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|  | **EYFS** | **Year One** | **Year Two** | **End of KS expectations** | **Year Three** | **Year Four** | **Year Five** | **Year Six** | **End of KS expectations** |
| **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 | **\*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*** |
| **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*** |
| **Development of Technical Knowledge** | | | | | | | | | |
| **Technical knowledge – Materials/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 systems 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, grating, 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 Computer control and monitoring** |  |  |  |  | \*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*** |