CAPTAIN WEBB PRIMARY SCHOOL
Maths Curriculum – Declarative Knowledge plan

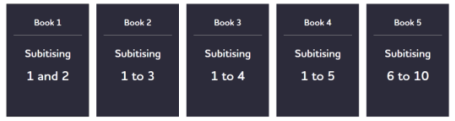
'Declarative Knowledge: is static in nature and consists of facts, formulae, concepts, principles and rules. I KNOW THAT…' It can include the facts of number, time and space.

Ofsted Research Review Series: Mathematics 2021 states:

'…information points to prioritising core declarative knowledge in mathematicians 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:



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.

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,

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.

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. The 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.

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.

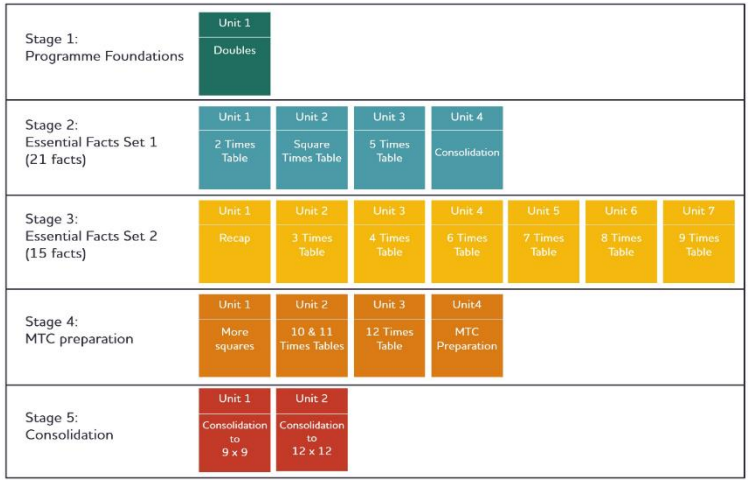
By the time children get to Book 12, they will already have a deep understanding of numbers to 10, and have had lots of discussions which involve comparing them. This book pulls together that learning to provide focused resources on comparison.

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

Key Stage One:

Stage	Year	Focus of stage
Stage 1 Visual Number Foundations	Year 1	• 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		• 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		• 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		• 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 Assessment check point
Stage 5 Facts and Strategies across 10	Year 2	• 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		• Learning to extend and apply key facts and strategies to addition and subtraction calculations involving 2-digit numbers Assessment check point
Consolidation	Year 3 Autumn Term	• 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:

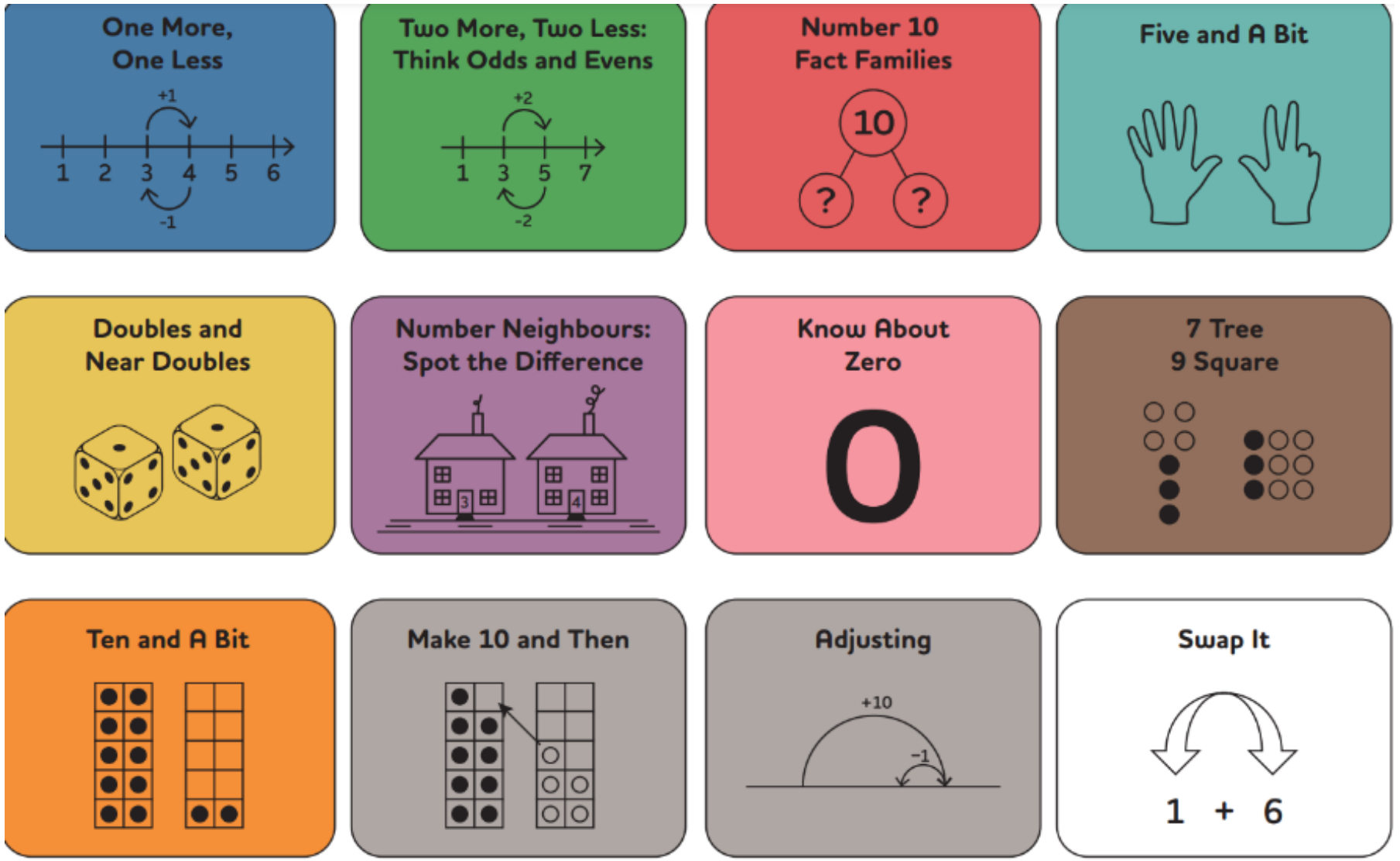


Throughout the program, children are exposed to a range of models & images so that all learners can take part and achieve.

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.



Focused Declarative Knowledge Progression of end points.

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; *33 out of 36 facts learnt by the end of the Autumn term*	**7x table** 2weeks; **8x table** 2weeks; **9xtable** 2weeks; *All 36 facts learnt by mid Spring 2*	**More squares** 1 week; **10/11 x tables** 1 week; **12 X table** 4 weeks	**MTC Prep** 3weeks; **MTC** 1 week	**Stage 5:Consolidation** 2-5 weeks
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.**

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	
	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	

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