



# Curriculum Overview for Mathematics Year 8

Half Term 1: Ratio	Modelling reading of questions
<ul> <li>Declarative Knowledge:</li> <li>represent fractions using bar models</li> <li>Describe a comparison of measurements or objects using ratio notation a:b</li> </ul>	like a Mathematician Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons
<ul> <li>Procedural Knowledge: <ul> <li>use models to find fractions of amounts</li> <li>identify common factors in order to simplify fractions</li> <li>represent ratios in their simplest form using bar models</li> <li>write ratios in their simplest form by scaling up</li> <li>write ratios in the from 1 : n and n : 1</li> <li>share quantities by two part ratios</li> <li>share quantities by ratios with more than two parts</li> <li>Find a relevant multiplier in a situation involving proportion</li> <li>Understand and use compound units</li> </ul> </li> </ul>	Ratio, Proportion, Proportional, Multiplier, Speed, Unitary method, Compound units, Bar model, Part, Equal, Share, Unequal Notation Kilometres per hour is written as km/h Metres per second is written as m/s
	End of unit exam completed for Ratio. Reteaching and relearning opportunities will be delivered to each class dependent on the performance of each class.
<ul> <li>Convert between units of speed</li> <li>Conditional Knowledge: <ul> <li>compare a part of a ratio to the whole written as a fraction</li> <li>find missing values in ratios using models</li> <li>complete questions using ratio difference</li> <li>Solve ratio problems involving mixing</li> <li>Solve ratio problems involving mixing comparison</li> <li>Solve ratio problems involving speed</li> <li>Solve problems involving rates of pay</li> <li>Solve problems involving unit pricing</li> </ul> </li> </ul>	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school)         We expect Year 8 pupils to spend 30 minutes on homework for Maths per week.





#### Half Term 2: <u>Algebra</u>

### **Declarative Knowledge:**

- Know the meaning of expression, term, formula, equation, function
- Know and use basic algebraic notation (the 'rules' of algebra)

#### **Procedural Knowledge:**

- Simplify a simple expression by collecting like terms
- Simplify more complex expressions by collecting like terms
- Manipulate expressions by multiplying an integer over a bracket (the distributive law)
- Manipulate expressions by multiplying a single term over a bracket (the distributive law)
- Substitute positive numbers into expressions and formulae
- Simplify an expression involving terms with combinations of variables (e.g.  $3a^2b + 4ab^2 +$  $2a^{2} - a^{2}b$ )
- Factorise an algebraic expression by using highest common factor
- Solve linear equations with the unknown on one side with integers

## **Conditional Knowledge:**

- Given a function, establish outputs from given inputs and inputs from given outputs
- Solve linear equations with the unknown on one side with when calculating with negative numbers is required
- Solve linear equations with the unknown on both sides when the solution is a fraction
- Solve linear equations with the unknown on both sides when the solution is a negative number
- Solve linear equations with the unknown on both sides when the equation involves brackets



like a Mathematician Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Algebra Expression, Term, Formula (formulae), Equation, Function, Variable Mapping diagram, Input, Output Represent Substitute Evaluate Like terms Simplify / Collect End of unit exam completed for Algebra. Reteaching and relearning opportunities will be delivered to each class dependent on the performance of each class. Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school) We expect Year 8 pupils to spend 30 minutes on homework for Maths per week.