Nevill Road Junior school

A progression of the key Design and Technology knowledge, skills and understanding

	Technical knowledge	Designing and making	Evaluation	Nutrition and cookery
Purpose of Study and Aims of the National Curriculum 2014	Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world	Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. Design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens.	Critique, evaluate and test their ideas and products and the work of others. 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.	Understand and apply the principles of nutrition and learn how to cook.
Expected by the end of KS1 Year 2	I can build structures, exploring how they can be made stronger, stiffer and more stable I can explore and use mechanisms in my products. I can select appropriate tools, techniques and materials and explain my choice.	I can design purposeful, functional, appealing products for myself and other users based on design criteria. I can generate, develop, model and communicate my ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. I can select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] I can select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	I can explore and evaluate a range of existing products I can evaluate my ideas and products against design criteria. I can recognise what I have done well and I can suggest what I can do better in the future.	I can use the basic principles of a healthy and varied diet to prepare dishes I understand where food comes from.

Expected by the end of KS2	D & T Skills and Understanding	D & T Key Vocabulary
Mechanical Systems Year 3	• Measure and draw straight lines • Use techniques to fold materials accurately • Use techniques to cut neatly and accurately • Use a glue gun correctly and safely, • Develop techniques to join materials together-with support • Identify and implement any health and safety risks • Plan, make and evaluate a product for a user for a particular purpose- with support • Understand how key events and individuals have helped shaped technology for mechanical systems in the world	Mechanical systems, axle, axle holder, chassis, dowel, wheels, glue gun, folding, joining, tools, materials product, user, purpose, investigate, practise, plan, make, evaluate
Mechanical Systems Year 5	• Understand and choose the most appropriate Cams products. • Use a hacksaw, bench hook and clamps correctly and safely, • Use a hand drill correctly and safely. • Use appropriate techniques to join materials together • Identify and implement any health and safety risks • Plan, make and evaluate an innovative product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology for mechanical systems in the world	Mechanical systems- Cams, motions (rotation, oscillating, reciprocating), Cam (egg, off-centre, peg, snail), follower, lever, slider, guide, spacer, hacksaw, hand drill, bench hook, clamps, tools, materials, innovative product, user, purpose, investigate, practise, plan, make, evaluate

	D & T Skills and Understanding	D & T Key Vocabulary
Structures Year 4	• Make nets/ patterns using CAD • Join flat faces accurately to make 3D shapes • Score materials accurately • Use techniques to join/assemble materials together • Identify and implement any health and safety risks • Plan, make and evaluate a product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology for structures in the world	Computer Aided Design, shell structure, font, net, 3D, tabs, marking out, scoring, masking tape, cellotape tape, acetate sheets, materials, tools product, user, purpose, investigate, practise, plan, make, evaluate
Structures Year 6	• Create design specifications • Create an innovative product • Use techniques to reinforce/ stiffen products • Cut wood accurately and safely • Identify and implement any health and safety risks • Plan, make and evaluate an innovative product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology for structures in the world	Complex structures, modelling, compression, strut, tension, tie, diagonal, horizontal, vertical, triangulation, frame structure, innovative product, user, purpose, investigate, practise, plan, make, evaluate
	D & T Skills and Understanding	**D & T Key Vocabulary**
Electrical Circuits and Programming Year 4	• Select appropriate materials • Create circuits which light signs up. • Identify and make appropriate switches. • Identify and implement any health and safety risks • Plan, make and evaluate a product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology for electrical circuits in the world	Electrical circuit to light a product, series, circuit, fault, connection, switches (toggle, push to make, push to break) battery, battery holder, bulb, bulb holder, wire, insulator, output devices, input devices- crocodile clip product, user, purpose, investigate, practise, plan, make, evaluate
Electrical Circuits and Programming Year 6	• Create a prototype (carnival float) • Select and attach appropriate materials which will allow the prototype to light up/move • Create a program to control the prototype • Plan, make and evaluate an innovative product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology using programming to control products in the world	Programming to control a product, Switches (reed, toggle, push-to-make, push-to-break, tilt) light dependent resistor (LDR), light emitting diode (LED), motor, bulb, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip, Control, program, crumble, system, input device, series circuit, parallel circuit, Design specification, design brief, product, user, purpose, investigate, practise, plan, make, evaluate

	D & T Skills and Understanding	D & T Key Vocabulary
Textiles Year 3	• Accurately create paper patterns • Correctly pin patterns onto fabrics • Cut fabric accurately and neatly around patterns • Thread needles • Use sewing techniques to join fabrics together • Select an appropriate fastening and secure it to fabric • Use applique for decoration • Plan, make and evaluate a product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology using textiles in the world	Textiles, fabric, needle, thread, pin, fastenings (zip, button, Velcro), techniques for joining stiches (back, running, over sew, blanket), decorative techniques, templates, seam, seam allowance, pattern, pattern pieces,applique investigate plan, evaluate product, user, purpose, investigate, practise, plan, make, evaluate
Textiles Year 5	• Choose different/ relevant fabrics • Create a variety of template shapes • Start and finish off a row of stiches neatly • Use a range of decorative stiches • Improve consistency /appearance when joining fabrics • Attach wadding or stiffening accurately • Plan, make and evaluate an innovative product for a user for a particular purpose • Understand how key events and individuals have helped shaped technology using textiles in the world	pins, needles, thread, seam, seam allowance, pattern, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles used, dressmaking shears (scissors), decorative stiches (stem, satin, chain, lazy daisy) innovative product, user, purpose, investigate, practise, plan, make, evaluate

	D & T Skills and Understanding	D & T Key Vocabulary
Nutrition and Cookery By the end of KS2	• Identify and use good food hygiene practises • Explain and adapt the healthy eatwell plate • Know where ingredients are; grown, reared, caught, processed.	• Understand and explain seasonality, food intolerances and cultural links to food • Use sensory vocabulary to describe food
Nutrition and Cookery Year 3	• Beginning to grate food • Spread margarine/butter • Begin to use accurate cutting techniques • Beginning to accurately cracking of eggs • Beginning to mix/ whisk • Beginning to weigh and measure • Observe the use of an oven heat source and H & S	Healthy eatwell plate, food names, grown, reared, caught, food hygiene practices, sensory vocabulary, ingredients, equipment, graters, bowls, baking trays, cooling trays) bridge/claw techniques, presentation, texture, bake, recipe, instructions, sandwiches/rolls, fairy cakes, fruit kebabs equipment/utensils (chopping and spreading knives, chopping boards, weighing scales, measuring jugs, wooden spoons, spatulas, whisks product, user, purpose, investigate, practise, plan, make, evaluate
Nutrition and Cookery Year 4	• Beginning to following a recipe • Weigh and measure ingredients • Beginning to mix, rest, knead, proof dough • Grate and peel • Improve cutting techniques • Use a food processor with supervision • Beginning to present food attractively • Use an oven heat source with supervision	Healthy eatwell plate, food names, grown, reared, caught, food hygiene practices, expanding sensory vocabulary, ingredients, equipment, Seasonal foods, foods from different cultures, Yeast, flour, water, dough, resting, proofing, kneading, seasonal vegetables, sauce, base, Ingredients, seasoning Pizza, toppings Cutting techniques- bridge/claw Equipment/utensils: Food processor, baking trays, pizza cutter, oven gloves product, user, purpose, investigate, practise, plan, make, evaluate
Nutrition and Cookery Year 5	• Follow a recipe • Mix, knead, rest, roll dough. • Season using spices • Use a food processor • Fry - using a heat source (hob) with adult supervision • Using appealing food presentation techniques	Healthy eatwell plate, food names, grown, reared, caught, food hygiene practices, expanding sensory vocabulary, ingredients, equipment, Seasonal foods, foods from different cultures, fajitas, guacamole, salsa, yeast, flour, water, dough, kneading, resting cutting techniques- bridge/claw, seasonal vegetables, dips seasoning- spices, equipment/utensils: Rolling pin, food processor, frying pan, spatula, product, user, purpose, investigate, practise, plan, make, evaluate
Nutrition and Cookery Year 6	Independently: • Follow a recipe, • Weigh and measure ingredients • Peel, mash • Making breadcrumbs • Use a food processor • Use a rubbing technique • Use a greasing technique • Use a hob and oven with adult supervision, • Use appealing food presentation techniques	Healthy eatwell plate, food names, grown, reared, caught, food hygiene practices, expanding sensory vocabulary, ingredients, equipment, Seasonal foods, foods from different cultures, Breadcrumbs, mashing, rubbing technique, Herbs- seasonings Utensils: grater, Food processor, sieve, wooden spoon, masher, greased, baking trays, bowls, cooling rack, product, user, purpose, investigate, practise, plan, make, evaluate

KS2 objectives:

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

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

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

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

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