



## THE CRESCENT PRIMARY SCHOOL MATHEMATICS POLICY

### **The Nature of Mathematics**

Mathematics is a core subject and is taught in all year groups. At The Crescent we aim to give children the knowledge, skills and attitudes to enable them to use mathematics in everyday life.

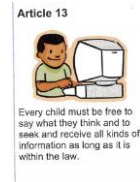
### **Aims and Objectives**

Each child should be able to think and solve problems mathematically by using the appropriate skills, concepts and knowledge. They should be provided with rich and enjoyable experiences related both to their individual needs and to the wider requirements of society.

This policy refers to articles 12, 13, 23, 28 and 29 of the UNCR.

We aim for each child to:

1. have a positive attitude towards mathematics
2. have self-confidence in their ability to deal with mathematics
3. be able to work systematically, co-operatively and with perseverance
4. be able to think logically and independently
5. experience a sense of achievement regardless of age or ability
6. understand the appropriate underlying skills, concepts and knowledge of number, measurement, geometry, statistics and algebra.
7. be able to apply previously acquired concepts, skills, knowledge and understanding to new situations both in and out of school
8. understand and appreciate pattern and relationship in mathematics
9. be able to communicate with peers and adults, ideas, experiences, questions, clearly and fluently, using the appropriate mathematical language
10. be able to explore problems using the appropriate strategies, predictions and deductions
11. have equality of opportunity regardless of race, gender or ability
12. be aware of the uses of mathematics beyond the classroom
13. encourage the use of mental calculations and choose efficient strategies to work out the answers
14. be able to quickly recall a variety of number facts to support their mathematics



### **The Policy and the National Curriculum**

At The Crescent Primary School we are endeavouring to enable children to reach their full potential in mathematics by teaching the subject according to the requirements of the National Curriculum as set out by the Ready to Progress Guidance (July 2020). All children will experience the opportunity to investigate mathematics using and developing the various concepts and skills that they have learned. The Ready to Progress Guidance sets expected targets for each child to achieve by the end of the year.

### **Equal Opportunities**

At The Crescent Primary School we aim to give equal access and entitlement to the mathematics curriculum for all children. We teach mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Work in mathematics takes into account the targets set for individual

children in their Personalised Learning Plans (PLPs). Appropriate provision will be made for the S.E.N.D and the more able pupils and there will be equal access for all children regardless of gender, race and ability. Positive attitudes towards maths are encouraged, so that all pupils, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all pupils including those for whom English is an additional language (EAL). Differentiated questions are used in lessons to help pupils and planned support from teaching assistants and other adults.

### Approaches to Teaching and Learning

All classes in the school will have a minimum of four mathematics lessons, of approximately one hour throughout the week, as well as being taught key number facts. We teach mathematics in our early year classes, we relate the mathematical aspects of the children’s work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. Reception classes will use a more flexible/integrated approach when the children first start school, and will introduce a more formal format in the Summer Term, so that the children are familiar with this before they move into Year One.

Children will be introduced to mathematics in a practical way, beginning when they first enter the Reception class. Mathematics will build on their own experiences and relate to physical objects and the world around them.

Children will develop mental and oral skills that will form the basis for their written work. Early recording will be of an informal nature before moving on to more formal written methods.

Teachers will encourage the development of skills through interactive teaching; use of concrete resources, differentiated questioning to include all pupils; a variety of teaching methods including whole class, group and individual work. Vocabulary mats and Knowledge Organisers are used to help the children understand the language that will be used and the models and images that they will need to use in order to access their learning: -

Autumn 2 \_ Year 2 \_ Money Knowledge Organiser

Money		Knowledge Organiser	
<b>Key Vocabulary</b>	<b>Pence</b>	<b>Pounds</b>	<b>Pounds and Pence</b>
pence	1p 2p 5p 1 penny 2 pence 5 pence	£1 £2 £5 1 pound 2 pounds 5 pounds	£2 and 20p
pound			
coin			
note	10p 20p 50p 10 pence 20 pence 50 pence	£10 £20 £50 10 pounds 20 pounds 50 pounds	
total			
amount			
change	<b>Equal Amounts</b>	<b>Compare Amounts</b>	
difference	$20p = 20p = 20p$	$75p > 74p$	
price			
cost			
pay	$£1 = £1 = £1$	$£9 \text{ and } 50p < £10$	
owe			
<b>Find the Total</b>	<b>Find the Change</b>		
<p>Lucy bought a teddy bear and some playing cards.</p> <p><math>45p + 14p = 59p</math></p> <p>Timek bought two books.</p> <p><math>25p + 25p = 50p</math></p>	<p>Lucy bought a jigsaw with a 50p coin. How much change did she get?</p> <p><math>50p - 40p = 10p</math></p> <p>Timek bought a plant and a toy car. He paid with a £1 coin. How much change did he get?</p> <p><math>£1 - 80p = 20p</math></p>		

<u>Definition</u>	<u>Vocabulary</u>
What something costs.	<b>Change</b>
Coins	<b>Value</b>
Notes	<b>Amount</b>
	<b>Total</b>
<b>Image</b>	
Money	
£ p	
<u>Examples</u>	<u>In a Sentence</u>
	<p>The value of 50p is 50 pence.</p> <p>The total of 20p and 5p is 25p.</p> <p>If I got some sweets for 12p and paid 20p, my change would be 8p.</p>

Multiplication is taught from Early Years to Year 1 in a practical way using concrete resources to aid development of doubling and halving. In Year 1, children will learn how to count in 2s, 5s and 10s: -

## YEAR R

Children should be able to:

- Double numbers up to 10 (multiplying by 2)
- Halve numbers up to 10 (dividing by 2)



## YEAR 1

- To be able to count in 2s, 5s and 10s
- To make connections between arrays, number patterns and counting in 2s, 5s and 10s

How many wheels altogether?  $2+2+2+2+2=$

How many fingers altogether?  $5+5+5=$

How many apples are there? Complete the sentences.

Multiplication is taught discretely from Years 2 – 6. This taught in a conceptual way that will help children to understand the procedural approach to multiplication: -

## YEAR 2

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

2  
2x2=4  
2x3=6  
2x4=8  
2x5=10  
2x6=12  
2x7=14  
2x8=16  
2x9=18  
2x10=20

200x2=1000  
800x2=1600

0.2x 8=1.6  
0.8x2=1.6

275x 8=2200  
1/10 x2=1/5

20x 8=160  
80x2=160

8x2=16  
16 ÷ 8=2

15 ÷ 3=5  
160 ÷ 2=80  
160 ÷ 4=40  
160 ÷ 8=20

160 ÷ 20=8  
160 ÷ 80=2

**2x8=16**

Which sets of related facts would be appropriate for 15, 16, 72? Could you adjust the number lines, bar models to match? Use a factbook!

Captain Zalig wants to visit planet Earth. He is a bit fussy! He wants his aliens to travel in equal rows and columns. How can he seat 12 aliens?

## YEAR 3

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- If, they do not know their 2, 5 and 10 times tables they will need to revisit this in Year 2

There are 7 tricycles in a playground. How many wheels are there altogether? Complete the bar model to find the answer.

Can you spot the mistake?

43 x 2

T	O
4	3
x	2
6	
8	
1 4	

## YEAR 5 AND 6

Array

200x8=1600  
800x2=1600

0.2x 8=1.6  
0.8x2=1.6

275x 8=2200  
1/10 x2=1/5

20x 8=160  
80x2=160

8x2=16  
16 ÷ 8=2

15 ÷ 3=5  
160 ÷ 2=80  
160 ÷ 4=40  
160 ÷ 8=20

160 ÷ 20=8  
160 ÷ 80=2

**2x8=16**

Which sets of related facts would be appropriate for 15, 16, 72? Could you adjust the number lines, bar models to match? Use a factbook!

Array

Bar Model

Number line

Bar model

Number line

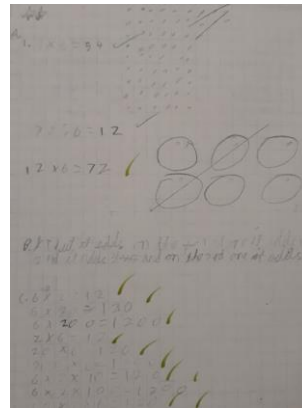
Handwritten student work showing various multiplication and division problems solved using arrays, bar models, and number lines. The work includes problems like 12 x 12, 12 x 11, 12 x 10, 12 x 9, 12 x 8, 12 x 7, 12 x 6, 12 x 5, 12 x 4, 12 x 3, 12 x 2, 12 x 1, 12 x 0, 12 x -1, 12 x -2, 12 x -3, 12 x -4, 12 x -5, 12 x -6, 12 x -7, 12 x -8, 12 x -9, 12 x -10, 12 x -11, 12 x -12, 12 x 13, 12 x 14, 12 x 15, 12 x 16, 12 x 17, 12 x 18, 12 x 19, 12 x 20, 12 x 21, 12 x 22, 12 x 23, 12 x 24, 12 x 25, 12 x 26, 12 x 27, 12 x 28, 12 x 29, 12 x 30, 12 x 31, 12 x 32, 12 x 33, 12 x 34, 12 x 35, 12 x 36, 12 x 37, 12 x 38, 12 x 39, 12 x 40, 12 x 41, 12 x 42, 12 x 43, 12 x 44, 12 x 45, 12 x 46, 12 x 47, 12 x 48, 12 x 49, 12 x 50, 12 x 51, 12 x 52, 12 x 53, 12 x 54, 12 x 55, 12 x 56, 12 x 57, 12 x 58, 12 x 59, 12 x 60, 12 x 61, 12 x 62, 12 x 63, 12 x 64, 12 x 65, 12 x 66, 12 x 67, 12 x 68, 12 x 69, 12 x 70, 12 x 71, 12 x 72, 12 x 73, 12 x 74, 12 x 75, 12 x 76, 12 x 77, 12 x 78, 12 x 79, 12 x 80, 12 x 81, 12 x 82, 12 x 83, 12 x 84, 12 x 85, 12 x 86, 12 x 87, 12 x 88, 12 x 89, 12 x 90, 12 x 91, 12 x 92, 12 x 93, 12 x 94, 12 x 95, 12 x 96, 12 x 97, 12 x 98, 12 x 99, 12 x 100.

In Year 4, the children will take part in the national MTC checks: -

## YEAR 4

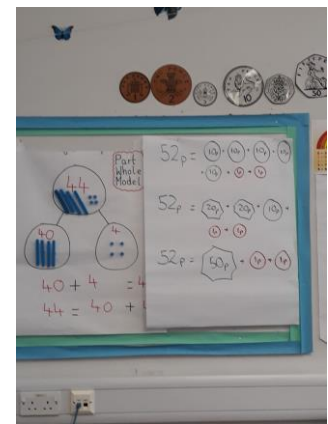
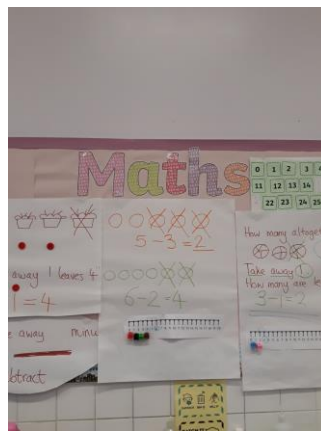
- Children must know all multiplication and division facts for up to their 12 times tables
- This is the year the children will take part in the MTC (Multiplication Tables Check).
- 6 seconds per question to answer
- This is a national test taken across England

<https://www.gov.uk/guidance/multiplication-tables-check-development-process>

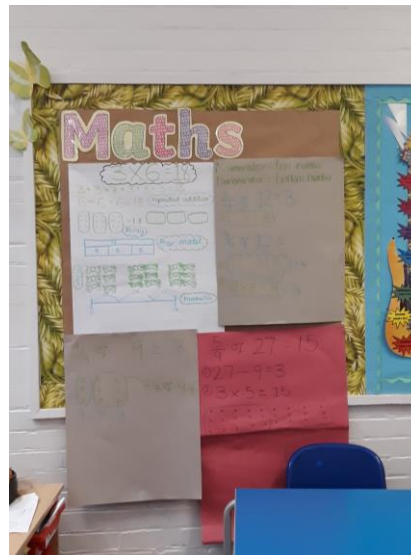
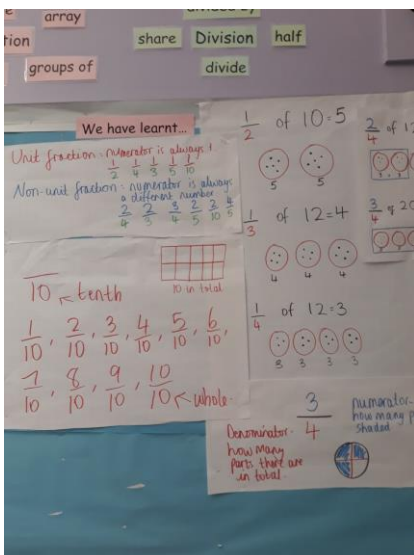


Throughout the year each class will create informative mathematics displays showing clear models and images, which will link to ongoing work in the classroom: -


### Early Years and Key Stage 1: -



### Key Stage 2: -




We use our own Long Term Plans



# Year 1 Maths LTP

Autumn	Number -Place Value - Unit 1.0 6 Weeks		Number -Addition & Subtraction - Unit 1.1 7 Weeks			
Spring	Geometry - Shape - Unit 1.2 1 Week	Number - Place Value to 20 - Unit 1.3 2 Week	Number - Addition and Subtraction - Unit 1.4 3 Weeks	Number - Place Value to 50 - Unit 1.5 3 Weeks	Measurement - Length and height - Unit 1.6 - 1 Week	Measurement - Weight and Volume - Unit 1.7 - 2 Weeks
Summer	Number - Multiplicatio n and Division - Unit 1.8 4 Weeks	Number - Fractions - Unit 1.9 1 Week	Geometry - Position and Direction - Unit 1.10 1 Week	Number - Place Value to 100 - Unit 1.11 3 Weeks	Measure ment - Money - Unit 1.12 1 Week	Measurement - Time - Unit 1.13 2 Week



# Year 2 Maths LTP

Autumn	Number -Place Value - Unit 2.0 4 Weeks		Number -Addition & Subtraction - Unit 2.1 5 Weeks		Geometry - Shape - Unit 2.2 3 Weeks	Measurement - Money - Unit 2.3 2 Weeks
Spring	Number - Multiplication & Division - Unit 2.4 5 Weeks		Number - Fractions - Unit 2.5 3 Weeks	Measurement - Time - Unit 2.6 2 Weeks	SATs Revision 2 Weeks	
Summer	Maths SATs 1 Week	Geometry - Position & Direction - Unit 2.7 3 Weeks	Measurement - Length & Height - Unit 2.8 2 Weeks	Measurement - Mass, Capacity & Temperature - Unit 2.9 3 Weeks	Statistics - Unit 2.10 2 Weeks	Problem Solving - Unit 2.11 2 Weeks



## Year 3 Maths LTP

<b>Autumn</b>	Number -Place Value - Unit 3.0 3 Weeks	Number -Addition & Subtraction - Unit 3.1 5 Weeks		Number - Multiplication and division - Unit 3.2 5 Weeks	
<b>Spring</b>	Number - Multiplication & Division - Unit 3.2 (cont.) 2 Weeks	Measurement - Money - Unit 3.3 2 Weeks	Statistics - Unit 3.4 2 Weeks	Measurement - Length and Perimeter - Unit 3.5 3 Weeks	Number - Fractions - Unit 3.6 2 Weeks
<b>Summer</b>	Number - Fractions - Unit 3.6 (cont.) 3 Weeks	Measurement - Time - Unit 3.7 3 Weeks		Geometry - Properties of shapes - Unit 3.8 2 Weeks	Measurement - Mass and Capacity - Unit 3.9 3 Weeks



## Year 4 Maths LTP

<b>Autumn</b>	Number -Place Value - Unit 4.0 4 Weeks		Number -Addition & Subtraction - Unit 4.1 3 Weeks	Measurement - Length and Perimeter - Unit 4.2 2 Weeks	Number -Multiplication and division - Unit 4.3 3 Weeks		
<b>Spring</b>	Number - Multiplication & Division - Unit 4.3 3 Weeks	Measurement - Area - Unit 4.4 1 Week	Number - Fractions - Unit 4.5 4 Weeks		Number - Decimals - Unit 4.6 3 Weeks	Consolidation - Unit 4.7 1 week	
<b>Summer</b>	Number - decimals - Unit 4.8 2 Weeks	Measurement - Money - Unit 4.9 2 Weeks	Measurement - Time - Unit 4.10 2 Weeks	Measurement - Statistics - Unit 4.11 1 week	Geometry - Properties of shape - Unit 4.12 2 Weeks	Geometry -Position and direction - Unit 4.13 2 Week	Consolidation - Unit 4.14 1 week



## Year 5 Maths LTP


<b>Autumn</b>	Number -Place Value - Unit 5.0 3 Weeks		Number -Addition & Subtraction - Unit 5.1 2 Weeks	Number - Multiplication & Division - Unit 5.2 3 Weeks	Number - Fractions - Unit 5.3 4 Weeks	
<b>Spring</b>	Number - Multiplication & Division - Unit 5.2 3 Weeks		Number - Fractions - Unit 5.3 2 Weeks	Number - Decimals & Percentages - Unit 5.4 3 Weeks	Measurement - Perimeter & Area - Unit 5.5 2 Weeks	Statistics - Unit 5.6 2 Weeks
<b>Summer</b>	Geometry - Shape - Unit 5.7 3 Weeks	Geometry - Position & Direction - Unit 5.8 2 Weeks	Number - Decimals - Unit 5.9 3 Weeks	Number - Navigate Number - Unit 5.10 1 Week	Measurement - Converting Units - Unit 5.11 2 Weeks	Measurement - Volume - Unit 5.12 1 Week



## Year 6 Maths LTP

<b>Autumn</b>	Number -Place Value Unit 6.0 2 Weeks		Number -Addition, Subtraction, Multiplication, Division Unit 6.1 4.5 Weeks		Fractions - Unit 6.2 4.5 Weeks	Geometry: Position and Direction Unit 6.3 1 Week
<b>Spring</b>	Number: Decimals Unit 6.4 2 weeks		Number: Percentages Unit 6.5 2 weeks	Number Algebra Unit 6.6 2 weeks	SATs Revision 2 Weeks (Incorporates measure into this)	
<b>Summer</b>	Maths SATs 2 weeks	Number: Ratio Unit 6.7 2 Weeks	Geometry: Properties of shape Unit 6.8 3 weeks	Statistics Unit 6.9 1 week	Consolidation and investigations for KS3	

These Long term plans are then linked into the medium term plans with a clear focus on the national curriculum objectives. Below is an example of a Medium Term Plan:

 <h2 style="text-align: center;">Year 3 Maths MTP - Unit 3.0 Place Value - 3 Weeks</h2>					
National Curriculum Objectives					
To count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	To recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	To compare and order numbers up to 1000	To identify, represent and estimate numbers using different representations	To read and write numbers up to 1000 in numerals and in words	To solve number problems and practical problems involving these ideas

### Contributions of mathematics to teaching in other curriculum areas

#### **English**

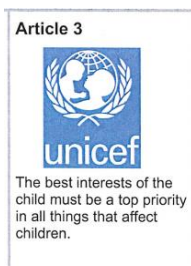
Mathematics contributes to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhymes that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts. Quality speaking and listening plays a large part in the development of mathematical understanding and the communication of methods, results and conclusions.

#### **Computing**

Children use and apply mathematics in a variety of ways when solving problems using technology. Younger children use technology to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating patterns, such as tessellations. When working on control, children use standard and non standard measures for distance and angle. They use simulations to identify patterns and relationships. When develop coding techniques using software such as scratch to write these and control programmes.

#### **Personal, Social and Health Education (PSHE) and Citizenship**

Mathematics contributes to the teaching of personal, social and health education and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present older children with real-life situations in their work on the spending of money.



## **Spiritual, Moral, Social and Cultural development**

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

## **Assessment, Recording and Reporting**

The class teacher will assess children's work, providing evidence of children's progress using Hampshire guidelines and Targets developed in line with the Ready to Progress Guidance set out by the DFE. The progress of each child within maths will be tracked across the school on a regular basis (half termly) on INSIGHT, deciding whether children are on target to meet end of year expectations or whether they will not meet these objectives. This will be used to highlight any teaching implications, drawing attention to those children who have not performed as expected, or who have exceeded expectations. Progress will be recorded using Insight Tracking Software, against Key Standards for each year group. Arithmetic and Reasoning tests scores will also be tracked. Year 2-6 will complete a termly assessment test to support pupil progress meetings.

More formal assessments will take place in Years 2, 4 and 6, with Year 2 completing End of KS1 SATs tests; Year 4 taking the Multiplication Tables Check (MTC) and Year 6 taking end KS2 SATS.

All of the above will contribute to information provided for parents, future teachers and other interested parties.

## **Resources**

There is a main resource bank incorporating a range of materials from a variety of schemes and practical equipment that will be used to deliver the mathematics curriculum. Everyday resources are classroom based and easily accessible to the children. Maths toolboxes need to be kept tidy and be easy for the children to use.

## **Staff Development**

Staff are encouraged to develop their expertise and knowledge of mathematics. The school provides training opportunities for staff to ensure that training in mathematics is up to date.

## **Monitoring and Evaluation**

The monitoring of mathematics takes place on a regular basis, although not necessarily across the whole school, through a variety of ways including classroom observations, work sampling and pupil conferencing. This policy will be reviewed and evaluated regularly.

**Policy Rewritten by:** Parmjit Dulay  
**Reviewed:** Parmjit Dulay  
**Reviewed:** Parmjit Dulay  
**Reviewed:** Parmjit Dulay  
**Reviewed:** Parmjit Dulay  
**Reviewed:** Parmjit Dulay

**November 2020**  
**January 2019**  
**November 2020**  
**November 2021**  
**April 2022**  
**September 2022**

**Next Review:**

**September 2023**

### **Article 28**

Every child has the right to an education. Primary education must be free. Secondary education must be available for every child. Discipline in schools must respect children's human dignity. Richer countries must help poorer countries achieve this.

