



Barnett Wood Infant School

Progression of Knowledge and Skills Document



Design and Technology (DT)

At Barnett Wood Infant School, we believe that high-quality Design and Technology lessons inspire children to want to know more about the design of objects and how things are made. By teaching the subject discretely, we develop children with essential knowledge and skills in order to help them to become inquisitive learners. Children have opportunities to develop a good understanding of different materials including ingredients, tools and techniques that they can continue to develop as they move through their education.

Early Years Foundation Curriculum

In EYFS, Design and Technology begins in 'Expressive Arts and Design' through 'Creating with materials'. Appreciating diversity and multiple perspectives enriches ways of thinking, being, and understanding. Skills are learned in the process of meaning-making, not in isolation. Children will use a variety of materials, tools and techniques, for example building junk boxes to build models beginning to explore different techniques for joining materials and finding ways to make these joins better as well as cutting skills and experimenting with colour, design, form and function. Children share their creations, explaining the processes they have used and begin to make models with a particular purpose in mind. In 'Physical Development' children learn to handle tools and equipment safely and effectively.

Characteristics of Effective Learning

The ways in which a child engages with other people and their environment - playing and exploring, active learning, and creating and thinking critically – underpin learning and development across all areas and support the child to remain an effective and motivated learner. Creative thinking involves original responses, not just copying or imitating existing artworks.

The Specific Areas of Learning

Expressive Arts and Design fosters imagination, curiosity, creativity, cognition, critical thinking and experimentation and provides opportunities to improvise, collaborate, interact and engage in sustained shared thinking. It requires time, space and opportunities to re-visit and reflect on experiences. Multi-sensory, first-hand experiences help children to connect and enquire about the world. Appreciating diversity and multiple perspectives enriches ways of thinking, being, and understanding. Skills are learned in the process of meaning-making, not in isolation.



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Statutory ELG:

'Creating with Materials'. Children at the expected level of development will:

-  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
-  Make use of props and materials when role playing characters in narratives and stories.

National Curriculum Programme of Study for Key Stage 1

By the end of KS1 children will be taught to:

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

As part of their work with food, pupils will 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.

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



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Substantive Knowledge

This is the subject knowledge and explicit vocabulary used to learn about the content. It consists of facts, rules and principles and the relationships between them. It can be described as 'knowing that.' Substantive knowledge in design and technology is based on the knowledge of four key elements of the process of design (design, make, evaluate and technical knowledge). All of these elements will be taught from Reception to Year 2 and vocabulary is taught explicitly and will be deliberately practised and applied through the 4 key elements. These are:

- **Design** - Know how to design a product that is purposeful, functional and appealing to a specific group.
- **Make** - Know how to cut, join and finish a range of increasingly complex materials, ranging from paper to wood.
- **Evaluate** - Know how to investigate, evaluate and analyse a range of existing products and their own designs based on a specific design criteria. In addition to this, children will know key individuals have helped to shape the world in which we live in.
- **Technical knowledge** - Know how to apply their knowledge of specific materials to meet the criteria listed above in the design, make and evaluate stages.

Procedural Knowledge

Procedural knowledge is knowledge about methods and procedures. It can be described as 'knowing how'. It is through procedural knowledge that children gradually become more expert by thinking like designers. Children will learn to follow instructions and procedures to complete tasks such as demonstrating how to make a pattern from fabric for a glove puppet.

Disciplinary Knowledge

Disciplinary knowledge in design and technology is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum. Knowledge in design and technology will equip the children with the opportunity to explain how and why products have changed over time and how they might be further improved in the future. They can use their knowledge and understanding to suggest how existing products may be improved with the advances in modern technology.



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Adapting the curriculum for pupils with SEND in Design and Technology

- Adaptive teaching takes place.
- For sensory or physically impaired pupils, DT learning may necessitate enlarging texts, using clear fonts, using visual overlays, or audio description of images.
- Dyslexic pupils may benefit from well-spaced print.
- Teachers identify and break down the components of the subject curriculum into manageable chunks for pupils who find learning more difficult, particularly those with cognition and learning needs. These may be smaller 'steps' than those taken by other pupils to avoid overloading the working memory.
- A variety of additional scaffolds may be used in lessons, such as simplified knowledge organisers, vocabulary banks, additional visual stimuli or adult support.



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	EYFS	Year 1
Substantive Knowledge (Practical and Theoretical)		
Autumn Term	'All About Me' & 'Let's Celebrate/ Back in Time' - To know how to work safely and hygienically - To know how the mixture will change when heated. - To know how to cut soft fruit using a table knife and vegetables (e.g pepper) for pizza using a kitchen knife - To use different construction kits to build structures - To know the names of different tools (hammer, nails) and how to use safely. - Demonstrate how to use hammer and nails safely. - Demonstrate use of sanding blocks to smooth and shape blocks of balsa wood	Food and Nutrition - That all food comes from plants or animals. - To know how to prepare simple dishes safely and hygienically, without using a heat source. - To know the names of utensils used to chop, cut or peel e.g knife, peeler
	Key Vocabulary: knife, cut, fruit, vegetable, hammer, nail, sanding block, wood, metal	Key Vocabulary: knife, peeler, chopping board, slice, peel, cut, chop, claw grip, design, evaluate, criteria, product, ideas, user, prepare, combine.
Spring Term	'Amazing Animals' & 'On the Move' - To know how to work safely and hygienically - To know how the mixture will change when ingredients are combined and heated to make animal biscuits/cupcakes.	Structures (free standing structures) - To know and use technical vocabulary relevant to the project eg structure, arch, freestanding, stable - To know how to build a stable and strong freestanding structure.



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	 To know the names of different tools (screwdriver, screws, bradawl, saw) and how to use safely.	
	 Key Vocabulary: mix, bake, screwdriver, screws, bradawl, saw	Key Vocabulary: stable, components, frame, base, cut, fold, join, fix, structure, framework, base, triangle, cylinder, function
Summer Term	‘Fun at the Seaside’ & ‘Our Wonderful World’  To know how to use techniques (spreading, cutting-sandwiches with blunt knife) safely.  To know that pizzas are a national dish of Italy (linked to topic of ‘Around the World’).  To use a kitchen knife under 1:1 supervision to chop ingredients such as pepper.  To know the names of different tools (hand drill and G-clamp) and how to use safely.	Mechanisms (levers and sliders)  To know technical vocabulary relevant to the project eg slider, lever, pivot, mechanism, flexible  To know that a mechanism is where materials or components are connected to make movement.  To know the difference between a slider and a lever.  To know what a pivot is.  To name 3 different types of mechanism – pop-up, slider and lever.
	Key Vocabulary: spread, cut, chop, ingredients, vegetable, hand drill, G-Clamp	Key Vocabulary: slider, lever, pivot, slot, bridge, mechanism, flexible, rigid, stiff, squash, bend, twist, stretch, bend, material, properties, appearance, pop-up, curve



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	Year 1	Year 2
Substantive Knowledge (Practical and Theoretical)		
Autumn Term	Food and Nutrition - Know that all food comes from plants or animals. - Know how to prepare simple dishes safely and hygienically, without using a heat source. - Know the names of utensils used to chop, cut or peel e.g knife, peeler	Food and Nutrition - Know that food has to be farmed, grown elsewhere (e.g. at home) or caught (from the sea/water). - Know that fruit and vegetables are part of The Eatwell Plate (link to Science unit of work). - Know that everyone should eat at least 5 portions of fruit and vegetables every day. - Know where a range of fruits and vegetables come from. - Know how to use the bridge grip to cut fruit/veg that might roll on chopping board.
	Key Vocabulary: Knife, peeler, chopping board, slice, peel, cut, chop, design, evaluate, criteria, product, ideas, user, prepare, combine.	Key Vocabulary: savoury, sweet, ingredients, equipment, method, safety, hygiene, drain, grate, cut, bridge method, claw grip, farmed, grown, caught, blend, healthy, combine, allergy
Spring Term	Structures (freestanding structures) - Know and use technical vocabulary relevant to the project eg structure, arch, freestanding, stable - Know how to build a stable and strong freestanding structure.	Mechanisms – Wheels and Axels - Know that wheels can be fixed or free moving. - Identify wheel, axle, axle holder and chassis
	Key Vocabulary: stable, components, cut, fold, join, fix, structure, framework, base, triangle, cylinder, function	Key Vocabulary: wheel, axle, axle holder, chassis, body, cab, fixed, free moving, mechanism, saw, bench hook, cutting jig, dowel, purpose, user



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Summer Term	Mechanisms (levers and sliders) - To know technical vocabulary relevant to the project eg slider, lever, pivot, mechanism, flexible - To know that a mechanism is where materials or components are connected to make movement. - To know the difference between a slider and a lever. - To know what a pivot is. - To name 3 different types of mechanism – pop-up, slider and lever.	Textiles – Templates and joining - Know how to join fabrics together and attach different materials. - Name different fastenings e.g button, zip, toggle, Velcro - Know 3 alternative ways of using templates and simple pattern pieces – clear sticky tape, chalk, pins
	Key Vocabulary: slider, lever, pivot, slot, bridge, mechanism, flexible, rigid, stiff, squash, bend, twist, stretch, bend, material, properties, appearance, pop-up, curve	Key Vocabulary: template, pattern, join, decorate, finish, mock-up, design brief,



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	EYFS	Year 1	Year 2	Year 3
Disciplinary and Procedural Knowledge				
Cooking and Nutrition	- To cut soft fruit using a table knife. (Snack shack) - To roll out pastry and cut circles to make mince pies. - To use non-statutory measures (spoons, cups) to make a simple recipe for cupcakes. - To mix, roll out dough with rolling pin and use cutters to shape before cooking. - To use some cooking techniques (spreading, cutting sandwiches with table knife) - To make mini pizzas	- Follow procedures for safety and hygiene. - How to use techniques such as cutting, chopping and peeling. - How to use claw grip to cut foods safely. - Select from a range of fruits according to their characteristics. - Communicate their ideas through talk and drawings. - Identify the user and key criteria for their product.	- Prepare simple dishes safely and hygienically, without using a heat source - Use techniques such as cutting, peeling and grating. - Demonstrate how to use the bridge method as an alternative way to cut foods safely. - Design appealing products for a particular user based on simple design criteria. - Select from a range of tools and equipment, explaining their choices, following procedures for safety and hygiene. - Explain ideas and finished products against design criteria, including intended user and purpose.	- 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.



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Textiles			- Make a template/pattern ensuring bigger than hand. - Make a mock up considering seam allowance. - Explore different joining techniques including sew, staple, glue and pin. - Follow design to make a puppet from fabric considering where to position on fabric to avoid wastage of material.	- 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 - 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
Mechanisms		- To use technical vocabulary to identify mechanisms with a lever and a pivot. - Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Select from and use the tools, skills and techniques, explaining their choices. - Explain or show how simple mechanisms move. - Be able to identify suitable materials bearing in mind their properties. - Apply chosen mechanism to a celebration card.	- Design a purposeful, functional, appealing product for a particular user based on simple design criteria. - Select from and use a range of tools and equipment to perform practical tasks. - Demonstrate ways of attaching a moving axle to their product. - Evaluate ideas and finished products against design criteria, including intended user and purpose.	- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] - investigate and analyse a range of existing products



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Structures	 Work collaboratively on a project of the children's choice using the skills and knowledge gained over their Reception year.	 Generate ideas based on simple design criteria and their own experiences, explaining what they could make.  Select from and use tools, skills and techniques, explaining their choices.  Evaluate their ideas and finished products against design criteria, including intended user and purpose.		 select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately apply their understanding of how to strengthen, stiffen and reinforce more complex structures  evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
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