

NAWTON AND ROSEDALE ABBEY COMMUNITY PRIMARY SCHOOLS FEDERATION

CURRICULUM STATEMENT FOR DESIGN AND TECHNOLOGY

INTENT:

Design and Technology in the Nawton and Rosedale Abbey Federation develops children's skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food. It is vital in nurturing creativity and innovation through the exploration of the designed and made world and how things work and also learning to design and make functional products for particular purposes and users.

The National Curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

IMPLEMENTATION:

In the Nawton and Rosedale Abbey Federation up to 12 hours per term will be allocated to Design and Technology. The Design and Technology Curriculum will be taught through our termly focus topics.

TEACHING DESIGN AND TECHNOLOGY:

Early Years Foundation Stage – Subject Content and Coverage:

Key Stage 1 - Subject Content and Coverage:

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an interactive process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

As part of their work with food, pupils should be taught how to **cook** and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils will be taught to:

Design	Make	Evaluate	Technical Knowledge	Cooking and Nutrition
<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p>	<p>Explore and evaluate a range of existing products</p> <p>Evaluate their ideas and products against design criteria</p>	<p>Build structures, exploring how they can be made stronger, stiffer and more stable</p> <p>Explore and use mechanisms - levers, sliders, wheels and axles, in their products.</p>	<p>Uses the basic principles of a healthy and varied diet to prepare dishes</p> <p>Understand where food comes from</p>

Key Stage 2 - Subject Content and Coverage:

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils will be taught to:

Design	Make	Evaluate	Technical Knowledge	Cooking and Nutrition
<p>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</p> <p>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>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>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>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</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 gears, pulleys, cams, levers and linkages.</p> <p>Understand and use electrical systems in their products - series circuits incorporating switches, bulbs, buzzers and motors</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 predominately 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>

		Suggest how their product could be improved		Use design criteria to evaluate product – identifying both strengths and areas for development	Use design criteria to evaluate product – looking at quality of end product and design and whether it is fit for its intended purpose
--	--	---	--	--	---

TECHNICAL KNOWLEDGE AND SKILLS:

YEAR 1 AND 2:

<u>STRUCTURES</u>	<u>LEVERS/ SLIDERS</u>	<u>WHEELS/ AXELS</u>	<u>JOINING</u>	<u>USING TOOLS</u>	<u>COOKING</u>
Use strengthening supports – wood and paper Use frameworks		Know how wheels, wheels, axels and axel holders work Make simple chassis with wheels and axels Fixing broken wheels	Cutting paper and card Joining with glue Hinge joins Flute joins	Cutting with scissors <u>Cooking:</u> Cut and chop with a knife Sueeze with a juicer Spread using a knife Mix with a spoon and whisk	Know how to work hygienically and safely Begin to measure and weigh ingredients Use selected tools to carefully and with some accuracy – cut, squeeze, chop, spread, mix

YEAR 3 AND 4:

<u>STRUCTURES</u>	<u>LEVERS/ SLIDERS</u>	<u>WHEELS/ AXELS</u>	<u>JOINING</u>	<u>USING TOOLS</u>	<u>COOKING</u>

YEAR 5 AND 6:

<u>STRUCTURES</u>	<u>LEVERS/ SLIDERS</u>	<u>WHEELS/ AXELS</u>	<u>JOINING</u>	<u>USING TOOLS</u>	<u>COOKING</u>
		Know how wheels, wheels, axels and axel holders work Make simple chassis with wheels and axels Fixing broken wheels			

Build **structures**, exploring how they can be made stronger, stiffer and more stable

Explore and use **mechanisms** - **levers, sliders, wheels and axles**, in their products.

Each DT unit of work is taught sytematically through five sequential lessons underpinning and developing the pupils experience and expertise in designing, making and evaluating:

KEY SKILL	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
LESSON 1 – DESIGN/TECHNICAL KNOWLEDGE Exploring context and existing products	Understand what a product is and who it is for Understand how a product works and how it is used Identify where you might find this product		Identify who made the product, when it was made and what its purpose is Identify what the product has been made from Evaluate the product on design and use Research facts about famous inventors/ chefs / designers etc linked to product		Identify who made the product, when it was made and what its purpose is Identify what the product has been made from and how environmentally friendly the materials are Evaluate the product on design, appearance and use Identify the cost to make the product Research facts about famous inventors/ chefs / designers etc linked to product	

		Identify the materials used to make the product Express an opinion about the product			Does the product have any other purposes eg. Leading innovation of the time, trend setting
LESSON 2 – DESIGN/ TECHNICAL KNOWLEDGE Understanding their intended users and their own product	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		Understand and gather information about what a particular group or people want from a product Describe the purpose of their product and how it will work Identify design features that will appeal to intended users Explain how parts of their product works Generate realistic ideas that meet needs of user		Understand and gather information about what a particular group or people want from a product, using questionnaires, surveys etc Describe the purpose of their product Identify design features that will appeal to intended users Explain how parts of their product will work Generate innovative ideas that meet needs of user and take into account availability of resources
		Use own experiences and existing products to develop ideas Describe what their product will be used for and how it will work Explain why their product is suitable for the intended user		Develop their own design criteria and use for planning ideas Generate realistic ideas that meet needs of user and take into account availability of resources	Develop their own design criteria and use for planning ideas Create a design description for their product Highlight the impact of time, resources and cost within their design ideas
LESSON 3 – DESIGN/ TECHNICAL KNOWLEDGE Communicating ideas and creating prototypes for product	Discuss what their steps for making could be Represent ideas through talking and drawing		Share and discuss ideas with others Order the main stages of making Choose materials to use based on suitability of their properties Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) Create pattern pieces and prototypes		Share and discuss ideas with others Record a step by step plan for making Produce lists for the tools, equipment and materials they will be using Choose materials to use based on suitability of their properties and aesthetic qualities Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) Create pattern pieces and prototypes
		Choose materials to use based on suitability of their properties Create templates/pattern pieces and explore materials whilst developing ideas			
LESSON 4 and 5 –	Choose suitable tools for making whilst explaining why they should be used		Choose suitable tools for making whilst explaining why they should be used		Choose suitable tools for making whilst explaining why they should be used

MAKING/ TECHNICAL KNOWLEDGE Selecting the tools and applying the practical skills and techniques	Follow safety and food hygiene procedures Measure, mark, cut and shape materials and components Join, assemble and combine materials and components		Use design criteria whilst making Follow safety and food hygiene procedures Measure, mark, cut and shape materials and components with some accuracy Join, assemble and combine materials and components with some accuracy Use finishing techniques, including skills learnt in Art with some accuracy	Use design criteria whilst making Follow safety and food hygiene procedures Measure, mark, cut and shape materials and components accurately Join, assemble and combine materials and components accurately Demonstrate problem solving skills when encountering a mistake or practical problem	
		Use finishing techniques, including skills learnt in Art		Use finishing techniques, including skills learnt in Art accurately	Use finishing techniques that involve a number of steps, including skills learnt in Art accurately
LESSON 6 – EVALUATE/ TECHNICAL KNOWLEDGE Referring to planning and initial ideas in evaluating their product	Talk about their design ideas and what they have made Make simple judgements of how the product met their design ideas		Use design criteria to evaluate product – identifying both strengths and areas for development Consider the views of others, including intended user, whilst evaluating product	Consider the views of others, including intended user, whilst evaluating product	

END OF PHASE ASSESSMENT STATEMENTS:

	END OF KEY STAGE 1	END OF YEAR 4	END OF KEY STAGE 2
DESIGNING	<p>I can work confidently within a range of contexts</p> <p>I can use my own experiences to help me plan products</p> <p>I can look at other products to help me plan my own product</p> <p>I can tell you what I am designing and making</p> <p>I can tell you how my product meets the design criteria</p> <p>I can tell you who my product is for and why it will work for that person</p> <p>I can describe what my product can do and how it works</p> <p>I can use drawings to help explain my plan</p>	<p>I can collect information that tells me what a person or group of people need in their planned product</p> <p>I can share my ideas and ask and answer questions about my plan</p> <p>I can tell you my own design criteria and why I have chosen it</p> <p>I can tell you the purpose of my product</p> <p>I can explain how my product meets the design criteria</p> <p>I can explain how my product works</p> <p>I can model my idea using prototypes</p> <p>I can use annotated sketches to help explain how my product works and meets the design criteria</p>	<p>I can collect information in surveys, interviews, questionnaires that tells me what a person or group of people need in their planned product</p> <p>I can use web based resources to carry our research on my planned product</p> <p>I can make a simple design specification to guide my planning</p> <p>I can make design decisions based on time, resource and cost constraints</p> <p>I can tell you my own design criteria and why I have chosen it</p> <p>I can tell you the purpose of my product</p> <p>I can explain how my product meets the design criteria</p> <p>I can explain how my product works</p> <p>I can share my ideas and ask and answer questions about my plan</p> <p>I can model my idea using prototypes</p> <p>I can use cross-sectional drawings and exploded diagrams to help explain how my product works and meets the design criteria</p>
MAKING	<p>I can write simple instructions to help me make my product</p> <p>I can choose the tools and equipment I need to use and explain why</p> <p>I can use the correct materials for the product and explain why</p> <p>I can use the tools and equipment safely</p> <p>I can measure, mark out, cut and shape</p>	<p>I can select the correct tools and materials I need and explain why</p> <p>I can write instructions that order the steps to make my product</p> <p>I can use a range of tools and equipment safely</p> <p>I can measure, mark out, cut and shape materials with increased accuracy</p>	<p>I can write a design plan that identifies the tools, equipment and materials I will need and gives step-by-step instructions with annotated diagrams</p> <p>I can use a range of tools and equipment safely</p> <p>I can accurately measure, mark out, cut and shape materials</p>

	<p>materials</p> <p>I can assemble, join and combine materials</p>	<p>I can assemble, join and combine materials with increased accuracy</p>	<p>I can accurately assemble, join and combine materials with increased accuracy</p> <p>I can demonstrate resourcefulness when tackling practical problems</p>
EVALUATING	<p>I can make simple judgments about whether my product meets the design criteria</p> <p>I can tell you how my product could be improved</p> <p>When I am looking at existing products I can ask and answer questions about the product</p>	<p>I can use the design criteria to evaluate my product</p> <p>I can suggest ways in which my product is successful and ways it could be improved</p> <p>I can ask others to try my product and ask questions to help improve my product</p> <p>When I am looking at existing products I can ask and answer questions about the product</p> <p>I know about inventors, designers, engineers, chefs and manufacturers who have developed ground- breaking products</p>	<p>I can evaluate my ideas and design against the original design specifications</p> <p>When I am looking at existing products I can ask and answer questions about the product</p> <p>I know about inventors, designers, engineers, chefs and manufacturers who have developed ground- breaking products</p>
TECHNICAL KNOWLEDGE	<p>I can tell you why my materials are suitable to build my product</p> <p>I can tell you how simple mechanisms such as levers, sliders, wheels and axles work</p> <p>I can tell you how free standing structures can be made stronger , stiffer and more stable</p>	<p>I can explain how my knowledge of science and mathematics have helped me design and make my products</p> <p>I can explain a materials functional and/or aesthetic qualities and why it is suitable for my product</p> <p>I can explain how levers and linkages or pneumatic systems create movement</p> <p>I can use simple electrical circuits in a product</p> <p>I can make a strong, stiff shell structure</p>	<p>I can explain how my knowledge of science and mathematics have helped me design and make my products</p> <p>I can explain a materials functional and/or aesthetic qualities and why it is suitable for my product</p> <p>I can explain how cams, pulleys or gears create movement</p>
COOKING AND NUTRITION	<p>I know that all foods comes from plants and animals</p> <p>I know that food has to be farmed, grown or caught</p> <p>I can name and sort foods into the 5 groups on The Eatwell Plate</p>	<p>I know that food ingredients can be fresh, cooked or processed</p> <p>I know that food is grown, reared and caught in the UK, Europe and the wider world</p> <p>I can prepare simple cooked savoury</p>	<p>I know that seasons could affect food availability</p> <p>I know how food is processed into ingredients that can be eaten or used in cooking</p> <p>I can mix, knead and bake foods safely</p>

	I know that we should eat at least 5 portions of fruit and vegetables in a day I can prepare simple dishes without cooking them I can chop, peel and grate foods safely	dishes I can chop, peel, grate, slice, spread and bake foods safely I know what a healthy diet is and can talk about the Eatwell Plate I know that my body needs food and drink to be active and healthy	I know that different foods and drinks contain different substances, nutrients, water and fibre, and we need these to be healthy I know I can change recipes to change the appearance, taste, texture and aroma of my dish
--	---	---	---

IMPACT:

The impact of the curriculum will be reviewed at the end of the year through observations and assessments of pupils' learning and through pupil discussions about their learning. These will be undertaken by the Curriculum Lead and members of our Governing Body.

NAWTON COMMUNITY PRIMARY SCHOOL UNITS OF WORK:

YEAR A:

YEAR 1 AND 2 – Cooking and Nutrition – fruit or vegetable?

YEAR A	ASPECT OF DESIGN AND TECHNOLOGY:	EXEMPLAR PRODUCTS: Salads/ smoothies	DEVELOPING JOINING SKILLS:
YEARS 1 AND 2	DESIGN AND TECHNOLOGY FOCUS:	PURPOSE OF THE PRODUCT:	DEVELOPING USING TOOLS:
PRIOR LEARNING IN DESIGN AND TECHNOLOGY:	KEY VOCABULARY:	FOCUS DESIGNER/S: Watch a chef preparing fruit and vegetables – Mr Owuor	WORKING SAFELY:
PRIOR LEARNING LINKS FROM THE WIDER CURRICULUM:		KEY KNOWLEDGE ABOUT FOCUS DESIGNER/S:	DEVELOPING DEEPER UNDERSTANDING:

LINKS TO THE WIDER CURRICULUM: Lesson 1 – mathematics Lesson 2 – art and design			

YEAR 1 AND 2 – DESIGN, MAKE AND EVALUTE A CARGO FERRY

YEAR A	ASPECT OF DESIGN AND TECHNOLOGY:	EXEMPLAR PRODUCTS:	DEVELOPING JOINING SKILLS:
YEARS 1 AND 2	DESIGN AND TECHNOLOGY FOCUS:	PURPOSE OF THE PRODUCT:	DEVELOPING USING TOOLS:
PRIOR LEARNING IN DESIGN AND TECHNOLOGY:	KEY VOCABULARY:	FOCUS DESIGNER/S:	DEVELOPING DEEPER UNDERSTANDING:
PRIOR LEARNING LINKS FROM THE WIDER CURRICULUM:		KEY KNOWLEDGE ABOUT FOCUS DESIGNER/S:	

YEAR 1 AND 2 – DESIGN, MAKE AND EVALUTE AN AIRPLANE

YEAR A	ASPECT OF DESIGN AND TECHNOLOGY:	EXEMPLAR PRODUCTS:	DEVELOPING JOINING SKILLS:
YEARS 1 AND 2	DESIGN AND TECHNOLOGY FOCUS:	PURPOSE OF THE PRODUCT:	DEVELOPING USING TOOLS:
PRIOR LEARNING IN DESIGN AND TECHNOLOGY:	KEY VOCABULARY:	FOCUS DESIGNER/S:	DEVELOPING DEEPER UNDERSTANDING:
PRIOR LEARNING LINKS FROM THE WIDER CURRICULUM:		KEY KNOWLEDGE ABOUT FOCUS DESIGNER/S:	

YEAR 1 AND 2 – DESIGN, MAKE AND EVALUATE A FREE STANDING TUDOR HOUSE

YEAR A	ASPECT OF DESIGN AND TECHNOLOGY:	EXEMPLAR PRODUCTS:	DEVELOPING JOINING SKILLS:
YEARS 1 AND 2	DESIGN AND TECHNOLOGY FOCUS:	PURPOSE OF THE PRODUCT:	DEVELOPING USING TOOLS:
PRIOR LEARNING IN DESIGN AND TECHNOLOGY:	KEY VOCABULARY:	FOCUS DESIGNER/S:	DEVELOPING DEEPER UNDERSTANDING:
PRIOR LEARNING LINKS FROM THE WIDER CURRICULUM:		KEY KNOWLEDGE ABOUT FOCUS DESIGNER/S:	

YEAR 1 AND 2 – DESIGN, MAKE AND EVALUATE A KENYA MOVING POSTCARD

YEAR A	ASPECT OF DESIGN AND TECHNOLOGY:	EXEMPLAR PRODUCTS:	DEVELOPING JOINING SKILLS:
YEARS 1 AND 2	DESIGN AND TECHNOLOGY FOCUS:	PURPOSE OF THE PRODUCT:	DEVELOPING USING TOOLS:
PRIOR LEARNING IN DESIGN AND TECHNOLOGY:	KEY VOCABULARY:	FOCUS DESIGNER/S:	DEVELOPING DEEPER UNDERSTANDING:
PRIOR LEARNING LINKS FROM THE WIDER CURRICULUM:		KEY KNOWLEDGE ABOUT FOCUS DESIGNER/S:	

ROSEDALE ABBEY COMMUNITY PRIMARY SCHOOL – UNITS OF WORK: