

Year 4 Maths Overview of Objectives:

Division and Multiplication:

Multiply by 10

Multiply by 100

Divide by 10

Divide by 100

Multiply by 1 and 0

Divide by 1 and itself

Multiply by 3

Divide by 3

Multiply by 6

Divide by 6

Multiply by 9

Divide by 9

Multiply by 7

Divide by 7

Multiply by 11

Divide by 11

Multiply by 12

Divide by 12

Multiply 3 numbers

Factor Pairs

Efficient Multiplication

Multiply 2-digit numbers by 1-digit numbers

Multiply 3-digit numbers by 1-digit numbers

Divide 2-digit number by 1-digit numbers

Divide 3-digit numbers by 1-digit numbers

Correspondence Problems

| Aims: | Strategies, images and models: | Notes | | | | | | | | | | | | | | | | | | |
|--|---|--------|------|-----|----|------|-------|--------|-------|--------|--|--|--|--|--|---|--|--|--|--|
| <p>Aim: To multiply 1 and 2 digit numbers by 10. (1 Day) Fluency</p> <p>Multiply Groups of Product</p> | <p>Pupils can rather than just use a place value grid to support their understanding here - actually draw their own as a strategy in books to support this?</p> <p style="text-align: center;">Multiplying and Dividing by 10, 100 and 1000</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">10 000</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">100</td> <td style="text-align: center;">10</td> <td style="text-align: center;">1</td> <td style="text-align: center;">●</td> <td style="text-align: center;">1/10</td> <td style="text-align: center;">1/100</td> <td style="text-align: center;">1/1000</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;">●</td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Multiplying</p> <p>X 10 digits move LEFT 1 space</p> <p>X 100 digits move LEFT 2 spaces</p> <p>X 1000 digits move LEFT 3 spaces</p> <p>←</p> </div> <div style="text-align: center;"> <p>Dividing</p> <p>+ 10 digits move RIGHT 1 space</p> <p>+ 100 digits move RIGHT 2 spaces</p> <p>+ 1000 digits move RIGHT 3 spaces</p> <p>→</p> </div> </div> | 10 000 | 1000 | 100 | 10 | 1 | ● | 1/10 | 1/100 | 1/1000 | | | | | | ● | | | | <p>Chdn can use knowledge of place value to understand the movement of digits one place to the left and the use of 0 as a place holder.</p> <p>NEVER tell children that they just add on a zero. They do and it's good to note this pattern - but they actually move to the left in our place value grid once - because what is actually happening? The number is getting 10 times bigger.</p> |
| 10 000 | 1000 | 100 | 10 | 1 | ● | 1/10 | 1/100 | 1/1000 | | | | | | | | | | | | |
| | | | | | ● | | | | | | | | | | | | | | | |

Aim: To multiply 1 and 2 digit numbers by 100.
(1 Day)
Fluency

As above but now reminding children that as the number gets 100 times bigger this time - it moves to place to the left on our place value grid. Which we will draw in our books



Chdn can use knowledge of place value to understand the movement of digits one place to the left and the use of 0 as a place holder.

NEVER tell children that they just add on two zeros. They do and it's good to note this pattern - but they actually move to the left in our place value grid twice - because what is actually happening? The number is getting 100 times bigger.

Aim: To divide 1 and 2 digit numbers by 10.
(1 Day)
Fluency

As above but now reminding children that as the number gets 10 times smaller this time - it moves one place to the right on our place value grid. Which we will draw in our books



Chdn can use knowledge of multiplication by 10 and 100 to understand the movement of digits one place to the right and the removal of a 0 placeholder.

NEVER tell children that they just take off a zero. They do and it's good to note this pattern - but they actually move to the right in our place value grid once - because what is actually happening? The number is getting 10 times smaller. Remove 0 doesn't work for decimals.

Aim: To divide 1 and 2 digit numbers by 100.
(1 Day)
Fluency

As above but now reminding children that as the number gets 100 times smaller this time - it moves two places to the right on our place value grid. Which we will draw in our books

Use of the place value grid will support decimal learning later in the year.

12.8 ÷ 1000 = 0.0128

| Hundreds | Tens | Units | 1/10 | 1/100 | 1/1000 | 1/10000 |
|----------|------|-------|------|-------|--------|---------|
| | 1 | 2 | 8 | | | |
| | | 0 | 0 | 1 | 2 | 8 |



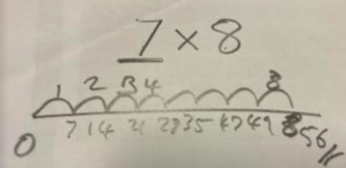
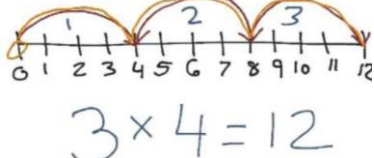
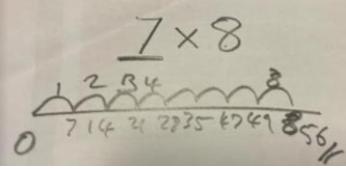
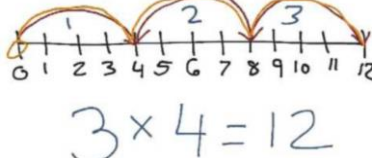
Chdn can use knowledge of multiplication by 10 and 100 to understand the movement of digits one place to the right and the removal of a 0 placeholder.

NEVER tell children that they just take off a zero. They do and it's good to note this pattern - but they actually move to the right in our place value grid once - because what is actually happening? The number is getting 10 times smaller. Remove 0 doesn't work for decimals.

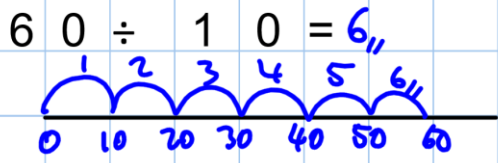
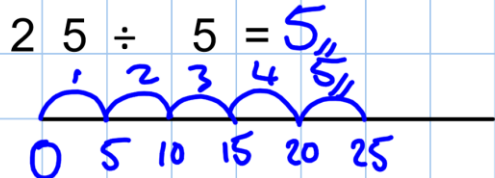
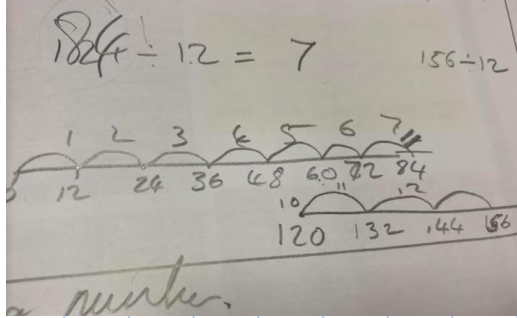
Aim: To use knowledge of multiplying and dividing by 10 and 100 to solve problems.

Amir thinks of a 2-digit even number.
He multiplies it by 100
His answer is greater than 3,450 but less than 3,750
Write the number that Amir is thinking of.

Chdn are asked to apply knowledge acquired this week to solve a range of problems with multiplication a division.
Have method of place value grid if needed to support.

| | | | | | | | | | | |
|---|---|---|--------|--------|--------|---|----|----|----|---|
| <p>(1 day PS + R)</p> | <p>Eva and Tommy collect gems in a computer game. Each gem is worth 100 points. At the end of the game, Eva has 4,300 points and Tommy has 800 points. How many gems did they collect in total?</p>  | | | | | | | | | |
| <p>Aim: To understand multiplication and multiplying by 1 and 0. GROUPS OF FOCUS - INTRO TO X BY 0 (2 days)</p> |  <p>Like this but with dots and not numbers. E.g. $6 \times 4 = 24$</p> <table border="1" data-bbox="352 663 911 725"> <tr> <td>xxxxxx</td> <td>xxxxxx</td> <td>xxxxxx</td> <td>xxxxxx</td> </tr> <tr> <td>6</td> <td>12</td> <td>18</td> <td>24</td> </tr> </table> | xxxxxx | xxxxxx | xxxxxx | xxxxxx | 6 | 12 | 18 | 24 | <p>WILL NEED TO UNDERSTAND TERMS PRODUCT, FACTOR, MULTIPLES.</p> <p>Bar Model used as an example of lots of So e.g. five lots of 3 either 5×3 or 3×5 and the bar model can be either way? What will a model for 1×5 look like? What will a model for 0×5 look like?</p> |
| xxxxxx | xxxxxx | xxxxxx | xxxxxx | | | | | | | |
| 6 | 12 | 18 | 24 | | | | | | | |
| <p>Aim: To understand multiplication and multiplying by 3 and 6. (1 Day)</p> | <p>Will begin by showing a bar model from the last two days of work and then develop this into the number line method.</p>  <p>Possible adaptation for LA -</p>  | <p>7×8 - Explain to children that they have either do - 8 jumps of 7 or 7 jumpers of 8 - they choose by knowing which they feel more confident with.</p> <p>They ALWAYS label the jumps above so 1,2,3,4,5 and underneath write the value of each jumper.</p> <p>Challenge HA with questions just as 18×3 so they must use what they know and start the number line there. E.g. start at 30 which is 10×3 and continue on with jumps to learn the method.</p> | | | | | | | | |
| <p>Aim: To understand multiplication and multiplying by 7 and 9. (1 Day)</p> | <p>Will begin by showing a bar model from the last two days of work and then develop this into the number line method.</p>  <p>Possible adaptation for LA -</p>  | <p>As above</p> | | | | | | | | |
| <p>Aim: To understand multiplication and multiplying by 11 and 12. (1 Day)</p> | <p>As above</p> | <p>As above</p> | | | | | | | | |

Aim: To understand division and dividing by 3 and 6.
(1 Day)



84 divide 12 = ?

Explain to children that they have used this method for multiplication - but they are now doing this in the reverse

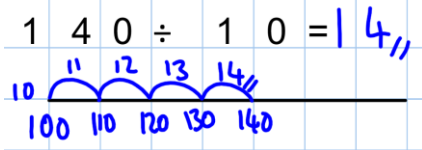
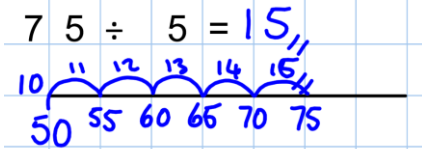
Unlike multiplication they cannot choose either or - for the jumps. They MUST be doing the jumps in whatever the divisor is.

Start with the bottom bar this time and THEN count the jumps.

Challenge HA with questions that go beyond 12 x 12 e.g 225 divided by 12 is what? so they must use what they know and extend this.

The numberline method here reinforces the mental calculations.

*Note - there may be chdn who know these tables really well so here's an easy extension to teach that also support mental calculation.



Aim: To understand division and dividing by 7 and 9.
(1 Day)

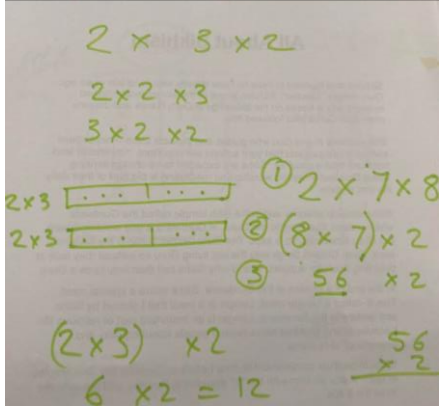
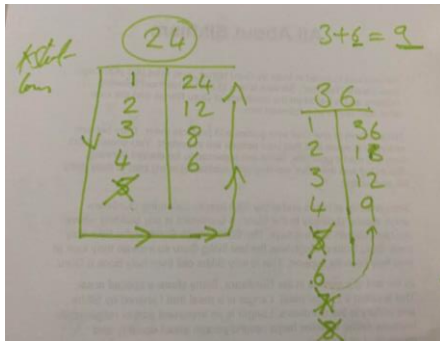
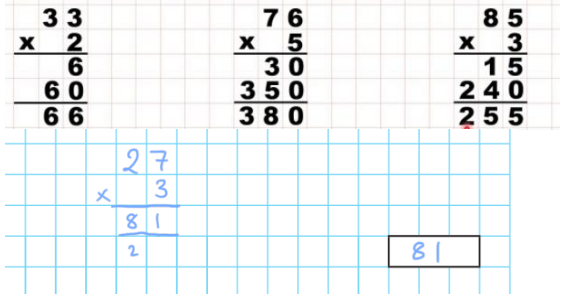
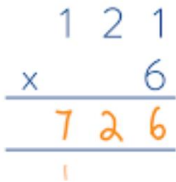
As Above

As Above

Aim: To understand division and dividing by 11 and 12.
(1 Day)

As Above

As Above

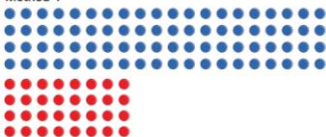
| | | |
|---|---|---|
| <p>Aim: To multiply 3 numbers. (2 Days) 1 Fluency 1 VF and PS/R</p> |  | <p>Begin by introducing a pictorial model to support understanding and then move on to a layered method in preparation for bodmas later on in KS2.</p> <p>E.g.</p> <ol style="list-style-type: none"> 1. $4 \times 9 \times 3$ 2. $(9 \times 4) \times 3$ 3. 36×3 4. Which may look like column addition for some. <p>Rules to teach - can be done with any order but we start with the greatest. Multiply two numbers () and then multiply the first product by the last number.</p> |
| <p>Aim: To understand factor pairs. (2 Days)</p> |  | <p>Show children the method on the right and model the wrong way to go about finding factor pairs - e.g. randomly without an order or a structure - are we likely to find them all? Why/Why not?</p> <p>Explain the idea of meeting in the middle and some rules to spot factors.</p> |
| <p>Aim: To multiply 2-digit numbers by 1-digit numbers. (2 Days)</p> |  | <p>First explore the expanded or partitioned method and some children may stay at this stage to support understanding.</p> <p>To use the taught method for written multiplication and use a range of fluency to develop this skill before any PS or R.</p> <p>This is clear on white rose and accurate.</p> |
| <p>Aim: To multiply 3-digit numbers by 1-digit numbers. (2 Days)</p> |  | <p>To use the taught method for written multiplication and use a range of fluency to develop this skill before any PS or R.</p> <p>This is clear on white rose and accurate</p> |

Aim: To understand efficient multiplication. (1 Day)

Class 4 are multiplying 28×4 mentally. They are trying two different methods.


a) Complete their calculations.

Method 1



$20 \times 4 + 8 \times 4 = \boxed{80} + \boxed{32} = \boxed{112}$

Method 2



$4 \times \boxed{28} = \boxed{112}$

b) Which method do you find easier? Talk about it with a partner.

c) What other methods could you use to work out 28×4 ?

E.g. $(4 \times 7) \times 4 = 112$

Practical lesson with lots of white board work and revisiting different methods for multiplication. Main aim is to choose an efficient method for the calculation.

Number line method
Mental - either as calculation or jottings
Partitioning - 3 different written and one mental method. Must also consider known facts and choose most suited to the question and whichever you prefer.

Written multiplication might be efficient but is not a mental method.

Aim: To understand correspondence problems.

A pizzeria offers a choice of bases and toppings.

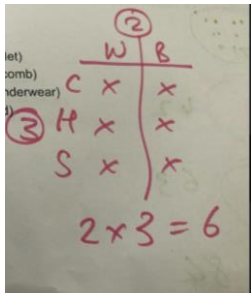
| Pizza base | Toppings |
|------------|-----------|
| deep pan | mushrooms |
| thin | chicken |
| | onion |
| | peppers |
| | sweetcorn |

Complete the multiplication to work out how many different combinations of pizza there are.

$\square \times \square = \square$

Complete the sentence.

There are \square combinations of pizza.



Teach again in a table style similar to factor pairs and teach them the rule that first they must Find the key information in the question and identify it as in picture

And then use the table as a method to check their working out.