Aston All Saints C of E Primary School
Whole School Design & Technology Progression Grid

		FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	*Understand users and purposes*	Say who they are making things for Talk about how their products work	Say who their products are for Talk about how their products will work	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	describe what their products are for say how their products will work explain how particular parts of their products work use design criteria to shape their ideas	Explain how the features of their products will appeal to intended users Explain how particular parts of their products work Gather information about the needs and wants of particular individuals and groups Develop their own simple design criteria and use these to shape their ideas	Describe the purpose of their products Indicate the design features of their products that will appeal to the intended users Explain how particular parts of their products work Gather information about the needs and wants of particular individuals and groups Develop a simple design specification to guide their thinking	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 Use market research to inform ideas Develop a design specification to guide their thinking

	Ideas	Use ideas from imagination or the world to make something	Use own ideas to make something Test out some ideas and materials with support	Use own experiences in their ideas Draw ideas and explain why they have been chosen Model ideas (try materials, parts and construction kits) Make a templates and mock-ups	Design a product, how it looks and works Think through ideas with someone else Model ideas using prototypes and pattern pieces Draw and label my design Use ICT to design to develop and communicate their ideas	Share and clarify ideas through discussion Model ideas using prototypes and pattern pieces Use annotated sketches to develop and communicate ideas Use ICT to design to develop and communicate their ideas	Share and clarify ideas through discussion Model ideas using prototypes and pattern pieces Use annotated sketches and cross-sectional drawings to develop and communicate their ideas Use ICT to develop and communicate their ideas Generate ideas drawn from research

		FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Making	*Planning*	Talk about how their idea will work	Explain how they will make their product	Choose tools and materials and explain why they have been chosen Make a simple plan before making	Select tools and equipment suitable for the task Follow a step by step plan, choosing the right materials and tools	Explain their choice of tools and equipment in relation to the skills and techniques they will be using and the task Choose materials and components according to how they work and look Order the main stages of making	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 Produce appropriate lists of tools, equipment and materials that they will need Make step-by-step plans as a guide to making.	

	Practical skills and techniques	Use scissors to cut straight and curved lines. Cut around marked lines with increased accuracy. Colour finished work	Use scissors safely to cut around a marked line Make a product which moves Colour my finished product	Join and combine materials in different ways Choose appropriate resources and tools safely Measure, mark out, cut and shape materials Use finishing techniques, including those from art and design	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 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 <u>Food</u>:	Follow procedures for safety and hygiene Use a wider range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components

			Food: How to prepare simple dishes safely and hygienically without heat How to use techniques such as cutting, peeling and grating	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.	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 tasks Food: 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 Adapt recipes to change the

					appearance, taste, texture and aroma.

Evaluating	*Own ideas and products*	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Talk about their design ideas and what they are making Say if their idea worked	Talk about their design ideas and what they are making Say if their idea worked	Make simple judgements about their products and ideas against design criteria Suggest how their products could be improved	Show how their final product meets the design criteria Explain what went well and what they would change in their final design	Explain what went well and what they would change Use design criteria as they design and make Use their design criteria to evaluate their completed products Explain how they improved their original design	Identify the strengths and areas for development in their ideas and products Consider the views of others, including intended users 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	

	Investigation existing products	Talk about how toys work and what different parts do.	Who are they for? What are they for? How does it work? How and where are they used What materials is it made from? What do you like and dislike about it?	How well have products been designed and made? Why have those materials been chosen? What methods of construction have been used? How well do they work and achieve their purposes and meet user needs and wants? <u>Investigate and analyse:</u> Where products were designed and made When products were designed and made Whether products	How well have products been designed and made? Why have those materials been chosen? What methods of construction have been used? How well do they work and achieve their purposes and meet user needs and wants? <u>Investigate and analyse:</u> How much products cost to make How innovative products are How sustainable the materials in	Talk about how toys work and what different parts do.	• Who are they for? • What are they for? • How does it work? • How and where are they used • What materials is it made from? What do you like and dislike about it?	

				can be recycled or reused	products are What impact products have beyond their intended purpose		

Technical Knowledge	Designers	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	Use learning from science and maths helps design and make products that work Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	Apply learning from science and maths to help design and make products that work Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	

	Textiles	explore what materials are like.	Know simple properties of materials	Know characteristics of materials and components that a 3-D textiles product can be assembled from two identical fabric shapes	That materials have both functional properties and aesthetic qualities That a single fabric shape can be used to make a 3D textiles product	Know materials can be combined and mixed to create more useful characteristics	That materials have both functional properties and aesthetic qualities That materials can be combined and mixed to create more useful characteristics That a 3D textiles product can be made from a combination of fabric shapes
	Structure	Explore building structures from construction materials (blocks)	Know how to make structures stronger, stiffer and more stable		How to make strong, stiff shell structures	How to make strong, stiff shell structures	How to reinforce and strengthen a 3D framework (eg triangulation, Jinx Joints, cross beams)

	Mechanism	Know how to make part of a model move (slider, wheels)	Know how to make a model move using simple mechanisms such as levers, sliders, wheels and axles About the movement of simple mechanisms such as levers, sliders, wheels and axles	How mechanical systems such as levers and linkages create movement	How mechanical systems such as levers and linkages or pneumatic systems create movement Know how simple electrical circuits and components can be used to create functional products	How mechanical systems such as cams or pulleys or gears create movement That mechanical and electrical systems have an input, process and output How to program a computer to monitor changes in the environment and control their products	Know how to make part of a model move (slider, wheels)

	Food		That all food comes from plants or animals That everyone should eat at least five portions of fruit and vegetables every day	Know that food has to be farmed, grown elsewhere (e.g. home) or caught That food ingredients should be combined according to their sensory characteristics How to name and sort foods into the five groups in The Eatwell plate	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. Know that seasons may affect the food available Know how food is processed into ingredients that can be eaten or used in cooking That food ingredients can be fresh, pre-cooked and processed 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	Know that seasons may affect the food available Know how food is processed into ingredients that can be eaten or used in cooking Know the environmental impact of food and food miles That different food and drink contain different substances – nutrients, water and fibre – that are needed for health That a recipe can be adapted by adding or substituting one or more ingredients That a recipe can be adapted by adding or substituting one or more ingredients

Vocabulary		FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Design Process	ideas, make,	design, make, evaluate, user, ideas, product, function, features,	purpose, design criteria, function, suitable				
	Textiles			thread, pins, needles, staplers, staples, fabric glue, template, pattern pieces, mark out, join, decorate, finish	fabric, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, pattern pieces		seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces pins, needles, thread, pinking shears, iron transfer paper mock-up, prototype	

	Structure		structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, corner, point thinner, thicker, straight, curved metal, wood, plastic	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, stiff, strong, corrugating, ribbing, laminating	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent

	Mechanism		slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join	<u>Wheels and axels:</u> vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism	<u>Pneumatics</u>: components, attaching, tubing, syringe, plunger, split pin, pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating (motion) <u>Electrical circuits</u> series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device	<u>Cams</u>: cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion mechanical system, input movement, process, output movement <u>Electrical circuits:</u> series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart

	Food		fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, ingredients, arranging,	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, sensory evaluations hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble