Overview

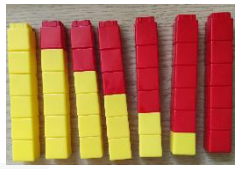
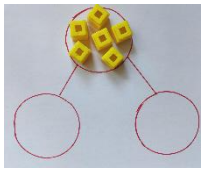
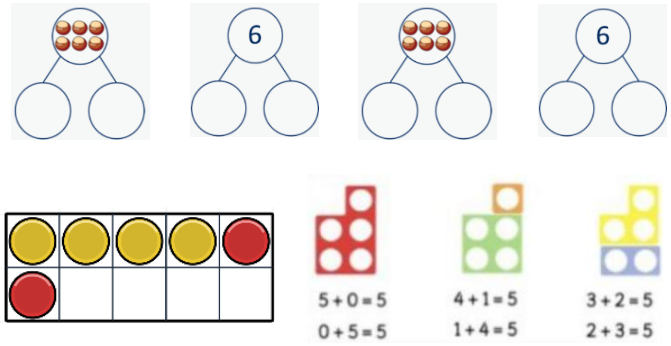
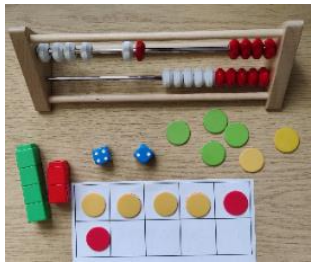
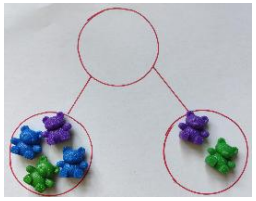
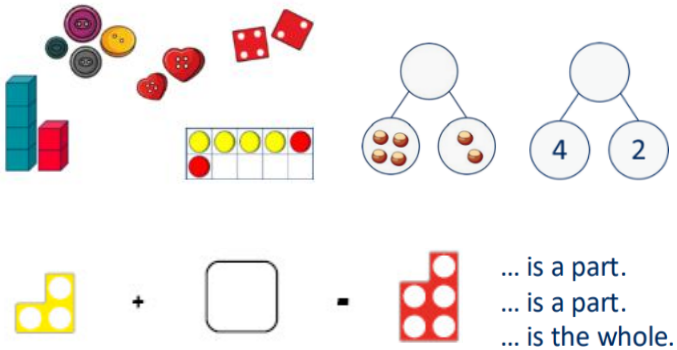
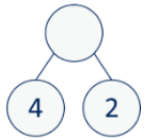
This document gives a suggested guidance as to how addition strategies may be taught in all year groups showing clear progression from Year 1 to Year 6.

Addition

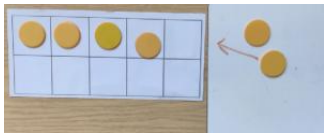
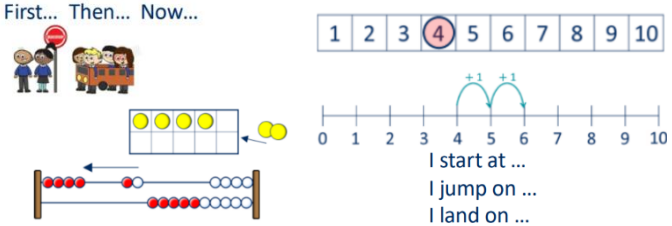
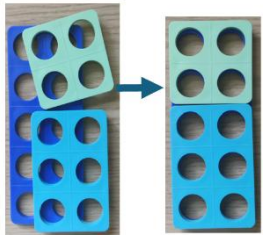
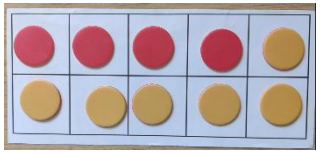
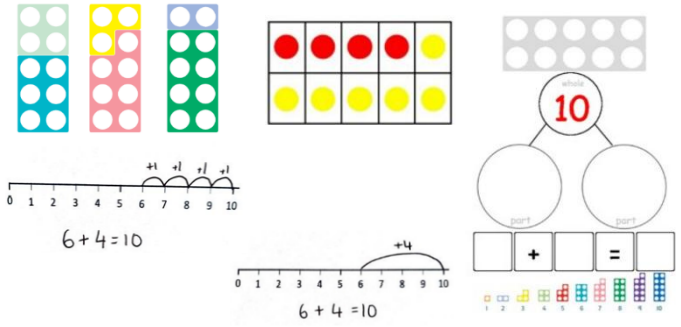
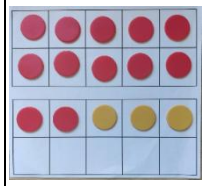
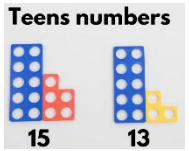
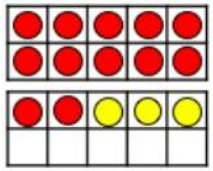
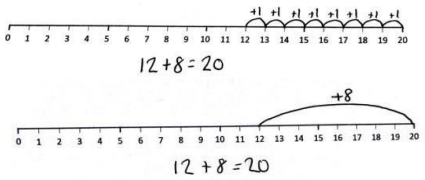
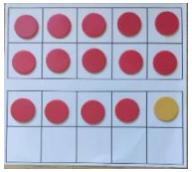
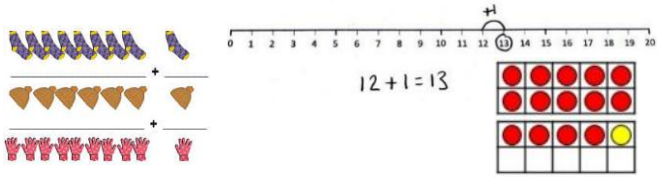
Year 1: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

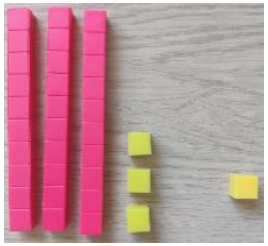
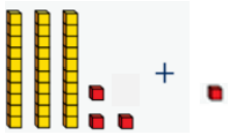
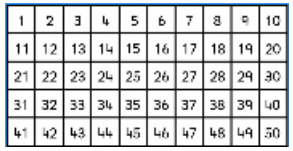
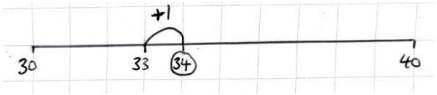
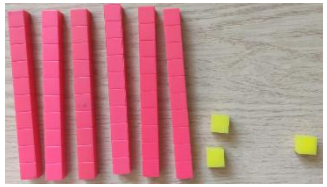
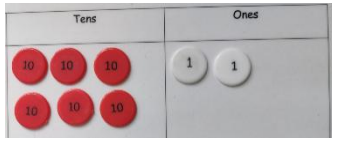
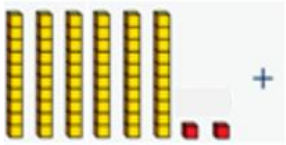
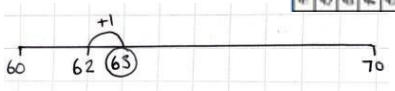
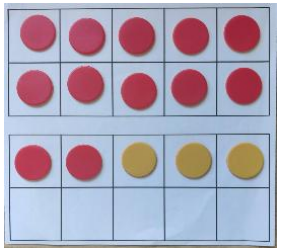
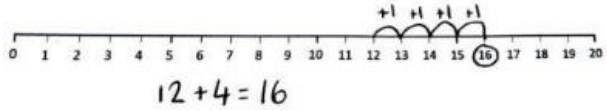
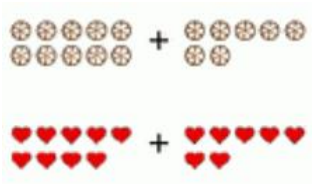
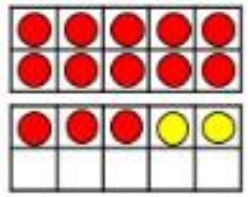
- Read, write and interpret mathematical statements involving addition (+) and equals (=) signs.
- Represent and use number bonds within 20
- Add 1-digit and 2-digit numbers to 20, including zero.
- Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as 7 =? + 2

Concrete	Pictorial	Abstract
Represent number bonds within 10.    ... is made of ... and ... ... and ... make ... ... can be partitioned into ... and ...  	Represent number bonds within 10.  	Represent number bonds within 10. 6 + 0 = 6 5 + 1 = 6 4 + 2 = 6 3 + 3 = 6 2 + 4 = 6 1 + 5 = 6 0 + 6 = 6
Add together (2 quantities)   There are ... There are ... There are ... altogether. 	Add together (2 quantities)  + ▢ = ... is a part. ... is a part. ... is the whole.	Add together (2 quantities)  4 + 2 = 6

Addition

Add more (a quantity is increased).   *Kinesthetically, using children.* *Possible concrete items: toys, teddies, cubes, etc.*	Add more (a quantity is increased). 	Add more (a quantity is increased). 4 + 2 = 6 6 = 4 + 2
Use number bonds within 10.  	Use number bonds within 10. 	Use number bonds within 10. 6 + 4 = 10
Represent and use number bonds within 20.    *Numicon with Teens numbers only.*	Represent and use number bonds within 20.  	Represent and use number bonds within 20. 12 + 3 = 15
Find 1 more from any number within 20.  	Find 1 more from any number within 20. 	Find 1 more from any number within 20. 14 + 1 = 15

Addition

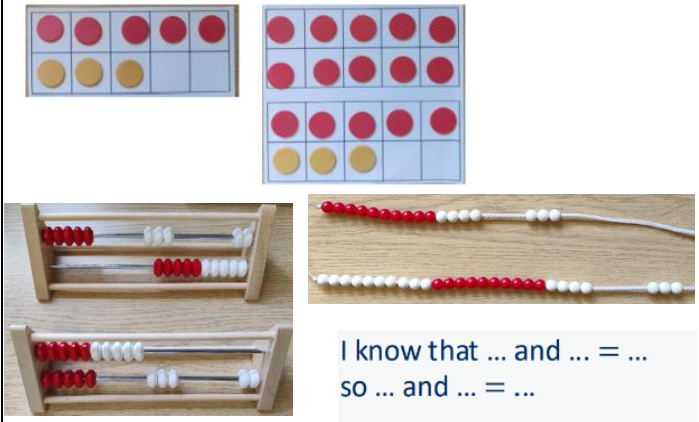
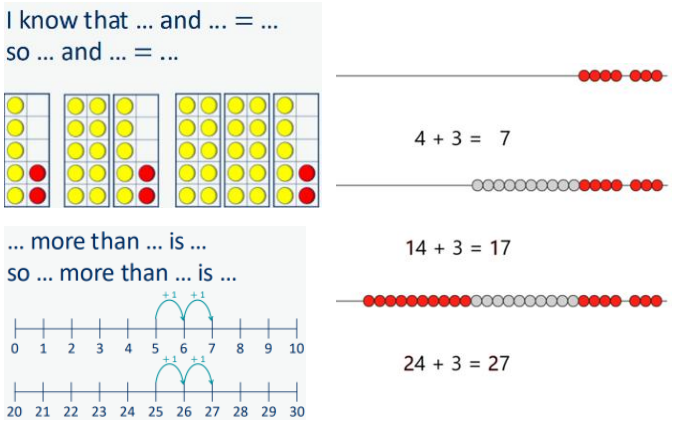
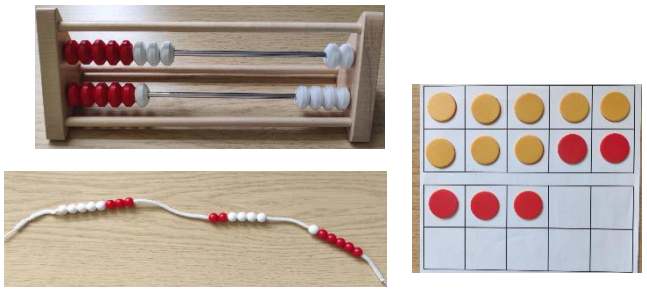
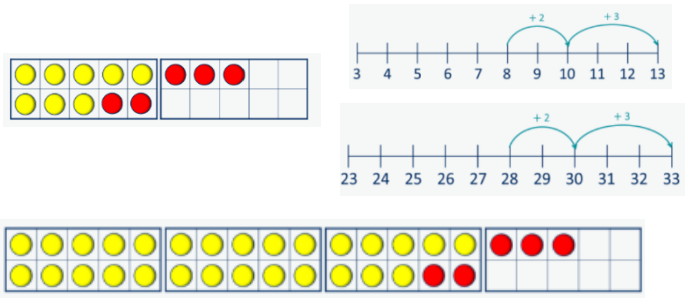
Find 1 more from any number within 50.  	Find 1 more from any number within 50.   	Find 1 more from any number within 50. 33 + 1 = 34
Find 1 more from any number within 100.   	Find 1 more from any number within 100.   	Find 1 more from any number within 100. 62 + 1 = 63
Add 1-digit and 2-digit numbers to 20.   	Add 1-digit and 2-digit numbers to 20.   	Add 1-digit and 2-digit numbers to 20. 9 + 7 = 16 13 + 2 = 15

Addition

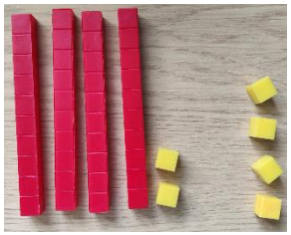
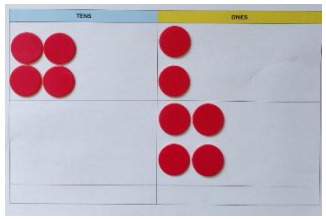
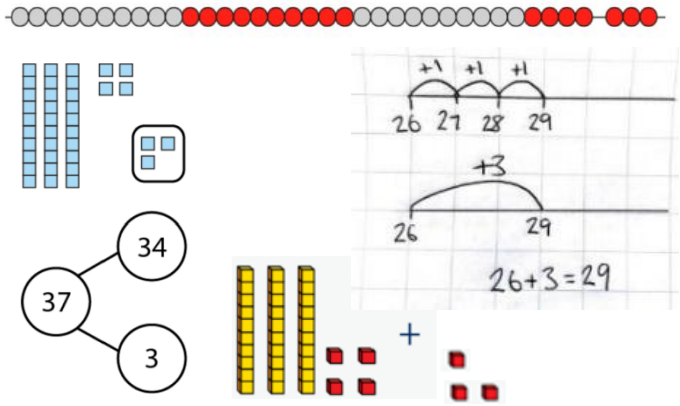
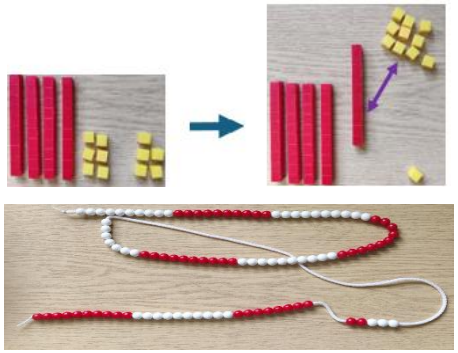
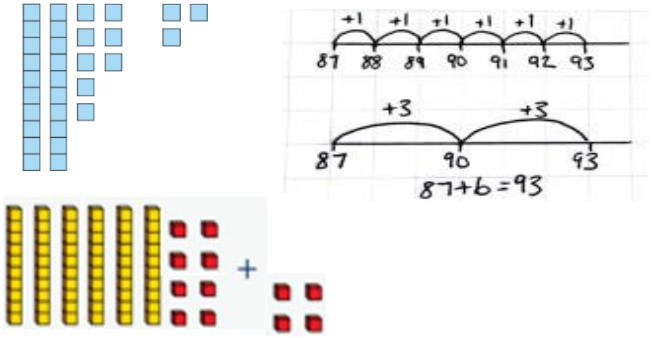
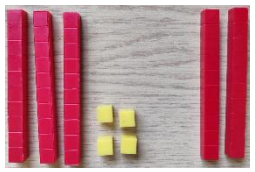
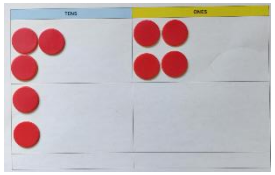
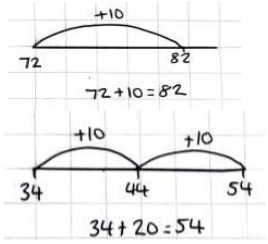
Year 2: Selected National Curriculum Programme of Study Statements

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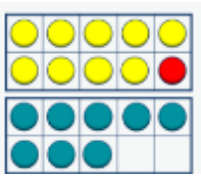
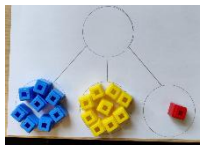
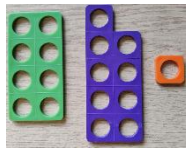
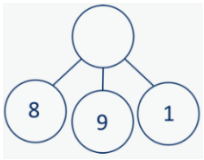
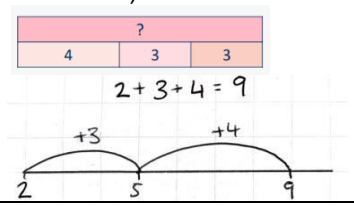
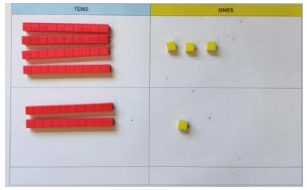
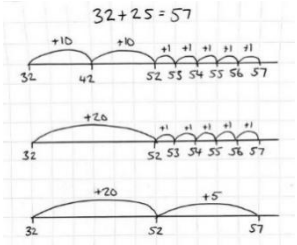
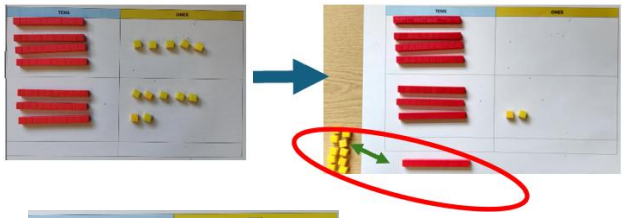
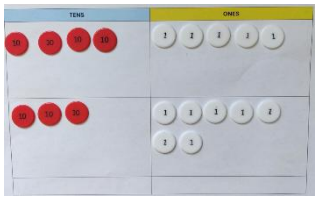
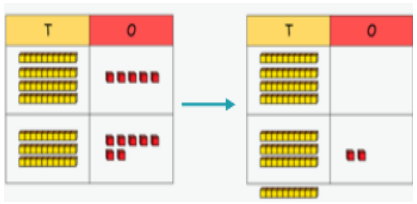
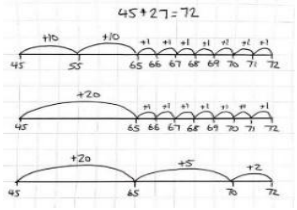
- recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100.
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a 2-digit number and ones; a 2-digit number and tens; two 2-digit numbers
- adding three 1-digit numbers

Concrete	Pictorial	Abstract
Add Ones to any number (making links to known facts). 	Add ones to any number (making links to known facts). 	Add ones to any number (making links to known facts). 5+ 2 = 7 25 + 2 = 27
Add Ones across a 10. (Partition the number being added to make a full Ten.) 	Add Ones across a 10. 	Add Ones across a 10. 8 + 5 = 13 28 + 5 = 33

Addition

Add 2-digit numbers and ones without bridging.   	Add 2-digit numbers and ones without bridging. 	Add 2-digit numbers and ones to without bridging. 26 + 3 = 9
Add 2-digit numbers and ones with bridging. 	Add 2-digit numbers and ones to with bridging. 	Add 2-digit numbers and ones to 100 without/with bridging. 68 + 4 = 72 87 + 6 = 93
Add 2-digit numbers and tens.  	Add 2-digit numbers and tens.   	Add 2-digit numbers and tens. 34 + 10 = 44 37 + 20 = 57

Addition

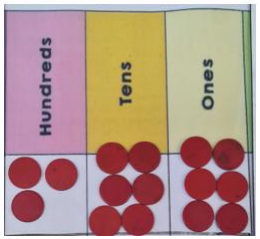
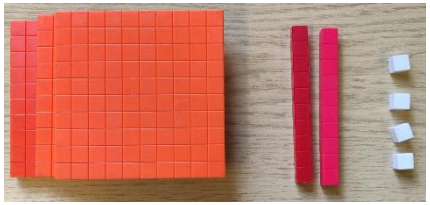
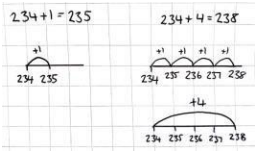
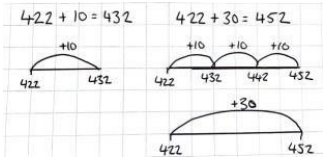
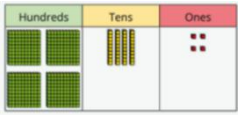
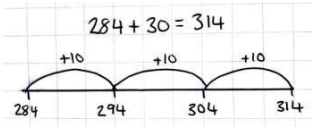
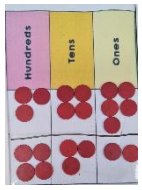
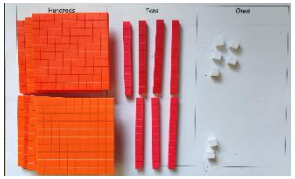
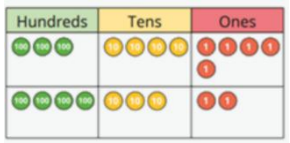
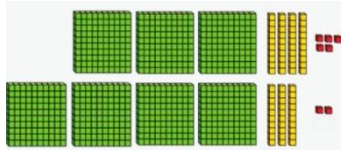
Adding three 1-digit numbers. (Make links to known number facts.)    *Use Numicon to help find number bonds to 10.*	Adding three 1-digit numbers.(Make links to known number facts.)  	Adding three 1-digit numbers.(Make links to known number facts.) 2 + 3 + 4 = 9 8 + 9 + 1 = 18 4 + 3 + 3 = 10
Adding two 2-digit numbers without exchanging.  *Can also use counters with the Place Value Chart.*	Adding two 2-digit numbers without exchanging/bridging.  	Adding two 2-digit numbers without exchanging/bridging. 3 ones + 1 one = 4 ones 4 tens + 2 tens = 6 tens 6 tens + 4 ones = 64 3 + 1 = 4 40 + 20 = 60 60 + 4 = 64 T 0 4 3 + 2 1 4 6 0 6 4 T 0 4 3 + 2 1 6 4
Adding two 2-digit numbers with bridging.   Exchange 10 Ones for 1 Ten.	Adding two 2-digit numbers with bridging.  	Adding two 2-digit numbers with bridging. 5 + 7 = 12 40 + 30 = 70 70 + 12 = 82 T 0 4 5 + 3 7 1 2 7 0 8 2 T 0 4 5 + 3 7 8 2 1

Addition

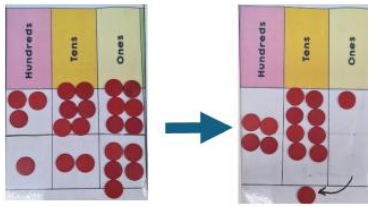
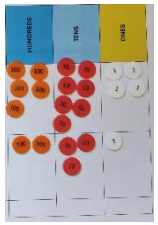
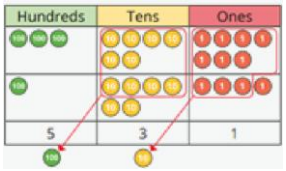
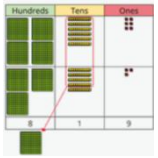
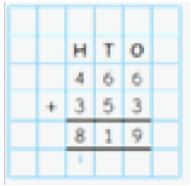
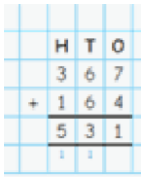
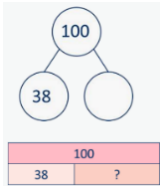
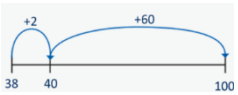
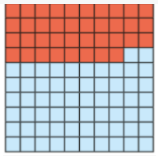
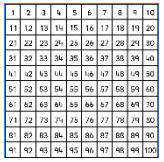
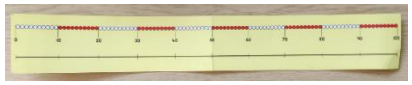
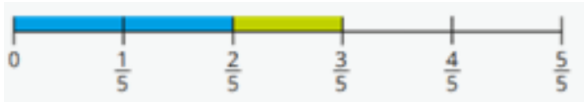
Year 3: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.
- Add numbers with up to three digits, using formal written methods of columnar addition.
- Add fractions with the same denominator within 1 whole.
- Calculate the time taken by particular events or tasks.

Concrete	Pictorial	Abstract
Adding a 3-digit number and Ones/Tens/Hundreds.  	Adding a 3-digit number and Ones/Tens/Hundreds.   *Adding a 3-digit number and Tens (crossing the Hundreds boundary)*   444 + 5 = 444 + 50 = 444 + 500 =  777 + 2 = 777 + 20 = 777 + 200 =	Adding a 3-digit number and Ones/Tens/Hundreds. 235 + 3 = 235 + 30 = 235 + 300 = 111 + ☐ = 118 604 + 20 = 604 + 50 = 111 + ☐ = 181 604 + 90 = 111 + ☐ = 811
Add two numbers (no exchange).  	Add two numbers (no exchange).  	Add two numbers (no exchange). 300 + 40 + 5 400 + 40 + 2 700+ 80+ 7 = 787 

Addition

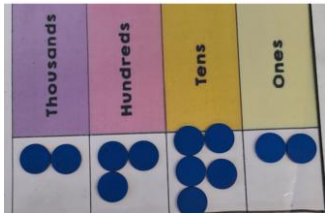
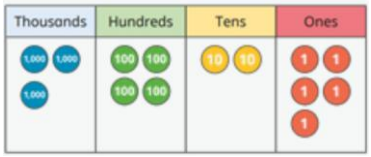
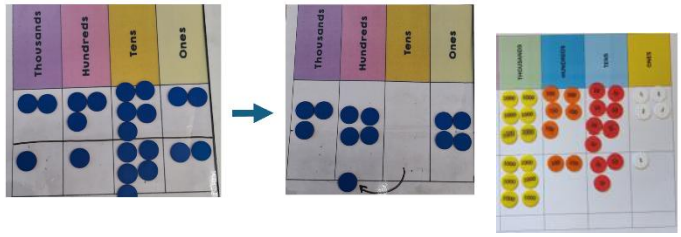
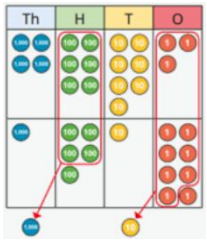
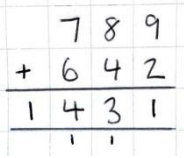
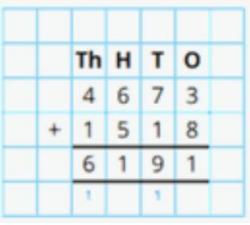
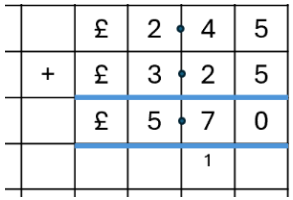
Add two numbers with exchanging.   Can also use Base 10.	Add two numbers with exchanging.  	Add two numbers with exchanging. 400 + 60 + 6 300 + 50 + 3 700+ 110 + 9 = 819  
Complements to 100.  	Complements to 100. I add ... to get to the next 10, then ... to get to 100     	Complements to 100. $38 + 62 = 100$ $62 + 38 = 100$ $100 = 38 + 62$ $100 = 62 + 38$
Add fractions with the same denominator within 1 whole.  +  $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$	Add fractions with the same denominator within 1 whole.  	Add fractions with the same denominator within 1 whole. $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$

Addition

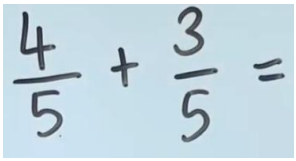
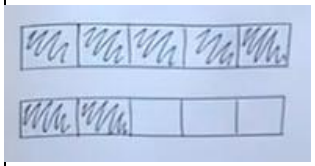
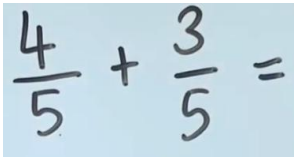
Year 4: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Add numbers with up to 4 digits using a formal written method.
- Solve simple measure and money problems involving fractions and decimals to 2 decimal places.
- Add fractions with the same denominator.

Concrete	Pictorial	Abstract
Add 1s, 10s and 100s to a 4-digit number. 	Add 1s, 10s and 100s to a 4-digit number.  3,425 + 3 = 3,425 + 30 = 3,425 + 300 = 3,425 + 3,000 =	Add 1s, 10s and 100s to a 4-digit number. 2,350 + 3 = 2,350 + 30 = 2,350 + 300 = 2,350 + 3,000 = 6,040 + 200 = 6,040 + 500 = 6,040 + 900 = 2,211 + ☐ = 2,251 2,211 + ☐ = 2,215 2,211 + ☐ = 2,511
Column addition with numbers up to 4-digits.  *Base 10/diennes can also be used.*	Column addition with numbers up to 4-digits. 	Column addition with numbers up to 4-digits.  
Add decimal numbers in the context of money. 	Add decimal numbers in the context of money. 	Add decimal numbers in the context of money. 

Addition

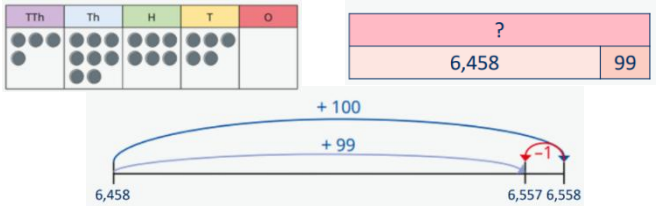
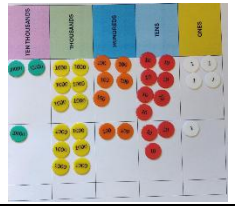
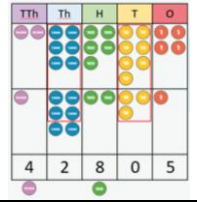
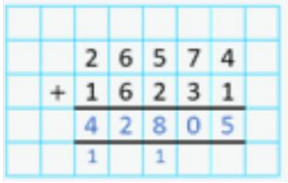
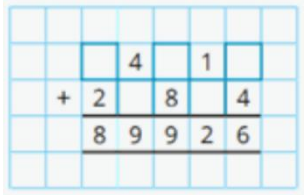
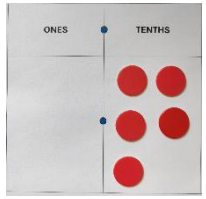
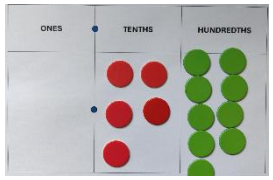
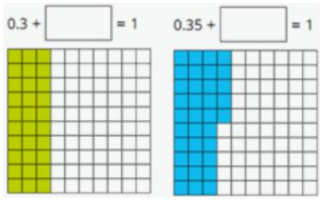
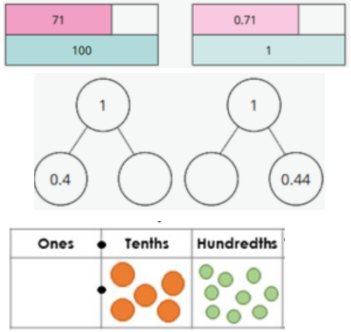
Multistep problem in context involving addition. *See concrete resources used in this unit.*	Multistep problem in context involving addition. *See pictorial representations used in this unit.*	Multistep problem in context involving addition. Some children vote for their favourite ice-cream flavour. **Ice-cream flavour** / **Number of children** vanilla: 87 chocolate: 154 strawberry: **?** mint: 38 **Total**: **402** How many children vote for **strawberry**? 154 + 87 = 241 241 + 38 = 279 402 − 279 = 123 Strawberry = 123
Add fractions and mixed numbers with the same denominator beyond 1 whole.   *Possible misconceptions:* *Children add up the '5s' to make 10*	Add fractions and mixed numbers with the same denominator beyond 1 whole.   	Add fractions and mixed numbers with the same denominator beyond 1 whole. $\frac{4}{5}+\frac{3}{5}=\frac{7}{5}$ *or* $1\frac{2}{5}$

Addition

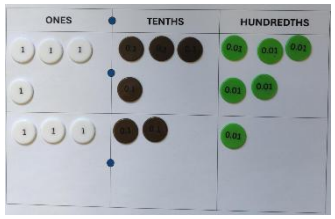
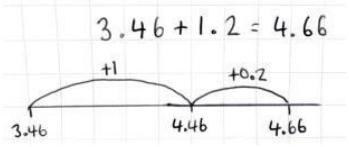
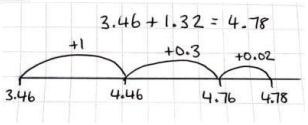
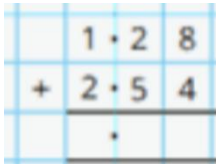
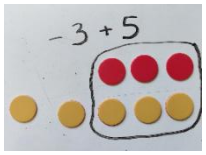
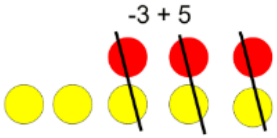
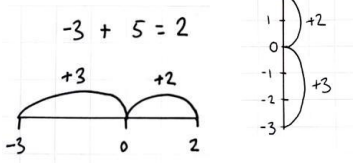
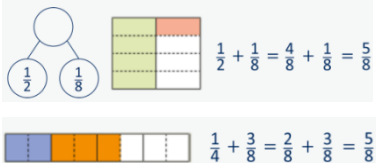
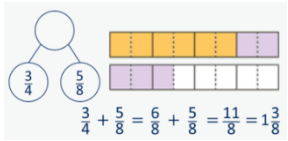
Year 5: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Add whole numbers with more than 4 digits, including using formal written methods.
- Add numbers mentally with increasingly large numbers.
- Add decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1
- Add fractions with the same denominator, and denominators that are multiples of the same number.

Concrete	Pictorial	Abstract
Add using mental strategies.  48,650 + 300 = 48,650 + 30,000 = 48,650 + 30 =	Add using mental strategies. 	Add using mental strategies. 6458 + 99 = 6458 + 100 – 1 = 6558 – 1 = 6557
Add whole numbers with up to 5 digits. 	Add whole numbers with up to 5 digits. 	Add whole numbers with up to 5 digits.  
Complements to 1 (make links with bonds to 10 and 100).   	Complements to 1 (make links with bonds to 10 and 100).  	Complements to 1 (make links with bonds to 10 and 100). 4 + 6 = 10 44 + 56 = 100 444 + 556 = 1,000 0.4 + 0.6 = 1 0.44 + 0.56 = 1 0.444 + 0.556 = 1

Addition

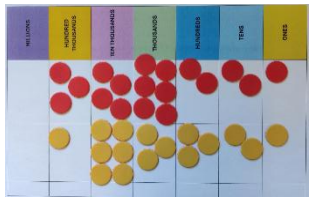
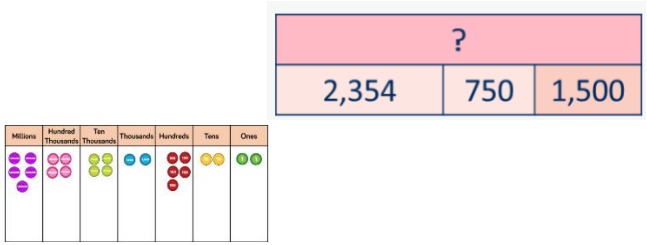
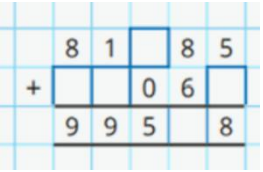
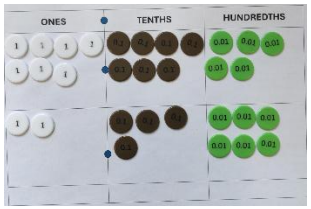
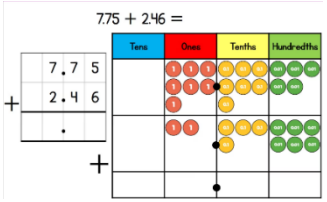
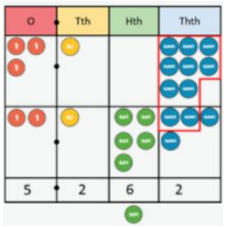
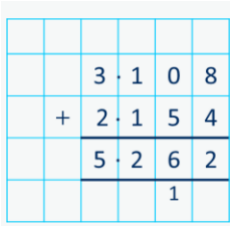
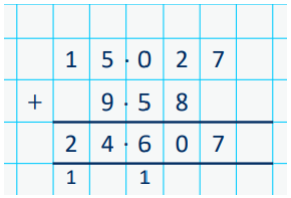
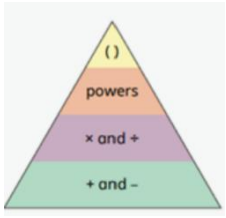
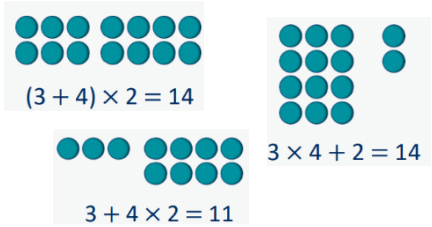
Add decimals with up to 2 decimal places. 	Add decimals with up to 2 decimal places.   	Add decimals with up to 2 decimal places.  
Adding with negative numbers (linking with temperature). 3 ‘negative’ red counters and 5 ‘positive’ yellow counters. 	Adding with negative numbers (linking with temperature).   	Adding with negative numbers (linking with temperature). -3 + 5 = 2
Add fractions with denominators that are a multiple of one another. $\frac{3}{6}+\frac{2}{3}$ = $\frac{3}{6}+\frac{4}{6}=\frac{7}{6}$ *or* $1\frac{1}{6}$  	Add fractions with denominators that are a multiple of one another.  	Add fractions with denominators that are a multiple of one another. $\frac{1}{2}+\frac{1}{8}=\frac{4}{8}+\frac{1}{8}=\frac{5}{8}$ $\frac{3}{4}+\frac{5}{8}=\frac{6}{8}+\frac{5}{8}=\frac{11}{8}=1\frac{3}{8}$
Multistep problem deciding which method to use and why. *See concrete resources used in this unit*.	Multistep problem deciding which method to use and why. *See pictorial representations used in this unit.*	Multistep problem deciding which method to use and why. This table shows the number of people living in various towns in England. Town / Population Bedford 82,448 Carlton 48,493 Dover 34,087 Formby 24,478 Telford 166,640 What is the **total** of the numbers of people living in Formby and in Telford?

Addition

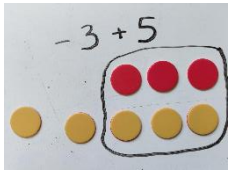
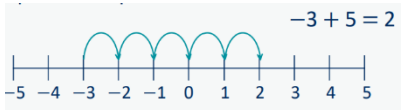
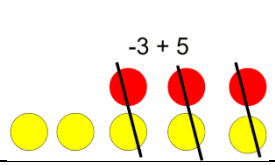
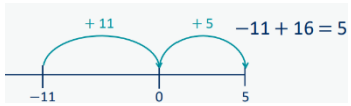
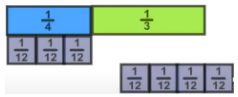
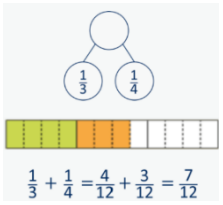
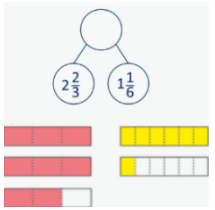
Year 6: Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- Add larger numbers, using the formal written method of columnar addition.
- Use their knowledge of the order of operations to carry out calculations involving the 4 operations.
- Calculate intervals across zero.
- Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

Concrete	Pictorial	Abstract
Add integers up to 10 million. 	Add integers up to 10 million. 	Add integers up to 10 million.  
Add decimals with up to 3 decimal places. 	Add decimals with up to 3 decimal places.  	Add decimals with up to 3 decimal places.  
Order of operations.	Order of operations.  	Order of operations. (3+4) x 2 = 14 3 x 4 + 2 = 14 3+4 x 2 =11

Addition

Negative numbers. 3 ‘negative’ red counters and 5 ‘positive’ yellow counters. 	Negative numbers.   	Negative numbers. Here are the temperatures in four cities at midnight and at midday. Temperature City / At midnight / At midday Paris / −4°C / −2°C Oslo / −13°C / −7°C Rome / 3°C / 10°C Warsaw / −6°C / 2°C At **midnight**, how many degrees colder was Paris than Rome? degrees
Add fractions. $\frac{1}{4}+\frac{1}{3}=\frac{3}{12}+\frac{4}{12}=\frac{7}{12}$ 	Add fractions. $\frac{1}{4}$ + $\frac{1}{3}$   	Add fractions. $\frac{1}{4}+\frac{1}{3}=\frac{1}{4}\,(x3)+\frac{1}{3}(x4)=\frac{3}{12}+\frac{4}{12}=\frac{7}{12}$
Multistep problem in context, deciding which methods to use and why. *See concrete resources used in this unit.*	Multistep problem in context, deciding which methods to use and why. *See pictorial representations used in this unit.*	Multistep problem in context, deciding which methods to use and why. At the start of June, there were 1,793 toy cars in the shop. During June, • 8,728 more toy cars were delivered • 9,473 toy cars were sold. How many toy cars were left in the shop at the end of June? 