



# Crosslee Community Primary School

## Maths Policy

**Changing Lives in Collaboration – Together We Make the Difference**

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As part of our commitment to be a nurturing school we will offer a range of opportunities within our curriculum for children to build self-esteem, resilience and aspirations, as well as a positive view towards health and self-respect to support their mental health.

We actively promote Fundamental British Values in our school to ensure young people leave school prepared for life in modern Britain. Pupils are taught to regard people of all faiths, races and cultures with respect and tolerance. They are taught to understand that while different people may hold different views about what is 'right' and 'wrong', all people living in England are subject to its law.

As a Rights Respecting School we uphold the articles from the United Nations Convention on the Rights of the Child. Children's rights are at the heart of our ethos and culture, to improve well-being and to develop every child's talents and abilities to their full potential.

### **Aims**

At Crosslee our mathematics curriculum aims to:

- ❖ Be at age related expectation in maths
- ❖ Promote confidence and competence with numbers and the number system.
- ❖ Develop a creative and systematic approach to problem solving
- ❖ Develop mathematical fluency, thinking and communicating as mathematicians.

### **Requirements**

The requirements for the teaching and learning of English are laid out in the National Curriculum (2014) and in the New Early Years Foundation Stage Framework (2021). These requirements are integrated through quality teaching, leading to exciting and successful learning.

### **Maths at Crosslee**

Our maths curriculum is fundamentally built on the concrete-pictorial-abstract approach to teaching (CPA) and involves a combination of child-led exploration paired with high quality teacher instruction, leading learners through carefully sequenced, coherent steps in order to reach age-related expectations. We achieve this using high quality schemes of learning and evidence-based approaches.

### **Early Years**

Children in the Early years develop their core maths skills as they learn about counting, problem solving, patterns and shapes. Their mathematical thinking is developed in a number of ways such as daily maths carpet times, a mixture of planned and child initiated activities in the indoor/outdoor provision and small group focus activities throughout the week. Children in reception follow the White Rose scheme of learning which breaks down the early learning goals into small logical steps. In nursery the children follow learning trajectories which breaks their learning down into small steps.

### **Number**

- ❖ Have a deep understanding of number to 10, including the composition of each number;
- ❖ Subitise (recognise quantities without counting) up to 5;
- ❖ Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

- ❖ Numerical patterns
- ❖ Verbally count beyond 20, recognising the pattern of the counting system;
- ❖ Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- ❖ Explore and represent patterns within numbers up to 10, including even and odds, double facts and how quantities can be distributed equally.

### **Shape, space and measure**

As part of the EYFS Reforms (September 2021), Shape, Space and Measures was removed from the Mathematics area of learning within the EYFS Framework. At Crosslee our curriculum continues to cover space, shape and measure as it is imperative that children in the Early years are continued to be exposed to these areas in maths.

### **Key Stages One and Two**

Maths lessons at Crosslee split into a 5 part model:

- ❖ In Focus task (exploring a problem collaboratively using concrete manipulatives)
- ❖ Journaling (teacher-led or child-led) - This is the children's opportunity to demonstrate their understanding of new methods and mathematical reasoning.
- ❖ Master (teacher-led)- Children will be explicitly taught the mastery methods.
- ❖ Guided practice (in pairs)- An opportunity for children to work with their peers, develop their use of STEM sentences and reasoning.
- ❖ Workbook (independent practice)

### **Times tables**

Children in year 3, 4 and 5 take part in daily maths challenge sessions to become fluent in their timetables.

- ❖ Systematic, whole class approach to learning the times tables.
- ❖ Aims to break down the learning of the times tables into manageable chunks learning a times table at a time.
- ❖ Importance of the commutative law and the relationship with division facts.
- ❖ Rote learning in which children learn the number facts AND a sound pattern (this is important).
- ❖ Little and often - A two minute time table test each day.

- ❖ 40 questions in each test. The children have two minutes to complete the test. An average of 3 seconds per question.

### **Inclusion and equal opportunities**

All children are provided with equal access to the Maths curriculum. We aim to provide excellent learning opportunities. Work is adapted as appropriate.

### **Intervention programmes**

First Class at Number

Success at Arithmetic

### **Appendix 1 - Calculation policy**

[Calculation Policy.pdf](#)

## Appendix 2 – Times tables at Crosslee



# Times Tables at Crosslee

## Whole school approach – maths context

We understand that children must know these facts about how times tables work before they start learning them and before they can master them. We practise the target timetable for year 2- 6 for 5/10 minutes each day developing these 4 skills:

### 1. Repeated addition

$4 \times 5$  is the same as  $5 + 5 + 5 + 5$ .

Children need experience of using concrete maths manipulatives such as counters or multilink cubes and pictorial representations of objects, forming arrays.

### 2. Multiplication is commutative

$4 \times 5$  is the same as  $5 \times 4$ .

Children build on their existing understanding using arrays, turning the arrays around to show that you now have 5 groups of 4 and they will still total 20. This can then be linked to recalling multiplication facts, i.e. if they know their 5 times table as facts but not their 4 times table, they can use  $4 \times 5$  to work out  $5 \times 4$ . This link needs

### 3. Multiplication is the inverse of division

$20 \div 5 = 4$  can be worked out because  $5 \times 4 = 20$ .

Again, the use of arrays is key. Children need experience of pulling arrays apart into groups or sharing. After basic experience has been gained, the children should start to 'see' an array structure as 5 groups of 4 equal 20 and 20 can be split into 5 groups of 4.

### 4. Explicitly link multiplication facts when deriving facts

$30 \times 70$ , but within a place value context (in this case). "We know seven threes are \_\_\_\_\_ so we know..."

**Times table fluency is taught separately from application of these facts.**

**Fluency is taught once a day using the maths challenge.....**

Our Year 2 children will be able to count in multiples of 2, 5 and 10. They may not enter Year 3 with **times table recall** but they do have a deep understanding of the commutativity of multiplication and of multiplication as repeated addition, using manipulatives and pictures to calculate products. E.g.  $7 \times 5$  as 7 groups of 5 sweets.

## Whole school approach – Taking ownership

- It is crucial that all teachers engage with the process and take ownership.
- They must know who is 'stuck' and what is the one fact they will learn that day.
- If teachers just hand out booklets and go through the process, it won't get results.
- It is the teacher's job to find the barrier for children who aren't progressing and problem solve past the barrier.
- It is crucial that teachers are enthusiastic about the challenge and create an environment where the children feel excited (and not nervous) about the challenge and encouraging of their peers.

### **Maths Challenge – What is it?**

- Systematic, whole class approach to learning the times tables.
- Aims to break down the learning of the times tables into manageable chunks learning a times table at a time.
- Importance of the commutative law and the relationship with division facts.
- Rote learning in which children learn the number facts AND a sound pattern (this is important).
- Little and often - A two minute times table test **each** day.
- 40 questions in each test. The children have two minutes to complete the test. An average of 3 seconds per question.

### **Timeline for learning at Crosslee**

- **End of Key Stage 1:** Children should have an understanding of multiplying as repeated addition.

e.g.  $7 \times 5$  drawing images 7 groups of 5 drawn

Children should have a knowledge of the  $x2 - x5 - x10$  times table.

The Reality - No actual times table recall.

- **Year 3:** Introduce Maths Challenge.

Children become fluent in  $x2 - x5 - x3$  (**Learn 26 facts**)

- **Year 4:** Revising Year 3 content (inevitable summer holiday dip)

Children learn  $x4 - x6 - x7 - x8 - x9$  (**Learn 26 facts**)

$x11 - x12$  (**Learn 3 facts**)

- **Year 5 and 6:** Revising Year 3&4 content (inevitable summer holiday dip)

Children continue to practise weaker tables in same way as LKS2.

1X	2X	3X	4X	5X	6X	7X	8X	9X	10X	11X	12X
1X1	2X1	3X1	4X1	5X1	6X1	7X1	8X1	9X1	10X1	11X1	12X1
1X2	2X2	3X2	4X2	5X2	6X2	7X2	8X2	9X2	10X2	11X2	12X2
1X3	2X3	3X3	4X3	5X3	6X3	7X3	8X3	9X3	10X3	11X3	12X3
1X4	2X4	3X4	4X4	5X4	6X4	7X4	8X4	9X4	10X4	11X4	12X4
1X5	2X5	3X5	4X5	5X5	6X5	7X5	8X5	9X5	10X5	11X5	12X5
1X6	2X6	3X6	4X6	5X6	6X6	7X6	8X6	9X6	10X6	11X6	12X6
1X7	2X7	3X7	4X7	5X7	6X7	7X7	8X7	9X7	10X7	11X7	12X7
1X8	2X8	3X8	4X8	5X8	6X8	7X8	8X8	9X8	10X8	11X8	12X8
1X9	2X9	3X9	4X9	5X9	6X9	7X9	8X9	9X9	10X9	11X9	12X9
1X10	2X10	3X10	4X10	5X10	6X10	7X10	8X10	9X10	10X10	11X10	12X10
1X11	2X11	3X11	4X11	5X11	6X11	7X11	8X11	9X11	10X11	11X11	12X11
1X12	2X12	3X12	4X12	5X12	6X12	7X12	8X12	9X12	10X12	11X12	12X12

## How and when do we teach?

Maths Times table Challenge Year 4 Annual Overview 2018-2019

ASHLEY DA  
SCHOOLS FEDERATION

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S									
Sept Term 1	--- Summer Holiday ---				1	2	3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
					Review Year 3 learning							Review Year 3 learning							Introduce 4x																		
Oct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	--- Half Term Holiday ---					
					ASSESSMENT WEEK							WEEK OFF							Introduce 6x																		
Nov Term 2					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
					ASSESSMENT WEEK							WEEK OFF							Introduce 8x																		
Dec					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
					ASSESSMENT WEEK							WEEK OFF							Introduce 7x_9x																		
Jan Term 3	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	--- Christmas Holiday ---				
	--- Christmas Holiday ---				ASSESSMENT WEEK							WEEK OFF							Introduce 11x (x2-x6)																		
Feb					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	--- Half Term Holiday ---				
					ASSESSMENT WEEK							WEEK OFF							Introduce 11x (x7-x12)																		
Mar Term 4					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
					ASSESSMENT WEEK							WEEK OFF							Introduce 12x (x2-x6)																		
April Term 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	--- Easter Holiday ---						
	Introduce 12x (x7-x12)				--- Easter Holiday ---							--- Easter Holiday ---							Testing of all x tables																		
May					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2
					ASSESSMENT WEEK							WEEK OFF							Introduce 12x (x7-x12)																		
June Term 6	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	--- Half Term Holiday ---								
					Multiplication Tables Check - Testing begins Monday 10 <sup>th</sup> June through to Friday 28 <sup>th</sup> June							ASSESSMENT WEEK							WEEK OFF																		
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	--- Summer Holiday ---					
					ASSESSMENT WEEK							WEEK OFF							--- Summer Holiday ---																		

1. Use the school calendar to 'map out' where each new table will be introduced (each new table should have approximately 6 weeks dedicated to it)



2. Introduce a new times table
  - Let's look at the 6 times table.
  - It is important to highlight what the children already know as known facts (KF). Through the knowledge of commutative law they can really see even at this stage how much they already know.
  - Write up the associated division facts alongside the times table facts so that the children can see the clear relationship between multiplication and division.
  - Learn a fact at a time. Do one a day (flash cards)
  - Jill Mansergh – Tables with a number stick  
<https://www.youtube.com/watch?v=yXdHGBfoqfw> (this can also be done with a hoop to show the 'never endingness' of times tables.

## Key Principles

- 1) Learn each number sentence as a memorised phrase by repeating the sound pattern out loud (like song lyrics, they stick).
- 2) Learn each fact one way round only.

**4 x 6 = becomes six fours are twenty four. (4 times table)**

Always state the larger number first. The children very quickly become attuned to this and it just helps in the learning process.

- 3) Learn one new fact at a time. We will look at  $6 \times 6 = 36$  one day.

Then  $7 \times 6 =$  the following day.

- 4) Don't think. We want them to become known facts.

Leave the answers on display. Children CAN copy!

- 5) 6 times table booklet will contain  $x2 - x3 - x4 - x5 - x6$  facts but will be weighted with additional six times table facts.

## Maths Challenge

- All children will complete a two minute test and then run through the answers ONCE a day EVERY day.
- You MUST run through the questions in order, vertically down the page, not skipping any facts. The marking is the teaching/practise time.
- All in all, including answers, it should take about 7 minutes (initially this may be longer)

## Reading out the answers

- The children mark their own booklets so that they can fill in any gaps if necessary.
- The full times table fact is read out. We always say the larger number first so that they are only learning one sound pattern for each fact. For example, if the number fact is  $6 \times 7 = 42$ , we say seven sixes are forty two.
- The children then repeat that fact back to you. It's important that **every** child does this.

- For division facts say the following. For 18 divided 3 say ,Mmm threes are eighteen'. The children then say the learnt times table fact replacing the Mmm with the appropriate number. 'Six threes are eighteen'.
- Once marked the children then share their results with the class and identify a number fact they need to learn.
- Keep track of scores so progress and impact can be seen.

<u>It says</u>	<u>We read</u>
$2 \times 4 = 8$	Four twos are 8
$18 \div 3 = 6$	Mmm 3s are 18

### What about slow graspers?

- Important to identify those children that are 'stuck' and unpick the barrier. What is the one fact they will learn that day/week?
- Envelope system
- Dyslexic children – it WILL be harder but hugely advantageous to learn them and they can do it (contrary to some advice from dyslexia specialists).

### Additional support

- Start by conferencing the child to identify the number facts they can recall/known facts (green) and unknown facts (red). They then pick two **different** unknown facts and use them as a bookmark to self test before testing.
- Have 'red' facts on flash cards.
- Individual 1-1 intervention for those children who are struggling to remember number facts (chanting, flash cards, extra practise in short bursts)
- Guidance provided to parents as to how they can support the individual's learning (send home flashcards).