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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing Planning and communicating ideas	• Use what they have learnt about media and materials, thinking about uses and purposes • Represent their own ideas, thoughts and feelings • Explain what they are making and which materials they are using • Select materials from a limited range that will meet a simple design criteria e.g. shiny • Select and name the tools needed to work the materials e.g. scissors for paper - Explore ideas by rearranging materials • Describe simple models or drawings of ideas and intentions • Discuss their work as it progresses · Speak in a familiar	• Draw on their own experience to help generate ideas. • Suggest ideas and explain what they are going to do. • Identify a purpose for what they intend to design and make • Identify simple design criteria Make simple drawings and label parts	• Model their ideas in card and paper Develop their design ideas applying findings from their earlier research. • Identify a target group for what they intend to design and make. • Develop their design ideas through discussion, observation, drawing and modelling.	3 • Generate ideas for an item, considering its purpose and the user/s • Identify a purpose and establish criteria for a successful product. • Plan the order of their work before starting • Explore, develop and communicate design proposals by modelling ideas. • Make drawings with labels when designing. •	4 • Generate ideas, considering the purposes for which they are designing • Make labelled drawings from different views showing specific features – • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. • Evaluate products and identify criteria that can be used for their own designs.	5 • Generate ideas through discussion and research and identify a purpose for their product • Draw up a specification for their design • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail • Use results of investigations, information sources - including ICT - when developing.	6 • Communicate their ideas through detailed labelled drawings • Develop a design specification • Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways • Plan the order of their work, choosing appropriate materials, tools and techniques.

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	group about their ideas • Develop explanations by connecting ideas						
<u>Mechanisms</u> **Must connect and build on previous skills across year groups with select focus on key stages.** **<u>Any design or idea with motors and cams working – link to topic/science/ English or stand alone lesson.</u>**		Technical vocabulary on display. **<u>Sliders and levers</u>** **With some support, begin to explore and use simple mechanisms. For example, use sliders in moving pictures, hinges into models etc.** • Generating, modelling and communicating ideas. • Planning making, selecting tools and using finishing techniques. • Exploring books and products; evaluating own product against original criteria. • Step by step approach to creating mechanisms involving sliders, levers and linkages. • Creating a moving picture book linked to English.	Technical vocabulary on display. **<u>Sliders and levers</u>** **With some independence explore and use winding mechanisms. Begin to incorporate wheels and axles into their products.** • Exploring sliders and levers; understanding types of movement; • Working with sliders and levers • Moving pictures linked to topic. (links to Literacy)	Connect and use previous learning on sliders and levers. Technical vocabulary on display. **<u>Wheels axles</u>** **<u>Begin to develop an understanding that mechanical systems such as levers and linkages or pneumatic systems can create movement. Begin to incorporate levers and linkages into their products.</u>** • Generate ideas and simple design criteria. • Develop and communicate ideas through drawings and mock-ups. • Step by step approach to creating moving vehicles involving fixed and moving axles and wheels	Connect and use previous learning on sliders and levers. Stretch to include reference to motor and circuits through science unit. Technical vocabulary on display. **<u>Wheels axles</u>** **<u>With increasing independence produce models that incorporate mechanical systems such as levers, linkages or pneumatic systems to create movement.</u>** • Select a range of tools and equipment and materials to perform practical tasks. • Explore wheels and axles and evaluate their ideas and products against original criteria.	Connect and use previous learning on sliders and levers and wheels and axles especially through travel topic and science space units. Technical vocabulary on display. **<u>Motors/Cams</u>** **<u>Begin to understand how mechanical systems such as cams create movement. Design and make a product that incorporates a cam mechanism.</u>** • Generate a design from research; develop a specification, model and communicate ideas. • Compare final product to the original specification; test products with the intended user and critically evaluate	Connect and use previous learning. Technical vocabulary on display. **<u>Motors/Cams</u>** **<u>Develop a greater understanding of how cams, pulleys or gears create movement. Create and use prototypes. Design and make products with greater independence.</u>** • Produce lists of tools and materials and plans to make accurately assembled and well finished products within constraints. • Compare final product to the original specification; test products with the intended user and critically evaluate the product, considering the views of others.

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		• Technical vocabulary.			• Wheels - working with wheels and axles	the product, considering the views of others. • Investigate famous manufacturing and engineering companies relevant to the project.	• Investigate famous manufacturing and engineering companies relevant to the project. **Mastery**: Children are able to make quality products, evidencing a range of designing and making skills of a particularly high standard. They have an excellent understanding of a range of mechanisms.
Working with tools, equipment, materials and components to make quality products.	Use a variety of tools and materials to make models.	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, ingredients according to their characteristics	• 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. • Independently take accurate measurements and mark out. • Use a growing range of materials and components, including construction materials and kits,	• 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.	• learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; • Independently take exact measurements and mark out, to within 1 millimetre; • Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; h cut a range of

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					textiles, and mechanical components; h cut a range of materials with precision and accuracy;	• Refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape. • Shape and score materials with precision and accuracy;	materials with precision and accuracy; • Assemble, join and combine materials and components with accuracy; • Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; • Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch;
<u>Cooking</u>		• Use the basic principles of a healthy and varied diet to prepare dishes. • Understand where food comes from. • Name and sort foods into the five groups • understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why	Children use the basic principles of a healthy and varied diet to prepare dishes. • Understand where food comes from and explain where in the world different foods originate from. • understand that all food comes from plants or animals; • Understand that food has to be farmed, grown	• Start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world; • Explain that a healthy diet is made up of a variety and balance of different food and drink, and be able to apply these principles when	• With support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven; • Use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking; • Measure and weigh ingredients to the nearest	*Connect: Children understand and apply the principles of a healthy and varied diet. They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They understand seasonality, and know where and how a variety of ingredients are grown, reared,*	• *Connect: Children understand and apply the principles of a healthy and varied diet. They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They understand seasonality, and know where and how a variety of ingredients are grown, reared,*

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			elsewhere (e.g. home) or caught; • Use what they know about the Eatwell Guide to design and prepare dishes	planning and cooking dishes; • Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically; • Prepare ingredients using appropriate cooking utensils; • Understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body; • Start to understand seasonality.	gram and millilitre; i start to independently follow a recipe;	*caught and processed* • Children can explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world. • Understand about seasonality, how this may affect the food availability and plan recipes according to seasonality. • Demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling • Demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. • Explain that foods contain different substances, such	*caught and processed and give examples.* • Adapt and refine recipes by adding or substituting one or more ingredients based upon dietary requirements e.g. vegetarian, pescatarian, vegan, allergies and faith based diets. • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Independently follow a recipe.

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						as protein, that are needed for health and be able to apply these principles when planning and preparing dishes.	
Evaluating processes and products	• Talk about what they have made with children in another group or class • Say what they like about items they have made and attempt to answer 'how' and 'why' questions.	• Evaluate their product by discussing how well it works in relation to the purpose • Evaluate against their design criteria. • Evaluate their product by • Talk about their ideas saying what they like and dislike about them.	• Evaluate their products as they are developed, identifying strengths and possible changes they might make. • Asking questions about what they have made and how they have gone constructing it.	• Disassemble and evaluate familiar products. • Evaluate their product against original design criteria e.g. how well it meets its intended purpose.	• Evaluate their work both during and at the end of the assignment – • Evaluate their products by carrying out appropriate tests.	• Evaluate a product against the original design specification • Evaluate it personally and seek evaluation from others. • Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests	• Record their evaluations using drawings with labels. • Evaluate against their original criteria and suggest ways that their product could be improved.
Environmental responsibility	**Environmental / ecological discussions:** • Discuss how the design could utilise recycled/ reused items. • How could the task be created in a more sustainable way? • What is the carbon footprint of the materials we have used? • How can the rubbish created be disposed of in an environmentally friendly way? • Is there a way of using the mechanism to solve a environmental problem? • How could we learn from the research to help in our local environment?						
Challenge discussions *Link to environmental responsibility.*	• Talk about the plans they have made to carry out activities • Talk about what they might change if they	• What could you do to make your design better? • Find one thing that is good about someone else's design. • How would you help someone who wanted to make their own…? • How could you make your design faster/stronger etc?	• Explain how realistic their plan is. • Ascertain beforehand and explain if their finished product is going to be good quality and fit for purpose. • Explain what you could change and how it would improve your design? • How would you change your design for the 'real world'?		• Suggest some alternative plans and say what the good points and drawbacks are about each • How could you make your design more suited to mass production? • What developments would need to be made for your design to….? • What tests would you need to do to…?.		

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	were to repeat the activity • Know the properties of some materials, suggesting some of the purposes they are used for. • What would you change about your design?	• What do you like about someone else's design? • What would happen if you changed….? • What is the best/worst thing about your design? Explain why they have chosen selected tools. • Explain reasons why the materials are the best for that purpose. • Describe their design by using pictures, diagrams, models and words. • What could you change to improve your design? • What made creating your design difficult? • What questions would you ask if…? • Explain reasons why the materials are the best for that purpose. • Describe their design by using pictures, diagrams, models and words	• How effective at…. Is your…? •	• Explain whether different resources would have improved the product. How? • What would you need to change to be able to sell your design? • How could you adapt… to make…? • What do you predict would happen if…? • Judge whether…. would cause/change/affect…. How could you further your understanding of how to strengthen, stiffen and reinforce more complex structures?