

Progression of Skills and Knowledge in Design and Technology KS2

	Year 3	Year 4	Year 5	Year 6	End of Key Stage Expectations
Design	<ul style="list-style-type: none"> •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 technology to show design 	<ul style="list-style-type: none"> •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 /suggest improvements. •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 technology to show design. 	<ul style="list-style-type: none"> •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 	<ul style="list-style-type: none"> •draw on market research to inform design •research user's individual needs, wants, requirements •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/refine design ideas by making prototypes & using patterns •use computer-aided designs 	<ul style="list-style-type: none"> •Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups •Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design

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Make	<ul style="list-style-type: none"> •select suitable 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 range of finishing techniques with some accuracy 	<ul style="list-style-type: none"> •select suitable tools and 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 techniques with some accuracy 	<ul style="list-style-type: none"> •use selected 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 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 	<ul style="list-style-type: none"> •use selected tools 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 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 	<ul style="list-style-type: none"> •Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately •Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

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Evaluate	<ul style="list-style-type: none"> •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, 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 groundbreaking products 	<ul style="list-style-type: none"> •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 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 	<ul style="list-style-type: none"> •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 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 groundbreaking products 	<ul style="list-style-type: none"> •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 •Evaluations explain what to improve 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, fit for purpose •evaluate cost and whether product is innovative •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 groundbreaking products 	<ul style="list-style-type: none"> •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

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Technical knowledge - materials/structure	<ul style="list-style-type: none"> •use appropriate materials •work accurately to make cuts and holes •join materials •begin to make strong structures 	<ul style="list-style-type: none"> •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 		<ul style="list-style-type: none"> •select materials carefully, considering intended use of the product, the aesthetics and functionality. •explain how product meets design criteria •reinforce/strengthen 3D frame 	<ul style="list-style-type: none"> •Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
Technical knowledge - mechanisms	<ul style="list-style-type: none"> •select appropriate tools / techniques •alter product after checking, to make it better begin to try different ideas •use simple lever and linkages to create movement 	<ul style="list-style-type: none"> •select most appropriate tools / techniques •explain alterations to product •grow in confidence about trying new / different ideas. •use levers and linkages to create movement •use pneumatics to create movement 	<ul style="list-style-type: none"> •refine product after testing •grow in confidence about trying new / different ideas •begin to use cams, pulleys or gears to create movement 		<ul style="list-style-type: none"> •Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
Technical knowledge - textiles	<ul style="list-style-type: none"> •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 	<ul style="list-style-type: none"> •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 	<ul style="list-style-type: none"> •think about user/aesthetics when choosing textiles •use own template •think about how to make product strong/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. 	<ul style="list-style-type: none"> •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 improvements •understand that a single 3D textiles project can be made from a combination of fabric shapes 	End of Key Stage Expectations

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Technical knowledge - food and nutrition	<ul style="list-style-type: none"> •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 healthy diet= variety/balance of food/drinks •explain how food and drink are needed for active/healthy bodies •. prepare and cook some dishes safely and hygienically •grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 	<ul style="list-style-type: none"> •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 and how a healthy diet=variety / balance of food and drinks •explain importance of food and drink for active, healthy bodies •prepare and cook some dishes safely and hygienically •use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 	<ul style="list-style-type: none"> •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, reared or caught in the UK and the wider world •describe how recipes can be adapted to change appearance, taste, texture, aroma •explain how there are different substances in food / drink needed for health •prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source •use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading 		<ul style="list-style-type: none"> •Understand and apply the principles of a healthy and varied diet •Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques •Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

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Technical knowledge - electrical systems	<ul style="list-style-type: none"> •use simple circuit in product 	<ul style="list-style-type: none"> •use number of components in circuit •program a computer to control product 	<ul style="list-style-type: none"> •program a computer to control product •incorporate switch into product •confidently use number of components in circuit •begin to be able to program a computer to monitor changes in environment and control product 	<ul style="list-style-type: none"> •use different types of circuit in product •think of ways in which adding a circuit would improve product •program a computer to monitor changes in environment and control product 	<ul style="list-style-type: none"> •Understand and use electrical systems in their products [for example, series circuits