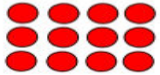

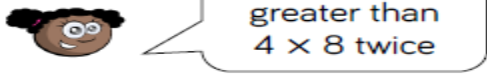


<p>Links to prior learning/ objectives</p> <p>Children will have learned to read and recognise numbers to 100.</p> <p>Children will have had experience looking at multiplication facts- especially 2,5,10s.</p> <p>Multiplication and division strategies taught in year 2 (focussed around 2/5/10 maybe 3 facts)</p> <p>Children will have the experience of doubling and halving amounts.</p> <p>Children will have started to look at mental strategies and reasoning about how they were able to multiply and divide.</p>	<p>Resources</p> <p>Base10, Cuisenaire, physical objects, number lines,</p> <p>Mastery: (where to find some resources)</p> <ul style="list-style-type: none"> • Teaching for Mastery • White Rose New and old documents • Mastery maths stickers • Nrich (curriculum mapping) 	<p>Vocabulary:</p> <p>Multiples, increasing, decreasing, ascending, descending, multiplication, division, multiply, divide, two digits, one-digit, formal methods, mental methods, place value,</p>
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Objectives and Teaching

<p>Week 1 Barriers to ARE (misconceptions)</p> <p>Recognising patterns and using prior multiplication knowledge to understand new facts.</p> <p>Miscounting or missing a step when recalling multiples or multiplication facts.</p>	<p>Count from 0 in multiples of 4,8,50 and 100.</p> <p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <ul style="list-style-type: none"> • To know how to count in multiples of 4 and 8. • To know how to count in multiples of 50 and 100. • To develop the skill of recalling and using multiplication and division facts for 3, 4 and 8 times tables. • To understand how to recall multiplication and division facts for 3,4 and 8 time tables.
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<p style="text-align: center;">Fluency</p> <p>Use the array to complete the number sentences:</p> <p>$3 \times 4 = \square$ $4 \times 3 = \square$ $\square + 3 = \square$ $\square + 4 = \square$</p>  <p>Use < > or =</p>  <p>8×3 7×4 $36 + 6$ $36 - 4$</p> <p>Complete the number sentences:</p> <p>$5 \times 1 < \square \times \square$ $4 \times 3 = \square + 3$</p>	<p>Shadya says,</p>  <p style="text-align: center;">8×8 is greater than 4×8 twice</p> <p>Do you agree? Can you prove your answer?</p> <hr/> <p>True or false</p> <ul style="list-style-type: none"> • $6 \times 7 < 6 + 6 + 6 + 6 + 6 + 6$ • $7 \times 6 = 7 \times 3 + 7 \times 3$ • $2 \times 3 + 3 > 5 \times 3$ <p style="text-align: center;">Reasoning</p>	<p style="text-align: center;">Problem Solving</p> <p>Can you find three different ways to complete each number sentence?</p> <p>$\square \times 3 + \square \times 3 < \square \div 3$</p> <p>$\square \div 4 < \square \times 4 < \square \times 4$</p> <p>$\square \times 8 > \square + 8 > \square \times 8$</p>
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Week 2

Children may not have sufficient place value understanding to understand how to organise the formal written method.

Children may not have a strong multiplication knowledge.

Children may miscalculate when adding the two parts from the multiplication calculation or make a mistake when using multiplication facts.

Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

- To know how to use mental strategies to multiply two-digit number by one-digit number.
- To understand how to use efficient mental strategies to multiply two-digit number by one-digit number.
- To know how to multiply a two-digit number by a one-digit number using a formal method.
- To develop the skill of multiplying a two-digit number by a one-digit number using a formal method.
- To understand how to use a formal method for multiplication.

Fluency

There are 21 chocolate bars in a vending machine.

How many chocolate bars will there be in 3 vending machines?



Use this method to solve:
 21×4 and 33×3

T	O
2	1
2	1
2	1

Complete the following calculations using place value counters:

- 34×2
- 23×3

T	O
3	4
3	4

T	O
3	4
6	8

Fill in the blanks and solve the calculation:

T	O
3	4
3	4

\times =

Reasoning

Martin completes the following calculation:

42×2

Can you spot his mistake?

	T	O		
	4	2		
\times		2		
		4	(2 \times 2)	
$+$		8	(4 \times 2)	
	1	2		

Problem Solving

I think of a number and multiply it by 3
My total is 99
What was my calculation?
Represent it with place value counters.


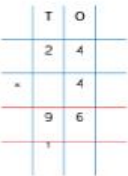
Using the digit cards in the multiplication below how close can you get to 100?



\times =

Spring 1 Year 3

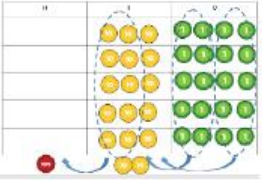
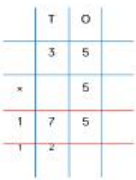
Calculate 24×4

Use this method to work out the following.
 28×3 16×6

Use place value counters work out 5×35

Use this method to work out:
 36×6
 48×4

There are 76 sweets in a bag. I buy 3 bags.
How many sweets do I have in total?

Always, Sometimes, Never

A two-digit number multiplied by a one-digit number makes a two-digit answer.

Charlotte answered the question 27×3 , her answer is 6021

What mistake could she have made?

Week 3

Children may not have sufficient place value understanding to understand how to organise the formal written method.

Children may not have a strong multiplication knowledge.

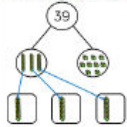
Children may miscalculate when adding the two parts from the multiplication calculation or make a mistake when using multiplication facts.

- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- To know how to use mental strategies to divide a two-digit number by one-digit number.
 - To understand how to use efficient mental strategies to divide a two-digit number by one-digit number.
 - To know how to divide a two-digit number by a one-digit number using a formal method.
 - To develop the skill of dividing a two-digit number by a one-digit number using a formal method.
 - To understand how to use a formal method for division.

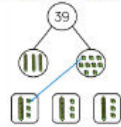
Fluency

Using a part-whole model and Base 10 answer the following:
 $39 \div 3$

Step 1: Share the tens



Step 2: Share the ones



Use this method to help you answer
 $48 \div 4$ $66 \div 6$

Use counters to help you solve the following:



Use place value counters to answer:

- $33 \div 3$
 - $86 \div 2$
 - $96 \div 3$
- | T | O |
|---|---|
| | |
| | |
| | |

Reasoning

Jacob answers the question $44 \div 4$ using place value counters.



T	O
10 10	1 1
10 10	1 1

Is he correct?
Explain your reasoning.

Prove it!

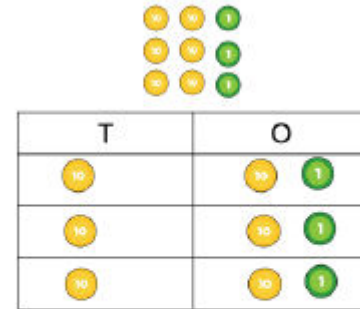
Lexi thinks that 88 sweets can be shared equally between eight people.



Is she correct?

Problem Solving

Grace uses place value counters to help her calculate $63 \div 3$



She gets an answer of 12
Is she correct?
Use place value counters to explain how you know.

Week 4

Children may not have a secure understanding of the 4 operations and the relationships between them, so they struggle to find missing numbers.

Children may not have a strong recall of multiplication facts, so they will struggle to scale.



Children may lack problem solving strategies such as trial and error or working systematically



Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

- To know how to solve missing number problems involving multiplication and division.
- To develop the skill of solving missing number problems involving multiplication and division.
- To understand how to solve missing number problems involving multiplication and division.
- To know how to solve positive integer scaling problems.
- To develop the skill of solving scaling problems.

to find all possibilities with correspondence problems.

Fluency

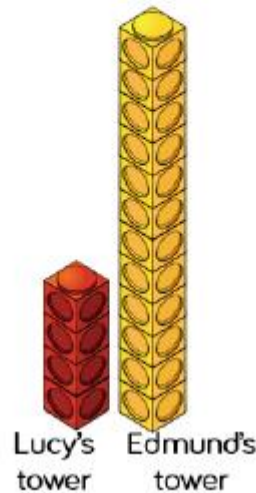
Complete the sentences to describe Deacon's line of toy cars and Abigail's line of toy cars.
 Abigail 
 Deacon 
 Deacon's line of cars is _____ times longer than Abigail's line of cars.
 Abigail's line of cars is _____ times shorter than Deacon's line of cars.

Complete the sentence to describe the Cuisenaire rods.
 The white rod is _____ smaller than the yellow rod. 
 The yellow rod is _____ larger than the white rod. 
 Can you use other rods and compare them? How would you write this a multiplication or division sentence?

Complete the missing information:
 30 is _____ times bigger than 5. _____ x _____ = _____
 5 is _____ times smaller than 30. _____ ÷ _____ = _____
 7 is _____ times smaller than 21. _____ ÷ _____ = _____
 21 is _____ times bigger than 7. _____ x _____ = _____

Reasoning

Lucy says Edmund's tower is 3 times taller.
 Edmund says his tower is 12 times taller.
 Who do you agree with?
 Explain why?



Problem Solving

There are six eggs in an egg box.
 Stephen has 18 eggs.
 He thinks he has 4 times more than one box.

Do you agree?

 A coach is three times as long as a car.
 A train is 6m longer than a coach.
 The train is 36m long.
 How long is the car?

Week 5
 Children may not have a secure understanding of the 4 operations and the relationships between them, so they struggle to find missing numbers.
 Children may not have a strong recall of multiplication facts, so they will struggle to scale.
 Children may lack problem solving strategies such as trial and error or working systematically

Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

- To understand how to solve scaling problems.
- To know how to solve correspondence problems.
- To develop the skill of solving correspondence problems.
- To understand how to solve correspondence problems.

to find all possibilities with correspondence problems.

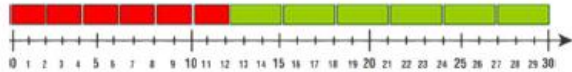
Fluency

Represent the number of wheels using multiplication sentences:



_____ × _____ = _____ × _____ =
How many wheels are there in total?

The image shows that $6 \times 2 + 6 \times 3 = 30$



Can you find another way of making 30 using multiplication facts for the 2 and 3 times tables?

Using the 3 and 4 times tables how can you make a total of 24?
Represent this with manipulatives.

Reasoning

Tammy has £18.
She wants to buy some muffins and chocolate bars.
Muffins cost £3 and chocolate bars cost £4
How many muffins does she buy and how many chocolate bars does she buy?
Can you find more than one solution?



Lottie is counting the number of wheels in a car park. Cars and bikes are in the car park. Cars have four wheels and bikes have two wheels. If there are 26 wheels altogether, how many cars and bikes might there be?

Problem Solving

William has 3 t-shirts and 4 pairs of trousers.



How many different outfits can he make?

Week 6

Assessment, gaps in learning

Fluency

Problem Solving

Reasoning