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| **Fractions** | | |
| **Foundation Stage Objectives:**   * Solve practical problems involving sharing and halving. **See Division section of policy.** | | |
| **Year 1 Objectives:**   * Recognise, find and name a half as one of two equal parts of an object, shape or quantity. * Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. | | |
| Concrete | Pictorial | Abstract |
| Pupils will use practical objects, including within their role play and outside areas to find 1/2 and 1/4 of different amounts and shapes. |  |  |
| Bar Model using strips of paper, l find 1/2 and 1/4 by folding and cutting different sizes and shapes in order to support their understanding of fractions. | E.g. find half ( ½) of the items on each picture or shape. Do the same for a quarter (1/4).      Repeat with shapes: Which have been cut exactly into quarters? | Half of 10 = 5  1/2 of 6 = 3  A quarter of 20 =  1/4 of 8 = 2 |
| **Year 2 Objectives:**   * Recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length, shape, set of objects or quantity * Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2 . | | |
| Concrete | Pictorial | Abstract |
| Recognising 1/3. 1/4 2/4 and 3/4 | Find different ways of finding fractions of shapes     |  |  | | --- | --- | |  |  | |  |  |   3/4 of a rectangle, for example.  2/4 of a quantity.  2/4 of 8 = 4 | 1/3 of 9 = 3  2/4 of 8 = 4  3/4 of 12 = 9 |
| Recognise equivalence.  1/2 = 2/4 | 2/4 of a pie = 1/2 of a pie  1/2 of 12 = 2/4 of 12 | 1/2 of 12 = 6  2/4 of 12 = 6 |
| **Year 3 Objectives:**   * Recognise and show, using diagrams, equivalent fractions with small denominators * Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators * Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7 ] * Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number | | |
| Recognise and show equivalent fractions using fraction bars/strips, for example | 1/2 2/4 3/6 4/8 | David says two sixths is the same as one third. Is he correct? How do you know? |
| Fractions of a discrete set of objects.  Unit fraction 1/8      Non-unit fraction 3/7 | 1/8 3/4 | 1/5 of 15 sweets = 3  (15 ÷ 5 = 3)  2/5 of 15 sweets = 6  (15 ÷ 5 = 3 and 3 x 2 = 6) |
| Add and subtract fractions with the same denominator within 1 whole.  Comparing the two fractions and finding the difference/  4/5 - 3/5 = 1/5 | |  |  |  |  | | --- | --- | --- | --- | |  |  |  | + | |  |  |  |  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | |  |  |  | = | |  |  |  |  | |  |  |  |  |      |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  |     **\_**  = | 8/12 + 3/12 = 11/12  4/5 - 3/5 = 1/5 |
| Solve problems: | David spent 1 /4 of his money on a book. The book cost £10. How much money did he start off with?   |  | | --- | | Total Money? |  |  |  |  |  | | --- | --- | --- | --- | | 1/4  £10 | 1/4  £10 | 1/4  £10 | 1/4  £10 | | 1/4 = £10  4 x £10 = £40 |
| Concrete | Pictorial | Abstract |
| **Year 4 Objectives:**   * Add and subtract fractions with the same denominator * Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number | | |
| Concrete | Pictorial | Abstract |
| Adding and subtracting fractions as above  Solve problems including non-unit fractions  Use counters/play money to find 2/3. | 2/3 of £18 = | 3/8 + 5/8 = 8/8 (same as 1 whole)  6/7 – 4/7 = 2/7  2/3 of £18 =  £18 ÷ 3 = £6  £6 x 2 = £12 |
| **Year 5 Objectives:**   * Add and subtract fractions with the same denominator and denominators that are multiples of the same number * Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5 ] * Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | | |
| Concrete | Pictorial | Abstract |
| Add and subtract fractions with same denominator and denominators that are multiples of the same number, and recognise mixed numbers and improper fractions.  2/3 + 2/3 = 4/3 = 1 1/3 | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  | + |  |  |  | = |  |  |  | + |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |   4/6 + 3/6 = 1 whole + 1/6  (7/6)        2/5 - 1/4 =  8/20 - 5/20 = 3/20 | 4/6 + 3/6 = 7/6 = 1 1/6  1 1/6 = 7/6 (because 1 = 6/6)  2/5 - 1/4 =    2/5 - 1/4  X4 x5  8/20 - 5/20 = 3/20 |
| Multiply proper fractions and mixed numbers by a whole number  6 x 3/4 | 6 x 3/4 = 4 2/4 | 6 x 3/4 = 18/4 = 4 2/4 or 4 1/2 |
| **Year 6 Objectives:**   * Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions * Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8 ] * Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6 ] | | |
| **Concrete** | **Pictorial** | **Abstract** |
| Add and Subtract fractions – as year 5  With mixed numbers | 2 1/6 - 1/3   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  | - |  |  |  |  | = |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   2 1/6 - 1/3 = 1 5/6 | 2 1/6 - 1/3 (find the same denominator)  2 1/6 - 2/6 ( change 1 whole into a fraction  and add to the existnig fraction)  1 7/6 - 2/6 = 1 5/6 |
| Multiply simple pairs of proper fractions.  1/2 x 3/4 = 3/8 | 1/2 x 3/4   |  | | --- | |  | |  | | 3/4 of which half is shaded | |  | |  | |  | |  | |  | | 1/2 x 3/4 = 3/8  1. Multiply the numerator.  2. Multiply the denominator.  3. Simplify where possible.  x    2 x 5 = 10 = 1  5 6 30 3  x |
| Divide proper fractions by whole numbers | 1/2 ÷ 3 =   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | | 1/2 ÷ 3 = 1/6 |