Year 4 Design and Technology Curriculum

AUTUMN TERM	
Project	Food: Healthy and varied diet. Great British Bake Off
Design	Children understand and apply the principles of a healthy and varied diet. They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They 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) in the UK, Europe and the wider world; • 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; • use a range of techniques such as 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; • 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; • start to independently follow a recipe; • start to understand seasonality.
Evaluate	• Children can evaluate end product after first coming up with a design criteria. Children could use a star rating if many products are cooked, baked etc..

SPRING TERM

Project	Electrical systems: Simple programming and control. Crumbles
Design	Pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. Children 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. They 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; • 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; • explain how particular parts of their products work; • use annotated sketches and cross-sectional drawings to develop and communicate their ideas; • when designing, explore different initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components including function and aesthetics; • test ideas out through using prototypes; • use computer-aided design to develop and communicate their ideas (see note on p. 1); • develop and follow simple design criteria; • work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.
Make	Pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. Children 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; • 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 • 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;
Evaluate	Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. 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 and suggest reasons for this; • 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.
Technical Knowledge	Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. They apply their understanding of computing to program, monitor and control their products. 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 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; • explain how mechanical systems such as levers and linkages create movement; use mechanical systems in their products

SUMMER TERM

Project	Mechanical systems: Levers and linkages Pneumatics
Design	Pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. Children 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. They 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; • 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; • explain how particular parts of their products work; • use annotated sketches and cross-sectional drawings to develop and communicate their ideas; • when designing, explore different initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components including function and aesthetics; • test ideas out through using prototypes; • use computer-aided design to develop and communicate their ideas (see note on p. 1); • develop and follow simple design criteria; • work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.
Make	Pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. Children 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; • 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 •

	• with growing independence, measure and mark out to the nearest cm and millimetre; • cut, shape and score materials with some degree of accuracy;
Evaluate	Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. 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 and suggest reasons for this; • 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.
Technical Knowledge	Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. 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 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; • explain how mechanical systems such as levers and linkages create movement; • use mechanical systems in their products