

DT	Year 3	Year 4	Year 5	Year 6
DESIGN	**National Curriculum** Pupils should be taught to: • 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			
	Children can: • identify the design features of their products that will appeal to intended customers; • design innovative and appealing products that have a clear purpose and are aimed at a specific user; • explain how particular parts of their products work; • when designing, explore different initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components; • develop and follow simple design criteria; • generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.	Children can: • use their knowledge of a broad range of existing products to help generate their ideas; • test ideas out through using prototypes; • make design decisions that take account of the availability of ingredients. • 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 in the context of developing design criteria for a buzz the wire game. • generate, develop, model and communicate their ideas through annotated sketches and cross sectional in the context of sketching a design for a buzz the wire game • when planning, start to explain their choice of materials and components including function and aesthetics.	Children can: • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. • use their knowledge of a broad range of existing products to help generate their ideas; • 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; • work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.	Children can: • Carry out research, using surveys, interviews, questionnaires and web-based resources • 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 • Identify the needs, wants, preferences and values of particular individuals and groups • Generate innovative ideas, drawing on research • Make design decisions, taking account of constraints such as time, resources and cost; • Use computer programs to model their designs. • consider the availability and costings of resources when planning out designs.

MAKE	**National Curriculum** Pupils should be taught to: • select from and use a wider range of tools and equipment to perform practical tasks [e.g. 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			
	Children can: **Planning** • with growing confidence, carefully select from a range of tools and equipment, explaining their choices; • place the main stages of making in a systematic order; **Practical skills and techniques** • 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; • cut, shape and score materials with some degree of accuracy; • assemble, join and combine material and components with some degree of accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating.	Children can: **Planning** • 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 in the context of choosing materials and components to make the main structure of the buzz the wire game; • place the main stages of making in a systematic order and understand the importance of that order; **Practical Skills and techniques** • demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; • 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. • Explore and make a series circuit, diagnosing faults when necessary. • Make a well finished product considering the aesthetic and functional qualities.	• Children can: **Planning** • 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; • adapt a step-by-step plan as a guide to making; **Practical skills and techniques** • learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; • 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.	Children can: **Planning** • create step-by-step plans as a guide to making; adapt plans to debug and solve any problems during the making of their product; **Practical skills and techniques** • use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; • independently take exact measurements and mark out, to within 1 millimetre; • 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;

<table>
<tr><td>EVALUATE</td><td colspan="4">National Curriculum
Pupils should be taught to:
• 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</td></tr>
<tr><td></td><td>Children 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;
consider their design criteria as they make progress and are willing to alter their plans;
evaluate their product against their original design criteria.</td><td>Children can:
explore what materials/ingredients products are made from and suggest reasons for this;
consider their design criteria as they make progress and are willing to alter their plans, considering the views of others if this helps them to improve their product;
evaluate some designs of individuals in design and technology that have helped shape the world.</td><td>Children can:
complete detailed competitor analysis of other products on the market;
evaluate their ideas and products against the original design criteria, making changes as needed.</td><td>Children can:
critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make;
evaluate key events, including technological developments, and designs of individuals that have helped shape the world.</td></tr>
<tr><td>TECHNICAL KNOWLEDGE</td><td colspan="4">National Curriculum
Pupils should be taught to:
• 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 [e.g. series circuits incorporating switches, bulbs, buzzers and motors]
• apply their understanding of computing to program, monitor and control their products</td></tr>
<tr><td></td><td>Children can:
understand that materials have both functional properties and aesthetic qualities;
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 how mechanical systems have an input and output process;
explain how mechanical systems such as levers and linkages create movement;
use mechanical systems in their products;
Develop and use knowledge of nets of cubes and cuboids and,</td><td>Children can:
understand and demonstrate how 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;
use mechanical systems in their products.
Understand that a circuit needs to be complete in order to work;
Understand that appliances that plug into a socket use mains electricity, such as televisions.
Understand that appliances that work without having to be plugged into a socket use battery to power them, such as mobile phones;
Explore how to strengthen</td><td>Children can:
apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products;
Develop and use knowledge of nets more complex 3D shapes.
understand and demonstrate that mechanical and electrical systems have an input, process and output
Their product needs to be durable. Therefore, the stitches they choose need to be strong enough to produce an effective product.</td><td>Children can:
explain how mechanical systems, such as cams, create movement and use mechanical systems in their products;
apply their understanding of computing to program, monitor and control a product;
understand pulleys do not touch but the wheels are joined by a drive belt;
they can be used to change the speed, direction or force of a movement;
gears are toothed wheels that lock together and turn one another;
understand that wheels are usually different sizes so that one gear speeds up to slow down the next gear;
understand that gears are also used to change the direction of</td></tr>
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	where appropriate, more complex 3D shapes; • Know and use technical vocabulary relevant to the project; • Understand and use lever and linkage mechanisms; • Distinguish between fixed and loose pivots; • Know and use technical vocabulary relevant to the project.	materials.		movement; • understand that the first gear wheel is smaller (and has fewer teeth) than the second one, then the second (bigger) gear doesn't have to move as quickly to keep up with the smaller gear. So the second gear wheel turns more slowly than the first; • Apply understanding of computing to programme and control their product.
COOKING AND NUTRITION	**National Curriculum** Pupils should be taught to: • 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			
	Children can: • start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world; • understand how to prepare and cook safely and hygienically; • with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob; • use a range of techniques such as mashing, whisking, crushing, grating, and cutting • explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide • 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	Children can: • 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; • measure and weigh ingredients to the nearest gram and millilitre; • start to independently follow a recipe; • start to understand seasonality • That food ingredients can be fresh, pre-cooked and processed • That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • Understand when and where different foods are grown	Children can: • understand that food is processed into ingredients that can be eaten or used in cooking; • 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; • adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma; • measure accurately • independently follow a recipe. • To understand that too much fat and sugar can lead to obesity and cavities.	Children can: • understand about seasonality, how this may affect the food availability and plan recipes according to seasonality; • demonstrate how to prepare and cook bread hygienically • demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and baking • 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; • calculate ratios of ingredients to scale up or down from a recipe.