Curriculum Grade Year 6

- **Trigonometric functions and equations:**
  - Standard trigonometric identities and double angle identities, solving trigonometric equations involving compound angles, double angles and powers of angles
  - Graphs and transformations of trigonometric functions
  - Modelling with sine and cosine functions

  - **Vectors:**
  - Definition and representation of vectors
  - Equal, negative and parallel vectors
  - Position and resultant vectors
  - Collinear points
  - Distance between two points in space, magnitude of a vector
  - Unit vectors
  - Vector operations: addition and subtraction, multiplication with a scalar, linear combinations, parallel vectors, geometrical proofs
  - Dividing and stretching of line segments
  - Scalar product, its properties and applications
  - Different forms of representing lines in 2 and 3 dimensions:
    2-dimensions: vector equation, cartesian form, slope-intercept form, changing in between these forms
    3-dimensions: vector equation
  - Positioning of a point with respect to a line (point check)
  - Positioning of two lines in 2 and 3 dimensions (intersecting, coincident, parallel, skew)
  - Angle between two vectors / lines
  - Applications of vectors

- **Composite and inverse functions:**
  - Composite functions
  - Inverse functions: graphs of inverse functions, finding inverse functions algebraically
  - Domain and range of composite and inverse functions

- **Descriptive Statistics – Univariate Analysis:**
  - Types of data, population and sample – key definitions
  - Different forms of presenting data: frequency table, bar chart, histogram, box plot, cumulative frequency graph
  - Measures of central tendency: mode, mean, median
  - Measures of dispersion: range, quartiles, IQR, outliers, variance and standard deviation

- **Probability:**
  - Language and definition of probability, theoretical and empirical probability
  - Venn diagrams
  - Intersection and union of events
  - The addition rule and the product rule
  - Mutually exclusive and exhaustive events
  - Sample space diagrams and tree diagrams
  - Independents events, the product rule for independent events
  - Drawing with or without replacement, repeated events
  - Conditional probability
  - Applications

- **Logarithmic and exponential functions:**
  - Positive, negative and fractional exponents, laws of exponents
  - The exponential function, graphs, properties and transformations of the exponential function
  - Definition and properties of logarithms, changing in between the logarithmic and the exponential form
  - Evaluating the logarithm, the base, and the number without using a calculator
  - The logarithmic function, graphs, properties and transformations of the logarithmic function
  - Laws of logarithms
  - Change of base property
  - Exponential equations with different base numbers
  - Applications of exponential and logarithmic functions: growth and decay modelling - word problems