



Maths Topics for Honeybee: 12-15 Years Old

Mathematics Knowledge Test will assess the following topics:

Number

Integers, fractions, decimals, percentages.
Addition, subtraction, multiplication, division (mental and written methods).
Prime numbers, factors, multiples.
Powers, roots, estimation, and number properties.

Algebra

Expressions, equations, formulae, functions.
Simplifying algebraic expressions.
Solving linear and quadratic equations and inequalities.
Graphing linear and quadratic functions.

Ratio, Proportion, and Rates of Change

Direct and inverse proportion.
Solving problems involving ratios, scaling, and rates of change.

Geometry and Measures

Points, lines, angles, polygons, circles, and symmetry.
Properties of triangles and circles.
Theorems and postulates (e.g. Pythagoras' theorem, parallel&perpendicular lines).
Constructions of geometric figures.
Units and measurement: length, area, volume, weight, and time.
Coordinate geometry: plotting points, equations of lines, and using coordinates to prove geometric results.

Statistics and Probability

Collecting, representing, and interpreting data.
Tables, charts, and statistical diagrams.
Measures of central tendency (mean, median, mode, range).
Probability: theoretical and experimental.

Trigonometry

Right-angled triangle trigonometry: sine, cosine, tangent.
The unit circle and trigonometric functions.
Solving problems involving trigonometric ratios and angles.
Relationship between trigonometry and geometry.

Problem Solving

Applying mathematics in different contexts.
Linking multiple topics together to solve complex problems.