

Year	Autumn	Spring	Summer
7	<ul style="list-style-type: none"> • Construction lines – planning a drawing. • Grid method – scaling/copying a drawing. • 3D drawing using the oblique method. • Rendering – colour, texture, tone/shading • Manufacturing skills – workshop health and safety and hand tools. 	<ul style="list-style-type: none"> • CAD/CAM – laser cutter focus • • Timbers • Papers and Boards • Manufacturing skills – workshop health and safety and hand tools. • CAD/CAM skills – 2d Design (CAD), laser cut keyring. 	<ul style="list-style-type: none"> • Packaging • Product Analysis • Design Specification • CAD/CAM skills – 2d Design (CAD), laser cut keyring. • Design and make project – Rag Doll sewing skills project
8	<ul style="list-style-type: none"> • Isometric Sketching and crating • Rendering – colour, texture, tone/shading, thick and thin lines. • Structures – bridge challenge group project 	<ul style="list-style-type: none"> • CAD/CAM - 3d printer focus • Timbers • Papers and boards • Polymers • Structures – bridge challenge bridge challenge group project with electronics/coding. • Motion, forces, mechanisms – mechanical toy design and make project. 	<ul style="list-style-type: none"> • Health & Safety • Tools & Machinery • Smart Materials • Motion, forces, mechanisms – mechanical toy design and make project

9	<p>Chair project-</p> <ul style="list-style-type: none"> • Design brief • Research & exploration – anthropometrics and ergonomics • Manufacturing equipment • Initial design ideas – sketching, dimensioning, labelling/annotations using ACCESSFM. • Design development • Final design • Engineering/orthographic drawings. 	<p>Chair project-</p> <ul style="list-style-type: none"> • Prototyping • Evaluating <p>Phone holder project-</p> <ul style="list-style-type: none"> • 3D CAD skills building 	<p>Phone holder project-</p> <ul style="list-style-type: none"> • 3D CAD skills building – 3D printer. • 2D CAD skills building – laser cutter. • Production plan and risk assessment • Manufacturing • Testing & feedback.
10	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • Drawing conventions- communicating ideas • Energy sources and the environment • New and emerging technologies • Comparing materials, processes and components with alternatives. 	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • Design project management • Drawing conventions- realising ideas and engineering drawings 	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • Mechanisms, systems, and control • Technical principles

11	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • NEA brief/coursework • Impact of new and emerging technologies. • Carbon footprint • Fairtrade policies • Sustainability • Product legislation • Renewable and non-renewable energy sources. • Designers. 	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • NEA brief/coursework • Manufacturing processes. • CAD/CAM • In-depth revision of materials including heat treatments, manufacturing methods and sources. • Ferrous and non-ferrous metals, • Thermoforming and thermosetting polymers, • Papers and boards, • Smart materials, and natural and manufactured timber. • Adhesives & fixings. • Surface finishes and treatments. • Energy sources. 	<p>GCSE Design and Technology-</p> <ul style="list-style-type: none"> • Polymers - sources and surface finishes, strengths and weaknesses, stock forms. • Smart materials - types and uses, aesthetic and functional qualities. • Papers and boards – stock forms, textures and finishes, GSM & microns. • Natural and manufactured timbers – aesthetic qualities, natural woods, manmade boards, sources & characteristics. • Metals - Sources and stock forms, impact on the environment & sustainability factors. • Scales of production.
12	<p>Product Design-</p> <ul style="list-style-type: none"> • Materials and their applications • Performance characteristics of materials 	<p>Product Design-</p> <ul style="list-style-type: none"> • The requirements for product design and development 	<p>Product Design-</p> <ul style="list-style-type: none"> • Design theory

	<ul style="list-style-type: none"> • Enhancement of materials • Forming, redistribution and addition processes • The use of adhesives and fixings • The use of finishes • Modern industrial and commercial practice • Digital design and manufacture • Core practical skills and modelling in wood, metal, card and plastic 	<ul style="list-style-type: none"> • Health and safety • Protecting designs and intellectual property • Design for manufacturing, maintenance, repair and disposal • Feasibility studies • Enterprise and marketing in the development of products • Design communication • Design methods and processes • Core practical skills and modelling in wood, metal, card and plastic 	<ul style="list-style-type: none"> • How technology and cultural changes can impact on the work of designers. • Product life cycle • Design processes • Critical analysis and evaluation • Selecting appropriate tools, equipment and processes • Accuracy in design and manufacture • Responsible design • Design for manufacture and project management • National and international standards in product design • Core practical skills and modelling in wood, metal, card and plastic
13	<p>Product Design-</p> <ul style="list-style-type: none"> • Technical principles • Identify, investigate & outline. • Design & make prototypes that are fit for purpose design possibilities. 	<p>Product Design-</p> <ul style="list-style-type: none"> • Technical principles • Design & make prototypes that are fit for purpose. • Analyse & evaluate. 	<p>Product Design-</p> <ul style="list-style-type: none"> • Technical principles

Curriculum Overview – Design and Technology- Teesdale.