Knowledge Mat: **Mathematics**

Key Knowledge for **Year 8**

- How to use positive and negative decimals (*add, subtract, multiply, divide*).

- How to find the area and circumference of a circle.

- How to solve equations with brackets and fractions.

- Understand the difference between direct and inverse proportion.

- Know how to translate, reflect and enlarge shapes.

- Extend knowledge of sequences to quadratic and Fibonacci.

- How to multiply and divide with numbers in standard form.

- How to find a gradient and y-intercept.

- How to plot a quadratic graph.

Wider Experiences / Try to Do…

- UK Junior Maths Challenge.
- Chess Club.
- Developing mathematical habits of mind.
- Lego Club.
- Numeracy Ninjas.
- Peak 11 Challenge.
- Visit Buxton – *what symmetry can you see?*
- Practise your skills using Maths Watch.

The **big** questions:

- **Can you recall** important mathematical facts and techniques to complete calculations rapidly?

- **Can you use your skill** with the four operations (positive and negative integers, decimals, fractions and percentages) to work out your carbon footprint?

- **Can you work out** how much it has cost your parents to bring you up from birth to leaving St Thomas More School?

Vocabulary

Word	Meaning
Analyse	Examine something in detail.
Area	The space inside a flat shape.
Circumference	The perimeter of a circle.
Compare	Look at things to see what is similar and different.
Enlarge	Make a shape larger or smaller.
Equivalent	Expressions that mean the same thing.
Equation	A mathematical statement showing two expressions which are equivalent.
Expression	A mathematical statement using letters and numbers or terms but does not include an equals sign e.g. $4x + 3$
Factor	A number or algebraic expression that divides exactly into another.
Percentage	A value given out of 100
Perimeter	The distance around the outside of a shape.
Product	When values are multiplied together.
Proportion	When 2 numbers or values or linked – Direct proportion as one increases, the other increases; Indirect proportion as one increases, the other decreases.
Quadrilateral	A 2D shape made up of four straight sides.
Quadratic	Where the highest term in an equation or expression is 2 eg $4x^2 + 3x$
Rearrange	Move parts of an equation around without changing the values of any letters.
Reflect	Flip an object along a line.
Sequence	A list of numbers which follows a particular rule.
Standard form	A short way of writing large or small numbers.
Statistics	Collect and analyse data.
Solve	To work out the answer.
Term	A single mathematical statement made up of letters and/or numbers e.g. $4x$
Translate	To move an object without spinning or flipping.
Variable	An unknown number represented by a letter.
Volume	The space inside a 3D object.