Division

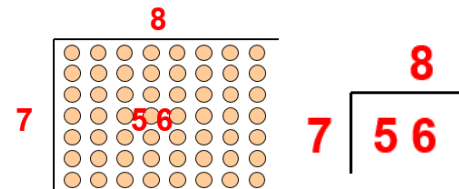| Year 3	Year 4
Mental Strategies Children should count regularly, on and back, in steps of 3, 4 and 8. Children are encouraged to use what they know about known times table facts to work out other times tables. This then helps them to make new connections (e.g. through doubling they make connections between the 2, 4 and 8 times tables). Children will make use multiplication and division facts they know to make links with other facts. 3 x 2 = 6, 6 ÷ 3 = 2, 2 = 6 ÷ 3 30 x 2 = 60, 60 ÷ 3 = 20, 2 = 60 ÷ 30 They should be given opportunities to solve grouping and sharing problems practically (including where there is a remainder but the answer needs to given as a whole number) e.g. Pencils are sold in packs of 10. How many packs will I need to buy for 24 children? Children should be given the opportunity to further develop understanding of division (sharing) to be used to find a fraction of a quantity or measure. Use children's intuition to support understanding of fractions as an answer to a sharing problem. 3 apples shared between 4 people = $\frac{3}{4}$ **Vocabulary** See Y1 and Y2 inverse **Generalisations** Inverses and related facts – develop fluency in finding related multiplication and division facts. Develop the knowledge that the inverse relationship can be used as a checking method. **Some Key Questions** Questions in the context of money and measures that involve remainders (e.g. How many lengths of 10cm can I cut from 81cm of string? You have £54. How many £10 teddies can you buy?) What is the missing number? 17 = 5 x 3 + __ __ = 2 x 8 + 1	**Mental Strategies** Children should experience regular counting on and back from different numbers in multiples of 6, 7, 9, 25 and 1000. Children should learn the multiplication facts to 12 x 12. **Vocabulary** see years 1-3 divide, divided by, divisible by, divided into share between, groups of factor, factor pair, multiple times as (big, long, wide …etc) equals, remainder, quotient, divisor inverse **Towards a formal written method** Alongside pictorial representations and the use of models and images, children should progress onto short division using a bus stop method. Place value counters can be used to support children apply their knowledge of grouping. Reference should be made to the value of each digit in the dividend. **Each digit as a multiple of the divisor** 'How many groups of 3 are there in the hundreds column?' 'How many groups of 3 are there in the tens column?' 'How many groups of 3 are there in the units/ones column?'

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  1 1 2
3 | 3 3 6
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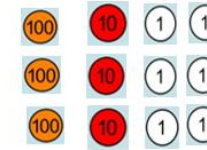
When children have conceptual understanding and fluency using the bus stop method without remainders, they can then progress onto 'carrying' their remainder across to the next digit.

Generalisations
True or false? Dividing by 10 is the same as dividing by 2 and then dividing by 5. Can you find any more rules like this?
Is it sometimes, always or never true that □ ÷ Δ = Δ ÷ □?

Inverses and deriving facts. 'Know one, get lots free!' e.g.: 2 x 3 = 6, so 3 x 2 = 6, 6 ÷ 2 = 3, 60 ÷ 20 = 3, 600 ÷ 3 = 200 etc.

Sometimes, always, never true questions about multiples and divisibility. (When looking at the examples on this page, remember that they **may not** be 'always true'!) E.g.:
- Multiples of 5 end in 0 or 5.
- The digital root of a multiple of 3 will be 3, 6 or 9.
- The sum of 4 even numbers is divisible by 4.