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| **CURRUCULLUM PROGRESSION GRID: DT** | | | | |
| **UPPER KEY STAGE 2** | | | | |
| **Design** | **Make** | **Evaluate** | **Technical knowledge** | **Cooking and nutrition** |
| **NC Link**  -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. | **NC Link**  -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, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. | **NC Link**  -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. | **NC Link**  -Apply their understanding of how to strengthen, stiffen and reinforce more complex structures;  -Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages];  -Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors];  -Apply their understanding of computing to program, monitor and control their products. | **NC Link**  -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. |
| **Theme links**  Cycle A- Autumn 2  Under the sea  Cycle A- Summer 1  DT-automation  Cycle A- Summer 2  Sport  Cycle B- Spring 1  Survivors (mountains)  Cycle B – Summer 2  Apprentice | **Theme links**  Cycle A- Autumn 2  Under the Sea | **Theme links**  Cycle A- Autumn 2  Under the sea  Cycle A- Summer 1  DT-automation  Cycle A- Summer 2  Sport  Cycle B – Summer 2  Apprentice | **Theme links**  Cycle A- Summer 1  DT-automation  Cycle A- Summer 2  Sport  Cycle B- Spring 1  Survivors (mountains)  Cycle B – Summer 2  Apprentice | **Theme links**  Cycle A- Summer 2  Sport |
| **Builds on LKS2**  -Pupils can identify the design features of their products that will appeal to intended customers;  use their knowledge of a broad range of existing products to help generate their ideas;  -design innovative and appealing products that have a clear purpose and are aimed at a specific user;  -Pupils can explain how particular parts of their products work;  use annotated sketches and cross-sectional drawings to develop and communicate their ideas;  -when designing, pupils can explore different initial ideas before coming up with a final design;  -when planning, pupils start to explain their choice of materials and components including function and aesthetics;  -test ideas out through using prototypes;  -Pupils can use computer-aided design to develop and communicate their ideas  develop and follow simple design criteria;  -Pupils can work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment. | **Builds on LKS2**  **Plan**  -Pupils can plan with growing confidence, carefully select from a range of tools and equipment, explaining their choices;  -select from a range of materials and components according to their functional properties and aesthetic qualities;  -Pupils can place the main stages of making in a systematic order;  **Practical skills and techniques**  -Pupils learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures;  -use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components;  -with growing independence, measure and mark out to the nearest cm and millimetre;  -Pupils can cut, shape and score materials degree of accuracy  -cut, shape and score materials with some degree of accuracy;  -assemble, join and combine material and components with some degree of accuracy;  demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product;  -Pupils can join textiles with an appropriate sewing technique;  begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics. | **Builds on LKS2**  -Pupils can explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose;  explore what materials/ingredients products are made from and suggest reasons for this;  -Pupils consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product;  -evaluate their product against their original design criteria;  -evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world. | **Builds on LKS2**  -Pupilsunderstand that materials have both functional properties and aesthetic qualities;  -Pupils apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products;  -Pupils understand and demonstrate how mechanical and electrical systems have an input and output process;  make and represent simple electrical circuits, such as a series and parallel, and components to create functional products;  -Pupils explain how mechanical systems such as levers and linkages create movement;  -use mechanical systems in their products. | **Builds on LKS2**  -Pupils start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world;  -Pupils understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically;  -with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven;  -Pupils use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking;  -explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes;  -Pupils understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body;  -prepare ingredients using appropriate cooking utensils;  measure and weigh ingredients to the nearest gram and millilitre;  -Pupils start to independently follow a recipe;  -start to understand seasonality. |
| **Intent**  -Pupils can use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market;  -use their knowledge of a broad range of existing products to help generate their ideas;  -pupils can design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user;  - explain how particular parts of their products work;  use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas;  -Pupils can generate a range of design ideas and clearly communicate final designs;  -Pupils can consider the availability and costings of resources when planning out designs;  -Pupils can work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.  **Extended Write:**  **Letter explaining their design**  **Create a leaflet to explain their design**  **Write a biography of Sir George Cayley (Yorkshire plan designer)** | **Intent**  **Planning**  -Pupils independently plan by suggesting what to do next;  with growing confidence, select from a wide range of tools and equipment, explaining their choices;  select from a range of materials and components according to their functional properties and aesthetic qualities;  -Pupils create step-by-step plans as a guide to making;  **Practical skills and techniques**  -Pupils learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures;  - independently take exact measurements and mark out, to within 1 millimetre;  -use a full range of materials and components, including construction materials and kits, textiles, and mechanical components;  -cut a range of materials with precision and accuracy;  -shape and score materials with precision and accuracy;  assemble, join and combine materials and components with accuracy;  -demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product;  -join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch;  -refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape.  **Extended Write:**  **Explanation of their product**  **Persuasive argument/ advert to sell their product** | **Intent**  -Pupils can complete detailed competitor analysis of other products on the market;  - Pupils can critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make;  - Pupils can evaluate their ideas and products against the original design criteria, making changes as needed.  **Extended Write:**  **Letter to evaluating an existing product**  **A debate to evaluate existing products** | **Intent**  -Pupils can apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products;  -understand and demonstrate that mechanical and electrical systems have an input, process and output;  explain how mechanical systems, such as cams, create movement and use mechanical systems in their products;  -Pupils can apply their understanding of computing to program, monitor and control a product.  **Extended Write:**  **Description of their product**  **Explanation/ instructions of how it was made** | **Intent**  -Pupils know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world;  -Pupils understand about seasonality, how this may affect the food availability and plan recipes according to seasonality;  -Pupils understand that food is processed into ingredients that can be eaten or used in cooking;  - Pupils demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source;  demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling;  -Pupils can explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes;  -Pupils can adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma;  alter methods, cooking times and/or temperatures;  - measure accurately and calculate ratios of ingredients to scale up or down from a recipe;  - independently follow a recipe.  **Extended Write:**  **Persuasive letter inviting people to try their food**  **Advert to sell their food**  **Persuasive packaging** |
| **Vocabulary**  Design criteria  Innovative  Functional  Appealing  Generate  Develop model  Communicate  Discussion  Annotated sketches  Cross sectioned  Exploded diagrams  Porotypes  Pattern pieces  Computer aided design  Intended user | **Vocabulary**  Equipment  Constructional material  Functional properties  Aesthetic qualities  Components  Step by step  Millimetre  Precision  Accuracy  Assemble  Join  Combine  Seam allowance  Tape  Pin  Shape  Back stich  Whip stich  Blanket stich  Sanding | **Vocabulary**  Investigate  Analyse  Design criteria  Competitor analysis  Market  Critically evaluate  Design  Manu factor  Fitness for purpose  Design criteria  Edit  refine | **Vocabulary**  Strengthen  Stiffen  Reinforce  Gears  Pulleys  Cams  Levers  Linkages  Series circuits  Switches  Bulbs  Buzzers  Motors  Electrical systems  Mechanical systems  Input  Process  output | **Vocabulary**  Healthy  Varied diet  Savoury  Sweet  Grown  Caught  Reared  Processed  Seasonality  Griddling  Grilling  Frying  Baking  Adapt  Refine  Substitute  Appearance  Taste  Texture  Aroma  Ration |