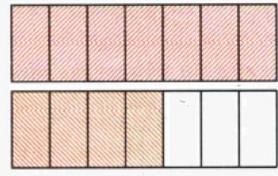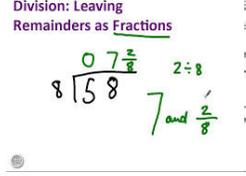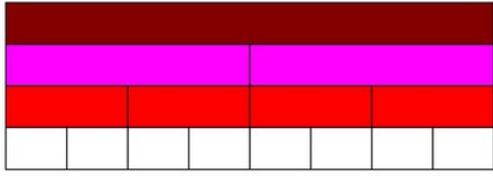# PROGRESSION IN THE TEACHING OF FRACTIONS, DECIMALS AND PERCENTAGES

Year 5 Objectives

• Compare and order fractions whose denominators are all multiples of the same number.

• Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.

• Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 2/5 = 6/5 = 1 1/5).

• Add and subtract fractions with the same denominator and denominators that are multiples of the same number.

• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.

• Read and write decimal numbers as fractions (e.g. 0.71 = 71/100)

• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

read and write decimal numbers as fractions [for example, 0.71 = 100
71]

•Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

•Round decimals with two decimal places to the nearest whole number and to one decimal place

•Read, write, order and compare numbers with up to three decimal places

•Solve problems involving number up to three decimal places

•recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal

Part of a whole (item or quantity or set of items)	Result of division (including when the numerator is smaller than the denominator	Fraction of a number	Ratio (one object as a fraction of another)
•Represent mixed numbers, e.g. using a rectangular model and convert to improper fractions and record formally. Eg 1 4/7 = 11/7	Express remainders resulting from division as a fraction Division: Leaving Remainders as Fractions 8√58 0 7 2/8 2÷8 7 and 2/8 • Convert between fractions	•Draw or make fraction walls with squared paper or Cuisenaire rods. Use this to compare fractions and show families of any equivalent fractions; decide which rod or length of whole to start with to show families of fractions. Link to factors and multiples.	•Link to scaling in multiplication, i.e. scaling by a fraction: o *If the length of a child's foot is 1/3 of the size of an adults and the adult's foot is 48cm, how long is the child's foot?* o *This is the list of ingredients to make 20 gingerbread biscuits. If I wanted to make only 5, how much of each ingredient would I need?*

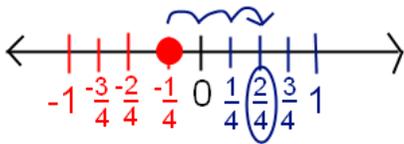|			
• Use a rectangular model to identify and name and write equivalent fractions by splitting the rectangle into small fractions. Link to factors and multiples.	and decimals including thousandths. • Explore which fractions simplify to whole numbers and which do not, recording as mixed numbers and improper fractions	E.g. decide to use a 12 rod or length to show thirds and twelfths. (The pairs of factors of 12 are 3 and 4, 2 and 6.) •Link fraction walls to the number line and measurement scales and place fractions on the line to order them	**Ingredients** 350g/12oz plain flour, plus extra for rolling out 1 tsp bicarbonate of soda 2 tsp ground ginger 1 tsp ground cinnamon 125g/4½oz butter 175g/6oz light soft brown sugar 1 free-range egg 4 tbsp golden syrup
•Compare and order fractions by using a rectangular model where denominators are all multiples of the same number.			
•Add and subtract fractions with the same denominator, or denominators that are multiples of the same number.	•Solve problems involving fractions such as: o Which would you rather win? 1/100 of £1,000,000 or 2/10 of £100,000?	•Link to measurements such as scales on tape measures and dial scales.	Solve problems with ratio: o Cut up a piece of rope in the ratio of 1:6. o At the gym, there are 2 boys for every 3 girls. There were 15 girls at the gym, how many boys were there? There were 35 people altogether, how many girls were there? o A mother seal is fed 5 fish for every 2 fish for its baby. If the mother seal is fed 15 fish, how many fish are used altogether?
•Add and subtract fractions with the same denominator and denominators which are multiples of the same number using a rectangular model, totalling over 1.	o Put three mars bars on one chair, two on another one on another. Take it in turns to stand behind the chair with the most mars bars but you must share them equally with the people already standing there	•Link mixed numbers to the number line. • Count in mixed numbers and in fractions, forwards and backwards, including bridging zero. E.g. Counting up in quarters from -¼.	
•Using a rectangular model multiply proper fractions and mixed numbers by whole numbers. (Link this to scaling.)			Use the bar model to support the solving of problems: o The total prize money from a competition is £80. John and Toby share the prize money. John receives ¾ of the money. How much does Toby receive?
•Solve problems involving fractions: o Estimate a record halves, quarters or tenths of 1km, 1kg, 1l ... . o I work for 8 hours and sleep for 10 hours. What fraction of the day do I work / sleep? o What fraction of 1km is 250m?		•Make connections between fractions and percentages: e.g. finding 1/100 = 1%; 50/100 = 50%; 25/100 = 25%.	