



All Saints CE Primary School & Nursery
Subject: DT

Foundation Subject Overview

HOW DOES THIS SUBJECT FIT IN?

KS1 National Curriculum:

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, such as the home and school, gardens and playgrounds, the local community, industry and the wider environment. When designing and making, pupils should be taught to:

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.

Make

- select from and use a range of tools and equipment to perform practical tasks such as 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

- explore and evaluate a range of existing products.
- evaluate their ideas and products against design criteria.

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable.
- explore and use mechanisms, such as levers, sliders, wheels and axles, in their products.

Cooking and nutrition

- use the basic principles of a healthy and varied diet to prepare dishes.
- understand where food comes from.

KS2 National Curriculum:

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, such as the home, school, leisure, culture, enterprise, industry and the wider environment. When designing and making, pupils should be taught to:

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.

Make

- select from and use a wider range of tools and equipment to perform practical tasks, such as 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.

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

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages.
- understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors.
- apply their understanding of computing to programme, monitor and control their products.

Cooking and nutrition

- 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

Characteristics of DT (from National Curriculum):

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.

- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

What this looks like:

- Pupils should 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.

Year 1 Objectives:

Design

- **Generate ideas by drawing on own and other people's experiences.**
- **Develop ideas by shaping materials and putting together components.**
- **Talk about their ideas.**
- Plan by suggesting what to do next as their ideas develop.
- Model and communicate their ideas using a variety of methods, including drawing and making models.
- Use information and communication technology to support their design.

Make

- **Select tools, techniques and materials for making their product from a range suggested by the teacher.**
- **Explore the sensory qualities of materials.**
- Measure, mark out, cut and shape a range of materials.
- Assemble, join and combine materials and components.
- Use simple finishing techniques to improve the appearance of their product, using a range of equipment.
- **Follow safe procedures for food safety and hygiene.**

Evaluate

- **Talk about their ideas, saying what they like and dislike.**
- **Discuss changes made during the making process.**
- Discuss how closely their finished products meet their design criteria.
- Identify what they could have done differently or how they could improve their design and model in the future.
- **Explore and simply evaluate a range of existing products.**

Construction

Making castles cardboard construction
Build structures and explore how they can be made stronger.
Know about the working characteristics of materials, e.g. Folding paper to make it stiffer

Mechanisms

Moving pictures (levers)
Explore and use mechanisms in their products.
Know how mechanisms can be used in different ways, e.g. joints that allow movement.

Textiles

NA

Cooking and Nutrition

Making a healthy breakfast
use the basic principles of healthy and varied diet to prepare dishes
understand where food comes from

Year 2 Objectives:	<p>Design</p> <ul style="list-style-type: none"> • Generate ideas by drawing on own and other people’s experiences. • Develop ideas by shaping materials and putting together components. • Talk about their ideas. • Plan by suggesting what to do next as their ideas develop. • Model and communicate their ideas using a variety of methods, including drawing and making models. • Use information and communication technology to support their design. <p>Make</p> <ul style="list-style-type: none"> • Select tools, techniques and materials for making their product from a range suggested by the teacher. • Explore the sensory qualities of materials. • Measure, mark out, cut and shape a range of materials. • Assemble, join and combine materials and components. • Use simple finishing techniques to improve the appearance of their product, using a range of equipment. <p>Evaluate</p> <ul style="list-style-type: none"> • Talk about their ideas, saying what they like and dislike. • Discuss changes made during the making process. • Discuss how closely their finished products meet their design criteria. • Identify what they could have done differently or how they could improve their design and model in the future. • Explore and evaluate a range of existing products. 			
	Construction	Mechanisms	Textiles	Cooking and Nutrition
	Paper mache planets Build structures and explore how they can be made stronger.	Wheels, axles and winding mechanisms Explore and use mechanisms in their products. Know how mechanisms can be used in different ways, e.g. Wheels and axles,	Making puppets Know about the working characteristics of materials, e.g. plaiting yarn to make it stronger.	If time permits use the basic principles of healthy and varied diet to prepare dishes understand where food comes from
Year 3 Objectives:	<p>Design</p> <ul style="list-style-type: none"> • Begin to generate ideas for products. <ul style="list-style-type: none"> ○ Through the use of research. ○ To create an innovative, functional and appealing product that that is fit for purpose and aimed at particular individuals or groups. • Develop ideas and explain them clearly. • Create a clear step-by-step plan. • Begin to develop a variety of ways to model and communicate their design ideas, bearing in mind aesthetic qualities, and the uses and purposes for which the product is intended. <ul style="list-style-type: none"> ○ Through discussion, annotated sketches, cross-sectional diagrams and computer-aided design. <p>Make</p> <ul style="list-style-type: none"> • Begin to independently select appropriate tools and techniques to perform practical tasks. <ul style="list-style-type: none"> ○ For example, cutting, shaping, joining and finishing. • Begin to explore alternative ways of making their product, if first attempts fail. • Explore the sensory and aesthetic qualities of materials and components. Including construction materials, textiles and ingredients. 			

	<ul style="list-style-type: none"> Explore the functional properties of a range of materials and components. Measure, mark out, cut and shape a range of materials accurately. Begin to assemble, join and combine components and materials. Begin to use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT, e.g. 'Drawing' software or computer-aided design (CAD) software and a printer. Follow safe procedures for food safety and hygiene. <p>Evaluate</p> <ul style="list-style-type: none"> Reflect on the progress of their work as they design and make, identifying ways they could improve their products. Explain clearly any improvements that they would make, e.g., identifying how/ why these improvements will affect the final product. Begin to recognise that the quality of a product depends on how well it is made and how well it meets its intended purpose, e.g. How well do products meet social, economic and environmental considerations? 			
	Construction	Mechanisms	Textiles	Cooking and Nutrition
N/A	Pneumatic models: Moving books <ul style="list-style-type: none"> Begin to understand how the working characteristics of materials affect the ways they are used. Begin to understand how mechanisms can be used to make things move in different ways. For example, gears, pulleys, cams, levers and linkages	N/A	Bread making <ul style="list-style-type: none"> 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 	
Year 4 Objectives:	<p>Design</p> <ul style="list-style-type: none"> Begin to generate ideas for products. <ul style="list-style-type: none"> Through the use of research. To create an innovative, functional and appealing product that that is fit for purpose and aimed at particular individuals or groups. Develop ideas and explain them clearly. Create a clear step-by-step plan. Begin to develop a variety of ways to model and communicate their design ideas, bearing in mind aesthetic qualities, and the uses and purposes for which the product is intended. <ul style="list-style-type: none"> Through discussion, annotated sketches, cross-sectional diagrams and computer-aided design. <p>Make</p> <ul style="list-style-type: none"> Begin to independently select appropriate tools and techniques to perform practical tasks. <ul style="list-style-type: none"> For example, cutting, shaping, joining and finishing. Begin to explore alternative ways of making their product, if first attempts fail. Explore the sensory and aesthetic qualities of materials and components. Including construction materials, textiles and ingredients. Explore the functional properties of a range of materials and components. Measure, mark out, cut and shape a range of materials accurately. Begin to assemble, join and combine components and materials. Begin to use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT, e.g. 'Drawing' software or computer-aided design (CAD) software and a printer. <p>Evaluate</p> <ul style="list-style-type: none"> Reflect on the progress of their work as they design and make, identifying ways they could improve their products. 			

	<ul style="list-style-type: none"> • Explain clearly any improvements that they would make, e.g., identifying how/ why these improvements will affect the final product. • Begin to recognise that the quality of a product depends on how well it is made and how well it meets its intended purpose, e.g. How well do products meet social, economic and environmental considerations? 			
	Construction	Mechanisms	Textiles	Cooking and Nutrition
Chair building	<ul style="list-style-type: none"> • Begin to understand how the working characteristics of materials affect the ways they are used. • Begin to understand how materials can be combined and mixed to create more useful properties, e.g. Using cardboard triangles on the corners of a wooden framework to strengthen it. 	Weather quiz/torch (construction) <ul style="list-style-type: none"> • Begin to understand how electrical circuits, including those with simple switches, can be used to achieve results that work. For example, series circuits incorporating switches, bulbs, buzzers and motors. 	Stitching and fastenings <ul style="list-style-type: none"> • Measure, mark out and cut fabric accurately. • Use different types of stitching eg. running, over, back, cross stitch • Find ways to fasten and join material eg. buttons and zips. 	N/A healthy eating covered in science
Year 5 Objectives:	Design <ul style="list-style-type: none"> • Generate ideas for products. <ul style="list-style-type: none"> ○ Using information from a number of sources, including ICT-based sources. ○ To create an innovative, functional and appealing product that that is fit for purpose and aimed at particular individuals or groups. • Develop in-depth ideas and explain them clearly, putting together a list of what they want their design to achieve. • Plan what they have to do, suggesting a sequence of actions and alternatives, if needed. • Model and communicate design ideas in different ways as these develop, bearing in mind aesthetic qualities, and the uses and purposes for which the product is intended. • Through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. 			
	Make <ul style="list-style-type: none"> • Select appropriate tools and techniques for making their product and perform practical tasks accurately. • Suggest alternative ways of making their product, if first attempts fail. • 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. • Use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT, e.g. 'Drawing' software or computer-aided design (CAD) software and a printer. 			
	Evaluate <ul style="list-style-type: none"> • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria. • Reflect on their own work and consider the views of others when making improvements. • Carry out appropriate tests before making any improvements. • Understand how key events and individuals in design and technology have helped shape the world. 			
Construction	Mechanisms	Textiles	Cooking and Nutrition	
Making containers	Moving toys	Textiles – making a finished product (whole class piece of individual item using a combination of fastenings and stitches)	N/A	
<ul style="list-style-type: none"> • Measure, mark out, cut and shape a range of materials accurately. 	<ul style="list-style-type: none"> • Understand and use mechanical systems in their products. 			

	<ul style="list-style-type: none"> Assemble, join and combine components and materials accurately. Know how the working characteristics of materials affect the ways they are used. 	<ul style="list-style-type: none"> For example, gears, pulleys, cams, levers and linkages 	<ul style="list-style-type: none"> Measure, mark out, cut and shape materials accurately. Assemble, join and combine components and materials accurately. 	
Year 6 Objectives:	<p>Design</p> <ul style="list-style-type: none"> Generate ideas for products. <ul style="list-style-type: none"> Using information from a number of sources, including ICT-based sources. To create an innovative, functional and appealing product that that is fit for purpose and aimed at particular individuals or groups. Develop in-depth ideas and explain them clearly, putting together a list of what they want their design to achieve. Plan what they have to do, suggesting a sequence of actions and alternatives, if needed. Model and communicate design ideas in different ways as these develop, bearing in mind aesthetic qualities, and the uses and purposes for which the product is intended. Through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <p>Make</p> <ul style="list-style-type: none"> Select appropriate tools and techniques for making their product and perform practical tasks accurately. Suggest alternative ways of making their product, if first attempts fail. 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. Use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT, e.g. 'Drawing' software or computer-aided design (CAD) software and a printer. Understand the reasons for and independently follow safe procedures for food safety and hygiene. <p>Evaluate</p> <ul style="list-style-type: none"> Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria. Reflect on their own work and consider the views of others when making improvements. Carry out appropriate tests before making any improvements. Understand how key events and individuals in design and technology have helped shape the world. 			
	Construction	Mechanisms	Textiles	Cooking and Nutrition
	Tudor houses <ul style="list-style-type: none"> Apply their understanding of how materials can be combined and mixed to create more useful properties, e.g. using cardboard triangles on the corners of a wooden framework to strengthen it. 	Green vehicles <ul style="list-style-type: none"> Recognise that the quality of a product depends on how well it is made and how well it meets its intended purpose, e.g. How well do products meet social, economic and environmental considerations? 	N/A	Mexican food <ul style="list-style-type: none"> 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

	<ul style="list-style-type: none"> ○ How to strengthen, stiffen and reinforce complex structures. <p>Know how the working characteristics of materials affect the ways they are used.</p>	<ul style="list-style-type: none"> ● Understand and use electrical systems in their products. <p>For example, series circuits incorporating switches, bulbs, buzzers and motors.</p> <p>Apply their knowledge of computing to programme, monitor and control their products.</p>		<ul style="list-style-type: none"> ● understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed
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