Year 9 Design Technology	
Rotation	**Age Related Expectations (ARE)**
Skills Building (various material/processes) The purpose of the Year 9 SOW is to introduce students to theory and practical content that features in the GCSE specification. Students will explore through theory and mini-makes different material areas ranging from polymers, smart and modern materials, timbers and papers/boards. They will also learn how to independently and safely use tools/equipment. **Overview of the knowledge and skills covered in this unit:** • Polymers theory (thermoplastic, thermosetting and elastomers). • Polymer practical (coat hanger, acrylic and the line bender). • Polymer practical vacuum forming. • Smart Materials theory and practical tasks. • Ergonomics and anthropometrics. • Inclusive design. • Disability design challenge. • Timbers theory and sustainability. • Flat packed furniture practical. • Biomimicry and design strategies.	**Design** • Students will use a variety of approaches to generate creative ideas and avoid design fixation. • Students will develop and communicate their design ideas using a variety of methods. This may include annotation, 2d/3d views, detailed plans and prototyping/modelling. **Make** • Students will select and use correctly and safely specialist tools/equipment/machinery to complete practical tasks. • Students will become competent in a range of practical skills and techniques to produce a successful outcome(s). • Students will select from and use a range of materials/components taking into account their working properties. **Evaluate** • Students will test, evaluate and refine their ideas against the design brief/specification. • Students will understand developments in technology around society/environmental impacts and the wider impact it has on individuals.

Year 9 Engineering	
Rotation	**Age Related Expectations (ARE)**
Electrical Engineering **Purpose:** • In this unit, students learn how to read engineering drawings to create a product. They will also study developments in technology to help lay the foundation for GCSE study. • Students will build on their practical skills and will be introduced to tools and equipment used at GCSE level such as dividers, scribe and line bender. **Overview of the knowledge and skills covered in this unit:** • Metals and properties link to products – Technology developments. • Recap on drawing techniques (isometric) turning 2D into 3D drawings. • Orthographic drawing techniques/engineering drawing and manufacturing log. • CAD & CAM theory. • 2D design and Tinker CAD to create practical parts. • Aeroplane practical product (demonstrating a range of hand produced skills). • Polymers theory (thermoplastic and thermoset) and the use of the line bender.	**Design** • Students will use a variety of approaches to generate creative ideas and avoid design fixation. • Students will develop and communicate their design ideas using a variety of methods. This may include annotation, 2d/3d views, detailed plans and prototyping/modelling. **Make** • Students will select and use correctly and safely specialist tools/equipment/machinery to complete practical tasks. • Students will become competent in a range of practical skills and techniques to produce a successful outcome(s). • Students will select from and use a range of materials/components taking into account their working properties. **Evaluate** • Students will test, evaluate and refine their ideas against the design brief/specification. • Students will understand developments in technology around society/environmental impacts and the wider impact it has on individuals.

Year 9 Food

Rotation	Age Related Expectations (ARE)
Understanding the Hospitality & Catering industry and how it operates **Purpose:** • Students will gain an understanding of different Hospitality and Catering establishments and job opportunities within the industry. They will also understand the different types of food service. • This is being taught now to give students an introduction into Hospitality and Catering which they can then progress and choose as an option in Year 10. • This unit aims to provide students with a grounding of basic and medium with some complex preparation and cooking skills, this includes knife skills, use of the hob and oven, weighing and measuring accurately. • Presentation and plating is a key focus in practical lessons. Students will learn how to plate and present to a 'fine dining' standard which is the expectation in Years 10 and 11. • The practical lessons cover a range of savoury and sweet dishes which students should then be able to repeat independently at home. The skills learnt in Year 9 will then be developed further in Years 10 and 11 if chosen as an option. **Overview of the knowledge and skills covered in this unit:** • Introduction to Hospitality and Catering and job roles. • Pizza – Knife skills and bread making skills. • Knife skills – Medium & Complex Chopping techniques. • Job roles within Hospitality and Catering. • Chicken nuggets. • Plating – Savoury dish. • Types of Food service. • Food establishments. • Curry and naan bread. • Presentation – sweet dish. • Swiss roll – whisking/aeration.	**1. Hygiene & Safety** Pupils understand the basic principles of food hygiene & safety. **2. Cooking Techniques and Methods** Pupils are becoming competent in a range of cooking techniques and methods. **3&4. Preparation skills and use of equipment** Pupils can prepare different ingredients in order to cook a variety of sweet and savoury dishes. Pupils can use a variety of utensils and electrical equipment. **5. Hospitality & Catering** Pupils will understand how the Hospitality and Catering Industry operates.

Year 9 New & Emerging Technologies: 3D Printing	
Rotation	**Age Related Expectations (ARE)**
3D Printing and CAD/CAM **Purpose:** Students are to understand how to use modern designing methods making use of TinkerCAD and Google Sketchup to 3D model. **Overview of the knowledge and skills covered in this unit:** • Identification of product, existing product research. • 3D printing materials theory PETG vs PLA. • Alessi – company research and product analysis. • Writing a design specification. • Designing an egg cup from external stimuli. • Development of design ideas. • TinkerCAD – designing the final product. • Conversion to an STL file to 3d print. • Product testing by learning how to boil and egg (eggs and soldiers product testing). • Extension CAD tasks - Google Sketchup architecture and drawing a home and its interior.	**Design** • Students will use a variety of approaches to generate creative ideas and avoid design fixation. • Students will develop and communicate their design ideas using a variety of methods. This may include annotation, 2d/3d views, detailed plans and prototyping/modelling. **Make** • Students will select and use correctly and safely specialist tools/equipment/machinery to complete practical tasks. • Students will become competent in a range of practical skills and techniques to produce a successful outcome(s). • Students will select from and use a range of materials/components taking into account their working properties. **Evaluate** • Students will test, evaluate and refine their ideas against the design brief/specification. • Students will understand developments in technology around society/environmental impacts and the wider impact it has on individuals.

Year 9 Textiles	
Rotation	**Age Related Expectations (ARE)**
Alexander McQueen cushion **Purpose:** Build skills in CAD and further develop construction skills **Overview of the knowledge and skills covered in this unit:** • Understanding a designer's work. • Developing a theme in a piece of work. • Machine quilting techniques. • CAD skills through pattern creation in PIXLr. • Random pleating and constructed pleating. • Hand stitching development – sashiko. • Printing onto satin with a heat press – large scale. • Applying a fabric manipulation technique. • Zip placement.	• Print design – variety of digital manipulation techniques used. • Thoughtful response to a theme through use of pattern and colour • Effective manipulation of fabric -machine and hand techniques. • Machine stitching demonstrates good control and construction.