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|  **Expressive Arts and Design: Focus - Design and Technology****ELG: Creating with materials** |
| **Reception** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Use senses to explore a wide range of familiar products. | Use simple tools and materials with support. | Use the senses to explore a wide range of familiar products. | Use equipment safely with an awareness of food hygiene. | Use junk modelling materials to build boxes. |
| Take simple products apart, talk about their parts and how they work. | Cut paper/card using scissors. | Talk about familiar products and what they do. | Be aware of healthy food. | Use simple construction materials to make a vehicle. |
| Talk about and/or use construction materials, pictures and words to plan and design. | Join with tape or glue. | Share their creations, explaining the process they have used. |  | Explore and use construction kits containing gears. |
| Talk about what has been done/made in simple terms. | Roll paper and card to form a tube. |  |  |
|  | Add paper and card shapes to products. |
| Apply simple finishes, e.g. paint, PVA glue glaze. |
| Use the senses to explore and talk about materials |
| Follow procedures for safety and hygiene. |
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| **Design and Technology** |
| **Year 1** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Use knowledge of existing products to support plans for a similar product. | Select and used simple tools to cut and join a range of materials. | Talk about and describe key features of a range of products. | Use equipment safely with an awareness of food hygiene. | Deconstruct and reconstruct boxes accurately. |
| Describe, explore and investigate products that have been disassembled. | Use a straight edge to mark lines for cutting. | Explore and evaluate a range of existing products. | Be aware of healthy eating. | Use pencils or tubes as rollers to move an object across the floor. |
| Use construction kits, pictures, templates, mock up and captions to plan and design. | Join edge to edge with glue. | Begin to evaluate the success of the product in terms of function and aesthetic criteria. | Know the properties of food: taste, texture and appearance. | Make a simple lever or slider to make a moving picture. |
| Talk about and describe the tools and materials needed in order to complete key tasks within a plan. | Use a hole punch and stapler. | Explore and talk about products made by famous inventors, designers, chefs and manufacturers, e.g. the vacuum. |  |  |
|  | Insert paper fasteners for card linkages. | . |
| Make models that reflect their ideas. |
| Select, from a range, a finish to improve the appearance of a product. |
| Explore and talk about the characteristics of an increasing range of materials |
| Follow procedures for safety and hygiene. |

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| **Design and Technology** |
| **Year 2** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Use knowledge of a range of products to inform plan and designs. | Select and use an increasing range of tools to cut, shape and join materials and components. | Investigate and compare a range of similar existing products. | Use equipment safely with an awareness of food hygiene. | Construct cubes of different sizes from a net.  |
| Talk about and disassemble products and describe their function. | Use a ruler to measure and mark lines for cutting. | Compare and contrast the similarities and differences of products with the same function. | Plan and make a simple healthy food product. | With support, attach a fixed axle to a chassis and add wheels so they can move freely.  |
| Use simple prototypes, labelled sketches and detailed instructions in plans and designs. | Make and use gluing tabs. | Evaluate ideas and products against design criteria and suggest ways in which products can be improved. |  | Understand how simple mechanisms relate to moving vehicles or winding up. |
| Talk in depth about ideas, plans and reasons for choices. | Join two pieces of fabric using sewing. | Gain an understanding of the way in which the work of famous inventors, designers, engineers, chefs and manufacturers have impacted on the development of product design and function e.g. Dyson. | Make a wheeled vehicle that moves using a mechanism that winds. |
|  | Know how to start, end and use running stitch. | Use this understanding to inform and support evaluation and further development of own product. |  |
| Make simple paper models, mock ups and templates. |  |
| Select materials and components according to known characteristics and functions. |
| Select, an appropriate way to improve the appearance of a product. |
| Follow procedures for safety and hygiene. |

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| **Design and Technology** |
| **Year 3** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Use research to develop design criteria that are fit for purpose. | Select and use tools and equipment to measure, mark out and shape materials and components. | Use knowledge the similarities and differences between products with the same function to support identification of the most effective product. | Use equipment safely with an awareness of food hygiene. | Construct cuboids of different sizes from a net.  |
| Disassemble products and describe in detail their functions. | Score card for accurate folds. | Evaluate ideas and products against own design criteria, taking into account the views of others.  | Understand that good products are made of several components and that a variety of food is needed for a healthy diet. | Control pneumatic systems. |
| Use annotated sketches, cross-sectional exploded diagrams and increasingly complex prototypes.  | Use a hack saw and bench hook safely. | Gain an understanding of the way in which the work of famous inventors, designers, engineers, chefs and manufacturers have impacted on the development of product design and function e.g. Dyson. | Combine components according to taste, texture and appearance. | Make a working hinge. |
| Support discussions about ideas, plans and designs with relevant information. | Select from and use a wide range of materials and components according to both functional and aesthetic qualities. | Use this understanding to inform and support evaluation and further development of own product. | Prepare food by cutting, grating and peeling etc. | Use construction kits with gears to mesh gears at right angles. |
|  | Make increasingly complex paper models, mock ups and templates using different joining and cutting methods. |  |  |  |
| Select the most effective finish to enhance the appearance of a product. |
| Follow procedures for safety and hygiene. |

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| **Design and Technology** |
| **Year 4** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Generate plans and designs based on research and ideas that take account of the user’s views and the intended purpose.  | Select and use tools, templates and equipment to measure, mark out and shape materials and components accurately. | Investigate and use analysis of existing products to inform own work. | Use equipment safely with an awareness of food hygiene. | Construct a pulley that allows a load to travel horizontally along a rope. |
| Produce detailed designs and plans using prototypes, commentary and diagrams that include measurements. | Use a G clamp effectively. | Identify from a range the key features and functions needed to create an effective and efficient working product. | Analyse the taste, texture, smell and appearance of a range of food. | Identify, describe and evaluate products that contain pulleys and drive belts.  |
| Link discussions about ideas, plans and designs to investigation, disassembly and evaluation of a range of products describing in detail their parts and their function. | Join and combine materials and components in permanent and temporary ways (textiles or sewing). | Give reasons, supported by factual evidence, for the success of aspects of a product.  | Measure and weigh ingredients appropriately. | Create pulleys and drive systems that can be driven by motor and computer. |
|  | Select a range of appropriate tools to cut, shape and join materials and components effectively. | Gain an understanding of the way in which the work of famous inventors, designers, engineers, chefs and manufacturers have impacted on the development of product design and function e.g. Dyson. | Join and combine a range of ingredients. |  |
| Make a range of complex paper models, mock ups and templates. | Use this understanding to inform and support evaluation and further development of own product. |  |
| Produce a well-finished product that fulfils the functional and aesthetic design criteria. |  |
| Follow procedures for safety and hygiene. |

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| **Design and Technology** |
| **Year 5** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Clarify and justify plans, designs and ideas by drawing upon and using a range of relevant sources of information.  | Select a range of appropriate tools to cut, shape and join paper, card and wood and components with accuracy and precision. | Use analysis of existing products, supported by accurate factual information, to inform own work.Test and evaluate products to identify the variants which may affect the function of a product. | Use equipment safely with an awareness of food hygiene. | Make a working cam for movement. |
| Produce detailed designs and plans drawn to scale from a range of viewpoints, using pattern pieces and computer-aided design packages effectively. | Use and increasing range of tools and equipment to measure, mark out and shape materials and components accurately. | Give reasons, supported by factual evidence, for the success of aspects of a product and provide considered solutions to resolve those parts that could be improved.  | Weigh and measure accurately.  |  |
| Discuss ways in which ideas, plans and designs are formed and modify to ensure that the design criteria are met effectively. | Use a saw and a drill to make an off-centre hole. | Gain an understanding of the way in which the work of famous inventors, designers, engineers, chefs and manufacturers have impacted on the development of product design and function e.g. Dyson. | Experience a range of food ingredients and cooking methods. |
|  | Join wood to wood using glue and strengthening techniques to create a shell or a frame structure. | Use this understanding to inform and support evaluation and further development of own product |  |
| Join and combine a range of materials and components using the most effective permanent and temporary way. |  |
| Measure, mark and cut a square section, strip and dowel. |
| Make and adapt where necessary complex mock ups and templates. |
| Identify and apply an appropriate technique to ensure a high-quality end-product which meet the design criteria. |
| Follow procedures for safety and hygiene. |

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| **Design and Technology** |
| **Year 6** | **Design** | **Make** | **Evaluate** | **Food Technology** | **Mechanisms** |
| Use research and exploration, such as the study of different cultures, to identify and understand user needs.  | Select from and use a wider, more complex range of materials, components and ingredients, taking account on their properties. | Understand developments in DT, its impact on individuals, society and the environment. | Select and prepare foods for a particular purpose. | Understand how more advanced mechanical systems, used in a product, enable changes in movement and force. |
| Develop and communicate ideas using annotated sketches, detailed plans, 3d and mathematical modelling, oral and digital presentations and computer-based tools.  | Select from and use tools, techniques, processes, equipment and machinery precisely. | Test, evaluate and refine ideas and products against a specification, taking into account the views of intended users. | Prepare a food product using correct equipment. | Make models with rotating parts including pulleys and belts. |
| Use a variety of approaches, e.g. user-centres design to generate creative ideas and avoid stereotypical responses. | Use techniques for reinforcing and strengthening. | Analyse the work of past and present professionals and others to develop and broaden understanding. | Join and combine food ingredients appropriately e.g. beating/rubbing in. | Explore gears and understand how they work. |
| Produce ordered sequences and schedules for manufacturing products, detailing resources required. | Use a broad range of manufacturing techniques including handcrafted skills and machinery to manufacture products precisely. | Investigate new and emerging technologies. | Show awareness of a healthy diet from understanding a balanced diet. |  |
| Produce costings using spreadsheets for products they design and make. | Stitch and join textiles. | Relate the work of designers, engineers, chefs, technologists and manufacturers to own products and designs. |  |
|  | Create 3D products using pattern pieces and seam allowances. |  |
| Build a wooden framework including strengthening techniques, an electrical circuit and switch. |
| Follow procedures for safety and hygiene and understand the process of risk assessment. |