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|  | EYFS | Year 1 | Year 2 | End of KS | Year 3/4  Cycle B | Year 3/4  Cycle A | Year 5/6  Cycle B | Year 5/6  Cycle 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/manufacturers  of 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 measures  independently | \*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  \*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 sustainable  materials are made | \*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  \*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 in  materials  \*Suggest ways to make  material/product stronger/more stable  Talk 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 considering  appearance 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. |