Subject	Year	Month	
Mathematics	7	March	Balcarras — From strength to strength

Topic:

CALCULATING WITH FRACTIONS
6 LESSONS

Content (Intent)

Prior Learning
KEY STAGE 2
(Very high level , drilled in for SATS)
- equivalent fractions
- Multiply a proper fraction by a proper fraction
- Divide a proper fraction by a whole number

Future Learning
Year 7 and 8 : application of fractions in numeracy, algebra and geometry

Year 9– Probability
Year 10 - Fractions

Objectives
- Work with a mixture of **proper** and **improper** fractions and **mixed** numbers
  - ✓ Adding
  - ✓ Subtracting
  - ✓ Multiplying
  - ✓ Dividing

Potentially combine fractions with KS2 skills such as
  - Perimeter of 2D shapes
  - Area of rectangle and triangle
  - Volume of a cuboid

For teaching purposes

Possible Questions:

- Show me a proper (improper) fraction. And another.
- Show me a mixed number fraction. And another.
- Jenny thinks that you can only multiply (or divide) fractions if they have the same common denominator. Do you agree with Jenny? Explain.
- Kenny thinks that $\frac{6}{10} \div \frac{3}{2} = \frac{2}{5}$ .Do you agree with Kenny? Explain.

Possible Misconceptions:

- may think that you simply can multiply the whole number part of mixed numbers and multiply the fractional part separately
- may overcomplicate multiplying fractions by finding common denominators.

Pedagogical notes (implementation)

It is important that pupils are clear that the methods for addition and subtraction of fractions are different to the methods for multiplication and subtraction.

When adding and subtracting mixed numbers pupils could deal with the whole numbers and fraction separately, as well as convert to improper fractions.

When multiplying and dividing mixed numbers, all fractions must be converted to improper.

Notation
Mixed number notation
Horizontal / diagonal bar for fractions

How will understanding be assessed & recorded (Impact)

BAM task – Calculating with Fractions
End of Year Assessment in June/July

How can parents help at home?

MathsWatch clips (Qualifications KS3)
N36, N37a, N37b, N41, N42a, N42b

Further reading/discussion

Reading / Enrichment
NCETM: The Bar Model, Teaching fractions, Fractions videos

KM: Mixed numbers: mixed approaches

NRICH: Would you rather?

NRICH: Keep it simple

NRICH: Egyptian fractions

NRICH: The greedy algorithm

NRICH: Fractions jigsaw

NRICH: Countdpwn fractions

Literacy
Mixed number
Equivalent fraction
Simplify, cancel, lowest terms
Proper fraction, improper fraction, top-heavy fraction, vulgar fraction
Percent, percentage
Multiplier
Increase, decrease

Numeracy Links

Careers Links
Chef/Dietitian
Architect
Pharmacist
Nursing
Basic numeracy requirement for all careers