Maths Know It Knowledge

In years 7-10, each assessment has three sections:

Know It (12 marks)
- short questions based on facts students should be able to recall quickly
- there is a focus on accuracy and students should aim to get them all correct
- if a student scores less than 9 on this section, they will be required to sit a resit of this section only after the review lesson

Do It (16 marks)
- straightforward questions following standard procedures
- students should be able to work through most of them

Use It (17 marks)
- questions to make students think
- students may have to use multiple topics, give reasons or apply methods in different ways
- these questions often have a lot of marks available and students can score some by making an attempt to start

This document identifies the core knowledge that may be tested as part of the Know It section in each year. This is an excellent starting point for revision and for any students looking to d do some extra practice outside of school.

The knowledge is cumulative; for example, students in Year 9 may be tested on any Year 7 or Year 8 knowledge as well as the Year 9 knowledge.

Year 7 Know It Knowledge

Number
Ordering positive and negative integers
Place Value
Round to the nearest 10, 100,1000
Round a decimal to the nearest integer
Recognise square and cube numbers
Factors and multiples
Prime numbers less than 20

Calculations
Times tables
Multiplying by powers of 10
Addition and subtraction up to 3 digits
Multiply 3 integers
Division of integers
Order of operations
Difference between two numbers across zero
Money calculations

Fractions, Decimals, Percentages
Simplifying fractions
Add and subtract fractions with the same denominator
Convert between mixed numbers and improper fractions
Represent a fraction on a diagram
Decimal equivalents to ½, ¼, ¾
Order and compare decimals
Find 10% and 50% of a quantity

Algebra
Coordinates in the first quadrant
Simple algebraic problems (e.g. Find a and b such that a + b = 10)

Shape, Space and Measure
Name 2D and 3D shapes
Identify radius, diameter and circumference
Lines of symmetry
Perimeter and area of rectangles
Key angles – 90 °, 180 °, 360°
Convert m and km, g and kg, hours and minutes

Data and Statistics
Interpret a bar chart
Mean from a simple list

Year 8 Know It Knowledge

All Year 7 knowledge is assumed in Year 8

Number
Square and cube roots
Ratio notation
Simplify a ratio
Convert between ratio and fractions

Calculations
Divide by powers of 10

Fractions, Decimals, Percentages
Four operations with fractions
Four operations with decimals
Find 1% and 25% of a quantity
Convert between decimals and percentages

Algebra
Collect like terms
Multiply basic algebraic terms
Expand a single bracket
Substitution
Solve a one-step equation
Solve a two-step equation (positive integers)
Coordinates in all quadrants

Shape, Space and Measure
Angles on a straight line and at a point
Vertically opposite angles
Shape notation: right angles, parallel lines equal lengths
Vertices, faces edges
Types of triangle
Perimeter
Area of triangle, parallelogram & trapezium
Volume of a cuboid
Enlargement (non-centred)
Convert metric units

Data and Statistics
Mean, median, mode and range

Probability
Basic probability using words or numbers

Year 9 Know It Knowledge

All Year 7 and Year 8 knowledge is assumed in Year 9

Number
Reciprocals
Evaluate x^0
Index laws
Convert between standard and ordinary form
Product of prime factors
Highest Common Factor and Lowest Common Multiple
Share into a ratio

Calculations
Four operations involving negative numbers
Understand the word product

Algebra
Expand and simplify two linear brackets
Understand the terms expression and equation
Substitution with negative integers
Factorise linear expressions
Draw graphs of $x = c$ and $y = c$
Generate or continue an arithmetic sequence

Shape, Space and Measure
Recall formulae for area of 2D shapes and circumference of a circle
Identify parts of a circle
Identify a corresponding, alternate or co-interior angle

Probability
Probability notation e.g. P(even number)
Probability of two events using dice

Year 10 Foundation Know It Knowledge

All Year 7, Year 8 and Year 9 knowledge is assumed in Year 10 Foundation

Fractions, Decimals and Percentages
Convert between fractions, decimals and percentages
Fraction of a quantity
Percentage of an amount (calc and non-calc)
Estimate a square root

Algebra
Generate or continue a non-linear sequence
Find the equation of a horizontal or vertical line
Identify the gradient and y-intercept from y=mx+c

Shape, Space and Measure
Identify a transformation
Identify the appropriate trigonometric ratio

Year 10 Higher Know It Knowledge

All Year 7, Year 8, Year 9 and Year 10 Foundation knowledge is assumed in Year 10 Higher

Number
Write ratio in the form 1:n or n:1
Upper and lower bounds
Complete an error interval
Negative and fractional indices
Surds

Algebra
Expand and simplify double brackets
Factorise the difference of two squares
Simplify algebraic terms using multiplication and division
Identify turning points and roots from a graph
Write down the equation of a line parallel to a given line
Work out the a perpendicular gradient

Shape, Space and Measure
Column Vectors

Probability
Probability from a completed Venn diagram