Maths Learning Journey

Manchester Communication Academy

YEAR 11

Key Skills Targets at Ability Level | Assessment point | Feedback SOW from Assessment | Assessment point | Updated feedback SOW from Assessments | Exam Preparation and Two Weekly Tests | Exams and post 16 study

Vectors
- Column Vectors
- Vectors in Shapes
- Operational Research
- Simultaneous Equations
- Sim. equations

Percentages and Interest
- Compound Interest and Depreciation
- Reverse Percentages
- Repeated percentage change

Non-Calculator Methods
- Differentiation
- Gradient of a Curve
- Trig Identities
- Velocity Time Graphs
- Integration
- Area under a graph
- Land and Property Developer
- Surds
- Bounds
- Estimation

Grouped Frequency
- Time Series
- Cumulative Frequency
- Box Plots

Probability
- Pharmacist
- Trig Graphs
- Lawyer
- Conditional Probability
- Product Rule
- Dependant Tree Diagrams
- Intelligence Office

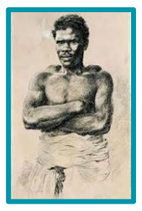
Displaying Data
- Equations of Circles
- Pilot
- Averages from grouped frequency tables
- Two way tables

Angles and Bearings
- Transformations of Graphs
- Multi-Step Angle Facts
- Sine and Cosine Rule
- Bearings
- Air Traffic Controller

Trigonometry
- Reverse Compound Interest
- Rationalising Surds
- Coder / Programmer
- 0.5abSinC
- Exact Trig Values
- Pythagoras
- SOHCAHTOA
- Cartographer

Equations and Inequalities
- Service Engineer
- Averages of combined data sets
- Histograms
- Inverse functions
- Fractional and Negative Indices
- Iterations
- Capture Recapture
- Quadratic Direct and Inverse Proportion
- Wildlife Conservationist
- Solving Quadratics
- Equation of a Line Through Two Points
- Quadratic Formula
- Army Officer

Circles
- Fractional and Negative Enlargements
- Bounds
- Algebraic Tree Diagrams
- Similar Shapes with Area and Volume
- Quadratic Simultaneous Equations
- Accountant
- Spheres, Cones and Pyramids
- Arcs and Sectors
- Circle Theorems



Thomas Fuller 1710 – 1890

YEAR 10

Constructing in 2D and 3D | Assessment point | Representation | Assessment point | Types of Number | Ratio and Fractions

Reasoning with geometry
- Probability
- Experimental Probability
- Proof and Derivation
- Scaffolder
- Pythagoras Theorem
- Proof and Derivation

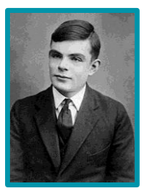
Constructing in 2D and 3D
- Enlargement & Similarity
- Surface area of prisms
- Construction & congruency
- Independent Tree Diagrams
- Volume of Prisms
- Deduction
- Zookeeper
- Geologist
- Pastry Chef

Representation
- Decorator
- Speed, Distance, Time
- Factorising
- Simultaneous equations
- Operational Researcher
- Real Life Graphs
- Sketching non linear graphs
- Market Research Analyst
- Artist

Types of Number
- Standard Form Calculations
- HCF, LCM

Ratio and Fractions
- Combining Ratio
- Direct and Inverse Proportion
- Economist

Congruence and Similarity
- Similar Area and Volume
- Fractional and negative enlargements



Alan Turing 1912 - 1954

Muhammad ibn Musa al-Khwarizmi c 780 – c 850

Euphemia Haynes 1890 – 1980

YEAR 9

Ratio and proportion | Rotation and Translations | Assessment point | Reasoning with number | Reasoning with Data | Assessment point | Developing Geometry

Reasoning with algebra
- Equations of parallel and perpendicular lines
- Solve equations & Inequalities with unknowns on both sides
- Rearrange formulae

Ratio and proportion
- Sharing in a ratio
- Enlargement and similarity

Rotation and Translations
- Rotation & Translation

Reasoning with number
- Calculations in standard firm
- Exchange Rates
- Percentage Change
- Travel Agent
- 4 operations with fractions
- HCF, LCM
- Simple and compound Interest

Reasoning with Data
- Line graphs
- Pie Charts
- Comparing Distributions
- Averages from tables
- Sampling

Developing Geometry
- Area of compound shapes
- Alternate, corresponding & co-interior angle rules.
- Landscape Architect
- Area of circle and trapezia
- Angles between parallel lines & the transversal.
- Angles in Polygons
- Tiler
- Angles in special triangles and quadrilaterals

Dorothy Vaughn 1910 – 2008
Katherine Johnson 1918 - 2020
Mary Jackson 1921 - 2005
Christine Darden 1942 - P

YEAR 8

Proportional reasoning | Assessment point | Representations | Algebraic techniques | Assessment point | Developing number

Reasoning with Number
- Cyber Security
- Prime Factorisiation, HCF & LCM
- Set notation and Venn diagrams
- Number Properties
- Mental arithmetic strategies & use of a calculator
- Probability of a single event

Lines & angles
- Classify, construct and draw angles
- Angles in Triangles and Quadrilaterals
- Angles on a straight line and around a point
- Parallel lines and properties
- Carpenter

Proportional reasoning
- Compare fractions with ratio
- Multiplicative change
- Ratio
- Chef

Fractional thinking
- Four Operations with Fractions

Directed number
- Four Operations with Directed Number
- Budgeting Skills

Equality
- Solving Equations

Application of number – multiplication and division
- Calculating the Mean
- Fraction & Percentages of amounts
- Powers of 10
- Trader

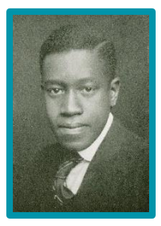
Application of number – addition and subtraction
- Area of Rectangles, Triangles and Parallelograms
- Ordering Integers and Decimals
- Frequency Trees
- Perimeter

Place value & proportion
- Four Operations
- Median, Range
- Representing percentages
- FDP Equivalence

Representations
- Conversion Graphs
- Frequency Tables
- Sample Spaces
- Coordinates and Table of Values
- Drone Pilot
- Scatter graphs
- Retail Manager
- Bar Charts
- Interior Designer

Algebraic techniques
- Solve Linear Equations and Inequalities
- Expanding
- Nth term of sequences
- Research Scientist
- Indices and Powers
- Retail Assistant

Developing number
- Standard Index form
- Estimation
- Percentage increase and decrease with a multiplier
- Gamers
- Metric Conversions



Elbert Cox 1895 - 1969

Algebraic thinking
- Equality and equivalence
- Solve Linear Equations
- Collecting like terms
- Function machines & substitution
- Describing Sequences
- Algebraic notation
- STEM Careers

YEAR 6 — KEY STAGE 2 — Transition from KS2 to KS3 — YEAR 7

- Times tables fluency
- Understanding time & money
- Use of mathematical equipment, protractor, ruler etc.
- Collecting and recording data using tally charts etc..
- Properties of 3d and 2d shapes
- Introduction to algebra using pictures and letters to find unknown values
- Understanding fractions, decimals and percentages
- Multiplicative Reasoning

Key

Number	Algebra	Statistics
Proportion	Geometry	