	Topic	Y8 Knowledge Organiser	☹	😐	☺	/20
1	Indices and Roots	Squares, cubes and their roots				
		Powers and roots				
		Decimal approximations of roots				
		Extension - investigating surds (with a calculator)				
2	Ratio	Identifying, simplifying and equivalence				
		Sharing in a given ratio: given the total or information other than the total				
		Solving real-life problems with ratio				
		Unitary method (e.g. best buy/value problems)				
		Extension - exchange rates				
3	Expressions	Using expressions and substitution				
		Simplifying expressions (collecting like terms, mult/div algebra)				
		Expand and factorise single brackets				
		Expand and simplify expressions involving multiple single brackets				
		Extension - expand double brackets				
4	Area	Rectangles, triangles and parallelograms				
		Trapezia				
		Composite shapes				
Review 1 Assessment						
4	Area	Worded problems involving area/perimeter				
		Extension - circles - circumference and area				
5	Percentages	Finding % of amounts without a calculator				
		Increase or decrease by a %				
		Expressing fractions as percentages				
		Understanding % beyond 100%				
		Extension - reverse percentages using a unitary method				
6	Averages from Frequency Tables	Bar charts, pictograms and stem and leaf (incl. for median/mode/range)				
		Finding the mean from a frequency table				
		Finding an estimate for the mean from a grouped frequency table				
		Extension - identifying where the median and mode would lie				
7	Sequences	Term-to-term / position to term rules				
		Linear nth terms - finding and using				
		Fibonacci sequences (incl. algebraic)				
		Extension - geometric sequences				
8	Angles	Rules for a point, line, vertically opposite, triangle				
		Angles on parallel lines - corresponding, alternate, co-interior				
		Extension - polygons - interior/exterior angles				
Review 2 Assessment						
9	Fraction Calculations	Recap - understanding fractions, equivalence, simplifying				
		Converting between improper fractions and mixed numbers				
		Adding and subtracting fractions				
		Multiplying and dividing fractions				
		Calculations with mixed numbers				
		Worded problems involving fraction calculations				
10	Solving Equations	One-step and two-step equations				
		Equations including brackets				
		Equations with the variable on both sides				
		Extension - equations involving fractions				
11	Scale Diagrams	Using map scales (such as 1cm = 50km)				
		Using ratio notation for map scales (such as 1:10000)				
		Using scale diagrams to solve problems				
Review 3 Assessment						
12	Measures	Metric units of length, capacity and mass (incl. understanding their sizes)				
		Conversion between units				
		Time				
		Extension - convert between imperial and metric units				