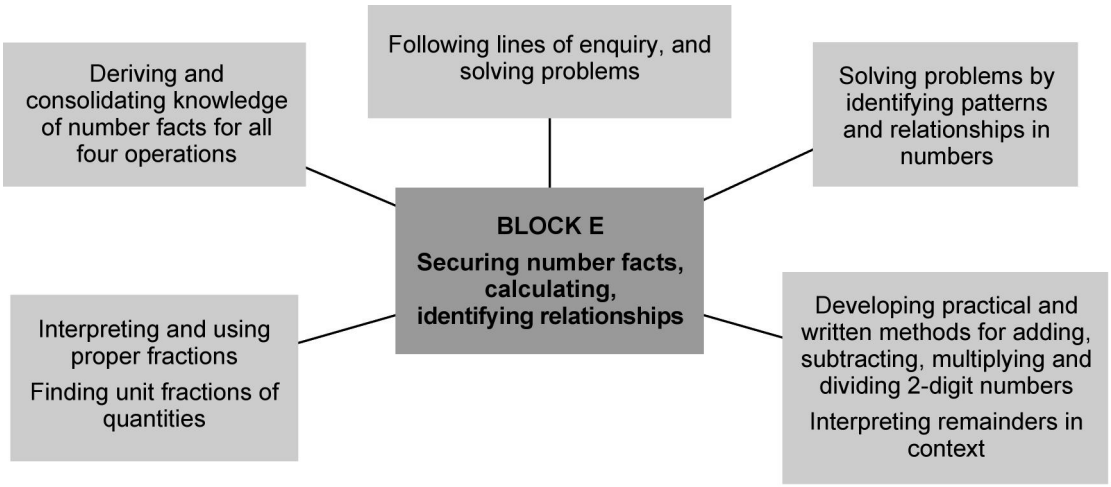
Year 3: Block E — Three 3-week units

Securing number facts, calculating, identifying relationships



Objectives End-of-year expectations (key objectives) are highlighted	Units 1	2	3
• Solve one-step and two-step problems involving numbers, money or measures, including time, choosing and carrying out appropriate calculations		✓	✓
• Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information	✓		✓
• Identify patterns and relationships involving numbers or shapes, and use these to solve problems	✓		✓
• Partition three-digit numbers into multiples of 100, 10 and 1 in different way			✓
• Read and write proper fractions (e.g. $^{3}/_{7}$, $^{9}/_{10}$), interpreting the denominator as the parts of a whole and the numerator as the number of parts; identify and estimate fractions of shapes; use diagrams to compare fractions and establish equivalents		✓	✓
• Derive and recall all addition and subtraction facts for each number to 20, sums and differences of multiples of 10 and number pairs that total 100	✓		
• Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times-tables and the corresponding division facts; recognise multiples of 2, 5 or 10 up to 1000	✓	✓	✓
• Develop and use written methods to record, support or explain addition and subtraction of two-digit and three-digit numbers			✓
• Multiply one-digit and two-digit numbers by 10 or 100, and describe the effect		✓	
• Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 × 3, 50 ÷ 4); round remainders up or down, depending on the context	✓	✓	✓
• Understand that division is the inverse of multiplication and vice versa; use this to derive and record related multiplication and division number sentences		✓	
• Find unit fractions of numbers and quantities (e.g. $^{1}/_{2}$, $^{1}/_{3}$, $^{1}/_{4}$ and $^{1}/_{6}$ of 12 litres)	✓	✓	✓

Speaking and listening objectives for the block

Objectives	Units		
	1	2	3
• Sustain conversation, explaining or giving reasons for their views or choices	✓	✓	
• Develop and use specific vocabulary in different contexts			✓

Opportunities to apply mathematics in science

Activities		Units		
		1	2	3
3a	Helping plants grow well: Work out how much water each plant has been given over the school week by multiplying the daily amount by 5.	✓		
3c	Characteristics of materials: Discuss how to find out which paper is best for mopping up spills. Describe approximately what proportion of the water is mopped up, for example less than a quarter, more than a half.		✓	
3f	Light and shadow: Compare length of shadow to objects using fractions; for example, describe the length of shadow as about ¼ of the length of the object.			✓

Key aspects of learning: focus for the block

Enquiry	**Problem solving**	**Reasoning**	**Creative thinking**
Information processing	Evaluation	Self-awareness	Managing feeling
Social skills	**Communication**	**Motivation**	Empathy

Vocabulary

problem, solution, calculate, calculation, inverse, answer, method, explain, predict, estimate, reason, pattern, relationship, compare, order, information, test, list, table, diagram

place value, partition, ones, tens, hundreds, one-digit number, two-digit number, three-digit number

sign, equals (=), operation, symbol, number sentence, equation, mental calculation, written calculation, informal method, jottings, number line

count on, count back, add, plus, sum, total, subtract, take away, minus, difference, double, halve, inverse, multiply, times, multiplied by, product, multiple, share, share equally, divide, divided by, divided into, left, left over, remainder, round up, round down

fraction, part, equal parts, one whole, parts of a whole, number of parts, one half, one third, one quarter, one fifth, one sixth, one tenth, two thirds, three quarters, three fifths, unit fraction

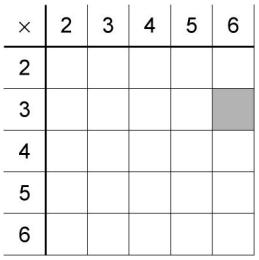
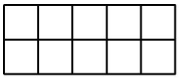
Building on previous learning

Check that children can already:

- solve one-step word problems involving all four operations
- choose and use suitable equipment when following a given line of enquiry
- select, organise and present information in lists, tables and simple diagrams
- partition two-digit numbers and recognise the importance of place value
- recognise simple fractions and find halves and quarters of sets of objects and small numbers
- recall addition and subtraction facts for all numbers to 10 and multiples of 10

- understand inverse operations and use the inverse relationships of addition and subtraction to generate number facts
- understand multiplication and division and derive and recall multiplication and division facts for 2, 5 and 10

Unit 3E1 — 3 weeks

Objectives *Children's learning outcomes in italic*	Assessment for learning
• Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information *I can make a table to record my results*	What information will you find? How will you record it? What did you find out? Show me what in your results helped you to draw this conclusion. Why did you choose to record your results in a table? What number should go in the shaded square? What multiplication fact did you use? 
• Identify patterns and relationships involving numbers or shapes, and use these to solve problems *I can describe the pattern when I count in fives*	What are the missing numbers in this pattern? How did you find them? 83, 78, ☐, 68, 63, 58, ☐ Find $\frac{1}{2}$ of 16. Find $\frac{1}{4}$ of 16. Find $\frac{1}{8}$ of 16. What do you notice? Sam says: 'When you count from zero in fours, every number is even.' Is he right? How do you know?
• Derive and recall all addition and subtraction facts for each number to 20, sums and differences of multiples of 10 and number pairs that total 100 *I know addition and subtraction facts for number to 20* *I can add and subtract multiples of 10*	What is the missing number in this pattern? 4, 7, 10, 13, ☐, 19 What facts did you use to work this out? What other fact could you use? Three numbers add up to 100. Two of the numbers are 50 and 20. What is the third number? Put + or – symbols in the circles to make the answer correct: 9 ○ 7 ○ 3 ○ 5 = 8
• Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times-tables and the corresponding division facts; recognise multiples of 2, 5 or 10 up to 1000 *I know the 2, 5 and 10 times-tables* *I can use multiplication facts to answer division questions*	How many fives make the same number as three tens? What multiplication and division facts does this array show?  Complete this division fact in as many ways as you can: 12 ÷ ☐ = ☐ Is 113 a multiple of 5? How do you know? How many multiples of 2 are there between 175 and 183?
• Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 × 3, 50 ÷ 4); round remainders up or down, depending on the context *I can multiply a 'teen' number by 2, 3, 4, 5 or 6*	Paul buys 12 lollies that cost 5p each. Work out how much this will cost altogether. How did you find the answer? Did you jot anything down? You are given that 10 × 3 = 30 and 3 × 3 = 9. How many threes are there in 39? How many teams of 3 people can be made from 10 people? Draw a picture that shows that your answer is correct.
• Find unit fractions of numbers and quantities (e.g. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{6}$ of 12 litres) *I can find fractions of numbers by using division*	Which is heavier: $\frac{1}{2}$ of 18 kg or $\frac{1}{4}$ of 32 kg? What calculation would you do to work out $\frac{1}{8}$ of 32? Mary says that $\frac{1}{4}$ of the numbers on a 100-square are bigger than 60. Is she right? How do you know?

Objectives *Children's learning outcomes in italic*	Assessment for learning
• Sustain conversation, explaining or giving reasons for their views or choices *I listen to the views of everyone in my group and make sure that everyone has a turn to talk*	You are going to solve this problem as a group. Start by agreeing what everyone in the group is going to do. How can you make sure that the discussion involves everyone and that everyone has a chance to express their point of view?

Learning overview

Children **count on and back in regular steps** of 1, 2, 3, 4, 5, 6, 10 and 100 using their knowledge of addition and subtraction facts to help them to count accurately. They find the difference between consecutive numbers to establish the step size to complete sequences such as:

1, 7, 13, 19, ☐, ☐ ☐, 26, 22, ☐, ☐, 10, 6, 2

Children **identify patterns and relationships** and use these to support their count. They investigate general statements such as: *When you count in fives, the units digits form a pattern.* Where they work in groups on a task, they ensure that all members try out examples and discuss what they have found.

Children **know by heart the 2, 5 and 10 multiplication facts** and use them to solve questions like:

If I have three 5p coins, how much money do I have?

They recognise questions that involve division, such as:

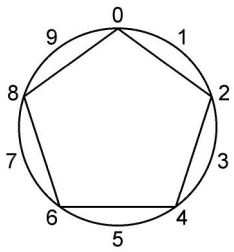
If I have 30p in 10p coins, how many coins do I have?

They count on and back from zero in steps of 2, 3, 4, 5, 6 and 10 to answer questions like:

What is 4 multiplied by 6?

How many 3s make 21?

Children research the question: *What digits can multiples of 2 end in? What about multiples of 3, multiples of 4?* They investigate by joining the last digits of each multiple in order on a digit wheel. For example, the last digits of the multiples of 2 (**2**, **4**, **6**, **8**, 1**0**, 1**2**, 1**4**, 1**6**, 1**8**, 2**0**, 2**2**) form this pentagon:

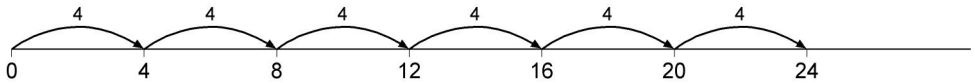


Children **record the outcomes of this enquiry** by recording in a table the number, the last digits of its multiples and the shape that they form on the digit wheel. They use their results to answer questions such as:

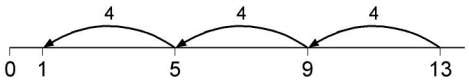
Can 113 be a multiple of 5? How do you know?

Can a multiple of 4 ever end in a 7?

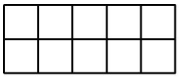
Children review **multiplication as repeated addition** and **division as repeated subtraction** by counting hops on a number line. For example, they find 6 fours by making 6 hops of 4.



Children **divide a number of objects by using grouping**. They understand that one way to find 30 ÷ 6 is to find how many sixes there are in 30. Through practical experience, they understand that some division calculations have a remainder, for example 13 ÷ 4 = 3 R 1:



Children **understand the relationship between multiplication and division**. For example, they state two multiplication sentences and two division sentences that relate to a particular array, for example:



5 × 2 = 10 2 × 5 = 10

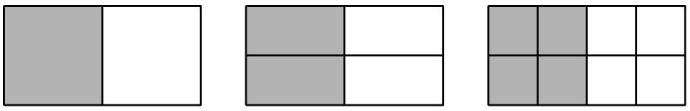
10 ÷ 2 = 5 10 ÷ 5 = 2

They use the image of an array to explain why, for example, 2 × 5 gives the same answer as 5 × 2. They also use the image to show how many fives make 10 and how many twos make 10.

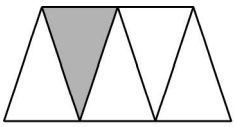
Children **derive quickly the doubles of all numbers 1 to 20**. They recognise that halving is the inverse of doubling. They understand that doubling is equivalent to multiplying by 2 and halving is equivalent to dividing by 2.

Children begin to **use practical and informal methods** to solve simple **TU × U** calculations. For example, to find 12 × 5 they appreciate that 10 fives are 50 and add on another 2 fives to make 60.

Children **fold shapes in half** and, where possible, repeat this to **find ½, ¼ or ⅛ of a variety of shapes**. By folding three identical rectangles into halves, quarters and eighths, they show and explain that ½ is equivalent to ²⁄₄ and is also equivalent to ⁴⁄₈. They understand that a whole is, for example, two halves, four quarters or eight eighths.

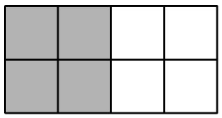
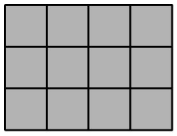


Children recognise other unit fractions of shapes, realising, for example, that ⅕ of this shape is shaded because 1 piece out of 5 equal pieces is shaded.



Children find **½, ¼ or ⅛** of collections of objects by **sharing** or repeated halving. They **recognise and use the notation of ½, ¼ or ⅛**, understanding that the numbers on the bottom of the fraction relate to sharing equally between 2, 4 or 8. They place ½ and ¼ between 0 and 1 on a number line and *half past, quarter past* and *quarter to* on a 12-hour time line.

Unit 3E2 3 weeks

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Solve one-step and two-step problems involving numbers, money or measures, including time, choosing and carrying out appropriate calculations *I can recognise when a word problem involves multiplication or division*	Look at this problem. There are 20 legs. How many zebras is this? What calculation did you do? What was it about the problem that made you decide to use this operation? Make up your own word problem that would lead you to working out the calculation 32 ÷ 4. How do you recognise that this problem involves division?
• Read and write proper fractions (e.g. $^{3}/_{7}$, $^{9}/_{10}$), interpreting the denominator as the parts of a whole and the numerator as the number of parts; identify and estimate fractions of shapes; use diagrams to compare fractions and establish equivalents *I know that the number on the bottom of a fraction tells me how many pieces the whole is divided into*	What fraction of this shape is shaded? How do you know? Is there another way that you can describe the fraction?  Approximately what fraction of this shape is shaded? Explain how you decided on your answer. 
• Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times-tables and the corresponding division facts; recognise multiples of 2, 5 or 10 up to 1000 *I know the 2, 3, 4, 5, 6 and 10 times-tables.*	How many sides do six triangles have? What multiplication fact do you need to work out to answer this problem? What is the answer? How can you use the fact 7 × 3 = 21 to find the answer to 7 × 6? What tips would you give to someone who cannot remember the 4 times-table? Complete this division fact in as many ways as you can: 20 ÷ □ = □ What multiplication facts did you use to help you do this?
• Multiply one-digit and two-digit numbers by 10 or 100, and describe the effect *I can multiply a number by 10 or 100*	What is the value of the 5 in the number 15? Multiply 15 by 10. What is the value of the 5 in your answer? What operation would change 37 into 370? What operation would change 4 into 400? How did you decide on your answers?
• Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 × 3, 50 ÷ 4); round remainders up or down, depending on the context *I can multiply a multiple of 10 by a one-digit number*	What calculation do you need to do to work this out? Rulers are 30 cm long. If you place six of them end to end, how long a line will they make? Explain how you solved this problem. Did you write anything down? How can you use 4 × 6 = 24 to work out 4 × 60? How many threes make 36? How do you know?
• Understand that division is the inverse of multiplication and vice versa; use this to derive and record related multiplication and division number sentences *I can give the multiplication fact that is linked to a division fact*	Write down the two multiplication facts and two division facts that are linked to this array.  Mary keys 27 ÷ 3 into a calculator to get the answer 9. What operation should she type in to turn the 3 back into 27?

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Find unit fractions of numbers and quantities (e.g. ½, ⅓, ¼ and ⅙ of 12 litres) *I can find a fraction of a number by using division*	Look at this problem. Barry has saved 60p. He decided to spend ⅓ of it. How much does he spend? What calculation did you do to find your answer? 50 ÷ 5 = 10. Now complete: $\frac{1}{\square}$ of 50 = 10 Explain how to find ¼ of a number. Is there another way to do it?
• Develop and use specific vocabulary in different contexts *I can pick out words that tell me that I should subtract one number from another*	In a group, sort this set of word problems into those that involve addition, those that involve subtraction, those that involve multiplication and those that involve division. What words were clues? Do you all agree?

Learning overview

Children **derive and recall the 3, 4 and 6 multiplication facts** and the related division facts. They use these facts to respond to questions like:

How many sides do six triangles have?

There are 20 legs. How many zebras is this?

Children **recognise when word problems involve multiplication or division**. For example, groups of children work together reading aloud a set of one-step word problems. They discuss and agree which problem involves which operation, placing them into sets. They look at those that involve multiplication and those that involve division, and discuss and explain to each other what clues in each problem helped them to identify the operation.

Children **understand that multiplication and division are inverse operations**. They use this to state the multiplication calculation that is linked to a division calculation, or vice versa. They explore what happens when you multiply then divide by the same number. In this way they develop their understanding that division reverses multiplication and vice versa. This helps them to solve problems such as:

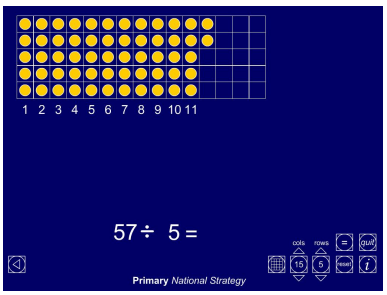
I think of a number, double it and add 5. The answer is 35. What was my number?

Children use **doubling or halving** to establish new facts **using known facts**. They appreciate that one way to multiply by 4 is to double and double again. They know that they can double the answer to the multiplication fact 7 × 3 = 21 to find the answer to 7 × 6. They double the answer to 10 × 7 = 70 to work out 20 × 7. They use the fact that halving is the inverse of doubling to check results. They apply these skills to scale measurements, for example, to make a half-size model.

Children explain how to multiply a number by 10 or 100. They extend this to **multiply one-digit numbers by multiples of 10**, recording their methods informally, for example:

$$\begin{aligned} 3 \times 50 &= 3 \times 5 \times 10 \\ &= 15 \times 10 \\ &= 150 \end{aligned}$$

Children work out calculations that divide exactly and those that give rise to **remainders**. They discuss the images in the ITP 'Remainders'.



They use their experience to predict, for example, a number that will have a remainder when divided by 5 or a number that won't have a remainder when divided by 10. They **investigate general statements** such as:

When you divide a number that ends in 3 by 10, it will give a remainder of 3.

When you divide an odd number by an even number there will be a remainder.

Children share their findings in a class discussion and respond to the findings of others.

Children **understand division as sharing**. They solve problems such as:

42 crayons are divided equally between six pots. How many crayons are there in each pot?

Three children want to buy their grandmother a present costing £1.50. They each give the same amount. How much does each child give?

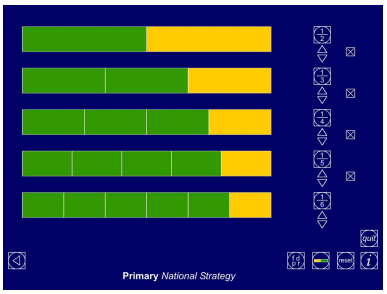
An 80 cm length of ribbon is cut into four equal pieces. How long is each piece?

Children **link fractions to division**. For example, they find $\frac{1}{3}$ of 18 objects by sharing them into three equal groups. They appreciate that $\frac{1}{3}$ of 18 is equivalent to 18 ÷ 3.

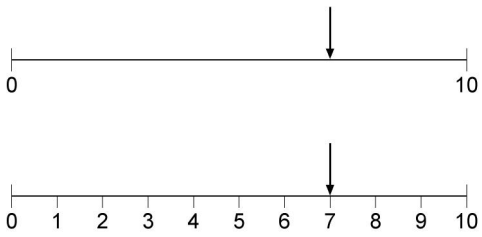
Children **read, write and understand unit fractions** such as $\frac{1}{3}$, $\frac{1}{10}$ and $\frac{1}{5}$. They realise that the denominator shows the number of parts that the whole is divided into, and they know that each part must be of equal size. They find unit fractions of amounts by sharing out collections of objects. They draw diagrams to show unit fractions of shapes, for example investigating the problem:

In how many different ways can you colour half of a 2 by 2 square?

Children **compare unit fractions**. For example, they find different unit fractions of strips made from 12 squares. They colour half of one strip, a third of another and a quarter of another, then use these to decide which is the biggest and which is the smallest of the fractions. They use other visual images such as a fraction wall or the ITP 'Fraction' to consolidate their understanding of the relative sizes of unit fractions.

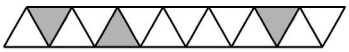
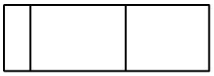
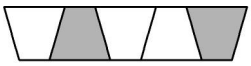


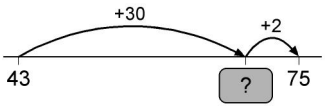
Children estimate a fraction of a shape or object, for example to suggest what fraction of a jar is full of marbles or to cut an apple approximately into thirds. They draw an arrow on a 0 to 10 line without divisions, and estimate the number that the arrow is pointing to. They check their guesses by revealing the divisions.



They choose a number on a number line to 100 and estimate where half of that number lies.

Unit 3E3 3 weeks

Objectives *Children's learning outcomes in italic*	Probing questions
• Solve one-step and two-step problems involving numbers, money or measures, including time, choosing and carrying out appropriate calculations *I know that a division problem can involve sharing or grouping*	Look at this problem. 15 grapes are shared equally onto 3 plates. How many grapes are there on each plate? What calculation would you do to answer it? Draw a picture to represent the problem. Now look at this problem. How many bunches of 3 grapes can you get from 15 grapes? What calculation would you do to answer it? Draw a picture of this problem. Write your own word problem that involves sharing. Write the calculation that you need to do to solve it.
• Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information *I can test examples to follow an enquiry about numbers*	What is the biggest remainder you can have when you divide a number by 3? How did you collect information to answer this question? How did you record your findings? Think of a time recently when you used a list. Why was it helpful?
• Identify patterns and relationships involving numbers or shapes, and use these to solve problems *I can recognise and continue a pattern*	What is the next calculation in this pattern? Explain how you know 853 = 800 + 53 853 = 700 + 153 853 = 600 + 253 How many £1 coins do you need to make £2? How many 10p coins? What is the relationship between the answers? How many 1p coins do you need to make £2?
• Partition three-digit numbers into multiples of 100, 10 and 1 in different ways *I can partition numbers in different ways*	What number is equal to 200 + 110 + 7? Partition the number in a different way. To work out half of 34, Winston partitions it into 20 and 14 then halves each part. What answer does he get? Why do you think he partitioned 34 like this?
• Read and write proper fractions (e.g. $^{3}/_{7}$, $^{9}/_{10}$), interpreting the denominator as the parts of a whole and the numerator as the number of parts; identify and estimate fractions of shapes; use diagrams to compare fractions and establish equivalents *I can recognise what fraction of a shape is shaded, and say and write it*	Complete the shading on this diagram so that $^{1}/_{2}$ is shaded. Describe the shaded part in another way.  Leah says that this rectangle is divided into thirds because it is divided into three parts. Is she right? Explain your answer.  What fraction of this shape is shaded?  Use a fraction wall to find a fraction that is the same size as $^{3}/_{4}$.
• Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times-tables and the corresponding division facts; recognise multiples of 2, 5 or 10 up to 1000 *I can use my knowledge of multiplication tables to find division facts*	What multiplication fact can you use to find the answer to 28 ÷ 4? Find some division calculations that have the answer 6. How did you do this? What tips would you give to someone who cannot remember the 6 times-table? Is 354 a multiple of 10, 5 or 2? Explain how you know.

Objectives *Children's learning outcomes in italic*	Probing questions
• Develop and use written methods to record, support or explain addition and subtraction of two-digit and three-digit numbers *I can add and subtract two-digit and three-digit numbers by writing them down*	Find the sum and the difference of 164 and 136 by writing your calculations down. Explain each step. Molly drew a number line to find the answer to 43 + 32.  What number is hidden under the card?
• Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 × 3, 50 ÷ 4); round remainders up or down, depending on the context *I can multiply and divide a two-digit number by a one-digit number*	Meg drew this number line. What calculation did she work out?  10 × 4 = 40 and 3 × 4 = 12. What is 13 × 4? How many 3p lollies can you buy with 45p? Show me how you worked this out. Harry saves 20p coins. He has saved £3.20. How many coins has he saved? Show how you work it out.
• Find unit fractions of numbers and quantities (e.g. ½, ⅓, ¼ and ⅙ of 12 litres) *I can find fractions of numbers*	Would you rather have ⅓ of 30 sweets or ⅕ of 40 sweets? Why? 15 grapes are shared equally onto five plates. What fraction of the grapes is on each plate?
• Sustain conversation, explaining or giving reasons for their views or choices *I can discuss how to solve a problem. I can explain how I solved it and why I chose that method*	Explain your method for solving a problem to your friend. Compare their method with yours. Discuss what you did that was the same. Did you make any different choices? What would you do if you were solving a similar problem in the future? Why?

Learning overview

Children **partition two- and three-digit numbers in different ways**. For example, they continue the patterns:

72 = 70 + 2 853 = 800 + 53

72 = 60 + 12 853 = 700 + 153

72 = 50 + 22 853 = 600 + 253

They use partitioning to **add and subtract two- and three-digit numbers using written methods**. For example, they find the sum and the difference of 85 and 46 using expanded column methods:

$$\begin{array}{rll} 85 & = 80 + & 5 \\ +\ 46 & 40 + & 6 \\ & 120 + 11 & = 39 \end{array} \qquad \begin{array}{rlll} 85 & = 80 + 5 & = 70 + 15 \\ -\ 46 & 40 + 6 & 40 + \ 6 \\ & & 30 + \ 9 & = 39 \end{array}$$

Children recall multiplication and division facts for the 2, 3, 4, 5, 6 and 10 times-tables. They use them to solve problems involving multiplication and division. They **represent the information in the problem using images or number calculations** and use these to find a solution. They work methodically, making lists of the multiplication facts they may need to solve problems such as:

Tables have 4 legs and stools have 3 legs. I see 25 legs. How many tables and stools do I see?

Pentagons have 5 sides and rectangles have 4 sides. I have 28 straws to use to make some of each shape. How many of each can I make?

Children understand that a **division** sentence could describe a situation involving either **grouping or sharing**. For example, the calculation 30 ÷ 6 = 5 could represent either:

30 children are organised into teams of 6. How many teams are there?

or:

30 crayons are put equally into six pots. How many crayons are in each pot?

Children solve a variety of **division problems, some involving sharing and some involving grouping**. They use the inverse operation to check answers. For example, they solve:

How many teams of four can be made from 32 children?

27 apples are arranged equally in three bowls. How many apples are in each bowl?

I have £2 in my money box. All the coins are the same. How many coins could there be? Describe all the possibilities.

Children **investigate remainders** in division calculations. They research the question:

What is the biggest remainder you can have when you divide a number by 3? What if you divide by 4 or by 5?

Children work as a group on this enquiry. They decide what examples they should try and how they will work. They discuss how they can record their findings so that it is easy to identify patterns. Children use their results to explain their answer to the question.

Children **decide whether to round up or down** to answer word problems such as:

We have 21 Lego wheels. How many four-wheeled cars can we make?

Peaches come in packs of six. I want 20 peaches. How many packs do I need to buy?

How many 30 cm lengths of ribbon can I cut from a ribbon measuring 2 metres?

Children model such problems with objects or draw a sketch to help them. They discuss their answers and give reasons why they decided to round up or down.

Children use multiplication facts and place value **to multiply a two-digit multiple of 10 by 2, 3, 4, 5, 6 and 10**, calculating for example 70 × 3 or 4 × 60. They respond to problems such as:

Find 20 multiplied by 3.

What is $\frac{1}{3}$ of 60?

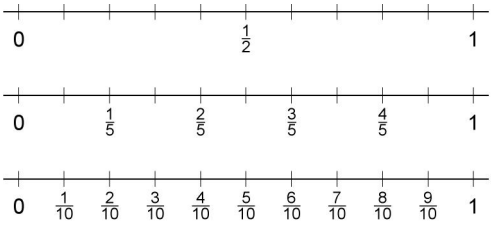
Paul has saved seven 50p coins and six 20p coins. How much is this altogether?

Children use partitioning to **multiply two-digit numbers by one-digit numbers**. For example, they work out 13 × 3 by finding 10 × 3 and adding 3 × 3. They record their working using informal methods:

×	10	3
3	30	9

30 + 9 = 39

Children find $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{3}$ or $\frac{1}{5}$ of numbers by using known multiplication and division facts. They **read and write proper fractions** such as $\frac{2}{3}$ and understand the denominator as the number of parts of the whole and the numerator as the number of parts. They count in fractions along a number line from 0 to 1, for example 'zero, one fifth, two fifths, three fifths, four fifths, one'. They use such number lines to **compare simple fractions** and begin to **find equivalent fractions**.



Children use diagrams to identify pairs of fractions that make a whole, such as $\frac{1}{4}$ and $\frac{3}{4}$, $\frac{1}{5}$ and $\frac{4}{5}$, $\frac{3}{10}$ and $\frac{7}{10}$.