Scheme of Learning: Year 8 Spring Term

Topic Sequence: Developing Number

10	11	12
Fractions and Percentages	Standard Index Form	Number Sense

Topic Overview: Number Sense

Estimation is a key focus here and the use of mental strategies will therefore be embedded throughout. We will also use conversion of metric units to revisit multiplying and dividing by 10, 100 and 1 000 in context. The Higher strand will extend this to look at the conversion of area and volume units, as well as having an extra step on the use of error notation. We also look explicitly at solving problems using the time and calendar.

Lesson Sequence:

Round numbers to powers of 10, and 1 significant figure.
This is revision of KS2 and Year 7 content. Use of number lines and discussion of degree accuracy will take place.

Round numbers to a given number of decimal places
Students may need reminding of the similarities and differences between rounding to decimal places and rounding to significant figures.

Estimate the answer to a calculation
Students will learn to find the estimate to a calculation by rounding the numbers to 1 significant figure and performing the calculation on the simpler numbers obtained..

Understand and use error interval notation (H)
This Higher strand step builds on the inequality notation covered earlier in the year to formally represent the upper and lower bounds of a single number that has been rounded to a given degree of accuracy.

Calculate using the order of operations
KS2 and Year 7 content is built on to look at the order of operations in increasingly complex situations. It is useful to include formats involving fraction lines to represent division. Examples including roots as well as powers may be included. Comparing answers with those obtained from calculators is useful for both developing use of calculator skills as well as checking.

Calculate with money
This step provides a good opportunity to revisit other topics such as percentages, fractions and ratio in the context of money, and to maintain fluency with non-calculator methods as dependent on the needs of the class. Interpreting calculator displays will also be checked. It is a good opportunity to remind students of the vocabulary of financial mathematics

Convert metric measures of length
This small step reviews and extends Year 7 content to look at more complex conversions. It provides a good context in which to revisit area formulae to help cement these in students' minds, and to look again at multiplication and division by powers of ten. It is useful to make connections with the prefixes kilo, milli etc. also used in the next step.

Convert metric units of weight and capacity
This step emphasises the connections between conversions of all the metric units to establish the consistency of meaning of milli- kilo- etc. As well as performing the calculations, there is opportunity to discuss which unit is suitable to measure which item as many students may not be aware of this and see the activity as purely abstract.

Convert metric units of area (H)
It is worth explicitly challenging the misconception that as 1 cm = 10 mm then 1 cm^2 = 10 mm^2 .

Convert metric units of volume (H)
Volume has not yet been explicitly covered in KS3, but students following the Higher strand should be familiar with units of volume from KS2 and should also be confident in finding the volume of a cuboid. The large numbers created by volume conversion are a useful context on which to revisit numbers expressed in standard form.

Solve problems involving time and the calendar
This topic is often regarded as 'common knowledge' but without explicit teaching/reminding, students are often prone to errors. The use of an 'empty number line' to model calculating time differences is very helpful, emphasising that time is not a decimal quantity.

Sequence of Lessons:

1	Round numbers to powers of 10, and 1 significant figure
2	Round numbers to a given number of decimal places
3	Estimate the answer to a calculation
4	Understand and use error interval notation (H)
5	Calculate using the order of operations
6	Calculate with money
7	Convert metric measures of length
8	Convert metric units of weight and capacity
9	Convert metric units of area
10	Convert metric units of volume (H)
11	Solve problems involving time and the calendar (H)

Topic Resources:

Knowledge Map:	The Knowledge Map title should be here	**Any other Resources:**	Any other resources needed should be here

Assessment:

Knowledge:	End of Topic test
Application of Knowledge:	Termly mixed topic assessment

Supportive Reading:

Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
	Corbett Maths : www.corbettmaths.com
	AQA Revision Guide