YEAR 10 Higher

Autumn Term 1: Numerical Representations, Ratio & Proportion, Probability

THE MILTON KEYNES ACADEMY
Creative Education Trust

Key Vocabulary for Lessons – Numerical Representations

Bound	A limit or boundary that defines the extent or range within which something can occur or exist.
Calculate	To determine the value or result of a mathematical operation or expression using numerical methods or algorithms.
Common	Shared or occurring frequently among two or more entities or elements.
Continuous data	Data that can take any value within a given range and can be measured, typically represented on a continuum.
Discrete data	Data that can only take certain distinct values and cannot be measured precisely on a continuum.
Estimate	A rough calculation or approximation of a value, quantity, or result, typically based on limited information.
Factor	A number or quantity that divides another number or quantity without leaving a remainder.
Multiple	A number that can be divided by another number without leaving a remainder.
Non-terminating decimal	A decimal number that continues indefinitely without reaching an end.
Operation	A mathematical process or procedure used to perform calculations or manipulate data, such as addition or subtraction.
Product	The result obtained by multiplying two or more numbers or quantities together.
Quotient	The result obtained by dividing one number or quantity by another.
Recurring decimal	A decimal number in which one or more digits repeat infinitely.
Round	To approximate a number to a specified degree of accuracy by adjusting it to the nearest value.
Terminating decimal	A decimal number that ends or terminates after a finite number of digits.

Key Vocabulary for Lessons – Ratio & Proportion

Area	The measure of the extent of a surface, typically measured in square units such as square meters or square feet.
Capture	To record or document information or data from a source or event.
Conclusion	A decision or judgment reached after considering evidence, data, or reasoning.
Constant of proportionality	The factor by which one quantity changes in direct proportion to another.
Conversion graph	A graphical representation of conversion rates or relationships between different units or values.
Conversion rate	The rate at which one unit or value is converted into another, typically expressed as a ratio or percentage.
Direct proportion	A relationship between two quantities where one increases as the other increases, or decreases as the other decreases, in a consistent manner.

Discrete data	Data that can only take certain distinct values and cannot be measured precisely on a continuum.
Equations	A mathematical statement asserting that two expressions are equal.
Estimate	A rough calculation or approximation of a value, quantity, or result, typically based on limited information.
Factor	A number or quantity that divides another number or quantity without leaving a remainder.
Inverse proportion	A relationship between two quantities where one increases as the other decreases, or vice versa, in a consistent manner.
Map	A visual representation of an area, typically showing geographical features, roads, and landmarks.
Map distance	The distance between two points on a map, often represented using a scale.
Measurement	The process of determining the size, length, quantity, or extent of something using a standard unit of measurement.
Multiplier	A factor by which a quantity is multiplied or increased.
Part to part	A comparison between two parts of a whole or a set, typically expressed as a ratio or fraction.
Part to whole	A comparison between a part and the whole from which it is taken, often expressed as a fraction or percentage.
Percentage	A proportion or ratio expressed as a fraction of 100.
Percentage change	The difference between two values expressed as a percentage of the original value.
Population	The entire group or set of individuals, items, or data from which a sample is selected for analysis or testing.
Proportion	A mathematical relationship between quantities, often expressed as a ratio or fraction.
Ratio	A relationship between two quantities, typically represented as a fraction, quotient, or proportion.
Ratio notation	The representation of a ratio using symbols, typically in the form of a fraction or using a colon (e.g., 3:5).
Recapture	To regain possession or control of something that was lost or escaped.
Repeated percentage change	A series of changes to a value, expressed as a percentage, occurring successively or iteratively.
Reverse percentage problem	A problem in which the original quantity is unknown, but the percentage change and the final value are given, and the original quantity needs to be determined.
Round	To approximate a number to a specified degree of accuracy by adjusting it to the nearest value.
Sample	A subset of a population or a collection of individuals or items selected for analysis or testing.
Scale drawing	A drawing that represents an object or space at a proportionally reduced or enlarged size according to a scale.
Scale factor	The ratio of any two corresponding lengths in two similar geometric figures.
Simplify	To reduce a mathematical expression, equation, or fraction to its simplest form or terms.
Techniques	Methods or procedures used to accomplish a particular task or achieve a desired outcome.
Terminating decimal	A decimal number that ends or terminates after a finite number of digits.
Unit of measurement	A standard quantity or amount used as a measure or reference.
Volume	The measure of the amount of space occupied by a three-dimensional object, typically measured in cubic units.

Key Vocabulary for Lessons – Probability

Dependent events	Dependent events are events where the occurrence or outcome of one event affects the occurrence or outcome of another event.
Element	An element is an individual item or member within a set.
Equally likely outcomes	Equally likely outcomes refer to events or outcomes that have the same probability of occurring. In such cases, each outcome is as likely as the others.
Event	In probability, an event is a specific outcome or a set of outcomes that is of interest.
Exhaustive	Exhaustive refers to a set of events that includes all possible outcomes. In other words, no possible outcome is left out.
Experimental Probability	Experimental probability is the probability of an event based on actual observations or experiments. It is calculated by dividing the number of times the event occurs by the total number of trials or experiments.
Experiments	Experiments refer to the activities or actions that generate outcomes in probability.
Frequency Trees	Frequency trees are graphical representations used to display the outcomes of experiments along with their respective frequencies or probabilities.
Independent events	Independent events are events where the occurrence or outcome of one event does not affect the occurrence or outcome of another event.
Mutually exclusive events	Mutually exclusive events are events that cannot occur simultaneously. If one event happens, the other cannot.
Possible Outcomes	Possible outcomes are the different results that could occur in a given experiment or scenario.
Probability	Probability is a measure of the likelihood or chance of an event occurring. It is expressed as a number between 0 (impossible) and 1 (certain).
Relative Frequency	Relative frequency is the proportion of times an event occurs in relation to the total number of trials or observations.
Sample space diagram	A sample space diagram is a visual representation of all possible outcomes in a sample space.
Set notation	Set notation is a symbolic representation used to describe the elements of a set and the relationships between sets.
Theoretical Probability	Theoretical probability is the probability calculated by dividing the number of favourable outcomes by the total number of possible outcomes.
Trials	Trials refer to the individual experiments or repetitions in a probability study.
Two-way tables	Two-way tables are tables that display the frequencies or probabilities of two categorical variables.
Universal	Universal refers to the entire set of possible outcomes or elements.
Venn diagram	A Venn diagram is a visual representation of the relationships between sets, often used in probability to illustrate intersections and unions of events.

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 to date in Key Stage 4.

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