Ferndale Primary School Design and Technology Progression of Skills



	Autumn	Spring	Summer
1	smoothies	wheels and axels	puppets
2	chairs	healthy wraps	Windmills
3	electronics – mirco bit	castles/CAD	cushions
4	Nighlight	adapting a recipe	slingshot chariots
5	stuffed toys	CAD handheld devices	Cultural cooking
6	catapults	waistcoats	Ferndale Food!

	Design	Make	Evaluate
EYFS	Experiments with design Record experiences by drawing, writing, voice recording Experiments with design and purpose. Learn to use simple tools and techniques e.g. playdough tools, hole punches, cutters, scissors etc safely.	Begin to construct - stack blocks vertically, make enclosures and create spaces. Explore a range of media through sensory exploration using the whole body. Join construction pieces together to build and balance. Make imaginative and complex 'small worlds' with blocks and construction kits Use tools and techniques needed to shape assemble and join the materials (through junk modelling – masking tape, cellotape, glue stick, pva, scissors, hole punch and string) Demonstrate how to safely use a variety of materials, tools and techniques.	Explore a range of media through sensory exploration using the whole body. Describe textures. Show an interest in technological toys and toys that have moving part. Share creations, explaining the processes used.

1	State what products they are designing and making Describe what their products are for Use existing knowledge to create their own designs Start to develop and communicate ideas through discussing and drawing Model ideas by exploring components and mock ups	Select what they need from a selection of tools, materials and machines Follow safety and hygiene procedures Measure, mark out, shape and cut materials	Explore what products are, what they are made from, who they are for, how they are used and where they are from Talk about what they like and dislike about existing products
2	Work confidently and imaginatively within a range of contexts, e.g. imaginary, local community, industry and wider environment State what products they are designing and making with a reason Say whether their products are for themselves or for others Say how their products will work and how they are suitable for intended users Use simple design criteria to help develop their ideas Develop and communicate ideas by talking and drawing Generate realistic ideas, focusing on the needs of the user	Plan by suggesting what to do next Select from a range of tools, machines and materials according to their characteristics Use a range of machines, materials, construction kits, textiles, food ingredients and mechanical products Explain their choices Assemble, join, combine materials and components with some accuracy	Make simple judgements about their products and ideas against design criteria Talk and write about how to improve their products Talk about what and why they like and dislike about existing products and give reasons
3	Indicate design features of their products Gather information about the needs and wants of individuals or groups Develop their own design criteria Use annotated diagrams and some computer-aided design packages to develop and communicate ideas Generate realistic ideas, focusing on the needs of the user	Select tools and equipment suitable for the task and explain their choices Order the main stages of making Measure, mark out, cut, shape materials and components with more accuracy Assemble, join and combine many materials with more accuracy Apply some finishing techniques	Identify the strengths and weaknesses in their ideas and products Consider the views of others Refer to their design criteria as they design and make Use their design criteria to evaluate their completed products Investigate and analyse how well products have been designed and made, if the method was successful and how well the product works
4	Describe the purpose of their products Indicate design features of their products that will appeal to intended users Develop their own design criteria and use this to inform ideas	Confidently select tools and equipment suitable to the task Select materials and machinery suitable to the task	Refer to their design criteria as they design and make Use their design criteria to evaluate and improve their completed products

	Model ideas using prototypes and pattern pieces Use annotated sketches, some cross-sectional drawings to develop and communicate ideas	Order the main stages of making in logical steps Apply several finishing techniques accurately	Investigate and analyse how well products have been designed and made with reasoning Investigate and analyse whether they achieved their purpose
5	Gather information about the needs and wants of individuals or groups Develop their own design criteria and use this to inform their ideas Develop a simple design specification to guide their thinking Use computer-aided design packages to develop and communicate ideas	Produce appropriate lists of tools, equipment and materials that they will need Formulate step-by-step plans as guide to making	Identify the strengths and weaknesses in their ideas and products confidently Evaluate their ideas and products against their original design specification Consider cost and sustainability
6	Indicate design features of their products that will appeal to intended users Develop a detailed design specification to guide their thinking and planning Select the most appropriate way to present the design	Show resourcefulness when faced with problems Accurately combine materials and components and apply finishing techniques Select materials fit for purpose, explaining choices, considering functionality Use techniques that involve a number of steps	Investigate and analyse what impact products have beyond their intended purpose Evaluate critically the quality of the design, manufacture and fitness for purpose of their products

Design and Technology Vocabulary Progression

Year 1 Vocabulary	blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel
Year 2 Vocabulary	alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute function, man-made, mould, natural, stable, stiff, strong, structure, test, weak axle, decorate, evaluation, ferris wheel, mechanism, stable, waterproof,
Year 3 Vocabulary	2D shapes, 3D shapes, castle, design criteria, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong, structure, tab, weak, pulley, system accurate, appliqué, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch Analogue, badge, CAD control design requirements digital digital revolution Display electronic electronic products fasten feature function initiate loops, microbit:
Year 4 Vocabulary	adapt, budget, equipment, evaluation, flavour, ingredients,method, net, packaging, prototype, quantity, recipe, target audience, unit of measurement, utilities air resistance, chassis, design, design criteria, function, graphics, kinetic energy, mechanism, net, structure Battery, bulb, buzzer cell component conductor copper design criteria electrical item electricity function insulator Series circuit switch test torch wire

Year 5 Vocabulary	aesthetic, computer-aided-design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template battery, buzzer, circuit, component, conductor, copper, design, design criteria, function, graphite, innovative, insulator, LED, modify, parallel circuit, series circuit, switch, target audience, test, wire
Year 6 Vocabulary	accompaniment, adjective, caption, collaboration, cookbook, cross-contamination, equipment, farm, flavour, illustration, imperativeverb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top-tips, unit of measurement accurate, adapt, annotate, design, design criteria, detail, fabric, fastening, knot, properties, running-stitch, seam, sew, shape, target audience, target customer, template, thread, unique, waistcoat, waterproof accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw

<u>Technical knowledge and skills</u>

	Material	Textiles	Construction	Mechanisms	Electronics
EYFS	Select tools & techniques to shape, assemble and join Look at similarities and differences between existing objects / materials /tools Use a range of small tools, including scissors (ELG PD)	Select tools & techniques to shape, assemble and join Draw round a template onto a material Describe textures using language appropriate Add layers to textiles by sticking on sequins/paper etc	Make imaginative and complex 'small worlds' with blocks and construction kits (3-4) Construct with a purpose, using a variety of resources Use simple tools and techniques Build / construct with a wide range of objects Select tools & techniques to shape, assemble and join	Explore how things work (3-4) Show an interest in technological toys and toys that have moving parts Talk about how things work	
KS1	Cut materials safely using tools provided. Measure and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).	Shape textiles using templates. Join textiles using running stitch. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).	Use materials to practise screwing, gluing materials to make and strengthen products.	Create products using levers, wheels and winding mechanisms. .	
Lower KS2	Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Select appropriate joining techniques/ resources.	Understand the need for a seam allowance. Join textiles with appropriate stitching. Select the most appropriate techniques to decorate textiles.	Choose suitable techniques to construct products or to repair items. Strengthen materials using suitable techniques.	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears.) Check resources prior to planning.	Use a simple circuit in a product Learn how to programme a simple device Use components in the circuit
Upper KS2	Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).	Create objects that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).	Develop a range of practical skills to create product (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).	Convert rotary motion to linea using cams. Use innovative combinations of electronics (or computing) and mechanics in product designs.	Incorporate a switch Confidently incorporate different component into the circuit Use different types of circuits

	Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).	Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles			

Cooking and nutrition	
EYFS	Knows importance of healthy diet and talks about ways to keep healthy Making healthy choices Begin to understand some food preparation tools, techniques and processes Discuss use of senses Understand need for variety in food
Year 1	Recognise that food comes from plants or animals Begin to recognise that everyone should eat at least five portions of fruit and vegetables every day Use different techniques, e.g. cutting, peeling.
Year 2	Know that food comes from plants or animals Know that food is farmed, grown elsewhere (e.g. home) or caught Name and sort foods into the five groups in 'The Eatwell Plate' Begin to recognise that everyone should eat at least five portions of fruit and vegetables every day Work safely and hygienically, without using a heat source Prepare a simple dishes Use different techniques with greater indpendence, e.g. cutting, peeling and grating Know that a healthy diet is made up from a variety and balance of different foods and drinks
Lower KS2	Know that food is farmed, reared, grown elsewhere (e.g. home), imported or caught locally, regionally and internationally Know how to prepare and cook a variety of predominately savory or sweet dishes safely and hygienically, including the use of a heat source Know how to use a range of techniques, e.g. peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Know how to prepare and cook a variety of savory or sweet dishes safely and hygienically, including the use of a heat source Adapt recipes and know about substances that can be added/adapted for added flavours
Upper KS2	Know the seasons and weather affect food availability and identify cultural dishes from around the world Know how food is processed into ingredients that can be eaten or used in cooking Know how to prepare and cook a variety of savory and some sweet dishes safely and hygienically, including the use of a heat source Know that a healthy diet is made up of a variety and balance of different foods and drink, as depicted in 'The Eatwell Plate' Know that recipes can be adapted to change the taste, texture, aroma, and appearance Know the importance of balanced diets and how to store, prepare and cook food safely and hygienically