Mathematics

These units will build on the knowledge and skills learned in Year 2 and the autumn term of Year 3.

Multiplication and Division

Children recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables. They calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. They recognise that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Pupils can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Length and Perimeter

Children can use and understand the language of length such as long, longer, short, shorter, tall, taller. They recognise this language will change depending on what type of length they are describing and comparing. Children can use non-standard units, such as cubes, hands and straws to measure length and height. They can measure to the nearest centimetre using a ruler or tape measure. Children have begun to measure larger objects using metres. They have thought about whether it is better to measure items in centimetres or metres and discuss the reasons why. Children can compare lengths of objects using comparison language and symbols. They have ordered more than two lengths from shortest to longest and vice versa. Children draw on their skills of the four operations and apply their understanding to length.

Fractions

Children understand the concept of a whole as being one object or one quantity. Children understand that halving is splitting a whole into two equal parts and have been introduced to the notation ½ for the first time. They have been introduced to the language of numerator, denominator and what these represent. Children have extended their knowledge of the whole and halves to recognise quarters and thirds of shapes, objects and quantities. Children understand the concept of a unit fraction by recognising it as one equal part of a whole. Children have been introduced to the non-unit fractions for the first time. Children have explored the equivalence of two quarters and one half of the same whole and understand that they are the same. Using their knowledge of halves, thirds and quarters, children can count in fractions from any number up to 10.

Mass and Capacity

Children have compared mass using < and > and order objects based on their masses. Pupils can use standard units of mass and use their knowledge of measuring mass in grams to start to measure mass in kilograms. They continue to use balance scales before moving on to use standard weighing scales. Children have applied their counting in 2s, 5s and 10s skills to reading scales accurately. Children have compared the volume of containers using < , > and = and understand the difference between volume

and capacity. They can use the language 'quarter', 'half' and 'three-quarters full' to describe and compare volume. Children have been introduced to standard units of millilitres (ml) and litres (l) for the first time.

Key vocabulary for this unit	
Multiply Divide Multiples Inverse Exchange Partition Remainder Length Metres Centimetres Millimetres Perimeter Equivalent	Unit fraction Non-unit fraction Numerator Denominator Whole Mass Grams Kilograms Capacity Volume Millilitres Litres

Learning Sequence	
Multiplication and Division	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
Length and Perimeter	• Measure, compare, add and subtract: lengths (m/cm/mm) • Measure the perimeter of simple 2-D shapes
Fractions	• Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators

	• Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • Recognise and show, using diagrams, equivalent fractions with small denominators v Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] • Compare and order unit fractions, and fractions with the same denominators • Solve problems that involve all of the above.
Mass and Capacity	• Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)

Assessment milestones	
Mathematical Skills: • To solve problems, including missing number problems, involving multiplication and division • To measure, compare, add and subtract length, mass and volume/capacity. • To identify and represent fractions using different representations.	**Mathematical Knowledge:** • To recall and use multiplication and division facts for the 3, 4- and 8-times tables. • To understand how to measure the perimeter of simple 2D shapes. • To recognise and use unit and non-unit fractions.