

**LEARNING
WITHOUT LIMITS**



Successful learners
Confident individuals
Responsible Citizens

Ladybrook Primary School

Design and Technology



Our school intention for Design and Technology

Ambitious Curriculum

"Design is intelligence made visible." Alina Wheeler



Our children will...

- See themselves as designers through access to a curriculum that is inclusive and challenging for all.
- Use creativity and imagination to design and make products that solve real life problems within a variety of contexts, considering the needs of themselves and others.
- Use technical knowledge and skills that have been specifically taught as well as skills from other areas of the curriculum.
- Evaluate, test and articulate their ideas and products and the work of others, understanding that high-quality design and technology makes an essential contribution to the wider world.
- Work both independently and collaboratively.
- Understand and apply the principles of nutrition and learn how to cook.
- By the end of Key Stage Two be able to complete projects in which they apply skills, knowledge and understanding gained during their primary years, having been well prepared for the next stage of learning.



How have we constructed and renewed the curriculum for Design and Technology?

- **Brief summary of the story so far:** Adoption of Design and Technology Association - 'Projects on a page' during academic year 2024-25. Teacher collaboration to progression within and between units. During each unit, children will be told about, or research, a range of diverse inventors, designers and chefs.
- **Subject leader Training:** Subject leader conversations with local cluster leaders to share good practice.
- **Staff Training:** in-house, new subscription to Design and Technology Association accessible to all staff.
- **Use of outside Expertise:** Design and technology Association; Bramhall High School – DT leader



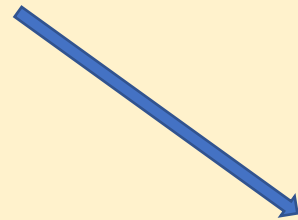
What policy decisions have we made about Design and Technology?

- **Design and Technology is taught discretely, whilst employing meaningful links to other subject areas such as mathematics, science, computing and art.**
- **Teaching and Learning must engage** through AFL; meaningful projects – ‘Projects on a page’;
- **Vocabulary is a priority within our curriculum design** – must be taught explicitly and assessed ongoing
- **Investment in high quality resourcing throughout** – well stocked DT KS1 and KS2, well stocked cooking and nutrition boxes accessible to all year groups.
- **Through our Design and Technology curriculum children should be inspired by a diverse range of engineers, designers, chefs and architects-** teachers actively seek opportunities to promote and celebrate diversity wherever appropriate. Each unit begins by exploring an engineer, designer, chef or architect.



What does our Progression for Design and Technology look like? Why?

Our starting point in Nursery and Reception is to introduce relevant EYFS Framework objectives from Mathematics and Understanding the World.



Design Technology Skills Progression		
	Nursery	Reception
PSED	Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.	
Physical Development	Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors.	Progress towards a more fluent style of moving, with developing control and grace Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. ELG: Use a range of small tools, including scissors, paint brushes and cutlery.
Understanding the world	Explore how things work.	
Expressive Arts and Design	Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. 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. Create closed shapes with continuous lines, and begin to use these shapes to represent objects.	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. ELG: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ELG: Share their creations, explaining the process they have used



What does our Progression for Design and Technology look like? Why?

To implement the National Curriculum for DT in key stages 1 and 2, our scheme of work is based on **Projects on a Page**. We have adapted ideas creatively whilst ensuring that skills are progressive. The following document provides an overview of what is covered in key stages 1 and 2.

Ladybrook Primary Design and Technology Overview

Year 1	Project on a Page	Product
Autumn	Mechanisms- Sliders and Levers	Christmas cards
Spring	Mechanisms- Wheels and Axles	Expedition vehicles
Summer	Food- Preparing Fruit and Vegetables	Healthy salads

Year 2	Project on a Page	Product
Autumn 1	Food- Preparing Fruit and Vegetables	Fruity bread
Autumn 2	Structures- Freestanding Structures	Tudor houses
Summer	Textiles- Templates and Joining	Nocturnal animal stuffed toys

Year 3	Project on a Page	Product
Autumn	Mechanisms- Levers and Linkages	Christmas cards
Spring	Food- Health and Varied Diet	Dips and dippers
Summer	Structures- Shell	Food containers

Year 4	Project on a Page	Product
Autumn	Food- Health and Varied Diet	Sandwiches
Spring	Electrical Systems- Simple Circuits and Switches	Science link- night lights
Summer	Textiles- 2D Shape to 3D Product	Purses


Year 5	Project on a Page	Product
Autumn	Textiles- Combining Different Fabric Shapes	Make do and mend- Christmas decorations
Spring	Mechanism- Pulleys and Gears	Science link-
Summer	Food- Culture and Seasonality	Scones
	Structures- Frames Structures	Tents

Year 6	Project on a Page	Product
Autumn	Textiles- Combining Different Fabric Shapes	Topic book covers (tie dyed)
	Food- Culture and Seasonality	Christmas cakes
Spring	Structures- Frames Structures	Temples
Summer	Electrical Systems- More Complex Switches	Alarm system



What does our Progression for Design and Technology look like? Why?

Our progression map for Design Technology has been designed by the team to ensure that steps in learning between year groups for all aspects of the subject are incremental to support sound understanding and long term recall.

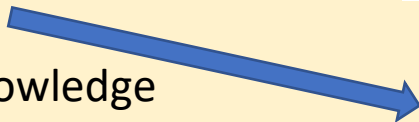
 Design & Technology Skills Progression							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Design	Develop purposeful products based on criteria Develop ideas through talking Model and communicate ideas through drawing and making models Begin to use technology to communicate their ideas		Use research to develop designs Develop innovative, functional and appealing products that are design for a particular purpose Generate, develop and communicate ideas through discussion with others Use annotated sketches, prototypes, pattern pieces and technology to generate, develop and communicate ideas.		Use research and develop criteria to inform design Develop innovative, functional and appealing products that are aimed at particular individuals or groups Generate, develop, and communicate ideas through discussion, actively seeking the views of others. Use annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and technology to generate, develop, model and communicate ideas.		



What does our Progression for Design and Technology look like? Why?

Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in the process of designing and making. Skills to be taught are broken down into the areas of:

- Design
- Make
- Evaluate
- Technical knowledge
- Cooking and nutrition
- Horticulture



Design & Technology Skills Progression						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Develop purposeful products based on criteria	Develop ideas through talking	Use research to develop designs	Use research and develop criteria to inform design	Use research and develop criteria to inform design	Use research and develop criteria to inform design
	Develop ideas through talking	Model and communicate ideas through drawing and making models	Develop innovative, functional and appealing products that are design for a particular purpose	Develop innovative, functional and appealing products that are aimed at particular individuals or groups	Develop innovative, functional and appealing products that are aimed at particular individuals or groups	Develop innovative, functional and appealing products that are aimed at particular individuals or groups
	Begin to use technology to communicate their ideas	Generate, develop and communicate ideas through discussion with others	Use annotated sketches, prototypes, pattern pieces and technology to generate, develop and communicate ideas.	Generate, develop, and communicate ideas through discussion, actively seeking the views of others.	Generate, develop, and communicate ideas through discussion, actively seeking the views of others.	Use annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and technology to generate, develop, model and communicate ideas.

Make	Fold, tear and cut paper and card.	Cut slots.	Cut accurately and safely to a marked line.
	Mark out materials to be cut using a template.	Cut internal shapes.	Join and combine materials with temporary, fixed or moving joinings.
	Cut along straight and curved lines	Use lolly sticks/card to make levers and linkages.	Use craft knife, cutting mat and safety ruler under supervision if appropriate.
	Curl paper	Use linkages and sliders to make movements larger or more varied.	Use a glue gun with close supervision.
	Use a hole punch.	Use and explore complex pop ups.	Use nets and models to build prototypes
	Insert paper fasteners for card linkages. Create hinges.	Create nets to support the design process.	Select from a wide range of materials based on functional and aesthetic properties
	Use simple pop ups	Explore and evaluate different ways of joining materials	Explore and use different finishes taking into account the aesthetics of their product
	Investigate temporary joining - fixed and moving	Explore different finishes for their product using a range of materials	
	Join appropriately for different materials and situations e.g. glue, tape etc.		
	Explore and use a wide range of different materials according to their characteristics		
	Explore different ways of finishing their product		

Evaluate	Explore and evaluate a range of existing products	Investigate and evaluate a range of existing products	Investigate and analyse a range of existing products based on functional and aesthetic qualities
	Discuss ideas and products with others	Evaluate their ideas and products against design criteria and seek the views of others to improve their work	Evaluate their ideas and products against their own design criteria
	Evaluate ideas and products against design criteria	Understand how key events and individuals in design technology have helped to shape the world	Actively seek and consider the views of others to improve their work
		Understand how key events and individuals in design technology have helped to shape the world.	Understand how key events and individuals in design technology have helped to shape the world.
Technical Knowledge	Make vehicles with construction kits which contain free running wheels.	Incorporate a circuit with a bulb or buzzer into a model.	Incorporate motor and a switch into a model.
	Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton rees.	Use mechanical systems in their products (e.g. levers and linkages)	Control and monitor a product using a computer
	Explore and use sliders and levers in their products	Create shell or frame structures - strengthen frame s with diagonal struts	Understand and use mechanical systems in their products (e.g. gears, pulleys and cams)
	Build simple structures	Make structures more stable by giving them a wide base.	Apply their understanding of how to reinforce and strengthen increasingly complex structures using a range of materials.
	Explore ways of making their structures stronger and more stable	Make prototype frame and shell structures	

Cooking and Nutrition	Develop a food vocabulary using taste, smell, texture and feel.	Develop sensory vocabulary/knowledge using smell, taste, texture and feel.	Analyse food products taking into account the properties of ingredients and sensory characteristics.
	Group familiar food products e.g. fruit and vegetables.	Analyse the taste, texture, smell and appearance of a range of foods.	Select and prepare foods for a particular purpose
	Cut, peel, grate and chop a range of ingredients.	Follow instructions.	Taste a range of ingredients, food items to develop a sensory food vocabulary for use when designing.
	Work safely and hygienically.	Make healthy eating choices from an understanding of a balanced diet	Weigh and measure using scales
	Understand the need for a variety of foods in a diet .	Join and combine a range of ingredients.	Cut and shape ingredients using appropriate tools and equipment e.g. grating
	Measure and weigh food items using non statutory measures e.g. spoons, cups.	Work safely and hygienically.	Join and combine food ingredients appropriately e.g. beating, rubbing in.
		Measure and weigh ingredients appropriately.	Decorate appropriately. Work safely and hygienically.
			Show awareness of a healthy diet from an understanding of a balanced diet.

Horticulture	Understanding: Explore the outdoor environment. Name and identify things that we might see growing in a garden.	Understanding: Explore the outdoor environment. Name and identify familiar plants and vegetables once grown.	Understanding: Describe how plants and vegetables need diverse climates and conditions to grow in – e.g we grow tomatoes in a greenhouse
	Describe what plants and vegetables need to grow effectively – explore what will happen if elements are missing.	Know what plants need to grow, name parts of a plant.	Describe the life cycle of a flowering plant.
	Name living creatures that support the growing cycle (Insects / minibeasts and birds) and notice where they live/ what they do	Identify living creatures that support the growing cycle using ID charts and know what they do to help plant growth	Identify living creatures that support the growing cycle using ID charts and explain why we need to encourage insect / birdlife in the garden
	Planting skills: Plant seeds and bulbs in pots and planters and observe the changes over time.	Know that we plant things for a purpose and to try the products that we have grown.	Planting skills: Know and understand about decay e.g composting.
Write labels for plants and vegetables in order to identify them.	Begin to understand that we can recycle our plant and veg waste.	Harvest what we have grown e.g digging root crops such as potatoes and carrots without damaging them and pick peas and beans	
Begin to understand that we can separate our fruit and vegetable waste from normal everyday waste.	Tool Skills Select tools for a specific purpose and use them safely.	Tool Skills Use various tools safely and without support to dig, plant and remove weeds etc.	
Tool Skills Select and use tools safely – with adult guidance when appropriate.	Use a hand fork to effectively remove weeds etc.	Use secateurs to prune – with supervision where necessary.	
Use a trowel, spade or dibber to dig and or to make planting holes.	Use a rake to level soil and clear leaves etc.	Care skills: Support tall growing plants with stakes / pyramids and describe how this will help them to grow well.	
Care skills: Use a watering can to water plants when it is necessary to do so.	Care skills: Protect plants with netting and describe how this will help them to grow well.		



What essential knowledge* do we want our children to acquire?

We have identified the essential technical knowledge and understanding which our units of work enable children to learn.

Factual knowledge is presented to the children in a precise and concise way.

Year	Theme	Design and Technology: Key Knowledge
Nursery	Over Year	<ul style="list-style-type: none"> Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. Use one-handed tools and equipment, for example, making snips in paper with scissors. To begin to know and use vocabulary relevant to the activities. Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Explore how things work. Plant seeds and care for growing plants. Talk about the differences between materials and changes they notice.
	Over Year	<ul style="list-style-type: none"> Develop their small motor skills so that they can use a range of tools competently, safely and confidently eg pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons. Use a range of small tools, including scissors, paintbrushes and cutlery. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. To know and use vocabulary relevant activities.
YEAR 1	Mechanisms- Sliders and Levers	<ul style="list-style-type: none"> Know that different mechanisms produce different types of movement. Explore the use of sliders and levers. Know and use technical vocabulary relevant to the project.
	Mechanisms- Wheels and Axles	<ul style="list-style-type: none"> Know that different mechanisms produce different types of movement. Know the difference between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.
	Food- Preparing Fruit and Vegetables	<ul style="list-style-type: none"> Know where a range of fruit and vegetables come from e.g. farmed or grown at home. Know and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. Know and use technical and sensory vocabulary relevant to the project.

YEAR 2	Food- Preparing Fruit and Vegetables	<ul style="list-style-type: none"> Know where a range of fruit and vegetables come from e.g. farmed or grown at home. Know and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. Know and use technical and sensory vocabulary relevant to the project.
	Structures- Freestanding Structures	<ul style="list-style-type: none"> Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.
	Textiles- Templates and Joining	<ul style="list-style-type: none"> Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Know different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.
YEAR 3	Mechanisms- Levers and Linkages	<ul style="list-style-type: none"> Understand and use lever and linkage mechanisms. Know the difference between fixed and loose pivots. Know and use technical vocabulary relevant to the project.
	Food- Health and Varied Diet	<ul style="list-style-type: none"> Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately.
	Structures- Shell	<ul style="list-style-type: none"> Develop and use knowledge of how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project
YEAR 4	Food- Health and Varied Diet	<ul style="list-style-type: none"> Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately.
	Electrical Systems- Simple Circuits and Switches	<ul style="list-style-type: none"> Understand and use electrical systems in their products linked to science coverage. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.
		<ul style="list-style-type: none"> Stiffen and reinforce existing fabrics. Join two pieces of fabric together.

YEAR 5	Textiles- Combining Different Fabric Shapes	<ul style="list-style-type: none"> Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project. Know that a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Know that fabrics can be strengthened, stiffened and reinforced where appropriate. Know and use technical vocabulary relevant to the project.
	Mechanism- Pulleys and Gears	<ul style="list-style-type: none"> Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.
	Food- Culture and Seasonality	<ul style="list-style-type: none"> Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
	Structures- Frames Structures	<ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.
YEAR 6	Textiles- Combining Different Fabric Shapes	<ul style="list-style-type: none"> Know that a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Know that fabrics can be strengthened, stiffened and reinforced where appropriate. Know and use technical vocabulary relevant to the project.
	Food- Culture and Seasonality	<ul style="list-style-type: none"> Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
	Structures- Frames Structures	<ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.
	Electrical Systems- More Complex Switches	<ul style="list-style-type: none"> Understand and use electrical systems in their products linked to science coverage. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.

What does our Progression of Design Technology vocabulary look like?



DT Vocabulary Progression

Nursery /Reception		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Designing and evaluating	design make evaluate purpose user ideas drawing labels design brief (what) design criteria (how) function/al/ality product planning investigating popular	features suitable quality mock-up design brief (what) design criteria (how) function/al/ality planning investigating popular product	function/al/ality prototype design brief (what) design criteria (how) innovative appealing annotated sketch sensory evaluation	prototype annotated sketch innovative aesthetics appealing	exploded diagrams authentic design decisions mock-up sensory evaluation research	design decisions authentic
Nursery sellotape masking tape string card /paper up / down straight zigzag	Mechanisms	Autumn mechanism slider lever pivot slot guide curve paper fastener		mechanical system linkage loose pivot fixed pivot bridge input process output		pulley drive belt axle motor input output process electrical system	

Vocabulary not in bold font is introduced with limited understanding expected.

Vocabulary in bold font is introduced or repeated with an expectation that most children will know, understand and be able to use it by the end of the unit.

create material turn fasten pull / push tool names - screwdriver, saw needle sewing thread						push-to-make switch push-to-break switch battery battery holder bulb bulb holder wire crocodile clip insulator conductor	program circuit diagram parallel circuit names of switches components- push to break
	Food	names of equipment and utensils-knife chopping board peeler food hygiene fruit and vegetables slicing peeling healthy diet flesh skin seed pip core taste	ingredients oven prove rise savoury sweet texture food hygiene grater chop grate mash	appearance processed claw technique	savoury edible grown reared caught fresh frozen tinned seasonal harvested processed	fat sugar carbohydrate protein dairy vitamins nutrition/ nutritional value gluten allergy intolerance	source seasonality processed allergy intolerance combine fold

forwards / backwards make cut tool names - hammer fruit names vegetable names squeeze pat roll cutter bend zip button Reception ingredients construct connect decorate better change fix modelling join design		Spring mechanism assembling shaping finishing fixed free axle axle holder chassis body names of tools, equipment and materials used					
	Textiles		template pattern pieces mark out stuffing fabric joining technique sewing stitch thread needle binca names of material		fastening finishing technique seam seam allowance structure templates pattern pieces	components running stitch cross stitch blanket stitch applique textiles	reinforce textiles
	Electrical systems				series circuit fault connection toggle switch		input device output device system monitor control

	Structures		structure walls towers framework (an already existing concept) weak strong base top edge surface corner measure mark cube cuboid triangle saw reinforce	cuboid face edge net prism shell structure scoring graphic design font		frame structure (a customised approach) reinforce stability permanent strengthen temporary triangulation	modelling compression strut tension tie diagonal triangulation
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• How have we sequenced learning from EYFS to Year 6? Why?

Our **clear sequence** for learning begins in Nursery and Reception where we have designed a rich early years' curriculum inspired by high quality picture books.

Broad themes for a half term / term are shared between the 2 classes.

Vocabulary is introduced, modelled and repeated through planned learning opportunities to embed its use

EYFS						
Name	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Marvellous Me	N - Once upon a time R - Let's Celebrate	Make it	Make it	Growing things	Growing things
Main stories Cycle 1	3 little Pigs (T4W) N - You choose book	N - Princess /stick stories R - Celebration/stick stories	Gingerbread man (T4W) N - Harry's home R - Martha Maps it out/The way back home (houses and journeys)	Harry and his bucket full of dinosaurs 1 week transport	Supertato/Superworm (N.I) 1 week - People who help us and Dental Nurse visit	What the ladybird heard (N.I) 1 st week - All around the world
Main stories Cycle 2	Goldilocks (T4W) N - You choose book	N - Princess /stick stories R - Celebration/stick stories	The Runaway Pancake N - Harry's home R - Martha Maps it out/The way back home (buildings and journeys)	Naughty Bus	Oliver's Vegetables	The Hungry Caterpillar/ farm stories 1 st week - All around the world
Design Technology	Explore different materials freely, to develop their ideas about how to use them and what to make. (N) vocab - <ul style="list-style-type: none"> • cut • stick • make • create • fold 		Develop their own ideas and then decide which materials to use to express them. (N)		Join different materials and explore different textures. (N) vocab - <ul style="list-style-type: none"> • bumpy • smooth • hard • soft • fluffy • shiny 	
	Return to and build on their previous learning.	Explore, use and refine a variety of artistic effects to	Create collaboratively, sharing ideas.		Safely use and explore a variety of	Share their creations, explaining the
	refining ideas and developing their ability to represent them. (Rec)	express their ideas and feelings. (Rec)	resources and skills. (Rec) vocab - <ul style="list-style-type: none"> • together • team • share 		materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG)	process they have used. (ELG)



• How have we sequenced learning from EYFS to Year 6? Why?

We use SOLO taxonomy (a model that describes levels of increasing complexity in students' thinking and understanding) to structure our learning objectives. The lesson sequence starts with multi structural thinking through to extended abstract thinking. It enables us to assess how deeply children's knowledge including practical skills is developing in the subject. It is essential to us that most children are able to make relational connections in their learning. We go beyond this by teaching children to extend their abstract thinking in Design Technology.

Medium Term Planning: Design & Technology Y6 - Food

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Identify and solve their own design problems. Use research and exploration to identify, understand and explain user needs through detailed notes and annotations. Review, rework and refine ideas, considering the views of others and actively seeking critique. 	<ul style="list-style-type: none"> Demonstrate increased skill with a range of techniques and equipment, making informed choices based on the suitability and effectiveness of different processes. Test, evaluate and refine ideas and products against a specification. Use and combine a variety of approaches to generate creative ideas. Broaden their understanding of the process of design and production by analysing a wide range of products, considering why a product was made, what it is made from, how well it is made and how well it meets the needs of the consumer. 	<ul style="list-style-type: none"> Investigate and assess new and emerging technologies focusing on innovative and creative design solutions. Recognise and appreciate developments in design technology and the impact on individuals, society and the environment. Develop and communicate design ideas with increasing professionalism using annotated sketches, detailed plans, 3D modelling, oral and digital presentations and computer-based tools.

Medium Term Planning: Design & Technology Y5 - Structures

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Identify and solve design problems. Begin to use research and exploration to identify, understand and explain user needs. Review and rework ideas, considering the views of others. 	<ul style="list-style-type: none"> Demonstrate increased skill with a range of techniques, processes and equipment. Test and evaluate ideas and products against a specification. Use and combine different approaches to generate creative ideas. Begin to analyse existing products exploring why a product was made, what it is made from, how well it is made and finished, and how well it meets the needs of the consumer. 	<ul style="list-style-type: none"> Investigate and assess new and emerging technologies. Begin to appreciate developments in design technology and begin to explain the impact on individuals, society and the environment. Begin to develop and communicate design ideas using annotated sketches.

Medium Term Planning: Design & Technology Y4 - Textiles

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Work as part of a group or class to solve design problems Clarify design criteria so that products are innovative, functional, appealing and fit for purpose Review and rework ideas considering the views of others 	<ul style="list-style-type: none"> Demonstrate increased skill with a wider range of tools and equipment to perform practical tasks Evaluate ideas and products against their own design criteria and consider ways to improve their work Analyse existing products exploring why a product was made, what it is made from, and how well it is made and finished 	<ul style="list-style-type: none"> Understand and appreciate how key events and individuals in design technology have shaped the world Generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes, pattern pieces and computer-aided design Assess a wider range of materials and components according to their functional properties and aesthetic qualities

Medium Term Planning: Design & Technology Y3 - Structures

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Work as part of a group or class to solve design problems Begin to clarify design criteria so that products are innovative, functional, appealing and fit for purpose Begin to review and rework ideas considering the views of others 	<ul style="list-style-type: none"> Demonstrate increased skill with a range of tools and equipment to perform practical tasks Begin to evaluate ideas and products against their own design criteria and consider ways to improve their work Begin to analyse existing products exploring why a product was made, what it is made from, and how well it is made and finished 	<ul style="list-style-type: none"> Begin to understand and appreciate how key events and individuals in design technology have shaped the world Generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes and pattern pieces Begin to assess a range of materials and components according to their functional properties and aesthetic qualities

Medium Term Planning: Design & Technology Y2 - Structures

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Work as part of a group or class to solve simple design problems. Clarify design criteria so that products are purposeful, functional and appealing. Review ideas based on feedback from others. 	<ul style="list-style-type: none"> Demonstrate the ability to select from and use a range of simple tools and equipment to perform practical tasks. Evaluate ideas and products against design criteria. Analyse existing products exploring why a product was made and what it is made from 	<ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, drawings and prototypes (mock-ups). Assess the usefulness of a range of materials according to their characteristics.

Medium Term Planning: Design & Technology Y1 -Mechanisms 1

Procedural Knowledge:		
Multi-Structural	Relational	Extended Abstract
<ul style="list-style-type: none"> Work as part of a class to solve simple design problems. Begin to list design criteria so that products are purposeful, functional and appealing. Begin to review ideas based on feedback from others. 	<ul style="list-style-type: none"> Demonstrate the ability to use simple tools and equipment to perform practical tasks. Begin to evaluate ideas and products against design criteria. Begin to analyse existing products exploring why a product was made and what it is made from 	<ul style="list-style-type: none"> Generate, develop, and communicate their ideas through discussion, drawings and models. Begin to assess the usefulness of a range of materials according to their characteristics.



• How have we sequenced learning from EYFS to Year 6? Why?

We ensured that the big ideas of Design Technology are used repeatedly in as many lessons as possible within each unit of work.

Substantive Concepts	Big Ideas - Disciplinary Knowledge for Y1			
Design Product Consumer Problem Improvement	Identifying <i>Understanding people's lives and identifying problems from their perspective. Knowing that even if we don't know the answer, that it's out there and we can find it</i> (D1)	Exploring <i>Understanding that we always start from the place of not knowing, and that a firm foundation of knowledge is the best place from which to tackle a design challenge</i> (D2)	Developing <i>Understanding that by continually developing, refining and improving our work, we put ourselves in a place where we'll have more ideas, try a variety of approaches, unlock our creativity and arrive more quickly at successful solutions</i> (D3)	Making and learning from failure <i>Understanding that by making, we convey ideas, share them, and learn how to make them better</i> (D4)
	1 2	1 3 4	3 4 5	3 5 6

We identified our substantive concepts which link directly to our intent for the subject. These concepts are repeated over time to help children group, connect and explain facts and information about the design and technology around them.



• How have we sequenced learning from EYFS to Year 6? Why?

Medium Term Planning: Design & Technology Y4 - Electrical Systems

Curriculum content: Electrical Systems - Simple Circuits and Switches		
Key learning Procedural knowledge	How? What opportunities am I going to give the children so that they can learn?	Outcome What will the children know or be able to do?
Have knowledge about what a product designer does.	Find out about inventors of electrical technologies - Thomas Edison - first long lasting and commercially successful light bulb. Benjamin Franklin 1752. Alessandro Volta. Jonathan Ive - Apple products designer	I know that product designers are paid to design and make new products.
Prior learning <ul style="list-style-type: none"> Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue. 		
Key vocabulary Series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip user, purpose, function, prototype, design criteria, innovative, appealing, design brief	1. <u>Pre-knowledge assessment - In Science -</u> Create simple series electrical circuits - make and test. Recap joining methods used in previous year groups.	I understand what makes a simple series circuit. I can recall joining methods.

Key vocabulary identified is explicitly taught.

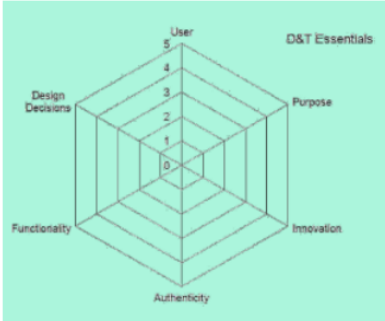
Our sequence of lessons in a unit of work always begin with recapping prior knowledge as a baseline for new learning.

Lessons are connected with prior learning influencing and supporting the next step taught.

Learning outcomes are planned for so that misconceptions are dealt with as soon as possible.



- How do children demonstrate that they know more and remember more?

Medium Term Planning: Design & Technology Y6 - Structures		
Design specification Prototype Annotated sketch Purpose User		
<p>Children should regularly evaluate their work and their completed product, drawing on their design specification, and thinking about the intended purpose and user.</p> <p>Vocab: Modelling - the creation of a 3D representation Compression - the application of pressure to squeeze an object. Strut - a part of a structure under compression. Tension - a force pulling on a material or structure. Tie - a part of a structure under tension. Diagonal - a straight line that goes from one corner to another inside a shape. Triangulation Frame structure Design brief Design specification Prototype Annotated sketch Purpose</p>	<p>Session 5 Children reflect in groups on the success of the completed structure and discuss as a whole class.</p> 	<p>I can say where or structure was successful in meeting the design brief.</p> <p>I can say where I would improve it if the task was to be repeated.</p>

AT THE BEGINNING: Children are asked to recall prior learning... 'Last term/year you learnt.... This term you will learn.... This will help you next year when you

THROUGHOUT: Children talk to one another and share ideas and skills. They have opportunities to practise focussed skills necessary within larger projects and use a variety of tools and materials. Children are encouraged to learn through trial and error.

AT THE END OF THE PROJECT: The children create and then evaluate a product based on practising related skills and product evaluation.

Based on quality teaching, most children are expected to meet the threshold statements. This assessment provides evidence of the application of a range of knowledge that has been taught.



How do we ensure inclusion in Design and Technology?

In order to allow all pupils to engage with DT tasks and experience a sense of achievement in designing and making a usable product, teachers and support staff consider the following:

We consider our resourcing:

- 1. Equipment** – offering differentiated tools such as stubby screwdrivers.
- 2. Space** – ensuring pupils with physical needs have enough and appropriate space eg table /chair heights.
- 3. Teacher expertise**
 - Adapted visuals (enlarge resources) /
 - Providing key word sheets, flow charts and visual instructions
 - Demonstrate / model examples of outcomes
 - Make links to everyday language
 - Use questions to encourage learners
 - Adaptation of teaching e.g. offering a variety of methods of recording ideas quickly, providing opportunities 1:1 with an adult.



Impact of approach: ALL children benefit from experiencing their own progress and taking responsibility for their own learning. ALL pupils experience a sense of achievement. Children are able to engage with tasks in a way which improves attention span, patience, persistence and commitment.