exercise book for Daily Maths. The children fold the page of their book in half, sticking the work down one side of the page and answering on the other side. The children are encouraged, where possible, to write directly into their Maths book, thinking carefully about one number per square, and the presentation of their work. By writing directly into a book, children take ownership for laying out calculations using formal written method, rather than relying on this already set out for them on a worksheet. Children's books are marked daily, with green used to show what they did well, and pink to provide next steps. Every child should have access to a 'next step', which they respond to the following day. If every question is correct, this could be an application/reasoning style question to extend learning.

2.5: Times Tables Rock Stars

In either paper form or online, Times Tables Rock Stars is a carefully sequenced programme of daily times tables practice. Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised every third week or so.

We have a whole school TTRS Display to encourage healthy competition among the classes. We enter competitions and tournaments with other schools in the country and give out certificates to children and classes for taking part. TTRS allows the children to be able to challenge themselves and to beat their score and times.

Children are required to play TTRS from Year 2 -6 at least three times a week as part of our homework policy.

2.6: Numbots

As a school, we have a subscription to Numbots, which is used in EYFS and KS1 predominantly. It can also be used as a targeted programme for pupils in KS2 if required. Numbots is about every child achieving the 'triple

'win' of understanding, recall and fluency in mental addition and subtraction, so that they can move from counting to calculating. Numbots develops the skills of subitising, number bonds, addition and subtraction.

Children in EYFS and KS1 are expected to play on this for at least three times a week as part of their homework requirements.

2.7: Classroom Learning Environments

Each classroom should have a maths display relating to current work. The maths display should be presented to the pupils as a 'Maths working wall'. Displays should be accessible to both teaching staff and the pupils and should be updated regularly to reflect pace of learning. All teaching staff follow a list of 'non-negotiables' to inform them of what should be included on their 'working walls' to ensure that they are useful, purposeful and effective in promoting children's independence and progress in the subject. This list includes key vocabulary and STEM sentences, resources and the four operations, (after they are known to the children), current learning objectives, small steps that are being covered, examples of methods and calculations, examples of the children's work and interactive opportunities. Success Criteria is a non-negotiable within Maths, as we feel it is important for children to have access to the 'steps to success' needed for their current work. This can either be displayed in exercise books or on the working wall, however all children should know where to find it.



2.8: Resources

The effective use of resources is one of the essential elements in supporting children's mathematical learning. This idea is supported by the National Curriculum, and the growing emphasis on the need to develop children's thinking skills.

Our children have access to a variety of concrete resources (also referred to as manipulatives) and these objects and/or physical resources, aid their understanding of different maths concepts. Manipulatives can be almost anything – blocks, shapes, spinners or even paper that is cut or folded.

Each class has a class set of:

- Base 10
- Place value counters
- 2 sided counters
- Snap cubes
- Numicon
- Beaded number lines

We also have a KS1 and KS2 maths cupboard with other concrete resources that are used less frequently than the above which any member of staff can access.

3. Impact

3.1: How do we measure impact?

The impact of our curriculum can be measured and monitored in a variety of different ways. As a school, we use Target Tracker to monitor and measure progress in the core subjects: Maths, Writing, Reading and Science. Target Tracker allows all class teachers to colour code statements using three different colours: red indicates a child is Working Towards the statement, blue shows they are secure and gold shows they are working at Greater Depth within the standard. Target Tracker teacher judgement then allows subject leaders and the curriculum lead to cross-reference statements to evidence in books. At the end of each term (Autumn 1 and 2, Spring 1 and 2 and Summer 1 and 2), class teachers will assess pupils' learning, by completing a data drop, indicating which level they feel the child is working at, backed up with the evidence they have colour coded. Subject leaders/ curriculum lead can then download progress reports to look at whether children are on track and making satisfactory/good progress. They are able to also look at attainment for different pupil groups.

At the end of each half term, teachers complete Remember It tests with their class, and input their data on the associated spreadsheet. This helps them analyse their cohort's performance and look for areas of strength and gaps in learning, which will be addressed in daily maths or intervention.

REMEMBER IT TESTS

1 Find 10 more than 142

2 $739 = 700 + \square + 9$

3 Use 1000 to solve the multiplication

4 Write the common fraction to make the statement true

370 ○ 208

CommonMaths Remember It

Year 3 Term 1

Mathematics

First names _____
Last names _____

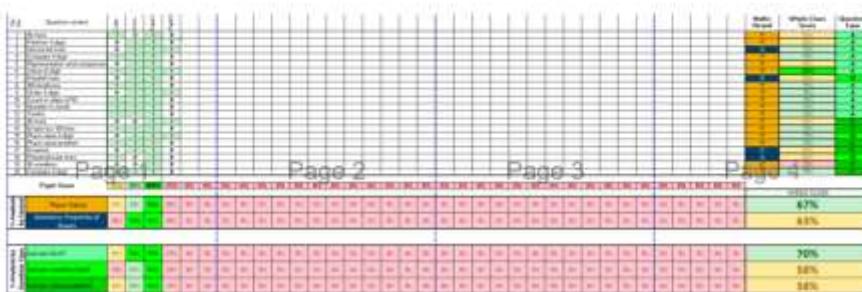
SEARCHES

Every half term, at the end of term, the children will complete a **Remember It** test. This will assess what they have learnt over the term.

The results are then inputted onto an excel spreadsheet to help you identify gaps.

The spreadsheet creates the analysis for you.

We will discuss this in triangulation meetings once a half term



In addition to summative assessment, we regularly monitor teaching and learning to see the impact that the learning experiences and opportunities are having for our children. To monitor the impact, the Curriculum Lead or Subject Lead could complete:

Lesson observations



Work sampling

Talking to staff/pupils (pupil conferencing)

Monitoring plans

Analysing data

Teacher evaluation/pupils

Display – visual evidence, photographs, ICT etc

Resources – audit use and accessibility

Questionnaires

External views from School Improvement Partner (SIP) or Teaching and Learning reviews.

Finally, we use published data to look at the impact of Maths across our school. We are able to use the end of Reception (% of Children achieving Good Levels of Development in Number and Shape, Space and Measure), KS1 assessment and the end of KS2 statutory assessment to look at the percentage of children achieving or exceeding the expected standard, as well as comparing ourselves nationally. We also use Ficher Family Trust to download detailed data analysis, looking at the attainment of different pupil groups.