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|  | **EYFS** | **Y1** | **Y2** | **End of KS Expectations** | **Y3** | **Y4** | **Y5** | **Y6** | **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, \* 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  | \* 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  | \*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.  | \* 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 | \*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 groundbreaking 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 |
| **Technical Knowledge- Materials/ Structures** | * Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park.
* Develop their own ideas and then decide which materials to use to express them.
* Join different materials and explore different textures.
 | \*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 \*continue working on product even if original didn’t work  | \*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** | N/A | \*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\*use pneumatics 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 | N/A | \*refine product after testing, considering aesthetics, functionality and purpose \*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** | \*Join different materials and explore different textures. | N/A | \*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 \*explain choices of textile \*understand that a 3D textile structure can be made from two identical fabric shapes. | \*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. | N/A | \*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 | N/A | \*think about user’s wants/needs and aesthetics when choosing textiles \*make product attractive and strong \*use own template\*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. | \*Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.\*Understand how key events and individuals in design and technology have helped shape the world.  |
| **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 \* begin to 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 \*begin to use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking | N/A | \*explain how to be safe / hygienic and follow own guidelines \*present product well - interesting, attractive, fit for purpose \*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. | N/A | \*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** | N/A | N/A | N/A | N/A |  | \*use simple circuit in product \*learn about how to program a computer to control product. | N/A | \*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 |