

Progression Matrix for Design and Technology

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of KS2
DESIGN	Select appropriate resources Use gestures, talking and arrangements of materials and components to show design Use contexts set by the teacher and myself Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)	Have own ideas explain what I want to do explain what my product is for, and how it will work use pictures and words to plan, begin to use models design a product for myself following design criteria research similar existing products	have own ideas and plan what to do next explain what I want to do and describe how I may do it explain purpose of product, how it will work and how it will be suitable for the user describe design using pictures, words, models, diagrams, begin to use ICT] design products for myself and others following design criteria choose best tools and materials, and explain choices use knowledge of existing products to produce ideas	begin to research others' needs show design meets a range of requirements describe purpose of product follow a given design criteria have at least one idea about how to create product create a plan which shows order, equipment and tools describe design using an accurately labelled sketch and words make design decisions explain how product will work make a prototype begin to use computers to show design	use research for design ideas show design meets a range of requirements and is fit for purpose begin to create own design criteria have at least one idea about how to create product and suggest improvements for design. produce a plan and explain it to others say how realistic plan is. include an annotated sketch make and explain design decisions considering availability of resources explain how product will work make a prototype begin to use computers to show design.	use internet and questionnaires for research and design ideas take a user's view into account when designing begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose create own design criteria have a range of ideas produce a logical, realistic plan and explain it to others. use cross-sectional planning and annotated sketches make design decisions considering time and resources. clearly explain how parts of product will work. model and refine design ideas by making prototypes and using pattern pieces. use computer-aided designs	draw on market research to inform design use research of user's individual needs, wants, requirements for design identify features of design that will appeal to the intended user create own design criteria and specification come up with innovative design ideas follow and refine a logical plan. use annotated sketches, cross sectional planning and exploded diagrams make design decisions, considering, resources and cost clearly explain how parts of design will work, and how they are fit for purpose independently model and refine design ideas by making prototypes and using pattern pieces use computer-aided designs	Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups *Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and comp
MAKE	Construct with a purpose, using a variety	explain what I'm making and why	explain what I am making and why it fits the purpose	*select suitable tools/equipment, explain choices;	select suitable tools and equipment, explain choices in relation to	use selected tools/equipment with good level of	* use selected tools and equipment precisely *produce	Select from and use a wider range

	<p>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</p>	<p>*consider what I need to do next *select tools/equipment to cut, shape, join, finish and explain choices *measure, mark out, cut and shape, with support *choose suitable materials and explain choices *try to use finishing techniques to make product look good *work in a safe and hygienic manner</p>	<p>*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 *work safely and hygienically</p>	<p>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 with some accuracy * begin to apply a range of finishing technique</p>	<p>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 techniques with some accuracy</p>	<p>precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality * create and follow detailed step-by-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 * mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful with practical problems</p>	<p>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 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</p>	<p>of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>
EVALUATE	<p>Adapt work if necessary *Dismantle, examine, talk about existing objects/structures *Consider and manage some risks *Practise some appropriate safety</p>	<p>*talk about my work, linking it to what I was asked to do * talk about existing products considering: use, materials, how they work, audience, where they might be used *evaluate how good existing products are</p>	<p>describe what went well, thinking about design criteria * talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion *evaluate how good existing products are</p>	<p>look at design criteria while designing and making *use design criteria to evaluate finished product * say what I would change to make design better *begin to evaluate existing products, considering: how well they have been made, materials,</p>	<p>*refer to design criteria while designing and making *use criteria to evaluate product * begin to explain how I could improve original design *evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * discuss by</p>	<p>evaluate quality of design while designing and making *evaluate ideas and finished product against specification, considering purpose and appearance. *test and evaluate final product * evaluate and discuss existing</p>	<p>*evaluate quality of design while designing and making; is it fit for purpose? * keep checking design is best it can be. *evaluate ideas and finished product against specification, stating if it's fit for purpose *test and</p>	<p>*Investigate and analyse a range of existing products. *Evaluate their ideas and products against their own design criteria and consider the views of</p>

	measures independently *Talk about how things work *Look at similarities and differences between existing objects / materials / tools *Show an interest in technological toys *Describe textures	might be used *talk about existing products, and say what is and isn't good * talk about things that other people have made *begin to talk about what could make product better	*talk about what I would do differently if I were to do it again and why	whether they work, how they have been made, fit for purpose * begin to understand by whom, when and where products were designed * learn about some inventors/designers/ engineers/chefs/ manufacturers of ground breaking products	whom, when and where products were designed * research whether products can be recycled or reused * know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products	products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * begin to evaluate how much products cost to make and how innovative they are *research how sustainable materials are *talk about some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products	evaluate final product; explain what would improve it and the effect different resources may have had *do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose *evaluate how much products cost to make and how innovative they are *research and 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	others to improve their work. *Understand how key events and individuals in design and technology have helped shape the world
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Technical Knowledge

Materials and Structures		begin to measure and join materials, with some support *describe differences in materials *suggest ways to make material/product stronger	measure materials *describe some different characteristics of materials *join materials in different ways *use joining, rolling or folding to make it stronger *use own ideas to try to make product stronger	use appropriate materials *work accurately to make cuts and holes * join materials *begin to make strong structures	measure carefully to avoid mistakes *attempt to make product strong *continue working on product even if original didn't work *make a strong, stiff structure	*select materials carefully, considering intended use of product and appearance *explain how product meets design criteria *measure accurately enough to ensure precision *ensure product is strong and fit for purpose *begin to reinforce	*select materials carefully, considering intended use of the product, the aesthetics and functionality. *explain how product meets design criteria *reinforce and strengthen a 3D frame	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
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						and strengthen a 3D frame		
Mechanisms		begin to use levers or slides	use levers or slides *begin to understand how to use wheels and axles	*select appropriate tools / techniques *alter product after checking, to make it better *begin to try new/different ideas *use simple lever and linkages to create movement	*select most appropriate tools / techniques *explain alterations to product after checking it *grow in confidence about trying new / different ideas. *use levers and linkages to create movement *use pneumatics to create movement	refine product after testing *grow in confidence about trying new / different ideas *begin to use cams, pulleys or gears to create movement	*refine product after testing, considering aesthetics, functionality and purpose *incorporate hydraulics and pneumatics *be confident to try new / different ideas *use cams, pulleys and gears to create movement	
Textiles		*measure, cut and join textiles to make a product, with some support *choose suitable textiles	*measure textiles *join textiles together to make a product, and explain how I did it *carefully cut textiles to produce accurate pieces *explain choices of textile *understand that a 3D textile structure can be made from two identical fabric shapes	*join different textiles in different ways *choose textiles considering appearance and functionality *begin to understand that a simple fabric shape can be used to make a 3D textiles project	think about user when choosing textiles *think about how to make product strong * begin to devise a template *explain how to join things in a different way *understand that a simple fabric shape can be used to make a 3D textiles project	think about user and aesthetics when choosing textiles *use own template * think about how to make product strong and look better *think of a range of ways to join things *begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.	*think about user's wants/needs and aesthetics when choosing textiles *make product attractive and strong *make a prototype *use a range of joining techniques *think about how product might be sold *think carefully about what would improve product *understand that a single 3D textiles project can be made from a combination of fabric shapes.	
Food and Nutrition	Begin to understand some food preparation tools, techniques and processes *Practise stirring, mixing, pouring, blending	describe textures *wash hands & clean surfaces *think of interesting ways to decorate food *say where some foods come from, (i.e. plant or animal)	explain hygiene and keep a hygienic kitchen *describe properties of ingredients and importance of varied diet *say where food comes from (animal, underground etc.) *describe how food is farmed, home-grown, caught *draw	carefully select ingredients *use equipment safely *make product look attractive *think about how to grow plants to use in cooking *begin to understand food comes from UK and wider world *describe how	explain how to be safe/hygienic *think about presenting product in interesting/ attractive ways *understand ingredients can be fresh, pre-cooked or processed *begin to understand about food being grown, reared or caught in the UK or wider world *describe eat well plate	explain how to be safe / hygienic and follow own guidelines *present product well - interesting, attractive, fit for purpose *begin to understand seasonality of foods *understand food can be grown,	understand a recipe can be adapted by adding / substituting ingredients *explain seasonality of foods *learn about food processing methods *name some types of food that are grown, reared or caught in the UK or wider world *adapt	*Understand and apply the principles of a healthy and varied diet *Prepare and cook a variety of predominantl y savoury dishes using a range of

	<p>*Discuss how to make an activity safe and hygienic</p> <p>*Discuss use of senses</p> <p>*Understand need for variety in food</p> <p>*Begin to understand that eating well contributes to good health</p>	<p>*describe differences between some food groups (i.e. sweet, vegetable etc.)</p> <p>*discuss how fruit and vegetables are healthy</p> <p>*cut, peel and grate safely, with support</p>	<p>eat well plate; explain there are groups of food</p> <p>*describe "five a day"</p> <p>*cut, peel and grate with increasing confidence</p>	<p>healthy diet= variety/balance of food/drinks</p> <p>*explain how food and drink are needed for active/healthy bodies.</p> <p>*prepare and cook some dishes safely and hygienically</p> <p>*grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>and how a healthy diet=variety / balance of food and drinks</p> <p>*explain importance of food and drink for active, healthy bodies</p> <p>*prepare and cook some dishes safely and hygienically</p> <p>*use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>reared or caught in the UK and the wider world</p> <p>*describe how recipes can be adapted to change appearance, taste, texture, aroma</p> <p>*explain how there are different substances in food / drink needed for health</p> <p>*prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</p> <p>* use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>recipes to change appearance, taste, texture or aroma.</p> <p>*describe some of the different substances in food and drink, and how they can affect health</p> <p>*prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.</p> <p>*use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>cooking techniques</p> <p>*Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>
Electricity				<p>*use simple circuit in product</p> <p>*learn about how to program a computer to control product.</p>	<p>use number of components in circuit</p> <p>*program a computer to control product</p>	<p>*incorporate switch into product</p> <p>*confidently use number of components in circuit</p> <p>*begin to be able to program a computer to monitor changes in environment and control product</p>	<p>use different types of circuit in product</p> <p>* think of ways in which adding a circuit would improve product</p> <p>* program a computer to monitor changes in environment and control product</p>	<p>Understand and use electrical systems in their products [for example, series circuits</p>

Design and Technology Vocabulary					
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planning, investigating design, evaluate, make, user, purpose, ideas, product, fruit and vegetable names, names of equipment	investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function, fruit and	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function,	evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative,	design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate,	function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated

<p>and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder, joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards</p>	<p>vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder, joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used</p>	<p>planning, design criteria, annotated sketch, appealing, name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet, shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision, fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates,</p>	<p>appealing, design brief, planning, annotated sketch, sensory evaluations, name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision, fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness,</p>	<p>design criteria, annotate, evaluate, mock-up, prototype ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram,</p>	<p>sketch, purpose, user, innovation, research, functional, mock-up, prototype ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit,</p>
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		<p>stitch, seam, seam allowance, mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating, 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</p>	<p>stiffening, templates, stitch, seam, seam allowance, mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating, 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</p>	<p>annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output, reed switch, toggle switch, push-to-make switch, push-to-break 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</p>	<p>switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output, reed switch, toggle switch, push-to-make switch, push-to-break 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</p>
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