# Design and Technology Progression of Skills

| DESIGNING | | | | | | |
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| **Early Years** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| *Select appropriate resources<br>*Use gestures, talking and arrangements of materials and components to show design<br>* Use contexts set by the teacher and myself<br>*Use language of designing and making (join, build, shape, longer, shorter, heavier etc.) | * have own ideas<br>* explain what I want to do<br>*explain what my product is for, and how it will work<br>* use pictures and words to plan, begin to use models<br>* design a product for myself following design criteria<br>*research similar existing products | * have own ideas and plan what to do next<br>* explain what I want to do and describe how I may do it<br>* explain purpose of product, how it will work and how it will be suitable for the user<br>* describe design using pictures, words, models, diagrams, begin to use ICT<br>* design products for myself and others following design criteria<br>* choose best tools and materials, and explain choices<br>* use knowledge of existing products to produce ideas | *begin to research others' needs<br>* show design meets a range of requirements<br>* describe purpose of product<br>* follow a given design criteria<br>* have at least one idea about how to create product<br>* create a plan which shows order, equipment and tools<br>*describe design using an accurately labelled sketch and words<br>* make design decisions<br>*explain how product will work<br> * make a prototype | * use research for design ideas<br>* show design meets a range of requirements and is fit for purpose<br>*begin to create own design criteria<br>*have at least one idea about how to create product and suggest improvements for design.<br>* produce a plan and explain it to others<br>*say how realistic plan is.<br>*include an annotated sketch<br>*make and explain design decisions considering availability of resources<br>*explain how product will work | *use internet and questionnaires for research and design ideas<br>*take a user's view into account when designing<br>* begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose<br>*create own design criteria<br>* have a range of ideas<br>*produce a logical, realistic plan and explain it to others.<br>*use cross-sectional planning and annotated sketches | * draw on market research to inform design<br>* use research of user's individual needs, wants, requirements for design<br>*  identify features of design that will appeal to the intended user<br>* create own design criteria and specification<br>* come up with innovative design ideas<br>*follow and refine a logical plan.<br>*use annotated sketches, cross-sectional planning and exploded diagrams<br>* make design decisions, considering, resources and cost |

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| | | | * begin to use computers to show design | * make a prototype<br>*begin to use computers to show design. | * make design decisions considering time and resources.<br>*clearly explain how parts of product will work.<br>*model and refine design ideas by making prototypes and using pattern pieces.<br>*use computer-aided designs | * clearly explain how parts of design will work, and how they are fit for purpose<br>* independently model and refine design ideas by making prototypes and using pattern pieces<br>* use computer-aided designs |

## MAKING

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| *Construct with a purpose, using a variety of resources<br>*Use simple tools and techniques<br>*Build / construct with a wide range of objects<br>*Select tools & techniques to shape, assemble and join<br>*Replicate structures with materials / components<br>*Discuss how to make an activity safe and hygienic<br>*Record experiences by drawing, writing, voice recording<br>*Understand different media can be | *explain what I'm making and why<br>*consider what I need to do next<br>*select tools/equipment to cut, shape, join, finish and explain choices<br>*measure, mark out, cut and shape, with support<br>*choose suitable materials and explain choices<br>*try to use finishing techniques to make product look good<br>*work in a safe and hygienic manner | *explain what I am making and why it fits the purpose<br>*make suggestions as to what I need to do next.<br>*join materials/components together in different ways<br>*measure, mark out, cut and shape materials and components, with support.<br>*describe which tools I'm using and why<br>*choose suitable materials and explain choices depending on characteristics. | *select suitable tools/equipment, explain choices; begin to use them accurately<br>* select appropriate materials, fit for purpose.<br>* work through plan in order<br>*consider how good product will be<br>* begin to measure, mark out, cut and shape materials/components with some accuracy<br>* begin to assemble, join and combine materials and components with some accuracy | * select suitable tools and equipment, explain choices in relation to required techniques and use accurately<br>*select appropriate materials, fit for purpose; explain choices<br>* work through plan in order.<br>* realise if product is going to be good quality<br>* measure, mark out, cut and shape materials/components with some accuracy<br>*assemble, join and combine materials and components with some accuracy | * use selected tools/equipment with good level of precision<br>* produce suitable lists of tools, equipment/materials needed<br>*select appropriate materials, fit for purpose; explain choices, considering functionality<br>* create and follow detailed step-by-step plan<br>* explain how product will appeal to an audience<br>* mainly accurately measure, mark out, cut and shape materials/components | * use selected tools and equipment precisely<br>*produce suitable lists of tools, equipment, materials needed, considering constraints<br>* select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics<br>* create, follow, and adapt detailed step-by-step plans<br>*explain how product will appeal to audience; make changes to improve quality |

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| combined for a purpose | | *use finishing techniques to make product look good<br>*work safely and hygienically | * begin to apply a range of finishing techniques with some accuracy | *apply a range of finishing techniques with some accuracy | *mainly accurately assemble, join and combine materials/components<br>* mainly accurately apply a range of finishing techniques<br>* use techniques that involve a small number of steps<br>* begin to be resourceful with practical problems | * accurately measure, mark out, cut and shape materials/components<br>* accurately assemble, join and combine materials/components<br>* accurately apply a range of finishing techniques<br>* use techniques that involve a number of steps<br>* be resourceful with practical problems |

## EVALUATING

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| *Adapt work if necessary<br>*Dismantle, examine, talk about existing objects/structures<br>*Consider and manage some risks<br>*Practise some appropriate safety measures independently<br>*Talk about how things work<br>*Look at similarities and differences between existing objects / materials / tools | *talk about my work, linking it to what I was asked to do<br>* talk about existing products considering: use, materials, how they work, audience, where they might be used<br>*talk about existing products, and say what is and isn't good<br>* talk about things that other people have made<br>*begin to talk about what could make product better | * describe what went well, thinking about design criteria<br>* talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion<br>*evaluate how good existing products are<br>*talk about what I would do differently if I were to do it again and why | * look at design criteria while designing and making<br>*use design criteria to evaluate finished product<br>* say what I would change to make design better<br>*begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose<br>* begin to understand by whom, when and | *refer to design criteria while designing and making<br>*use criteria to evaluate product<br>* begin to explain how I could improve original design<br>*evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose<br>* discuss by whom, when and where | *evaluate quality of design while designing and making<br>*evaluate ideas and finished product against specification, considering purpose and appearance.<br>*test and evaluate final product<br>* evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose | *evaluate quality of design while designing and making; is it fit for purpose?<br>* keep checking design is best it can be.<br>*evaluate ideas and finished product against specification, stating if it's fit for purpose<br>*test and evaluate final product; explain what would improve it and the effect different resources may have had<br>*do thorough evaluations of existing |

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| *Show an interest in technological toys<br>*Describe textures | | | where products were designed<br><br>* learn about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products | products were designed<br><br>* research whether products can be recycled or reused<br><br>* know about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products | * begin to evaluate how much products cost to make and how innovative they are<br><br>*research how sustainable materials are<br><br>*talk about some key inventors/designers/engineers/chefs/manufacturers of ground-breaking products | products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose<br>*evaluate how much products cost to make and how innovative they are<br><br>*research and discuss how sustainable materials are<br><br>*consider the impact of products beyond their intended purpose<br><br>*discuss some key inventors/designers/engineers/chefs/manufacturers of ground-breaking products |

## TECHNICAL KNOWLEDGE - Materials and Structures

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| | *begin to measure and join materials, with some support<br>*describe differences in materials<br>*suggest ways to make material/product stronger | *measure materials<br>*describe some different characteristics of materials<br>*join materials in different ways | *use appropriate materials<br>*work accurately to make cuts and holes<br>* join materials<br>*begin to make strong structures | *measure carefully to avoid mistakes<br>*attempt to make product strong<br>*continue working on product even if original didn't work<br>*make a strong, stiff structure | *select materials carefully, considering intended use of product and appearance<br>*explain how product meets design criteria | *select materials carefully, considering intended use of the product, the aesthetics and functionality.<br>*explain how product meets design criteria<br>* reinforce and strengthen a 3D frame |

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| | | *use joining, rolling or folding to make it stronger<br>*use own ideas to try to make product stronger | | | *measure accurately enough to ensure precision<br>*ensure product is strong and fit for purpose<br>*begin to reinforce and strengthen a 3D frame | |

| TECHNICAL KNOWLEDGE - Mechanisms | | | | | | |
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| **Early Years** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| | *begin to use levers or slides | *use levers or slides<br>*begin to understand how to use wheels and axles | *select appropriate tools / techniques<br>*alter product after checking, to make it better<br>*begin to try new/different ideas<br>*use simple lever and linkages to create movement | *select most appropriate tools / techniques<br>*explain alterations to product after checking it<br>*grow in confidence about trying new / different ideas.<br>*use levers and linkages to create movement<br>*use pneumatics to create movement | *refine product after testing<br>*grow in confidence about trying new / different ideas<br>*begin to use cams, pulleys or gears to create movement | *refine product after testing, considering aesthetics, functionality and purpose<br>*incorporate hydraulics and pneumatics<br>*be confident to try new / different ideas<br>*use cams, pulleys and gears to create movement |

## TECHNICAL KNOWLEDGE - Textiles

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| | *measure, cut and join textiles to make a product, with some support<br>*choose suitable textiles | *measure textiles<br>*join textiles together to make a product, and explain how I did it<br>*carefully cut textiles to produce accurate pieces<br>*explain choices of textile<br>*understand that a 3D textile structure can be made from two identical fabric shapes. | *join different textiles in different ways<br>*choose textiles considering appearance and functionality<br>*begin to understand that a simple fabric shape can be used to make a 3D textiles project | *think about user when choosing textiles<br>*think about how to make product strong<br>* begin to devise a template<br>*explain how to join things in a different way<br>*understand that a simple fabric shape can be used to make a 3D textiles project | *think about user and aesthetics when choosing textiles<br>*use own template<br>* think about how to make product strong and look better<br>*think of a range of ways to join things<br>*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<br>*make product attractive and strong<br>*make a prototype<br>*use a range of joining techniques<br>*think about how product might be sold<br>*think carefully about what would improve product<br>*understand that a single 3D textiles project can be made from a combination of fabric shapes. |

## TECHNICAL KNOWLEDGE - Food and Nutrition

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| *Begin to understand some food preparation tools, techniques and processes<br>*Practise stirring, mixing, pouring, blending<br>*Discuss how to make an activity safe and hygienic | *describe textures<br>*wash hands & clean surfaces<br>*think of interesting ways to decorate food<br>*say where some foods come from, (i.e. plant or animal)<br>*describe differences between some food | *explain hygiene and keep a hygienic kitchen<br>*describe properties of ingredients and importance of varied diet<br>*say where food comes from (animal, underground etc.) | *carefully select ingredients<br>*use equipment safely<br>*make product look attractive<br>*think about how to grow plants to use in cooking | *explain how to be safe/hygienic<br>*think about presenting product in interesting/ attractive ways<br>*understand ingredients can be fresh, pre-cooked or processed | *explain how to be safe / hygienic and follow own guidelines<br>*present product well - interesting, attractive, fit for purpose<br>*begin to understand seasonality of foods<br>*understand food can be grown, reared or | *understand a recipe can be adapted by adding / substituting ingredients<br>*explain seasonality of foods<br>*learn about food processing methods<br>*name some types of food that are grown, |

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| *Discuss use of senses<br>*Understand need for variety in food<br>*Begin to understand that eating well contributes to good health | groups (i.e. sweet, vegetable etc.)<br>*discuss how fruit and vegetables are healthy<br>*cut, peel and grate safely, with support | *describe how food is farmed, home-grown, caught<br>*draw eat well plate; explain there are groups of food<br>*describe "five a day"<br>*cut, peel and grate with increasing confidence | *begin to understand food comes from UK and wider world<br>*describe how healthy diet= variety/balance of food/drinks<br>*explain how food and drink are needed for active/healthy bodies.<br>*prepare and cook some dishes safely and hygienically<br><br>*grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking | *begin to understand about food being grown, reared or caught in the UK or wider world<br>*describe eat well plate and how a healthy diet=variety / balance of food and drinks<br>*explain importance of food and drink for active, healthy bodies<br>*prepare and cook some dishes safely and hygienically<br><br>*use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking | caught in the UK and the wider world<br>*describe how recipes can be adapted to change appearance, taste, texture, aroma<br>*explain how there are different substances in food / drink needed for health<br>*prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source<br><br>* use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. | reared or caught in the UK or wider world<br>*adapt recipes to change appearance, taste, texture or aroma.<br>*describe some of the different substances in food and drink, and how they can affect health<br>*prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.<br><br>*use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. |

## TECHNICAL KNOWLEDGE - Electrical Systems

| Early Years | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| | | | *use simple circuit in product<br>*learn about how to program a computer to control product. | *use number of components in circuit<br>*program a computer to control product | *incorporate switch into product<br>*confidently use number of components in circuit<br>*begin to be able to program a computer to monitor changes in | *use different types of circuit in product<br>* think of ways in which adding a circuit would improve product<br>* program a computer to monitor changes in |

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