GCSE Sciences Curriculum Map

Subject/Term	Year 10 and 11 Knowledge								
Science *Skills: Scientific thinking; Experimental skills; Analysis and evaluation; Scientific vocabulary*	Organisation Organic Chemistry Electricity	Bioenergetics Chemistry of the Atmosphere Particle Model of Matter	Infection and Response 2 Rate and Extent of a Chemical Reaction Quantitative Chemistry 1 Atomic Structure	Homeostasis and Response 1 Chemical Changes Forces 1	Homeostasis and Response 2 Energy Changes Forces 2	Inheritance, Variation and Evolution Chemical Analysis Waves	Ecology Quantitative Chemistry 2 (Chemistry only) Organic (Chemistry only) Magnetism and Electromagnetism	Using Resources Space Physics (Physics only)	
Geography *Skills: Knowledge; Comprehension; Application; Cartographic; Graphical; Numerical and statistical*	**Living in the UK Today (30%)** Landscapes People Threats			**The World Around Us (30%)** Ecosystems People Threats		**Geographical Skills (40%)** Knowledge from Living in the UK and The World Around Us units			
Maths *Skills: Use and apply standard technique; Reason, interpret and communicate mathematically; Solve problems within mathematics and in other contexts*	**Number** Powers and roots Reciprocals Laws of indices Negative and Fractional Indices Standard form conversions and calculations **Algebra** Writing algebraic expressions Simplifying algebraic expressions	**Geometry** Basic angle fact Angles on parallel lines Angles in polygons Bearings Loci and constructions Circle theorems **Number** Currency conversion Fraction, decimal and percentage equivalence Percentage of amount Percentage increase/decrease	**Geometry** Units of measurement Perimeter and area (rectangle, triangle, parallelogram, trapezium) Area of compound shapes Circumference and area of a circle **Number** Simplifying surds Surds calculations Rationalising the	**Algebra** Solving linear equations (include fractions, negatives, brackets and unknowns on both sides) Solving quadratic equations Rearranging formulae – basics Rearranging formulae - advanced Completing the square	**Number** Simplifying Ratios Sharing in a ratio Unitary Method Scale drawings Proportion Direct and inverse proportion algebraically **Algebra** Vectors	**Geometry** Pythagoras Right-angled trigonometry Further trigonometry **Algebra** Generating sequences Nth term of linear sequences Nth term of quadratic sequences Plotting straight line graphs Plotting	**Geometry** Nets Properties of 2D shapes Properties of 3D shapes Plans and elevations Surface area and volume of prisms Surface area and volume of non-prisms (pyramid, cone, sphere) Compound measures **Data**	**Geometry** Symmetry All transformations Translation and basic vectors Reflection Rotation Enlargement Similarity and congruence **Algebra** Solving linear simultaneous equations Solving non-linear simultaneous equations Linear inequalities Graphical and	**Algebra** Equation of a circle Graphs of trigonometric functions Functions Transformation of functions Iteration Estimating area under a curve Estimating gradient of curves Algebraic proof

	Expanding single and double brackets Expanding triple brackets Factorising into single and double brackets Substitution into formulae	Percentage change Reverse percentages Compound and simple interest Growth and decay	denominator	Algebraic fractions		quadratic graphs y = mx + c Gradient Equation of a line – gradient and a point) Equation of line – 2 coordinates Parallel and perpendicular lines Other graphs Real life graphs	Probability of a single event Relative frequency Expectation Systematic listing strategies Probability of combined events (mutually exclusive and independent) Probability with Venn diagrams Frequency trees Tree Diagrams	quadratic inequalities	
Statistics (Year 10 only) *Skills: Use and apply standard technique; Reason, interpret and communicate Mathematically; Solve problems within mathematics and in other contexts*	**Planning Data Collection** Types of data Simplifying and grouping data Sampling techniques **Representing Data** Stem & leaf diagrams Population pyramids Choropleth maps Pie charts Comparative pie charts **Analysing and Interpreting Data** Averages from grouped data Measures of spread	**Collecting Data** Questionnaires Experiments Simulation **Representing Data** Cumulative Frequency Diagrams Box and whisker diagrams Histograms Misleading diagrams	**Analysing and Interpreting Data** Standard deviation Standard deviation from frequency tables Outliers Box and whisker diagrams including outliers Skewness of data Normal distribution Standardised scores Summary statistics Estimating population sizes	**Representing Data** Scatter diagrams Time Series Graphs **Analysing and Interpreting Diagrams** Interpreting scatter diagrams Spearman's Rank Correlation Coefficient & interpretation Time Series	**Probability** Relative frequency Expected and actual frequencies Sample space diagrams Venn diagrams Two-way tables Tree diagrams Independent events Conditional probability		
Further Maths (Year 11 only) *Skills: Use and apply standard technique; Reason, interpret and*	**Number Recall** Consolidate GCSE skills Manipulation of surds **Algebra Recall** Consolidate GCSE skills Expanding and factorising with more than two brackets	**Functions** Function notation Domain and range **Matrices** Introduction to matrices The zero matrix and the identity matrix	**Sequences** Linear and quadratic sequences Limiting values **Pythagoras' theorem and trigonometry** The sine rule	**Simultaneous Equations** Linear and non-linear simultaneous equations Solving graphically **Coordinate Geometry** Parallel and perpendicular lines	**Calculus** Differentiation The gradient of a curve Stationary points The equation of a tangent and normal **The Ratios of angles and their**		

communicate mathematically; Solve problems within mathematics and in other contexts	**Geometry Recall** Consolidate GCSE skills Circle theorems Tangents & chords Alternate segment theorem	Transformations **Algebra** Manipulation of rational expressions The factor theorem	The cosine rule **Solving Equations** Solving quadratic equations using factorisation, the quadratic formula, by completing the square and graphically **Inequalities** Linear inequalities Quadratic inequalities Graphical inequalities	Applications of co-ordinate geometry **The equation of a circle** The equation of a circle centred on the origin or any point. **Indices** Rules of indices Negative indices Fractional indices Solving equations with indices	**graphs** Trigonometric ratios of angles between 90 and 360 degrees. The circular function graphs Trigonometrical expressions and equations **Proof** Algebraic proof Geometric proof
Computing *Skills: Computational Thinking; Problem Solving; Analysis, Evaluation and Implementation; Technical Vocabulary*	**COMP 1** Systems Architecture • Memory • Storage • Wired and wireless networks • Network topologies, protocols and layers • System software layers • Ethical, legal, cultural and environmental concerns • Algorithms *	**COMP 2** Algorithms * • Programming techniques • Producing robust programs • Computational logic • Translators and facilities of languages • Data representation	**COMP 3** Programming techniques • Analysis • Design • Development • Testing and evaluation and conclusions • Algorithms *		
Core PE Rotation of units *Skills: Demonstrate; Analyse; Apply; Evaluate*	**Sports to include**: Football, Handball, Netball, Badminton, Basketball, Fitness, Rugby, Tennis, Indoor Rowing, Step Aerobics, Softball, Rounders, Athletics, Table Tennis, Dodgeball, Yoga, Boxercise, Cross-Country, Sports Leadership How to work as a team to demonstrate the application and execution of key skills. The importance of leading healthy active lives and be physically active for sustained periods of time. How to use and develop a variety of tactics and strategies to overcome opponents in team and individual games. How to evaluate performances compared to previous ones and demonstrate improvement across a range of physical activities to achieve a personal best. Use knowledge gained in lessons to continue to take part regularly in competitive sports and activities outside of school through community links or sport clubs. Awareness of and ability to set targets in KS5 to remain physically active and to further develop knowledge in chosen sports and activities.				
GCSE PE *Skills: Demonstrate; Analyse; Apply; Evaluate*	**Theory exam (60%)** A range of key facts and ideas under the main unit headings of: Anatomy and physiology Movement analysis Physical training Sports psychology Socio-cultural influences Health, fitness and well being Data analysis	**Practical (30%)** Key areas of knowledge vary based on the practical focus (see success criteria in the specification for each specific sport).	**Coursework (10%)** A range of key facts and ideas which include: Identify what makes a good performance and explain how it is measured Training methods Components of fitness Theory content overlap		
Cambridge National	**01 (25%) RO54 – Sport in the media** How sport is covered across the media.	**02 (25%) RO51 – Contemporary issues in sport**	**03 (25%) RO52 – Practical** See success criteria in the specification	**04 (25%) RO53 – Sports leadership** The personal qualities, styles, roles and	

PE *Skills: Demonstrate; Analyse; Apply; Evaluate*	Positive effects that the media can have on sport. Negative effects that the media can have on sport. Relationship between sport and the media.	Issues which affect participation in sport. The role of sport in promoting values. The importance of hosting major sporting events. The role of national governing bodies in sport.	for each specific sport.	responsibilities associated with effective sports leadership. How to plan and deliver sports activity sessions.					
DTA *Skills: Investigate/ Identify; Possibilities; Communication; Develop; Analyse; Generate Ideas; Refine; Realisation*	**Introduction/ Communication of Design Ideas** Health and Safety; Materials and their working properties; Classification & Categorisation of types; Anthropometrics and Ergonomics; Material management; Specialist tools and equipment; Design Strategies.	**Design strategies and contexts** The work of others. Sustainability and the environmental challenge; Material sources & stock forms; Specialist processes; New and emerging technologies; Developments in new materials; Materials and their working properties.	**Technological perspective** Energy and storage: Ecological and social footprint: Mechanical devices; Systems approach to designing; Forces and stresses.	**NEA Exploring the Contexts** Designing and making principles; Design Strategies.	**NEA Coursework** *(35 hours)* Specialist Technical principles; Designing and making principles.	**Examination- Paper 1** Core Technical principles; Specialist Technical principles; Designing and making principles; *See Specification Content**			
FPN *Skills: Demonstrate knowledge and understanding; Apply knowledge and understanding; Plan, prepare and make; Analyse; Evaluate*	**Basic Preparation & Principles of Nutrition** Macro/micro nutrients and their sources; Dietary reference values; Energy balance.	**Using the Hob & Diet & Good Health** Eatwell guide; Specific dietary needs; Nutritional values.	**Making Sauces & Science of Food** Effect of cooking on food; Heat transference; Food spoilage	**Making Dough & Where Food Comes From** Food provenance; Food manufacturing.	**Higher Skills and NEA Practise** Food groups; Value in diet; Correct storage; Origins of each commodity.	**NEA1 & Principles of Nutrition** Macro/micro nutrients and their sources; Dietary reference values; Energy balance.	**NEA2 & Diet & Good Health** Eatwell guide; Specific dietary needs; Nutritional values.	**NEA2 & Science of Food** Effect of cooking on food; Heat transference; Food spoilage.	**NEA2 & Where Food Comes From** Food provenance; Food manufacturing.	**Food Commodities and Exam Practise** Food groups; Value in diet; Correct storage; Origins of each commodity.
Business *Skills: Identify; State; Explain; Calculate; Complete; Analyse;*	**Business activity** The role of business enterprise and entrepreneurship, Revenue, costs, profit and loss Business ownership, Stakeholders	**Marketing** The role of marketing, market research, market segmentation, the marketing mix.	**People** The role of human resources, organisational structures and ways of working, communication in business, recruitment and selection, training	**Operations** Production processes, Quality of goods and services, The sales process and customer service, Consumer law, Business location,	**Finance** The role of the finance function, Sources of finance, Revenue, Costs, Profit and loss, Break-even, Cash and cash flow	**Influences on Business and the Interdependent Nature of Business** Ethical and environmental considerations, The economic climate, Globalisation			

Discuss; Evaluate; Recommend	in business, Business aims and objectives, Business planning & Business growth.		and development, motivation and retention, employment law.	Working with suppliers		