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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
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| 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  |