Year 3 Learning Outcomes

Autumn

Adding and subtracting across 10

1 Pupils add 3 addends
2 Pupils use a 'First.. Then… Now" story to add 3 addends
3 Pupils explain that addends can be added in any order
4 Pupils add 3 addends efficiently
5 Pupils add 3 addends efficiently by finding two addends that total 10
6 Pupils add two numbers that bridge through 10
7 Pupils subtract two numbers that bridge through 10

Numbers to 1,000

1 Pupils explain that 100 is composed of ten tens and one hundred ones
2 Pupils explain that 100 is composed of 50s 25s and 20s
3 Pupils use known facts to find multiples of ten that compose 100
4 Pupils will use known facts to find a two-digit number and a one- or two-digit number that compose 100
5 Pupils use known facts to find correct complements to 100
6 Pupils use known facts to find complements to 100 accurately and efficiently
7 Pupils represent a three-digit number which is a multiple of ten using their numerals and names
8 Pupils use place value knowledge to write addition and subtraction equations
9 Pupils bridge 100 by adding or subtracting in multiples of ten
10 Pupils use knowledge of addition and subtraction of multiples of ten bridging the hundreds boundary to solve problems
11 Pupils count across and on from 100
12 Pupils represent a three-digit number up to 199 in different ways
13 Pupils bridge 100 by adding or subtracting a single-digit number
14 Pupils find ten more or ten less than a given number
15 Pupils cross the hundreds boundary when adding and subtracting any two-digit multiple of ten
16 Pupils become familiar with a metre ruler (marked and unmarked intervals, 1 x 1m, 10 x 10cm, 100 x 1cm)
17 Pupils measure length and height from zero using whole metres and cm
18 Pupils measure length and height from zero using cm
19 Pupils convert between m and cm (include whole m to cm, cm to whole m and cm and vice versa)
20 Pupils become familiar with a ruler in relation to cm and mm (marked and unmarked intervals, knowing 1cm = 10mm)
21 Pupils measure length from zero using mm / whole cm and mm
22 Pupils convert between cm and mm (include whole cm to mm, mm to whole cm and mm and vice versa)

23 Pupils estimate a length/height, measure a length/height and record in a table

24 Pupils use knowledge of place value to represent a three-digit number in different ways

25 Pupils represent a three-digit number up to 1000 in different ways

26 Pupils use knowledge of the additive relationship to solve problems

27 Pupils count in hundreds and tens on a number line

28 Pupils identify the previous, next and nearest multiple of 100 on a number line for a three-digit multiples of ten

29 Pupils position three-digit numbers on number lines

30 Pupils estimate the position of three-digit numbers on unmarked number lines

31 Pupils compare one-, two- and three-digit numbers

32 Pupils compare two three-digit numbers

33 Pupils order sets of three-digit numbers

34 Pupils use known facts to add or subtract multiples of 100 within 1000

35 Pupils write a three-digit multiple of 10 as a multiplication equation

36 Pupils partition three-digit numbers in different ways

37 Pupils use known facts to solve problems involving partitioning numbers

38 Pupils use known facts to add or subtract to/from multiples of 100 in tens

39 Pupils use known facts to add or subtract to/from multiples of 100 in ones

40 Pupils add/subtract multiples of ten bridging 100

41 Pupils add/subtract to/from a three-digit number in ones bridging 100

42 Pupils find 10 more or less across any hundreds boundary

43 Pupils use knowledge of adding or subtracting to/from three-digit numbers to solve problems

44 Pupils count forwards and backwards in multiples of 2, 20, 5, 50 and 25

45 Pupils use knowledge of counting in multiples of 2, 20, 5, 50 and 25 to solve problems

46 Pupils become familiar with different weighing scales up to 1kg (intervals of 100g, 200g, 250g and 500g)

47 Pupils become familiar with the tools to measure volume and capacity up to 1 litre (intervals of 100ml, 200ml, 250ml and 500ml)

48 Pupils measure mass from zero up to 1kg using grams

49 Pupils measure mass from zero above 1kg using whole kg and grams

50 Pupils measure volume from zero up to 1 litre using ml

51 Pupils measure volume from zero above 1 litre using whole litres and ml

52 Pupils estimate mass in grams and volume in ml

53 Pupils estimate a mass/volume, measure a mass/volume and record in a table

Spring

Right Angles

1 Pupils rotate two lines around a fixed point to make different sized angles

2 Pupils draw triangles and quadrilaterals and identify vertices

3 Pupils learn that a right angle is a 'square corner' and identify them in the environment

4 Pupils learn that a rectangle is a 4-sided polygon with four right angles

5 Pupils learn that a square is a rectangle in which the four sides are equal length

6 Pupils cut rectangles and squares on the diagonal and investigate the shapes they make

7 Pupils join four right angles at a point using different right-angled polygons

8 Pupils investigate and draw other polygons with right angles

Manipulating the additive relationship and securing mental calculation

1 Pupils add 3 addends
2 Pupils add two 3-digit numbers using adjusting
3 Pupils add a pair of 2- or 3-digit numbers using redistribution

4 Pupils subtract a pair of 2- or 3-digit numbers, bridging a multiple of 10, using partitioning
5 Pupils subtract a pair of 2-digit numbers, crossing a ten or hundreds boundary, by finding the difference between them
6 Pupils subtract a pair of three-digit multiples of 10 within 1000 by finding the difference between them
7 Pupils evaluate the efficiency of strategies for subtracting from a 3-digit number
8 Pupils explain why the order of addition and subtraction steps in a multi-step problem can be chosen
9 Pupils accurately and efficiently solve multi-step addition and subtraction problems
10 Pupils understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (2-digit numbers)
11 Pupils understand and can explain that both addition and subtraction equations can be used to describe the same additive relationship (3-digit numbers)
12 Pupils use knowledge of the additive relationship to rearrange equations
13 Pupils use knowledge of the additive relationship to identify what is known and what is unknown in an equation
14 Pupils use knowledge of the additive relationship to rearrange equations before solving

Column addition

1 Pupils identify the addends and the sum in column addition
2 Pupils use their knowledge of place value to correctly lay out column addition
3 Pupils add a pair of 2-digit numbers using column addition

4 Pupils add using column addition
5 Pupils use their knowledge of column addition to solve problems

6 Pupils add a pair of 2-digit numbers using column addition with regrouping in the ones column
7 Pupils add a pair of 2-digit numbers using column addition with regrouping in the tens column
8 Pupils add using column addition with regrouping
9 Pupils use known facts and strategies to accurately and efficiently calculate and check column addition
10 Pupils use their knowledge of column addition to solve problems

2,4,8 times tables

1 Pupils represent counting in fours as the 4 times table
2 Pupils use knowledge of the 4 times table to solve problems
3 Pupils explain the relationship between adjacent multiples of four

4 Pupils explain the relationship between multiples of 2 and multiples of 4
5 Pupils use knowledge of the relationships between the 2 and 4 times tables to solve problems
6 Pupils represent counting in eights as the 8 times table
7 Pupils explain the relationship between adjacent multiples of eight
8 Pupils explain the relationship between multiples of 4 and multiples of 8
9 Pupils use knowledge of the relationships between the 4 and 8 times tables to solve problems
10 Pupils explain the relationship between multiples of 2, 4 and multiples of 8
11 Pupils use knowledge of the relationships between the 2, 4 and 8 times tables to solve problems
12 Pupils use knowledge of the divisibility rules for divisors of 2 and 4 to solve problems
13 Pupils use knowledge of the divisibility rules for divisors of 8 to solve problems
14 Pupils scale known multiplication facts by 10
15 Pupils scale division derived from multiplication facts by 10

Column subtraction

1 Pupils identify the minuend and the subtrahend in column subtraction

2 Pupils explain the column subtraction algorithm

3 Pupils subtract from a 2-digit number using column subtraction with exchanging from tens to ones

4 Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (1)

5 Pupils subtract from a 3-digit number using column subtraction with exchanging from hundreds to tens (2)

6 Pupils evaluate the efficiency of strategies for subtraction

Summer

Unit fractions

1   Pupils identify a whole and the parts that make it up
2   Pupils explain why a part can only be defined when in relation to a whole
3   Pupils identify the number of equal or unequal parts in a whole

4   Pupils identify equal parts when they do not look the same (i)
5   Pupils explain the size of the part in relation to the whole

6   Pupils construct a whole when given a part and the number of parts
7   Pupils identify how many equal parts a whole has been divided into
8   Pupils use fraction notation to describe an equal part of the whole
9   Pupils represent a unit fractions in different ways
10 Pupils identify parts and wholes in different contexts (i)
11 Pupils identify parts and wholes in different contexts (ii)
12 Pupils identify equal parts when they do not look the same (ii)
13 Pupils compare and order unit fractions by looking at the denominator
14 Pupils identify when unit fractions cannot be compared
15 Pupils construct a whole when given one part and the fraction that it represents
16 Pupils use knowledge of the relationship between parts and wholes in unit fractions to solve problems
17 Pupils identify the whole, the number of equal parts and the size of each part as a unit fraction
18 Pupils quantify the number of items in each part and connect to the unit fraction operator
19 Pupils calculate the value of a part by using knowledge of division and division facts

20 Pupils calculate the value of a part by connecting knowledge of division and division facts with finding a fraction of a quantity

21 Pupils find fractions of quantities using knowledge of division facts with increasing fluency

<u>Non unit fractions</u>

1 Pupils explain that non-unit fractions are composed of more than one unit fraction

2 Pupils identify non-unit fractions

3 Pupils identify the number of equal or unequal parts in a whole

4 Pupils use knowledge of non-unit fractions to solve problems

5 Pupils use knowledge of unit fractions to find one whole

6 Pupils place fractions between 0 and 1 on a numberline

7 Pupils use repeated addition of a unit fraction to form a non-unit fraction

8 Pupils use repeated addition of a unit fraction to form 1

9 Pupils compare using knowledge of non-unit fractions equivalent to one

10 Pupils compare non-unit fractions with the same denominator

11 Pupils compare unit fractions

12 Pupils compare fractions with the same numerator

13 Pupils add up fractions with the same denominator

14 Pupils add on fractions with the same denominator

15 Pupils add fractions with the same denominator using a generalised rule

16 Pupils subtract fractions with the same denominator

17 Pupils identify the whole, the number of equal parts and the size of each part as a unit fraction

18 Pupils explain that addition and subtraction of fractions are inverse operations

19 Pupils subtract fractions from a whole by converting the whole to a fraction

20 Pupils represent a whole as a fraction in different ways and use this to solve problems involving subtraction

<u>Parallel and perpendicular sides in polygons</u>

1 Pupils make compound shapes by joining two polygons in different ways (same parts, different whole)

2 Pupils investigate different ways of composing and decomposing a polygon (same whole, different parts)

3 Pupils draw polygons on isometric paper

4 Pupils use geostrips to investigate quadrilaterals with and without parallel and perpendicular sides

5 Pupils make and draw compound shapes with and without parallel and perpendicular sides

6 Pupils learn to extend lines and sides to identify parallel and perpendicular lines

7 Pupils make and draw triangles on circular geoboards

8 Pupils make and draw quadrilaterals on circular geoboards

9 Pupils draw shapes with given properties on a range of geometric grids

Time

National curriculum statutory requirements (p21)

Pupils should be taught to:

- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- know the number of seconds in a minute and the number of days in each month, year and leap year
- compare durations of events [for example to calculate the time taken by particular events or tasks].

Notes and guidance (non-statutory)

- Pupils use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in Year 4