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| **Design Technology: Curriculum Key Knowledge(K) & Skills(S)** |
| **Year 5**Pupils generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes and pattern pieces.Pupils can select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately & select from and use a range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.In Food Preparation & nutrition pupils understand and apply the principles of a healthy and varied diet and prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques especially use of the bridge and claw methods for safe cutting. |
| **Focus** |  | **Year 6** | **Year 7** | **Year 8** |
| **Food Preparation & Nutrition** | **K** | Safety & hygiene for food preparation.Pupils learn about the importance of good nutrition and the Eatwell Guide.Pupils are introduced to some basic food science and learn about dextrinisation.They also learn about use of the cooker and its different parts.Pupils learn to adapt recipes. | Safety & hygiene for food preparation.Pupils learn about the importance of good nutrition and the Eatwell Guide. Focus on macro and micro nutrientsPupils are introduced to standard components, their use in food and other areas of manufacturing.Pupils look further into food science and in particular at Gelatinisation & the use of smart foods.Pupils learn about seasonality and buying locally produced food, we also look at fair trade products from around the world.Pupils learn how to accurately weigh & measure ingredients.Careers link to food producers, chefs, and food scientists. | Safety & hygiene for food preparation.Pupils learn about the importance of good nutrition and the Eatwell Guide.Pupils learn about bread making and the science behind it (yeast experiment) they carry out a sensory analysis of bread and compare bread making in school with that in industry.Careers link to food industry job roles.Pupils learn about foods of the world and can identify different dishes and understand what herbs and spices are and how they are used.They learn about the importance of food safety & hygiene and look further into nutrition focussing on the importance of fibre and water.Pupils develop their food science knowledge by carrying out experiments with pastry and cake making this then leads into their final practical and only sweet dish. They adapt the recipe to take account of food allergies.Careers link to product development and innovation. |
| **S** | Bridge and claw method for safe knife skills.Sensory Analysis of SmoothiesSafe use of the oven and grill.Rubbing in methodWorking as a team.Food prepared:Savoury dips and veg sticks (bridge and claw)Fruit faces(Bridge and claw & use of blender)Scones (Rubbing in method & use of the oven)Bruschetta (Bridge and claw & use of grill) | Bridge and claw method for safe knife skills – increasing difficulty of knife skills to include fine chopping.Introduction to safe use of the hob.Safe use of the oven & hobSafe use of the stick blenderGlazing & dextrinisation recapSauce making – all in one methodWorking as a team.Sensory Analysis of soupsThe creaming method for cake makingThe melting method.Weighing and measuring – for preparation of ingredients.Food prepared:Soup (bridge and claw, use of the stick blender)Cheese Triangles (standard components – pastry, use of the oven)Pasta bake (Gelatinisation and sauce making)Cupcakes (use of fair trade ingredients, creaming method)Flapjack (melting method) | Bread making – kneading and pizza making including presentation skillsBridge and claw method for safe knife skills.Safe use of the oven & hob Correct cooking of spicesUse of the wok – Stir frying at high temperaturesWorking as a team.Sensory Analysis of breads.The creaming method for cake makingPastry making – rubbing in method Binding and egg proteinsFood safety – use of the temperature probeFood Prepared:Bread rolls (Kneading)Pizza (kneading and adapting a recipe)Stir fry (Foods of the world & use of the wok)Meatballs (binding and food safety)Food science pastry experiment (different fats)Food science - function of ingredients in cake making Fruit Slice (rubbing in and creaming method, adapting a recipe) |
| **Resistant Materials** | **K** | Pupils are taught how to present their design ideas using annotated sketches.They learn about materials related to their project, particularly polymers, hardwoods and softwoods and where the materials come from. They also learn about sustainability in relation to the materials they are using.Pupils learn about adhesives and finishes they can use to complete a product.Pupils are given a brief introduction into CAD/CAM and are able to use the vinyl cutter as part of their project. | Pupils are reintroduced to health and safety in the workshop introducing a number of new machines and equipment – vacuum former and strip heater.Pupils learn about different polymers and their properties and uses. They look at a range of industrial plastic moulding processes and are able to identify products made from each.Pupils learn about scales of production and vacuum forming in school and in industry. Pupils will learn about CAD/CAM and understand how it can be used to produce products to industry standards.Pupils learn about sustainability through packaging.Careers link to industry.Pupils learn about metals, where they come from and their properties. They will understand the enamelling process and how to use a kiln safely. | Pupils learn about the work of other designers and research a number of designers both past and present.Pupils continue to develop their knowledge of materials and their sources. They learn about renewable and non-renewable materials and the impact they have on the environment.Pupils learn about the properties of a variety of materials, the different categories and types.Pupils learn about new technologies and are encouraged to make use of CAD/CAM and how to prepare a working drawing for use in laser cutting.Pupils learn about design skills and the different ways of designing and presenting their ideas.Pupils learn about electronic components and their uses and about systems.Pupils plan using a flow chart and make choices using an iterative process. |
| **S** | Pupils design and make a desk tidy using wood and produce an acrylic key fob.Pupils learn to produce annotated sketches to show design ideas.The project introduces them to many of the hand tools and machines used in the workshop.Pupils complete a Health & Safety training record to show when they have learnt how to use a machine and when they are competent to use it under staff supervision.Pupils are encouraged to develop their maths skills and put them into practise with accurate measuring and marking out of their materials.They develop their skills of cutting using a tenon saw and a coping saw, sanding using a sander and by hand, filing to a quality finish and use of the pillar drill.Applying a finish and assembling.Pupils will learn some basic graphics presentation techniques such as isometric and orthographic projection, exploded drawings and 2D CAD drawings. | Pupils make an acrylic test tube vase.They develop their CAD skills and then following a laser cut outcome they use the strip heater and jig to form the test tube holder.Pupils learn about nets for packaging and produce their own packaging with graphics skills developed to enhance this.They develop their use of basic machines and tools in the workshop paying attention to the quality of finish and accuracy.Pupils produce a piece of jewellery or an accessory using copper and enamelling.They learn how to work with metal and how to apply a simple design using various types of enamel. | Pupils design and make a USB colour changing lamp.Skills developed are research (primary and secondary) and designing skills including sketching, 3D drawing and modelling. CAD drawing skills 2D and 3D.Making skills including safe and accurate use of a variety of hand tools, machines such as the pillar drill, jigsaw, sander and buffer. They are encouraged to plan their making based on demonstrating previous and new skills and to make suitable choices for the production of their lamp.Pupils learn about electronic components and how to solder them together to make a simple circuit.Pupils will learn a variety of ways of presenting their design ideas – isometric projection, orthographic projection, perspective and 2D CAD drawings. |
| **Textiles** | **K** | Pupils develop a basic understanding of how the sewing machine works and the health & safety associated with that. They learn how to hand sew and about different embroidery stitches. | Pupils learn about different fibres and fabrics and whether they are natural or manmade.Pupils understand the process of sublimation printing and which fabrics give the best printed result. Pupils research the popular culture of the 1960s. | Pupils develop further knowledge of environmental issues in particular relation to textiles. They understand the 6Rs.They learn about the importance of upcycling textiles.Pupils use an iterative approach and work with a client to upcycle an old garment or waste fabric into a cushion of their clients’ choice.Following a basic skills introduction pupils have to plan and manage their own project. |
| **S** | Pupils develop basic sewing skills of pinning tacking, simple embroidery and straight machine stitching.  | Pupils design & make a pencil case based on the 1960s.They use the 2D Design CAD program to produce their design for sublimation printing. (working in reverse for correct printing)Pupils further develop their sewing skills including pinning, tacking and straight machine stitching. They learn how to put a zip into their pencil case. | Pupils learn hand embroidery, applique, sewing buttons and other decorative textiles that they can incorporate into their textiles work.Pupils develop their sewing machine skills and are able to become competent in the use of a variety of stitches. Pupils are able to further develop their CAD skills by making use of the laser cutter, e textiles or sublimation printer in their projects.Careers in textiles  |
| **Year 9 leading to GCSE**In Product design pupils will understand materials and their properties. Use different construction methods and production aids. They will develop their communication of ideas further to include isometric, exploded drawings, rendering and freehand sketching. Pupils will further develop their knowledge of biomimicry, sustainable design and surface finishes theory. They will use more complicated machinery to construct more complex 3D productsIn food pupils will work individually to develop their knife skills, melting, dough making, rubbing in, creaming, frying, boiling, simmering, gelatinisation and batch cooking.In textiles pupils will learn how to thread the sewing machine. They will further develop their understanding and skills of seam and hem allowance and they will use a range of surface finishes and decorative techniques such as batik, embroidery and printing. Pupils will explore a range of techniques such as pleating, quilting, piping and applique. |