

ACET Junior Academies

National Curriculum 2014: Progression in Design and Technology



	Key Stage 1	Key Stage 2
<p>2014 National Curriculum subject content for Key Stage 1 and Key Stage 2</p>	<p>When designing and making, pupils should be taught to:</p> <p>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</p> <p>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, textiles and ingredients, according to their characteristics</p> <p>Evaluate Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria</p> <p>Technical knowledge Build structures, exploring how they can be made stronger, stiffer and more stable Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>Cooking and Nutrition</p>	<p>When designing and making, pupils should be taught to:</p> <p>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</p> <p>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, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>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</p> <p>Technical knowledge</p>

	<p>Use the basic principles of a healthy and varied diet to prepare dishes</p> <p>Understand where food comes from.</p>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Cooking and Nutrition</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> <p>understand and apply the principles of a healthy and varied diet</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>
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<p>Designing:</p> <p>Understanding contexts, users and purposes</p>	<ul style="list-style-type: none"> • Explain what they are making and which materials they are using • Begin to use simple design criteria to develop ideas e.g. the product must be shiny. • Begin to consider what their product will be used for and who will use it. • With support work across a range of real life and imaginary contexts. 	<ul style="list-style-type: none"> • With support, work across a range of contexts, e.g. imaginary, home, school, community, industry • Talk about the product they will be designing and making • Explain who their product will be used by • Describe what their product will be used for • Begin to use simple design criteria to develop ideas 	<ul style="list-style-type: none"> • Work confidently across a range of contexts, e.g. imaginary, home, school, community, industry • Explain what product they will be designing and making • Explain who their product will be used by • Describe what their product will be used for and how it will work • Explain why their product is suitable for the intended user 	<ul style="list-style-type: none"> • Begin to describe the purpose of their product • Explain how particular parts of their product work • Consider the needs and wants the user • Develop their own design criteria and use to inform their ideas 	<ul style="list-style-type: none"> • Describe the purpose of their product • Explain how particular parts of their product work • Gather information about the needs and wants of the user • Develop their own design criteria and use to inform their ideas 	<ul style="list-style-type: none"> • Describe the purpose of their product and consider the features that will appeal to the user • Explain how particular parts of their product work • Begin to gather and use information about the needs, wants, preferences and values of particular individuals and groups, carrying out surveys, questionnaires etc. 	<ul style="list-style-type: none"> • Describe the purpose of their product and the features that will appeal to the user • Explain how particular parts of their product work • Gather information about the needs, wants, preferences and values of particular individuals and groups, carrying out surveys, questionnaires etc. •

			<ul style="list-style-type: none"> • Develop and use simple design criteria to develop ideas 			•	
Designing: <i>Generating, developing, modelling and communicating ideas</i>	<ul style="list-style-type: none"> • Explain what they are making and which materials they are using • Explore ideas by rearranging materials. • Describe simple models or drawings of ideas and intentions. • 	<ul style="list-style-type: none"> • Explore a range of existing products to help come up with ideas. • Begin to draw on their own experiences to help generate ideas • Begin to develop and communicate ideas by talking and drawing • Begin to model ideas by exploring materials, components and construction kits. • With support, make templates and mock ups to model ideas. 	<ul style="list-style-type: none"> • Use knowledge of existing products to help come up with design ideas. • Start to generate ideas by drawing on their own and others' experiences • Develop and communicate ideas by talking, drawing and computing (where appropriate) • Model ideas by exploring materials, components and construction kits and through making templates and mock-ups. • Use information and communication technology to develop and communicate ideas where appropriate. 	<ul style="list-style-type: none"> • Through discussion, generate realistic ideas for an item, considering its purpose and the needs of the user/s • Model ideas through the use of prototypes and pattern pieces. • Communicate ideas through producing drawings with labels • Begin to consider the availability of resources when developing ideas. 	<ul style="list-style-type: none"> • Generate realistic ideas, considering the purposes for which they are designing. • Model ideas through the use of prototypes and pattern pieces. • Communicate ideas through labelled drawings from different views showing specific features. • Make design decisions based on the availability and suitability of resources 	<ul style="list-style-type: none"> • Generate ideas through thought showering and discussion, identifying a purpose for their product. • Draw up a design specification for their design. • Draw on research, to generate innovative ideas • Model ideas through the use of prototypes and pattern pieces. • Communicate ideas through detailed labelled drawings from different views showing specific features. • Begin to consider constraints such as time, resources and cost when developing ideas. • Model ideas using pattern pieces and prototypes 	<ul style="list-style-type: none"> • Develop a design specification for their design. • Draw on research, including surveys, research to generate innovative ideas • Model ideas through the use of prototypes and pattern pieces. • Communicate and represent ideas through exploded diagrams, annotated sketches, cross sectional drawing and computer based programmes (where appropriate) • Make design decisions taking into account constraints such as time, resources and cost • Explore, develop and communicate aspects of their design proposals by modelling their

							ideas in a number of ways.
Making: Planning	<ul style="list-style-type: none"> • 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. • Discuss their work as it progresses. 	<ul style="list-style-type: none"> • Begin to plan by suggesting what to do next. • Choose suitable tools for making • Choose suitable materials and components for their products based on suitability of their properties 	<ul style="list-style-type: none"> • Discuss what their steps for making could be • Choose suitable tools for making and explain why they should be used • Choose materials and components to use based on suitability of their properties and explain their choices 	<ul style="list-style-type: none"> • Select from a range of tools and equipment suitable for the task. • Select and components suitable for the task based on their properties. • Order the main stages of making 	<ul style="list-style-type: none"> • Select from a wider range of tools and equipment suitable for the task. • Select from a wider range of materials and components suitable for the task based on their properties and explain the choices made. • Plan and record the order of their work. 	<ul style="list-style-type: none"> • elect from a range of tools and equipment suitable for the task, explaining their choices. • Select materials and components for the task based on their functional properties and aesthetic qualities. • Record a step-by-step plan, including a list of tools, equipment, materials and techniques 	<ul style="list-style-type: none"> • Select from a range of tools and equipment suitable for the task, explaining their choices in relation to the skills and techniques they will be using. • Select from a wide range of materials and components suitable for the task, explaining their choices in relation to functional properties and aesthetic qualities. • Record a step-by-step plan, including a detailed list of tools, equipment, materials and techniques
Making: Practical skills	<ul style="list-style-type: none"> • Begin to create their product using basic techniques. 	<ul style="list-style-type: none"> • Begin to use a range of materials and components, e.g. construction 	<ul style="list-style-type: none"> • Use a range of materials and components, e.g. construction 	<ul style="list-style-type: none"> • Use materials and components, building on those used in KS1. 	<ul style="list-style-type: none"> • Use a range of materials and components 	<ul style="list-style-type: none"> • Use a wider range of materials and components 	<ul style="list-style-type: none"> • Use a wide range of materials and components

<p>and techniques</p>	<ul style="list-style-type: none"> • Start to build structures, joining components together. • Look at and use simple hinges, wheels and axles. • Begin to use scissors to cut straight and curved edges and hole punches to punch holes. • Use adhesives to join material. 	<p>materials, textiles, food ingredients and mechanical components</p> <ul style="list-style-type: none"> • Follow safety and food hygiene procedures • Measure, mark out, cut, score and assemble materials and components with more accuracy. • With support, join, assemble and combine materials and components • Begin to use simple finishing techniques including skills learnt in Art 	<p>materials, textiles, food ingredients and mechanical components</p> <ul style="list-style-type: none"> • Follow safety and food hygiene procedures • Measure, mark out, cut and shape materials and components using appropriate tools, equipment and techniques. • Join, assemble and combine materials and components • Use a range of simple finishing techniques including skills learnt in Art 	<ul style="list-style-type: none"> • Work safely, hygienically and accurately with a range of simple tools. • Measure, mark out, cut and shape materials and components with some accuracy • Assemble, join and combine materials and components with some accuracy • Use finishing techniques to strengthen and improve the appearance of their product with some accuracy. 	<ul style="list-style-type: none"> • Work safely, hygienically and accurately with a range of tools. • Measure, mark out, cut and shape a range of materials and components using appropriate tools, equipment and techniques with some accuracy. • Assemble, join and combine materials and components with some accuracy, using a range of techniques. • Choose from and use a wide range of finishing techniques to strengthen and improve the appearance of their product with some accuracy, including the use of ICT 	<ul style="list-style-type: none"> • Work safely, hygienically and accurately with a wider range of tools. • Accurately measure, mark out, cut and shape materials and components. • Assemble, join and combine materials and components with increasing accuracy. • Apply a range of finishing techniques, including those learnt in Art with increasing accuracy • Begin to demonstrate resourcefulness when tackling practical problems. 	<ul style="list-style-type: none"> • Work safely, hygienically and accurately with a wide range of tools. • Accurately measure, mark out, cut and shape materials and components demonstrating skills in using tools and equipment safely and accurately. • Accurately assemble, join and combine materials and components • Accurately apply a range of finishing techniques that involve a number of steps, including those learnt in Art • Demonstrate resourcefulness when tackling practical problems.
<p>Evaluating: Own products and ideas</p>	<ul style="list-style-type: none"> • Say what they like and do not like about items they have made and attempt to say why. • Begin to talk about their designs as they develop and 	<ul style="list-style-type: none"> • Begin to talk about their design ideas and what they have made • Begin to make simple judgements of how the product met their design ideas and criteria. 	<ul style="list-style-type: none"> • Talk about their design ideas and what they have made • Make simple judgements of how the product met their design ideas and design criteria 	<ul style="list-style-type: none"> • Begin to use their design criteria as they design and make • Begin to use their design criteria to evaluate their product identifying both strengths and 	<ul style="list-style-type: none"> • Refer to their design criteria as they design and make • Use their design criteria to evaluate their product identifying both strengths and 	<ul style="list-style-type: none"> • Use their design criteria to critically evaluate their product in terms of quality of design, manufacture and whether is it fit for its intended purpose 	<ul style="list-style-type: none"> • Use their design criteria to critically evaluate their product in terms of quality of design, manufacture and whether is it fit for its intended purpose

	<p>identify good and bad points.</p> <ul style="list-style-type: none"> Start to talk about changes made during the making process. Discuss how closely their finished products meet their design criteria. 	<ul style="list-style-type: none"> Begin to identify ways in which their product could be improved. 	<ul style="list-style-type: none"> Suggest how their products could be improved 	<p>areas for development</p> <ul style="list-style-type: none"> Consider how their product can be improved. 	<p>areas for development</p> <ul style="list-style-type: none"> Consider the views of others to improve their work. 	<ul style="list-style-type: none"> Consider the views of others, including intended users, to improve their work. 	<ul style="list-style-type: none"> Consider the views of others, including intended users, when evaluating their product against their original design specification and identifying improvements that can be made.
<p>Evaluating: existing products</p>	<ul style="list-style-type: none"> Explore a range of existing products and begin to talk about what they are for. Say what they like and do not like about existing products and attempt to say why. 	<ul style="list-style-type: none"> Explore products and talk about what it is and who it is for. Explore what a product is for and how it is used. Explore how a product works Begin to identify and name some of the materials used to make the product Talk about what they like or dislike about a product 	<ul style="list-style-type: none"> Understand what a product is and who it is for Understand how a product works and how it is used Understand how a product works Identify where you might find this product Identify the materials used to make the product and suggest why they were chosen. Express an opinion about the product 	<ul style="list-style-type: none"> Begin to evaluate existing products, considering how well they have been made, the materials chosen, whether they work, how they have been made and if they are fit for purpose. Identify who designed a product and when it was made. Identify the materials products are made from. 	<ul style="list-style-type: none"> Evaluate existing products, considering how well they have been made, the materials chosen, whether they work, how they have been made and if they are fit for purpose. Identify who designed a product, and when and where it was produced. Identify the materials products are made from, and whether the product can be recycled or reused. 	<ul style="list-style-type: none"> Evaluate and discuss existing products, considering how well they have been made, the materials chosen, whether they work, how they have been made and if they are fit for purpose. Identify what the product has been made from and research how sustainable the materials are. Begin to evaluate how much products cost to make and how innovative they are. Begin to consider the impact of products beyond their intended purpose 	<ul style="list-style-type: none"> Carry out thorough evaluations of existing products, considering how well they have been made, the materials chosen, whether they work, how they have been made and if they are fit for purpose. Identify what the product has been made from and research and discuss how sustainable the materials are. Evaluate how much products cost to make and how innovative they are. Consider the impact of products beyond

							their intended purpose
Food: Where food comes from	<ul style="list-style-type: none"> • Begin to understand that food comes from plants or animals. • Begin to identify whether a food comes from a plant or animal 	<ul style="list-style-type: none"> • Say where food comes from, e.g. plant or animal. • Begin to understand that food is farmed, caught or grown 	<ul style="list-style-type: none"> • Say where food comes from, e.g. animal, plant, over ground, underground • Describe how food is farmed, caught or grown 	<ul style="list-style-type: none"> • Begin to understand that food comes from the UK and wider world • Understand that recipes can be changed by adding or taking away ingredients 	<ul style="list-style-type: none"> • Begin to understand that food can be grown, reared or caught in the UK and wider world • Understand that recipes can be changed by adding or taking away ingredients 	<ul style="list-style-type: none"> • Understand that food can be reared, caught or grown in the UK, Europe and the wider world • Begin to understand that the seasons can affect food produce • Know some of the ways that food is processed into ingredients that can be eaten or used in cooking. • Begin to understand that recipes can be adapted to change the appearance, taste and aroma of a dish 	<ul style="list-style-type: none"> • Name some foods that are grown, reared or caught in the UK, Europe and wider world. • Understand and explain how the seasons can affect food produce • Understand how food is processed into ingredients that can be eaten or used in cooking • Adapt recipes to change the appearance, taste and aroma of a dish •
Food: Food preparation, cooking and nutrition	<ul style="list-style-type: none"> • Begin to understand some food preparation tools, techniques and processes • Measure and weigh food items using non-standard measure e.g. spoons, cups • Practise stirring, mixing, pouring and kneading and rolling 	<ul style="list-style-type: none"> • Begin to understand there are groups of food which can be sorted on the Eatwell plate • Understand that fruit and vegetables are healthy • Explain how to work hygienically and why hygiene is important 	<ul style="list-style-type: none"> • Know there are groups of food and sort them on the Eatwell plate • Know that everyone should eat five portions of fruit and vegetables a day • Explain hygiene and how to keep a hygienic kitchen • Use techniques such as cutting, peeling and 	<ul style="list-style-type: none"> • Begin to prepare and cook dishes, safely and hygienically. • Use some of the following techniques to prepare food with increasing confidence: peeling, chopping, grating, slicing, kneading and mixing 	<ul style="list-style-type: none"> • Prepare and cook savoury dishes, safely and hygienically • Use some techniques to prepare food, including peeling, chopping, grating, slicing, kneading and mixing • Know that a healthy diet is made up from a variety and 	<ul style="list-style-type: none"> • Prepare an increasing variety of dishes, safely and hygienically, including a heat source where appropriate • Use a range of techniques such as peeling, chopping, grating, slicing, kneading and mixing • Begin to understand that 	<ul style="list-style-type: none"> • Prepare a variety of dishes, safely and hygienically, including a heat source where appropriate • Use a wide range of techniques confidently, such as peeling, chopping, grating, slicing, kneading and mixing • Adapt recipes by adding or

	<ul style="list-style-type: none"> • Begin to understand the need to work hygienically • Discuss use of senses • Begin to develop a food vocabulary including taste, smell, texture and feel • Explore familiar products e.g. fruit and vegetables. • Start to think about the need for a variety of foods in a diet. • Begin to understand that eating well contributes to good health 	<ul style="list-style-type: none"> • Use simple techniques such as cutting, peeling and grating safely and with support. • Develop a sensory vocabulary to describe the taste, smell and texture of food 	<p>grating with increasing confidence</p> <ul style="list-style-type: none"> • Use a sensory vocabulary to describe and compare foods 	<ul style="list-style-type: none"> • Begin to understand how a healthy diet is made up from a variety and balance of food and drink as depicted in The Eatwell Plate • Know that food and drink provide energy for the body. 	<p>balance of food and drink as depicted in The Eatwell Plate</p> <ul style="list-style-type: none"> • Know that food and drink are needed to provide energy for a healthy and active lifestyle 	<p>recipes can be adapted by adding or substituting ingredients to change the appearance, taste, texture and aroma of a dish</p> <ul style="list-style-type: none"> • Understand there are different substances in food and drink needed for health 	<p>substituting ingredients to change the appearance, taste, texture and aroma of a dish</p> <ul style="list-style-type: none"> • Describe some of the different substances in food and drink, and how they can affect health
<p>Technical Knowledge: Making Products Work</p>	<ul style="list-style-type: none"> • That a range of technology is used in different places such as the home and school. • some technical vocabulary when appropriate. • How to use a range of tools e.g. scissors, hole punch, stapler, rolling pins, pastry cutters • How everyday objects work by exploring and dismantling 	<ul style="list-style-type: none"> • Know about the simple working characteristics of materials and components • Know about the movement of simple mechanisms such as levers and sliders. • Know how freestanding structures can be made stronger, stiffer and more stable 	<ul style="list-style-type: none"> • Know about and discuss the simple working characteristics of materials and components • Know about the movement of simple mechanisms such as wheels and axles • Know that a 3D textiles product can be made from two identical fabric shapes. 	<ul style="list-style-type: none"> • Begin to understand how learning from Science and maths can be used to help design and make products that work • Identify some of the functional properties and aesthetic qualities of materials • Know some of the ways that materials can be 	<ul style="list-style-type: none"> • Understand how learning from Science and maths can be used to help design and make products that work • Identify the functional properties and aesthetic qualities of materials • Know that materials can be combined and mixed to create 	<ul style="list-style-type: none"> • Know how to use learning from Science and maths to help design and make products that work • Identify the functional properties and aesthetic qualities of materials and discuss how these make them suitable for the product. 	<ul style="list-style-type: none"> • Know how to use learning from Science and maths to help design and make a wide range of products that work • Identify the functional properties and aesthetic qualities of materials and explain how these make them suitable for the product.

		<ul style="list-style-type: none"> • Know that food ingredients have different sensory characteristics • Begin to learn and use the technical vocabulary relevant for the projects they are working on. 	<ul style="list-style-type: none"> • Know that food ingredients should be combined to their sensory characteristics • the correct technical vocabulary for the projects they are undertaking 	<p>combined and mixed to create more useful characteristics</p> <ul style="list-style-type: none"> • how to make strong, stiff shell structures • that mechanical and electrical systems have an input, process and output • Know how mechanical systems such as levers and linkages or pneumatic systems create movement • that food ingredients can be fresh, pre-cooked and processed • Know and use the correct technical vocabulary for the projects they are undertaking 	<p>more useful characteristics</p> <ul style="list-style-type: none"> • Know how simple electrical circuits and components can be used to create functional products • that mechanical and electrical systems have an input, process and output • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed • Know and use the correct technical vocabulary for the projects they are undertaking 	<ul style="list-style-type: none"> • Discuss how materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • how mechanical systems such as cams or pulleys or gears create movement • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients • Know and use the correct technical vocabulary for the projects they are undertaking 	<ul style="list-style-type: none"> • Explain how materials can be combined and mixed to create more useful characteristics • how more complex electrical circuits and components can be used to create functional products • that mechanical and electrical systems have an input, process and output • how to reinforce and strengthen a 3D framework • that a recipe can be adapted by adding or substituting one or more ingredients • Know and use the correct technical vocabulary for the projects they are undertaking
KEY TOPICS	<ul style="list-style-type: none"> • Construction • Food • 	<ul style="list-style-type: none"> • Mechanisms - Sliders and levers • Cooking and Nutrition - Preparing fruit and vegetables 	<ul style="list-style-type: none"> • Textiles - Templates and joining • Cooking and Nutrition - Preparing fruit and vegetables 	<ul style="list-style-type: none"> • Structures - Shell structures • Mechanical Systems - Levers and linkages • Cooking and Nutrition - 	<ul style="list-style-type: none"> • Textiles - 2D shapes to 3D products • Electrical Systems - Simple circuits and switches 	<ul style="list-style-type: none"> • Textiles - Combining different fabric shapes • Mechanical Systems - Pulleys and gears 	<ul style="list-style-type: none"> • Structures - Frame structures • Electrical Systems - More complex switches • Cooking and Nutrition - Celebrating

		• Structures - Free standing structures	• Mechanisms - Wheels and axles	Healthy and varied diet	• Cooking and Nutrition - Healthy and varied diet	• Cooking and Nutrition - Celebrating culture and seasonality	culture and seasonality
Key concepts that underpin all historical enquiry, developed through regular re-visiting in a range of contexts:							
		Years 1 and 2		Years 3 and 4		Years 5 and 6	
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