

Knowledge Mat: Mathematics

Key Knowledge for Year 7

- How to use positive and negative numbers (add, subtract, multiply, divide).
- How to solve linear equations and draw simple straight-line graphs.
- How to find the perimeter and area of 2D shapes (rectangle, triangle plus other quadrilaterals).
- How to use statistics to interpret data, including finding the average.
- Fractions (equivalent, mixed numbers, adding and subtracting).
- Understand the angle properties of triangles and quadrilaterals.
- Know the link between fractions, decimals and percentages.
- Ratio.
- Understand symmetry.
- Recognise nets of shapes.

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?
- **Can you order** positive and negative fractions and decimals?
- **Can you write** a ratio as a fraction?
- **Can you express** square numbers in algebra?
- **Can you multiply** out brackets?
- **How and when** do shapes tessellate?

Vocabulary

| Word | Meaning |
|-----------------|---|
| Analyse | <i>Examine something in detail.</i> |
| Area | <i>The space inside a flat shape.</i> |
| Average | <i>A number or value which represents a group of numbers.</i> |
| Compare | <i>Look at things to see what is similar and different.</i> |
| Equivalent | <i>Expressions that mean the same thing.</i> |
| Equation | <i>A mathematical statement showing two expressions which are equivalent.</i> |
| Expression | <i>A mathematical statement using letters and numbers or terms but does not include an equals sign e.g. $4X + 3$</i> |
| Factor | <i>A number or algebraic expression that divides exactly into another.</i> |
| Linear Equation | <i>When drawn on a graph makes a straight line.</i> |
| Net | <i>A 2 dimensional shape which can be folded to make a 3 dimensional object.</i> |
| Percentage | <i>A value given out of 100.</i> |
| Perimeter | <i>The distance around the outside of a shape.</i> |
| Quadrilateral | <i>A 2D shape made up of four straight sides.</i> |
| Ratio | <i>A relationship between 2 or more amounts.</i> |
| Statistics | <i>Collect and analyse data.</i> |
| Solve | <i>To work out the answer.</i> |
| Symmetry | <i>When parts of a shape are identical if they are flipped or spun.</i> |
| Term | <i>A single mathematical statement made up of letters and/or numbers e.g. $4X$</i> |
| Volume | <i>The space inside a 3D shape.</i> |