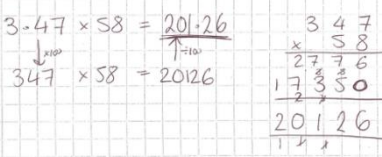| Subject	Year	Month	
Mathematics	7	December	Balcarras *From strength to strength*

Topic:

MULTIPLYING AND DIVIDING DECIMALS
5 LESSONS

Content (Intent)

Prior Learning

Key Stage 2:
- formal written method of long multiplication (grid method might have been discussed, but is not recognised by SATS)
- formal written method of short division and possibly long division
- Convert between an improper fraction and a mixed number
- multiplication and division by 10, 100, 1000

First half term in Y7:
- Divisibility rules , Dividing and multiplying integers
- Multiplying and dividing by powers of 10

Future Learning

Year 8
- Calculations involving BIDMAS
- Calculations involving percentages

Year 9
- Standard form
- Bounds

Objectives

- Transform a multiplication involving decimals to an equivalent multiplication involving integers
- Multiply a large integer up to four-digits by a decimal of up to 2dp using integer multiplication
- Use a formal method to divide a decimal by an integer < 10
- Use a formal method to divide a decimal by an integer greater than 10
- Transform a calculation involving the division decimals to an equivalent multiplication involving integers

For teaching purposes

Possible questions
- Jenny says $2 + 3 \times 5 = 25$. Kenny says $2 + 3 \times 5 = 17$. Who is correct?
- Find missing digits in completed long multiplication / short division
- Show me a calculation that is connected to $14 \times 26 = 364$. And another.

Misconceptions
- BIDMAS can imply that D takes priority over M, and that A over S.
- may incorrectly apply place value when dividing by a decimal for example by making the answer 10 times bigger when it should be 10 times smaller.
- may have inefficient methods for multiplying and dividing numbers.

Pedagogical notes (implementation)

MULTIPLICATON: *Long multiplication is promoted as the 'most efficient method'.*

AGREED DEPARTMENTAL APPROACH

Warm up questions like

$2 \times 3 = 6$

$0.2 \times 3 = 0.6$

$0.02 \times 3 = 0.06$

$0.2 \times 0.3 = 0.06$

Warm up questions like

If I tell you that $125 \times 31 = 3\ 875$

then what is …

$125 \times 3.1 = ?$
$1.25 \times 31 = ?$
$3\ 875 \div 3.1 = ?$

Use estimation to check your answer (reference to September)

DIVISION : *Short division is promoted as the 'most efficient method'. Long division can be used in the higher sets*

How will understanding be assessed & recorded (Impact)

7BAM2 Calculating with decimals
End of term Assessment in December
End of Year Assessment in June/July

How can parents help at home?

MathsWatch clips (Qualification KS3)
N15b, N17b, N28b, N29b

Further reading/discussion

Reading / Enrichment	Literacy	Numeracy Links	Careers Links
KM: Long multiplication template	Improper fraction		Chemistry
KM: Dividing (lots)	Top-heavy fraction		Physicist
KM: Interactive long division	Mixed number		Astronomy
KM: Misplaced points	Operation		Engineering
KM: 4 to 1 challenge	Inverse		Medical research
KM: Maths to Infinity: Multiplying and dividing	Long multiplication		Internet security
NRICH: Cinema Problem	Short division		Computing
NRICH: Funny factorisation	Long division		Finance
	Remainder		