EASTBURY FARM PRIMARY SCHOOL: Progression of skills in Design & Technology

	Year 1/2	Year 3/4	Year 5/6
National Curriculum	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. **When designing and making, pupils should be taught to:** **Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** • select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria **Technical knowledge** • build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products **Cooking and nutrition** As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. **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 **Cooking and nutrition** As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. **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	

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School Long Term Plan	**YEAR 1/2 Cycle A** Puppets Evaluate ideas and products against design criteria, select from and use a wide range of materials and components including textiles, cut, shape, join and finish, generate, develop, model and communicate ideas through talking, drawing, templates and mock ups Design A Healthy Sandwich (Bread) Use the basic principles of a healthy and varied diet to prepare dishes, understand where food comes from Adventure Playgrounds Explore and evaluate a range of existing products, select from and use a wide range of materials and components including construction materials, design purposeful, functional and appealing products for themselves and other users	**YEAR 1/2 Cycle B** Emergency Vehicles Explore and use mechanisms (wheels and axels) in the products, design purposeful, functional and appealing products for themselves and other users, cut, shape, join and finish Building Homes (Great Fire of London Tudor Houses) Build structures, exploring how they can be made stronger, stiffer and more stable, cut, shape, join and finish, generate, develop, model and communicate ideas through talking, drawing, templates and mock ups Global Food (China) Use the basic principles of a healthy and varied diet to prepare dishes, understand where food comes from (Vegetables), select ingredients according to their characteristics	**YEAR 3/4 Cycle A** Bread Packaging Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional and aesthetic qualities Baked Savoury Snacks Cook savoury dishes using a range of cooking techniques Drawstring Money Pouches (Roman) Select & use a wider range of tools & equipment to perform practical tasks (shaping, joining & finishing) accurately	**YEAR 3/4 Cycle B** Exotic Fruit Smoothies (Rainforests) Understand the principles of a healthy and varied diet Light It Up Understand and use electrical systems and their products (circuits, switches, bulbs, buzzers and motors) Magnetic Board Games Use research & develop design criteria to inform the design of innovative, functional & appealing products that are fit for purpose & aimed at particular individuals or groups	**YEAR 5/6 Cycle A** Traditional African Food Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed Toys Great Britain Forgot Understand and use mechanical systems in products (gears, pulleys, cams, levers and linkages), understand how key events & individuals in design & technology have helped to shape the world Eastbury Grand Prix Apply their understanding of computing to program, monitor & control their products, understand and use electrical systems and their products (circuits, switches, bulbs, buzzers and motors)	**YEAR 5/6 Cycle B** Victorian Afternoon Tea Cook savoury dishes using a range of cooking techniques, evaluate their ideas & products against their own design criteria & consider the views of others to improve their work Best Foot Forward (Greek Footwear) Investigate & analyse a range of existing products, generate, develop, model & communicate ideas through discussion, annotated sketches, cross-sectional & exploded diagrams, prototypes, pattern pieces & computer aided design (CAD) Bridges in Britain Apply understanding of how to strengthen, stiffen and reinforces more complex structures

Skills	EYFS	Year 1/2	Year 3/4/5/6
DESIGNING: Understanding contexts, users and purposes	For instance: • constructs with a purpose in mind, using a variety of resources • develop their own ideas through selecting and using materials and work on processes that interest them	For instance: • work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local • community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas	For instance: Across KS2 pupils should: • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work In early KS2 pupils should also: • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas In late KS2 pupils should also: • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • *develop a simple design specification to guide their thinking*
DESIGNING: Generating, developing, modelling and communicating ideas	For instance: • talk about the ideas and processes which have lead them to make products	For instance: • generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by • making templates and mock-ups • use information and communication technology, where appropriate, to develop • and communicate their ideas	For instance: Across KS2 pupils should: • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and • communicate their ideas • use computer-aided design to develop and communicate their ideas In early KS2 pupils should also: • generate realistic ideas, focusing on the needs of the user • *make design decisions that take account of the availability of resources* In late KS2 pupils should also: • generate innovative ideas, drawing on research • *make design decisions, taking account of constraints such as time, resources and cost*

MAKING: Planning	For instance: • talks about plans they have made to carry out activities and what they might change if there were to repeat	For instance: • *plan by suggesting what to do next* • select from a range of tools and equipment, *explaining their choices* • select from a range of materials and components according to their characteristics	For instance: Across KS2 pupils should: • select tools and equipment suitable for the task • *explain their choice of tools and equipment in relation to the skills and techniques they will be using* • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and • aesthetic qualities In early KS2 pupils should also: • *order the main stages of making* In late KS2 pupils should also: • *produce appropriate lists of tools, equipment and materials that they need* • *formulate step-by-step plans as a guide to making*
MAKING: Practical Skills & Techniques	For instance: • shows understanding of the need for safety when tackling new challenges and considers and manages some risk • shows understanding of how to transport and store equipment safely • practises some appropriate safety measure without direct supervision • selects resources and adapts work where necessary	For instance: • follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, • textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design	For instance: Across KS2 pupils should: • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials • and kits, textiles, food ingredients, mechanical components and electrical components In early KS2 pupils should also: • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some • accuracy In late KS2 pupils should also: • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • *use techniques that involve a number of steps* • demonstrate resourcefulness when tackling practical problems

EVALUATING: Own products & Ideas	For instance: • through their explorations they find out and make decisions about how media and material can be combined and changed • they talk about features of their own and others work, recognising the differences between them and the strengths of others	For instance: • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • *suggest how their products could be improved*	For instance: Across KS2 pupils should: • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work In early KS2 pupils should also: • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products In late KS2 pupils should also: • critically evaluate the quality of the design, manufacture and fitness for purpose of their • products as they design and make • *evaluate their ideas and products against their original design specification*
EVALUATING: Existing Products	For instance: • find out and make decisions about how media and materials can be combined and changed	For instance: • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products	For instance: Across KS2 pupils should investigate and analyse: • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants In early KS2 pupils should also investigate and analyse: • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused In late KS2 pupils should also investigate and analyse: • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
EVALUATING: Key Events & Individuals			For instance: Across KS2 pupils should know: • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products

TECHNICAL KNOWLEDGE: Making Products Work	For instance: • they know the properties of some materials and can suggest some of the purposes they are used for • shows an interest in technological toys with knobs or pulleys • shows skill in making toys work by pressing parts or lifting flaps	For instance: • about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable • *that a 3-D textiles product can be assembled from two identical fabric shapes* • *that food ingredients should be combined according to their sensory characteristics* • *the correct technical vocabulary for the projects they are undertaking*	For instance: Across KS2 pupils should know: • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • *that materials can be combined and mixed to create more useful characteristics* • that mechanical and electrical systems have an input, process and output • *the correct technical vocabulary for the projects they are undertaking* In early KS2 pupils should also know: • how mechanical systems such as levers and linkages or pneumatic systems create • movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • *that a single fabric shape can be used to make a 3D textiles product* • *that food ingredients can be fresh, pre-cooked and processed* In late KS2 pupils should also know: • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional • products • how to program a computer to monitor changes in the environment and control their • products • how to reinforce and strengthen a 3D framework • *that a 3D textiles product can be made from a combination of fabric shapes* • *that a recipe can be adapted by adding or substituting one or more ingredients*
COOKING & NUTRITION: Where Food Comes From	For instance: • children know the importance of a god healthy diet • children know about and can make healthy choices in relation to healthy eating	For instance: • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught	For instance: Across KS2 pupils should know: • 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 In late KS2 pupils should also know: • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking

COOKING & NUTRITION: Food Preparation, Cooking & Nutrition	For instance: • eats a healthy range of foodstuffs and understands need for variety in food • can make healthy eating choices	For instance: • how to name and sort foods into the five groups in The eatwell plate • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating	For instance: Across KS2 pupils should know: • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically • including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, • spreading, kneading and baking In early KS2 pupils should also know: • that a healthy diet is made up from a variety and balance of different food and drink, as • depicted in The eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body In late KS2 pupils should also know: • *that recipes can be adapted to change the appearance, taste, texture and aroma* • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health