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|  | EYFS | Year 1 | Year 2 | End of KS | Year 3/4Cycle B | Year 3/4Cycle A | Year 5/6 Cycle B | Year 5/6Cycle A | End of KS |
| Explore | \*Talk about how toys work\*Examine and talk about existing objects/structures\*Look at similarities and differences between existing products. | \*Talk about existing products considering: use, materials, how they work, audience, where they might be used \*Dismantle existing products and see how they are made/ work.\*Talk about existing products, and say what is and isn’t good  | \*Research and investigate existing products.\*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 | \*Explore and evaluate a range of existing products | \*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 product | \*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\*Know about some inventors/designers/ engineers/chefs/manufacturersof ground-breaking products | \* Evaluate and discuss existing products, considering: how well they’ve been made, materials, whether they work, how they have been made, fit for purpose\*Talk about some key inventors/designers/ engineers/chefs/manufacturers of ground-breaking products | \*Evaluate and compare existing products considering: how well they’ve been made, materials, whether they work, how they’ve been made, fit for purpose\*Discuss some key inventors/designers/ engineers/chefs/manufacturers of ground-breaking products | \*Investigate and analyse a range of existing products.\*Understand how key events and individuals in design and technology have helped shape the world |
| 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 | \*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 \* 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 labels\* 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\*Practise some appropriate safety measuresindependently | \*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 andcomponents 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 \*Almost accurately measure, mark out, cut and shape materials/components \*Almost accurately assemble, join and combine materials/components \*Almost 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\*Talk about how things work\*Look at similarities and differences between materials / tools\*Show an interest in technological toys\*Describe textures | \*Talk about my work, linking it to what I was asked to do \*Begin to talk about what could make product better\*Talk about things that other people have made | \* Describe what went well, thinking about design criteria\*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 | \*Refer to design criteria while designing and making\*Use criteria to evaluate product\*Begin to explain how I could improve original design\* Research whether products can be recycled or reused | \*Evaluate quality of design while designing and making\*Evaluate ideas and finished product against specification, considering purpose and appearance. \*Test and evaluate final product\* Begin to evaluate how much products cost to make and how innovative they are \*Research how sustainablematerials are made | \*Evaluate quality of design whiledesigning 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\*Evaluate how much products cost to make and how innovative they are \*Research and discuss how sustainable materials are made\*Consider the impact of products beyond their intended purpose | \*Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. |
| Technical Knowledge-Structures | \*Select the materials needed for a structure\*Experiment with Joining materials if different ways. | \*Begin to measure (non standard) \*Join materials, with some support\*Describe differences inmaterials \*Suggest ways to makematerial/product stronger/more stableTalk about cutting safely. | \*Measure materials to the nearest cm.\*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/more stable\*Practise cutting materials safely | \*Build structures, exploring how they can be made stronger, stiffer and more stable |  | \*Attempt to make product Strong\*Measure materials to the nearest mm.\*Continue working on product even if original didn’t work.\*Use appropriate materials\*Work accurately to make cuts and holes\* Join materials\*Begin to make strong Structures accurately. |   | \*Select materials carefully, considering intended use of product and appearance \*Measure accurately enough to ensure precision\*Ensure product is strong and fit for purpose\*Begin to reinforce and strengthen using their understanding of materials, independently | \*Apply their understanding of how to strengthen, stiffen and reinforce more complex structures |
| Technical Knowledge-Mechanisms | \*Play and investigate using wheels and axis in different materials | \*Begin to use levers or slides in different contexts using different materials.\*Explore by ‘pulling apart’ toys using wheels and axis | \*Use levers or slides with confidence in product\*Begin to understand how to use wheels and axles in product | \*Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. |  | \*Measure and mark out to the nearest mm.\* Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).\*Use scientific knowledge to choose appropriate mechanisms for a product.\*Use simple lever and linkages to create movement | \*Measure accurately\*Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).\*Develop a range of practical skills to create products \*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 |  | \*Decorate binca using running stitch.\* Learn the how to use a template | \*Use a template independently\*Join textiles together to make a product using running stitch\*Carefully cut textiles to produce accurate pieces\*Explain choices of textile |  | \*Understand the need for a seam allowance.\*Join textiles with appropriate Stitching\*Choose textiles consideringappearance and functionality |  |  | \* Create objects that has a seam allowance.\*Join textiles with a combination of stitching techniques\*Show an understanding of the qualities of materials \*To choose appropriate tools to cut and shape \*Select the most appropriate techniques to decorate textiles\*Use own template |  |
| Technical knowledge-Electrical Systems |  |  |  |  |  | \*Recognise if a battery-operated device works or not.\* Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).• Create series circuits• Create parallel circuits.\*Use a simple circuit in a product |  | \*Create circuits using electronics kits that employ a number of components with increasing confidence.\*Incorporate switch into product\* Think of ways in which adding a circuit would improve product | \*Understand and use electrical systems in their products [for example, series circuits |
| Technical knowledge-Food and Nutrition | •Begin to understand hygiene rules• Follow instructions given by adult one at a time• Preparation e.g. Washing, drying• Peeling, opening, tearing, mixing, pouring• Name some equipment• Taste and give opinion | \*Assemble and name ingredients.\*Wash hands & clean surfaces\*Measure using measuring cups\*Mix, snip, spoon, cut\*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 | \*Explain hygiene and keep a hygienic kitchen\*Describe properties of ingredients and importance of varied diet\*Measure using electronic scales\*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\*Begin to understand where food comes from in UK and wider world\*Describe how a healthy diet, Variety, balance of food and drinks are needed to be healthy\*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 and 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\*Begin to use electronic scales | \*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\*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.\*Use electronic scales\*Control temperature of oven | \*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 \*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.\*Use electronic scales\*Control temperature of oven | \*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. |