Subject Area:	*Design and Technology*

Year	Term 1A Knowledge, skills and key concepts	Term 1B Knowledge, skills and key concepts	Terms 2A Knowledge, skills and key concepts	Term 2B Knowledge, skills and key concepts	Term 3A Knowledge, skills and key concepts	Term 3B Knowledge, skills and key concepts
7	**At the end of this scheme of learning, students will know / understand / be able to:** Health and safety in the workshop, safety signs, hazards analysis, common materials, drawing techniques, rendering, safe use of tools and equipment for wasting.	**At the end of this scheme of learning, students will know / understand / be able to:** Vacuum forming (sloping for release), trimming and finishing, health and safety of cutting and shaping, evaluations.	**At the end of this scheme of learning, students will know / understand / be able to:** Electronic components, different methods of shaping and forming plastics, properties of plastics, materials and components, LEDs, specifications, rendering, testing circuits and fault finding.			
8	**At the end of this scheme of learning, students will know / understand / be able to:** Consumers/clients, crating, design skills, evaluating existing products, plans and order of work.	**At the end of this scheme of learning, students will know / understand / be able to:** Properties of materials, tools and equipment, mechanical systems.	**At the end of this scheme of learning, students will know / understand / be able to:** Impact on individuals, society and the environment and the responsibilities of designers, engineers and technologists.			
9	**At the end of this scheme of learning, students will know / understand / be able to:** Circuits, components used in lights, ohms law, soldering, ACCESS FM.	**At the end of this scheme of learning, students will know / understand / be able to:** Circuit boards, specifications, ergonomics, restrictions, function, safety considerations, materials.	**At the end of this scheme of learning, students will know / understand / be able to:** Plan view, tools for accuracy, drawing techniques, needs and wants.			

Year	Term 1A Knowledge, skills and key concepts	Term 1B Knowledge, skills and key concepts	Terms 2A Knowledge, skills and key concepts	Term 2B Knowledge, skills and key concepts	Term 3A Knowledge, skills and key concepts	Term 3B Knowledge, skills and key concepts
10	**At the end of this scheme of learning, students will know / understand / be able to:** Undertake research into emerging technologies, learn how to use the CAD tool Techsoft, sustainability and the environment, how to use a jig, marking out joints, cutting different joints, preparing files for the laser cutter, finishing techniques for a woodworking project. People, culture and society. New technologies. Production techniques.	**At the end of this scheme of learning, students will know / understand / be able to:** Use of electronics, circuits and 3D printing in the design world. Soldering. Use of Onshape. Creating a circuit. Drawing techniques – orthographic. Confident use of the 3D printer. Putting orthographic drawings into action. Testing – how to and relevance.	**At the end of this scheme of learning, students will know / understand / be able to:** Testing of 3D printed lights. Energy generation. Design brief analysis, generate own design brief, analysis of existing products. Sketching – quick and timed. Design specification. Narrowed ideas to a final idea with annotation. Plan of making. Final making in the workshop using handheld tools.	**At the end of this scheme of learning, students will know / understand / be able to:** Independently how to research and generate a design brief based on a design problem/ scenario. Make a product from own design. Test and evaluate product made.	**At the end of this scheme of learning, students will know / understand / be able to:** Independently how to research and generate a design brief based on a design problem/ scenario. Make a product from own design. Test and evaluate product made.	**At the end of this scheme of learning, students will know / understand / be able to:** Non-Exam Assessment (NEA) Concept question choice. Mind mapping for portfolio. Problem solving. Client profile and questionnaire. Moodboarding, product analysis for design inspiration. Ergonomics, anthropometrics.
11	**At the end of this scheme of learning, students will know / understand / be able to:** How to write a design brief and design specification. Different drawing techniques to produce design ideas – thumbnails, sketches, isometrics. How to model using cardboard.	**At the end of this scheme of learning, students will know / understand / be able to:** Use of AI, 3D printing. Modelling of final ideas for NEA. Customer feedback on models to improve. Being able to generate an accurate materials list for final build. CAD model of final product. Orthographic drawing of final product. Final build	**At the end of this scheme of learning, students will know / understand / be able to:** Final build of NEA product. Complete evaluation of product made with design specification.	**At the end of this scheme of learning, students will know / understand / be able to:** Examination techniques. Evaluation and review of specification.	**At the end of this scheme of learning, students will know / understand / be able to:** Revision – using past papers, SENECA, coverage of full specification.	**At the end of this scheme of learning, students will know / understand / be able to:** Revision – using past papers, SENECA, coverage of full specification.