YEAR 11 Higher

Autumn Term 1: Constructions Loci & Vectors, Representing & Interpreting Data

THE MILTON KEYNES ACADEMY
Creative Education Trust

Key Vocabulary for Lessons – Constructions, Loci & Vectors

Adjacent	Next to or adjoining something else, e.g., adjacent sides in a triangle.
Angle Bisector	A line that divides an angle into two equal smaller angles.
Area	The measure of the surface enclosed within a shape, usually in square units.
Bisector	A line or segment that divides something into two equal parts.
Centre of Enlargement	The fixed point from which a figure is enlarged or reduced.
Centre of Rotation	The fixed point around which a figure is rotated.
Collinear points	Points that are on the same line.
Column Vectors	Vectors written in a column format, showing horizontal and vertical components.
Composite Shape	A shape made up of two or more simple geometric shapes.
Congruence	When two shapes are exactly the same in size and shape.
Construction Lines	Temporary lines drawn to help in creating a geometric figure or solving a problem.
Coordinates	A pair of numbers (x, y) that define the position of a point on a plane.
Cross-section	The shape obtained by cutting straight through an object, usually perpendicular to its longest axis.
Direction of Rotation	The way in which a figure is rotated (clockwise or counterclockwise).
Equation	A mathematical statement that shows the equality of two expressions.
Equi-distant	Equally distant from two or more points.
Fractional Scale Factor	A scale factor that is less than 1, used to reduce the size of a figure.
Image	The result of a transformation applied to a shape.
Loci	Plural of locus; multiple sets of points that satisfy specific conditions.
Locus	A set of points that satisfy a particular condition.
Parallel	Two lines or segments that are always the same distance apart and never meet.
Path	A route or course along which something moves.
Perpendicular	Two lines or segments that intersect at a right angle (90 degrees).
Perpendicular Bisector	A line that is perpendicular to a segment and divides it into two equal parts.
Reflection	A transformation that flips a figure over a line to create a mirror image.
Rotation	Turning a figure around a fixed point (centre of rotation).
Scale Factor	The ratio by which a figure is enlarged or reduced.
Transformation	A change in the position, size, or shape of a figure.
Translation	Moving a figure from one place to another without rotating, resizing, or changing its shape.
Vector	A quantity that has both direction and magnitude, represented by an arrow.

Volume	The amount of space occupied by a 3D object, usually in cubic units.
x-intercept	The point where a graph crosses the x-axis (y = 0).
y-intercept	The point where a graph crosses the y-axis (x = 0).

Key Vocabulary for Lessons – Representing & Interpreting Data

Average	A value representing the typical value in a dataset, which can be calculated using various measures such as mean, median, or mode.
Bar charts	A graph that represents data with rectangular bars, where the length of each bar represents the value of the data.
Boundary	The value that separates one class or interval from another in a frequency distribution.
Box plots	Also known as box-and-whisker plots, they are graphical representations of the distribution of a dataset based on five summary statistics: minimum, lower quartile, median, upper quartile, and maximum.
Class width	The range or interval between consecutive class boundaries or limits in a frequency distribution.
Class	In statistics, a group or category into which data is organized for analysis. It represents a range of values.
Class	A category or group into which data is organized for analysis.
Comparison	The process of examining similarities and differences between two or more things.
Continuous data	Data that can take any value within a given range, typically measured on a continuous scale.
Continuous	Data that can take any value within a given range.
Correlation	A statistical measure that describes the strength and direction of a relationship between two variables.
Criticism	The act of analyzing and evaluating the strengths and weaknesses of something.
Cumulative frequency	The running total of the frequencies of the classes or intervals in a frequency distribution.
Discrete	Data that can only take certain distinct values and cannot take on any value within a given range.
Frequency density	The frequency of a class divided by the class width; it represents the frequency per unit interval or unit class width.
Frequency	The rate at which something occurs or is repeated over a particular period of time or in a given dataset.
Frequency	The rate at which something occurs or is repeated over a particular period of time or in a given dataset.
Histograms	A graphical representation of the distribution of numerical data. It consists of bars, where each bar represents the frequency of data within a specific interval.
Inter-quartile range	The range between the upper quartile and the lower quartile; it represents the middle 50% of the data.
Interpret	To explain or understand the meaning or significance of something.
Line graph	A graph that displays data using a series of data points connected by straight line segments.
Line of best fit	A straight line that best represents the trend of the data points on a scatter plot.
Lower quartile	The median of the lower half of a dataset; it divides the lower 50% of the data into two equal parts.
Mean	The average value of a set of numbers, calculated by adding up all the values and dividing by the number of values.
Median	The middle value in a list of numbers when they are ordered from least to greatest.

Misleading graphs	Graphical representations of data that are intentionally or unintentionally deceptive, often by distorting the scale, omitting relevant information, or using misleading labeling or visuals.
Mode	The value that appears most frequently in a data set.
Outliers	Data points that are significantly different from other observations in a dataset. They may indicate errors in data collection or genuinely rare occurrences.
Pie-charts	A circular statistical graphic divided into slices to illustrate numerical proportions.
Primary data	Data collected firsthand by the researcher for a specific purpose.
Proportion	A part, share, or number considered in comparative relation to a whole.
Qualitative/Categorical	Data that can be categorized based on qualities or characteristics rather than numerical values.
Quantitative	Data that is expressed in numerical terms or quantities.
Range	The difference between the highest and lowest values in a dataset.
Scatter diagram	A graph that shows the relationship between two variables by displaying data points on a Cartesian plane.
Secondary data	Data that has already been collected by someone else for a different purpose.
Tally	A mark used to keep a record of counting or scoring.
Time-series graph	A graphical representation of data where the independent variable represents time and the dependent variable represents the value of a variable over time.
Upper quartile	The median of the upper half of a dataset; it divides the upper 50% of the data into two equal parts.

Homework

- Homework will be set each week.
- Tasks will alternate between online tasks using Sparx Maths and longer written tasks focused on GCSE-style questions.
- All tasks will be focused on reinforcing the learning in both Year 10 and Year 11.

Additional Opportunities

If you wish to further develop your skills and knowledge for GCSE maths, you can use the following links:

https://corbettmaths.com/contents/

https://metatutor.co.uk/worksheets/

https://www.mathsgenie.co.uk/gcse.html