



PROGRESSION OF SKILLS – DESIGN AND TECHNOLOGY



Skills	Y1	Y2	Y3	Y4	Y5	Y6
Design	<ul style="list-style-type: none"> Begin to draw on their own experience to help generate ideas. Begin to understand existing products – what they are for, how the work and materials used. Identify a target group for what they intend to design Begin to develop their ideas through talk and ideas Explore a range of existing products and materials Use modelling techniques to develop a design concept. 	<ul style="list-style-type: none"> Start to develop their ideas through discussion, other people's experiences and observations Identify a purpose for what they intend to make Develop their ideas and label part of their design Make templates and mock-ups of their ideas using card or paper Explore and evaluate a range of existing products Layering objects to create a functional product 	<ul style="list-style-type: none"> With growing confidence generates ideas for an item considering its purpose and the user(s) Start to order the main stages of making a product Establish criteria for a successful product Understand how well products have been designed, made, what materials have been used and the construction technique No to make drawings with labels Explain their choice of materials and components Investigate existing products Use patterns from an external source as a starting point for a design Draw out and be able to use accurate dimensions for manufacture 	<ul style="list-style-type: none"> When planning and developing ideas consider the views of others, including intended users, to improve their work Confidently make annotated drawings from different views showing specific features Develop a clear idea of how to use materials, equipment and processes When planning explains their choice of materials and components according to function and aesthetic Analyse existing product 	<ul style="list-style-type: none"> Start to generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes Begin to use research and develop criteria to inform the design Draw up a specification for their design Use results of investigations, information sources, including ICT when developing design ideas including 2D and 3D CAD With growing confidence select appropriate materials, tools and techniques Start to understand how much products cost to make, how sustainable and innovative they are Investigate and analyse a range of existing products 	<ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional diagrams, prototypes and pattern pieces Use research (surveys, interviews, questionnaires) to inform design criteria Accurately apply a range of finishing techniques Plan the order of their work, choosing appropriate materials, tools and techniques Know how much products cost to make, how sustainable and innovative they are Investigate and analyse a range of existing product
Make	<ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks eg cutting and shaping Select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristic Follow procedures for safety Begin to cut out and shape materials Begin to use simple fixing materials eg paper clips and glue Begin to use finishing techniques 	<ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks eg joining and finishing Select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristic Use and make own templates Follow procedures safely Cut out and shape materials accurately Begin to measure and mark out materials and components Assemble, join and combine materials and components Use simple fixing materials eg paper clips, tape, glue, staples, stitches, weaving Use simple finishing techniques Use basic sewing techniques with pre-punched fabric and plastic needles 	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks eg cutting, shaping, joining and finishing Select from a wider range of materials and components, including construction materials and textiles according to their functional and aesthetic qualities Follow procedures for safety Measure, mark out, cut and shape materials and components with some accuracy Assemble, join and combine materials with some accuracy Apply a range of finishing techniques including those from art and design Use a template stroke pattern to create a functional part Use fixing materials eg paper clips, tape, glue, staples, stitches, weaving 	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks with increasing accuracy eg cutting, shaping, joining and finishing Select from a wider range of materials and components, including construction materials and textiles according to their functional and aesthetic qualities Follow procedures for safety Assemble, join and combine materials with some accuracy Apply a range of finishing techniques including those from art and design understand how pneumatics systems create movement 	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks with accurately eg cutting, shaping, joining and finishing Select from a wider range of materials and components, including construction materials and textiles according to their functional and aesthetic qualities Explain their choice of materials and tools they will be using Follow procedures for safety Accurately measured to the nearest millimetre, mark out, cut and shape materials and components Accurately assemble, join and combine materials/components Apply a range of finishing techniques Sew using different stitches on fabric that has not been pre-punched using a real needle understand how pulleys and gears create movement 	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks with accurately eg cutting, shaping, joining and finishing Select from a wider range of materials and components, including construction materials and textiles according to their functional and aesthetic qualities Explain their choice of materials and tools they will be using Follow procedures for safety Accurately measured to the nearest millimetre, mark out, cut and shape materials and components Understand the process of Additive Manufacture (3D printing) Accurately assemble, join and combine materials/components Apply a range of finishing techniques Understand how levers and linkages create movement demonstrate resourcefulness eg making refinements Understand how levers and linkages create movement
Technical Knowledge (TK)	<ul style="list-style-type: none"> Build structures in different shapes and sizes Explore, use and understand simple mechanisms in their products eg levers and sliders Know the correct technical vocabulary for the projects they are making 	<ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable Explore, use and understand simple mechanisms in their products eg wheels and axles Know the correct technical vocabulary for the project they are making 	<ul style="list-style-type: none"> Begin to apply that understanding of computing to program, monitor and control their products Understand how to program a computer to control their product Know that mechanical and electrical systems have an input, output and process Know that materials have functional and aesthetic qualities 	<ul style="list-style-type: none"> Understand and use electrical systems in their products eg series circuits incorporating switches, bulbs, buzzers, Motors and programmable components Know that mechanical and electrical systems have an input, output and process Know that materials have functional and aesthetic qualities Understand how pneumatics systems create movement 	<ul style="list-style-type: none"> Understand how more complex electrical circuit components can be used to create functional product, with intelligence Know that mechanical and electrical systems have an input, output and process Apply their understanding of computing to program monitor and control their products Understand how to program a computer to monitor changes in the environment Know that materials have functional and aesthetic qualities Understand how pulleys and gears create movement Use of plastics 	<ul style="list-style-type: none"> Apply their understanding of computing to program monitor and control their products Understand how to program a computer to monitor changes in the environment Know that materials have functional and aesthetic qualities Understand additive manufacture (3D printing) and its implications on the design process Understand how levers and linkages create movement Use of plastics
TK: Cutting	<ul style="list-style-type: none"> Learn to hold scissors correctly Use/ carry scissors safely Cut in a straight line using a guide 	<ul style="list-style-type: none"> Cut in a straight line Tearing materials for aesthetic purposes 	<ul style="list-style-type: none"> Cut out different shapes and patterns using a template Marking out and accurately cutting 	<ul style="list-style-type: none"> Cut out different shapes and patterns 	<ul style="list-style-type: none"> Continue to use scissors effectively Cut out different shapes and patterns accurately 	<ul style="list-style-type: none"> Use a range of cutting tools and holding devices to create a frame/ structure Learn how to hold a saw correctly Use/ carry a saw safely Cut materials using a saw
TK: Sewing	NA	<ul style="list-style-type: none"> Use a plastic needle thread a needle use felt that has pre-punched holes straight/ blanket stitches 	<ul style="list-style-type: none"> Use a metal needle Thread a metal needle Cross stitch, straight stitch, diagonal stitch, back stitch Sew a button onto product Different coloured cotton 	NA	<ul style="list-style-type: none"> Use a metal needle Thread a metal needle Cut felt using fabric scissors Different coloured cotton 	NA
TK: Joining	<ul style="list-style-type: none"> Use glue accurately to join paper/ card together Fasten two materials together using a paper clip Use adhesive tape to create a strong bond between two materials 	<ul style="list-style-type: none"> Use a stapler safely to join materials together Use sewing skills to join materials 	<ul style="list-style-type: none"> Use split pins to join materials Use sellotape PVA 	<ul style="list-style-type: none"> Friction fit of tubing on syringes Double sided tape PVA 	<ul style="list-style-type: none"> Use a glue gun to join materials Fabric glue 	<ul style="list-style-type: none"> Join would using nails and a hammer with PVA adhesive Construction using wood Low melt hot glue guns Understand how additive manufacture (3D printing) can create a product
TK: Finishing	<ul style="list-style-type: none"> Colouring in using pens Using paint 	<ul style="list-style-type: none"> Paint product Lamination 	<ul style="list-style-type: none"> Decorate with card, tissue paper Marker pens 	<ul style="list-style-type: none"> Folding and applying decoration to net Coloured self-adhesive vinyl 	<ul style="list-style-type: none"> Fabric pens Adding additional felt pieces 	<ul style="list-style-type: none"> Sanding of timber-based products Sanding and finishing techniques to create a smooth surface
Evaluate	<ul style="list-style-type: none"> Talk about their product Evaluate their ideas and product by saying what is good and bad Make simple judgments about their product 	<ul style="list-style-type: none"> Confidently talk about their product Evaluate their ideas and products against a design criteria - identifying strengths and weaknesses Suggest how their product could be improved 	<ul style="list-style-type: none"> Evaluate their product against the design criteria by identifying strengths and weaknesses Describe how their product could be improved 	<ul style="list-style-type: none"> Evaluate their product against the design criteria by identifying, in detail comma the strengths and weaknesses Consider the views of others when suggesting how their product could be improved 	<ul style="list-style-type: none"> Critically evaluate the quality of design, manufacture and fitness for purpose of their product Compare their product to the design specification and suggest improvements 	<ul style="list-style-type: none"> Critically evaluate the quality of design, manufacture and fitness for purpose of their product Compare their product to the design specification and suggest improvements
Cookery and Nutrition	<ul style="list-style-type: none"> Understand where food comes from Begin to distinguish between healthy and unhealthy foods Know that everyone should eat at least five portions of fruit and vegetables everyday Prepare simple dishes safely and hygienically without using heat sources Begin to use a range of techniques such as mixing and cutting 	<ul style="list-style-type: none"> Use the basic principles of a healthy diet to prepare dishes Prepare dishes safely and hygienically with an introduction of a heat source Name and sort food into the different food groups Start to apply skills such as mixing and cutting Use appropriate equipment to start to weigh and measure ingredients 	<ul style="list-style-type: none"> Begin to understand and apply the principles of a healthy and varied diet Prepare and cook a savoury dish safely and hygienically (where appropriate with the use of a heat source) Know where food is grown, reared and caught Use appropriate equipment to measure and weigh ingredients using grams Follow a simple recipe with guidance Begin to learn a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 	<ul style="list-style-type: none"> Know that to be healthy and active food is needed to provide the body with energy Prepare and cook a variety of predominantly savoury dishes safely and hygienically (where appropriate with the use of a heat source) Know how food is grown, reared and caught Measure using grams Follow a simple recipe independently Build confidence when peeling, Chopping, slicing, grating, mixing, spreading, kneading and baking 	<ul style="list-style-type: none"> Confidently apply the principles of a healthy and varied diet to their product Prepare and cook a variety of predominantly savoury dishes safely and hygienically (where appropriate with the use of a heat source) Know how seasons may affect food availability Measure accurately using grams Follow a detailed recipe with guidance Confidently be able to peel, chop, slice, great, mix, knead and spread ingredients Understand the need for correct storage of food 	<ul style="list-style-type: none"> Know that foods contain different substances that are needed for health Prepare and cook a variety of predominantly savoury dishes safely and hygienically (where appropriate with the use of a heat source) Understand how food is processed into ingredients that can be eaten or used in cooking Measure accurately using grams Follow a detailed recipe independently Workout ratios in recipes Know that recipes can be adapted to change the appearance, taste, texture and aroma Confidently and accurately peel, chop, slice, great, mix, need and spread ingredients
Projects	<ul style="list-style-type: none"> Moving Picture Cookery – fruit kebabs Lighthouse 	<ul style="list-style-type: none"> Soup Animal puppet Wheel product?! 	<ul style="list-style-type: none"> Pop-up book Bread Pencil case (?) 	<ul style="list-style-type: none"> Moving Character using pneumatics Electrically controlled – light up project Create container (?) 	<ul style="list-style-type: none"> Electronically controlled moon buggy Food- Textile project- Hand puppet relating to Topic 	<ul style="list-style-type: none"> Frame structure – shelters Food- Wartime recipes? Moving Cam Model
Experiences						*Additive Manufacture - Possible links to DJ DT department – transition type day? Durham sixth-form college??