Norwich Road Academy Subject: Design and Technology Leader:

Statements in black: Guidance of skills to cover within each unit of work.
Statements in red: Taken from the National Curriculum.

Each unit of work taught should contain the 4 main principles:

1) Design: Conducting research, planning and discussing ideas

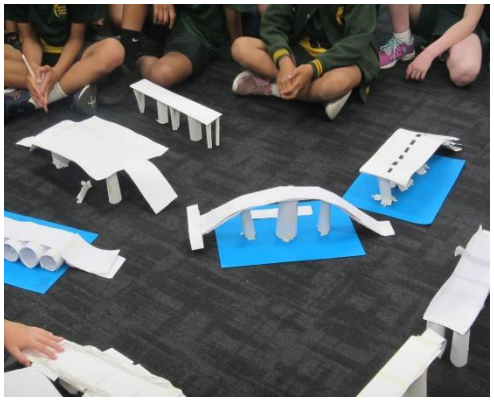
2) Make: Working with tools, equipment, materials and components to make quality products

3) Evaluate: Skills of Judgement and Evaluation towards processes and products used

4) Improve: Acquiring and applying knowledge to inform progress further

The Design and Technology curriculum at Norwich Road Academy aims to ensure that all pupils:

- Develop the creative, technical, and practical expertise needed to perform a variety of activities
- Build and apply a repertoire of knowledge, understanding and skills to design and make high-quality prototypes and products
- Critique, evaluate and test their ideas and products
- Explore and use mechanisms within their products
- Adapt and manipulate their structures through reinforcement, strengthening and stiffening techniques.



Year 1		
Technical knowledge and exploring materials sliders – Christmas card	Topic: Materials Rainbow fish puppet - Links with English	Topic: Food and nutrition Teddy Bear's Picnic – Toys unit in History)
*Children to draw on their own experiences to help generate ideas * Suggest ideas and explain what they are going to do * Identify a target group for what they intend to design and make *Model their ideas on card and paper * Develop their design ideas, applying their findings from research and pictures discussed with the class teacher *Evaluate their product by discussing how well it works in relation to the purpose *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Evaluate their product by asking questions about what they have made and how they have gone about it *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the cards *Class teacher to provide clear verbal models of how to explain their processes **National Curriculum link:** **Design** • 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,	*Make their design using appropriate techniques * With help, measure, mark out, cut and shape a range of materials * Use tools such as scissors *Assemble, join and combine materials and components together using a variety of temporary methods *Use simple fixing materials e.g. temporary – paper clips/tape and permanent – glue, staples *Explore technical methods to build structures, exploring how they can be made stronger, stiffer and more stable *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Evaluate their product by asking questions about what they have made and how they have gone about it *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the kites *Class teacher to provide clear verbal models of how to explain their choice of material for their puppets **National Curriculum link:** **Design** • 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,	*Select and use appropriate fruit and vegetables, processes and tools *Begin to discuss food choices and begin to give reasons for their choices based on simple nutrition knowledge and understanding *To discuss where food comes from, linking to work in Science *Developing enthusiasm for cooking and healthy eating *Use basic food handling, hygienic practises and personal hygiene *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Evaluate their product by asking questions about what they have made and how they have gone about it **National Curriculum link:** **Food and Nutrition KS1** • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from **Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria **Make**

mock-ups and, where appropriate, information and communication technology **Make** • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate** • Evaluate their ideas and products against design criteria	mock-ups and, where appropriate, information and communication technology **Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping and joining] • Select from and use a wide range of materials and components, including construction materials and textiles according to their characteristics **Evaluate** • Evaluate their ideas and products against design criteria **Technical knowledge** • Build structures, exploring how they can be made stronger, stiffer and more stable	• Select from and use a range of tools and equipment to perform practical tasks [for example, cutting] • Select from and use a wide range of ingredients, according to their characteristics **Evaluate** • Evaluate their ideas and products against design criteria ***In 2020-2021 this unit will be repeated in Summer 2 Year 2 due to absence due to Covid.**

Year 2		
Topic: Materials Pop-up book - links with English	Topic: Construction, mechanics and electronics Make fire engines - links to History and English	Topic: Food and nutrition Make butter – Louis Pasteur – Science Link
*Planning, discussing and communicating ideas with a clear end goal in mind *Generate ideas by drawing on their own and other people's experiences *Develop their design ideas through discussion, observation, drawing and modelling *Identify a purpose for what they intend to design and make *Identify simple design criteria *Make simple drawings and label parts in order to plan *Begin to select tools and materials, using focussed vocabulary to name and describe them *Assemble, join and combine materials in order to make a pop-up *Explore and use mechanisms such as levers and sliders in their product *Use simple fixing materials e.g. temporary – paper clips/tape and permanent – glue, staples *Choose and use appropriate finishing techniques *Evaluate their pop-up against their design criteria *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Talk about their ideas, saying what they like and dislike about them *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the pop-ups	*Planning, discussing and communicating ideas with a clear end goal in mind *Generate ideas by drawing on their own and other people's experiences *Develop their design ideas through discussion, observation, drawing and modelling *Identify a purpose for what they intend to design and make *Identify simple design criteria *Make simple drawings and label parts in order to plan *Begin to select tools and materials, using focussed vocabulary to name and describe them *Measure and cut with some accuracy *Use hand tools safely and appropriately *Assemble, join and combine materials in order to make a fire engine *Explore and use mechanisms such as wheels and axles in their products *Choose and use appropriate finishing techniques *Explore how the materials they choose can make their fire engine stiffer and more durable *Evaluate their fire engines against their design criteria *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Talk about their ideas, saying what they like and dislike about them *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the fire engines	*Begin to discuss food choices and begin to give reasons for their choices based on simple nutrition knowledge and understanding *Generate ideas by drawing on their own and other people's experiences *Developing their thoughts through planning and discussing ideas *Select and use appropriate fruit and vegetables, processes and tools *To discuss where food comes from, linking to work in Science *Developing enthusiasm for cooking and healthy eating *Follow safe procedures for food safety and hygiene *Use basic food handling, hygienic practises and personal hygiene *Evaluate their products as they are developed, identifying strengths and possible changes they might make *Evaluate their product by asking questions about what they have made and how they have gone about it

National Curriculum link: **Design** • 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 and mock-ups **Make** • 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 according to their characteristics **Evaluate** • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria **Technical knowledge** • Explore and use mechanisms [levers, sliders], in their products.	**National Curriculum link:** **Design** • 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 **Make** • 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, according to their characteristics **Evaluate** • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria **Technical knowledge** • Build structures, exploring how they can be made stronger, stiffer and more stable Explore and use mechanisms [wheels and axles], in their products.	**National Curriculum link:** **Food and Nutrition KS1** • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from **Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria **Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting] • Select from and use a wide range of ingredients, according to their characteristics • Begin to give more in depth reasons for their choices involving ingredients **Evaluate** • Evaluate their ideas and products against design criteria •

Year 3		
Topic: Construction/Mechanics/Materials Hedgehog house - links with English	Topic: Electronics - links with Science (Lights)	Topic: Cooking and nutrition Sandwich making - links with English text
* Generate ideas for an item, considering its purpose and the user/s * Identify a purpose for what they are making and establish criteria for a successful product *Plan the order of their work before starting, through engaging in discussion using a clear structure with the support of the class teacher *Explore, develop communicate design proposals by modelling ideas *Make drawings and labels when designing *Select tools and techniques for making their product *Measure, mark out, cut and assemble components with more accuracy *Measure, tape, cut and join fabric with some accuracy in order to decorate their monsters *Use finishing techniques to strengthen and improve the appearance of their product *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the pneumatic monsters	*Conduct research about electricity and take inspiration from John Henry Holmes (researching switches/circuits) *Generate ideas for an item, considering its purpose and the user/s *Identify a purpose for what they are making *Make links to other subjects in order to make informed decisions *Explore, develop and communicate design proposals by modelling ideas *Make drawings and labels when designing *Use research to explore what they want to create, beginning to discuss reasons why *Select tools and techniques for making their product *Work safely and accurately with a range of simple tools *Measure and assemble components with growing accuracy and independence *Think carefully about their ideas as they make progress and be willing to change things if this helps them to improve their work *Use finishing techniques to strengthen and improve the appearance of their product *Evaluate their product against original design criteria *Discuss how well their method meets their intended purpose *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the light up signs	*Generate ideas for sandwich snacks, choosing from a wider range of ingredients in order to expand discussion and make more informed choices *Build upon prior knowledge in KS1 in order to make links to simple food groups *Show a greater awareness of a "balanced meal" in order to establish a criteria for a successful product *Make drawings and labels when designing, giving verbal reasons for their choices *Work safely and accurately with a range of simple tools in order to slice and cut ingredients successfully *Measure ingredients in order to develop their understanding of proportion *Demonstrate hygienic food preparation and storage throughout the process *Evaluate their product against original design criteria, discussing why and how things have changed. *Begin to discuss how successful the impact was of their changes e.g. Were they changed for the better or could it be improved if we did it again?

National Curriculum link: **Design** • 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 and annotated sketches **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [including, cutting, shaping, joining and finishing], accurately • Select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities **Evaluate** • 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 **Technical knowledge** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, pulleys, levers and linkages]	**National Curriculum link:** **Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose • Generate, develop, model and communicate their ideas through discussion and labelled diagrams **Make** • Select from and use a wider range of materials and components, according to their functional properties **Evaluate** • 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** • Understand and use mechanical systems in their products • Understand and use electrical systems in their products [such as, series circuits incorporating switches, bulbs] •	**National Curriculum link:** **Food and Nutrition KS2** • 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 **Design** • 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 and annotated sketches **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [including cutting and shaping] • Select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities **Evaluate** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Year 4/5 Cycle 1 (21-22)		
Topic: Construction, mechanics and electronics – Simple circuit and switches – Science link	Topic: Cooking and nutrition Anglo-Saxon (CC History)	Topic: Materials
*Generate ideas, considering purposes for which they are designing *Research how alarms work and what key components are needed *Make labelled drawings from different viewpoints showing specific features *Develop a clear idea of what has to be done, planning how to use materials, equipment and processes *Suggest alternate methods of making the alarm if the first attempt fails *Establish a clear criteria for their own designs *Select appropriate tools and techniques for making their product *Select appropriate tools and techniques, beginning to give reasons for their choice of tools *Join and combine materials and components accurately in temporary and permanent ways *Evaluate their own both during and at the end of the alarm making process in order to discuss what is working well and what may need to be changed/improved *Carry out appropriate tests to see if their product works as intended *Ensure that verbal reasoning is evidenced in order to show progress throughout the process of making the alarms	*Take inspiration from their studies in order to plan, discuss and design French food *Generate ideas for foods they wish to make, considering the purposes for which they are designing *Make labelled drawings from different perspectives to show specific features *Develop a clear idea and plan of what has to be done, planning how to use ingredients and equipment *Plan a clear process on how to make chosen food *Work safely and accurately with a wider range of tools in order to slice, grate and cut ingredients successfully *Measure ingredients in order to develop their understanding of proportion, beginning to give reasons for their balance in the food they create *Demonstrate hygienic food preparation and storage throughout the process **National Curriculum link:** **Food and Nutrition KS2** • 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 **Design**	*Generate ideas, considering purposes for which they are designing *Research toy makers throughout history, discussing the change in toys over the years *Research the different materials used to make toys throughout the years and recognise how they have changed, giving some reasons why they have changed e.g. cost, availability *Develop a clear idea of what has to be done, planning how to use materials, equipment and processes *Suggest alternate methods/materials of making the toys if the first attempt fails *Establish a clear criteria for their own designs * Select appropriate tools and techniques, beginning to give reasons for their choice of tools *Measure, mark out, cute and shape a range of materials using appropriate tools, equipment and techniques *Join and combine materials and components *Evaluate their own both during and at the end of the alarm making process in order to discuss what is working well and what may need to be changed/improved *Evaluate their products carrying out appropriate tests **National Curriculum link:** **Design** • Use research and develop design criteria to inform the design of innovative, functional,

National Curriculum link: **Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose • Generate, develop, model and communicate their ideas through discussion, annotated sketches and cross-sectional diagrams **Make** • Select from and use a wider range of materials and components, including construction materials according to their functional properties and aesthetic qualities **Evaluate** • 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 **Technical knowledge** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structure • Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	• 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 and annotated sketches **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [including cutting and shaping] • Select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities **Evaluate** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	appealing products that are fit for purpose, aimed at particular individuals or groups • Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes before making begins **Make** • 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 and textiles, according to their functional properties and aesthetic qualities **Evaluate** • 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** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys and levers]
Year 4/5 Cycle 1 (22-23)		
Topic: Materials Combining different fabric shapes	Topic: Construction and mechanics Pullies and leavers – Science link	Topic: Cooking and nutrition

*Generate ideas through brainstorming and discussion with peers *Identify a clear purpose for their product *Draw up a specification for their design *Develop a clear understanding of what has to be done, planning how to use materials, equipment and processes, and suggesting alternatives methods if the first attempts fail *Use results of investigations and information sources when planning their own shelter *Select appropriate materials, tools and techniques *Give clear reasons for their choice of materials, linking to their properties and functionality e.g. waterproof, opaque etc *Cut and join with accuracy to ensure a good-quality finish to the product *Evaluate a product against the original design specification *Evaluate it personally and seek evaluation from others *Demonstrate both verbal and written understanding of choice of materials and how to improve created shelter if the task was to be repeated **National Curriculum link:** **Design** • 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 and pattern pieces **Make**	*Generate ideas through brainstorming and discussion with peers *Identify a clear purpose for their product *Draw up a specification for their design *Develop a clear understanding of what has to be done, planning how to use materials, equipment and processes, and suggesting alternatives methods if the first attempts fail *Research designers of famous bridges around the world, looking at the structure and construction in order to take inspiration for their own designs *Use ICT to develop their design ideas, including creating an online model of their design *Select appropriate materials, tools and techniques *Measure components of their structure accurately *Demonstrate an understanding of how mechanical systems work *Evaluate their bridge against the original design specification *Evaluate it personally and seek evaluation from others *Children to present their bridges to others in the class, giving clear reasons for their chosen materials and mechanics used in order to construct the bridge **National Curriculum link:** **Design** • 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, pattern pieces and computer-aided design **Make**	*Generate ideas through brainstorming and discussion with peers *Identify a clear purpose for their product *Draw up a specification for their design, including all key food components *Make links to a healthy, balanced diet when choosing ingredients *Plan how food will be prepared and cooked, establishing what tools and resources will be needed *Consider time needed in order to create their food product *Research foods in season, giving reasons why certain foods are more readily available at different points throughout the year *Weigh and measure ingredients accurately (e.g. dry ingredients and liquids) *Apply the rules for basic food hygiene and other safe practises e.g. hazards relating to the use of ovens *Evaluate their food creations against their designs *Discuss why they proportioned certain food items and evaluate if this was successful or not *Evaluate it personally and seek evaluation from others **National Curriculum link:** **Food and Nutrition – KS2** • 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. **Design**

• 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, according to their functional properties and aesthetic qualities **Evaluate** • 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** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	• 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, according to their functional properties and aesthetic qualities **Evaluate** • 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** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • Apply their understanding of computing to program their products.	• 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 and annotated sketches **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [including cutting and shaping] • Select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities **Evaluate** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
Year 6		
Topic: Cooking and nutrition (Come Dine with Me)	Topic: Materials/Structures Make a playground – local history unit link	Topic: Construction, mechanics and electronics More complex switches – Science link
*Generate ideas through brainstorming and discussion with peers	*Communicate their ideas through detailed labelled drawings	*Communicate their ideas through detailed labelled drawings

*Identify a clear purpose for their product *Understand how food is processed into ingredients that can be eaten or used in cooking *Draw up a specification for their design, including all key food components *Make links to a healthy, balanced diet when choosing ingredients *Plan how food will be prepared and cooked, establishing what tools and resources will be needed *Consider time needed in order to create their food product *Know that recipes can be adapted to change the appearance, taste, texture and aroma *Know that different foods contain different substances - nutrients, water and fibre - that are needed for health *Understand the need for correct storage Measure accurately *Work out ratios in recipes *Weigh and measure ingredients accurately (e.g. dry ingredients and liquids) *Apply the rules for basic food hygiene and other safe practises e.g. hazards relating to the use of ovens *Evaluate their food creations against their designs *Discuss why they proportioned certain food items and evaluate if this was successful or not *Evaluate it personally and seek evaluation from others **National Curriculum link:** **Food and Nutrition – KS2** • 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	*Develop a clear design specification based on research and independent investigations of fairgrounds *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 *Clearly articulate why they have chosen certain materials based on their scientific properties *Allow others to challenge their choice of material, listening to suggestions of others based upon functionality and strength of material, being willing to make changes and adaptations if needed *Use tools safely and accurately *Construct products using permanent joining techniques *Make modifications as they go along *Pin, sew and stitch materials together in order to create a product *Achieve a high quality product based on research and carefully selected materials *Evaluate their products, identifying strengths and areas for development *Test the appropriateness of the materials they selected in order to suggest modifications if the activity was to be redone *Record their evaluations using drawings with labels *Evaluate against their original criteria and suggest ways their products can be improved *Give reasons for the successes of their products and compare their choice of materials to the choices of their peers in order to evaluate as a group which materials are best suited for different functions **National Curriculum link:**	*Develop a clear design specification based on research and independent investigations of fairgrounds *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 *Use computer technology to assist in the design and development of their electrical circuits and mechanics used within the fairground plan *Consider ways in which computer programmes can control the electronics used within their fairground and incorporate this into the planning stage and criteria for a successful outcome *Conduct research into fairgrounds, looking at the construction of fairgrounds throughout the years focussing on mechanics which support the fairground *Consider which electronics are used within fairgrounds, giving reasons for their purpose and considering these in their own designs *Select appropriate tools, materials, components and techniques *Assemble components to make working models of a fairground *Use tools safely and accurately *Construct products using permanent joining techniques *Make modifications as they go along *Create a product by constructing electronic circuits in order to achieve a desired outcome *Work independently to develop mechanical skills in order to construct the desired fairground based on research outcomes *Achieve a high quality product based on research and carefully selected materials

• Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. **Design** • 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 and annotated sketches **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [including cutting and shaping] • Select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities **Evaluate** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	**Design** • 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** • 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 materials and textiles according to their functional properties and aesthetic qualities **Evaluate** • 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** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	*Evaluate their products, identifying strengths and areas for development, are carrying out appropriate tests *Record their evaluations using drawings with labels, giving clear written and verbal reasons for the successes and failures of their product *Evaluate against their original criteria and suggest ways their products can be improved *Give reasons for the successes of their products and compare their choice of materials to the choices of their peers in order to evaluate as a group which materials are best suited for different functions *Ensure that all verbal reasoning is evidenced throughout the process in order to create a full journey of evaluation from the design stage to the evaluating stage **National Curriculum link:** **Design** • 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** • Select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities

	• Apply their understanding of computing to program, monitor and control their products.	**Evaluate** • 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** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • Apply their understanding of computing to program, monitor and control their products.
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