Design and Technology Curriculum and Progression of Skills

The National Curriculum states that Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

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].

At Bernards Heath Junior School we intend to build a Design and Technology curriculum which develops learning and results in the children obtaining knowledge and understanding as well as developing skills.

We encourage children to use their creativity and imagination, through a broad range of practical experiences, to design and make innovative products in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. We also aim to make links across the rest of the curriculum, often with Geography, History and English. Design and Technology also allows the children to apply the knowledge and skills learned in other subjects, particularly Maths, Science and Art.

Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in a process of designing and making. The iterative process encourages children to identify real and relevant problems, critically evaluate existing products and then take risks when designing and creating solutions to the problems. As part of this process, time is built in to reflect, evaluate and improve on prototypes using design criteria. Skills are taught progressively to ensure that all children are able to learn and practice in order to develop as they move through the school.

Children will learn basic cooking skills as they learn how to apply the principles of nutrition and healthy eating. They will learn the importance of a healthy and varied diet and will understand where and how their ingredients are grown, reared, caught and processed.

Design and Technology encourages children to think creatively to solve problems both as individuals and as members of a team. It requires children to be active learners with the confidence to 'have a go,' and the resilience to persist with a project when challenges occur. This prepares them for the opportunities, responsibilities and experiences of later life.

Areas of Study	Year 3	Year 4	Year 5	Year 6
	Breakfast Muffin Tooth Pillows Photo Frames	Vegetable Quiche Purse/Bag Musical Instruments	Electrical light boxes Cam Toys Pizza	Slippers WWII recipes

Cooking and Nutrition	National Curriculum **-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.**			
	Year 3	Year 4	Year 5	Year 6
	Healthy, seasonal breakfast muffins Where does our food come from? Seasonality Growing a fruit/vegetable *For specific skills taught across the KS see below – page 4*	Pastry making and ratios (rubbing, blending, whisking, grating, rolling, lining, baking) Seasonality versus frozen Food nutrition and food groups *For specific skills taught across the KS see below – page 4*	Pizza making Making dough from scratch using skills from pastry making (kneading, proving, rising, rolling) Design a questionnaire on popular pizza toppings Selecting and preparing a range of toppings (washing, chopping, cutting) Investigating food from other countries *For specific skills taught across the KS see below – page 4*	Following WW2 rationing recipes Looking at seasonality during the war (rationing, economising, food waste, creativity, substitution in food) *For specific skills taught across the KS see below – page 4*

Lower Key Stage 2		Year 3	Year 4
	Weighing and Measuring		
	Begin to use a jug to measure liquids	✓	✓
	Begin to use digital weighing scales	✓	✓
	Food preparation		
	With supervision, begin to use both the bridge hold and claw grip to cut the same food using a serrated vegetable knife (e.g. onion)	✓	
	With supervision, cut foods into evenly sized strips or cubes (e.g. peppers, cheese)	✓	
	With supervision, grate harder food using a grate (e.g. apples, carrots)		✓
	Mixing and combining		
	Combine using a sieve, flour, raising agents and spices together in a bowl	✓	
	Crack an egg and beat with a balloon whisk	✓	
	Mix, stir and combine wet and dry ingredients uniformly (e.g. to form a dough)	✓	✓
	Use hands to rub fat into flour (e.g. apple scones, apple crumble)		✓
	Shaping and assembling		
	Use a rolling pin to flatten and roll out dough to a specific thickness (e.g. scones)		✓
	Assemble and arrange ingredients for simple dishes (e.g. apple crumble, scrambled eggs on toast)		✓
	Heating		

	Although pupils will not be cooking food on the hob / putting in or removing food from the grill or oven, they should understand how to use the grill and oven safely by observing adults	✓	✓
	With very close supervision, and physical guidance where necessary, handle hot food safely; once adults have removed food form the hob or oven	✓	✓
	Serving and garnishing		
	Begin to recognise appropriate ingredients to garnish hot and cold dishes	✓	✓
	Begin to / Understand appropriate portion sizes when serving food	✓	✓
	Begin to understand what types of food can be served together to make a balanced meal	✓	✓
	Healthy Eating		
	Understand what makes a healthy and balanced diet, and that different foods and drinks provide different substances that the body needs to be healthy and active	✓	✓
	Are able to use the Eatwell guide	✓	✓
	Understand the value of eating sociably	✓	✓
	Understand the importance of keeping hydrated	✓	✓
	Begin to understand appropriate portion sizes for regular meals and healthy snacks	✓	✓
	Know the importance of a healthy breakfast	✓	✓
	Understand how to keep teeth healthy		✓
	Consumer Awareness		
	Understand that food is caught or farmed and changed to make it safe and palatable / tasty to eat	✓	
	Understand that people have different views on how food is produced and that this influences the food they buy	✓	
	Understand that there are a variety of influences on the food we choose to eat (e.g. who we are with, season, cost, health, occasion)	✓	
	Know the importance of, and be able to, recycle food-related waste	✓	
	Food Safety and Hygiene		
	Know and can follow basic food safety rules	✓	✓
	Understand how bacteria in food can cause food poisoning or food to go mouldy	✓	✓
	Know how to get ready to cook: - Tie back long hair - Wash and dry hands - Wear a clean apron - Remove jewellery and nail varnish	✓	✓
	With guidance follow procedures for clearing up such as washing and crying utensils, clearing and cleaning tables, sweeping the floor, disposing of rubbish, putting equipment away	✓	✓
	Understand how a variety of foods are stored differently to ensure they are safe to eat (e.g. fridge or freezer)	✓	✓
	Recipes and ingredients		
	Recognise and name a broad range of ingredients (e.g. cereals, meat, fish)	✓	✓
	Know where and how a variety of ingredients are grown	✓	✓
	Identify what they would do differently next time to improve what they have made	✓	✓
	Use simple food descriptors relating to small, flavour, texture and appearance	✓	✓
	Read and follow a simple recipe	✓	✓
5		Year 5	Year 6

	Weighing and Measuring		
	Accurately use a jug to measure liquids	✓	✓
	Accurately use weighing scales	✓	✓
	Food preparation		
	With supervision, confidently use both the bridge hold and claw grip to cut the same food using a serrated vegetable knife (e.g. onion)	✓	✓
	With supervision, confidently peel harder food using a peeler (e.g. apple, potato)		✓
	With supervision, dice foods and cut them into evenly sized, fine pieces (e.g. garlic, vegetable batons, herbs)	✓	✓
	With supervision, finely grate foods (e.g. zest, parmesan cheese)		✓
	With support, use a can opener and open ring pull tins	✓	
	Mixing and combining		
	Sieve wet and dry ingredients with precision	✓	✓
	Shaping and assembling		
	Use a rolling pin to roll out dough to an accurate size and thickness (e.g. pizzas)	✓	
	Spread food evenly with a coating, glaze or sauce	✓	
	Heating		
	With help and supervision, begin to use the hob to cook simple dishes (e.g. burgers, soup)	✓	✓
	Although pupils will not be putting in or removing food from the grill or oven, they should understand how to use the grill and oven safely by observing adults	✓	✓
	With supervision, handle hot food safely, using oven gloves to carefully remove cooked food with a fish slice from a baking tray to a cooling rack	✓	
	Serving and garnishing		
	Be able to choose appropriate ingredients to garnish hot and cold dishes		✓
	With supervision be able to use a spoon, ladle or jug to serve hot liquids (e.g. soup)		✓
	Cut food into equal sized portions for the number being served (e.g. pizza into eighths)	✓	✓
	Understand appropriate portion sizes when serving food	✓	✓
	Are able to plan and serve their own breakfast and a simple balanced cooked meal (e.g. pizza and salad, soup and bread rolls)	✓	
	Healthy Eating		
	Are able to make foods choices taking into to consideration the Eatwell Guide	✓	✓
	Understand the main food groups and the different nutrients that are important to health	✓	✓
	Know appropriate portion sizes and the importance of not skipping meals, including breakfast	✓	✓
	Consumer Awareness		
	Understand some of the basic processes to get food from farm to plate	✓	✓
	Understand some of the ethical dilemmas associated with the food people choose to buy		✓
	Are able to use information on food labels to inform choice	✓	✓
	Understand social influences on the food we choose to eat (e.g. the media, peer pressure, ethics)	✓	✓
	Food Safety and Hygiene		
	Are able to independently get ready to cook: - Tie back long hair - Wash and dry hands	✓	✓

	- Wear a clean apron - Remove jewellery and nail varnish		
	Demonstrate good food safety practices when getting ready to store, prepare and cook food (e.g. keep raw meats away from other food)	✓	✓
	Can independently follow procedures for clearing up	✓	✓
	Recipes and ingredients		
	Know an extensive range of ingredients and how these are grown (e.g. beans, pulses, tropical fruits, vegetables)	✓	✓
	Identify how they would change the recipe to improve the food they have made	✓	✓
	Use a range of food descriptors relating to small, flavour, texture and appearance	✓	✓
	Compare different versions of the same dish and identify how they would change the recipe next time	✓	✓
	Confidently read and follow a recipe	✓	✓

Design	**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. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. **-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**			
	Year 3	Year 4	Year 5	Year 6
	-Identify the design features of 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 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; -Develop and follow simple design criteria;		-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; -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; -Generate a range of design ideas and clearly communicate final designs; -Consider the availability and costings of resources when planning out designs;	
Make	**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 making. **-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			
	Year 3	Year 4	Year 5	Year 6
	-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 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; -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.		-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; -Create step-by-step plans 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; -Independently take exact measurements and mark out, to within 1 millimetre; -Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; -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; -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.	
Textiles	Year 3	Year 4	Year 5	Year 6
	Supported needle threading Supported knot tying Paper applique pattern pieces Cutting applique pieces Pinning of applique pieces Running stitch Over stitch Supported tying off (Extension: button sewing)	**In addition to Year 3 skills;** Back stitch Blanket stitch Buttons Needle threading (with support if needed) Knot tying (with support if needed) Tying off (with support if needed) (Extension: cross stitch)	**Continuation of LKS2 skills (as part of art unit)** Children are reminded of and use the skills taught in Years 3 and 4. Children are expected to use these skills with increased neatness and accuracy.	**In addition to LKS2 skills;** Paper pattern using seam allowance Tacking (baste) stitch Chain stitch Attaching buttons, beads and sequins

Evaluate	**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. **-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**			
	Year 3	Year 4	Year 5	Year 6
	-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;			
Technical Knowledge	**National Curriculum** **-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 3	Year 4	Year 5	Year 6
	-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 how mechanical and electrical systems have an input and output process;		-Demonstrate that mechanical and electrical systems have an input, process and output; -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. -Explain how mechanical systems such as levers and linkages create movement; -Use mechanical systems in their products.	

Key Vocabulary	Year 3		Year 4	Year 5		Year 6
Cooking	Climate Seasons Seasonal foods Nutrients	Recipe Healthy Ingredients Method	Equipment Flavour Quantity	Cross-contamination Ethically produced	Farm Substitution Nationality	Quantities Rations Ratios

Textiles	Applique Cushion Decorate Design Thread	Stuffing Target audience Template Sew Fabric	Assemble Design criteria Fastening Pattern pieces	Continued from LKS2	Accurate Adapt Detail Properties Grip	Seam/seam allowance Shape Fit Unique
Impact Statements	Year 3		Year 4	Year 5	Year 6	
	- I can investigate existing products - I can design, make and evaluate to meet a goal - I can use and understand technical vocabulary associated with DT - I can evaluate my ideas and products against my own design - I can follow a simple recipe with support - I understand food hygiene and safety - I understand the eat well plate and can plan a healthy recipe - I can use basic sewing equipment and joining stitches			- I can investigate and analyse a range of existing products - I can design innovative, functional, appealing products that are fit for purpose and aimed at particular individuals or groups. - I can evaluate my ideas and products and consider the views of others to improve my work - I can follow a simple recipe - I understand food hygiene and safety - I understand the eat well plate and can plan a healthy recipe - I can apply my understanding of how to improve taste and texture. - I can use sewing equipment and joining and embroidery stitches - I can make a product, based on specific measurements, to fit		
Enrichment	In addition to the Design and Technology Curriculum, Whole School themed Challenge Days are held, whereby the children work in mixed year group teams to collaborate in finding solutions and designing structures for a set problem or task. Opportunities are given for children to use programmable devices. Sewing club, open to UKS2, continues to develop skills learnt in LKS2 Parent helpers, guest teachers and companies are also brought in to help with cooking projects, design projects and themed D&T events.					