Ashurst Wood Primary School- Progression of Skills- Design and Technology

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|  | **EYFS** | **Year One** | **Year Two** | **End of KS 1 expectations** | **Year Three** | **Year Four** | **Year Five** | **Year Six** | **End of KS2**  **expectations** |
| **DESIGNING** | * 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 | * 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 | * 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 computer aided design |
| **MAKE** | * 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 | * explain what I’m making and why * 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 | * 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 * work safely and hygienically | * Select from and use a range of   tools and  equipment to  perform practical tasks [for  example, cutting, shaping, joining and finishing]   * Select from and use a wide range of materials and components,   including  construction  materials, textiles and ingredients, according to their characteristics | * 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 | * 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 | * 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 | * 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 | * 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** | * Adapt work if necessary * Dismantle, examine, talk about existing objects/structures * Consider and manage some risks * Practise some appropriate safety 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 | * 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 * 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 | * 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 * talk about what I would do differently if I were to do it again and why | * Explore and   evaluate a range of existing  products   * Evaluate their   ideas and  products against design criteria | * 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 ground breaking products | * 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 | * 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 ground breaking products | * 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 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 | * *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 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 | * Build structures, exploring how   they can be made stronger, stiffer and more stable | * 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 and strengthen a 3D frame | * 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* |
| **Technical Knowledge Mechanisms**  **-** |  | * begin to use levers or slides | * use levers or slides * begin to understand how to use wheels and axles | * Explore and use mechanisms [for example, levers, sliders, wheels   and axles], in  their products. | * 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 | * *Understand* and use mechanical system in their products [for example, *gears,*   *pulleys, cams,* levers and *linkages*] |
| **-**  **Technical Knowledge- 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. |  |
| **Technical Knowledge- Food and Nutrition** | * Begin to understand some food preparation tools, techniques and processes * Practise stirring, mixing,   pouring, blending   * Discuss how to make an activity safe and hygienic * Discuss use of senses * Understand need for variety in food * Begin to understand that eating well contributes to good health | * describe textures * wash hands & clean surfaces * think of interesting ways to decorate food * say where some foods come from, (i.e. plant or animal) * describe differences between some food groups (i.e. sweet, vegetable etc.) * discuss how fruit and   vegetables are healthy   * cut, peel and grate safely, with support | * 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 eat well plate; explain there are groups of food  describe “five a day”   * cut, peel and grate with increasing confidence | * Use the basic   principles of a  healthy and  varied diet to  prepare dishes   * Understand   where food  comes from. | * 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 | * 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 | * 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, kneading and baking. | * 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 recipes to change appearance, taste, texture or aroma. * describe some of the different substances in food and drink, and how they can affect health * prepare and cook a variety of savoury dishes safely and hygienically * including, where appropriate, the use of heat source. * use a range of techniques confidently such as peeling, chopping, slicing, Mgrating, mixing, spreading, kneading and baking. | * *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.* |
| **Technical Knowledge- Electrical Systems** |  | | | | * use simple circuit in product * learn about how to program a computer to control product. | * use number of components in circuit * 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 | * 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 | * *Understand and use electrical systems in their products [for*   *example, series*  *circuits* |