Subject	Year	Month	
Mathematics	7	January	Balcarras From strength to strength

Topic:

INTRODUCTION TO RATIOS

LESSONS: 3

Content (Intent)

Prior Learning

Key Stage 2

- Find common factors of pairs of numbers
- Convert between metric units and units of time
- multiplication facts up to 12 × 12
- division facts up to 12 × 12
- Solve comparison problems

Future Learning

Year 8

- Connecting ratios and fractions
- Sharing into ratios
- Conversions and comparisons

Year 9

- Direct and inverse proportion

Objectives

- Describe a comparison of measurements or objects using ratio notation a:b
- Simplify a ratio by cancelling common factors
- (Extra: Simplify to 1:n and n:1)
- Divide a quantity in two parts in a given part:part or a part:whole ratio

For teaching purposes

Show me a set of objects that demonstrates the ratio 3:2. And another.

- Convince me that the ratio 120mm:0.3m is equivalent to 2:5
- Always / Sometimes / Never: the smaller number comes first when writing a ratio
- Using Cuisenaire rods: If the red rod is 1, explain why d (dark green) is 3. Can you say the value for all the rods? (w, r, g, p, y, d, b, t, B, o).Extend this understanding of proportion by changing the unit rod - e.g. if r = 1, p = ?; b = ?; o + 2B=?If B = 1; y = ? 3y=?; o=? o + p=?If o + r = 6/7; t = ?

Misconceptions

- may think that a:b always means part:part
- may simplify without ensuring that the units of each part are the same
- may think 2 to 5 is always the same as 2 out of 5.
- may want to put the smallest number first

Pedagogical notes (implementation)

When solving division in a ratio problems, ensure that pupils express their solution as two quantities rather than as a ratio.

NCETM: The Bar Model
NCETM: Multiplicative reasoning
NCETM: Glossary

Common approaches: *bar model as a way to represent a division in a ratio problem*

How will understanding be assessed & recorded (Impact)

7BAM7 Ratio
End of term Assessment in February
End of Year Assessment in June/July

How can parents help at home?

MathsWatch clips (Qualification KS3)
R1a, R1b, R5a, R5b

Further reading/discussion

Reading / Enrichment

KM:Division in a ratio and checking spreadsheet

KM:Maths to Infinity: FDPRP

KM: Stick on the Maths: Ratio and proportion

NRICH: Toad in the hole

NRICH: Mixing lemonade

NRICH: Food chains

NRICH: Tray bake

Literacy

Ratio
Proportion
Compare, comparison
Part
Simplify
Common factor
Cancel
Lowest terms
Unit

Numeracy Links

Careers Links

Computer programmers
Architects
Administration
Designers
Food production