Primary Mathematics Curriculum

Place value and base ten

Children should be given opportunities to demonstrate how the knowledge and skills gained in this strand can be used to link, reinforce and progress learning across the other four interconnected strands.

	a The learner	b The learner	c The learner	d The learner	e The learner	f The learner	g The learner	h The learner	i The learner	j The learner	k The learner
Elements	**Place value and base ten**										
Understanding and Connecting	Begins to develop an awareness of more and less.	Shows an understanding of differences in value (For example: 'one', 'a lot', 'some' and 'more').	Explores the relationship between numbers 1–9 and also their relationship to 10. Uses manipulatives to demonstrate equivalence between the numeral and quantity of 10. Demonstrates an ability to subitise various arrangements or models of numbers to 10, e.g. using a ten frame.	Represents amounts of tens and ones as 2-digit numbers. Composes and decomposes the structure of numbers 11–20 in terms of tens and ones. In a numeral, appreciates that digits to the left have the greater value, digits to the right have the lesser value and zero can have a placeholder role. Demonstrates an ability to subitise various arrangements or models of numbers to 20.	Composes and decomposes the structure of 2-digit whole numbers up to at least 99. Identifies place value in 2-digit whole numbers up to at least 99, including zero as a placeholder. Compares two 2-digit numbers and represents the relationship between these numbers using symbols and language (For example: <, >, and =). Demonstrates an ability to estimate various arrangements or models of numbers to 99.	Composes and decomposes the structure of 3-digit whole numbers up to at least 199. Identifies place value in 3-digit whole numbers up to at least 199, including zero as a placeholder. Compares two 3-digit numbers up to at least 199, and represents the relationship between these numbers using symbols and language (For example: <, >, and =). Demonstrates an ability to estimate various arrangements or models of numbers to 199.	Composes and decomposes the structure of 3-digit whole numbers up to at least 999. Identifies place value in 3-digit whole numbers up to at least 999, including zero as a placeholder. Compares numbers up to at least 999, and represents relationship between numbers using <, >, and =. Explores place value in decimal numbers to one place of decimals [tenths] including for computation Recognises that numbers can be negative as well as positive.	Composes and decomposes the structure of whole numbers up to at least 9999. Identifies place value of whole numbers up to at least 9999. Compares numbers up to at least 9999, and represents relationship between numbers using <, >, and =. Explores place value in decimal numbers to two places of decimals [hundredths] including for computation.	Composes and decomposes the structure of whole numbers beyond 10000. Identifies place value of whole numbers beyond 10000. Explores place value in decimal numbers to at least three places of decimals [thousandths] including for computation.	Identifies the percentage of a quantity. Multiplies and divides decimal numbers by tens, hundreds and thousands. Identifies decimal and fraction equivalents for percentages.	Explores the idea that the powers of base ten continue infinitely.

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Communicating	Acknowledges the language of quantity (including more, less and enough).	Shows awareness of the concept of grouping in groups of different sizes and swapping/ exchanging. Can refer to x objects as "1 group of x"	Discusses the grouping and swapping of ten ones to 'make a group of ten.' Shows that ten ones is equivalent to one ten and exchanges one ten for ten ones. Discusses cardinal numbers of personal significance, such as number of pets or cousins, and compares with other familiar people.	Explores mathematical representations (manipulatives and/or pictorially) of tens and ones. Discusses the groupings of tens [and ones leftover]. Names multiples of ten.	Models 2-digit numbers in terms of tens and ones. Describes 2-digit numbers in terms of tens and ones.	Models and represents 3-digit numbers up to at least 199 in terms of hundreds, tens and ones. Describes 3-digit numbers up to at least 199 in terms of hundreds, tens and ones.	Models and represents and describes 3-digit numbers up to at least 999 in terms of hundreds, tens and ones. Describes 3-digit numbers up to at least 999 in terms of hundreds, tens and ones. Communicates the value of a digit relative to their position to the decimal point.	Models and represents 4-digit numbers up to at least 9999 in terms of thousands, hundreds, tens and ones. Describes 4-digit numbers up to at least 9999 in terms of thousands, hundreds, tens and ones. Communicates the value of a digit relative to their position to the decimal point.	Uses appropriate supports to compose and decompose numbers beyond 10000. Communicates the value of a digit relative to its position to the decimal point.	Converts between fractions, decimals and percentages.	Converts to decimals and percentages and vice versa.
Reasoning	Practises exchange of materials.	Sorts, groups and arranges materials according to criteria (For example: 'one', 'some' or 'more').	Investigates various arrangements (For example: on ten frames) of manipulatives to prompt different mental images of numbers up to 10, while developing a sense of each number. Orders and compares numbers 1-10 with each other.	Investigates various arrangements (For example: on ten frames) of manipulatives to prompt different mental images of numbers up to 20, while developing a sense of each number. Orders and compares numbers 1–20 with each other. Explores how the names of numerals reflect their relationship to 10.	Investigates the efficiency of different estimation strategies, including rounding numbers to the nearest ten. Orders 2-digit numbers (For example: from least to most, most to least). Estimates the number of objects in a set from 0–20.	Investigates the efficiency of different estimation strategies, including rounding numbers to the nearest ten or hundred. Orders 3-digit numbers up to at least 199. Explores place value in the context of numbers from 0–1.	Investigates the efficiency of different estimation strategies, including rounding numbers to the nearest ten or hundred. Orders 3-digit numbers up to 999. Compares and orders numbers with one decimal place, locating them on a number line.	Rounds numbers to the nearest ten, hundred or thousand, and uses this skill alongside other strategies to estimate and check the reasonableness of a solution. Orders 4-digit numbers up to 9999 in terms of their value. Rounds numbers with one decimal place to the nearest whole number. Express known fractions in decimal form.	Orders fractions, decimals and percentages of various whole units by their comparative value. Identifies percentages as a fraction [with denominator 100] and as a decimal. Rounds numbers with two decimal places to one decimal place, and to whole numbers.	Uses their skills of rounding and estimating as a means of predicting and checking their answers to decimal calculations. Identifies and generalises how place value works [the value of each digit and the value of the entire number].	Selects the most efficient approach between fractions, decimals and percentages to solve a problem and justifies selection.

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Applying and Problem-Solving	Uses sense of quantity (For example: most, least, bigger smaller) to make requests or show preference.	Engages in classifying, matching, sorting and ordering activities.	Participates in grouping and swapping activities that involve making tens.	Participates in grouping and swapping activities involving making tens [and ones leftover].	Explores a range of tasks including games, puzzles and real-life contexts involving 2-digit numbers.	Makes predictions and conjectures about the size of groups of objects to solve problems or play games.	Applies knowledge of place value to determine answers in problem-solving activities where there are missing values.	Uses rounding to check answers to calculations and establishes levels of accuracy, in the context of a problem, Solves problems in real-life contexts involving money and measuring length.	Solves problems involving operations with whole numbers, fractions, decimals and benchmark percentages.	Solves problems involving fractions, decimals and percentages where a value is missing. Calculates percentages of quantities by using decimals [multiplying] or unit fractions [dividing].	Uses money as a context to solve problems involving fractions, decimals and percentages (For example: interest, VAT, discounts and tips). Applies logic of fractions, decimals and percentages interchangeably to solve problems.