Subject	Year	Month	
Mathematics	7	November	Balcarras *From strength to strength*

Topic:

ORDERING INTEGERS, DECIMALS AND FRACTIONS

6 LESSONS

Content (Intent)

Prior Learning
KEY STAGE 2
- Know the meaning of <, > and =
- Know the definition of the term integer
- Understand that negative numbers are numbers less than zero
- Order a set of decimals with a mixed number of decimal places (up to a maximum of three)
- Know how to find equivalent fractions
- Know how to change a mixed number to an improper fraction
- Know how to simplify a fraction by cancelling common factors

Future Learning
- Y8 : FDP converting and multiplier method
- Y9 : Solving inequalities
- Y10 : Inequalities

Objectives
- Use the signs <, > , ≤, ≥ and = to compare numbers , including three or more numbers
- Order a set of integers
- Order a set of decimals
- Order fractions with
  - the same numerator
  - the same denominator
  - denominators are a multiple of each other
  - denominators are not multiples of each other
- Order mixed numbers and fractions
- Order a combination of integers, decimals, fractions and mixed numbers

For teaching purposes

Possible Questions:
- Jenny writes down 0.400 > 0.58. Kenny writes down 0.400 < 0.58. Who do you agree with? Explain your answer.
- Find a fraction which is greater than 3/5 and less than 7/8. And another. And another …
- Convince me that -15 < -3

Possible Misconceptions:
- may believe that 0.400 is greater than 0.58
- may believe, incorrectly, that:
  - A fraction with a larger denominator is a larger fraction
  - A fraction with a larger numerator is a larger fraction
  - A fraction involving larger numbers is a larger fraction
- may believe that -6 is greater than -3.

Pedagogical notes (implementation)

- Zero is neither positive nor negative. The set of integers includes the natural numbers {1, 2, 3, …}, zero (0) and the 'opposite' of the natural numbers {-1, -2, -3, …}.

Pupil must use language correctly to avoid reinforcing misconceptions:
- 0.45 should **never** be read as 'zero point forty-five'
- 5 > 3 should be read as 'five is **greater than** 3', not 'bigger than'.

Ensure that pupils check the required order (smallest or greatest first.)

*'**negative** number'; **not minus**. Starting good habits so in later stages "calculating with negatives" will be less of a challenge.*

How will understanding be assessed & recorded (Impact)

End of term Assessment in February
End of Year Assessment in June/July

How can parents help at home?

MathsWatch clips (Qualifications KS3)
N2a
N2b
N34

Further reading/discussion

Reading / Enrichment
KM: Farey Sequences
KM: Decimal ordering cards 2
KM: Maths to Infinity: Fractions, decimals and percentages
KM: Maths to Infinity: Directed numbers
NRICH: Greater than or less than?
YouTube: The Story of Zero

Literacy
Positive number, Negative number (not minus!), Integer, Numerator, Denominator, Equivalent, Increasing or ascending order, Decreasing or descending order
Notation
The 'equals' sign: =, The 'not equal' sign: ≠
< less than , > greater than
≤ less than or equal to
≥ greater than or equal to

Numeracy Links

Careers Links
Engineer
Chemist
Basic numeracy requirement for all careers