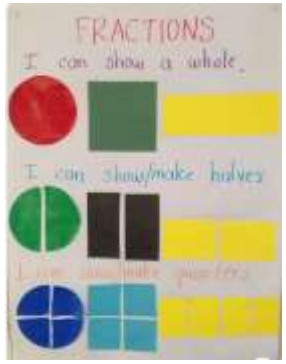
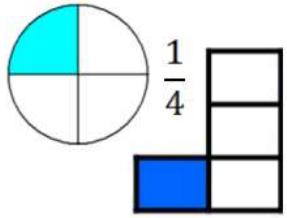
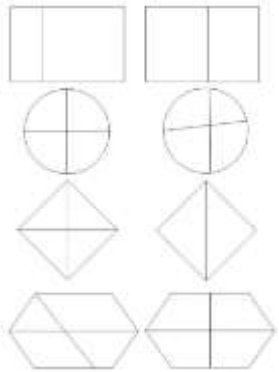
Fractions

Foundation Stage Objectives:

- Solve practical problems involving sharing and halving. **See Division section of policy.**

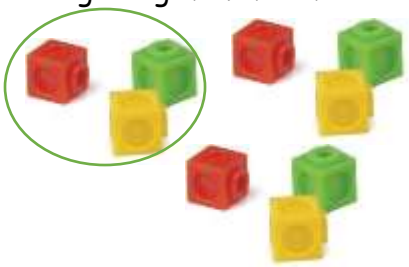
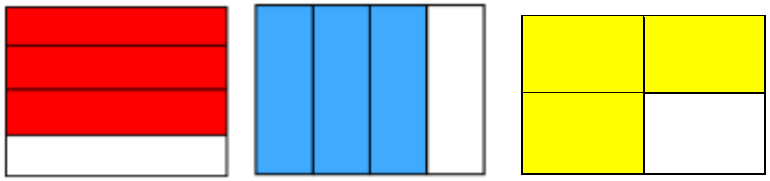
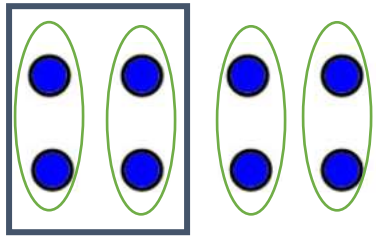
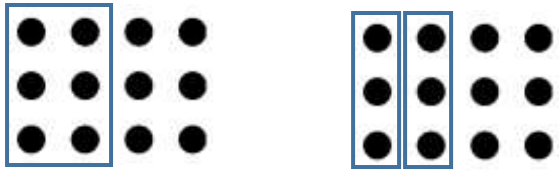
Year 1 Objectives:

- 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, I 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 ($\frac{1}{2}$) 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

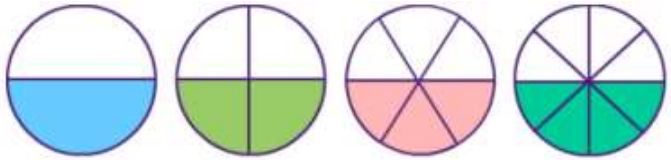
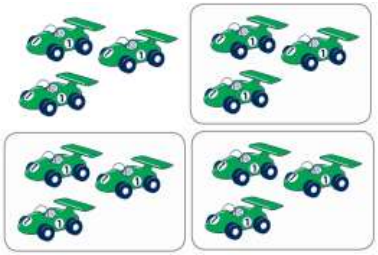
Year 2 Objectives:

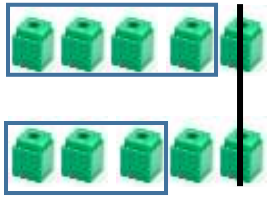
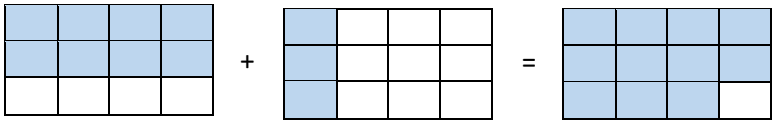
- Recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length, shape, set of objects or quantity
- Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2 .

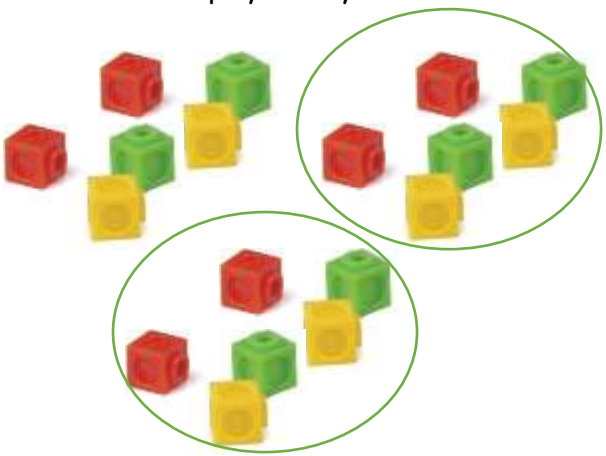
Concrete	Pictorial	Abstract
Recognising 1/3. 1/4 2/4 and 3/4  	Find different ways of finding fractions of shapes  3/4 of a rectangle, for example. 2/4 of a quantity. 2/4 of 8 = 4 	1/3 of 9 = 3 2/4 of 8 = 4 3/4 of 12 = 9
Recognise equivalence. 1/2 = 2/4 	 2/4 of a pie = 1/2 of a pie 1/2 of 12 = 2/4 of 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

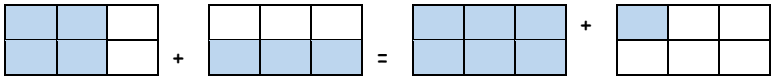
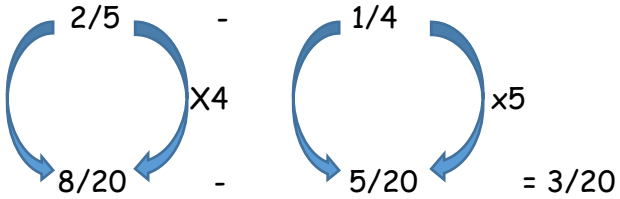
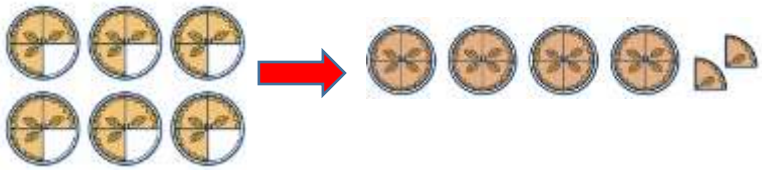
Recognise and show equivalent fractions using fraction bars/strips, for example 	 1/2 2/4 3/6 4/8	David says two sixths is the same as one third. Is he correct? How do you know?
Fractions of a discrete set of objects. Unit fraction 1/8  Non-unit fraction 3/7 	1/8  3/4 	1/5 of 15 sweets = 3 (15 ÷ 5 = 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

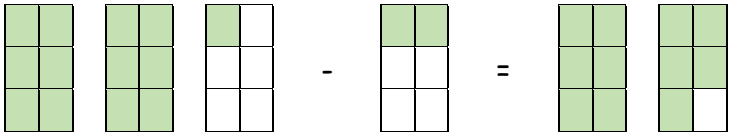
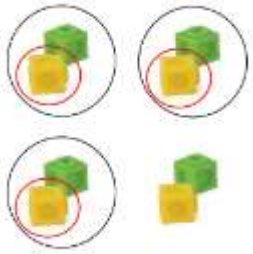
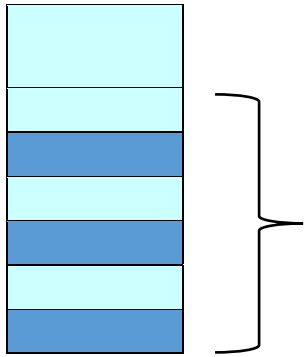
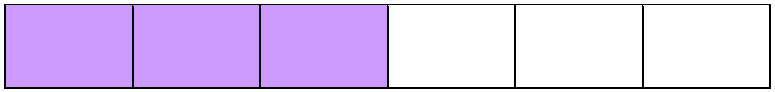
Year 5 Objectives:

- 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 = 
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  	1/2 x 3/4 = 3/8 1. Multiply the numerator. 2. Multiply the denominator. 3. Simplify where possible. $\frac{2}{5} \times \frac{5}{6} = \frac{10}{30} = \frac{1}{3}$
Divide proper fractions by whole numbers	1/2 ÷ 3 = 	1/2 ÷ 3 = 1/6