

Year 2 units

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Comparing, ordering and partitioning 2-digit numbers

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1. Composition of multiples of 10

Year 2

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Threads

- Number
- Number: Place value

Unit description

In this unit pupils will represent multiples of ten using numerals and names and use knowledge of facts and unitising to add and subtract multiples of ten.

Why this, why now?

This first unit of Year 2 allows pupils to revisit Y1 learning relating to number facts within ten and how they relate to multiples of ten. This gives a familiar start and prepares them for work on numbers to 100 in the following units.

Lessons in unit

1. Explain that one ten is equivalent to ten ones
2. Represent multiples of ten using their numerals
3. Represent multiples of ten using their numerals and names
4. Represent multiples of ten in an expression or an equation
5. Estimate the position of multiples of ten on a 0 - 100 number line
6. Explain what happens when you add and subtract ten to a multiple of ten
7. Use knowledge of facts and unitising to add and subtract multiples of ten
8. Add and subtract multiples of ten
9. Solve problems involving multiples of ten
10. Solve problems involving multiples of ten in a range of contexts

Prior knowledge requirements

- Recognise and count in tens
- Partition multiples of 10 using place value
- Add and subtract tens mentally

2. Counting and representing the numbers 20 to 99

Year 2

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Threads

- Geometry and Measure
- Number
- Number: Place value

Unit description

In this unit pupils will explore the counting sequence for counting to 100 and beyond representing numbers from 20-99 in different ways including marking the position on a number line They will learn to represent 20-99 in the context of length.

Why this, why now?

In Year 2, pupils explored and rehearsed counting patterns from 20 to 99. In this unit they relate this knowledge of the patterns to different representations of place value.

Lessons in unit

1. Explore the counting sequence for counting to 100 and beyond
2. Count groups of ten and extra ones
3. Count a large group of objects by counting tens and ones
4. Represent a number from 20 to 99
5. Use a number line to position and estimate the numbers 20-99

Prior knowledge requirements

- Count forwards and backwards from 0 to 100
- Partition two-digit numbers into tens and ones
- Represent numbers using concrete and pictorial models

3. Comparing, ordering and partitioning 2-digit numbers

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Threads

- Number
- Number: Place value

Unit description

In this unit pupils will compare two 2-digit numbers and partition a 2-digit number into 10s and 1s and position on a number line.

Why this, why now?

Pupils build on their understanding of the structure of 2-digit numbers in this unit and apply the understanding to comparing numbers and positioning them in the number system on a number line. This prepares them for applying place value understanding to calculation in future units.

Lessons in unit

1. Compare two-digit numbers
2. Partition two-digit numbers into tens and ones using place value resources
3. Partition two-digit numbers into tens and ones
4. Represent addition and subtraction of tens and ones with equations
5. Solve problems by adding and subtracting tens and ones

Prior knowledge requirements

- Count to 100
- Understand place value of tens and ones
- Partition numbers in different ways

4. Secure fluency of addition and subtraction facts within 10

Year 2

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Threads

- Number
- Number: Addition and Subtraction

Unit description

In this unit pupils will revisit addition and subtraction within ten. They will consolidate addition and subtraction strategies.

Why this, why now?

In preparation for calculating to and beyond 20, this unit allows pupils to review and secure addition facts within ten so that they can apply them to calculating beyond ten in the following units.

Lessons in unit

1. Represent addition and subtraction facts within 10
2. Recall one and two more or less than numbers to ten
3. Recall doubles within 10
4. Use near doubles within 10
5. Use known addition and subtraction facts within 10 to solve problems

Prior knowledge requirements

- Recall number facts and sequences
- Use place value understanding
- Apply basic operations in context

5. Calculating within 20

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Threads

- Number
- Number: Addition and Subtraction
- Statistics

Unit description

In this unit pupils will add 3 addends. They will use a strategy such as finding 2 addends to total 10 or 2 numbers to bridge through 10.

Why this, why now?

This unit applies known facts and explores strategies for adding within ten. Pupils use understanding of commutativity to reorder equations to calculate efficiently. The facts in this unit will then be applied to calculating beyond 20.

Lessons in unit

1. Add three addends
2. Use a 'First, then, then, now' story to add three addends
3. Explain that the addends can be added in any order
4. Add three addends efficiently
5. Add three addends efficiently by finding two addends that total 10
6. Add two numbers that bridge through 10
7. Add and subtract two numbers that bridge through 10
8. Compare the number of objects in two sets or difference between two measures.
9. Calculate the difference
10. Calculate the difference in different contexts
11. Explain what the difference is between consecutive numbers
12. Calculate the difference when information is presented in a pictogram
13. Calculate the difference when information is presented in a bar chart
14. Use knowledge of calculating within 20 to solve problems
15. Use knowledge of calculating within 20 to solve problems involving statistics

Prior knowledge requirements

- Recall number bonds to 10 and 20
- Use mental strategies such as counting on and bridging 10
- Represent calculations with concrete or visual models

6. Adding and subtracting ones and tens to and from 2-digit numbers

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Threads

- Number
- Number: Addition and Subtraction

Unit description

In this unit pupils will add and subtract 1s and 10s from 2 digit numbers. They will use number facts to add/subtract a single-digit number to/from a 2-digit number. They will use a part-part-whole model to represent addition and subtraction.

Why this, why now?

This unit applies the number fact and place value work of the previous units to working with numbers beyond 20. Pupils use familiar representations: part-part-whole models and number lines, to support partitioning and bridging through tens.

Lessons in unit

1. Add and subtract one to or from a two-digit number within a decade
2. Add and subtract 1 to and from a 2-digit number crossing the tens boundary
3. Use number facts to add or subtract a one-digit number and a two-digit number.
4. Use number facts to solve addition and subtraction problems.
5. Use number facts to solve problems in measures and data contexts
6. Use number bonds to 10 to add/subtract one-digit and two-digit numbers
7. Add by bridging a multiple of ten
8. Subtract by bridging a multiple of ten
9. Use bridging to solve addition and subtraction problems
10. Find 10 more or less than a 2-digit number.
11. Add and subtract 10 to and from a 2-digit number.
12. Add multiples of 10 to 2-digit numbers.
13. Subtract multiples of ten from 2-digit numbers
14. Partition 2-digit numbers in different ways
15. Use efficient strategies to solve problems

Prior knowledge requirements

- Count to 100
- Understand place value of tens and ones
- Partition numbers in different ways

7. Grouping objects in different ways and relating to multiplication

Year 2

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Threads

- Number
- Number: Multiplication and division

Unit description

In this unit pupils will describe how objects are grouped and will represent equal groups as repeated addition and multiplication.

Why this, why now?

This unit moves pupils on from thinking only about addition and introduces the concept and symbol for multiplication. Pupils explore how objects can be grouped and how to represent that grouping as multiplication as well as addition. This prepares them for work exploring the 2, 5 and 10 times tables.

Lessons in unit

1. Explain that objects can be grouped in different ways
2. Describe how objects have been grouped
3. Represent equal groups as repeated addition
4. Represent equal groups as repeated addition and multiplication
5. Represent equal groups as multiplication
6. Explain and represent multiplication when a group contains zero or one items
7. Identify and explain each part of a multiplication equation
8. Use knowledge of multiplication to calculate the product
9. Use knowledge of multiplication to solve problems
10. Use knowledge of multiplication to solve problems in a range of contexts

Prior knowledge requirements

- Make equal groups and count the total
- Use repeated addition as a strategy
- Recognise arrays and relate to multiplication facts

8. Representing counting in 2s, 5s and 10s as the 2, 5 and 10 times tables

Year 2

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Threads

- Number
- Number: Multiplication and division
- Statistics

Unit description

In this unit pupils will represent the 2x 10x table in different ways and use 2x 10x table to solve problems. They will explain the relationship between adjacent multiples of 2/10 and that factor pairs can be written in any order.

Why this, why now?

This unit develops understanding of multiplication and the skip counting pupils have done and applies it to the 2-, 5- and 10-times tables. They explore commutativity in that the factors can be written in any order and look at the relationship between adjacent multiples in preparation for looking for relationships between times tables in future units.

Lessons in unit

1. Represent the 2 times table in different ways
2. Use knowledge of the 2 times table to solve problems
3. Explain the relationship between adjacent multiples of 2
4. Explain that factor pairs can be written in any order
5. Represent counting in tens as the 10 times table
6. Represent the 10 times table in different ways
7. Explain the relationship between adjacent multiples of 10
8. Represent counting in fives as the 5 times table
9. Represent the 5 times table in different ways
10. Explain the relationship between adjacent multiples of 5

Prior knowledge requirements

- Count forwards and backwards in 1s to 20
- Use concrete or pictorial representations for equal groups
- Recognise repeated addition patterns in numbers

9. Representing counting in 5s as the 5 times table and link to the 10 times tables

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Threads

- Number
- Number: Multiplication and division
- Statistics

Unit description

In this unit pupils will represent the 5-times table in different ways. They will explain the relationship between adjacent multiples of 5 and how 5- and 10-times tables are related.

Why this, why now?

This unit provides opportunities to rehearse the facts of the 5-times table and also to explore the link between the 5- and 10-times tables. The unit also links the times tables to multiplication contexts, identifying what the factors and product represent within the context.

Lessons in unit

1. Explain how groups of five and ten are related
2. Explain the relationship between multiples of five and ten
3. Use knowledge of the relationships between the 5 and 10 times tables to solve problems
4. Explain how a factor of zero or one affects the product
5. Represent multiplication equations in different ways
6. Use knowledge of the 2, 5 and 10 times tables to solve problems
7. Use knowledge of the 2, 5 and 10 times tables to solve problems in a range of contexts
8. Explain what each factor represents in a multiplication story
9. Explain what each factor represents in a multiplication story when one of the factors is one
10. Explain how a multiplication equation with 2 as a factor is related to doubling

Prior knowledge requirements

- Count in steps of 5 and 10
- Recognise patterns in number sequences
- Use arrays to represent multiples

10. Multiplying by 2, doubling and halving (factors and products)

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Threads

- Number
- Number: Fractions

Unit description

In this unit pupils will learn how multiplication with 2 as a factor relates to doubling and how we can see halving as the inverse of doubling, deriving the related halving fact from a known double.

Why this, why now?

This unit focuses on the fact that, when one of the factors is 2, we can think about doubling. Pupils also relate the factor being doubled to being half of the product and use this to solve problems and identify missing factors. Exploring the inverse of multiplication will lead on to exploring division structures in the next unit.

Lessons in unit

1. Double 2-digit numbers and record as multiplications where one of the factors is 2
2. Explain how doubling and halving are related
3. Halve even 2-digit numbers and multiples of 10
4. Identify missing factors when one factor is 2
5. Use knowledge of doubling, halving and the 2 times table to solve problems

Prior knowledge requirements

- Recall number facts and sequences
- Use place value understanding
- Apply basic operations in context

11. Introduction to division structures

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Threads

- Number
- Number: Multiplication and division

Unit description

In this unit pupils will use practical resources to model and explain when objects can and cannot be grouped or shared equally. They will then represent practical situations using division expressions and equations.

Why this, why now?

This unit continues to explore equal and unequal grouping and this time relates situations to the language and symbols of division. Contexts and representations look at equal grouping and sharing. This will be developed in a future unit focusing on those two ways we can think about division.

Lessons in unit

1. Explain that objects can be grouped equally
2. Identify and explain when objects cannot be grouped equally
3. Explain the relationship between division expressions and division stories
4. Calculate the number of equal groups in a division story
5. Use knowledge of skip counting and division to solve problems relating to measure
6. Skip count using the group size to find the number of groups
7. Explain that objects can be shared equally
8. Use skip counting to solve a sharing problem
9. Skip count to find the group size in a sharing problem
10. Solve a variety of division problems, explaining understanding

Prior knowledge requirements

- Use repeated subtraction and equal sharing
- Recognise and use multiplication facts
- Understand grouping and arrays in relation to division

12. Shape: discuss and compare 2D and 3D shapes

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Threads

- Geometry and Measure

Unit description

In this unit pupils will learn that polygons can be described, sorted, compared and named according to the number of sides and vertices. They will describe 3D shapes, finding different ways to sort and compare them.

Why this, why now?

This unit builds on sorting, classifying and pattern work, introducing more specific language and the concept of symmetry. It gives pupils the language needed to explore, describe and classify other shapes and their features in future units.

Lessons in unit

1. Recognise and sort polygons
2. Describe and name polygons, including triangles and quadrilaterals
3. Describe, name and sort polygons, including pentagons, hexagons and octagons
4. Lines of symmetry
5. Discuss and compare polygons
6. Investigate how polygons can be joined and folded to form 3D shapes
7. Describe and name 3D shapes
8. Describe and name 3d shapes – prisms and pyramids
9. Find different ways to sort 3D shapes
10. Discuss and compare 3D shapes

Prior knowledge requirements

- Name and identify common 2D and 3D shapes
- Describe properties such as sides, edges, faces, and vertices
- Sort shapes based on visual or physical characteristics

13. Addition and subtraction of two 2-digit numbers

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Threads

- Number
- Number: Addition and Subtraction
- Number: Place value
- Statistics

Unit description

In this unit pupils apply their knowledge of known facts and understanding of place value to add and subtract with 2-digit numbers both within and across the tens boundary.

Why this, why now?

This unit builds on and applies knowledge of single digit facts and applies this to larger numbers. Pupils explain different addition and subtraction strategies and decide on the most efficient one for a given equation or problem. These strategies will be developed in future units to handle larger numbers.

Lessons in unit

1. Use efficient addition strategies to calculate
2. Combine tens and ones within equations
3. Add two-digit numbers without crossing the tens boundary
4. Find the missing addend when adding two-digit numbers
5. Add 2-digit numbers when crossing the tens boundary
6. Solve problems involving the addition of two-digit numbers
7. Explain different strategies used to subtract
8. Solve equations involving the subtraction of two-digit numbers
9. Solve problems involving subtraction of two-digit numbers
10. Subtract two-digit numbers crossing the tens boundary
11. Find the missing part when subtracting two-digit numbers
12. Solve problems involving subtraction when bridging 10
13. Use efficient methods to solve subtraction equations
14. Solve problems involving addition and subtraction
15. Create addition and subtraction problems

Prior knowledge requirements

- Recall number bonds to 20
- Understand place value of tens and ones
- Use column or number line methods for addition and subtraction

14. Money: recognise coins and use £ and p symbols

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Threads

- Geometry and Measure
- Number: Addition and Subtraction
- Number: Place value

Unit description

In this unit pupils will recognise and use symbols for pounds and pence combining amounts to make particular values. They will solve simple problems including giving change.

Why this, why now?

This unit provides the opportunity to revisit number facts and calculation strategies in the context of money. Pupils also build on earlier number and money work to make and convert quantities, give change and learn about pounds and pence notation.

Lessons in unit

1. Recognise and understand the value of different coins
2. Recognise the value of 20 p, 50 p and £1 coins
3. Explore combinations of coins that total the same amount
4. Find the most efficient way to make a given value
5. Solve problems including those involving giving change

Prior knowledge requirements

- Recognise coin and note values
- Use symbols £ and p appropriately
- Apply number facts to money contexts

15. Fractions: identify equal parts and be familiar with halves, thirds and quarters

Year 2

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Threads

- Geometry and Measure
- Number
- Number: Fractions

Unit description

In this unit pupils will identify whether something has or has not been split into equal parts. They will name fractions one-half one-quarter and one-third in relation to a fraction of a length shape or set of objects.

Why this, why now?

This unit develops understanding of parts and wholes, describing equal parts as fractions of a whole. Pupils then apply this to finding half of a number, relating doubling and halving to fractions. This unit prepares pupils with the language and representations for more detailed work on fractions later.

Lessons in unit

1. Equal or unequal parts
2. Recognise and name the fraction 'one half'
3. Recognise and name the fraction 'one quarter'
4. Recognise and name the fraction 'one-third'
5. Read, write and understand fraction notation
6. Find one-half of a number
7. Relate finding half of a number to halving and doubling
8. Find one-third or one-quarter of a number
9. Find three-quarters of an object, shape, set of objects or quantity
10. Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Prior knowledge requirements

- Identify equal parts of a whole
- Name common fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$)
- Use visual models for fractions

16. Time: write and tell the time to five minutes

Year 2

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Threads

- Geometry and Measure
- Number: Fractions

Unit description

In this unit pupils will consolidate their understanding of time by comparing and sequencing intervals of time. They will learn to write the time to 5 minutes, including quarter past/quarter to

Why this, why now?

This unit builds on previous time learning, sequencing and also incorporates recent work on fractions to tell the time including half past and quarter past and to the hour. This will be built on in the future to tell the time to 5 minutes and calculate with time.

Lessons in unit

1. Know the number of minutes in an hour and hours in a day
2. Tell and write the time to five minutes past on a clock face
3. Tell and write the time to five minutes past and to on a clock face
4. Tell and write quarter past and quarter to on a clock face
5. Compare and sequence intervals of time

Prior knowledge requirements

- Read time to the hour and half hour
- Understand the relationship between minutes and hours
- Count in fives to track minutes on a clock face

17. Position and direction

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Threads

- Geometry and Measure

Unit description

In this unit pupils will order and arrange combinations of objects in patterns and sequences. They will consolidate and then extend understanding of position, direction

Why this, why now?

This unit consolidates understanding of whole, half, quarter and three-quarter using mathematical vocabulary to describe patterns, position direction and movement. This prepares pupils for work involving right angles in the future.

Lessons in unit

1. Review of using mathematical language to describe position
2. Use mathematical vocabulary to describe movement
3. Describe turns as a quarter, half, three-quarter or full turn
4. Solve problems involving position, direction and rotation
5. Order and arrange objects in patterns and explain the patterns

Prior knowledge requirements

- Use directional language such as left, right, forward, and back
- Understand quarter, half, and full turns
- Identify and describe position using a grid or map

18. Doubling, halving, quotative and partitive division

Year 2

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Threads

- Number
- Number: Fractions
- Number: Multiplication and division

Unit description

In this unit pupils will double and halve 2-digit numbers. They will explore division as both grouping and sharing and learn to use times table facts to find the quotient for 2x 5x 10x tables.

Why this, why now?

This unit builds on knowledge of times tables and understanding of doubling and halving to develop understanding of the different structure of division: quotative (grouping) and partitive (sharing). Pupils also look for patterns in the 2-, 5- and 10-times tables and explore rules of divisibility based on the patterns. This is developed in future units and applied to larger numbers and other times tables.

Lessons in unit

1. Identify the patterns and relationships between the 5 and 10 times tables
2. Explain patterns and relationships between the 5 and 10 times tables
3. Use knowledge of the 5 and 10 times tables to solve problems
4. Explain how times table facts can help to find the quotient (10 times table)
5. Explain how times table facts can help to find the quotient (5 times table)
6. Explain how times table facts can help to find the quotient (2 times table)
7. Explain how a division equation with 2 as a divisor is related to halving
8. Explain each part of a division equation and know how they can be interchanged
9. Use knowledge of divisibility rules when the divisor is 2 to solve problems
10. Use knowledge of divisibility rules when the divisor is 10 to solve problems
11. Use knowledge of divisibility rules when the divisor is 5 to solve problems
12. Explain how a dividend of zero affects the quotient
13. Explain how the quotient is affected when the divisor is equal to the dividend
14. Explain how a divisor of one affects the quotient
15. Use knowledge of division strategies to solve problems

Prior knowledge requirements

- Recall doubles and halves of numbers up to 20
- Use sharing and grouping with small quantities

- Understand division as the inverse of multiplication

19. Sense of measure - capacity, volume and mass

Year 2

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Threads

- Geometry and Measure
- Number: Addition and Subtraction

Unit description

In this unit pupils will choose, use and compare appropriate standard units to estimate and measure length/height mass, capacity and temperature to the nearest appropriate unit.

Why this, why now?

This unit highlights the need for standard units of measure and uses different contexts to introduce standard units for length, mass, capacity and temperature. Pupils estimate and measure, compare and order measurements, preparing them for applying units of measure to solve problems in various contexts in the future.

Lessons in unit

1. Length can be measured in any direction to give height, length and distance
2. Explain why standard units of measure are needed
3. Length can be measured in metres and centimetres
4. Read scales in metres and centimetres
5. Compare and order lengths
6. Mass can be measured in grams and kilograms
7. Compare and order measurements of mass
8. Volume and capacity can be measured in litres and millilitres
9. Compare and order measurements of volume and capacity
10. Temperature

Prior knowledge requirements

- Compare and describe measures using non-standard units
- Use standard units such as litres and grams
- Estimate and measure using appropriate tools