National	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Physical Development Exploring media and materials How to use one handed tools and equipment with control to achieve their intended purpose. How to thread a needle and sew a simple running stitch. How to thread an eedle and sew a simple running stitch. How to tusing scissors To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out regular shapes. To learn how to use the appropriate amount of glue and tape in joining materials together. Exploring media and materials together. Key Stage 1 Key Stage 1 Lower Key Stage 2 KS2 Pupils should be taught about: 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 dis exploded diagrams, prototypes, pattern pieces and computer-aided of Make • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Assume the physical Development (Stage 2 Coverable (Coverable (Coverabl					Upper K gn of innovative, functional, ap ough discussion, annotated ske r-aided design. to perform practical tasks [for e	pealing products that are fit etches, cross-sectional and example, cutting, shaping, aterials, textiles and		
	tape in joining materials together. components, including construction materials, textiles and		 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 					
	 Share their creations, explaining the process they have used; Make use of props and materials when role playing characters in narratives and stories. Fine Motor Skills. Use a range of small tools, including scissors, paint brushes and cutlery; Begin to show accuracy and care when drawing. 							
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. 			 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 discussions, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 				
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	

Vov Objectives	Van Ohiostinas		y - Progression of Skills	Vay Objectives	Kov Objectives	Vay Objectives		
Key Objectives	Key Objectives * have own ideas	Key Objectives	Key Objectives *begin to research others'	Key Objectives	Key Objectives *use internet and	* draw on market research		
Select appropriate		* have own ideas and plan what to do next		* use research for design				
resources	* explain what I want to do		needs	ideas	questionnaires for research	to inform design		
*Use gestures, talking and arrangements	*explain what my product is	* explain what I want to do	* show design meets a	* show design meets a	and design ideas	* use research of user's		
of materials and components to show	for, and how it will	and describe how I	range	range of requirements and	*take a user's view into	individual needs, wants,		
design	work	may do it	of requirements	is fit for purpose	account when designing	requirements for design		
* Use contexts set by the teacher and	* use pictures and words to	* explain purpose of	* describe purpose of	*begin to create own design	* begin to consider	* identify features of design		
myself	plan, begin to use	product, how it will work	product	criteria	needs/wants of	that will appeal to the		
*Use language of designing and making	models	and how it will be suitable	* follow a given design	*have at least one idea	individuals/groups when	intended user		
(join, build, shape, longer, shorter, heavier	* design a product for	for the user	criteria	about how to create product	designing and ensure	* create own design criteria		
etc.)	myself	* describe design using	* have at least one idea	and suggest improvements	product is fit for purpose	and specification		
	following design criteria	pictures, words, models,	about how to create	for design.	*create own design criteria	* come up with innovative		
	*research similar	diagrams, begin to use ICT	product	* produce a plan and explain	* have a range of ideas	design ideas		
	Existing products	* design products for myself	* create a plan which shows	it to others	*produce a logical, realistic	*follow and refine a logical		
		and others following design	order, equipment and	*say how realistic plan is.	plan and explain it to	plan.		
		criteria	tools	*include an annotated	others.	*use annotated sketches,		
		* choose best tools	*describe design using an	sketch	*use cross-sectional	cross-sectional planning and		
		And materials, and explain	accurately labelled sketch	*make and explain design	planning and annotated	exploded diagrams		
		choices	and words	decisions considering	sketches	* make design decisions,		
		* use knowledge of existing	* make design decisions	availability of resources	* make design decisions	considering, resources and		
		products to produce	*explain how product will	*explain how product will	considering time and	cost		
		ideas	work	work	resources.	* clearly explain how parts		
			* make a prototype	* make a prototype	*clearly explain how parts of	of design will work, and how		
			* begin to use computers to	*begin to use computers to	product will work.	they are fit for purpose		
			show design	show design	*model and refine design	* independently model and		
					ideas by making prototypes	refine design ideas by		
					and using	making prototypes and		
					pattern pieces.	using pattern pieces		
					*use computer-aided	* use computer-aided		
					designs	designs		
Outcomes	Outcomes		Outcomes					
	 To design purposeful, 	functional, appealing	 To use research and d 	evelop design criteria to inform	the design of innovative, funct	ional, appealing products that		
 Begin to use the language of 	products based on de	sign criteria.	are fit for purpose, air	med at particular individuals or	groups			
designing and making, e.g. join,	designing and making, e.g. join, • To generate, develop, model and communicate			To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional				
build and shape.	their ideas through ta	lking, drawing, templates,	and exploded diagram	and exploded diagrams, prototypes, pattern pieces and computer aided design				
 Learning about planning and 	mock-ups and, where							
adapting initial ideas to make								
th and heatten								

them better.

Make	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Kay	 Stage 1		Kay	Stage 2	
	 select from and use a range of tools a cutting, shaping, joining and finishing] select from and use a wide range of r textiles and ingredients, according to Key Objectives Construct with a purpose, using a 	naterials and components, incl		joining and finishing] • select from and use a	, accurately	components, including construc	tion materials, textiles and Key Objectives * use selected tools
	 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 Replicate structures with materials /components Discuss how to make an activity safe and hygienic Record experiences by drawing, writing, voice recording Understand different media can be combined for a purpose 	making and why *consider what I need to do next *select tools/equipment to cut, shape, join,	explain what I am making and why it fits the purpose *make suggestions as to what I need to do next. *join materials/components together in different ways *measure, mark out, cut and shape materials and components, with support. *describe which tools I'm using and why *choose suitable materials and explain choices depending on characteristics. *use finishing techniques to make product look good	tools/equipment, explain choices; begin to use them accurately * select appropriate materials, fit for purpose. * work through plan in order *consider how good product will be * begin to measure, mark out, cut and shape materials/components with some accuracy * begin to assemble, join and combine materials and components with some accuracy * begin to apply a	equipment, explain choices in relation to required techniques and use accurately *select appropriate materials, fit for purpose; explain choices * work through plan in order. * realise if product is going to be good quality * measure, mark out, cut and shape materials/components with some accuracy *assemble, join and combine materials and components with some accuracy *apply a range of finishing	tools/equipment with good level of precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality * create and follow detailed stepby-step plan * explain how product will appeal to an audience * mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and combine materials/components	and equipment precisely *produce suitable lists of tools, equipment, materials needed, considering constraints * select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics * create, follow, and adapt detailed step-by-step plans *explain how product will appeal to audience; make changes to improve quality * accurately measure, mark out, cut and shape materials/components * accurately

	*work safely and hygienically	range of finishing techniques with some accuracy	techniques with some accuracy	* mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful	assemble, join and combine materials/components * accurately apply a range of finishing techniques * use techniques that involve a number of steps * be resourceful with Practical problems
 Outcomes To learn to construct with a purpose in mind. Selects tools and techniques needed to shape, assemble and join materials. 	To select from and use a range of tools and equipment to perform practical tasks [for example cutting, shaping, joining and finishing] To select from and use a wide range of materials and components, including construction materials textiles and ingredients, according to their characteristics	 Outcomes To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To select from and use a wider range of materials and components, including construction materials, textiles a ingredients, according to their functional properties and aesthetic qualities. 			

valuate	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
		Ка	Kay Stage 1		Kay Stage 2				
	 explore and evaluate a range of exi evaluate their ideas and products a 	~ .		 evaluate their ide work 	 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. 				
	Key Objectives	Key Objectives	Key Objectives	Key Objectives	Key Objectives	Key Objectives	Key Objectives		
	*Adapt work if	*talk about my work,	* describe what	* look at design	*refer to design criteria while	*evaluate quality of	*evaluate quality of		
	necessary	linking it	went well,	criteria while	designing and making	design while	design while		
	*Dismantle, examine,	to what I was asked	thinking about	designing and	*use criteria to evaluate	designing and	designing and		
	talk about	to do	design criteria	making	product	making	making; is it fit for		
	existing	* talk about existing	* talk about	*use design criteria	* begin to explain how I could	*evaluate ideas and	purpose?		
	objects/structures	products	existing products	to	improve original design	finished	* keep checking		
	*Consider and manage	considering: use,	considering: use,	evaluate finished	*evaluate existing products,	product against	design is best it can		
	some	materials,	materials,	product	considering: how well they've	specification,	be.		
	risks	how they work,	how they work,	* say what I would	been made, materials, whether	considering purpose	*evaluate ideas and		
	*Practise some	audience,	audience,	change to	they work, how they have	and	finished product		
	appropriate	where they might be	where they might	make design better	been	appearance.	against specification,		
	safety measures	used	be used;	*begin to evaluate	made, fit for purpose	*test and evaluate	stating if it's fit		
	independently	*talk about existing	express personal	existing	* discuss by whom, when and	final product	for purpose		
	*Talk about how things	products,	opinion	products,	where products were designed	* evaluate and	*test and evaluate		
	work	and say what is and	*evaluate how	considering: how	* research whether products	discuss existing	final product;		
	*Look at similarities	isn't good	good existing	well they have been	can be recycled or reused	products,	explain what would		
	and	* talk about things	products are	made,	* know about some	considering: how	improve it and the		
	differences between	that other	*talk about what I	materials, whether	inventors/designers/	well	effect different		
	existing	people have made	would do	they work,	engineers/chefs/manufacturers	they've been made,	resources may have		
	objects / materials /	*begin to talk about	differently if I were	how they have been	of ground-breaking products	materials,	had		
	tools	what	to do it	made, fit		whether they work,	*do thorough		
	*Show an interest in	could make product	again and why	for purpose		how they have	evaluations of		
	technological toys	better		* begin to		been made, fit for	existing		
	*Describe textures			understand by		purpose	products considering:		
				whom, when and		* begin to evaluate			

	T	Design and recime	riogy riogicssion of skills			
			where products were		how much products cost to	how well they've been
			designed		make and how	made,
			* learn about some		innovative they are	materials,
			inventors/designers/		*research how	whether they work,
			engineers/chefs/		sustainable	how they've been
			manufacturers of		materials are	made, fit for purpose
			ground-breaking		*talk about some key	*evaluate how much
			products		inventors/designers/	products cost to
			products		engineers/	make and how
					chefs/manufacturers	
						innovative they are
					of ground-breaking	*research and
					products	discuss how
						sustainable
						materials are
						*consider the impact
						of products
						beyond their
						intended purpose
						*discuss some key
						inventors/designers/
						engineers/
						chefs/manufacturers
						of ground-breaking
						products
Outcomes	Outcomes	1	Outcomes		<u> </u>	products
Outcomes						
		uate a range of existing	_	alyse a range of existing products.		
Begin to talk about changes made	products.			s and products against their own o	lesign criteria and consider the	views of others to improve
during the making process, e.g.		eas and products against	their work.			
making a decision to use a different	design criteria.		To understand how ke	ey events and individuals in design	and technology have helped sh	ape the world.
joining method.		1				
Key	Key	Key	Key	=	Key	Key
Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary
Planning	Planning	Investigating,	User	Evaluating	Design decisions	Function
Investigating	Investigating	Planning	Purpose	Design brief	Functionality	Innovative
Design	Design	Design	Design	Design criteria	Authentic	Design
Evaluate	Evaluate	Make	Model	Innovative	User	Specification
Make	Make	Evaluate	Evaluate		Purpose	Design brief
	User	User	Prototype		Design specification	User
	Purpose	Purpose	Annotated sketch		Design brief	Purpose
	Idea	Ideas	Functional	-	Innovative	Design brief
	Product	Design	Innovative		Research	Design
	- roudet	Criteria	Investigate	, ,	Evaluate	Specification
		Product	Label	_	Design criteria	Prototype
					_	* *
		Function	Drawing		Annotate	Annotated sketch
			function	''	Evaluate	Purpose
			Planning,	_	Mock-up	User
			Design criteria	_	Prototype	Innovation
			Annotated	Annotated sketch		Research
			Clastela	Canadania		E
			Sketch	Sensory evaluations		Functional
			Appealing	Sensory evaluations		Mock-up

Mechanisms	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6			
	Physical Development	National Curriculum	1	National Curriculum						
	Exploring media and									
	materials	KS1 Pupils should be taught abo	ut:	KS2 Pupils should be taught about:						
		When designing and making, pu	pils should	When designing and making, pupils should be taught to:						
	 How to use one 	be taught to:		Design						
	handed tools and	Design				e design of innovative, functional,				
	equipment with	achieve appealing products for themselves			appealing products that are fit for purpose, aimed at particular individuals or groups					
	control to achieve					eas through discussion, annotated				
	their intended				al and exploded diagrams, proto	otypes, pattern pieces and comput	er aided design.			
	purpose. criteria			Make						
	Use simple					ment to perform practical tasks [fo	Or .			
	construction	communicate their ideas through			ng, joining and finishing], accura					
	materials	talking, drawing, templates, mo information and communication		select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, and post of the select from and the select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from and use a wider range of materials and components, including construction select from a select from the selec						
		technology.	ı	materials, textiles and ingredients, according to their functional properties and aesthetic qualities						
		Make		Evaluate						
		select from and use a range of	:	• investigate and analyse a range of existing products						
		tools and equipment to perform		• evaluate their ideas and products against their own design criteria and consider the views of						
		practical tasks [for example,		others to improve their work						
		cutting, shaping, joining and		understand how key events and individuals in design and technology have helped shape the						
		finishing]		world Technical knowledge						
		• select from and use a wide rar	nge	apply their understanding of how to strengthen, stiffen and reinforce more complex structures						
		of materials and components,		• understand and use mechanical systems in their products [for example, gears, pulleys, cams,						
		including construction materials		levers and linkages]						
		textiles and ingredients, accordi	ng		lectrical systems in their produc	cts [for example, series circuits				
		to their characteristics			bulbs, buzzers and motors]					
		Evaluate		apply their understan	ding of computing to program,	monitor and control their products	S.			
		explore and evaluate a range of the second sec	of							
		existing products								
		evaluate their ideas and produced against design criteria Technical								
		against design criteria Technical knowledge								
		build structures, exploring how	w they							
		can be made stronger, stiffer an								
		more stable	.							
		explore and use mechanisms	for							
		explore and age mediamons								

	example, levers, sliders, wheels and axles], in their product	•				
Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
Use simple construction materials e.g duplo to stack and join pieces, tell an adult what they are making	Sliders and Levers To use own ideas to design something and describe how their own idea works To design a product which moves To explain to someone else how they want to make their product and make a simple plan before making To use own ideas to make something To make a product which moves To choose appropriate resources and tools To describe how something works To explain what works well and not so well in the model they have made To generate ideas based on simple design criteria and their own experiences, explaining what they could make. To develop, model and communicate their ideas through drawings and mockups with card and paper. To plan by suggesting what to do next. To select and use tools, explaining their choices, to cut, shape and join paper and card. To use simple finishing techniques suitable for the product they are creating. To explore and use sliders and levers. To understand that different mechanisms	Wheels and Axles Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups. Making Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. Evaluating Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria. Technical knowledge and understanding Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.	Pneumatics Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. Making • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. Evaluating • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. Technical knowledge and understanding • Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	Levers and Linkages Designing Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas. Making Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating. Evaluating Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. Technical knowledge and understanding Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project.	• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Making • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project. Technical knowledge and understanding	Pulleys or Gears Designing Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Making Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. Investigate famous manufacturing and engineering companies relevant to the project. Technical knowledge and understanding Understand that mechanical and electrical systems have an input, process and an output.

produce different types of movement. To know and use technical vocabulary relevant to the project. Final Outcome Final Outcome Outcomes To begin to experiment with leavers and sides in different scenarios with knobs or pulleys, real objects such as smobile phones and tablets such as mobile phones and tablets such as mobile phones and tablets Shows all in making tops work by pressing parts or lifting flaps to achieve effect such as sound, movements or new images Plays with a range of materials to learn case and effect, for example, makes a string pulpet using dowels and string to suspend the puppet. Produce offerent scanarios and towns read to complete the puppet using dowels and string to suspend the puppet. Produce offerent scanarios and towns read t		
Outcomes To begin to experiment with leavers and slides in different scenarios Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, levers, silders, wheels and axles, in their products. Wheels and Axles Pusumatics Wheels and Axles push/pull toys e, g. emergency service vehicle carnival float carnival float carnival float character shopping trolley Wheels and Axles Pusumatics Levers and Linkages to tipper truck jack-in-the-box jack-in-the-box jack-in-the-box jack-in-the-box poster information book poster character shopping trolley story board to tippe truck jack-in-the-box poster character shop window display moving reature shop window display moving toy story board to tippe truck jack-in-the-box poster character shop window display moving toy story board a shop display with moving creature shop window display moving toy moving toy story board a shop display with moving creature shop window display moving toy moving toy story board a shop display with moving creature shop window display moving toy m	Final Outcome	 Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.
To begin to experiment with leavers and slides in different scenarios Shows an interest in technological toys with knobs or pulley, real objects such as cameras, and touchscreen devices such as mobile phones and tablets Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string toy wends and string toy experiment with leavers and siders, wheels and axies, in their products [for example, gears, pulley example, pears, pulley in their products. Wheels and Axies Push/pull toys e.g. emergency service vehicle colom's car colomo scar col		Final Outcome
Class/group storybook poster display emergency service vehicle display information book storyboard Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string to	To begin to experiment with leavers and slides ir	ams, levers and linkages].
string puppet using dowels and string to	technological toys with knobs or pulleys, real objects such as cameras, ar touchscreen device such as mobile phones and tablets Shows skill in making toys work be pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for	fairground ride with gears or pulleys e.g. carousel, Ferris wheel controllable toy vehicle with gears or pulleys e.g. dragster, off-road vehicle sports car, lorry window display with moving parts e.g. lifting or turning items for sale
Key vocabulary	string puppet using dowels and string to suspend the puppe	Key Vocabulary

			nnology – Progression of Skill			
Slot	Sliders and Levers	Wheels and Axles	<u>Pneumatics</u>	Levers and Linkages	CAMS	Pulleys or Gears
Card	Slider	assembling	Components	Mechanism	Cam	Pulley
Masking	Lever	joining	Fixing	Lever	snail cam	drive belt
Таре	Pivot	shaping	Attaching	Linkage	off-centre cam	gear
Paper fastener	Slot	finishing	Tubing	Pivot		rotation
Join	bridge/guide	fixed	Syringe	Slot	peg cam	spindle
Pull	card	free	Plunger	Bridge	pear shaped cam follower	
Push	masking tape	moving	split pin	guide	axle	driver
Up	paper fastener	equipment	paper fastener	system	shaft	follower
Down	join 	materials used	pneumatic system	input		ratio
Straight	pull	design make	input movement	process	crank	transmit
Curve	push	evaluate	process	output	handle	axle
	up	purpose	output movement	linear	housing	
Forwards	down	user	control	rotary	framework rotation	motor
Backwards	straight	criteria	compression	oscillating	rotary motion	circuit
Bricks	curve forwards	functional	pressure			switch
Pieces	backwards	Vehicle	inflate	reciprocating	oscillating motion	circuit diagram
Wheels	design	Wheel	deflate	user	reciprocating motion	annotated drawings
Axle	make	Axle Axle holder	pump	purpose	annotated sketches	_
steering wheel	evaluate	Chassis	seal	function	exploded diagrams	exploded diagrams
seat	user	Body	air-tight	prototype	mechanical system	mechanical system
figure	purpose	Cab	linear	design criteria	input movement	electrical system
shape names e.g. cube,	ideas	Assembling	rotary	innovative	process	input
cuboid	design criteria	Cutting Joining,	user	appealing	output movement design	process
Build	product	Shaping	purpose	design brief	decisions	
Construct	function	Finishing	function		functionality	output
push together	Key	Fixed	prototype			design decisions
pull apart	Vocabulary	Free Moving	design criteria		innovation	functionality
big	Slider	Mechanism	innovative		authentic	innovation
small	Lever	Names of	appealing		user	authentic
	Pivot	tools equipment and	design brief		purpose	
	Slot,	materials used	research		design specification	user
	Bridge/guide		evaluate			purpose
	Card		ideas		design brief	design specification
	Masking		constraints			design brief
	Tape					

Paper faste Join Pull Push Up Down Straight Curve Forwards Backwards	S	investigate Mechanism Lever Linkage Pivot Slot Bridge Guide System Input Process Output Linear Rotary Oscillating Reciprocating		Pulley Drive belt Gear Rotation Spindle Driver Follower Ratio Transmit Axle, Motor Circuit Switch Circuit diagram Annotated drawings Exploded diagrams Mechanical system Electrical system Input Process Output
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Freestanding	Physical Development	National Curriculum	National Curriculum							
structures	Exploring media and									
	materials	Pupils should be taught:	Pupils should be taught:							
	How to use one handed	 The knowledge, understanding and skills needed to 	 The knowledge, understanding and skills needed to engage in an iterative process of designing and making. 							
	tools and equipment with	engage in an iterative process of designing and making.	orocess of designing and making. • To work in a range of relevant contexts [for example, the home, school, leisure, culture, ente							
	control to achieve their intended purpose. To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out	To work in a range of relevant contexts [for example, the	environment].							
		home and school, gardens and playgrounds, the local community, industry and the wider environment].	 To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit fo purpose, aimed at particular individuals or groups 							
		 To design purposeful, functional, appealing products for themselves and other users based on design criteria 		odel and communicate their ideal otypes, pattern pieces and complete.		sketches, cross-sectional and om and use a wider range of tools				
		To generate, develop, model and communicate their	and equipment to perfo	rm practical tasks [for example, cu	utting, shaping, joining and finish	ning], accurately				
		ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication		wide range of materials and com their functional properties and a	•	materials, textiles and te and analyse a range of existing				
		technology	products							
	regular shapes.	 To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, 	 To evaluate their ideas a work 	nd products against their own de	sign criteria and consider the vie	ews of others to improve their				
	To learn how to use the	joining and finishing]	To understand how key	events and individuals in design a	nd technology have helped shap	e the world				
	appropriate amount of	To select from and use a wide range of materials and	To apply their understar	iding of how to strengthen, stiffer	n and reinforce more complex st	ructures				
	glue and tape in joining	components, including construction materials, textiles	To understand and use r	nechanical systems in their produ	icts [for example, gears, pulleys,	cams, levers and linkages]				
	materials together.	and ingredients, according to their characteristics	understand and use elect	trical systems in their products [for	or example, series circuits incorp	porating switches, bulbs, buzzers				
		To explore and evaluate a range of existing products	and motors]							
			 To apply their understar 	iding of computing to program, m	nonitor and control their product	ts.				

Year 3

Year 4

Year 5

Year 6

Structures

EYFS

Year 1

Year 2

	stronger, stiffer and mor	oring how they can be made re stable nanisms [for example, levers,				
Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
Build structures, exploring how they can be made stronger, stiffer and more stable Stacking blocks vertically and horizontally Joining construction pieces to build and balance Making enclosures and creating spaces Uses various construction materials Use a range of small tools, including scissors, paint brushes and cutlery Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function Share their creations, explaining the process they have used	Preestanding structures make their own model stronger Designing Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through talking, mock-ups and drawings. Making Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices. Select new and reclaimed materials and construction kits to build their structures. Use simple finishing techniques suitable for the structure they are creating. Evaluating Technical knowledge and	make a model stronger and more stable use wheels and axles, when appropriate to do so	Shell Structures – Using CAD (Computer Aided Design) Designing Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computeraided design to model and communicate ideas. Making Plan the order of the main stages of making. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use computer-generated finishing techniques suitable for the product they are creating. Evaluating In Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose.	Shell Structures Designing Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computeraided design to model and communicate ideas. Making Plan the order of the main stages of making. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use computer-generated finishing techniques suitable for the product they are creating. Evaluating Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose. Technical knowledge and understanding Develop and use knowledge	 surveys, interviews, questions Develop a simple design specidevelopment of their ideas and constraints including time, res Generate, develop and model discussion, prototypes and and Making Formulate a clear plan, including needs to be done and lists of r Competently select from and accurately measure, mark out materials to make frameworks Use finishing and decorative the product they are designing and materials Investigate and evaluate a randomic critically evaluate their product specification, intended user and constructions 	d products, taking account of ources and cost. innovative ideas, through notated sketches. ing a step-by-step list of what resources to be used. use appropriate tools to cut, shape and join construction s. echniques suitable for the d making. ge of existing frame structures. cts against their design and purpose, identifying strengths and carrying out appropriate tests. iduals relevant to frame rstanding n, stiffen and reinforce 3-D
	understanding		Technical knowledge and understanding	of nets of cubes and cuboids		

	Design and 16	echnology – Progression of Ski	lls	
	Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.	 Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Develop and use knowledge of how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project. 	and, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.	
Final Outcome	Final Outcome		Final O	utcome
 To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. Learn how everyday objects work by dismantling things. 	To build structures, exploring how they can be made stronger, stiffer and more stable.	To apply their understand	nding of how to strengthen, stiffen	and reinforce more complex structures.
distributing tillings.	Freestanding structures enclosures for farm or zoo animals playground/park/garden furniture bridge for Billy Goats Gruff playground equipment furniture for the Three Bears other – specific	Shell Structures – Using CAD (Computer Aided Design)	Shell Structures	Frame Structures playground shelter market stall bus shelter tent play house gazebo bird hide parasol park furniture adventure playground equipment kite
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary

Key	Freestanding structures	Shell Structures – Using CAD (Computer Aided Design)	Frame Structures
, Vocabulary	Design	shell structure	frame structure
Cut	Make	three-dimensional (3-D) shape net	stiffen
Fold	Evaluate		strengthen
Join		cube	reinforce
Fix	User	cuboid	triangulation
Structure	Purpose	prism	stability
Wall	Ideas	vertex	shape
Tower Weak	design criteria	edge	join
Strong	product	face	temporary permanent
Base		length	design brief
Тор	function	width	design specification
Underneath	Cut	breadth	prototype
Side	Fold		annotated sketch
Edge	Join	capacity	purpose
Thinner	Fix	marking out	user
Inicker		scoring	innovation
Corner	Structure	shaping	research
Straight Curved	Wall	tabs	functional Frame structure
Metal	Tower	adhesives	Stiffen
Wood	Framework	joining	Strengthen
Plastic	Weak,	assemble	Reinforce
Circle	Strong	accuracy	Triangulation
Triangle	Base	material	Stability
Square	Тор	stiff	Shape
Rectangle Cuboid	Underneath		Join Temporary
Cube		strong	Permanent
Cylinder	Side _ ·	reduce	
,	Edge	reuse	
	Surface	recycle	
	Thinner	corrugating	
	Thicker	ribbing	
	Corner	laminating	
	Point	font	
	Straight	lettering	
	Curved	text	
	Metal	graphics	
	Wood	decision	
		evaluating	
	Plastic	design brief	
	Circle	design criteria	
	Triangle	innovative	
	Square	prototype	
	Rectangle		

Design and Technology – Progression of Skills

Cube
Cylinder

Food	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	 To begin to understand some of the tools, techniques and processes involved in food preparation. Children have basic hygiene awareness. 	how to cook and apply healthy eating. Instilling also open a door to one human creativity. • Learning how to cook is pupils to feed themselv well, now and in later literally well, now and in later literally use the basic principles prepare dishes • understand where food	of a healthy and varied diet to comes from. of a healthy and varied diet to	 eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human cree Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordable 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 		uman creativity. affordably and well, now and in	
		Key Learning Outcomes			Key Learnin	ng Outcomes	
	 Use the basic principles Understand where food 	s of a healthy and varied diet to produced comes from.	epare dishes	Prepare and cook a varie		ed diet nes using a range of cooking techni ety of ingredients are grown, reare	
	Learn to use cutlery offectively to set food	cut food safely		Healthy and varied diet		Celebrating Culture and Seasona	lity
	effectively to cut food, including challenging food that needs more stabilising whilst being cut • Learn to prepare a healthy snack and explain choices. • Name the fruit • Select a piece, say please and thank you • To know to wash hands before selecting	 Design appealing products for simple design criteria. Generate initial ideas and design a variety of fruit and vegetable. Communicate these ideas thrown. Making. Use simple utensils and equip. 	a particular user based on gn criteria through investigating es. bugh talk and drawings.	Designing Generate and clarify ideas through adults to develop design critering texture and aroma for an appearage user and purpose. Use annotated sketches and approximate communication technology, sure develop and communicate idea. Making Plan the main stages of a recipier and equipment.	a including appearance, taste, aling product for a particular opropriate information and ch as web-based recipes, to as.	 a design specification. Explore a range of initial ideas, develop a final product linked to the use words, annotated sketches communication technology as communicate ideas. 	and make design decisions to co user and purpose. s and information and appropriate to develop and
	 snack and eating Willing to try a range of different textures and tastes and expresses a preference. 	product. • weigh ingredier describe the ingredients used w	d vegetables according to their ture and taste to create a chosen its to use in a recipe	 Select and use appropriate ute and combine ingredients. Select from a range of ingredie products, thinking about senso 	nts to make appropriate food	 Write a step-by-step recipe, incequipment and utensils Select and use appropriate ute to measure and combine appropriate. Make, decorate and present the for the intended user and purp 	ensils and equipment accurately opriate ingredients. The food product appropriately
		• Taste and evaluate a range of	fruit and vegetables to	• Carry out sensory evaluations of	of a variety of ingredients and	Evaluating	
		 determine the intended user's Evaluate ideas and finished princluding intended user and princluding intended user's 	preferences. oducts against design criteria,	 products. Record the evaluatio graphs. Evaluate the ongoing work and reference to the design criteria 	I the final product with	 Carry out sensory evaluations of and ingredients. Record the evaluations of tables/graphs/charts such as stensors. Evaluate the final product with 	aluations using e.g. car diagrams.
		Technical knowledge and unde • Understand where a range of e.g. farmed or grown at home	fruit and vegetables come from	Technical knowledge and under		1	taking into account the views of vements. The influenced eating habits to

promote varied and healthy diets.

	 Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eat well plate</i>. Know and use technical and sensory vocabulary relevant to the project. 	 Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately 	 Technical knowledge and understanding Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
Final Outcome	Final Outcome	Final Outcome	Final Outcome
 Wash and prepare/chop fruit/snack with adult supervision Offer snack using polite language – would you like a Use language sweet, sour, juicy To know to wash hands before preparing, selecting or eating snack/lunch To make healthy choices of food and drink (water or milk) 	Preparing fruits and vegetables fruit salads fruit yogurt fruit drinks fruit jelly fruit smoothies vegetable salads fruit and vegetable kebabs	Healthy and varied diet sandwiches wraps rolls pitta pockets blinis rice cakes toasties snack bar salad snacks	bread pizza savoury biscuits savoury scones savoury muffin cereal snack
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary
Fruit and vegetable names Names of equipment and utensils Seed Slicing Peeling Cutting Squeezing Healthy diet Ingredients Sweet Sour Juicy	Preparing fruits and vegetables 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 choosing ingredients planning investigating tasting arranging popular design evaluate criteria Fruit	Healthy varied diet planning design criteria purpose user annotated sketch sensory evaluations Name of products Names of equipment Utensils Techniques Ingredients Texture Taste Sweet Sour Hot Spicy Appearance Smell Preference Greasy Moist, Cook Fresh Savoury	Celebrating Culture Seasonality rubbing in sprinkle crumble design specification innovative research evaluate design brief Ingredients Yeast Dough Bran Flour Wholemeal Unleavened Baking soda Spice Herbs Fat Sugar Carbohydrate, Protein Vitamins Nutrients, Nutrition Healthy

		Grown	Dairy	
		Reared	Allergy	
		Caught	Intolerance	
		Frozen	Savoury	
		Tinned,	Source,	
		Processed	Seasonality	
		Seasonal	Utensils	
		Harvested	Combine	
		Healthy/varied diet	Fold,	
			Knead	
			Stir	
			Pour	
			Mix	
			Whisk	
			Beat	
			Roll out	
			Shape	

Textiles	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
	Physical Development Exploring media and materials How to use one handed tools and equipment with control to achieve their intended purpose. How to thread a needle and sew a simple running stitch. How to cut using scissors To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out regular shapes. To learn how to use the appropriate amount of glue and tape in joining materials together.	 engage in an iterative preserved. To work in a range of relation home and school, garded community, industry and the reserved. To design purposeful, furthemselves and other use. To generate, develop, made ideas through talking, drawhere appropriate, informate technology. To select from and use a perform practical tasks [joining and finishing]. To select from and use a components, including the components, including the components, according to explore and evaluate. To explore and evaluate. To build structures, explosit stronger, stiffer and more. 	nanisms [for example, levers,	National Curriculum Pupils should be taught: • The knowledge, understanding and skills needed to engage in an itermaking. Imple, the clocal til. ducts for teria their reups and, attion Impend to apping, as and extiles and e		home, school, leisure, culture, ent design of innovative, functional, a s through discussion, annotated sl uter-aided design select from utting, shaping, joining and finishin ponents, including construction m esthetic qualities investigate esign criteria and consider the view and technology have helped shape in and reinforce more complex stru ucts [for example, gears, pulleys, ca for example, series circuits incorpo	e, school, leisure, culture, enterprise, industry and the wider on of innovative, functional, appealing products that are fit for bugh discussion, annotated sketches, cross-sectional and aided design select from and use a wider range of tools g, shaping, joining and finishing], accurately ents, including construction materials, textiles and etic qualities investigate and analyse a range of existing criteria and consider the views of others to improve their echnology have helped shape the world reinforce more complex structures for example, gears, pulleys, cams, levers and linkages] ample, series circuits incorporating switches, bulbs, buzzers or and control their products.	
	Key Learning Outcomes	Key Learnir	ng Outcomes	Key Learnin	g Outcomes	Key Learning Outcomes	Key Learning Outcomes	
	measure, cut and join textiles to make a product, with some support	 information and communication Making Select from and use a range of practical tasks such as marking finishing. Select from and use textiles acceptable. Evaluating Explore and evaluate a range of relevant to the project being united. 	ling product for a chosen user design criteria. communicate their ideas as rawing, templates, mock-ups and on technology. tools and equipment to perform out, cutting, joining and ecording to their characteristics.	2-D shape to 3-D product Designing Generate realistic ideas througe for an appealing, functional prospecific user/s. Produce annotated sketches, posketches and pattern pieces. Making Plan the main stages of making Select and use a range of approaccuracy e.g. cutting, joining are select fabrics and fastenings accharacteristics e.g. strength, an pattern. Evaluating Investigate a range of 3-D textiproject.	oduct fit for purpose and prototypes, final product g. ppriate tools with some and finishing. Ecording to their functional and aesthetic qualities e.g.	Combining different fabric shapes Designing Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	Using computer aided design (CAD) in textiles Designing Generate innovative ideas through research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computeraided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	

	Technical knowledge and understanding • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.	 Test their product against the original design criteria and with the intended user. Take into account others' views. Understand how a key event/individual has influenced the development of the chosen product and/or fabric. Technical knowledge and understanding Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project. 	 Making Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. Technical knowledge and understanding A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. 	 Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. Technical knowledge and understanding A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened
Final Outcome	Final Outcome	Final Outcome	. Final Outcome	Final Outcome
 To learn to construct with a purpose in mind. Selects tools and techniques needed to shape, assemble and join materials Bookmarks Calendar 	 Templates and joining techniques glove puppet finger puppet simple bag clothes for teddy/soft toy/class doll fabric placemat 	2-D shape to 3-D product purse/wallet soft toy/mascot apron fashion accessory beach bag shoe bag pencil case story sack	Combining different fabric shapes	Using computer aided design (CAD) in textiles tablet case mobile phone carrier shopping bag insulating bag hat/cap garden tool belt slippers sandals fabric advent calendar

		gir drid recimology – rrogression of skins		fabric doorstop
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
Key	Templates and joining techniques	2-D shape to 3-D product	Combining different fabric	Using computer aided design
Vocabulary	names of existing products	fabric, names of fabrics, fastening	shapes	(CAD) in textiles
Joining and finishing	joining and finishing techniques	compartment, zip	design criteria	computer aided design (CAD
techniques Tools	tools	button	annotate,	computer aided manufacture (CAM)
Fabrics	fabrics	structure	design decisions	font
Join	components	finishing technique	functionality	lettering
Decorate	template	strength	innovation	text
			authentic	graphics
	pattern pieces	weakness	user	menu
	mark out	stiffening		scale
	features	templates	purpose	modify
	suitable	stitch	evaluate	repeat
	quality mock-up	seam	mock-up	copy flip
	design brief	seam allowance	prototype	design brief
	design criteria	user	Seam	design criteria
	make	purpose	Seam allowance	design decisions
	evaluate	design	Wadding	innovative
			Reinforce	prototype
	user	model	Right side	seam
	purpose	evaluate	Wrong side Hem	seam allowance
	function	prototype	Template	wadding
		annotated sketch	Pattern pieces	reinforce
		functional	Name of textiles and	right side wrong side
		innovative	fastenings used	hem
		investigate	Pins	template
		label	Needles	pattern pieces
		drawing	Thread	fastenings
		aesthetics	Fastenings	pins
				needles
		function		thread
		pattern pieces		pinking shears
		Fabric		fastenings
		Names of fabrics		iron transfer paper annotate
		Fastening		functionality
		Compartment Zip		innovation
		Button		authentic
		Structure		user
		finishing techniques		purpose
		Strength		evaluate
		Weakness		mock-up
		Stiffening		ptototype
		Templates		
		Stitch		
		Seam		
		Seam allowance		

Electrical systems	EYFS	Year 1	Year 2	Year	Year 4	Year 5	Year 6
Зузсенна				National Curriculum			
				 To work in a range of reenvironment]. To use research and deepurpose, aimed at parti To generate, develop, nexploded diagrams, proand equipment to perform and use ingredients, according to products To evaluate their ideas work To understand how key To apply their understa To understand and use understand and use eleand motors] 	tanding and skills needed to engage elevant contexts [for example, the velop design criteria to inform the cular individuals or groups nodel and communicate their idea stotypes, pattern pieces and comporm practical tasks [for example, ca wide range of materials and comport their functional properties and and products against their own design and individuals in design and indirect of their functional systems in their products [for example, can be considered as the considered and individuals in design and indirect of the considered as the considere	home, school, leisure, culture, end design of innovative, functional, and sthrough discussion, annotated suter-aided design select from utting, shaping, joining and finishing and finishing and finishing and finishing construction neesthetic qualities investigated esign criteria and consider the view and technology have helped shaped and reinforce more complex structs [for example, gears, pulleys, cor example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and consid	terprise, industry and the wider appealing products that are fit for ketches, cross-sectional and and use a wider range of tools ng], accurately naterials, textiles and and analyse a range of existing ws of others to improve their the world actures ams, levers and linkages] orating switches, bulbs, buzzers
	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	To apply their understa Key Learning Outcomes	nding of computing to program, m Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
				Simple programming and control Designing Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.	Designing Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Select from and use materials and components, including construction materials and electrical	Designing Develop a design specification for a functional product that responds automatically to changes in the environment. Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. Making Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.	More Complex Switches and circuits Designing Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Generate and develop innovative ideas and share and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. Making Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble

			 Program a standalone control box, microcontroller or interface box to enhance the way the product works. Evaluating Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers. Know and use technical vocabulary relevant to the project. 	components according to their functional properties and aesthetic qualities. Evaluating Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.	 Create and modify a computer control program to enable their electrical product to respond to changes in the environment. Evaluating Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Technical knowledge and understanding Understand and use electrical systems in their products. Understand the use of computer control systems in products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project. 	materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. Evaluating Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Investigate famous inventors who developed groundbreaking electrical systems and components. Technical knowledge and understanding Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.
Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome
			Simple programming and control • illuminated sign • noise-making toy vehicle • nightlight • display lighting	 siren for a toy vehicle reading light noise-making toy nightlight illuminated sign torches table lamp lighting for display hands-free head lamp buzzer for school office 	cycle or vehicle alarm security lighting system alarm for valuable artefact garden light automatic nightlight electronic moneybox alarm for school shed	vehicle alarm security lighting system alarm for valuable artefact automatic nightlight electrical board game alarm for school shed

Design and Technology – Progression of Skills						W W 1 1	
	Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
				Simple programming and control series circuit fault connection toggle switch push-to-make switch push-to-break switch battery battery holder light emitting diode (LED) bulb bulb holder USB cable Wire Insulator Conductor crocodile clip control program system input device output device process user purpose function prototype design criteria innovative appealing design brief	Simple Circuit and Switches 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 user purpose function prototype design criteria innovative appealing design brief	Monitoring and Control reed switch toggle switch push-to-make switch light dependent resistor (LDR) tilt switch light emitting diode (LED) bulb bulb holder battery battery holder USB cable Wire Insulator Conductor crocodile clip control program system input device output device series circuit parallel circuit function innovative design specification design brief user purpose	More Complex Switches and Circuits series circuit names of switches and components input device output device system monitor control program flowchart function innovative design specification design brief user purpose

National	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
National Curriculum and EYFS	Physical Development Exploring media and materials How to use one handed tools and equipment with control to achieve their intended purpose. How to thread a needle and sew a simple running stitch. How to cut using scissors To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out regular shapes. To learn how to use the appropriate amount of glue and	KS1 Pupils should be taught a When designing and making, be taught to: Design • design purposeful, functions themselves and other users b • generate, develop, model a through talking, drawing, tem appropriate, information and Make • select from and use a range perform practical tasks [for ex joining and finishing] • select from and use a wide	about: pupils should al, appealing products for ased on design criteria and communicate their ideas uplates, mock-ups and, where communication technology. of tools and equipment to cample, cutting, shaping, range of materials and	KS2 Pupils should be taught a When designing and making, p Design • use research and develop de for purpose, aimed at particula • generate, develop, model an exploded diagrams, prototype Make • select from and use a wider joining and finishing], accurate • select from and use a wider ingredients, according to their Evaluate • investigate and analyse a rar	bout: Dupils should be taught to: Dissign criteria to inform the design ar individuals or groups and communicate their ideas threes, pattern pieces and computer range of tools and equipment to bely range of materials and comport functional properties and aestinge of existing products	Upper K gn of innovative, functional, ap ough discussion, annotated ske r-aided design. to perform practical tasks [for e	pealing products that are fit etches, cross-sectional and example, cutting, shaping, aterials, textiles and	
	tape in joining materials together. Learn to use cutlery effectively to cut food, including challenging food that needs more stabilising whilst being cut Learn to prepare a healthy snack and explain choices. Expressive Arts and Design – Creating with materials. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; 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.		 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 					
	 Share their creations, explaining the process they have used; Make use of props and materials when role playing characters in narratives and stories. Fine Motor Skills. Use a range of small tools, including scissors, paint brushes and cutlery; Begin to show accuracy and care when drawing. 							
Design	 Design purposeful, functional, appeared design criteria Generate, develop, model and commock-ups and, where appropriate, in 	municate their ideas through ta	lking, drawing, templates,	are fit for purpose, aimed at particular individuals or groups				
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	

Vov Objectives	Van Ohiostinas		y - Progression of Skills	Vay Objectives	Kov Objectives	Vay Objectives		
Key Objectives	Key Objectives * have own ideas	Key Objectives	Key Objectives *begin to research others'	Key Objectives	Key Objectives *use internet and	* draw on market research		
Select appropriate		* have own ideas and plan what to do next		* use research for design				
resources	* explain what I want to do		needs	ideas	questionnaires for research	to inform design		
*Use gestures, talking and arrangements	*explain what my product is	* explain what I want to do	* show design meets a	* show design meets a	and design ideas	* use research of user's		
of materials and components to show	for, and how it will	and describe how I	range	range of requirements and	*take a user's view into	individual needs, wants,		
design	work	may do it	of requirements	is fit for purpose	account when designing	requirements for design		
* Use contexts set by the teacher and	* use pictures and words to	* explain purpose of	* describe purpose of	*begin to create own design	* begin to consider	* identify features of design		
myself	plan, begin to use	product, how it will work	product	criteria	needs/wants of	that will appeal to the		
*Use language of designing and making	models	and how it will be suitable	* follow a given design	*have at least one idea	individuals/groups when	intended user		
(join, build, shape, longer, shorter, heavier	* design a product for	for the user	criteria	about how to create product	designing and ensure	* create own design criteria		
etc.)	myself	* describe design using	* have at least one idea	and suggest improvements	product is fit for purpose	and specification		
	following design criteria	pictures, words, models,	about how to create	for design.	*create own design criteria	* come up with innovative		
	*research similar	diagrams, begin to use ICT	product	* produce a plan and explain	* have a range of ideas	design ideas		
	Existing products	* design products for myself	* create a plan which shows	it to others	*produce a logical, realistic	*follow and refine a logical		
		and others following design	order, equipment and	*say how realistic plan is.	plan and explain it to	plan.		
		criteria	tools	*include an annotated	others.	*use annotated sketches,		
		* choose best tools	*describe design using an	sketch	*use cross-sectional	cross-sectional planning and		
		And materials, and explain	accurately labelled sketch	*make and explain design	planning and annotated	exploded diagrams		
		choices	and words	decisions considering	sketches	* make design decisions,		
		* use knowledge of existing	* make design decisions	availability of resources	* make design decisions	considering, resources and		
		products to produce	*explain how product will	*explain how product will	considering time and	cost		
		ideas	work	work	resources.	* clearly explain how parts		
			* make a prototype	* make a prototype	*clearly explain how parts of	of design will work, and how		
			* begin to use computers to	*begin to use computers to	product will work.	they are fit for purpose		
			show design	show design	*model and refine design	* independently model and		
					ideas by making prototypes	refine design ideas by		
					and using	making prototypes and		
					pattern pieces.	using pattern pieces		
					*use computer-aided	* use computer-aided		
					designs	designs		
Outcomes	Outcomes		Outcomes					
	 To design purposeful, 	functional, appealing	 To use research and d 	evelop design criteria to inform	the design of innovative, funct	ional, appealing products that		
 Begin to use the language of 	products based on de	sign criteria.	are fit for purpose, air	med at particular individuals or	groups			
designing and making, e.g. join,	 To generate, develop, 	, model and communicate	 To generate, develop, 	model and communicate their	ideas through discussion, anno	tated sketches, cross-sectional		
build and shape.				and exploded diagrams, prototypes, pattern pieces and computer aided design				
 Learning about planning and 	mock-ups and, where							
adapting initial ideas to make								
th and heatten								

them better.

Make	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Kay	 Stage 1		Kay	Stage 2	
	 select from and use a range of tools a cutting, shaping, joining and finishing] select from and use a wide range of r textiles and ingredients, according to Key Objectives Construct with a purpose, using a 	naterials and components, incl		joining and finishing] • select from and use a	, accurately	components, including construc	tion materials, textiles and Key Objectives * use selected tools
	 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 Replicate structures with materials /components Discuss how to make an activity safe and hygienic Record experiences by drawing, writing, voice recording Understand different media can be combined for a purpose 	making and why *consider what I need to do next *select tools/equipment to cut, shape, join,	explain what I am making and why it fits the purpose *make suggestions as to what I need to do next. *join materials/components together in different ways *measure, mark out, cut and shape materials and components, with support. *describe which tools I'm using and why *choose suitable materials and explain choices depending on characteristics. *use finishing techniques to make product look good	tools/equipment, explain choices; begin to use them accurately * select appropriate materials, fit for purpose. * work through plan in order *consider how good product will be * begin to measure, mark out, cut and shape materials/components with some accuracy * begin to assemble, join and combine materials and components with some accuracy * begin to apply a	equipment, explain choices in relation to required techniques and use accurately *select appropriate materials, fit for purpose; explain choices * work through plan in order. * realise if product is going to be good quality * measure, mark out, cut and shape materials/components with some accuracy *assemble, join and combine materials and components with some accuracy *apply a range of finishing	tools/equipment with good level of precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality * create and follow detailed stepby-step plan * explain how product will appeal to an audience * mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and combine materials/components	and equipment precisely *produce suitable lists of tools, equipment, materials needed, considering constraints * select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics * create, follow, and adapt detailed step-by-step plans *explain how product will appeal to audience; make changes to improve quality * accurately measure, mark out, cut and shape materials/components * accurately

	*work safely and hygienically	range of finishing techniques with some accuracy	techniques with some accuracy	* mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful	assemble, join and combine materials/components * accurately apply a range of finishing techniques * use techniques that involve a number of steps * be resourceful with Practical problems
 Outcomes To learn to construct with a purpose in mind. Selects tools and techniques needed to shape, assemble and join materials. 	To select from and use a range of tools and equipment to perform practical tasks [for example cutting, shaping, joining and finishing] To select from and use a wide range of materials and components, including construction materials textiles and ingredients, according to their characteristics	shaping, joining andTo select from and u ingredients, according	se a wider range of tools and eq finishing], accurately. se a wider range of materials an ng to their functional properties	nd components, including const	

valuate	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
		Ка	y Stage 1		Kay Stage 2				
	 explore and evaluate a range of exi evaluate their ideas and products a 	~ .		 evaluate their ide work 	 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. 				
	Key Objectives	Ke y Objectives	Key Objectives	Key Objectives	Key Objectives	Key Objectives	Key Objectives		
	*Adapt work if	*talk about my work,	* describe what	* look at design	*refer to design criteria while	*evaluate quality of	*evaluate quality of		
	necessary	linking it	went well,	criteria while	designing and making	design while	design while		
	*Dismantle, examine,	to what I was asked	thinking about	designing and	*use criteria to evaluate	designing and	designing and		
	talk about	to do	design criteria	making	product	making	making; is it fit for		
	existing	* talk about existing	* talk about	*use design criteria	* begin to explain how I could	*evaluate ideas and	purpose?		
	objects/structures	products	existing products	to	improve original design	finished	* keep checking		
	*Consider and manage	considering: use,	considering: use,	evaluate finished	*evaluate existing products,	product against	design is best it can		
	some	materials,	materials,	product	considering: how well they've	specification,	be.		
	risks	how they work,	how they work,	* say what I would	been made, materials, whether	considering purpose	*evaluate ideas and		
	*Practise some	audience,	audience,	change to	they work, how they have	and	finished product		
	appropriate	where they might be	where they might	make design better	been	appearance.	against specification,		
	safety measures	used	be used;	*begin to evaluate	made, fit for purpose	*test and evaluate	stating if it's fit		
	independently	*talk about existing	express personal	existing	* discuss by whom, when and	final product	for purpose		
	*Talk about how things	products,	opinion	products,	where products were designed	* evaluate and	*test and evaluate		
	work	and say what is and	*evaluate how	considering: how	* research whether products	discuss existing	final product;		
	*Look at similarities	isn't good	good existing	well they have been	can be recycled or reused	products,	explain what would		
	and	* talk about things	products are	made,	* know about some	considering: how	improve it and the		
	differences between	that other	*talk about what I	materials, whether	inventors/designers/	well	effect different		
	existing	people have made	would do	they work,	engineers/chefs/manufacturers	they've been made,	resources may have		
	objects / materials /	*begin to talk about	differently if I were	how they have been	of ground-breaking products	materials,	had		
	tools	what	to do it	made, fit		whether they work,	*do thorough		
	*Show an interest in	could make product	again and why	for purpose		how they have	evaluations of		
	technological toys	better		* begin to		been made, fit for	existing		
	*Describe textures			understand by		purpose	products considering:		
				whom, when and		* begin to evaluate			

	T	Design and recime	riogy riogicssion of skills			
			where products were		how much products cost to	how well they've been
			designed		make and how	made,
			* learn about some		innovative they are	materials,
			inventors/designers/		*research how	whether they work,
			engineers/chefs/		sustainable	how they've been
			manufacturers of		materials are	made, fit for purpose
			ground-breaking		*talk about some key	*evaluate how much
			products		inventors/designers/	products cost to
			products		engineers/	make and how
					chefs/manufacturers	
						innovative they are
					of ground-breaking	*research and
					products	discuss how
						sustainable
						materials are
						*consider the impact
						of products
						beyond their
						intended purpose
						*discuss some key
						inventors/designers/
						engineers/
						chefs/manufacturers
						of ground-breaking
						products
Outcomes	Outcomes	1	Outcomes		<u> </u>	products
Outcomes						
		uate a range of existing	_	alyse a range of existing products.		
Begin to talk about changes made	products.			s and products against their own o	lesign criteria and consider the	views of others to improve
during the making process, e.g.		eas and products against	their work.			
making a decision to use a different	design criteria.		To understand how ke	ey events and individuals in design	and technology have helped sh	ape the world.
joining method.		1				
Key	Key	Key	Key	=	Key	Key
Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary
Planning	Planning	Investigating,	User	Evaluating	Design decisions	Function
Investigating	Investigating	Planning	Purpose	Design brief	Functionality	Innovative
Design	Design	Design	Design	Design criteria	Authentic	Design
Evaluate	Evaluate	Make	Model	Innovative	User	Specification
Make	Make	Evaluate	Evaluate		Purpose	Design brief
	User	User	Prototype		Design specification	User
	Purpose	Purpose	Annotated sketch		Design brief	Purpose
	Idea	Ideas	Functional	-	Innovative	Design brief
	Product	Design	Innovative		Research	Design
	- roudet	Criteria	Investigate	, ·	Evaluate	Specification
		Product	Label	_	Design criteria	Prototype
					_	* *
		Function	Drawing		Annotate	Annotated sketch
			function	''	Evaluate	Purpose
			Planning,	_	Mock-up	User
			Design criteria	_	Prototype	Innovation
			Annotated	Annotated sketch		Research
			Clastela	Canadania		E
			Sketch	Sensory evaluations		Functional
			Appealing	Sensory evaluations		Mock-up

Mechanisms	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
	Physical Development	National Curriculum	1	National Curriculum	<u> </u>				
	Exploring media and								
	materials	KS1 Pupils should be taught abo	ut:	KS2 Pupils should be taught about:					
		When designing and making, pu	pils should	When designing and making, pupils should be taught to:					
	 How to use one 	be taught to:		Design					
	handed tools and	Design				e design of innovative, functional,			
	equipment with	• design purposeful, functional,			t are fit for purpose, aimed at p	• •			
	control to achieve	appealing products for themselv				eas through discussion, annotated			
	their intended	and other users based on design	1		al and exploded diagrams, proto	otypes, pattern pieces and comput	er aided design.		
	purpose. Criteria			Make					
	Use simple	• generate, develop, model and				ment to perform practical tasks [fo	Or .		
	construction	communicate their ideas through			ng, joining and finishing], accura				
	materials	talking, drawing, templates, mo information and communication				omponents, including construction			
		technology.	ı	materials, textiles and ingredients, according to their functional properties and aesthetic qualities					
		Make		Evaluate					
		select from and use a range of	:	investigate and analyse a range of existing products					
		tools and equipment to perform		• evaluate their ideas and products against their own design criteria and consider the views of					
		practical tasks [for example,		others to improve their work					
		cutting, shaping, joining and		understand how key events and individuals in design and technology have helped shape the					
		finishing]		world Technical knowledge					
		• select from and use a wide rar	nge	apply their understanding of how to strengthen, stiffen and reinforce more complex structures					
		of materials and components,		• understand and use mechanical systems in their products [for example, gears, pulleys, cams,					
		including construction materials		levers and linkages]					
		textiles and ingredients, accordi	ng	understand and use electrical systems in their products [for example, series circuits					
		to their characteristics			bulbs, buzzers and motors]				
		Evaluate		apply their understan	ding of computing to program,	monitor and control their products	S.		
		explore and evaluate a range of the second sec	of						
		existing products							
		evaluate their ideas and produced against design criteria Technical							
		against design criteria Technical knowledge							
		build structures, exploring how	w they						
		can be made stronger, stiffer an							
	more stable								
		explore and use mechanisms	for						
		explore and age mediamons							

	example, levers, sliders, wheels and axles], in their product	•				
Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
Use simple construction materials e.g duplo to stack and join pieces, tell an adult what they are making	Sliders and Levers To use own ideas to design something and describe how their own idea works To design a product which moves To explain to someone else how they want to make their product and make a simple plan before making To use own ideas to make something To make a product which moves To choose appropriate resources and tools To describe how something works To explain what works well and not so well in the model they have made To generate ideas based on simple design criteria and their own experiences, explaining what they could make. To develop, model and communicate their ideas through drawings and mockups with card and paper. To plan by suggesting what to do next. To select and use tools, explaining their choices, to cut, shape and join paper and card. To use simple finishing techniques suitable for the product they are creating. To explore and use sliders and levers. To understand that different mechanisms	Wheels and Axles Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups. Making Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. Evaluating Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria. Technical knowledge and understanding Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.	Pneumatics Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. Making • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. Evaluating • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. Technical knowledge and understanding • Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	Levers and Linkages Designing Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas. Making Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating. Evaluating Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. Technical knowledge and understanding Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project.	• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Making • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project. Technical knowledge and understanding	Pulleys or Gears Designing Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Making Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. Investigate famous manufacturing and engineering companies relevant to the project. Technical knowledge and understanding Understand that mechanical and electrical systems have an input, process and an output.

produce different types of movement. To know and use technical vocabulary relevant to the project. Final Outcome Final Outcome Outcomes To begin to experiment with leavers and sides in different scenarios with knobs or pulleys, real objects such as smobile phones and tablets such as mobile phones and tablets such as mobile phones and tablets Shows all in making tops work by pressing parts or lifting flaps to achieve effect such as sound, movements or new images Plays with a range of materials to learn case and effect, for example, makes a string pulpet using dowels and string to suspend the puppet. Produce offerent scanarios and towns read to complete the puppet using dowels and string to suspend the puppet. Produce offerent scanarios and towns read t		
Outcomes To begin to experiment with leavers and slides in different scenarios Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, levers, silders, wheels and axles, in their products. Wheels and Axles Pusumatics Wheels and Axles push/pull toys e, g. emergency service vehicle carnival float carnival float carnival float character shopping trolley Wheels and Axles Pusumatics Levers and Linkages to tipper truck jack-in-the-box jack-in-the-box jack-in-the-box jack-in-the-box poster information book poster character shopping trolley story board to tippe truck jack-in-the-box poster character shop window display moving reature shop window display moving toy story board to tippe truck jack-in-the-box poster character shop window display moving toy story board a shop display with moving creature shop window display moving toy moving toy story board a shop display with moving creature shop window display moving toy moving toy story board a shop display with moving creature shop window display moving toy m	Final Outcome	 Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.
To begin to experiment with leavers and slides in different scenarios Shows an interest in technological toys with knobs or pulley, real objects such as cameras, and touchscreen devices such as mobile phones and tablets Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string toy wends and string toy experiment with leavers and siders, wheels and axies, in their products [for example, gears, pulley example, pears, pulley in their products. Wheels and Axies Push/pull toys e.g. emergency service vehicle colom's car colomo scar col		Final Outcome
Class/group storybook poster display emergency service vehicle display information book storyboard Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string to	To begin to experiment with leavers and slides ir	ams, levers and linkages].
string puppet using dowels and string to	technological toys with knobs or pulleys, real objects such as cameras, ar touchscreen device such as mobile phones and tablets Shows skill in making toys work be pressing parts or lifting flaps to achieve effects such as sound, movements or new images Plays with a range of materials to learn cause and effect, for	fairground ride with gears or pulleys e.g. carousel, Ferris wheel controllable toy vehicle with gears or pulleys e.g. dragster, off-road vehicle sports car, lorry window display with moving parts e.g. lifting or turning items for sale
Key vocabulary	string puppet using dowels and string to suspend the puppe	Key Vocabulary

			nnology – Progression of Skill			
Slot	Sliders and Levers	Wheels and Axles	<u>Pneumatics</u>	Levers and Linkages	CAMS	Pulleys or Gears
Card	Slider	assembling	Components	Mechanism	Cam	Pulley
Masking	Lever	joining	Fixing	Lever	snail cam	drive belt
Таре	Pivot	shaping	Attaching	Linkage	off-centre cam	gear
Paper fastener	Slot	finishing	Tubing	Pivot		rotation
Join	bridge/guide	fixed	Syringe	Slot	peg cam	spindle
Pull	card	free	Plunger	Bridge	pear shaped cam follower	
Push	masking tape	moving	split pin	guide	axle	driver
Up	paper fastener	equipment	paper fastener	system	shaft	follower
Down	join 	materials used	pneumatic system	input		ratio
Straight	pull	design make	input movement	process	crank	transmit
Curve	push	evaluate	process	output	handle	axle
	up	purpose	output movement	linear	housing	
Forwards	down	user	control	rotary	framework rotation	motor
Backwards	straight	criteria	compression	oscillating	rotary motion	circuit
Bricks	curve forwards	functional	pressure			switch
Pieces	backwards	Vehicle	inflate	reciprocating	oscillating motion	circuit diagram
Wheels	design	Wheel	deflate	user	reciprocating motion	annotated drawings
Axle	make	Axle Axle holder	pump	purpose	annotated sketches	_
steering wheel	evaluate	Chassis	seal	function	exploded diagrams	exploded diagrams
seat	user	Body	air-tight	prototype	mechanical system	mechanical system
figure	purpose	Cab	linear	design criteria	input movement	electrical system
shape names e.g. cube,	ideas	Assembling	rotary	innovative	process	input
cuboid	design criteria	Cutting Joining,	user	appealing	output movement design	process
Build	product	Shaping	purpose	design brief	decisions	
Construct	function	Finishing	function		functionality	output
push together	Key	Fixed	prototype			design decisions
pull apart	Vocabulary	Free Moving	design criteria		innovation	functionality
big	Slider	Mechanism	innovative		authentic	innovation
small	Lever	Names of	appealing		user	authentic
	Pivot	tools equipment and	design brief		purpose	
	Slot,	materials used	research		design specification	user
	Bridge/guide		evaluate			purpose
	Card		ideas		design brief	design specification
	Masking		constraints			design brief
	Tape					

Paper faste Join Pull Push Up Down Straight Curve Forwards Backwards	S	investigate Mechanism Lever Linkage Pivot Slot Bridge Guide System Input Process Output Linear Rotary Oscillating Reciprocating		Pulley Drive belt Gear Rotation Spindle Driver Follower Ratio Transmit Axle, Motor Circuit Switch Circuit diagram Annotated drawings Exploded diagrams Mechanical system Electrical system Input Process Output
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Structures Freestanding	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
structures	Physical Development Exploring media and	National Curriculum		National Curriculum					
structures	Exploring media and materials How to use one handed tools and equipment with control to achieve their intended purpose. To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out regular shapes. To learn how to use the appropriate amount of glue and tape in joining	Pupils should be taught: The knowledge, undersengage in an iterative personal community, industry and community, industry and themselves and other understands through talking, of where appropriate, infection of technology To select from and use perform practical tasks joining and finishing] To select from and use	standing and skills needed to process of designing and making. elevant contexts [for example, the ens and playgrounds, the local and the wider environment]. functional, appealing products for users based on design criteria model and communicate their drawing, templates, mock-ups and, ormation and communication a range of tools and equipment to [for example, cutting, shaping, a wide range of materials and construction materials, textiles	Pupils should be taught: The knowledge, underst To work in a range of reenvironment]. To use research and develop, mexploded diagrams, proand equipment to perform and use a ingredients, according to products To evaluate their ideas a work To understand how key To apply their understand	tanding and skills needed to engage elevant contexts [for example, the evelop design criteria to inform the cular individuals or groups nodel and communicate their ideas totypes, pattern pieces and comporm practical tasks [for example, cular wide range of materials and comporties and and products against their own design and products and individuals in design and and individuals in design and individuals individuals in design and individuals in design and individuals individuals in design and individuals individuals individuals indi	design of innovative, functional, as through discussion, annotated stuter-aided design select from atting, shaping, joining and finishing ponents, including construction mesthetic qualities investigate sign criteria and consider the view and technology have helped shape and reinforce more complex struction.	terprise, industry and the wider appealing products that are fit for ketches, cross-sectional and and use a wider range of tools ng], accurately naterials, textiles and analyse a range of existing ws of others to improve their the world actures		
	materials together.	and ingredients, accord	ling to their characteristics e a range of existing products	 understand and use electrical systems in their products [for example, series circuits incorporating switches, bull 					

	 To evaluate their ideas a criteria To build structures, explostronger, stiffer and more to explore and use mech sliders, wheels and axles 	oring how they can be made re stable hanisms [for example, levers,				
Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
Build structures, exploring how they can be made stronger, stiffer and more stable Stacking blocks vertically and horizontally Joining construction pieces to build and balance Making enclosures and creating spaces Uses various construction materials Use a range of small tools, including scissors, paint brushes and cutlery Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function Share their creations, explaining the process they have used	• make their own model stronger Designing • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings. Making • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating. Evaluating • Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. Technical knowledge and	make a model stronger and more stable use wheels and axles, when appropriate to do so	Shell Structures – Using CAD (Computer Aided Design) Designing Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computeraided design to model and communicate ideas. Making Plan the order of the main stages of making. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use computer-generated finishing techniques suitable for the product they are creating. Evaluating Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose.	Shell Structures Designing Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computeraided design to model and communicate ideas. Making Plan the order of the main stages of making. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use computer-generated finishing techniques suitable for the product they are creating. Evaluating Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose. Technical knowledge and understanding Develop and use knowledge	 surveys, interviews, questionner. Develop a simple design specion development of their ideas and constraints including time, resemble. Generate, develop and model discussion, prototypes and and model discussion, prototypes and and meeds to be done and lists of respective to the discussion. Competently select from and accurately measure, mark out materials to make frameworks. Use finishing and decorative to product they are designing and the service of the product they are designing and critically evaluate their product specification, intended user and specification, intended user are serviced. 	d products, taking account of cources and cost. innovative ideas, through notated sketches. ing a step-by-step list of what resources to be used. use appropriate tools to , cut, shape and join construction s. echniques suitable for the d making. ge of existing frame structures. cts against their design and purpose, identifying strengths and carrying out appropriate tests. iduals relevant to frame rstanding n, stiffen and reinforce 3-D
	understanding		Technical knowledge and understanding	of nets of cubes and cuboids		

	Design and 16	echnology – Progression of Ski	lls	
	Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.	 Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Develop and use knowledge of how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project. 	and, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.	
Final Outcome	Final Outcome		Final O	utcome
 To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. Learn how everyday objects work by dismantling things. 	To build structures, exploring how they can be made stronger, stiffer and more stable.	To apply their understand	nding of how to strengthen, stiffen	and reinforce more complex structures.
distributing tillings.	Freestanding structures enclosures for farm or zoo animals playground/park/garden furniture bridge for Billy Goats Gruff playground equipment furniture for the Three Bears other – specific	Shell Structures – Using CAD (Computer Aided Design)	Shell Structures	Frame Structures playground shelter market stall bus shelter tent play house gazebo bird hide parasol park furniture adventure playground equipment kite
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary

Key	Freestanding structures	Shell Structures – Using CAD (Computer Aided Design)	Frame Structures
, Vocabulary	Design	shell structure	frame structure
Cut	Make	three-dimensional (3-D) shape net	stiffen
Fold	Evaluate		strengthen
Join		cube	reinforce
Fix	User	cuboid	triangulation
Structure	Purpose	prism	stability
Wall	Ideas	vertex	shape
Tower Weak	design criteria	edge	join
Strong	product	face	temporary permanent
Base		length	design brief
Тор	function	width	design specification
Underneath	Cut	breadth	prototype
Side	Fold		annotated sketch
Edge	Join	capacity	purpose
Thinner	Fix	marking out	user
Inicker		scoring	innovation
Corner	Structure	shaping	research
Straight Curved	Wall	tabs	functional Frame structure
Metal	Tower	adhesives	Stiffen
Wood	Framework	joining	Strengthen
Plastic	Weak,	assemble	Reinforce
Circle	Strong	accuracy	Triangulation
Triangle	Base	material	Stability
Square	Тор	stiff	Shape
Rectangle Cuboid	Underneath		Join Temporary
Cube		strong	Permanent
Cylinder	Side _ ·	reduce	
,	Edge	reuse	
	Surface	recycle	
	Thinner	corrugating	
	Thicker	ribbing	
	Corner	laminating	
	Point	font	
	Straight	lettering	
	Curved	text	
	Metal	graphics	
	Wood	decision	
		evaluating	
	Plastic	design brief	
	Circle	design criteria	
	Triangle	innovative	
	Square	prototype	
	Rectangle		

Design and Technology – Progression of Skills

Cube
Cylinder

Food	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	 To begin to understand some of the tools, techniques and processes involved in food preparation. Children have basic hygiene awareness. 	how to cook and apply healthy eating. Instilling also open a door to one human creativity. • Learning how to cook is pupils to feed themselv well, now and in later literally well, now and in later literally use the basic principles prepare dishes • understand where food	of a healthy and varied diet to comes from. of a healthy and varied diet to	 eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of Learning how to cook is a crucial life skill that enables pupils to feed themselves and others 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 techn understand seasonality, and know where and how a variety of ingredients are grown, reard 		uman creativity. affordably and well, now and in	
		Key Learning Outcomes			Key Learnin	ng Outcomes	
	 Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. 		epare dishes	Prepare and cook a varie		ed diet nes using a range of cooking techni ety of ingredients are grown, reare	
	Learn to use cutlery offectively to set food	cut food safely		Healthy and varied diet		Celebrating Culture and Seasona	lity
	effectively to cut food, including challenging food that needs more stabilising whilst being cut • Learn to prepare a healthy snack and explain choices. • Name the fruit • Select a piece, say please and thank you • To know to wash hands before selecting	 Design appealing products for simple design criteria. Generate initial ideas and design a variety of fruit and vegetable. Communicate these ideas thrown. Making. Use simple utensils and equip. 	a particular user based on gn criteria through investigating es. bugh talk and drawings.	Designing Generate and clarify ideas through adults to develop design critering texture and aroma for an appearage user and purpose. Use annotated sketches and approximate communication technology, sure develop and communicate idea. Making Plan the main stages of a recipier and equipment.	a including appearance, taste, aling product for a particular opropriate information and ch as web-based recipes, to as.	 a design specification. Explore a range of initial ideas, develop a final product linked to the use words, annotated sketches communication technology as communicate ideas. 	and make design decisions to co user and purpose. s and information and appropriate to develop and
	 snack and eating Willing to try a range of different textures and tastes and expresses a preference. 	product. • weigh ingredier describe the ingredients used w	d vegetables according to their ture and taste to create a chosen its to use in a recipe	 Select and use appropriate ute and combine ingredients. Select from a range of ingredie products, thinking about senso 	nts to make appropriate food	 Write a step-by-step recipe, incequipment and utensils Select and use appropriate ute to measure and combine appropriate. Make, decorate and present the for the intended user and purp 	ensils and equipment accurately opriate ingredients. The food product appropriately
		• Taste and evaluate a range of	fruit and vegetables to	• Carry out sensory evaluations of	of a variety of ingredients and	Evaluating	
		 determine the intended user's Evaluate ideas and finished princluding intended user and princluding intended user's 	preferences. oducts against design criteria,	 products. Record the evaluatio graphs. Evaluate the ongoing work and reference to the design criteria 	I the final product with	 Carry out sensory evaluations of and ingredients. Record the evaluations of tables/graphs/charts such as stensors. Evaluate the final product with 	aluations using e.g. car diagrams.
		Technical knowledge and unde • Understand where a range of e.g. farmed or grown at home	fruit and vegetables come from	Technical knowledge and under		1	taking into account the views of vements. The influenced eating habits to

promote varied and healthy diets.

	 Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eat well plate</i>. Know and use technical and sensory vocabulary relevant to the project. 	 Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately 	Technical knowledge and understanding Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
Final Outcome	Final Outcome	Final Outcome	Final Outcome
 Wash and prepare/chop fruit/snack with adult supervision Offer snack using polite language – would you like a Use language sweet, sour, juicy To know to wash hands before preparing, selecting or eating snack/lunch To make healthy choices of food and drink (water or milk) 	Preparing fruits and vegetables	Healthy and varied diet sandwiches wraps rolls pitta pockets blinis rice cakes toasties snack bar salad snacks	bread pizza savoury biscuits savoury scones savoury muffin cereal snack
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary
Fruit and vegetable names Names of equipment and utensils Seed Slicing Peeling Cutting Squeezing Healthy diet Ingredients Sweet Sour Juicy	Preparing fruits and vegetables 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 choosing ingredients planning investigating tasting arranging popular design evaluate criteria Fruit vegetable	Healthy varied diet planning design criteria purpose user annotated sketch sensory evaluations Name of products Names of equipment Utensils Techniques Ingredients Texture Taste Sweet Sour Hot Spicy Appearance Smell Preference Greasy Moist, Cook Fresh Savoury Hygienic Edible	Celebrating Culture Seasonality rubbing in sprinkle crumble design specification innovative research evaluate design brief Ingredients Yeast Dough Bran Flour Wholemeal Unleavened Baking soda Spice Herbs Fat Sugar Carbohydrate, Protein Vitamins Nutrients, Nutrition Healthy Varied Gluten

		Grown	Dairy	
		Reared	Allergy	
		Caught	Intolerance	
		Frozen	Savoury	
		Tinned,	Source,	
		Processed	Seasonality	
		Seasonal	Utensils	
		Harvested	Combine	
		Healthy/varied diet	Fold,	
			Knead	
			Stir	
			Pour	
			Mix	
			Whisk	
			Beat	
			Roll out	
			Shape	

Textiles	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Physical Development Exploring media and materials How to use one handed tools and equipment with control to achieve their intended purpose. How to thread a needle and sew a simple running stitch. How to cut using scissors To learn to handle and use equipment and tools effectively, e.g. hammers, clay tools, scissors etc. To use scissors to cut out regular shapes. Pupils should be taught: To the knowledge, understanding and skills needed to engage in an iterative process of designing and making. To work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. To design purposeful, functional, appealing products for themselves and other users based on design criteria ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics To explore and evaluate a range of existing products		 To work in a range of relenvironment]. To use research and devenurpose, aimed at partice. To generate, develop, mexploded diagrams, protent and equipment to perform and use a ingredients, according to products. To evaluate their ideas a work. To understand how key of the conducts. To apply their understance. understand and use not understand and use elections. 	 The knowledge, understanding and skills needed to engage in an iterative process of designing and making. To work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. To 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 To 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 To select from and use a wide 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 To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work To understand how key events and individuals in design and technology have helped shape the world To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To 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] To apply their understanding of computing to program, monitor and control their products. 				
	Key Learning Outcomes	Key Learnir	ng Outcomes	Key Learnin	g Outcomes	Key Learning Outcomes	Key Learning Outcomes
	measure, cut and join textiles to make a product, with some support	 information and communication Making Select from and use a range of practical tasks such as marking finishing. Select from and use textiles acceptable. Evaluating Explore and evaluate a range of relevant to the project being united. 	ling product for a chosen user design criteria. communicate their ideas as rawing, templates, mock-ups and on technology. tools and equipment to perform out, cutting, joining and ecording to their characteristics.	2-D shape to 3-D product Designing Generate realistic ideas througe for an appealing, functional prospecific user/s. Produce annotated sketches, posketches and pattern pieces. Making Plan the main stages of making Select and use a range of approaccuracy e.g. cutting, joining are select fabrics and fastenings accharacteristics e.g. strength, an pattern. Evaluating Investigate a range of 3-D textiproject.	oduct fit for purpose and prototypes, final product g. ppriate tools with some and finishing. Ecording to their functional and aesthetic qualities e.g.	Combining different fabric shapes Designing Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	Using computer aided design (CAD) in textiles Designing Generate innovative ideas through research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computeraided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.

	Design and rec	Test their product against the original design criteria and with	Making	Produce detailed lists of
	Technical knowledge and understanding	the intended user.	Produce detailed lists of	equipment and fabrics relevant
	Understand how simple 3-D textile products are made, using a	Take into account others' views.	equipment and fabrics	to their tasks.
	template to create two identical shapes.	Understand how a key event/individual has influenced the	relevant to their tasks.	Formulate step-by-step plans
	Understand how to join fabrics using different techniques e.g.	development of the chosen product and/or fabric.	Formulate step-by-step plans	and, if appropriate, allocate tasks within a team.
	running stitch, glue, over stitch, stapling.		and, if appropriate, allocate	Select from and use a range
	Explore different finishing techniques e.g. using painting, fabric	Technical knowledge and understanding	tasks within a team.	of tools and equipment,
	crayons, stitching, sequins, buttons and ribbons.	Know how to strengthen, stiffen and reinforce existing fabrics.	Select from and use a range	including CAD, to make
	Know and use technical vocabulary relevant to the project.	Understand how to securely join two pieces of fabric together.	of tools and equipment to	products that are accurately
		Understand the need for patterns and seam allowances.	make products that are	assembled and well finished.
		Know and use technical vocabulary relevant to the project.	accurately assembled and well finished. Work within	Work within the constraints of
		,	the constraints of time,	time, resources and cost.
			resources and cost.	
				Evaluating
			Evaluating	Investigate and analyse toytile products linked to their
			Investigate and analyse	textile products linked to their final product.
			textile products linked to	Compare the final product to
			their final product.	the original design
			Compare the final product to	specification.
			the original design	Test products with intended
			specification.	user, where safe and practical,
			Test products with intended	and critically evaluate the
			user and critically evaluate	quality of the design,
			the quality of the design,	manufacture, functionality and fitness for purpose.
			manufacture, functionality	Consider the views of others
			and fitness for purpose.	to improve their work.
			Consider the views of others	
			to improve their work.	Technical knowledge and
				understanding
			Technical knowledge and understanding	• A 3-D textile product can be
			• A 3-D textile product can be	made from a combination of
			made from a combination of	accurately made pattern pieces, fabric shapes and
			accurately made pattern	different fabrics.
			pieces, fabric shapes and	Fabrics can be strengthened
			different fabrics.	, and the second
			• Fabrics can be strengthened,	
			stiffened and reinforced	
			where appropriate.	
Final Outcome	Final Outcome	Final Outcome	. Final Outcome	Final Outcome
To learn to construct	Templates and joining techniques	2-D shape to 3-D product	Combining different fabric	Using computer aided design
with a purpose in	glove puppet	purse/wallet	shapes	(CAD) in textiles
mind.	finger puppet	soft toy/mascot	 tablet case 	 tablet case
 Selects tools and 	simple bag	• apron	 mobile phone carrier 	mobile phone carrier
techniques needed to	clothes for teddy/soft toy/class doll	fashion accessory	shopping bag	shopping bag
shape, assemble and	fabric placemat	beach bag	insulating bag	• insulating bag
join materials Bookmarks		• shoe bag	hat/cap	hat/cap
BookmarksCalendar		• pencil case	garden tool belt slippers sandals	garden tool belt slippers
Calcilual		story sack	slippers sandalsfabric advent calendar	slipperssandals
			fabric doorstop	fabric advent calendar

		gir drid recimology – rrogression of skins		fabric doorstop
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
Key	Templates and joining techniques	2-D shape to 3-D product	Combining different fabric	Using computer aided design
Vocabulary	names of existing products	fabric, names of fabrics, fastening	shapes	(CAD) in textiles
Joining and finishing	joining and finishing techniques	compartment, zip	design criteria	computer aided design (CAD
techniques Tools	tools	button	annotate,	computer aided manufacture (CAM)
Fabrics	fabrics	structure	design decisions	font
Join	components	finishing technique	functionality	lettering
Decorate	template	strength	innovation	text
			authentic	graphics
	pattern pieces	weakness	user	menu
	mark out	stiffening		scale
	features	templates	purpose	modify
	suitable	stitch	evaluate	repeat
	quality mock-up	seam	mock-up	copy flip
	design brief	seam allowance	prototype	design brief
	design criteria	user	Seam	design criteria
	make	purpose	Seam allowance	design decisions
	evaluate	design	Wadding	innovative
			Reinforce	prototype
	user	model	Right side	seam
	purpose	evaluate	Wrong side Hem	seam allowance
	function	prototype	Template	wadding
		annotated sketch	Pattern pieces	reinforce
		functional	Name of textiles and	right side wrong side
		innovative	fastenings used	hem
		investigate	Pins	template
		label	Needles	pattern pieces
		drawing	Thread	fastenings
		aesthetics	Fastenings	pins
				needles
		function		thread
		pattern pieces		pinking shears
		Fabric		fastenings
		Names of fabrics		iron transfer paper annotate
		Fastening		functionality
		Compartment Zip		innovation
		Button		authentic
		Structure		user
		finishing techniques		purpose
		Strength		evaluate
		Weakness		mock-up
		Stiffening		ptototype
		Templates		
		Stitch		
		Seam		
		Seam allowance		

Electrical systems	EYFS	Year 1	Year 2	Year	Year 4	Year 5	Year 6
Зузсенна				National Curriculum			
				 To work in a range of reenvironment]. To use research and deepurpose, aimed at parti To generate, develop, nexploded diagrams, proand equipment to perform and use ingredients, according to products To evaluate their ideas work To understand how key To apply their understa To understand and use understand and use eleand motors] 	tanding and skills needed to engage elevant contexts [for example, the velop design criteria to inform the cular individuals or groups nodel and communicate their idea stotypes, pattern pieces and comporm practical tasks [for example, ca wide range of materials and comport their functional properties and and products against their own design and individuals in design and indirect of their functional systems in their products [for example, can be considered as the considered and individuals in design and indirect of the considered as the considere	home, school, leisure, culture, end design of innovative, functional, and sthrough discussion, annotated suter-aided design select from utting, shaping, joining and finishing and finishing and finishing and finishing construction neesthetic qualities investigated esign criteria and consider the view and technology have helped shaped and reinforce more complex structs [for example, gears, pulleys, cor example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and reinforce more complex structs [for example, series circuits incorporate and consider the view and consid	terprise, industry and the wider appealing products that are fit for ketches, cross-sectional and and use a wider range of tools ng], accurately naterials, textiles and and analyse a range of existing ws of others to improve their the world actures ams, levers and linkages] orating switches, bulbs, buzzers
	Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes	To apply their understa Key Learning Outcomes	nding of computing to program, m Key Learning Outcomes	Key Learning Outcomes	Key Learning Outcomes
				Simple programming and control Designing Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.	Designing Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Select from and use materials and components, including construction materials and electrical	Designing Develop a design specification for a functional product that responds automatically to changes in the environment. Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. Making Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.	More Complex Switches and circuits Designing Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Generate and develop innovative ideas and share and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. Making Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble

			 Program a standalone control box, microcontroller or interface box to enhance the way the product works. Evaluating Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers. Know and use technical vocabulary relevant to the project. 	components according to their functional properties and aesthetic qualities. Evaluating Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.	 Create and modify a computer control program to enable their electrical product to respond to changes in the environment. Evaluating Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Technical knowledge and understanding Understand and use electrical systems in their products. Understand the use of computer control systems in products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project. 	materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. Evaluating Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Investigate famous inventors who developed groundbreaking electrical systems and components. Technical knowledge and understanding Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.
Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome	Final Outcome
			Simple programming and control • illuminated sign • noise-making toy vehicle • nightlight • display lighting	 siren for a toy vehicle reading light noise-making toy nightlight illuminated sign torches table lamp lighting for display hands-free head lamp buzzer for school office 	cycle or vehicle alarm security lighting system alarm for valuable artefact garden light automatic nightlight electronic moneybox alarm for school shed	vehicle alarm security lighting system alarm for valuable artefact automatic nightlight electrical board game alarm for school shed

Design and Technology – Progression of Skills						W W 1 1
Key vocabulary	Key vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary	Key Vocabulary
			Simple programming and control series circuit fault connection toggle switch push-to-make switch push-to-break switch battery battery holder light emitting diode (LED) bulb bulb holder USB cable Wire Insulator Conductor crocodile clip control program system input device output device process user purpose function prototype design criteria innovative appealing design brief	Simple Circuit and Switches 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 user purpose function prototype design criteria innovative appealing design brief	Monitoring and Control reed switch toggle switch push-to-make switch light dependent resistor (LDR) tilt switch light emitting diode (LED) bulb bulb holder battery battery holder USB cable Wire Insulator Conductor crocodile clip control program system input device output device series circuit parallel circuit function innovative design specification design brief user purpose	More Complex Switches and Circuits series circuit names of switches and components input device output device system monitor control program flowchart function innovative design specification design brief user purpose