



Design and Technology

Progression of skills and knowledge



	Working towards A.R.E.	A.R.E	Above A.R.E.
Year 3 Focus: Structures – Shell Structures Mechanical Systems – Levers and Linkages Food – Healthy and Varied Diet			
<u>Designing</u> 1. <i>Understanding contexts, users and purposes</i> 2. <i>Generating, developing, modelling and communicating ideas</i>	1. Use simple design criteria; <ul style="list-style-type: none"> state what their products are, who and what they are for and how they will work. 2. Generate ideas using their own experiences and existing products; <ul style="list-style-type: none"> use talk, drawing, templates, mock-ups and, where appropriate, computers. 	1. Use design criteria; <ul style="list-style-type: none"> Explain how a small event led to a larger significant event in Design and Technology. Analyse and test a range of existing products. Use research to create ideas and refine them to develop a design criteria. Develop a design aimed at a particular individual or group. 2. Generate ideas using their own experiences and existing products; <ul style="list-style-type: none"> use talk, drawing, templates, mock-ups, annotated drawings and, where appropriate, computers. Begin to explain ideas to others. 	1. Use detailed design criteria; <ul style="list-style-type: none"> Evaluate and refine their own ideas against design criteria, considering the views of others. 2. Work well with others to explain ideas in depth and why they would work well.



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<p><u>Making</u></p> <p>1. <i>Planning</i></p> <p>2. <i>Practical skills and techniques</i></p>	<p>1. Plan by suggesting what to do next; select from a range of tools, equipment, materials and components.</p> <p>2. Follow procedures for safety and hygiene; measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components with support.</p>	<p>1. Plan by deciding and analysing what to do next; select from a range of tools, equipment, materials and components. Understand and explain why these have been chosen.</p> <p>2. Follow procedures for safety and hygiene; measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components independently.</p>	<p>1. Apply detailed understanding for the use of certain tools, equipment, materials and components to their final product.</p> <p>2. Able to give reasons for their choices.</p>
<p><u>Evaluating</u></p> <p>1. <i>Own ideas and products</i></p> <p>2. <i>Existing products</i></p>	<p>1. Make simple judgements about their products and ideas against design criteria.</p> <p>2. Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</p>	<p>1. Make judgements about their products and ideas against their own design criteria.</p> <p>2. Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them. Give ideas about what they can do to improve their work next time.</p>	<p>1. Make detailed judgements about their products and ideas against their own design criteria.</p> <p>2. Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them. Give ideas about what they can do to improve their work next time. Give constructive feedback to their peers.</p>
<p><u>Technical Knowledge</u></p> <p><i>Making products work</i></p>	<p>Know about the simple working characteristics of materials and components, the movement of simple mechanisms, how freestanding structures can be made stronger, stiffer and more stable; use the correct technical vocabulary.</p>	<p>Know about the working characteristics of materials and components, the movement of mechanisms, how freestanding structures can be made stronger, stiffer and more stable; use the correct technical vocabulary.</p>	<p>Know about the working characteristics of complex materials and components, the movement of complex mechanisms, how freestanding structures can be made stronger, stiffer and more stable; use the correct technical vocabulary.</p>



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		<ul style="list-style-type: none"> • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project. 	
<p><u>Cooking and Nutrition</u> <i>1. Where food comes from</i> <i>2. Food preparation, cooking and nutrition</i></p>	<p>1. Know that food comes from plants or animals and that it is farmed or caught.</p> <p>2. Know how to prepare simple dishes safely and hygienically, name and sort foods into groups; know that everyone should eat at least five portions of fruit and vegetables a day.</p>	<p>1. Know that food comes from plants or animals and that it is farmed or caught.</p> <p>2. Know how to prepare simple dishes safely and hygienically, name and sort foods into groups; understand the correct proportions of a balanced meal, with correct vocabulary such as carbohydrates linked with science knowledge.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; having an understanding that different food groups provide the body with different nutrients.</p>



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<p>Year 4</p> <p>Focus:</p> <p>Electrical systems - Simple circuits and switches</p> <p>Textiles - 2-D shape to 3-D product</p>			
<p><u>Designing</u></p> <p><i>1. Understanding contexts, users and purposes</i></p> <p><i>2. Generating, developing, modelling and communicating ideas</i></p>	<p>1. Use detailed design criteria;</p> <ul style="list-style-type: none"> Evaluate and refine their own ideas against design criteria, considering the views of others. <p>2. Work well with others to explain ideas in depth and why they would work well.</p>	<p>1. Gather information about user needs; develop their own design criteria; describe the user, purpose and design features of their products and explain how they will work.</p> <p>2. Generate realistic ideas based on user needs; use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design.</p>	<p>1. Gather detailed information about user needs; develop their own design criteria; describe the user, purpose and design features of their products and explain how they will work.</p> <p>2. Generate realistic ideas based on user needs; use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design. Discuss and explain detailed ideas to others.</p>
<p><u>Making</u></p> <p><i>1. Planning</i></p>	<p>1. Apply detailed understanding for the use of certain tools, equipment, materials and components to their final product.</p>	<p>1. Order the main stages of making; select suitable tools, equipment, materials and components and explain their choices.</p>	<p>1. Order the main stages of making; select suitable tools, equipment, materials and components and explain their choices with details</p>



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<p><i>2. Practical skills and techniques</i></p>	<p>2. Able to give reasons for their choices.</p>	<p>2. Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy with support.</p>	<p>about why they have chosen certain tools etc.</p> <p>2. Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</p>
<p><u>Evaluating</u></p> <p><i>1. Own ideas and products</i></p> <p><i>2. Existing products</i></p>	<p>1. Make detailed judgements about their products and ideas against their own design criteria.</p> <p>2. Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them. Give ideas about what they can do to improve their work next time. Give constructive feedback to their peers.</p>	<p>1. Evaluate their ideas and products against their design criteria.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used and how well they work.</p>	<p>1. Evaluate their ideas and products against their design criteria with details positives and negatives of their ideas and products.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used and how well they work. Give explanations of how these products can be improved.</p>
<p><u>Technical Knowledge</u></p> <p><i>Making products work</i></p>	<p>Know about the working characteristics of complex materials and components, the movement of complex mechanisms, how freestanding structures can be made stronger, stiffer and more stable; use the correct technical vocabulary.</p>	<p>Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control their products; how to make strong, stiff shell structures; use the correct technical vocabulary.</p>	<p>Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control their products; how to make strong, stiff shell structures; use the correct technical vocabulary. Use tools and equipment which is appropriate for the project.</p>



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		<ul style="list-style-type: none"> • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project. 	
<p><u>Cooking and Nutrition</u> <i>1. Where food comes from</i> <i>2. Food preparation, cooking and nutrition</i></p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; having an understanding that different food groups provide the body with different nutrients.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body. Have an understanding of different foods and how they can help make our bodies healthy.</p>



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<p>Year 5 Focus: Food - Celebrating culture and seasonality Structures - Frame structures Mechanical Systems - Pulleys or Gears</p>			
<p><u>Designing</u></p> <ol style="list-style-type: none"> <i>Understanding contexts, users and purposes</i> <i>Generating, developing, modelling and communicating ideas</i> 	<ol style="list-style-type: none"> Carry out research with support; <ul style="list-style-type: none"> develop a design specification fit for purpose. Generate innovative ideas drawing on research with support; begin to demonstrate skills relating to drawing, discussion, prototypes, pattern pieces and computer-aided design. 	<ol style="list-style-type: none"> Carry out research independently; <ul style="list-style-type: none"> develop a design specification considering; the user, purpose and design features of their products and explain how they will work. Use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design. 	<ol style="list-style-type: none"> Carry out research; develop a design specification; describe the user, purpose and design features of their products and explain how they will work. Taking into account constraints including time, resources and cost. Able to create cross-sectional and exploded diagrams.
<p><u>Making</u></p>	<ol style="list-style-type: none"> Order the main stages of making; select suitable tools, equipment, 	<ol style="list-style-type: none"> Select suitable tools, materials, equipment and components. 	<ol style="list-style-type: none"> Select suitable tools, materials, equipment and components.



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<p><i>1. Planning and selecting</i></p> <p><i>2. Using and applying practical skills and techniques</i></p>	<p>materials and components and explain their choices with details about why they have chosen certain tools etc.</p> <p>2. Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</p>	<p>Explain their choices and reasoning behind choosing these items.</p> <p>2. Follow procedures for safety and hygiene; use a wider range and a variety of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</p>	<p>Explain their choices and reasoning behind choosing these items with details.</p> <p>2. Follow procedures for safety and hygiene; use a wider range and a variety of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. Able to show others how to use different tools with detailed explanations.</p>
<p><u>Evaluating</u></p> <p><i>1. Own ideas and products</i></p> <p><i>2. Existing products</i></p>	<p>1. Evaluate their ideas and products against their design criteria with details positives and negatives of their ideas and products.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used and how well they work. Give explanations of how these products can be improved.</p>	<p>1. Evaluate their ideas and products against a design criteria, giving details of the things that have gone well and not so well.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they work.</p> <p>Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p>	<p>1. Evaluate their ideas and products against a design criteria, giving details of the things that have gone well and not so well. Consider the views of others.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they work.</p> <p>Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p>



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<p><u>Technical Knowledge</u> <i>Making products work</i></p>	<p>Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control their products; how to make strong, stiff shell structures; use the correct technical vocabulary. Use tools and equipment which is appropriate for the project.</p>	<p>Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control and monitor their products; know and use technical vocabulary relevant to the project.</p> <ul style="list-style-type: none"> • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use relevant technical and sensory vocabulary. 	<p>Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control and monitor their products; how to reinforce and strengthen a framework; use vocabulary relevant to the project.</p>
<p><u>Cooking and Nutrition</u> <i>1. Where food comes from</i> <i>2. Food preparation, cooking and nutrition</i></p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world. Start to understand seasonality.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available.</p>



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	<p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body. Have an understanding of different foods and how they can help make our bodies healthy.</p>	<p>2. Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body. Have an understanding of different foods and how they can help make our bodies healthy. Use relevant technical and sensory vocabulary.</p>	<p>2. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; that different food and drink contain nutrients that is needed for our bodies. Use relevant technical and sensory vocabulary.</p>
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Year 6

Focus:

Textiles - Combining different fabric shapes

Electrical systems - More complex switches and circuits

<p><u>Designing</u></p> <p><i>1. Understanding contexts, users and purposes</i></p> <p><i>2. Generating, developing, modelling and communicating ideas</i></p>	<p>1. Carry out research; develop a design specification; describe the user, purpose and design features of their products and explain how they will work. Taking into account constraints including time, resources and cost.</p> <p>2. Able to created cross-sectional and exploded diagrams.</p>	<p>1. Carry out research; develop a design specification; describe the user, purpose and design features of their products and explain how they will work.</p> <p>2. Generate innovative ideas drawing on research; use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design.</p>	<p>1. Carry out research; develop a simple design specification; describe the user, purpose and design features of their products and explain how they will work. Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.</p> <p>2. Generate and communicate innovative ideas drawing on research; use a range of drawing</p>
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			skills, discussion, prototypes, pattern pieces and computer-aided design, oral presentations.
<p>Making</p> <p><i>1.Planning</i></p> <p><i>2.Practical skills and techniques</i></p>	<p>1.Select suitable tools, materials, equipment and components. Explain their choices and reasoning behind choosing these items with details.</p> <p>2. Follow procedures for safety and hygiene; use a wider range and a variety of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. Able to show others how to use different tools with detailed explanations.</p>	<p>1.Formulate lists of resources and step-by-step plans; select suitable tools, equipment, materials and components and explain their choices.</p> <p>2. Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</p>	<p>1.Formulate lists of resources and step-by-step plans; select suitable more complex tools, equipment, materials and components and explain their choices.</p> <p>2. Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with precision.</p>
<p>Evaluating</p> <p><i>1.Own ideas and products</i></p> <p><i>2.Existing products</i></p>	<p>1.Evaluate their ideas and products against a design criteria, giving details of the things that have gone well and not so well. Consider the views of others.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they work.</p> <p>Know about inventors, designers, engineers, chefs and manufacturers</p>	<p>1. Identify strengths and areas to develop in their ideas and products against their design specification; consider the views of others to make improvements.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are.</p>	<p>1. Identify strengths and areas to develop in their ideas and products against their design specification; consider the views of others to make improvements. Take into account the user and wider community when evaluating products and own products.</p> <p>2. Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they</p>



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	who have developed ground-breaking products.	Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	work, and how innovative and sustainable they are. Investigate new and emerging technologies. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
<u>Technical Knowledge</u> <i>Making products work</i>	Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control and monitor their products; how to reinforce and strengthen a framework; use vocabulary relevant to the project.	Know and understand that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control and monitor their products; how to reinforce and strengthen a framework; use the correct technical vocabulary. Communicate their understanding to others. <ul style="list-style-type: none">• A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.• Fabrics can be strengthened, stiffened and reinforced where appropriate• Understand and use electrical systems in their products.• Apply their understanding of computing to program, monitor and control their products.	Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to program a computer to control and monitor their products; how to reinforce and strengthen a framework; use the correct technical vocabulary. Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.



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		<ul style="list-style-type: none">• Know and use technical vocabulary relevant to the project.	
<p><u>Cooking and Nutrition</u> <i>1. Where food comes from</i> <i>2. Food preparation, cooking and nutrition</i></p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available.</p> <p>2. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; that different food and drink contain nutrients that is needed for our bodies. Use relevant technical and sensory vocabulary.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available; how food is processed into ingredients.</p> <p>2. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; that different food and drink contain nutrients, water and fibre that are needed for health.</p>	<p>1. Know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available; how food is processed into ingredients.</p> <p>2. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source in different ways; that different food and drink contain nutrients, water and fibre that are needed for health. Using awareness of taste, texture and smell to decide how to season dishes and combine ingredients.</p>