National Curriculum Programme of Study;

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- 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
- 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.

Y3
Division

BY THE END OF YEAR 3…

By the end of Year 3, children will be able to show their understanding as;

```
    2  1
3 | 6  3
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Compact written method for division, with no requirement to exchange tens for ones

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    2  1  r2
3 | 6  5
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Following on from year 2…
Using place value counters to model division with arrays

Initially use calculations with small numbers that will give whole number answers without remainders, e.g. 15 ÷ 3. Discuss the concept of the place value counters, that one '10' counter is worth ten '1' counters (point out the similarity to coin values).

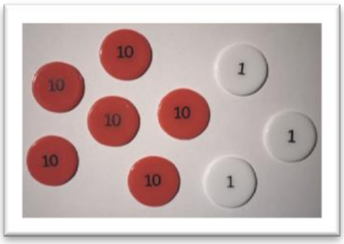
Represent 15 in as few counters as possible and ask the children to discuss how they could divide it by 5. Refer to model used in Year 2, with Dienes equipment.

If not suggested, then model how the '10' counter needs to be exchanged for ten '1' counters. This can then be 'grouped' into threes, or 'shared' between 3. Emphasise that the array can provide an image for division as well as multiplication and discuss related facts.

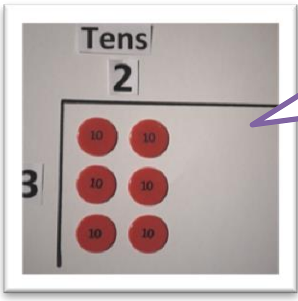
Adding the boundary line moves children towards the formal written representation for short division. Children might discuss how they *shared* the counters between the three rows, or *grouped* them into columns of 3.
The 3 rows and 5 columns denote the numerals at both the left hand side and the top of the image.

Extending to division of larger numbers using place value counters

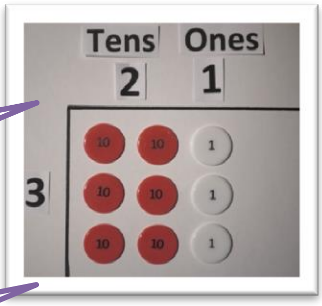
Once calculations involve larger numbers, it is not appropriate or efficient to divide using separate '1' or 'unit' counters. Provide examples where the dividend can be divided exactly by the divisor, leaving no remainder. E.g. 63 ÷ 3



As above, add the boundary line and start to share the counters between the three rows.
Start with the '10' counters., then m
ove on to the 'I' counters



Six 10 counters shared between 3 people would give them 2 ten counters each, which equals 20



Three '1' counters shared between 3 people would give them one '1' counter each.

Altogether they would have 21 each. 63 divided by 3 is 21. One third of 63 is 21.

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    2  1
3 | 6  3
```
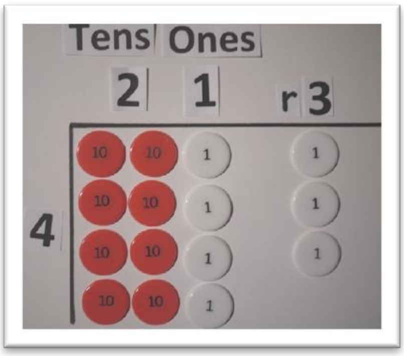

The written method for short division should be introduced alongside the place value counters, discussing similarities in layout.

Modelling remainders

When children are secure with the use of place value counters for modelling divison, and can understand the link with the formal short division method, examples should be provided where whole number remainders will occur.



E.g. 87 ÷ 3
The eight 'ten' counters have been 'shared' between the 4 rows, with each row receiving two 'ten' counters, or 20.
The seven '1' counters are then shared between the four rows. Each row receives one '1' counter, and there are 3 remaining.
The formal written layout should be carried out alongside.

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    2  1  r.3
4 | 8  7
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