



St Nicholas Church of England First School

Progression of Disciplinary Knowledge

Design and Technology

The What and The Why

What does this progression document outline?

This progression document outlines the disciplinary knowledge we aim for our children to acquire and apply; it outlines **what we expect children to do to gain new knowledge, and what they do with that new knowledge**. On the other hand, essential substantive knowledge related to this subject are mapped out on a separate document to outline what we need and aim for our children to know and remember.

What is the rationale behind our building block approach for disciplinary knowledge?

- We recognise and appreciate that our children will progress at different rates and therefore it is important to be open-minded and flexible with how their disciplinary knowledge is developed, as opposed to being prescriptive; this is why our disciplinary knowledge has been organised across the school by Key Stage; it is equal in ambition, accessibility, and appreciation of children's development.
- We have set out our disciplinary knowledge into progressive building blocks (that build on and feed into one another) with clearly set expectations that these will lead to by the end of each key stage.
- Plans for units of learning set out the focused building blocks of disciplinary knowledge that children will aim to develop within this subject; our building block approach means that prior building blocks of disciplinary knowledge are activated and applied over time for greater depth and breadth.

St Nicholas CE First School
Key Stage 1 Design and Technology
Progression in Disciplinary Knowledge

The Emerging KS1 Engineer		The KS1 Engineer Building Blocks		By the End of Key Stage 1	
Briefing, Research and Design					
	Generate ideas from existing examples.	Use existing knowledge to generate original ideas and share these using drawings.	Use simple design criteria to help develop my ideas.	Use existing products to help come up with ideas.	
		Explain who a product is for and what a product is for.	Explain how a product will work.	Explain and describe what the purpose and intended user of a product is.	
		Explain designs and discuss what is being designed and made.	Develop and communicate ideas through talking and drawings.	Model ideas by exploring materials, components and mock-ups.	
Making					
	Show some planning skills by suggesting what to do next.	Plan by suggesting what to do next.	Give reasons why what is next is important and why it is needed.	Evaluate each stage and change as needed.	
	Begin to follow safety procedures.	Follow procedures for safety and hygiene.	Explain the safety and hygiene procedures being followed.	Give reasons why certain procedures are important.	
	Select from a range of materials and components.	Use a range of materials, components, construction kits, textiles, food ingredients and mechanical products.	Select from a range of tools, materials and components according to my characteristics.	Give reasons for the tools, materials and components that I choose.	
	Measure and cut materials.	Measure, mark out, shape and cut materials.	Begin to assemble, join and combine materials and components.	Begin to use finishing techniques.	
Evaluating					
	Discuss design ideas and what is being made.	Make simple judgements about own products and ideas.	Identify the strengths and areas for development in my ideas and products.	Use design criteria to make simple judgements about own products.	
	Think about how to make own products better.	Discuss how to make own products better.	Explain how to make own products better.	Explain why proposed changes would make a product better.	
	Explore what products are, what they are made from and who they are for.	Explain how and where a product is used.	Evaluate how well products have been designed and made and how well they worked.	Evaluate how successful the materials and methods used have been.	
	Discuss likes and dislikes of existing products.	Give reasons for likes and dislikes of existing products.	Recognise successful inventors, designers, chefs and engineers.	Explain how and why people have been recognised for their products.	
Technical Knowledge					
	Explore toys with moving mechanisms (e.g. wheels, axels, levers, sliders).	Experiment with simple mechanisms and operate them successfully.	Recognise how a range of technology is used in places such as homes and schools.	Select and use technology for particular purposes.	
	Explore the simple working characteristics of materials and components.	Explain ways materials have functional and aesthetic qualities.	Identify ways how freestanding structures can be made stronger, more stable.	Plan how to make a freestanding structure stronger, and more stable.	

Identify how simple mechanisms work such as levers, sliders, wheels and axles.	Identify how different mechanical systems such as levers and linkages move.	Explain how different types of levers and linkages work and move.	Recognise how different mechanical systems have been used in existing products.
Cooking and Nutrition			
Recognise how food comes from plants or animals, and that food is farmed, grown elsewhere (e.g home) or caught.	Give examples of food that can be imported or caught.	Explain how food can be farmed, grown, imported or caught locally, regionally or internationally.	Give reasons why not all foods can be grown in the UK.
Name the five different groups of foods from 'The Eatwell Plate'.	Understand the importance and benefits of eating a healthy balanced diet, and what this may look like.	Recognise everyone should eat at least five portions of fruit and vegetables every day.	Sort different foods into the five groups, and understand how they provide different nutrition to our bodies.
Prepare some simple dishes, with adult support.	Prepare a range of simple dishes.	Prepare simple dishes safely and hygienically, without using a heat source.	Recognise and explain ways to safely use a heat source to prepare a savoury dish.
Use techniques of cutting and chopping.	Use techniques of peeling and grating.	Select whether cutting, chopping, peeling or grating is needed when cooking.	Start to use a range of techniques for the same dish.

St Nicholas CE First School
Lower Key Stage 2 Design and Technology
Progression in Disciplinary Knowledge

The Emerging LKS2 Engineer		The Lower KS2 Engineer Building Blocks		By the End of Lower Key Stage 2
Briefing, Research and Design				
Describe the purpose and design features of own products.	Indicate design features of own products and how they will appeal to intended users.	Begin to take account of the availability of resources.	Evaluate and make decisions when needing to change designs,	
Gather information about the needs and wants of individuals or groups.	Generate realistic ideas, focusing on the needs of the user.	Develop own design criteria.	Use own design criteria to inform ideas when designing.	
	Share and clarify ideas through discussion model ideas using prototypes.	Use annotated, sketched diagrams to develop and communicate ideas.	Model ideas using prototypes.	
Making				
Select tools and equipment suitable to the task.	Give reasons for the tools and equipment selected.	Produce appropriate lists of tools, equipment and materials before making.	Explain my choices relating these to what and why I am making.	
Select some materials and components suitable to the task.	Order the main stages of making.	Give reasons for the order of construction.	Formulate step-by-step plans as guide to making.	
Use a wider range of materials and components.	Use extensive range of materials and components e.g. textiles, mechanical, construction kits, electrical and food ingredients.	Assemble, join and combine many materials with accuracy.	Accurately assemble, join and combine most materials.	
	Measure, mark out, cut and shape materials and components with accuracy.	Accurately apply several finishing techniques and explain reasons for applying these.	Use finishing techniques that involve a number of steps.	
Evaluating				
Identify the strengths and areas for development in my ideas and products.	Give reasons for identified strengths and areas for development.	Actively involve others in the testing of my products.	Plan and explain how areas for development will be improved.	
	Consider the views of others, including intended users, to improve own work.	Question what others say about own and their designs and work.	Provide and ask for reasons of what I and others say about designs and products.	
Give reasons for the design criteria and how it will create a suitable product.	Use design criteria to evaluate completed products.	Use design criteria to improve completed products.	Evaluate own ideas and products against own original design specification.	
Evaluate how well materials and methods were successful and how well the products worked.	Evaluate whether products achieved my purpose and the needs/wants of the users.	Evaluate whether products are environmentally friendly based on whether they can be recycled or re-used.	Consider cost and sustainability of materials, designs and products.	
Recognise successful inventors, designers, chefs and engineers, who have been influential in the design and technology industries.	Give reasons why certain people have been influential and their impact on life today.	Consider how life would be different without the contribution of certain designers and makers.	Consider the impact and innovative qualities of own made products.	
Technical Knowledge				

Give examples of how materials can be combined and mixed to create more useful characteristics.	Identify techniques used to make strong, stiff structures.	Use a range of techniques to make strong, stiff structures.	Evaluate the extent to which materials and techniques have made a structure strong and stiff.
Explain how different types of levers and linkages move.	Evaluate different types of levers and linkages move.	Use mechanical systems such as levers and linkages in own products.	Evaluate own use of mechanical systems in own product.
Explain how simple electrical circuits and components have been used to create different products.	Evaluate different types of simple electrical circuits and components in products.	Use simple electrical circuits and components in own product.	Evaluate own use of simple electrical circuits in own product.
Cooking and Nutrition			
Recognise how food is farmed, reared, grown elsewhere (e.g home), imported or caught locally, regionally and internationally.	Explain how food is farmed, reared, grown elsewhere (e.g. home, allotments), exported, imported or caught, on different scales from local to international.	Identify ways in which seasons and weather affect food availability.	Explain how seasons and weather affect food availability.
Prepare and cook a variety of savoury dishes safely and hygienically, including the use of a heat source.	Prepare and cook a variety of savoury and some sweet dishes safely and hygienically, including the use of a heat source.	Begin to make decisions that adapt recipes, such as reasons of sustainability.	Recognise how recipes can be adapted to change the taste, texture, aroma and appearance.
Select whether cutting, chopping, peeling or grating is needed when cooking.	Select and use techniques such as mixing and spreading, kneading and baking.	Select and range of techniques together to create a dish, giving reasons for choices made.	Evaluate how well selected techniques have been used and the impact they had on the dish.
Identify different foods and drinks that would make a healthy diet and why.	Give examples of and explain how being active and healthy has a positive impact on the body.	Give examples of substances that are needed for health e.g. water, fibre and nutrients.	Explain how and why different substances are needed for health and what do for the body.