

Year	1	2	3	4	5	6
National Curriculum	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs ☑ represent and use number bonds and related subtraction facts within 20 ☑ add and subtract one-digit and two-digit numbers to 20, including zero ☑ solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = _ - 9$. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ solve problems with addition and subtraction: ☑ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ☑ applying their increasing knowledge of mental and written methods ☑ recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 ☑ add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> ☑ a two-digit number and ones ☑ a two-digit number and tens ☑ two two-digit numbers ☑ adding three one-digit numbers ☑ show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot ☑ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ add and subtract numbers mentally, including: <ul style="list-style-type: none"> ☑ a three-digit number and ones ☑ a three-digit number and tens ☑ a three-digit number and hundreds ☑ add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction ☑ estimate the answer to a calculation and use inverse operations to check answers ☑ solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate ☑ estimate and use inverse operations to check answers to a calculation ☑ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) ☑ add and subtract numbers mentally with increasingly large numbers ☑ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ☑ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<ul style="list-style-type: none"> ☑ perform mental calculations, including with mixed operations and large numbers ☑ use their knowledge of the order of operations to carry out calculations involving the four operations ☑ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ☑ solve problems involving addition, subtraction, multiplication and division ☑ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
<p>Chris Quigley Essentials Curriculum</p> <p>Milestone Indicators Only</p>	<p>M1-</p> <ul style="list-style-type: none"> • <u>Checking</u>- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • <u>Using number facts</u>- Represent and use number bonds and related subtraction facts to 20. Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. • <u>Complexity</u>- Solve one-step problems with addition and subtraction, using: Concrete objects and pictorial representations including those involving numbers, quantities and measures. The addition (+), subtraction (−) and equals (=) signs. [17] • <u>Methods</u>- Add and subtract numbers using concrete objects and pictorial representations and mentally, including: <ul style="list-style-type: none"> • One-digit and two-digit number to 20, including zero • A two-digit number and ones • A two-digit number and tens • Two two-digit numbers • Adding three one-digit numbers. • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. <p>NB-Solving problems.</p>	<p>M2-</p> <ul style="list-style-type: none"> • <u>Checking</u>- Estimate and use inverse operations to check answers to a calculation. • <u>Using number facts</u>- Solve two-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. • <u>Complexity</u>- Solve two-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. • <u>Methods</u>- Add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate. <ul style="list-style-type: none"> • Add and subtract numbers mentally, including: <ul style="list-style-type: none"> • A three-digit number and ones • A three-digit number and tens • A three-digit number and hundreds <p>NB-Solving Problems, Measures and Fractions.</p>	<p>M3-</p> <ul style="list-style-type: none"> • <u>Complexity</u>- Solve multi-step addition and subtraction problems in contexts, deciding which operations and methods to use and why. • <u>Methods</u>-Add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction). Add and subtract numbers mentally with increasingly large numbers. • <u>Checking</u>-Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. • <u>Using number facts</u> - Add and subtract negative integers. <p>NB-Solving Problems, Fractions, Statistics, Measures and Algebra.</p>			

Developing conceptual understanding

Use bonds of 10 to calculate bonds of 20



Count all



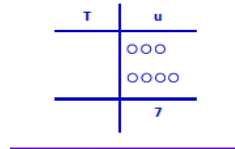
Count on



Visual Maths

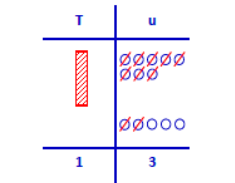
$$\begin{array}{r} u \\ 3 \\ + 4 \\ \hline 7 \end{array}$$

u + u
3 + 4



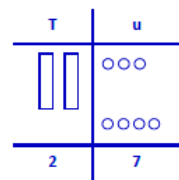
$$\begin{array}{r} T \ u \\ 8 \\ + 5 \\ \hline 1 \ 3 \end{array}$$

u + u
8 + 5



$$\begin{array}{r} T \ u \\ 2 \ 3 \\ + 4 \\ \hline 2 \ 7 \end{array}$$

Tu + u
23 + 4



Use number bonds to 10 and 20 to add. E.g. Beads as a concrete resource.

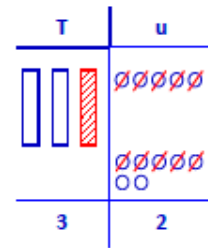
$18 + 5 = 23$



Visual Maths

$$\begin{array}{r} T \ u \\ 2 \ 5 \\ + 7 \\ \hline 3 \ 2 \end{array}$$

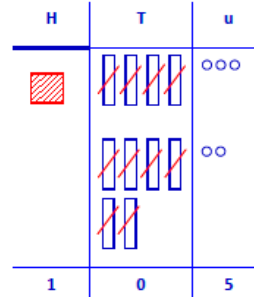
Tu + u
25 + 7



Visual Maths

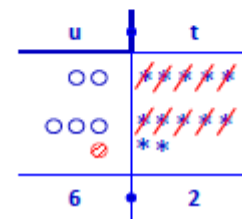
$$\begin{array}{r} H \ T \ u \\ 4 \ 3 \\ + 6 \ 2 \\ \hline 1 \ 0 \ 5 \end{array}$$

Tu + Tu
43 + 62



$$\begin{array}{r} u \ . \ t \\ 2 \ . \ 5 \\ + 3 \ . \ 7 \\ \hline 6 \ . \ 2 \end{array}$$

u.t + u.t
2.5 + 3.7



$$\begin{array}{r} 4 \ 2 \ 3 \\ + 8 \ 8 \\ \hline 5 \ 1 \ 1 \\ 1 \ 1 \end{array}$$

$$\begin{array}{r} 2 \ 4 \ 5 \ 8 \\ + 5 \ 9 \ 6 \\ \hline 3 \ 0 \ 5 \ 4 \\ 1 \ 1 \ 1 \end{array}$$

$$\begin{array}{r} 2 \ 3 \ 4 \ 5 \ 4 \\ + 5 \ 9 \ 6 \\ \hline 2 \ 4 \ 0 \ 5 \ 0 \\ 1 \ 1 \ 1 \end{array}$$

Visual Maths Pathways

Visual Maths Language:
T- Towers of Ten
U-Units or ones

Written Methods