MATHEMATICS Unit 8: Proportional reasoning	Year Group: 7 set 4-5

Key Vocabulary

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Proportion	A part to a whole comparison
Quantity	Amount or number of something
Integer	Whole number
Similar (shapes)	Having the same shape but not necessarily the same size
Enlargement	An **enlargement** is a type of transformation in which lengths are multiplied whilst directions and angles are preserved
Scale factor	A ratio between two sets of measurements.
Group	Dividing things into equal groups (sets)
Share	Dividing things into equal groups
Multiples	The result of multiplying a number by an integer

Key facts / Diagrams

This makes about 10 scones

220g self-raising flour
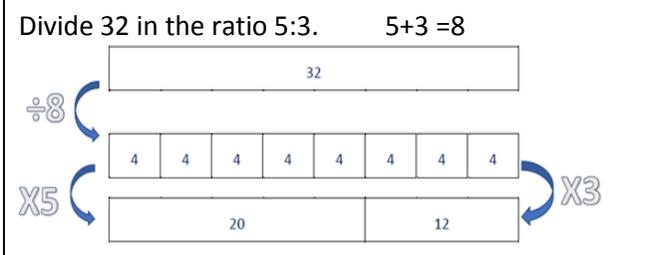25g caster sugar
50g cheese
60g butter
120ml milk

How much flour would I need to make 20 scones?	10 x 2 = 20 220 x 2 = 440g
How much sugar would I need to make 20 scones?	25 x 2 = 50g
How much cheese would I need to make 5 scones?	10 ÷ 2 = 5 50 ÷ 2= 25g

There are two yellow squares for every six blue squares.
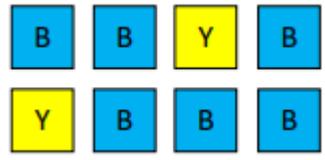
The ratio of yellow squares to blue squares is: **2:6**

Divide 32 in the ratio 5:3.   5+3 =8

Common misconceptions

- Many pupils will want to identify an additive relationship between two quantities that are in proportion and apply this to other quantities in order to find missing amounts
- When finding a fraction of an amount some pupils may try to use a rule formed without the necessary understanding. As a result they will muddle the operations, dividing by the numerator and multiplying by the denominator.
- When constructing an enlargement some pupils may only apply the scale factor in one dimension; for example, 'enlarging' a 2 by 4 rectangle by a scale factor of 2 and drawing a 2 by 8 rectangle.

Worked examples

Multiply all lines by Scale Factor
Leave the tricky lines till last.

Scale Factor 2
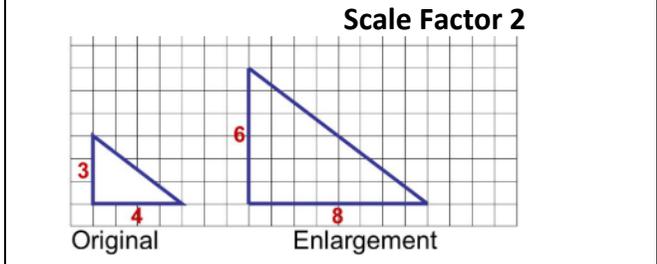
Finding amounts;
If 5 DVDs cost £35, how much do 8 DVDs cost?

5 DVDs = £35

1 DVD = £7

8 DVDs = £56