



CAPTAIN WEBB PRIMARY SCHOOL

Maths Curriculum – Declarative Knowledge plan

‘Declarative Knowledge: is static in nature and consists of facts, formulae, concepts, principles and rules. I KNOW THAT...’ It can include the facts of number, time and space.

Ofsted Research Review Series: Mathematics 2021 states:

‘...information points to prioritising core declarative knowledge in mathematics from an early age to level the playing field, particularly for pupils with special educational needs.’

‘...leaders must prioritise and value consolidation.’ ‘...teachers should ensure that they give pupils adequate opportunities to practise.’

‘...the initial focus of any sequence of learning should be that pupils are familiar with the facts and methods that will form the strategies taught and applied later in the topic sequence.’

‘Teachers need to help pupils develop their automatic recall of core declarative knowledge, rather than rely on derivation, guesswork or casting around for clues.’

This progressive plan incorporates **the Numbersense Program**.

Numbersense has been carefully planned into stages with each stage consolidating previous knowledge and building on from what has come before.

EYFS:

<table border="1"> <tr><td>Book 1</td><td>Book 2</td><td>Book 3</td><td>Book 4</td><td>Book 5</td></tr> <tr><td>Subitising 1 and 2</td><td>Subitising 1 to 3</td><td>Subitising 1 to 4</td><td>Subitising 1 to 5</td><td>Subitising 6 to 10</td></tr> </table>	Book 1	Book 2	Book 3	Book 4	Book 5	Subitising 1 and 2	Subitising 1 to 3	Subitising 1 to 4	Subitising 1 to 5	Subitising 6 to 10	<p>Books 1 – 5 focus on subitising. The word subitising comes from the root word 'subitus' meaning suddenly, and is the ability to quickly recognise how many items are in sets of up to 4 or 5 without counting. We are born with the ability to subitise, so starting with a focus on subitising is something that is accessible to all children, regardless of prior experience.</p> <p>The programme books sequentially introduce quantities to five, and provide guidance on how to support children to subitise these quantities. As we can only subitise up to 4 or 5 randomly arranged items, quantities above this amount need to be organised into a recognisable structure for us to subitise them, for example the six dice pattern. For this reason, Book 4 and 5 introduce and develop the use of structured mathematical models and arrangements, such as the five frame and ten frame.</p>
Book 1	Book 2	Book 3	Book 4	Book 5							
Subitising 1 and 2	Subitising 1 to 3	Subitising 1 to 4	Subitising 1 to 5	Subitising 6 to 10							
<table border="1"> <tr><td>Book 6</td><td>Book 7</td><td>Book 8</td><td>Book 9</td><td>Book 10</td></tr> <tr><td>Partitioning 2</td><td>Partitioning 3</td><td>Partitioning 4</td><td>Partitioning 5</td><td>Partitioning 10</td></tr> </table>	Book 6	Book 7	Book 8	Book 9	Book 10	Partitioning 2	Partitioning 3	Partitioning 4	Partitioning 5	Partitioning 10	<p>These books continue to develop children's subitising skills, but rather than focusing just on the whole quantities in the way books 1 – 5 do, they start to focus on splitting up quantities into parts.</p> <p>The Early Learning Goal states that children should automatically recall number bonds up to five and some number bonds to 10. These books support children to do just that. They provide lots of contexts and prompts for partitioning sets, and building strong visual models of each quantity which support children to know the bonds within each number.</p>
Book 6	Book 7	Book 8	Book 9	Book 10							
Partitioning 2	Partitioning 3	Partitioning 4	Partitioning 5	Partitioning 10							
<table border="1"> <tr><td>Book 11</td><td>Book 12</td><td>Book 13</td></tr> <tr><td>Composition of 6 to 9</td><td>Comparing quantities to 10</td><td>Patterns in numbers to 10</td></tr> </table>	Book 11	Book 12	Book 13	Composition of 6 to 9	Comparing quantities to 10	Patterns in numbers to 10	<p>Books on partitioning 6 – 9 are not provided in the previous section as children are not expected to know number bonds for these. However Book 11 supports children to understand more about the composition of these numbers, and to develop a deep understanding of them.</p> <p>By the time children get to Book 12, they will already have a deep understanding of numbers to 10, and have had lots of discussions which involve comparing them. This book pulls together that learning to provide focused resources on comparison.</p> <p>Book 13, patterns in numbers to 10, supports children to learn more about the structure of odd and even numbers, and of doubles, including supporting the recall of some doubles facts as required by the Early Learning Goal</p>				
Book 11	Book 12	Book 13									
Composition of 6 to 9	Comparing quantities to 10	Patterns in numbers to 10									

Key Stage One:

Stage	Year	Focus of stage
Stage 1 Visual Number Foundations	Year 1	<ul style="list-style-type: none"> Building a deep and visual understanding of numbers 1-10 Subitising quantities 1 – 5, and subitising structured arrangements for quantities 6-10 Recognising quantities 1-10 twos-wise and fives-wise on tens frames
Assessment check point		
Stage 2 Make and Break Numbers to 10		<ul style="list-style-type: none"> Exploring the different ways that every number to 10 can be broken into parts and put back together Starting to remember some facts Introducing addition and subtraction equations
Stage 3 Facts and Strategies within 10	Year 2	<ul style="list-style-type: none"> Learning calculation strategies for adding and subtracting within 10 Learning to use what you know to work out what you don't yet know Achieving fluency in addition and subtraction facts within 10
Assessment check point		
Stage 4 Ten and A Bit		<ul style="list-style-type: none"> Building a deep and visual understanding of the numbers and quantities 11 to 20 Understanding the concept of place value Learning the Ten and a Bit calculation strategy
Stage 5 Facts and Strategies across 10	Year 2	<ul style="list-style-type: none"> Learning the remaining calculation strategies Practicing strategy selection to promote efficient and flexible thinking Achieving fluency in addition and subtraction facts across 10
Assessment check point		
Stage 6 Extending Facts and Strategies		<ul style="list-style-type: none"> Learning to extend and apply key facts and strategies to addition and subtraction calculations involving 2-digit numbers
Consolidation	Year 3 Autumn Term	<ul style="list-style-type: none"> Review and consolidation of Stage 5 and Stage 6 to secure fluency in facts across 10 and in 2-digit mental calculation

Key Stage Two:

Stage 1: Programme Foundations	Unit 1 Doubles							
Stage 2: Essential Facts Set 1 (21 facts)	Unit 1 2 Times Table	Unit 2 Square Times Table	Unit 3 5 Times Table	Unit 4 Consolidation				
Stage 3: Essential Facts Set 2 (15 facts)	Unit 1 Recap	Unit 2 3 Times Table	Unit 3 4 Times Table	Unit 4 6 Times Table	Unit 5 7 Times Table	Unit 6 8 Times Table	Unit 7 9 Times Table	
Stage 4: MTC preparation	Unit 1 More squares	Unit 2 10 & 11 Times Tables	Unit 3 12 Times Table	Unit 4 MTC Preparation				
Stage 5: Consolidation	Unit 1 Consolidation to 9 x 9	Unit 2 Consolidation to 12 x 12						

Throughout the program, children are exposed to a range of models & images so that all learners can take part and achieve.

The plan highlights must have end points for each year group in order for all children to keep up with the curriculum and be ready for the next stage in their mathematical journey.

Included in the plan are opportunities for knowledge to be over learnt so that facts are known to the point of automaticity.

Assessment points are planned for as a benchmark for automaticity without the use of memory aids.

One More, One Less

A number line from 1 to 6. An arrow points from 3 to 4 with '+1' above it. Another arrow points from 4 to 3 with '-1' below it.

Two More, Two Less: Think Odds and Evens

A number line from 1 to 7. An arrow points from 3 to 5 with '+2' above it. Another arrow points from 5 to 3 with '-2' below it.

Number 10 Fact Families

A tree diagram with '10' at the top. Two lines branch down to two circles, each containing a question mark '?'.

Five and A Bit

Two hands are shown. The left hand has all five fingers extended. The right hand has three fingers extended.

Doubles and Near Doubles

Two dice are shown. The left die shows 1, 2, and 3. The right die shows 4, 5, and 6.

Number Neighbours: Spot the Difference

Two houses are shown. The house on the left has a door with the number '3'. The house on the right has a door with the number '4'.

Know About Zero

A large, bold number '0' is centered on the card.

**7 Tree
9 Square**

A tree diagram with 7 circles. To its right is a square diagram with 9 circles arranged in a 3x3 grid.

Ten and A Bit

Two ten-frames are shown. The first ten-frame is completely filled with dots. The second ten-frame has two dots in the bottom row.

Make 10 and Then

Two ten-frames are shown. The first ten-frame is completely filled with dots. An arrow points from one dot in the first ten-frame to one dot in the second ten-frame, which has one dot in the top row.

Adjusting

A number line with a large arrow pointing right labeled '+10' and a smaller arrow pointing left labeled '-1'.

Swap It

Two curved arrows are shown. One points from '1' to '6' and the other points from '6' to '1'.

1 + 6

Phase	Year group	Autumn 1 (8weeks)	Autumn 2 (7 weeks)	Spring 1 (6 weeks)	Spring 2 (7 weeks)	Summer 1 (4 weeks)	Summer 2 (7 weeks)							
	EYFS	Rec.	Subitizing 1-3	Subitizing 1-5	Subitizing 1-10	Partition 2, 3, 4, 5, 6 and 10 and number bonds for these.	6-9 and comparison to numbers to 10	Patterns in numbers to 10.						
	Key Stage 1	Year 1	Stage 1: Subitising to 10	Stage 2: Making and Breaking Number Bonds to 10.	Stage 3: Visual number foundations of numbers 1-10	Stage 3: Facts & Strategies within 10		Stage 4: Ten and a bit						
		Year 2	Review Stages 1-4	Make ten and then (Addition & Subtraction)	More doubles and near doubles (including adjusting)	Strategy Selection. Working with multiples of 10 and 2-digit numbers.	Make the next ten	Consolidation (Small Group/Whole class gap teaching)						
	Lower Key Stage 2	Year 3	Review & Consolidation of KS1 Stage 5 Secure fluency in facts across 10	Review & Consolidation of KS1 Stage 6 Secure fluency in 2 digit mental calculations.	Doubles 6 weeks	2 times table 6 weeks 8 facts	5 times table 4 weeks 6 new facts	Consolidation 2-5 weeks 21 out of 36 facts learnt by the end of Year 3						
		Year 4	Recap & Consolidation of Year 3 Program 3 weeks	3 Times tables 5 Weeks 5 new facts	4 times table 5 weeks 4 new facts	6x table 2 weeks 3 new facts	7x table 2weeks	8x table 2weeks	9xtable 2weeks	More squares 1 week	10/11 x tables 1 week	12 X table 4 weeks	MTC 3weeks	MTC 1 week
	Upper Key Stage 2	Year 5	Consolidation of 12x12 including inverse. Recall 20 facts in less than 1 minute	Consolidation of Number bonds to 100 Recall 20 facts in less than 1 minute	Multiplying & dividing by 10, 100 & 1000 Solve 20 calculations in less than 1 minute	Decimal number bonds Recall 20 facts in less than 1 minute	Factor Pairs Find all factor pairs of 10 numbers.	Metric conversions						
		Year 6	Consolidation of Factors, Primes & Multiples	Reviewing Mental Strategies for the four operations	Fractions & Decimals	Percentages	Arithmetic Paper Prep	Consolidation ready for Transition.						

Focused Declarative Knowledge-Progression of end points.

MEMORY	Planned rehearsal/consolidation opportunities. Aim = automatic recall / in-long term memories	Numbersense x 5 a week (15mins) KS1 Spring onwards NumBots in Homework Tasks Homework	Numbersense x 5 a week (15mins) KS1 Spring onwards NumBots in Homework Tasks Homework	Numbersense x 5 a week (15mins) KS1 Spring onwards NumBots in Homework Tasks Homework	Numbersense x 5 a week (15mins)	Numbersense x 5 a week (15mins) Daily starter focusing on Number Bonds and XT facts.	Numbersense x 5 a week (15mins) Daily starter focusing on Number Bonds and XT facts.	
		1 week a half term NumBots Challenge	Summer 2 Daily 10mins TTRS	Summer 2 Daily 10mins TTRS	Daily 10mins TTRS	Daily 10mins TTRS		
	Overlearning to prevent knowledge gaps for children at risk Intervention	Precision Teach Number sense Intervention -	Precision Teach Number sense Intervention	Precision Teach Number sense Intervention	Precision Teach Number sense Intervention	Precision Teach Number sense Intervention	Precision Teach Number sense Intervention	
	SEND		provision in order for them to learn and remember key facts					
ASSESSMENT	Benchmark for automaticity? (without use of memory aids) Speed? Accuracy?	Bonds – 5 seconds 90% correct	Bonds – 5 seconds	Bonds – 5 seconds 90% correct	TTRS Gig – 100 questions in 3minutes. Bonds – 5 seconds 90% correct	TTRS Gig – 100 questions in 3minutes. MTC Example 6 seconds Bonds – 5 seconds 90% correct		

<p style="text-align: center;">Fostering a love for maths Cultural Awareness</p>	<p>Rewarding of success + hard work Enrichment Activities: Clubs and Competitions</p>	<p>NumBots Certificates for Levels achieved. Parental Engagement/Workshops</p>	<p>TTRS 100% certificates and Bronze, Silver + Gold Pins. Parental Engagement/Workshops</p>	<p>TTRS Battles V (Certificates) Parental Engagement/Workshops Number Day</p>	<p>Enterprise Projects Visiting Workshops Contextualised maths (Cross-curricular links) Links to Other Schools.</p>
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