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| Design and Technology Curriculum Overview 2022-2023 | | | |
|  | Autumn Term | Spring Term | Summer Term |
| Early Years – Technology (ICT) | Controlling simple ICT equipment (e.g. CD player)  Completing a program on a PC (using mouse or IWB)  Basic mouse control  Using software to support other areas of learning – Espresso, Education City, Purple Mash  Introduction to programming using BlueBots | Controlling simple ICT equipment (e.g. CD player)  Completing a program on a PC (using mouse or IWB)  Developing mouse control  Using software to support other areas of learning – Espresso, Education City, Purple Mash  Developing programming skills using BlueBots | Controlling simple ICT equipment (e.g. CD player, remote control bug)  Completing a program on a PC (using mouse or IWB)  Refining mouse control  Using software to support other areas of learning – Espresso, Education City, Purple Mash  Develop programming skills using BlueBots and begin to debug |
| Technology –ELG  Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. | | | |
| Early Years : Expressive Arts & Design  Exploring & Using Media and Materials | Daily access to art and design materials  Develop control of scissors and other tools – hole punch etc.  Self-portraits and pictures of family  Firework pictures  Owl pictures  Junk modelling  Designing birthday cards  Diwali lamps  Christmas Cards | Daily access to art and design materials  Develop control of scissors and other tools – hole punch etc.  Plan and make a model  Cutting / joining / finishing  Rockets  Space pictures  Alien masks  Easter cards and Mother’s Day cards  Flags | Plan and make a model, adapting work as appropriate  Select tools and evaluate process  Minibeast models  Symmetrical butterflies  Butterfly sun catchers  Caterpillar life cycle wheels  Moving caterpillars  Bug hotel  Pirate maps  Pirate masks  Pirate ships |
| Year 1 | **Structures – Make a dolls’** **house**  **Explore different joining – materials man calendar Design**  **Design** purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology  **Make**  Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components, including construction materials (houses), reclaimed materials.  **Evaluate**  Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria  **Technical knowledge**  Build structures, exploring how they can be made stronger, stiffer and more stable Explore and use mechanisms – levers with split pins. | **Moving pictures – pivot and lever – transport link**.  **Make** their design using appropriate techniques  With help measure, mark out, cut and shape a range of materials  Use tools eg scissors and a hole punch safely  **Assemble**, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape  **Evaluate**  \*Use simple finishing techniques to improve the appearance of their product  **Technical knowledge**  Simple working characteristics of materials and components.  \*Movement of simple mechanisms such as levers, sliders, wheels and axles.  **Make a boat – explore materials Design**  **Design** purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology  **Make**  Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components.  **Evaluate**  Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria  **Technical knowledge**  Build structures (boats) exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms (sliders, pivots) | **Textiles – a sock puppet**  **Food technology -pizza for lighthouse keepers lunch**  **Design** purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology  **Make**  Select from and use a range of tools and equipment to perform practical tasks Select from and use a wide range of materials and components, textiles and ingredients, according to their characteristics  **Evaluate**  Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria.  **Technical knowledge**  Combine ingredients to make pizza.  Know how to join and decorate fabric to make a sock puppet. |
| Year 2 | **Fire engines – wheels and axels**  **London Landmark- structure**  **Design**  design purposeful, functional, appealing products for themselves and other users based on design criteria  generate, develop, model and communicate their ideas through talking, drawing Make select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]  select from and use a wide range of materials and components  **Evaluate**  explore and evaluate a range of existing products  evaluate their ideas and products against design criteria Technical knowledge build structures, exploring how they can be made stronger, stiffer and more stable  explore and use mechanisms – wheels and axels, in their products. | **Textiles – design and make a bag**  **Food technology (link to Sci)- design and make healthy cous cous**  **Design**  design purposeful, functional, appealing products for themselves and other users based on design criteria  generate, develop, model and communicate their ideas through talking, drawing, templates Make select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]  select from and use a wide range of materials and components, textiles and ingredients, according to their characteristics Evaluate explore and evaluate a range of existing products  evaluate their ideas and products against design criteria Cooking and nutrition use the basic principles of a healthy and varied diet to prepare dishes  understand where food comes from. | **Winding mechanisms – link to minibeasts- a moving minibeast in a garden scene.**  **Construction kits – make bridges** Design design purposeful, functional, appealing products for themselves and other users based on design criteria  generate, develop, model and communicate their ideas through talking, drawing  select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Make select from and use a wide range of materials and components, including construction materials, according to their characteristics Evaluate explore and evaluate a range of existing products  evaluate their ideas and products against design criteria Technical knowledge build structures, exploring how they can be made stronger, stiffer and more stable  explore and use mechanisms – winding mechanisms |
| Year 3 | **Cooking and Nutrition *(Healthy Pizza)***  **Technical knowledge**  Understand and apply the principles of a healthy and varied diet.  Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.  Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.  **Design**  Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.  Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces or computer-aided design.  **Make**  Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.  Select from and use a wider range of materials and components according to their functional properties and aesthetic qualities.  **Evaluate**  Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.  Understand how key events and individuals in design and technology have helped shape the world | **Pneumatics *(Moving Monsters)***  **Technical knowledge**  Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]  **Design**  Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.  Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces or computer-aided design.  **Make**  Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.  Select from and use a wider range of materials and components according to their functional properties and aesthetic qualities.  **Evaluate**  Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.  Understand how key events and individuals in design and technology have helped shape the world. | **Complex Structures *(Mini Greenhouses)***  **Technical knowledge**  Apply their understanding of how to strengthen, stiffen and reinforce more complex structures  **Design**  Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.  Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces or computer - aided design.  **Make**  Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.  Select from and use a wider range of materials and components according to their functional properties and aesthetic qualities.  **Evaluate**  Investigate and analyse a range of existing products.  Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.  Understand how key events and individuals in design and technology have helped shape the world. |
| Year 4 | **Cooking and Nutrition (Science topic)**  **Technical Knowledge**  Understand the principles of a healthy and varied diet and link to autumn science topic when the digestive system is studied. Link to the need for a healthy diet to allow the body to function efficiently.  **Textiles - Sewing task**, Roman Bulla Bags to link with Art.  **Technical Knowledge**  Use research and develop design criteria so that the purse is fit for purpose aimed at a specific user  Design a purposeful, functional and attractive purse for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a range of materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks.  **Evaluate**  Evaluate own ideas and finished bags against the design criteria and consider the viewpoint of others to improve their work.  Understand how key events and individuals in design and technology have helped shape the world  **Designing and making clay diva lamps** as a Christmas gift to link with Art.  Measure, mark out, cut and shape a range of materials, using appropriate tools, select equipment and techniques that materials have both functional properties and aesthetic qualities  \*know that materials can be combined and mixed to create more useful characteristics | **Light Up Torches**  Create a torch suitable for purpose and particular individuals.  **Technical Knowledge**  Understand and use electrical systems in their products  **Design**  Use research and develop design criteria so that the torch is fit for purpose aimed at a specific user  Design a purposeful, functional torch for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a wide range of materials and components including construction materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks  **Evaluate**  Investigate and analyse a range of existing torches  Evaluate own ideas and finished torches against the design criteria and consider the viewpoint of others to improve their work  Understand how key events and individuals in design and technology have helped shape the world. | **Anglo Saxon style Cooking**  Prepare a stew/pottage which would be a healthy, hearty meal  **Technical Knowledge**  Understand the principles and necessity of a healthy and varied diet.  Link to the idea that the food supply available during Anglo Saxon times would obviously govern meal choices or lack of them.  Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed  Measure, tape or pin, cut and join fabric with some accuracy  Select appropriate tools and techniques for making their product  **Textiles -Anglo Saxon Purse**  **Technical Knowledge**  Use research and develop design criteria so that the purse is fit for purpose aimed at a specific user  Design a purposeful, functional and attractive purse for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a range of materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks.  **Evaluate**  Evaluate own ideas and finished pursed against the design criteria and consider the viewpoint of others to improve their work.  Understand how key events and individuals in design and technology have helped shape the world |
| Year 5 | **Animals Automota**  **Technical Knowledge**   * Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail * Select appropriate materials, tools and techniques * Measure and mark out accurately * Use skills in using different tools and equipment safely and accurately * Cut and join with accuracy to ensure a good-quality finish to the product * that materials have both functional properties and aesthetic qualities * the correct technical vocabulary for the projects they are undertaking * how mechanical systems such as cams or pulleys or gears create movement.   **Evaluate** a product against the original design specification  **Design**  Use research and develop design criteria so that the automoa is fit for purpose aimed at a specific user  Design a purposeful, functional automota for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a wide range of materials and components including construction materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks  **Evaluate**  Investigate and analyse a range of existing automotas.  Evaluate own ideas and bridge against the design criteria and consider the viewpoint of others to improve their work  Understand how key events and individuals in design and technology have helped shape the world  **Technical knowledge**  Apply understanding of how to strengthen, stiffen and reinforce. | **Bread Developing, Planning & Communicating New Ideas**  **Technical Knowledge**  Start to understand how much products cost to make and the impact they have.  · Generate ideas through brainstorming and identify a purpose for their product  · Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail  · Draw up a specification for their design  **Make**   * select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. * use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups * generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design   **Evaluate**   * investigate and analyse a range of existing products * evaluate their ideas and products against their own design criteria and consider the views of others to improve their work | **Food & Nutrition – Through Science**  **Technical Knowledge**  · that a recipe can be adapted by adding or substituting one or more ingredients  · the correct technical vocabulary for the projects they are undertaking  understand and apply the principles of a healthy and varied diet.  prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques  understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.   * understand and apply the principles of a healthy and varied diet. * prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques * understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.   **Make - Food Preparation**  · Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source  · Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking  · Understand that recipes can be adapted to change the appearance, taste, texture and aroma  · Know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health  **Working with Tools, Equipment, Materials and Components to Make a Quality Product**  · Use skills in using different tools and equipment safely and accurately  · Weigh and measure accurately (time, dry ingredients, liquids)  · Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens  · Select appropriate materials, tools and techniques  **Evaluate Processes and Products**  · Evaluate existing products exploring the materials used, construction methods, costing, and impact  · Evaluate a product against the original design specification  Evaluate it personally and seek evaluation from others. |
| Year 6 | **Building Bridges**  **Technical knowledge**  Apply understanding of how to strengthen, stiffen and reinforce the bridge  **Design**  Use research and develop design criteria so that the bridge is fit for purpose aimed at a specific user  Design a purposeful, functional bridge for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a wide range of materials and components including construction materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks  **Evaluate**  Investigate and analyse a range of existing bridges  Evaluate own ideas and bridge against the design criteria and consider the viewpoint of others to improve their work  Understand how key events and individuals in design and technology have helped shape the world. |  | **Marvellous Mayans** (masks and temples)  **Technical knowledge**  Apply understanding of how to strengthen and reinforce the mask/temple  **Design**  Use research and develop design criteria so that the mask/temple is fit for purpose aimed at a specific user  Design a purposeful, functional mask/temple for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a wide range of materials and components including construction materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks  **Evaluate**  Investigate and analyse a range of existing masks/temples  Evaluate own ideas of mask/temple against the design criteria and consider the viewpoint of others to improve their work  Understand how key events and individuals in design and technology have helped shape the world  **Beautiful Birdhouses**  **Design**  Use research and develop design criteria so that the birdhouse is fit for purpose aimed at a specific user  Design a purposeful, functional birdhouse for users based upon design criteria  Generate, develop, model and communicate ideas through discussion, annotated sketches and exploded diagrams  **Make**  Select and use a wide range of materials and components including construction materials according to their functional properties and aesthetic qualities  Select from and use a wider range of tools and equipment to perform practical tasks  **Evaluate**  Investigate and analyse a range of existing birdhouses  Evaluate own ideas and birdhouse against the design criteria and consider the viewpoint of others to improve their work  **Technical knowledge**  Apply understanding of how to strengthen, stiffen and reinforce the birdhouse  **Cooking and Nutrition** (Science links)  Understand and apply the principles of a healthy and varied diet |