

## What are the aims and intentions of this curriculum?

To become more comfortable and safe in the DT workshops in both traditional and CAD CAM processes. To improve individual skills; sketching, researching, analysis, practical and evaluation. To develop a good understanding of working with polymers, metals and timbers. To prepare students with the materials and processes knowledge in addition to the wider implications of design in preparation for the exam unit.

Term	Topics	Knowledge covered	Skills developed	Assessment
<b>Autumn 1</b>	Timber - storage box. Traditional woodworking methods and CAD CAM. (2018-19 only)  14 lessons	Health & Safety within the workshop. Understanding timbers - softwoods, hardwood and manufactured boards. Joining methods - temporary and permanent. Using woodworking tools and equipment safely, accurately and to a high standard. Sealing and finishing timber. Using CAD CAM to create accurate products.	Practical skills - marking out, setting up practical workspace, using tools and equipment accurately. Developing knowledge of workshop practices. Creating and finishing products to a high standard. Isometric drawing. Using 2D Design and programming the laser cutter. Analysis and evaluation of products.	Written exam paper on material properties, timbers, processes, CAD & CAM.  NEA style documentation of project marked against NEA criteria.
<b>Autumn 2</b>				
<b>Spring 1</b>	Pewter Casting Keyring  14 lessons	Continued H&S for working with metal in the workshop. Designing moulds using CAD - manufactured boards. H&S for CAM. Casting accurate products. Finishing methods for metals - filing, sanding, polishing. Core technical principles for metals.	Designing using 2D Design (CAD), manufacturing with the laser cutter (CAM). Casting pewter process. Hand finishing pewter. Modifying own designs and products. Evaluating products against a specification. Understanding and applying cost of materials and process. Responsibility of the designer - sustainability and whole life cycle of the product.	Written exam paper on material properties, metals, timbers, processes, H&S, application of maths in relation to material waste.  NEA style documentation of project marked against NEA criteria.
<b>Spring 2</b>	Textiles	Learn about fabrics and fibre Investigate different designers Produce a sportswear item of clothing	Practical skills using fabric embellishment and the sewing machine	
<b>Summer 1</b>	'Kinder egg' toy and egg mould - CAD CAM  14 lessons	Responsibility of the designer - sources and origins. Designing using Solidworks (CAD) for the 3D printer (CAM). Using CAM to create replica moulds - batch production. Vacuum forming process. Polymers - thermoplastics, thermosetting plastics and biodegradable polymers.	Designing using Solidworks (CAD) - 3D renders, 3rd angle orthographic. Vacuum forming - creating moulds, CNC router, vacuum forming process and H&S. Exporting to 3D printer. Evaluate CAD & CAM against traditional methods. Evaluate own products.	Written exam paper on material properties, polymers, processes, production methods e.g. one-off, batch, mass etc.  NEA style documentation of project marked against NEA criteria.