Year 1 LTP Maths

Year 1 Key Representations

Find out more…

Watch the **Unit tutorial** before planning each unit.

Read the **planning guides** for suggestions of representations.

Make use of **PD videos** on unit pages and Progression in Calculations page.

Representations of number

Pupils are most familiar with concrete representations of number within 20 which show one to one correspondence, such as cubes, counters, bead strings to 20 and other countable objects. They also recognise numerals and numbers to 20. A ten frame has been used to represent numbers and think about what this shows.

*There are seven counters. Seven is two more than five. Seven is three less than 10.*

There are 11 cubes. 11 is one more than ten.

Ordering numbers

Pupils have explored a number of ways to order and compare numbers practically using representations including a **number track** and a **number line**, within 20. These representations are used to secure counting within 20 and stating one more / one less.

1	2	3	4	5	6	7	8	9	10
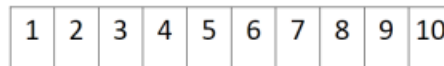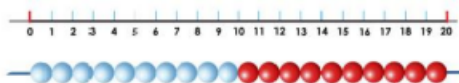
Equations

The phrase 'is equal to' is used consistently to refer to the = symbol. What is on one side of the symbol is equal to what is on the other side. Present equations in different ways to support this:
$$2 + 3 = 5$$
$$5 = 3 + 2$$

Comparing numbers

Concrete representations are used to compare numbers, focusing on correct language use. The structure of the representation supports comparison: lining towers of cubes next to one another builds on one-to-one correspondence.

*Five is **less than** seven. Five ones is **fewer than** seven ones.*
*Seven is **greater than** five.*

Representing numbers 11-20

Pupils say, read and write teen numbers. Pupils understand the ten and ones relationship of teen numbers, supported by representations.

*There are fourteen cubes. This is written as 14. 14 is one ten and four ones.*

Part-whole language and representations

Pupils will have had lots of experience partitioning numbers in different ways through exploring concrete representations. They may identify these as parts and should see that numbers can be split in different ways.

A part-whole model is used to represent number bonds, addition and subtraction. Pupils are familiar with the concept of a whole and partitioning this into two or more parts. They explore how to write this relationship as an equation.
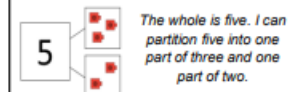
The whole is five. I can partition five into one part of three and one part of two.
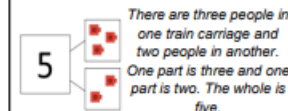
There are three people in one train carriage and two people in another. One part is three and one part is two. The whole is five.

whole = part + part
5 = 3 + 2

Counting principles – conservation of number

A key number principle for developing addition and subtraction strategies is to understand that the same number of objects will always have the same value.

There are still seven counters. The position has changed but no counters have been added or taken away.

Counting principles – subitising

Subitising is the ability to identify a group of objects without the need to count. Pupils have explored this and should be confident in subitising up to five objects. Making use of patterns e.g. die faces, triangle shapes can support this.

Doubling and halving

Pupils have had opportunities to represent doubling and halving within 20 practically using manipulatives and other countable objects. Some facts may be recalled and pupils may connect this with equal groups.

Double three is six. Three plus three is equal to six. Half of six is three.

Development of division

Pupils explore counting in equal groups using manipulatives or pictorial representations.

There are three equal groups of 10. 10, 20, 30. There are 30 altogether.

Pupils have explored the concept of equal and unequal grouping and sharing in context using concrete manipulatives.

15 cows can be grouped into five fields in this way. The groups are unequal.

If 15 bags of grain are shared equally between five farmers, each farmer gets three bags.
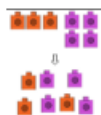
Developing fraction language

The foundations for fractions have been laid through exploration of half full / half empty and associated descriptions. Pupils have also explored doubling and halving without linking specifically to fractions.

The bottle is half full.
The bottle is half empty.

Addition and subtraction strategies

Pupils are familiar with addition and subtraction (taking away) using concrete and pictorial representations. A range of contexts for this have been explored. Pupils should be familiar with strategies including count all, count on and count back using representations.

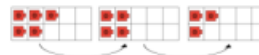*I have four yellow cubes. I add two green cubes. I can count on from four: five, six. There are six cubes.*

I have three red cubes and four purple cubes. I can put them together and count the whole. There are seven cubes.

I have five cubes. I can take away two: four, three. Five take away two is three.

Year 1 Maths Vocabulary

Analogue Clock
A clock with a face and hands.

Array
An arrangement of counters or numbers, in columns and rows, used to represent multiplication and division

Chronological
In time order

I ordered the events in my day chronologically. I woke up, ate my breakfast, went to school and came home

Cone
A 3-D shape with one circular plane face, which tapers to an apex.

Block Graph
A representation of data which has an x- and y-axis and one block represents one item. Each block is adjoined to the adjacent block.

Clockwise
Movement in the direction of the hands of a clock

Anticlockwise
Movement in the opposite direction of the hands of a clock

Data
Information which has been counted or measured.

The block graph shows us data for the colour of the cars in the car park

Divide
To share or group into equal parts.

I can divide 12 by three using grouping or sharing

Half Turn
A 180 degree rotation

Quarter Turn
A 90 degree rotation

Full Turn
A 360 degree rotation

Kilogram
A metric unit of mass equal to 1000 grams

The book has a mass of two kilograms

Litre
A standard unit of volume equal to 1000 millilitres

The capacity of the jug is about half a litre

Inverse Operations
Opposite operations that 'undo' each other

Addition and subtraction are inverse operations

Even Number
A number with a 0, 2, 4, 6 or 8 in the ones

Odd Number
A number with a 1, 3, 5, 7 or 9 in the ones

Hour
A unit of time

There are 24 hours in one day

Metre
A standard unit of measure equal to 100cm

I estimate the table to be one metre tall

Minute
A unit of time

We will have lunch in five minutes

Partition
To split a number into two or more parts

54
50   4

Right and Left
Indicating the position or direction of an object

Scales
An object used to measure mass

Place Value
A system for writing numbers in which the value of a digit is defined by its position in the number

In the number 421 the four has a value of 400, the two of 20 and the one of 1

Pyramid
A 3D shape with a polygon base and otherwise triangular faces which form edges at the base and an apex at the top

Volume
A quantity or amount of any substance and the 3D space it fills

The bottle has a volume of 1 litre but a capacity of two litre

Chart
A table or a graph

I can show the information in this chart in a graph

Fraction
A part of a whole number, quantity or shape

If I share all of my sweets with my three friends we will each receive a fraction of all the sweets

Calculation Policy Year 1

NC statement and guidance	CPA

Add one-digit and two-digit numbers to 20 including 0

Children become familiar with numbers 1-20 before learning how to add. All children begin using concrete objects to conceptually understand the process of addition in a variety of representations. Children then move on to using pictorial versions of these representations.
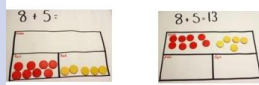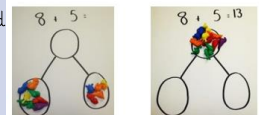
Children use number beads and physical objects. Counting one group of 8, one group of 5 and combine these to make 13.
Counting on, 'make ten' or regrouping ten ones to make ten strategies can be used with both methods.

Children use physical objects to add using the part-part-whole model.

Children use physical objects to add using the bar model.

Progressing from the concrete method, to using number lines to show the adding of the two numbers together, making a jump when a number is added.
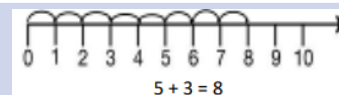
Progressing from the concrete method, children represent each physical object with crosses/circles. Counting them altogether to find the total.
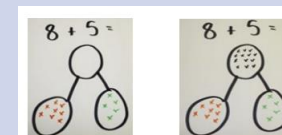
**Subtract one-digit and two-digit numbers to 20 including 0**

Children become familiar with numbers 1-20 before learning how to subtract. All children begin using concrete objects to conceptually understand the process of subtraction in a variety of representations. Children then move on to using pictorial versions of these representations.

Children use number beads and physical objects. They count a group of 13 then take away a group of 5 away and count how many are left.
Counting back, 'make ten' or regroup a ten into 10 ones strategies can be used with both methods.

Children use physical objects to subtract using the part-part-whole model.

Children use physical objects to subtract using the bar model.
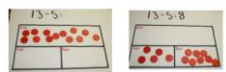
Progressing from the concrete method, to using number lines to show the subtracting of the two numbers, making a jump when a number is subtracted.

Progressing from concrete method. Children represent physical object with crosses/circles using the part-part-whole model and bar model.
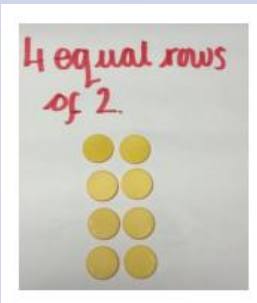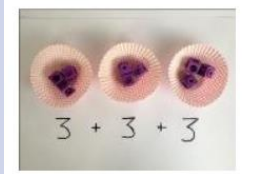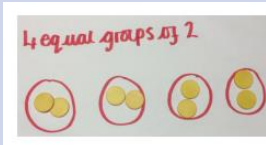
Calculation Policy Year 1

NC statement and guidance	CPA

Solve one-step problems involving multiplication

Children become familiar with both concrete and pictorial methods of multiplication. Children understand multiplication as making equal groups.

Children use concrete objects to multiply whether this be using counters, counting objects or bead string. They understand multiplying as making equal groups. They draw 4 equal groups and put two in each group. There are 8 in total. Repeated addition can be used to support with this.


4 equal groups of 2

3 + 3 + 3

Children, with support, represent multiplication using arrays. They understand this as 4 equal rows of 2 and count the total.

4 equal rows of 2.

Children move onto pictorial representation of the concrete method. They draw 4 equal groups and put two in each group. They then count how many there are in total. Again repeated addition can be used to support.

3 x 3 = 3 + 3 + 3

4 equal groups of 2
There are eight altogether.
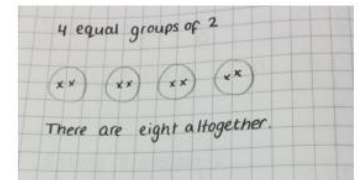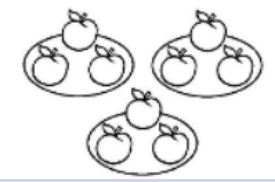
Children, with support, represent a concrete array using a pictorial method.

4 equal rows of 2
x x
x x
x x
x x
There are 8 altogether.
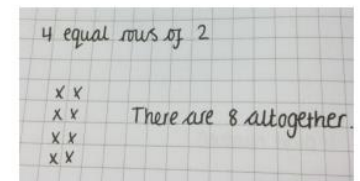

Solve one-step problems involving division

Children become familiar with both concrete and pictorial methods of division. They understand the difference between making groups and sharing.

Children use counters or counting objects to answer divisions.

They begin by getting the correct number of counters, in this case 8. Then split these into groups of 2.

8 split into groups of 2.
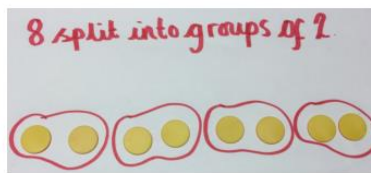
When sharing, children begin by getting the correct number of counters. They then share these between the number of groups. In this case, 8 shared between 2 groups.
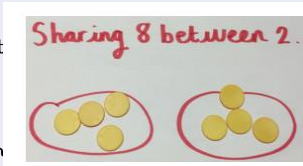
Sharing 8 between 2.

Moving on from the concrete method, children draw crosses rather than use counters then group these into the correct amount. In this case, groups of 2.

8 split into groups of 2.
x x x x x x x x
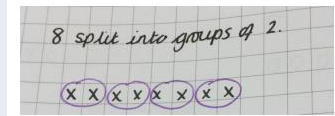
When sharing children draw the number of circles then share the amount between these circles.

Sharing 8 between 2.
x x x x   x x x x
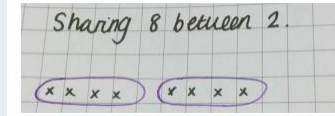
Children move on to represent the division using a bar model.

Sharing 8 between 2.
8
x x x x   x x x x

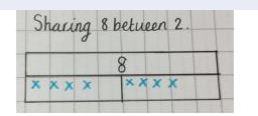|	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Previous misconception	**Number and Place Value** **Focus on numbers within 10** [Key] Begin to count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number [Key] Begin to count, read and write numbers to 100 in numerals FROM SPRING [Key] Begin to for a given number, identify one more and one less FROM SPRING Identify and represent numbers using objects and pictorial representation including the number line, and use the language of; equal to, more than, less than (fewer), most, least FROM SUMMER Read and write numbers from 1 to 20 in numerals in words AMM link – Unit 1 (lessons 1-9)		**Addition and Subtraction** **Focus on numbers within 10** Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs [Key] Represent and use number bonds and related subtractions facts within 20 FROM SUMMER Begin to solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems AMM link – Unit 2 (lessons 1-9)		Assessment week	Consolidation week	– –
Autumn 2	**Number and Place Value** **Focus on numbers within 20** [Key] Begin to count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number [Key] Begin to count, read and write numbers to 100 in numerals FROM SPRING [Key] Begin to for a given number, identify one more and one less FROM SPRING Identify and represent numbers using objects and pictorial representation including the number line, and use the language of; equal to, more than, less than (fewer), most, least FROM SUMMER Read and write numbers from 1 to 20 in numerals in words AMM link – Unit 4 (lessons 1-8)		**Addition and Subtraction** **Focus on numbers within 20** Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs [Key] Represent and use number bonds and related subtractions facts within 20 FROM SUMMER Begin to solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems AMM link – Unit 5 (lessons 1-9)		**Shape and Position** [Key] Recognise find and name common 2D and 3D shapes AMM link – Unit 3 (lessons 1-4)	**Measure** Sequence events in chronological order using language (before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening) Recognise and use language relating to dates, including days of the week, weeks, months and years Measure and begin to record time (hours, minutes, seconds) Measure and begin to records lengths and heights FROM SPRING [Key] compare, describe and solve practical problems for lengths and heights AMM link – Unit 6 (lessons 1-3) not all included within AMM And Unit 11 (lessons 1-5)		**Fractions** [this unit will be taught in week 7 due to less lessons in other Autumn 2 units] [Key] Recognise, find and name a half as one of two equal parts of an object, shape or quantity AMM link – Unit 10 (lessons 1-2) not all covered by AMM

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Spring 1	**Addition and Subtraction** FROM AUTUMN Continue to read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs Add and subtract one-digit and two-digit numbers to 20 including zero AMM link – Unit 7 (lessons 1-5)	**Number and Place Value** Focus on numbers within 50 FROM AUTUMN [Key] Begin to count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number FROM AUTUMN [Key] Begin to count, read and write numbers to 100 in numerals [Key] Begin to for a given number, identify one more and one less Identify and represent numbers using objects and pictorial representation including the number line, and use the language of; equal to, more than, less than (fewer), most, least FROM SUMMER Read and write numbers from 1 to 20 in numerals in words AMM link – Unit 8 (lessons 1-9)		**Addition and Subtraction** Focus on numbers within 50 FROM AUTUMN Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs FROM AUTUMN [Key] Represent and use number bonds and related subtractions facts within 20 FROM SUMMER Begin to solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems AMM link – Unit 9 (lessons 1-8)		Test week	– –	– –
Spring 2	Consolidation week	**Measure** FROM AUTUMN Measure and begin to records mass/weight [Key] compare, describe and solve practical problems for mass and weight FROM SUMMER Measure and begin to record capacity and volume [Key] compare, describe and solve practical problems for capacity and volume AMM link – Unit 11 (lessons 6-10) And Unit 16 (lessons 1-9)			**Shape and Position** Revisit and apply based on gaps in learning AMM link – not covered by AMM	**Fractions** Recognise, find and name a quarter as one of four equal parts of an objects, shape or quantity AMM link – Unit 10 (lessons 3-4) not all covered by AMM	– –	– –

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Summer 1	Number and Place Value Focus on numbers within 100 FROM AUTUMN [Key] Begin to count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number FROM AUTUMN [Key] Begin to count, read and write numbers to 100 in numerals FROM SPRING [Key] Begin to for a given number, identify one more and one less FROM SPRING Identify and represent numbers using objects and pictorial representation including the number line, and use the language of; equal to, more than, less than (fewer), most, least Read and write numbers from 1 to 20 in numerals in words Count in multiplies of 2s, 5s and 10s AMM link – Unit 12 (lessons 1–9) not all covered by AMM		Addition and Subtraction Focus on numbers within 100 FROM AUTUMN Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs FROM AUTUMN [Key] Represent and use number bonds and related subtractions facts within 20 Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems AMM link – Unit 13 (lessons 1–9)		Multiplication and Division Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of a teacher AMM link – Unit 15 (lessons 2–9)		– –	– –
Summer 2	Measure [Key] Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times AMM link – Unit 6 (lessons 4–8)	Test week	Consolidation week	Shape and Position Including Fractions/measure Describe position, direction and movement including whole, half quarter and three quarter turns AMM link – Unit 3 (lessons 5–9) And Unit 6 (lesson 9) And Unit 10 (lesson 5)		Measure Recognise and know the value of different denominations of coins and notes AMM link – Unit 14 (lessons 1–10) And Unit 15 (lesson 1)		Year 2 Prep Revisit and apply based on gaps in learning AMM link – not covered by AMM