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 24 hours per year will be allocated to Design and Technology. The Design and Technology Curriculum will be introduced through wider links to the curricuoum:

ACADEMIC YEAR 2023/2024	ACADEMIC YEAR 2024/2025	ACADEMIC YEAR 2025/2026	ACADEMIC YEAR 2026/2027	ACADEMIC YEAR 2027/2028	ACADEMIC YEAR 2028/2029	ACADEMIC YEAR 2029/20230
YEAR A	YEAR B	YEAR A	YEAR B	YEAR A	YEAR B	YEAR A

TWO YEARLY DESIGN AND TECHNOLOGY LONG TERM PLAN:

		AUTUMN TERM	SPRING TERM	SUMMER TERM
YEAR A	YEAR 1/2	Design, make and evaluate free standing Tudor houses	Design, make and evaluate Gambian moving postcard (levers and sliders)	
	YEAR 3/4	Programme a buggy with intent! (Control)		Roman Catapults (Lever and fulcrum)
	YEAR 5/6	Crumble Card Buggy (Control)		Design a mechanism that uses gears to increase torque
YEAR B	YEAR 1/2	Building and Structures – buildings in Nawton and Rosedale Abbey (Make structures that are stronger, stiffer and more stable)	Making and designing a train (wheels and axels)	
	YEAR 3/4	Syringe powered lift! (Pneumatic systems)	Bridges - Structures, strengthening and joining.	Light it up! (simple electrical circuits with a battery and LEDS)
	YEAR 5/6	Wind Power (electric circuits with a motor, a switch and a light)	Mayan Maize Challenge (pulleys)	Moving Toy (Cams)

TEACHING DESIGN AND TECHNOLOGY:

NURSERY SUBJECT CONTENT AND COVERAGE:

Design	Make	Evaluate	Structures	Food
Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them.	Use one-handed tools and equipment, for example, making snips in paper with scissors. Join different materials and explore different textures. Explore Mechanical equipment.	Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. Make simple explanations	Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.	Start to eat independently and learning how to use a knife and fork. Make healthy choices about food, drink, activity and toothbrushing. Use knives to chop a range of ingredients.

RECEPTION SUBJECT CONTENT AND COVERAGE:

Design	Make	Evaluate	Structures	Food
Explore, use and refine a variety of artistic effects to express their ideas and feelings. Create collaboratively, sharing ideas, resources and skills.	Use different techniques for joining materials such as how to use adhesive tape and different sorts of glue. Use natural materials to make a product.	Return to and build on their previous learning, refining ideas and developing their ability to represent them. ELG: Share their creations, explaining the process they have used.	Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons. ELG: Safely use and explore a variety of tools and techniques experimenting with colour, design, texture, form and function.	Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity, - healthy eating, - toothbrushing, - sensible amounts of 'screen time', - having a good sleep routine, - being a safe pedestrian. ELG: Use a range of small tools, including scissors, paintbrushes and cutlery.

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 interative 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
Design purposeful, functional, appealing products for themselves and other users	Select from and use a range of tools and equipment to perform practical tasks [for	Explore and evaluate a range of existing products	Build structures, exploring how they can be made stronger, stiffer and more	Uses the basic principles of a healthy and varied diet to prepare dishes

based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	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	Evaluate their ideas and products against design criteria	stable Explore and use mechanisms - levers, sliders, wheels and axles, in their products.	Understand where food comes from

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
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	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	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	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products gears, pulleys, cams, levers and linkages. Understand and use electrical systems in their products - series circuits incorporating switches, bulbs, buzzers and motors Apply their understanding of computing to program, monitor and control their products.	Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominately 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

		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

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 – MAKING/ TECHNICAL KNOWLEDGE Selecting the tools and applying the practical skills and techniques	Choose suitable tools for making whilst explaining why they should be used Follow safety and food hygiene procedures Measure, mark, cut and shape materials and components Join, assemble and combine materials and components		Choose suitable tools for making whilst explaining why they should be used 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		Choose suitable tools for making whilst explaining why they should be used 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/	Talk about their design ideas and what they have made		Use design criteria to evaluate product – identifying both strengths and areas for		Consider the views of others, including intended user, whilst evaluating product	

TECHNICAL KNOWLEDGE Referring to planning and initial ideas in evaluating their product	Make simple judgements of how the product met their design ideas	development Consider the views of others, including intended user, whilst evaluating product	

END OF PHASE ASSESSMENT STATEMENTS:

By the end of Reception:

- Hold converstations when engaged in back and forth exchanges with the teacher and peers
- Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary
- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate
- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Use a range of small tools, including scissors, paintbrushes and cutlery.
- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.
- Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.
- Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when
- Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher
- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Share their creations, explaining the process they have used.
- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate.
- Use a range of small tools, including scissors, paint brushes and cutlery

EARLY LEARNING GOAL (END OF RECEPTION):

Physical Development - Fine Motor Skills	Expressive Arts and Design Creating with Materials
Use a range of small tools, including scissors, paintbrushes and cutlery.	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used

KS1 READINESS INDICATORS:

Design	Make	Evaluate	Structures	Food
Describe something they want to make / build / construct Say who they are making / building / constructing for Talk about what materials they are going to use when making / building / constructing	Make / build / construct objects using a variety of materials Join materials together when making / building / constructing	Talk about their constructions / products, and what they are pleased with Talk about their constructions and say how it could be even better Talk about everyday objects that they like and say why they are good	Build / construct structures from a range of materials to a design brief that they have created or been given. Build / construct structures that are tall or strong. Know that tape and glue can join materials together and can make structures stronger.	Recognise different foods as either healthy or unhealthy Know how to use basic cutlery and utensils to make and eat food Follow simple instructions to make different foods Know when we make food for other people that it needs to be appealing.

	END OF KEY STAGE 1	END OF YEAR 4	END OF KEY STAGE 2
DESIGNING	I can work confidently within a range of contexts I can use my own experiences to help me plan products I can look at other products to help me plan my own product I can tell you what I am designing and making I can tell you how my product meets the design criteria	I can collect information that tells me what a person or group of people need in their planned product I can share my ideas and ask and answer questions about my plan I can tell you my own design criteria and why I have chosen it I can tell you the purpose of my product I can explain how my product meets the design criteria	I can collect information in surveys, interviews, questionnaires that tells me what a person or group of people need in their planned product I can use web based resources to carry our research on my planned product I can make a simple design specification to guide my planning I can make design decisions based on time, resource and cost constraints

	I can tell you who my product is for and why it will work for that person I can describe what my product can do and how it works I can use drawings to help explain my plan	I can explain how my product works I can model my idea using prototypes I can use annotated sketches to help explain how my product works and meets the design criteria	I can tell you my own design criteria and why I have chosen it I can tell you the purpose of my product I can explain how my product meets the design criteria I can explain how my product works I can share my ideas and ask and answer questions about my plan I can model my idea using prototypes I can use cross-sectional drawings and exploded diagrams to help explain how my product works and meets the design criteria
MAKING	I can write simple instructions to help me make my product I can choose the tools and equipment I need to use and explain why I can use the correct materials for the product and explain why I can use the tools and equipment safely I can measure, mark out, cut and shape materials I can assemble, join and combine materials	I can select the correct tools and materials I need and explain why I can write instructions that order the steps to make my product I can use a range of tools and equipment safely I can measure, mark out, cut and shape materials with increased accuracy I can assemble, join and combine materials with increased accuracy	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 I can use a range of tools and equipment safely I can accurately measure, mark out, cut and shape materials I can accurately assemble, join and combine materials with increased accuracy I can demonstrate resourcefulness when tackling practical problems
EVALUATING	I can make simple judgments about whether my product meets the design criteria I can tell you how my product could be improved When I am looking at existing products I can ask and answer questions about the product	I can use the design criteria to evaluate my product I can suggest ways in which my product is successful and ways it could be improved I can ask others to try my product and ask questions to help improve my product When I am looking at existing products I can ask and answer questions about the product I know about inventors, designers,	I can evaluate my ides and design against the original design specifications When I am looking at existing products I can ask and answer questions about the product I know about inventors, designers, engineers, chefs and manufacturers who have developed ground- breaking products

		engineers, chefs and manufacturers who have developed ground- breaking products	
TECHNICAL KNOWLEDGE	I can tell you why my materials are suitable to build my product I can tell you how simple mechanisms such as levers, sliders, wheels and axles work I can tell you how free standing structures can be made stronger , stiffer and more stable	I can explain how my knowledge of science and mathematics have helped me design and make my products I can explain a materials functional and/or aesthetic qualities and why it is suitable for my product I can explain how levers and linkages or pneumatic systems create movement I can use simple electrical circuits in a product I can make a strong, stiff shell structure	I can explain how my knowledge of science and mathematics have helped me design and make my products I can explain a materials functional and/or aesthetic qualities and why it is suitable for my product I can explain how cams, pulleys or gears create movement
COOKING AND NUTRITION	I know that all foods comes from plants and animals I know that food has to be farmed, grown or caught I can name and sort foods into the 5 groups on The Eatwell Plate 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	I know that food ingredients can be fresh, cooked or processed I know that food is grown, reared and caught in the UK, Europe and the wider world I can prepare simple cooked savoury 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 seasons could affect food availability I know how food is processed into ingredients that can be eaten or used in cooking I can mix, knead and bake foods safely 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.