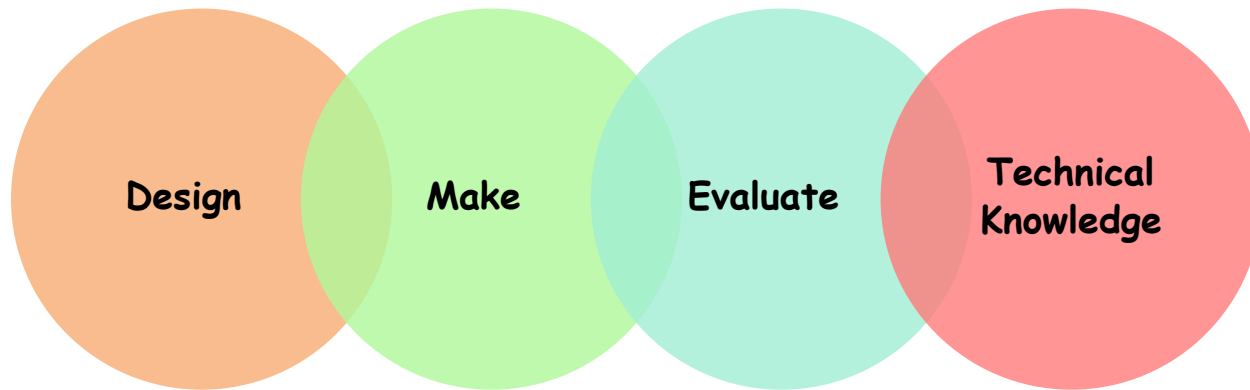


Angram Bank's Big Bus Curriculum

Design and Technology



Design and Technology

The **intention** of our D&T curriculum is to ensure that, through EYFS, KS1 and KS2, our children are taught the knowledge, understanding and skills to engage with the process of designing and making. We **implement** this through teaching our pupils to design, make and evaluate, whilst developing their technical knowledge in a wide range of contexts. Cooking and nutrition focuses on a healthy diet and an understanding of where food comes from. The **impact** is that throughout their time in school children experience a variety of creative and practical activities which develop their DT knowledge, skills and understanding.

Design and Planning Non-Negotiables

- National Curriculum subject aims highlighted to show coverage
- Relevant National Curriculum statements
- Teaching sequences are informed by the progression framework from The Design and Technology Association
- Key vocabulary and **concepts** are identified and taught throughout the teaching sequence
- Sequences start with revisiting previous learning and have **identified end points**
- **SMSC links shown in sequence**
- Our sequences are broken down into smaller learning steps in our Red Planning and Assessment Books
- Health and safety is integral to each sequence.



Angram Bank's Design & Technology Key Concepts

Every child will become confident with the key concepts in Design & Technology. Each concept will be further developed in each key stage at the appropriate depth. These concepts will be shown in **bold** throughout the document.

Green = new to that key stage

FS	select construct design purpose user join		select construct design purpose user join
KS1	select construct design purpose user join generate, develop, model and communicate products evaluate structure mechanisms	KS2	generate, develop, model and communicate products evaluate structure mechanisms investigate and analyse prepare and cook mechanical systems electrical systems

Foundation Stage

Expressive Arts and Design in Early Years

The Foundations of Design and Technology

Intent: By the end of Reception children will safely use and explore a variety of materials, tools and techniques experimenting with colour, **design**, texture form and function. Children will use what they have learnt about media and materials to plan in original ways thinking about **uses** and **purposes**.

Creating with Materials

The **user** experiments with blocks, colours or marks.

Explores colour and how colours can be changed. Understands that they can use lines to enclose a space and begins to use shapes to represent objects. Begins to describe the texture of things. Uses various construction materials and is beginning to **construct**, stacking blocks, making enclosures and creating spaces. **Joins** construction pieces together to build and balance. Realises tools can be used for a **purpose**.

Explores what happens when they mix colours. Experiments to create different textures. Understands that different media can be combined to create new effects. Manipulate materials to create planned effects. Constructs with a **purpose** in mind with a variety of resources. Uses simple tools and techniques competently and appropriately. **Selects** appropriate resources and adapts work where necessary. **Selects** the tools and techniques needed to shape, assemble and **join** the materials they are using.

Being imaginative

Beginning to use representation to communicate their **design**.

creates simple representations of events, people and objects. Chooses particular colours to use for a **purpose**.

Early Learning Goal - Identified end point

Early Learning Goal - Identified end point

Early Learning Goal - Identified end point

Creating with Materials

Children will be able to safely use and explore materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will be able to share their creations, explaining the process they have used; make use of props and materials when role playing characters narratives and stories.

Fine Motor Skills

Children will be able to use a pencil effectively using a tripod grip in almost all cases.

Children should be able to use a range of small tools, including scissors, paint brushes and cutlery.

Children will be able to show accuracy and care when drawing.

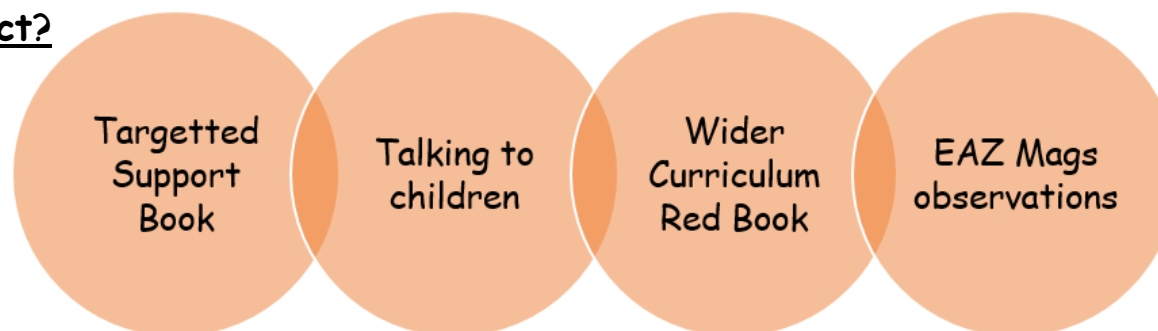
Being imaginative and Expressive

Children will be able to invent, adapt, and recount narratives and stories with peers and their teacher.

Sequence of implementation

Nursery FS1	<ul style="list-style-type: none">• Support children's responses to different textures, e.g. touching sections of a texture display with their fingers, or feeling it with their cheeks to get a sense of different properties.• Support children in thinking about what they want to make, the processes that may be involved and the materials and resources they might need, such as a photograph to remind them what the climbing frame is like. Questions to extend children's ideas of what is possible, for example, "I wonder what would happen if...". Introduce children to a wide range of painting or sculpture.• Demonstrate and teach skills and techniques associated with the things children are doing, for example, show them how to stop the paint from dripping or how to balance bricks so that they will not fall down.• Encourage children to take time to think about painting or sculpture that is unfamiliar to them before they talk about it or express an opinion.
Reception FS2	<ul style="list-style-type: none">• Talk to children about ways of finding out what they can do with different media and what happens when they put different things together such as sand, paint and sawdust.• Encourage children to notice changes in properties of media as they are transformed through becoming wet, dry, flaky or fixed. Talk about what is happening, helping them to think about cause and effect.• Provide resources for mixing colours, joining things together and combining materials, demonstrating where appropriate.• Provide children with opportunities to use their skills and explore concepts and ideas through their representations.• Have an area where models and works can be retained for a period for children to enjoy, develop, or refer to.• See curriculum objectives for identified end points

Where will we see the impact?



Design & Technology Overview

	Food	Mechanics / mechanical systems	Structures	Textiles	Electrical Systems
Year 1	Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Sliders and levers	Freestanding structures		
Year 2	Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Wheels and axles		Templates and joining techniques	
Year 3	Healthy and varied diet (including cooking and nutrition requirements for KS2)		Frame structures	2D shape to 3D product	
Year 4	Healthy and varied diet (including cooking and nutrition requirements for KS2)	levers and linkages			Simple circuits and switches (including programming and control)
Year 5	Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)			Combining different fabric shapes (including computer aided-design)	Using more complex switches and circuits (including programming, control and monitoring)
Year 6	Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Pulleys, gears or cams	Shell structures (including computer aided design)		

Design and Technology - The National Curriculum

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for geography 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.

Key Stage One

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 and school, gardens and playgrounds, the local community, industry and the wider environment].

Key stage 1

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 and school, gardens and playgrounds, the local community, industry and the wider environment].

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 [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

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 [for example, 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.

Year 1

Progression Statements based on National Curriculum and Identified End Points

	Design	Make	Evaluate	Technical Knowledge
Year 1	<ul style="list-style-type: none"> • Draw on their own experience to help generate ideas. • Suggest ideas and explain what they are going to do. • Say who their products are for. • Communicate their ideas through talking, drawing and modelling. • Model their ideas using paper, card and simple construction material. 	<ul style="list-style-type: none"> • Make their design using appropriate techniques • With help measure, mark out, cut and shape a range of materials. • Use tools <i>eg scissors and a hole punch</i> safely. • Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. • Use simple finishing techniques to improve the appearance of their product. • Select and use appropriate fruit and vegetables, processes and tools. • Use basic food handling, hygienic practices and personal hygiene. 	<ul style="list-style-type: none"> • Evaluate their product by discussing how well it works. • Talk about their ideas, saying what they like and dislike about them. 	<ul style="list-style-type: none"> • About the simple working characteristics of materials and components. • About the movement of simple mechanisms such as levers and sliders. • How freestanding structures can be made stronger, stiffer and more stable.

Project One	Project Two	Project Three
Freestanding structures	Sliders and levers	Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)

Year 2

Progression Statements based on National Curriculum and Identified End Points

	Design	Make	Evaluate	Technical Knowledge
Year 2	<ul style="list-style-type: none"> • Generate ideas by drawing on their own and other people's experiences • Develop their design ideas through discussion, observation, drawing and modelling • Identify a target group for what they intend to design and make • Identify a purpose for what they intend to design and make • Identify simple design criteria 	<ul style="list-style-type: none"> • Begin to select tools and materials; use vocab' to name and describe them. • Measure, cut and score with some accuracy. • Use hand tools safely and appropriately. • Assemble, join and combine materials in order to make a product. • Choose and use appropriate finishing techniques. • Cut, shape and join fabric together to make something. • Follow safe procedures for food safety and hygiene. 	<ul style="list-style-type: none"> • Evaluate their product against their design criteria • Evaluate their products as they have developed, identifying strengths and possible improvements. • Evaluate a range of existing products. 	<ul style="list-style-type: none"> • About the simple working characteristics of materials and components. • That a 3-D textiles product can be assembled from two identical fabric shapes. • About the movement of simple mechanisms such as wheels and axles. • The correct technical vocabulary for the projects they are undertaking.

Project One	Project Two	Project Three
Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Wheels and axles	Templates and joining techniques

Design and Technology - The National Curriculum

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Aims

The national curriculum for geography 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.

Key Stage Two

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].

Key stage 2

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].

Design <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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
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 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 <ul style="list-style-type: none">• apply their understanding of how to strengthen, stiffen and reinforce more complex structures• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]• apply their understanding of computing to program, 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.

Year 3

Progression Statements based on National Curriculum and Identified End Points

	Design	Make	Evaluate	Technical Knowledge
Year 3	<ul style="list-style-type: none"> • Generate ideas for an item, considering its purpose and the user/s • Identify a purpose and establish criteria for a successful product. • Plan the order of their work before starting. • Explore, develop and communicate design proposals by modelling ideas. • Make drawings with labels when designing. 	<ul style="list-style-type: none"> • Select tools and techniques for making their product. • Measure, mark out, cut, score and assemble components with more accuracy. • Work safely and accurately with a range of simple tools. • Think about their ideas as they make progress and be willing change things if this helps them improve their work. • Measure, tape or pin, cut and join fabric with some accuracy. • Demonstrate hygienic food preparation and storage. • Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The eatwell plate'. • Know that to be active and healthy, food and drink are needed to provide energy for the body. 	<ul style="list-style-type: none"> • Evaluate their product against original design criteria e.g. how well it meets its intended purpose. • Disassemble and evaluate familiar products. 	<ul style="list-style-type: none"> • How mechanical systems such as levers and linkages or pneumatic systems create movement. • That a single fabric shape can be used to make a 3D textiles product.

Project One	Project Two	Project Three
Healthy and varied diet (including cooking and nutrition requirements for KS2)	Frame structures	2D shape to 3D product

Year 4

Progression Statements based on National Curriculum and **Identified End Points**

	Design	Make	Evaluate	Technical Knowledge
Year 4	<ul style="list-style-type: none"> • Generate realistic ideas, focusing on the needs of the user/s. • Gather information about the needs and wants of the user group. • Make labelled drawings from different views showing specific features. • Develop a clear idea of what has to be done. • Evaluate existing products and identify criteria that can be used for their own designs. 	<ul style="list-style-type: none"> • Select appropriate tools and techniques for making their product. • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. • Join and combine materials and components accurately in temporary and permanent ways. • Think about their ideas as they make progress and be willing change things if this helps them improve their work. • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT. • Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens. • Weigh and measure accurately (time, dry ingredients, liquids). 	<ul style="list-style-type: none"> • Use the design criteria to evaluate their completed product. • Evaluate their work both during and at the end of the assignment. • Evaluate their products carrying out appropriate tests. 	<ul style="list-style-type: none"> • How simple electrical circuits and components can be used to create functional products. • How to make strong, stiff shell structures. • How to program a computer to control their products.

Project One	Project Two	Project Three
Levers and linkages	Healthy and varied diet (including cooking and nutrition requirements for KS2)	Simple circuits and switches (including programming and control)

Year 5

Progression Statements based on National Curriculum and Identified End Points

	Design	Make	Evaluate	Technical Knowledge
Year 5	<ul style="list-style-type: none"> Carry out research to identify the needs, wants and preferences of the user group. Generate ideas through brainstorming and identify a purpose for their product. Draw up a specification for their design. Develop a clear idea of what has to be done. Use results of investigations, information sources, including ICT when developing design ideas. 	<ul style="list-style-type: none"> Select appropriate materials, tools and techniques. Measure and mark out accurately. Use skills in using different tools and equipment safely and accurately. Cut and join with accuracy to ensure a good-quality finish to the product. Sew using a range of different stitches, weave and knit. Measure, tape or pin, cut and join fabric with some accuracy. Understand that seasons may affect the food available. Know how food is processed into ingredients that can be eaten or used in cooking. 	<ul style="list-style-type: none"> Critically evaluate a product against the original design specification. Evaluate it personally and seek evaluation from other. 	<ul style="list-style-type: none"> How to program a computer to monitor changes in the environment and control their products. How to reinforce and strengthen a 3D framework. That a 3D textiles product can be made from a combination of fabric shapes.

Project One	Project Two	Project Three
Combing different fabric shapes (including computer aided-design)	Using more complex switches and circuits (including programming, control and monitoring)	Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)

Year 6

Progression Statements based on National Curriculum and Identified End Points

	Design	Make	Evaluate	Technical Knowledge
Year 6	<ul style="list-style-type: none"> • Carry out research to identify the needs, wants and preferences of the user group. • Communicate their ideas through detailed labelled drawings. • Develop a design specification. • Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways. • Plan the order of their work, choosing appropriate materials, tools and techniques taking into account of constraint e.g. time, money, resources. 	<ul style="list-style-type: none"> • Select appropriate tools, materials, components and techniques to make working models. • Use tools safely and accurately. • Construct products using permanent joining techniques. • Make modifications as they go along. • Achieve a quality product. • Know that different food and drink contain different substances - nutrients, water and fibre - that are needed for health • Know that recipes can be adapted to change the appearance, taste, texture and aroma 	<ul style="list-style-type: none"> • Critically evaluate the quality of their product, identifying strengths and areas for development, and carrying out appropriate tests. • Record their evaluations using drawings with labels. • Evaluate against their original criteria and suggest ways that their product could be improved. 	<ul style="list-style-type: none"> • How more complex electrical circuits and components can be used to create functional products. • How mechanical systems such as cams or pulleys or gears create movement.

Project One	Project Two	Project Three
Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Pulleys, gears and coms	Shell structures