



# THE ARUN VILLAGES FEDERATION

*Enabling every child to thrive and succeed*

## Threshold Concepts Attainment Map in Design & Technology

	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>D E S I G N</b>	<p>Select appropriate resources</p> <p>Use gestures, talking and arrangements of materials and components to show design</p> <p>Use contexts set by the teacher and myself</p> <p>Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)</p>	<p>Have own ideas</p> <p>Explain what I want to do</p> <p>Explain what my product is for, and how it will work</p> <p>Use pictures and words to plan, begin to use models</p> <p>Design a product for myself following design criteria</p> <p>Research similar existing products</p>	<p>Have own ideas and plan what to do next</p> <p>Explain what I want to do and describe how I may do it</p> <p>Explain purpose of product, how it will work and how it will be suitable for the user</p> <p>Describe design using pictures, words, models, diagrams, begin to use ICT</p> <p>Design products for myself and others following design criteria</p>	<p>Begin to research others' needs</p> <p>Show design meets a range of requirements</p> <p>Describe purpose of product</p> <p>Follow a given design criteria</p> <p>Have at least one idea about how to create product</p> <p>Create a plan which shows order, equipment and tools</p> <p>Describe design using an accurately labelled sketch and words</p>	<p>Use research for design ideas</p> <p>Show design meets a range of requirements and is fit for purpose</p> <p>Begin to create own design criteria</p> <p>Have at least one idea about how to create product and suggest improvements for design.</p> <p>Produce a plan and explain it to others</p> <p>Say how realistic plan is. Include an annotated sketch</p>	<p>Use internet and questionnaires for research and design ideas</p> <p>Take a user's view into account when designing</p> <p>Begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose</p> <p>Create own design criteria</p> <p>Have a range of ideas</p> <p>Produce a logical, realistic plan and explain it to others.</p>	<p>Draw on market research to inform design</p> <p>Use research of user's individual needs, wants, requirements for design</p> <p>Identify features of design that will appeal to the intended user</p> <p>Create own design criteria and specification</p> <p>Come up with innovative design ideas</p> <p>Follow and refine a logical plan.</p>

			<p>Choose best tools and materials, and explain choices</p> <p>Use knowledge of existing products to produce ideas</p>	<p>Make design decisions</p> <p>Explain how product will work</p> <p>Make a prototype</p> <p>Begin to use computers to show design</p>	<p>Make and explain design decisions considering availability of resources</p> <p>Explain how product will work</p> <p>Make a prototype</p> <p>Begin to use computers to show design.</p>	<p>Use cross-sectional planning and annotated sketches</p> <p>Make design decisions considering time and resources.</p> <p>Clearly explain how parts of product will work.</p> <p>Model and refine design ideas by making prototypes and using pattern pieces.</p> <p>Use computer-aided designs</p>	<p>Use annotated sketches, cross-sectional planning and exploded diagrams</p> <p>Make design decisions, considering, resources and cost</p> <p>Clearly explain how parts of design will work, and how they are fit for purpose</p> <p>Independently model and refine design ideas by making prototypes and using pattern pieces</p> <p>Use computer-aided designs</p>
<b>M A K E</b>	<p>Construct with a purpose, using a variety of resources</p> <p>Use simple tools and techniques</p> <p>Build/construct with a wide range of objects</p> <p>Select tools &amp; techniques to</p>	<p>Explain what I'm making and why</p> <p>Consider what I need to do next</p> <p>Select tools/equipment to cut, shape, join, finish and explain choices</p> <p>Measure, mark out, cut and</p>	<p>Explain what I am making and why it fits the purpose</p> <p>Make suggestions as to what I need to do next.</p> <p>Join materials/components together in different ways</p> <p>Measure, mark out, cut and shape</p>	<p>Select suitable tools/equipment, explain choices; begin to use them accurately and safely</p> <p>Select appropriate materials, fit for purpose.</p> <p>Work through plan in order</p>	<p>Select suitable tools and equipment, explain choices in relation to required techniques and use accurately and safely</p> <p>Select appropriate materials, fit for purpose; explain choices</p>	<p>Use selected tools/equipment with good level of precision</p> <p>Produce suitable lists of tools, equipment/materials needed</p> <p>Select appropriate materials, fit for purpose; explain choices,</p>	<p>Use selected tools and equipment precisely</p> <p>Produce suitable lists of tools, equipment, materials needed, considering constraints</p> <p>Select appropriate materials, fit for purpose; explain</p>

	<p>shape, assemble and join</p> <p>Replicate structures with materials / components</p> <p>Discuss how to make an activity safe and hygienic</p> <p>Record experiences by drawing, writing, voice recording</p> <p>Understand different media can be combined for a purpose</p>	<p>shape, with support</p> <p>Choose suitable materials and explain choices</p> <p>Try to use finishing techniques to make product look good</p> <p>Work in a safe and hygienic manner</p>	<p>materials and components, with support.</p> <p>Describe which tools I'm using and why</p> <p>Choose suitable materials and explain choices depending on characteristics.</p> <p>Use finishing techniques to make product look good</p> <p>Work safely and hygienically</p>	<p>Consider how good product will be</p> <p>Begin to measure, mark out, cut and shape materials/components with some accuracy</p> <p>Begin to assemble, join and combine materials and components with some accuracy</p> <p>Begin to apply a range of finishing techniques with some accuracy</p>	<p>Work through plan in order.</p> <p>Realise if product is going to be good quality</p> <p>Measure, mark out, cut and shape materials/components with some accuracy</p> <p>Assemble, join and combine materials and components with some accuracy</p> <p>Apply a range of finishing techniques with some accuracy</p>	<p>considering functionality</p> <p>Create and follow detailed step-by-step plan</p> <p>Explain how product will appeal to an audience</p> <p>Mainly accurately measure, mark out, cut and shape materials/components</p> <p>Mainly accurately assemble, join and combine materials/components</p> <p>Mainly accurately apply a range of finishing techniques</p> <p>Use techniques that involve a small number of steps</p> <p>Begin to be resourceful with practical problems</p>	<p>choices, considering functionality and aesthetics</p> <p>Create, follow, and adapt detailed step-by-step plans</p> <p>Explain how product will appeal to audience; make changes to improve quality</p> <p>Accurately measure, mark out, cut and shape materials/components</p> <p>Accurately assemble, join and combine materials/components</p> <p>Accurately apply a range of finishing techniques</p> <p>Use techniques that involve a number of steps</p> <p>Be resourceful with practical problems</p>
<b>E</b>	Adapt work if necessary	Talk about my work, linking it to	Describe what went well,	Look at design criteria while	Refer to design criteria while	Evaluate quality of design while	Evaluate quality of design while

<b>V A L U E S</b>	<p>Dismantle, examine, talk about existing objects/ Structures</p> <p>Consider and manage some risks</p> <p>Practise some appropriate safety measures independently</p> <p>Talk about how things work</p> <p>Look at similarities and differences between existing objects / materials / tools</p> <p>Show an interest in technological toys</p> <p>Describe textures</p>	<p>what I was asked to do</p> <p>Talk about existing products considering: use, materials, how they work, audience, where they might be used</p> <p>Talk about existing products, and say what is and isn't good</p> <p>Talk about things that other people have made</p> <p>Begin to talk about what could make product better</p>	<p>thinking about design criteria</p> <p>Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion</p> <p>Evaluate how good existing products are</p> <p>Talk about what I would do differently if I were to do it again and why</p>	<p>designing and making</p> <p>Use design criteria to evaluate finished product</p> <p>Say what I would change to make design better</p> <p>Begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Begin to understand by whom, when and where products were designed</p> <p>Learn about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products</p>	<p>designing and making</p> <p>Use criteria to evaluate product</p> <p>Begin to explain how I could improve original design</p> <p>Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Discuss by whom, when and where products were designed</p> <p>Research whether products can be recycled or reused</p> <p>Know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products</p>	<p>designing and making</p> <p>Evaluate ideas and finished product against specification, considering purpose and appearance.</p> <p>Test and evaluate final product</p> <p>Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Begin to evaluate how much products cost to make and how innovative they are</p> <p>Research how sustainable materials are</p> <p>Talk about some key inventors/designers/ engineers/chefs/manufacturers</p>	<p>designing and making; is it fit for purpose?</p> <p>Keep checking design is best it can be.</p> <p>Evaluate ideas and finished product against specification, stating if it's fit for purpose</p> <p>Test and evaluate final product; explain what would improve it and the effect different resources may have had</p> <p>Do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose</p> <p>Evaluate how much products cost to make and how innovative they are</p>
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						rs of ground-breaking products	<p>Research and discuss how sustainable materials are</p> <p>Consider the impact of products beyond their intended purpose</p> <p>Discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products</p>
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### Technical Knowledge

<b>M A T E R I A L S - S T R U C T U R</b>		<p>Begin to measure and join materials, with some support</p> <p>Describe differences in materials</p> <p>Suggest ways to make material/product stronger</p>	<p>Measure materials</p> <p>Describe some different characteristics of materials</p> <p>Join materials in different ways</p> <p>Use joining, rolling or folding to make it stronger</p> <p>Use own ideas to try to make product stronger</p>	<p>Use appropriate materials</p> <p>Work accurately to make cuts and holes</p> <p>Join materials</p> <p>Begin to make strong structures</p>	<p>Measure carefully to avoid mistakes</p> <p>Attempt to make product strong</p> <p>Continue working on product even if original didn't work</p> <p>Make a strong, stiff structure</p>	<p>Select materials carefully, considering intended use of product and appearance</p> <p>Explain how product meets design criteria</p> <p>Measure accurately enough to ensure precision</p>	<p>Select materials carefully, considering intended use of the product, the aesthetics and functionality.</p> <p>Explain how product meets design criteria</p> <p>Reinforce and strengthen a 3D frame</p>
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<b>E S</b>						Ensure product is strong and fit for purpose  Begin to reinforce and strengthen a 3D frame	
<b>M E C H A N I S M S</b>		Begin to use levers or slides	Use levers or slides  Begin to understand how to use wheels and axles	Select appropriate tools / techniques  Alter product after checking, to make it better  Begin to try new/different ideas  Use simple lever and linkages to create movement	Select most appropriate tools / techniques  Explain alterations to product after checking it  Grow in confidence about trying new / different ideas. Use levers and linkages to create movement  Use pneumatics to create movement	Refine product after testing  Begin to use cams, pulleys or gears to create movement	Refine product after testing, considering aesthetics, functionality and purpose  Incorporate hydraulics and pneumatics  Be confident to try new / different ideas  Use cams, pulleys and gears to create movement
<b>T E X T I L E S</b>		Measure, cut and join textiles to make a product, with some support  Choose suitable textiles	Measure textiles  Join textiles together to make a product, and explain how I did it  Carefully cut textiles to produce accurate pieces  Explain choices of textile	Join different textiles in different ways  Choose textiles considering appearance and functionality  Begin to understand that a simple fabric shape can be used to make a 3D textiles project	Think about user when choosing textiles  Think about how to make product strong  Begin to devise a template  Explain how to join things in a different way	Think about user and aesthetics when choosing textiles  Use own template  Think about how to make product strong and look better  Think of a range of ways to join things	Think about user's wants/needs and aesthetics when choosing textiles  Make product attractive and strong  Make a prototype  Use a range of joining techniques

			Understand that a 3D textile structure can be made from two identical fabric shapes.			Begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.	Think about how product might be sold  Think carefully about what would improve product  Understand that a single 3D textiles project can be made from a combination of fabric shapes.
<b>F O O D &amp; N U T R I T I O N</b>	<p>Begin to understand some food preparation tools, techniques and processes</p> <p>Practise stirring, mixing, pouring, blending</p> <p>Discuss how to make an activity safe and hygienic</p> <p>Discuss use of senses</p> <p>Understand need for variety in food</p> <p>Begin to understand that eating well contributes to good health</p>	<p>Wash hands &amp; clean surfaces</p> <p>Think of interesting ways to decorate food</p> <p>Say where some foods come from, (i.e. plant or animal)</p> <p>Describe textures</p> <p>Describe differences between some food groups (i.e. sweet, vegetable etc.)</p> <p>Discuss how fruit and vegetables are healthy</p> <p>Cut, peel and grate safely, with support</p>	<p>Explain hygiene and how to keep a hygienic kitchen</p> <p>Describe properties of ingredients and importance of varied diet</p> <p>Say where food comes from (animal, underground etc.)</p> <p>Describe how food is farmed, home-grown, caught</p> <p>Draw eat well plate; explain there are groups of food</p> <p>Describe "five a day"</p>	<p>Carefully select ingredients</p> <p>Use equipment safely</p> <p>Make product look attractive</p> <p>Think about how to grow plants to use in cooking</p> <p>Begin to understand food comes from UK and wider world</p> <p>Describe how healthy diet= variety/balance of food/drinks</p> <p>Explain how food and drink are needed for active/healthy bodies.</p>	<p>Explain how to be safe/hygienic</p> <p>Think about presenting product in interesting/attractive ways</p> <p>Understand ingredients can be fresh, pre-cooked or processed</p> <p>Begin to understand about food being grown, reared or caught in the UK or wider world</p> <p>Describe eat well plate and how a healthy diet=variety / balance of food and drinks</p>	<p>Explain how to be safe / hygienic and follow own guidelines</p> <p>Present product well - interesting, attractive, fit for purpose</p> <p>Begin to understand seasonality of foods</p> <p>Understand food can be grown, reared or caught in the UK and the wider world</p> <p>Describe how recipes can be adapted to change appearance, taste, texture, aroma</p>	<p>Understand a recipe can be adapted by adding / substituting ingredients</p> <p>Explain seasonality of foods</p> <p>Learn about food processing methods</p> <p>Name some types of food that are grown, reared or caught in the UK or wider world</p> <p>Adapt recipes to change appearance, taste, texture or aroma.</p> <p>Describe some of the different substances in food</p>

			<p>Cut, peel and grate with increasing confidence</p>	<p>Prepare and cook some dishes safely and hygienically</p> <p>Grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>Explain importance of food and drink for active, healthy bodies</p> <p>Use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>Explain how there are different substances in food / drink needed for health</p> <p>Prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</p> <p>Use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>and drink, and how they can affect health</p> <p>Prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.</p> <p>Use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>
<b>E L E C T R I C A L  S Y S T</b>				<p>Use a simple circuit in product</p> <p>Learn about how to program a computer to control product.</p>	<p>Use a number of components in circuit</p> <p>Program a computer to control product</p>	<p>Incorporate a switch into product</p> <p>Confidently use number of components in circuit</p> <p>Begin to be able to program a computer to monitor changes in environment and control product</p>	<p>Use different types of circuit in product</p> <p>Think of ways in which adding a circuit would improve product</p> <p>Program a computer to monitor changes in environment and control product</p>



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	<b>End of KS 1 Expectations</b>	<b>End of KS 2 Expectations</b>
<b>Design</b>	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	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
<b>Make</b>	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	Select 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

<b>Evaluate</b>	Explore and evaluate a range of existing products  Evaluate their ideas and products against design criteria	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
<b>Technical Knowledge</b>		
<b>Materials/ Structures</b>	Build structures, exploring how they can be made stronger, stiffer and more stable	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
<b>Mechanisms</b>	Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
<b>Food &amp; Nutrition</b>	Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.	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.
<b>Electrical Systems</b>		Understand and use electrical systems in their products [for example, series circuits]

### Design Technology: Vocabulary Map (KS1 & KS2)

	Design	Technical Knowledge & Making	Evaluating	Cooking & Nutrition
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Key Stage 1	Plan	Fast	Stone	Change	Healthy
	Prepare	Slow	Cloth	Improve	Unhealthy
	Design	Faster	Metal	Prefer	Source
	Materials	Slower	Foam	Useful	Fruit
	Ideas	Up	Felt	Unsuccessful	Vegetable
	Use	Down	Paper	Future	Clean
	Model	Turn	Tissue	Progress	Safe
	Development	Wind Up	Newspaper	Modify	Dirty
	Market Research	Design	Cardboard	Alter	Unsafe
	Survey	Draw	String	Adapt	Amount
	Template	Sketch	Wool	Original	Ingredients
	Tools	Clay	Finished article	Recipe	
	Fix	Scissors	Evaluate	Weight	
	Glue	Glue	Graphics	Nutrients	
	Attach	Tape		Vegetarian	
	Features	Cut		Dietary requirements	
	Brick	Stick			
	Wood	Decorate			
	Design	Technical Knowledge & Making	Evaluating	Cooking & Nutrition	

Key Stage 2	Plan	Materials	Assess	Healthy
	Organise	Mould	Edit	Unhealthy
	Prototype	Liquid	Improve	Balanced
	Initial ideas	Solid	Alter	Vitamins
	Criteria	Form	Outcome	Disease
	Diagrams	Shape	Develop	Nutrition
	Labels	Adhesive	Test	Healthy eating
	Annotate	Lattice	Analyse	Hygiene
	Brief	Mass-produced	Effective	Diet
	Product	Hand-made	Fit for purpose	Cross-contamination
	Consumer	Machine made	Design criteria	Grams
	Target audience	Packaging	Alternatives	Storage
	Purpose	Presentation	Models	Presentation
	Application	Dimensions	Function	Taste
	Constraints	Durable	Functionality	Texture
	Client		Quality	Flavour
				Disinfect
			Bacteria	

## Design Technology; Children Working at Greater Depth

Creating the opportunity for greater depth in Design Technology involves creating opportunities to facilitate broader thinking and allowing pupils the independence to apply their learning at a deeper level.

This means that pupils working at greater depth are expected to be able to:

- demonstrate a creative response to the problem (as long as the design brief is well thought out and provides some scope for originality)
- stick tightly to the brief and consider the end user's needs and preferences throughout the process
- think deeply and critically about other products and also about their own product
- amend their product as they go to improve its outcome
- display high quality presentation and precision in their design and make

Key Questions:

How does your product specifically fit the needs of the consumer?

How does your product compare to other products you are aware of?

What are the pros and cons for your product compared to others available?

Do you need to amend your design during the making process?

Why is this necessary and how will it improve the end result?