level being 9

uLearn Naturally

mathematics

GCSE A*-G/1-9 Equivalent

New GCSE Grades	1	2	3	4	5	6	7	8	9
Old GCSE Grades	F/G	E	D	Bottom 2 thirds C	Bottom third B Top third C	B Top 2 thirds	A	A*	A* Top 20% Grade A and above

Classical and other Big Ideas of Mathematics:

EQUATIONS & INEQUALITIES	DATA DISTRIBUTION	DATA REPRESENTATION	OPERATION MEANINGS & RELATIONSHIPS	RELATIONS & FUNCTIONS	PROPORTIONALITY	MATHS?	COMPARISON	EQUIVALENCE
SHAPES & SOLIDS	CHANCE	DATA COLLECTION	PROPERTIES	ORIGIN?	VARIABLE	ቁጥር	MAAT	BASE 10
ORIENTATION & LOCATION	TRANSFORMATIONS	MEASUREMENT	BASIC FACTS & ALGORITHMS	ESTIMATION	PATTERNS	ልክ	ክፍል	NUMBER

AQA Specification at a glance
- Key sections -

1. Number
2. Algebra
3. Ratio, proportion and rates of change
4. Geometry and measures
5. Probability
6. Statistics

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k'u.t'.r

Number is a *TOOL* of perception.

- Quantifying
- Positioning
- That which is beyond One (1).
- That which is inside One (1)

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Measure is a *PROCESS* of comparing relative size.

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Ratio is *RULE* of relationship

- Parts to each other.
- Parts to the whole.

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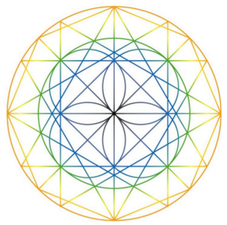
MATHEMATICS



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BIG IDEA #1
NUMBERS — The set of real numbers is infinite, and each real number can be associated with a unique point on the number line.

BIG IDEA #2
THE BASE TEN NUMERATION SYSTEM — The base ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.

BIG IDEA #3
EQUIVALENCE: Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have the same value.

BIG IDEA #4
COMPARISON: Numbers, expressions, and measures can be compared by their relative values.

BIG IDEA #5
OPERATION MEANINGS & RELATIONSHIPS: The same number sentence (e.g. 12-4 = 8) can be associated with different concrete or real-world situations, AND different number sentences can be associated with the same concrete or real-world situation.

BIG IDEA #6
PROPERTIES: For a given set of numbers there are relationships that are always true, and these are the rules that govern arithmetic and algebra.

BIG IDEA #7
BASIC FACTS & ALGORITHMS: Basic facts and algorithms for operations with rational numbers. Use notions of equivalence to transform calculations into simpler ones.

BIG IDEA #8
ESTIMATION: Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally. Measurements can be approximated using known referents as the unit in the measurement process.

BIG IDEA #9
PATTERNS: Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways.

BIG IDEA #10
VARIABLE: Mathematical situations and structures can be translated and represented abstractly using variables, expressions, and equations.

BIG IDEA #11
PROPORTIONALITY: If two quantities vary proportionally, that relationship can be represented as a linear function.

BIG IDEA #12
RELATIONS & FUNCTIONS: Mathematical rules (relations) can be used to assign members of one set to members of another set. A special rule (function) assigns each member of one set to a unique member of the other set.

BIG IDEA #13
EQUATIONS & INEQUALITIES: Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations and inequalities so solutions can be found.

BIG IDEA #14
SHAPES & SOLIDS: Two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.

BIG IDEA #15
ORIENTATION & LOCATION: Objects in space can be oriented in an infinite number of ways, and an object's location in space can be described quantitatively.

BIG IDEA #16
TRANSFORMATIONS: Objects in space can be transformed in an infinite number of ways, And those transformations can be described and analyzed mathematically.

BIG IDEA #17
MEASUREMENT: Some attributes of objects are measurable and can be quantified using unit amounts.

BIG IDEA #18
DATA COLLECTION: Some questions can be answered by collecting and analyzing data, and the question to be answered determines the data that needs to be collected and how best to collect it.

BIG IDEA #19
DATA REPRESENTATION: Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation.

BIG IDEA #20
DATA DISTRIBUTION: There are special numerical measures that describe the center and spread of numerical data sets.

BIG IDEA #21
CHANCE: The chance of an event occurring can be described numerically by a number between 0 and 1 inclusive and used to make predictions about other events.