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| Year 4 | | |
| KS2 National Curriculum Objectives | | |
| When designing and making, pupils should be taught to:  **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 and 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, including construction materials, textiles and ingredients, 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   **Technical knowledge**   * 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. | | |
| Year 4 Key Skills | | |
| Autumn Term | Spring Term | Summer Term |
| **Electrical Systems** | **Structures** | **Food and Nutrition** |
| **Design**   * Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas   **Make**   * Making a torch with a working electrical circuit and switch * Using appropriate equipment to cut and attach materials * Assembling a torch according to the design and success criteria   **Evaluate**   * Evaluating electrical products * Testing and evaluating the success of a final product and taking inspiration from the work of peers   **Technical knowledge**   * Learning how electrical items work * Identifying electrical products * Learning what electrical conductors and insulators are * Understanding that a battery contains stored electricity and can be used to power products * Identifying the features of a torch * Understanding how a torch works * Articulating the positives and negatives about different torches | **Design**   * Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. * Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas.   **Make**   * Plan the order of the main stages of making. * Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. * Explain their choice of materials according to functional properties and aesthetic qualities. * Use computer-generated finishing techniques suitable for the product they are creating.   **Evaluate**   * Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. * Test and evaluate their own products against design criteria and the intended user and purpose.   **Technical knowledge**   * Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. * Develop and use knowledge of how to construct strong, stiff shell structures. * Know and use technical vocabulary relevant to the project. | **Design**   * Designing a Healthy Meal within a given budget, drawing upon previous taste testing.   **Make**   * Following a Spaghetti Bolognese recipe * Cooking safely, following basic hygiene rules * Adapting a recipe   **Evaluate**   * Evaluating a recipe, considering: taste, smell, texture and appearance * Describing the impact of the budget on the selection of ingredients * Evaluating and comparing a range of products * Suggesting modifications   **Technical knowledge**   * Understanding the impact of the cost and importance of budgeting while planning ingredients for recipe. * Understanding the environmental impact on future product and cost of production |
| Year 4 Curriculum Enrichment Opportunities | | |
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| Year 4 Vocabulary | | |
| Switch, Buzzer, Bulb, Wire, CAD, Prototype | Sew, Stitch, Fastenings, Pattern, Seam Allowance | Appearance, Texture, sensory evaluation, Preference test, Processed food |