Mathematics Honiton Community College KS3 Curriculum Plan

Purpose
The purpose of this template is to provide an overview of the curriculum for your subject. It makes clear *when* things are studied and perhaps most importantly the key concepts of studying it. It also tells us what's inside each Scheme of Learning in terms of the broad concepts, assessment points and how these might link to other units within and outside of your subject.

The next step is to look at the links

Guide to terminology

Topic – this should briefly describe the area of the curriculum being focused on.

Key Concepts – ideas and concepts are often transferable within subjects and across subjects. By identifying the key ideas and concepts it should make it easier to see patterns and trends over time. What are the concepts in your subject? Does the curriculum provide opportunities to explore them?

Knowledge & understanding milestones – These are the specific educational gains for studying this topic. List the main skills they will develop, consolidate or learn by studying this topic. When you put all of these together you will have a clearly defined knowledge base that needs to be achieved by the end of each year. Your assessments therefore will test to what extent students have securely grasped this essential knowledge.

Scaffolding for SEND to ensure quality first teaching – as discussed in the Ofsted overview of research document differentiated activities/task have little to no impact on pupils' attainment.

Careers – what careers input will be included in SOL, as described in the Gatsby Benchmarks careers must be included in everyday teaching not just a bolt on.

Vocabulary – What are the most common words, phrases or vocabulary that will be explored in this unit / topic? You cannot list them all of course but provide a selection of the most relevant ones here. How do classroom displays support students with this vocabulary?

Assessment Dates - this covers a range of types of assessment and will depend on the range of methods that your subject uses to assess understanding (eg ongoing assessment, formative feedback). How and when do you check student understanding? When do you use retrieval practice to support better retention of knowledge and understanding? How will you use this information in planning and reviewing SOL?

Year 7						
	Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Topic	Introductory Unit	Number 1 (Place value, arithmetic, powers of 10, rounding, approximating calculations, negative numbers) Variety 1 (part a) (Coordinates, Time, Timetables and Money)	Variety 1 (part b) (Use of equipment including ruler, protractor and compasses, measuring and drawing accurately, angle facts and construction of triangles, review of averages) Algebra 1 (Simplifying expressions, expanding brackets, factorising, substitution)	Number 2 (part a) (Special types of number and number sequences, Fractions including 4 operations, top heavy and mixed number conversions, calculating fractions of quantities, Fraction/decimal/percentage conversions)	Number 2 (part b) (Calculating percentage of amounts) Variety 2 (Linear sequences, Patterns, Probability (single event and listing outcomes), Algebraic substitution into and using formulae)	Variety 3 (Area of rectangles, triangles and composite shapes, Linear equations, volume of cubes and cuboids, two way tables, venn diagrams and frequency trees)
Key concepts		Approximating calculations Time	Accurate drawing Substitution	Fractions	Percentage of amounts Substitution	Area of rectangles Volume of cubes and cuboids Venn Diagrams Two way tables
Knowledge & Understanding Milestones		Awe & Wonder 1 "Binary Numbers and their applications"	Awe & Wonder 2 "Trip planning, travelling around & Holiday costings"	Awe & Wonder 3 "Algorithms & strange but true formulae of the world"		Awe & Wonder 4 "Bedroom design" – real life scale drawing and costing activity
Scaffolding for SEND to ensure quality first teaching.						
Careers input		Bar coding & coding messages Working out wages	Event planning Project management	Programming		Interior design Garden design
Links (prior knowledge, future knowledge)	**In subject:** **Outside of subject:** Coordinates: Geography: OS maps and grid referencing. "Adventure Landscapes" (7HT2) Ordering and place value:	**In subject:** Arithmetic (4 rules), Powers of 10 & coordinates – from introductory unit (HT1) **Outside of subject:** Science: Speed, distance & time (8HT2) Acceleration (9HT6) Coordinates:	**In subject:** Averages review from introductory unit (HT1) **Outside of subject:** Science: Cells, drawing accurately and drawing graphs (7HT2)&(8HT2) Light – reflection & refraction (8HT6) Averages – many links to practical work and experiments (7HT1 onwards)	**In subject:** Fractions of quantities & fraction/decimal/percentage conversions – build on basics from introductory unit (HT1) **Outside of subject:** Science: Energy (7HT1), Feeding relationships (8HT4) & genetics (9HT2) Changing substances – pH scale (7HT6)	**In subject:** Algebraic substitution – build on from basic substitution work in HT3 **Outside of subject:** Science: Electric Circuits (7HT1) Constant Forces & Density (7HT4)	**In subject:** Build on multiplication of fractions, decimals and integers (HT1, 2 & 4) through areas of shapes. **Outside of subject:** Science:

	Geography: Ordering values for predicted climate change. "Climate Change" (7HT5) Sport & PE Data collection and analysis (averages) (Y7&8)	Geography: OS maps and grid referencing. "Adventure Landscapes" (7HT2) Ordering and place value: Geography: Ordering values for predicted climate change. "Climate Change" (7HT5) Ordering values for height of Mountains in the UK, populations of UK cities in order. "Geography of the UK" (8HT2) Ordering values for population density of African countries. "Out of Africa" (8HT3) Sport & PE Ordering performance data (times, distances and ranking) (Y7&8) Life Skills: Calculating with money (Y7) Making Financial decisions (Y7) Food & Nutrition Time planning for catering, cooking and healthy eating (Y7&8)	Cells, constant forces and any topic onwards that involves formulae (7HT4 onwards) Design Technology Drawing and measuring accurately (Y7 onwards) Food & Nutrition: Measuring accurately (Y7&8) Computing Algebra Cashflow Kings (7HT3) Small BASIC 1 (7HT5)		Reactants & Products – balancing equations (8HT5) Changing substances (7HT6) Periodic table (9HT2) Genetics (9HT2) Geography: Finding percentages of UK employment sectors over time. "Geography of the UK" (8HT2) Life Skills: Calculating with money (Y7) Making Financial decisions (Y7)	Contact Forces – density calculations (7HT4) Growth – surface area : volume ratio (9HT1) Acceleration – area under a speed-time graph (9HT6)
Key Vocabulary		Hours, minutes, seconds, days, months, fortnight, leap year,	Protractor, angle, degrees, acute, obtuse, right angle, reflex, equilateral triangle, isosceles triangle, right angled triangle, simplify, expand, factorise, substitute	Square number, prime number, cube number, mixed number, top-heavy, fraction, improper fraction, numerator, denominator, percent	Percent, probability, substitute, formula	Area, volume, cube, cuboid, equation, two-way table, venn diagram, frequency, frequency tree

Review & Assessment Dates (including opportunities for retrieval practice)						

Year 8						
	Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Topic	Introductory unit Algebra 2 (part a) Linear equations	Algebra 2 (part b) (Change the subject of a formula, indices and index notation, Standard index form, prime factor decomposition) Variety 4 (part a) Pythagoras Theorem	Variety 4 (part b) (Circles including vocab, area and circumference, Frequency tables including finding the mean median and mode from them, Number 3 Ratio and proportion, Unit conversions for both metric and imperial measures.	Variety 5 (Percentage increase and decrease, calculating a percentage change, simple reverse percentage calculations, Speed distance and time, Angles on parallel lines, bearings and scale drawings)	Algebra 3 (Plotting graphs from equations, solving linear equations with some 3 and 4 step solutions)	Variety 6 (Nets, plans, elevations, isometric drawing, Area of trapezia and parallelograms, area of composite shapes, Volume and surface area of prisms)
Key concepts		Standard Index Form Pythagoras Theorem	Circles (Area and circumference) Unit conversions	Percentage increase and decrease Speed, Distance and Time Scale drawing	Drawing graphs Solving linear equations	Isometric drawing Volume and surface area of a prism
Knowledge & Understanding Milestones		Awe & Wonder 5 “The mathematics of simple fractals” – Sierpinski triangle and Koch snowflake.		Awe & Wonder 6 “Planets and the solar system”		Awe & Wonder 7 “Mathematics in sport” Awe & Wonder 8 “Mathematics for measuring tall structures”
Scaffolding for SEND to ensure quality first teaching.						
Careers input		Computer graphics Micro biology Astronomer Construction	Design (interior, exterior, garden etc…) Sports analyst Painter / Paint engineer Supermarket manager (best buys etc…) Carpenter Engineer Food technician	Astronomy		Sports analyist Construction & engineering Surveyor
Links (prior knowledge, future knowledge)	**In subject:** Links to content from Y7 (solving equations, substitution and basics recap through introductory unit)	**In subject:** Powers of 10 (7HT2) Prime numbers & square numbers (7HT4) **Outside of subject:** Science: Cells (7HT2)	**In subject:** Mean, mode, median & range (7HT1 & 8HT1) **Outside of subject:** Science: Speed & lots of other topics (8HT2 onwards)	**In subject:** Percentage of amounts (7HT5) Unit conversions (8HT3) Angle facts (7HT3) **Outside of subject:** Science:	**In subject:** Solving equations (7HT6) **Outside of subject:** Science: Speed (8HT2) Acceleration (9HT6)	**In subject:** Area of rectangles and triangles (7HT6) Area of composite shapes (7HT6) Volume of cubes and cuboids (7HT6)

	Outside of subject: Science: Speed (8HT2) Coordinates: Geography: OS maps and grid referencing. "Adventure Landscapes" (7HT2) Ordering and place value: Geography: Ordering values for predicted climate change. "Climate Change" (7HT5) Sport & PE Data collection and analysis (averages) (Y7&8)	Periodic table (9HT3) Making a substance (moles) (11HT2) Space (11HT4) Electric circuits (7HT1) Contact forces (7HT4) Speed (8HT4)	Organ systems (10HT1) Human Interaction (microbes) – clear areas around antibiotics (10HT2) Surface area:volume ratio (9HT1) Genetics (9HT2) Cells – cm, mm, micro metres and nano metres (7HT2) Speed (8HT2) Acceleration (9HT6) Food & Nutrition Accurate measures & converting between units (metric & imperial) (Y7&8) Ratios in recipes & direct proportion problems involving scaling (Y7&8)	Growth & development – osmosis calculations (9HT1) Speed (8HT2) Acceleration (9HT6) Light – reflection & refraction (8HT6) Cells and microscope work (7HT2) Speed distance & displacement (8HT2) Geography: Finding percentages of UK employment sectors over time. "Geography of the UK" (8HT2) Life Skills: Calculating with money (Y7) Making Financial decisions (Y7)	& any topic involving drawing graphs (many)(7HT1 onwards) Sport & PE Data collection and analysis (averages & graphs) (Y7&8)	**Outside of subject:** Science: Contact forces & density calculations (7HT4) Growth & Differentiation SArea : Volume (9HT1)
Key Vocabulary		Formula, index, prime factor, Pythagoras	Circle, area, circumference, mean, median mode, ratio, metre, centimetre, millimetre, gram, kilogram, litre, millilitre, inch, foot, yard, mile	Increase, decrease, percent, speed, distance, time, metres per second, kilometres per hour, parallel, bearing, scale	Equation, solve, graph, plot	Net, plan, area, trapezium, parallelogram, volume, surface area, prism
Review & Assessment Dates (including opportunities for retrieval practice)						