



Forefield Junior School is a *P.R.O.U.D.* school built on *Passion* and *Respect*, where *Opportunities* can be seized by *Unique* and *Determined* learners.

***PROUD*** to be ***FOREFIELD***



## **Subject Leader Report: Mathematics**

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many people to the development and application of mathematics.

### **Our Aims are:**

- to provide the opportunity for children to develop the practical skills and understanding as outlined in the National Curriculum for Mathematics

- to develop the children's mental arithmetic skills and mental methods to help children observe the patterns and relationships of mathematics
- to encourage the use of mathematical language in order to discuss, explain and express ideas and to interpret results
- to develop the creativity and flexibility of mind to investigate and problem solve
- to encourage children to work both independently and collaboratively and be able to select appropriate strategies, materials and equipment for tasks set
- to help children develop their use of computing within the context of mathematics
- to help children to experience success and enjoyment from mathematical study in order to develop a confident and positive approach to the subject.
- to achieve their full potential.

## **The Mathematics Curriculum**

### **Curriculum Intent – What are we trying to achieve through our curriculum?**

#### **An ambitious scheme of work that challenges all pupils**

All group teams use the White Rose Mathematics scheme of work that promotes reasoning, problem solving, perseverance and opportunities for collaborative learning. Opportunities to embed fluency are built in to all topics. Full curriculum coverage is ensured through monitoring and book scrutiny. Year group planning meetings are used to discuss the pitch of lessons for different ability groups. Pre-learning tasks inform the subject content and depth of future topics. The Scheme of Work is adjusted for individual classes and the year

group as a whole according to the needs of the children in each class. Assessment for Learning questions and key vocabulary are included in lesson planning to inform pupil questioning.

Co-coaching sessions are used to discuss the pedagogy of forthcoming topics. We share different strategies, resources and assessment for learning tools to ensure all teachers are constantly sharing and developing knowledge, skill and understanding.

Transition meetings and cross phase lesson observations ensure KS2 starts where KS1 left off. This is monitored through monitoring and book scrutiny.

Problem-solving questions are not restricted to worded problems.

### **Inspiring and exciting students**

We aim to make learning exciting. We encourage resilience by rewarding and celebrating perseverance rather than just the correct answer. This is monitored through learning walks and lesson observations.

We promote independence by providing concrete materials and visual prompts that children can access without needing recourse to a teacher.

Students develop perseverance as a result of regular exposure to low threshold – high ceiling tasks, opportunities to work collaboratively and a classroom culture that values making mistakes as a step towards new learning.

Teachers give children thinking time when responding to questions.

### **Embedding the skills pupils have been taught**

Every lesson in the White Rose Scheme of learning starts with questions designed to embed previous learning so that children know more and remember more.

Opportunities are sought to make links with mathematics in the wider curriculum. Some examples include:

- interpreting/drawing graphs

- investigating populations

reading and interpreting problems  
presenting and explaining reasoning  
measuring using Newton meters, measuring cylinders, stop  
watches and weighing scales  
interpreting scales and calculating distances  
searching for and describing patterns

## **Implementation - How is our curriculum delivered?**

### **Embedding Quality Teaching and Learning**

Teachers use a range of assessment for learning strategies in every lesson to allow all children to demonstrate what they can do and to allow increased thinking time when responding to the teacher's questions.

Strategies might include:

- 'show me' tools (individual whiteboards, numbers up etc)
- group discussions
- talking partners
- pre-learning and post learning tasks

Year 3 teachers from the Juniors and Year 2 teachers from the Infants met to develop and enhance transition from KS1 to KS2.

Year group planning meetings are used to discuss the pitch of lessons for different ability groups. Pre-learning tasks inform the subject content and depth of future topics. The use of concrete materials is embedded in lessons throughout the Key Stage to support deep learning. High quality concrete materials across all areas of

the mathematics curriculum are available to support the CONCRETE - PICTORIAL - ABSTRACT approach which is fundamental to teaching for mastery.

### **Written feedback**

We have developed a marking system that clearly identifies areas of success and areas for development. All children have access to a copy of the code which is displayed in the classroom and in their exercise book. Children are expected to respond to the different elements of the code in different ways in response to the teacher's feedback.

Children are given sufficient time to respond to the teacher's feedback.

### **Supporting teachers to deliver excellence**

Online training from White Rose Mathematics has supported the development of the CPA approach. It focused on the use of concrete materials to embed deep learning and to underpin learning - teaching structures before procedures. Further training on 'Thinking through Variation' and 'Mathematical Talk and Questioning' have been completed this year.

Learning walks, lesson observations and pupil questionnaires are used as a means to monitor engagement in lessons.

## Organisation of the Curriculum

### YEAR 3

Autumn	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number – Place Value			Number - addition and subtraction					Number – multiplication and division				Consolidation	
Spring	15	16	17	18	19	20	21	22	23	24	25	26		
	Number – multiplication and division			Measurement – length and perimeter			Number - fractions			Measurement – mass and capacity				
Summer	27	28	29	30	31	32	33	34	35	36	37	38	39	
	Number - fractions		Measurement - money		Measurement - time			Geometry			Statistics			

### YEAR 4

Autumn	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number – Place Value				Number – addition and subtraction			Measurement - area		Number – multiplication and division			Consolidation	
Spring	15	16	17	18	19	20	21	22	23	24	25	26		
	Number – multiplication and division			Measurement– length and perimeter		Number – fractions				Number - decimals				
Summer	27	28	29	30	31	32	33	34	35	36	37	38	39	
	Number – decimals		Measurement - money		Measurement - time		Statistics		Geometry – properties of shapes		Geometry - position and direction			

## YEAR 5

Autumn	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number – Place Value			Number - addition and subtraction		Number - multiplication and division			Number – fractions				Consolidation	
Spring	15	16	17	18	19	20	21	22	23	24	25	26		
	Number - multiplication and division			Number – fractions		Number – decimals and percentages			Measurement – perimeter and area		Statistics			
Summer	27	28	29	30	31	32	33	34	35	36	37	38	39	
	Geometry – properties of shapes			Geometry - position and direction		Number – decimals and percentages			Number – negative numbers		Measurement – converting units, volume		Measurement – volume	

## YEAR 6

Autumn	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number – Place Value		Number – addition, subtraction, multiplication and division					Number – fractions, decimals and percentages			Measurement		Geometry	
Spring	15	16	17	18	19	20	21	22	23	24	25			
	Number – ratio and proportion		Algebra		Number - decimals		Number - decimals and percentages		Measurement – area, perimeter and volume			Statistics		
Summer	26	27	28	29	30	31	32	33	34	35	36	37	38	39
	Revision and consolidation				SATs	Ambleside	Statistics		Algebra		Geometry			

## Impact

SATs results – results in 2020 and 2021 were based on Teacher Assessments.

	% Below Expected Standard	% At Expected Standard	% Achieving a High Score	% At Expected Standard National
<b>2019</b>	<b>18%</b>	<b>82%</b>	<b>28%</b>	<b>79%</b>
<b>Progress</b>	<b>-0.99</b>			
<b>2022</b>	<b>26%</b>	<b>74%</b>	<b>30%</b>	<b>71%</b>
<b>Progress</b>	<b>-0.2</b>			
<b>2023</b>	<b>18%</b>	<b>82%</b>	<b>26%</b>	<b>73%</b>
<b>Progress</b>	<b>-0.86</b>			

# Assessment

## Summative Assessment

	Autumn Term	Spring Term	Summer Term
TESTING	NFER tests <ul style="list-style-type: none"><li>• Arithmetic</li><li>• PSR 1</li><li>• PSR2</li></ul>	NFER tests <ul style="list-style-type: none"><li>• Arithmetic</li><li>• PSR 1</li><li>• PSR2</li></ul>	NFER tests <ul style="list-style-type: none"><li>• Arithmetic</li><li>• PSR 1</li><li>• PSR2</li></ul>
ANALYSIS	Pupil Progress meetings	Pupil Progress meetings	Pupil Progress meetings
REPORTING	Parents' evening	Parents' evening	End of year report

## Formative Assessment

Strategies vary from lesson to lesson and depend on the mathematical concept being assessed.

Questioning	Marking	Observation	Pre and post learning task
Challenge children to demonstrate higher level thinking by asking challenging questions such as asking them to explain, justify, imagine or defend.	Forms an integral part of the teaching and learning cycle. Further clarified in the marking section of the Assessment Policy.	The teacher may observe children as they are engaged in an activity without engaging in discussion or questioning to assess who demonstrates mastery and who needs more support.	May be used to assess what children can do before learning activities have taken place and how they progress over the course of a lesson or series of lessons.

<b>Pupil self-assessment</b>  Children reflect on their learning, and assess where they are in the continuum, explaining how they feel their work reflects what was expected.	<b>Concept mapping</b>  May be used at the beginning of a new topic to establish what children know, wish to know or don't know yet.	<b>One to one discussion</b>  The teacher meets with children to discuss a specific targeted skill. The teacher can record the child's progress toward the standard and what is the next step for them.	<b>Guided Problem Solving</b>  The teacher works with a small group on specific reading/writing tasks.
<b>Show-me activities</b>  Children record their answer to a given question on their white boards. On the teacher's signal, the children raise their boards so the teacher can see if they arrived at a reasonable answer.	<b>Quick write/quick draw</b>  Children use visuals, such as drawings, diagrams, photos, maps or 3 D creations to demonstrate understanding of a concept - the teacher may question the child for further definition.	<b>End of Block Quiz</b>  This may be presented to the children on paper or electronically using Seesaw/Kahoot etc	<b>Think- Pair – Share</b>  The teacher presents a question Children have 20 -30 seconds to think on their own. On a signal, they turn to a partner and discuss their thoughts for approx. 1 minute, and finally they share with the class for discussion.

# Mathematics within the wider curriculum

Book scrutiny/learning walks evidence the use of mathematics in a range of other subjects:

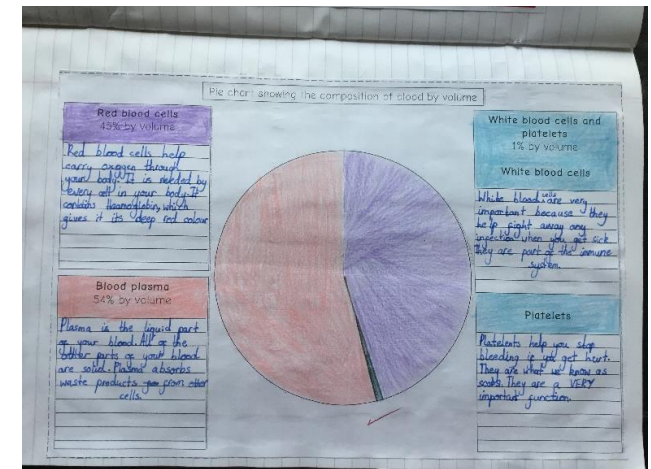
Subject	Evidence of
Science	Representing data in different ways – bar charts, line graphs, pie charts Measuring time, length, temperature, capacity
Geography	Statistics – population, weather and climate Position and direction when using studying maps
Computing	use sequences and repetition in programs understanding algorithms
History	Chronology – time lines
Design Technology	Measuring capacity, mass, area, time, temperature



Cooking in maths



Growing sunflowers in the Learning Garden

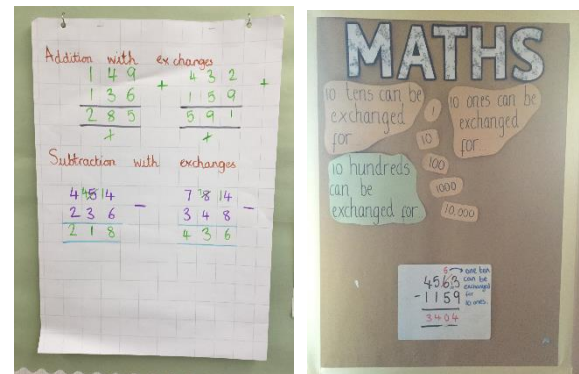


Representing data in science

## **British Values**

At Forefield Junior School, we understand clearly our responsibility in preparing children for their next stage of education and for the opportunities, responsibilities and experiences of later life, laying the foundations so that they can take their place successfully in modern British society. We promote a respect for and understanding of different faiths, cultures and lifestyles. The spiritual, moral, social and cultural development of each child is central to everything that we do as a school and central to our vision of “Passion, Respect, Opportunity, Unique and Determined”. This is evidenced through our teaching and learning, our inclusive environment and through the many opportunities provided for our children to understand Democracy, Law, Liberty, Mutual Respect and Tolerance.

# Mathematics Action Plan 2022 - 2023

Objective	Actions	Resources/Time frame	Outcome
Ensure that staff are enabled to deliver the most effective teaching to develop reasoning and problem solving skills.	Thinking through Variation training	Thinking through Variation training - online training course from White Rose Mathematics Autumn term	Book scrutiny shows variation as well embedded through the use of White Rose Mathematics schemes of work.
	Mathematical Talk and Questioning training	Mathematical Talk and Questioning online training course from White Rose Mathematics Spring term	 <p>Evidence shows that vocabulary, questioning, representations and challenge are embedded across the school. This example shoes the consistent use of vocabulary when using written methods for addition and subtraction.</p>

Objective	Actions	Resources/Time frame	Outcome
Ensure that pupils are able to apply mathematical knowledge, concepts and procedures appropriately for their age – identifying and supporting pupils to ‘catch-up’ key skills through targeted interventions.	Filling the gaps intervention for Y6 children	L Cain 1 x 30 mins per week M Croot 1 x 30 mins per week D Wood 1 x 30 mins per week	8% more children achieved the expected standard in 2023 than 2022. At the end of Y5 74% of this cohort achieved the expected standard, rising to 82% at the end of Y6.
		J Burr tutoring 2 x 30 mins per week before school	All of the children who accessed tutoring achieved the expected standard.
	Multiplication and divisions facts intervention for Y5 children based on results of Y4 Tables check	J. Burr 4 x 30 mins per week S Schwartz 1 x 30 mins per week	72% expected in Summer term, up from 66% expected in Spring term.
	Multiplication and divisions facts intervention for Y4 children based on results of times tables assessment September 2022.	J. Hill 1 x 30 mins per week L. Summers 1 x 30 mins per week E. Gerrard 1 x 30 mins per week	80% expected in Summer term, up from 76% expected in Spring term.
	Mathematical fundamentals intervention for Y3 children	J. Burr 3 x 30 mins per week	67% expected in Summer term, up from 61% expected in Spring term.

## Mathematics Action Plan 2023 - 2024

Objective	Actions	Resources/Time frame	Outcome
Enhance support for parents: to have a clearer understanding of the mastery approach to access support to help with maths at home	Support Your Child With Maths in Year 3 practical session with SR and Y3 teacher Develop 'Support Your Child With Maths in Year 3' section on Maths curriculum section of website	Autumn Term afternoon session and after school session Release Y3 teacher	
	Support Your Child With Maths in Year 4 practical session with SR and Y4 teacher Develop 'Support Your Child With Maths in Year 4' section on Maths curriculum section of website	Spring Term afternoon session and after school session Release Y4 teacher	

Objective	Actions	Resources/Time frame	Outcome
	Support Your Child With Maths in Year 5 practical session with SR and Y5 teacher Develop 'Support Your Child With Maths in Year 5' section on Maths curriculum section of website	Spring term afternoon session and after school session Release Y5 teacher	
	Support Your Child With Maths in Year 6 practical session with SR and Y6 teacher Develop 'Support Your Child With Maths in Year 6' section on Maths curriculum section of website	Autumn Term afternoon session and after school session Release Y6 teacher	
Ensure that pupils are able to apply mathematical knowledge, concepts and procedures appropriately	Filling the gaps intervention for Y6 children	M. Croot 1 x 30 mins per week D. Wood 1 x 30 mins per week	
		Tutoring: 8 tutors will deliver 2 x 45 mins tutoring each week	

Objective	Actions	Resources/Time frame	Outcome
for their age – identifying and supporting pupils to ‘catch-up’ key skills through targeted interventions.	Multiplication and divisions facts intervention for Y4 children based on results of times tables assessment September 2022.	L. Parry 2 x 30 mins per week J. Hill 1 x 30 mins per week	
	Mathematical fundamentals support for Y4 children	E Harper – daily maths lesson with 12 children H. Barton – daily maths lesson with 12 children	