



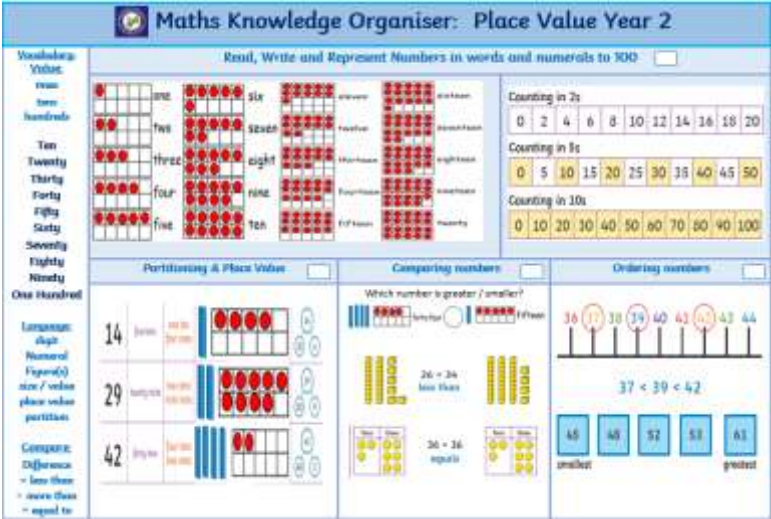
Trewirgie Infants' & Nursery School





Maths STRATEGY for 2022 – 2023

Mathematics - Intent and Implementation

Intent	At Trewirgie Infants' School our vision is to help, care and succeed. Our maths curriculum has been developed to ensure that children from the outset all children are given the best foundations to become confident, articulate and fluent mathematicians. Structured and progressive taught maths lessons enable children to learn and deepen their understanding of mathematical concepts through a range of intertwined experiences that promote fluency, reasoning and problem-solving. It is our intent for children to leave our school ready for their on-going learning journey and recognise how maths surrounds them in their everyday lives.	
Planning	Foundation Stage	Y1/Y2
Intent	<p>To ensure coverage of the EYFS curriculum, long term planning will be created from the ELG and Development Matters Framework. It will be pupil-led and bespoke to;</p> <p>'Practitioners must consider the individual needs, interests, and development of each child in their care, and must use this information to plan a challenging and enjoyable experience for each child.' (2021 Framework)</p> <p>The curriculum will therefore be adapted throughout the year to reflect AfL.</p>	Planning for maths is created to ensure coverage of the National Curriculum and adapted to meet the needs of our children.





<p>Implementation</p>	<p>Long term planning has been developed from Development Matters Big 6 ideas and linked to the 'Karen Wilding' approach including continuous provision on the agreed format.</p> <p>This is supplemented through the use of Numberblocks episodes White Rose, NRich, the School Calculation Policy and Development Matters Framework.</p> <p>Daily adult-taught sessions and will be reflected in continuous provision opportunities throughout the week as identified on weekly plans.</p>	<p>IN 2022-2023 the long-Term maths planning will be guided by the maths lead in school following review of the previous year.</p> <p>Medium Term Policy documents provide an overview of the end points for each objective identified in the curriculum. These will be developed into a child / parent friendly knowledge organiser that will be sent home and stuck at the start of the unit in their maths book.</p>  <p>Key Objectives are broken down into small steps that will be taught through a Concrete, Pictorial and abstract approach. At each stage children will be given opportunities to deepen their understanding through fluency, problem-solving and reasoning learning.</p>
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



































		Lessons are planned collectively in each Year Group and adapted by class teachers to meet the individual needs of their children following our inclusion and SEND policy.
Lesson design – Teaching		
Intent	Lessons will be structured to ensure that progression is made from start to finish. Children will be taught new concepts in each unit however the starting point will always be a recap of the previous year to ensure strong foundations for the next stage.	
Implementation	<p>Direct modelling using the Karen Wilding approach will be given from class teacher of new concepts following the school calculation policy, ensuring there is a clear progression.</p> <p>Direct whole class teaching will be for 15 minutes daily including ‘maths talk.’ sessions.</p> <p>Lessons will use a variety of different teaching styles to suit all learners, ensuring manipulatives are readily available to support and extend all children.</p>	<p>Direct modelling from class teacher of new concepts follows the school calculation policy, and policy document for each objective ensuring clear progression.</p> <p><u>Daily lessons for:</u></p> <p>Year 1: Autumn Term 30 minutes direct teaching in Autumn Term leading to the full 45 minute lesson by the end of Year 1.</p> <p>Year 2: Daily 45minute Maths lesson.</p> <p>Daily Starter – linked to a previous area of learning. TA support is targeted at supporting individual children.</p> <p>Vocabulary – Using My Turn, Your Turn (MTYT) and memory games to ensure children understand the vocabulary they will encounter in the lesson.</p> <p>Teachers will model the concept being taught using a range of appropriate resources. (See our resource Mat).</p> <p>All lessons will explicitly follow a clear pedagogical approach:</p>

		<p>Concrete - MAKE IT! Teaching actively models the mathematical concept using concrete resources via visualiser or practical demonstration.</p>  <p>Pictorial – SHOW IT / DRAW IT! Teaching actively models representing mathematical concepts for children to follow and create independently. It will demonstrate the clear setting out and expectations for setting out work.</p>  <p>Abstract – READ IT / WRITE IT! Teaching actively models how we represent the concept using mathematical numerals, words and symbols. We will encourage children to use pictorial methods if this supports them.</p>
<p><u>Resourcing and Display:</u></p>	<p>In each classroom a maths working wall that will be used to celebrate and promote Maths. It will increasingly be used actively within lessons to aid learners during their learning.</p> <p>In EYFS there will be a learning area specifically aimed at promoting and celebrating maths. This will include practical, natural and mathematical resources that can be used in Maths. Examples of pupils taking part in maths related experiences will be displayed.</p> <p>In Key Stage One this will include;</p> <ul style="list-style-type: none"> • Vocabulary linked to current area of learning – Four Calculations • Numberline representing numbers 0-20 in a tens frame • Number sense 12 strategies cards as these are being focussed upon each week. • Sentence stems linked to Reasoning and Problem-solving – see below. 	

	<ul style="list-style-type: none"> • Evidence of learning and teacher modelling for each stage through the Concrete, Pictorial and Abstract phases of the small steps. • Examples of teacher and pupil work demonstrating the correct approach / setting out including commentary for each stage of the Concrete, Pictorial and Abstract lessons. <p>In each classroom children will be able to explore and access all required resources that may support them in their learning. These may be centrally stored or table based in ‘Maths Bags’ on tables, or in a specific areas of the room dedicated to Maths.</p> <p>Through individual planning all staff will encourage and promote children to explore and access Maths resources independently.</p>
Lesson design – Learn, Confuse and Understand.	
Intent	<p>Children will have a variety of opportunities to demonstrate their learning through an array of rich and stimulating activities provided by the class teacher which include fluency, reasoning and problem solving.</p> <p>In order to ensure deep understanding, confuse elements will be incorporated in to the teaching sequence. The confuse may be within the lesson, an activity within the books or as a challenge or extension activity. The confuse activities allow the children to demonstrate their knowledge in a different way and thus provides depth of understanding. These can be written or through verbal discussions and applies to all year groups.</p> <p>Children will demonstrate their understanding of the concept that they have been taught by being fluent and able to problem solve and reason deeply about the topic area.</p>

<p>Implementation</p>	<p>Children will be able to use the skills taught within their play and continuous provision. FS staff will provide opportunities for these skills to be used within the setting and will encourage children to 'talk' about their maths.</p>	<p>Teachers will give children opportunities to reason and problem-solve throughout their learning journey. In Key Stage 1 questions will follow the star system below using a range of Question Stems that promote deeper mathematical thinking. These will be scaffolded for pupils at the learn stage so that they can be confident and successful. In Year 2 we will introduce a system of stars to identify where areas are building upon prior knowledge.</p> <div data-bbox="1317 507 1912 855" style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p style="text-align: center; color: red;">Independent Work.</p> <p style="text-align: center;">★ = Questions using today's learning. (Simple varied fluency.)</p> <p style="text-align: center;">★★ = Questions using today's learning alongside previous learning. (Confuse)</p> <p style="text-align: center;">★★★ = Investigative Work! More than one answer. Methodical approaches.</p> </div>		
	<p><u>Conjecture:</u></p> <p style="text-align: center;">★</p> <p>Mr Hill thinks that if he has $21 + 4 = 26$</p> <p>Is he correct? Can you explain why?</p>	<p><u>True or False:</u></p> <p>True or false?</p> <div data-bbox="1025 999 1128 1177" style="text-align: center;"> </div> <p>The flower is 8 cubes tall. Explain your answer.</p>	<p><u>Always, Sometimes or Never?</u></p> <p>Always, Sometimes or Never?</p> <p>When you subtract an even number crossing the the answer is even. e.g. $21 - 4 =$ or $32 - 6 =$</p> <p>Create your own sums to prove it.</p>	<p><u>Open-ended investigatons</u></p> <p>Both missing numbers are less than 10</p> <p style="text-align: center;">$7 + \square < 7 + \square$</p> <p>How many different possible answers can you find?</p>

	<p><u>Prove it!</u></p> <p>Mrs Jones thinks that $29 - 7$ is the same answer as 27 subtract 5. Is she correct? Prove it.</p>	<p><u>Real-life contexts:</u></p> <p>Lucy has  She spends  How much does she have left?</p> <p>Tamika has  She spends  How much does she have left?</p>
Number fluency – Declarative Knowledge.		
Intent	For children to develop a range of taught calculation strategies that enable them to become flexible, accurate and efficient in using the four operations of number. (Rapid recall).	
Implementation	Use focussed direct teaching time through the Karen Wilding approach, including daily number talk to develop a deep sense of number through use of natural and concrete maths materials, visual representations and continuous provision.	Daily 10 minute Number sense lessons will progressively build upon prior knowledge in EYFS by introducing a range of different strategies relating to number facts on a daily basis and builds upon this by using 12 effective strategies.

		<p style="text-align: center;">NSM Number Facts Calculation Strategies</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;"> <p>One More, One Less</p>  <p>When we add one, we get the next counting number. When we subtract one we get the previous counting number (e.g. $5 + 1 = 6$)</p> </td> <td style="width: 33%; padding: 5px;"> <p>Number Neighbours: Spot the Difference</p>  <p>Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2. Spot number neighbours (adjacent odds or evens) to solve subtraction of adjacent numbers (e.g. $5 - 4 = 1$), of adjacent odds (e.g. $9 - 7 = 2$) or adjacent evens (e.g. $6 - 4 = 2$)</p> </td> <td style="width: 33%; padding: 5px;"> <p>7 Free and 9 Square</p>  <p>Use these visual images to remember addition and subtraction fact families that children can find tricky. For example, visualising the 7 free helps remember that $7 - 3 = 4$. Visualising the 9 square helps remember that $3 + 6 = 9$.</p> </td> </tr> <tr> <td style="padding: 5px;"> <p>Two More, Two Less Think Odds and Evens</p>  <p>If we add two to a number, we go from odd to next odd or even to next even. If we subtract two from a number, we go from odd to previous odd or even to previous even.</p> </td> <td style="padding: 5px;"> <p>Number 10 Fact Families</p>  <p>Go beyond just recalling the pairs of numbers that add to 10. Make sure that we can also spot additions and subtractions which we can use number bonds to 10 to solve.</p> </td> <td style="padding: 5px;"> <p>Ten and A Bit</p>  <p>The numbers 11 – 20 are made up of 'Ten and a bit'. Recognising and understanding the 'Ten and a bit' structure of these numbers, enables addition and subtraction facts involving their constituent parts (e.g. $3 + 10 = 13$, $17 - 7 = 10$, $12 - 10 = 2$)</p> </td> </tr> <tr> <td style="padding: 5px;"> <p>Five and A Bit</p>  <p>The numbers 6, 7, 8 and 9 are made up of 'five and a bit'. This can be shown on hands, and supports decomposition of these numbers into their five and a bit parts (e.g. $3 + 3 = 6$, $3 - 3 = 0$)</p> </td> <td style="padding: 5px;"> <p>Know about 0</p>  <p>When we add 0 to or subtract 0 from another number, the total remains the same. If we subtract a number from itself, the difference is 0.</p> </td> <td style="padding: 5px;"> <p>Make Ten and Then...</p>  <p>Numbers which cross the 10 boundary can be calculated by 'Making Ten' first, and then adding on the remaining amount (e.g. $6 + 8$ can be calculated by thinking $6 + 2 = 10$ and 4 more makes 14). 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Sometimes reversing the order of the two addends makes addition easier to think about conceptually.</p> </td> </tr> </table> <p style="font-size: small; margin-top: 10px;"> ■ Number ■ Sense ■ Maths </p> <p style="text-align: right; font-size: x-small;">© Number Sense Maths 2020</p> <p>The structured components of Numbersense will build progressively across Key Stage 1 with clear end points for each unit. Children will be encouraged to develop rapid recall and fluency of times tables facts in a progressive order from the Summer Term that is aligned to the school multiplication and division policy.</p>	<p>One More, One Less</p>  <p>When we add one, we get the next counting number. When we subtract one we get the previous counting number (e.g. $5 + 1 = 6$)</p>	<p>Number Neighbours: Spot the Difference</p>  <p>Adjacent numbers have a difference of 1. Adjacent odds and evens have a difference of 2. 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Then use these known double facts to calculate near doubles and halfer doubles. Check we know $5 + 6 = 11$ then $6 + 7$ and $5 + 7$ is easy.</p>	<p>Adjust It</p>  <p>Any addition and subtraction can be calculated by adjusting from a fact you know already (e.g. $6 + 9$ is one less than $5 + 10$).</p>	<p>Swap It</p>  <p>When the order of two numbers being added (subtracted) is exchanged the total remains the same. E.g. $1 + 3 = 3 + 1$. Sometimes reversing the order of the two addends makes addition easier to think about conceptually.</p>
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Presentation														
Intent	Children's books will show their mathematical journey and tell a story of the learning, building on skills with well planned activities to stretch and challenge all learners.													
Implementation		<p>Each lesson will have the short date and an LO (Learning Objective) linked to the National Curriculum Objective.</p> <p>Children will use squares for each digit within books by the end of Year 1.</p>												

		<p>Where a mistake in number orientation or formation has been made this will be highlighted to the learner and verbally or through written marking modelled so that pupils can practice and make improvements.</p> <p>Through Maths mastery sessions at the beginning of the year all classes will focus on ensuring pupils are clear on the high expectations we expect at Trewirgie in terms of presentation, number formation so that they are successfully able to show pride in their work and books.</p>
Assessment		
Intent	Assessment of pupils attainment and progress will be made on an on-going basis	
Implementation	<p>National Baseline assessment will take place within the first 6 weeks of children entering reception.</p> <p>On-going assessment through observation will be recorded using insight at the end of learning experiences. These will be recorded in relation to the Development Matters Framework</p> <p>Half-termly assessment review with subject leader/SENCo to ireview impact of new curriculum model and discuss any specific concerns with individual children.</p>	<p>Daily assessment of pupil progress within individual lessons will be recorded in Pupils' books following the school marking and feedback policy. 'Live' in lesson marking will enable immediate feedback and correction in-line with the schools marking policy.</p> <p>Clear end points will be</p> <p>Rapid Intervention will be put in place to address misconceptions. This could include afternoon work with class teacher or TA to address these prior to the next lesson Year group teams will adapt teaching and learning to follow a bespoke pathway as is required.</p>

	<p>EYFSP – Foundation Stage Profile reported to parents including moderation through TPAT.</p>	<p>The progress of each pupil, the impact of teaching and AfL will be discussed in year groups and at pupil progress meetings as specified on the school timeline document.</p> <p>In Week 6 during ‘Maths Mastery’ lessons a short bespoke assessment will be taken to ensure that children are able to retrieve and retain the key component knowledge from the unit.. This will include retrieval of prior learning in units as set out in the Long-Term Maths Plan 2022-2023.</p> <p>All data will be held stored via Insight to evidence the daily work and assessments within each class by the class teacher.</p> <p>In Year 2, in preparation for the End of the Key Stage SATs and moderation additional assessment will be made via Teaching Assessment Framework (TAF) tasks. These will support teacher judgements in combination with the end of Key Stage test to ensure that judgements are working at the Expected Level.</p> <p>These will be reported to parents via the end of year school report process.</p>
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Appendix:

Fluency and rapid recall facts to be introduced within lessons 2021-2022.	
Spring Term Starters linked to Multiplication & Division	Revision of Year 1 objectives End of Autumn Term
<u>Year 1:</u>	Spring Term Linked to Multiplication & Division Unit of learning.
<ol style="list-style-type: none">1. Counting in 2's forwards2. Counting in 2's backwards3. Counting in 10's to 100 forwards4. Counting in 10's to 100 backwards5. Counting in 5's to 100 forwards6. Counting in 5's to 100 backwards	<u>Year 2:</u>
	<ol style="list-style-type: none">1. Counting in 10's Forwards / backwards from any 2 - digit number2. Multiplication and division facts for 2 x table3. Multiplication and division facts for 10 x table4. Multiplication and division facts for 5 x table5. Multiplication and division facts for 3 x table