

Nateby Primary School



DESIGN TECHNOLOGY AT NATEBY PRIMARY SCHOOL

The National Curriculum for Design Technology

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook

How with Design Technology be taught?

Intent

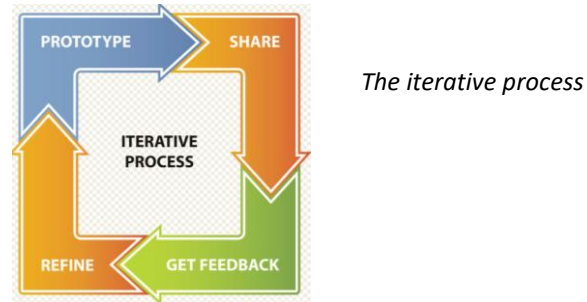
At Nateby School the teaching of design technology pupils are encouraged to become independent, creative problem-solvers and thinkers as individuals and as part of a team. Our curriculum is planned so that pupils follow a process where evaluation and communication are key. Design technology projects allow pupils to apply skills from across the curriculum; mathematics, science, computing and art – to design, make and evaluate products that solve real and relevant problems. At Nateby Design and Technology gives pupils the skills that enable them to think creatively and imaginatively to design, make and evaluate products within a variety of contexts. Through evaluation of past and present design and technology pupils develop their critical thinking – critiquing and evaluating ideas and products. Food technology is implemented across the curriculum with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this. At Nateby where ever possible we make links across the curriculum to allow pupils to see how the principles of other subjects influence the products they design and make and vice versa.

Implementation

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They will work in a range of relevant contexts

Over each year and during each project, pupils will design, make, and evaluate. They will build on their technical knowledge developing a broad understanding of the basis for many products around them today and from history.

We use the 'iterative' process as in the diagram here.



This means we design then make then refine and then improve the design. In this way pupils learn by doing- seeing the consequences of their decisions and try to problem solve around any mistakes.

We have tried to plan units of work to link with topics from other subjects such as Science where this will aid pupil's understanding.

RECEPTION AND DESIGN TECHNOLOGY

During the Early Years Foundation Stage, the essential building blocks of children's design and technology capability are established. There are many opportunities for carrying out D&T-related activities in all areas of learning in the EYFS. Specifically, 'Designing and Making' is identified as a strand within Knowledge and Understanding of the World. By the end of the EYFS, most children should be able to:

- Construct with a purpose in mind, using a variety of resources
- Use simple tools and techniques competently and appropriately
- Build and construct with a wide range of objects, selecting appropriate resources and adapting their work when necessary
- Select the tools and techniques they need to shape, assemble and join materials they are using

Teachers will ensure D&T-related activities in the EYFS are appropriate to the developmental stage of the children. Activities should look quite different from those carried out in KS1. Effective practice in the EYFS has the following characteristics:

Designing does not necessarily entail drawing

Designing can mean using hand gestures, arranging and re-arranging materials and components, talking and listening

Designing is usually intuitive

The designing and making process is fluid

Sometimes practical skills are taught directly

Children have frequent opportunities to develop practical skills with a range of materials; to explore construction kits and explore existing products

Activities are appropriate to children's prior experience

Context is sometimes set by teacher, sometimes by the children.

Reception (EYFS) children at Nateby will have the opportunity to use construction within continuous provision. This will sometimes be within a context set by the teacher and sometimes led by the children themselves. A variety of resources and equipment will be available for children to use and select from. For example, they may use split-pins for a clock face, they may create their own designs from Lego and other construction kits; they may make different vehicles from resources available to them or create their own products and artefacts through junk modelling.

EYFS

Exploring Media and Materials

By the end of EYFS children should be able to:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases.
- Use a range of small tools, including scissors, paintbrushes and cutlery.
- Begin to show accuracy and care when drawing

KS1

NATIONAL CURRICULUM OBJECTIVES

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].

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 [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

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

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.

KS 2

NATIONAL CURRICULUM OBJECTIVES

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].

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 [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

- 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 [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.

Progression of NC Objectives at Nateby

EYFS					
<u>Explore</u> Experiment and build with a range of construction resources, find out about the properties and functions of different construction materials.	<u>Design</u> Talk about ideas, choose resources, tools and techniques with a purpose in mind	<u>Make</u> Make models using different construction materials, e.g. construction kits, reclaimed materials Experiment with different ways to build, construct and join resources	<u>Evaluate</u> Talk about what they like and dislike about their products and say how and why they would change them	<u>Tools and equipment</u> Use simple tools and equipment to build, construct and make simple models and constructions; use tools and equipment linked to food preparation.	<u>Safety</u> Handle and use equipment appropriately and safely
Design		Make		Evaluate	Technical Knowledge
KS1 Y 1 & 2					
<ul style="list-style-type: none"> • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and 		<ul style="list-style-type: none"> • select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] 		<ul style="list-style-type: none"> • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria 	
				<ul style="list-style-type: none"> • build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms 	

<p>communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p>	<ul style="list-style-type: none"> select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics 		<p>[for example, levers, sliders, wheels and axles], in their products.</p>
<p>KS2 Y 3 4 5 & 6</p>			
<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 	<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 	<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 	<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 & nutrition

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. Pupils will learn basic cooking skills which with further study, will enable them to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

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


Key stage 2

- 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.

Please note:

Nateby staff use many resources and plans from CLEAPSS, Lancashire Education Authority's LPDS materials and other commercial plans where these inform and enhance practice. Some of the content below is adapted from these sources and follows the National Curriculum requirements. See table below for national curriculum objectives links.


Year A 2023/2024

	Autumn	Spring	Summer
EYFS Y1	<p>Opportunities to make junk models throughout the year</p> <p>Teddy Bear's Picnic</p> <p>Find out where food comes from</p> <p>Taste & explore different types of food.</p> <p>'Eat well' Plate -balanced picnic selection</p> <p>Make biscuits or omelettes or sandwiches</p> <p>Savoury & sweet choices</p> <p>Delightful Decorations!- if time</p> <p>Investigate, design & make own baubles</p>	<p>Pancakes</p> <p>Learn to make a batter and cook a pancake</p> <p>Look at the ingredients and describe, research where they come from, measure using non-statutory measures</p> <p>Discuss how we work hygienically</p> <p>Moving Pictures</p> <p>Explore the different ways levers can move pictures</p> <p>Use a wheel mechanism to move a picture</p> <p>Create a moving picture</p> <p>Use sliders to make objects disappear</p>	<p>Vehicles</p> <p>Look at different vehicles and identify features</p> <p>Explore wheels, axels & chassis</p> <p>Design & make a vehicle</p> <p>Celebrate what went well & evaluate their own work</p>

<p>Y2 & 3</p>	<p>Seasonal Ingredients</p> <p>Study where food comes from and when it grows naturally</p> <p>Find out how ingredients can be sourced throughout the year</p> <p>Practice cooking skills- wash, peel, grate ingredients</p> <p>Design a smoothie to look and taste good</p> <p>Try it & evaluate it!</p>	<p>Alarms</p> <p>Study what is out there on the market. Look at different alarms and discover the principles of how they work</p> <p>Study a wide variety of switches; make a sample</p> <p>Design, plan, make and evaluate an alarm for a practical purpose</p>	<p>Moving Monsters</p> <p>Investigate products which move air</p> <p>Plan and make a monster using pneumatics</p> <p>Evaluate the design</p>
<p>Y4&Y5</p>	<p>Story Books</p> <p>Use graphics to create pleasing layouts</p> <p>Improve cutting and precision</p> <p>Learn about and use linkage systems and mechanics for a purpose</p> <p>Seasonal Stockings- if time</p> <p>Where did traditional stockings come from?</p> <p>Explore stitches, making designs appealing, creating a product and evaluating the result</p>	<p>Moving Toys</p> <p>Investigate toys with cam mechanisms- changing rotary movement in to linear movement</p> <p>Design cam shapes to test</p> <p>Making and reinforcing sturdy shapes</p> <p>Design, make & evaluate a toy</p>	<p>Bread</p> <p>Children will learn about different types of bread, the nutritional value of bread and the regions/ cultures they come from.</p> <p>They will make bread and adapt and change a recipe.</p> <p>They will consider how to best present their product.</p> <p>They will taste and evaluate their products</p>
<p>Y6</p>	<p>Building Bridges</p> <p>Investigate different styles of bridges. Look at pillars and how weight is distributed; investigate how forces act upon them; choose the right material for the right application</p> <p>Build arches and test for strength</p> <p>Using a design brief & devise a list of criteria for a strong bridge in materials of their choice</p>	<p>Great British Dishes</p> <p>Explore savoury dishes & investigate how healthy they are</p> <p>Look at RDA for sugar; plan a desert.</p> <p>Look at the growing of oats; plan & make savoury toppings for oatcakes</p> <p>Look at the national dishes of Wales- make Welsh Rarebit muffins</p> <p>Look at how English food has been influenced by cuisine from around the world</p> <p>Plan a meal</p>	<p>Programming Pioneers</p> <p>Look at some everyday products which contain electronic components and investigate how they work</p> <p>What do hardware & software engineers do? How do computers control a crossing?</p> <p>Look at the work pioneering computer scientists and what they achieved</p> <p>Wire up a door bell or automatic light</p>

	Evaluate success		and programme them to work
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Year B 2024/2025 (y6 no year B)

 Autumn	Spring	Summer
<p>EYFS Y1</p> <p>Opportunities to make junk models throughout the year</p> <p>Homes</p> <p>Look at different types of homes. Investigate basic joining techniques & how to make a basic hinge</p> <p>Design and make a home for a character from a traditional story</p> <p>Opportunities to make junk models throughout the year</p>	<p>Seaside Snacks</p> <p>Taste, exploring and thinking about a range of foods. Think about flavours, textures and colours of different foods.</p> <p>Design a seaside picnic, while thinking carefully about what makes a balanced meal.</p> <p>Robots</p> <p>Explore existing toy robots</p> <p>Design a robot</p> <p>Make a robot using junk</p>	<p>Windmills</p> <p>Study how windmills differ across the world</p> <p>Design and make a windmill</p>
<p>Y 2 & 3</p> <p>Puppets</p> <p>Investigate different types of puppets</p> <p>Take a close look at finger puppets</p> <p>Improve sewing skills</p> <p>Design, make & evaluate a puppet</p> <p>Seasonal Stockings- Investigate, design & make decorations</p>	<p>Perfect Pizzas</p> <p>Re-visit the 'Eat well Plate', design a pizza with a healthy balance of ingredients</p> <p>Look at whether an ingredient is plant or animal</p> <p>Design an appealing pizza</p> <p>Cook, eat & evaluate a pizza!</p>	<p>Light-Up Signs</p> <p>Explore signs that light up</p> <p>Look at LEDs & resistors- how to 'hide' the wiring</p> <p>Design a sign from wood & install the electrics; evaluate</p> <p>Use programming to control lights</p>
<p>Y 4 & 5</p> <p>Cooking & Packaging</p> <p>Investigate class preferences</p> <p>Designing a biscuit and its packaging for a specific using properties & sensory characteristics of ingredients</p>	<p>Fairground Rides</p> <p>Study the different mechanisms of fairground rides, design and make a ride</p>	<p>Bird Boxes</p> <p>Study the differing requirements for bird boxes</p> <p>Design and make a bird box</p>

	<p>Revisit pupils' understanding of seasonal products</p> <p>Work hygienically; use weighing scales to measure carefully.</p>		
Y6	<p>Building Bridges</p> <p>Investigate different styles of bridges. Look at pillars and how weight is distributed; investigate how forces act upon them; choose the right material for the right application</p> <p>Build arches and test for strength</p> <p>Using a design brief & devise a list of criteria for a strong bridge in materials of their choice</p> <p>Evaluate success</p>	<p>Great British Dishes</p> <p>Explore savoury dishes & investigate how healthy they are</p> <p>Look at RDA for sugar; plan a desert.</p> <p>Look at the growing of oats; plan & make savoury toppings for oatcakes</p> <p>Look at the national dishes of Wales- make Welsh Rarebit muffins</p> <p>Look at how English food has been influenced by cuisine from around the world</p> <p>Plan a meal</p>	<p>Programming Pioneers</p> <p>Look at some everyday products which contain electronic components and investigate how they work</p> <p>What do hardware & software engineers do? How do computers control a crossing?</p> <p>Look at the work pioneering computer scientists and what they achieved</p> <p>Wire up a door bell or automatic light and programme them to work</p>

Progression against NC Objectives

<u>Y1</u>	<u>Homes & Robots</u>	<u>Teddy Bears' Picnic & Seaside Snacks</u>	<u>Windmills</u>	<u>Healthy Eating Pancakes</u>	<u>Decorations</u>	<u>Moving Pictures</u>	<u>Vehicles</u>
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						/	/
use the basic principles of a healthy and varied diet to prepare dishes		/		/			
understand where food comes from		/		/			

Y2 & 3	Seasonal Ingredients	Alarms	Moving Monsters	Puppets	Perfect Pizzas	Light-Up Signs	Seasonal Stockings	
use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups		/	/	/	/	/	/	
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design		/	/	/		/	/	
select from and use a wider range of tools and equipment to perform practical tasks [for		/	/	/	/	/	/	

example, cutting, shaping, joining and finishing], accurately								
select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities			/	/	/	/	/	
investigate and analyse a range of existing products		/		/	/	/	/	
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work		/	/	/	/	/	/	
understand how key events and individuals in design and technology have helped shape the world						/		
apply their understanding of how to			/			/		

strengthen, stiffen and reinforce more complex structures								
understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]		L						
understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]						L		
apply their understanding of computing to program, monitor and control their products						L		
understand and apply the principles of a healthy and varied diet	L				L			
prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	L				L			

understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	L				L			
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<u>Y4&5</u>	Cooking & Packaging	Fairground Rides	Seasonal Stockings/ Christmas Felt Toys	Bird Boxes		Bread	Moving Toys	Storybooks
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	L	L	L	L		L	L	L
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes,	L	L	L	L		L	L	L

pattern pieces and computer-aided design								
select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	✓	✓	✓	✓	✓	✓	✓	✓
select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	✓	✓	✓	✓	✓	✓	✓	✓
investigate and analyse a range of existing products	✓	✓	✓	✓	✓	✓	✓	✓
evaluate their ideas and products against their own design criteria and consider the views of others to	✓	✓	✓	✓	✓	✓	✓	✓

improve their work								
understand how key events and individuals in design and technology have helped shape the world					L			
apply their understanding of how to strengthen, stiffen and reinforce more complex structures		L		L				
understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]		L					L	L
understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]		L					L	
apply their understanding of computing to program, monitor and control their products								

understand and apply the principles of a healthy and varied diet	✓					✓		
prepare and cook a variety of predominantly savory dishes using a range of cooking techniques	✓				✓	✓		
understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	✓				✓			
Y6	Great British Dishes	Building Bridges	Programming Pioneers					
use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups	✓	✓	✓					
generate, develop, model and communicate their ideas	✓	✓	✓					

through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design								
select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	✓	✓	✓					
select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	✓	✓	✓					
investigate and analyse a range of existing products	✓	✓	✓					

evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	✓	✓	✓					
understand how key events and individuals in design and technology have helped shape the world	✓		✓					
apply their understanding of how to strengthen, stiffen and reinforce more complex structures		✓	✓					
understand and use mechanical systems in their products [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			L					
understand and apply the principles of a healthy and varied diet	L							
prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	L							
understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	L							

Skills Progression

By the end of EYFS pupils should be able to confidently explore and use a variety of media and materials:

- They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Children imaginatively use what they have learnt about media and materials in original ways, thinking about uses and purposes
- They represent their own ideas, thoughts and feelings from what they have learnt across the curriculum or through their own experiences-through design and technology.

	DESIGN	MAKE	EVALUATE	FOOD	TEXTILES	STRUCTURES	MECHANISMS
<u>YEAR 1</u>	<ul style="list-style-type: none"> ▪ Use pictures and words to convey what they want to design/make. ▪ Propose ideas for their product. 	<ul style="list-style-type: none"> ▪ Discuss their work as it progresses. ▪ Select materials from a limited range that will meet the design criteria. 	<ul style="list-style-type: none"> ▪ Explore existing products and investigate how they have been made. ▪ Decide how existing products do/do not 	<ul style="list-style-type: none"> ▪ Develop a food vocabulary using taste, smell, texture and feel. ▪ Group familiar food products e.g. fruit 	<ul style="list-style-type: none"> ▪ Cut out shapes which have been created by drawing round a template onto the fabric. ▪ Join fabrics by using 	<ul style="list-style-type: none"> ▪ Explore how to make structures stronger. ▪ Investigate different techniques for 	<ul style="list-style-type: none"> ▪ Join appropriately for different materials and situations e.g. glue, tape. ▪ Try out different

	<ul style="list-style-type: none"> Use kits/reclaimed materials to develop more than one idea. Model ideas with kits, reclaimed materials. Select appropriate technique explaining: First... Next... Last.... Explore ideas by rearranging materials. Select pictures to help develop ideas. Use drawings to record ideas as they are developed. Add notes to drawings to help explanations. <p>Describe their models and drawings of ideas and intentions.</p>	<ul style="list-style-type: none"> Select and name the tools needed to work the materials. Explain what they are making. Explain which materials they are using and why. Name the tools they are using. <p>Describe what they need to do next.</p>	<p>achieve their purpose.</p> <ul style="list-style-type: none"> Talk about their design as they develop and identify good and bad points. Note changes made during the making process as annotation to plans/drawings. Say what they like and do not like about items they have made and attempt to say why. <p>Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.</p>	<p>and vegetables.</p> <ul style="list-style-type: none"> Explain where food comes from. Cut, peel, grate, chop a range of ingredients Work safely and hygienically. Understand the need for a variety of foods in a diet. Measure and weigh food items, non-statutory measures e.g. spoons, cups. 	<p>gluing</p> <ul style="list-style-type: none"> Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons. 	<p>stiffening a variety of materials.</p> <ul style="list-style-type: none"> Test different methods of enabling structures to remain stable. Join appropriately for different materials and situations e.g. glue, tape. Mark out materials to be cut using a template. 	<p>axle fixings and their strengths and weaknesses.</p> <ul style="list-style-type: none"> Make vehicles with construction kits which contain free running wheels. Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels. Roll paper to create tubes. Cut dowel using hacksaw and bench hook. Attach wheels to a chassis using an axle. Mark out materials to be cut using a template. Fold, tear and cut paper and card. Cut along lines, straight and curved. Use a hole punch. Insert paper fasteners for card. <p>Experiment with levers and sliders to find different ways of making things move in a 2D plane.</p>
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	DESIGN	MAKE	EVALUATE	FOOD	TEXTILES	STRUCTURES	MECHANISMS & ELECTRICAL SYSTEMS
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<u>YEARS 2 & 3</u>	<ul style="list-style-type: none"> ▪ Develop more than one design or adaptation of an initial design. ▪ Plan a sequence of actions to make a product. ▪ Record the plan by drawing using annotated sketches. ▪ Begin to use cross-sectional and exploded diagrams. ▪ Use prototypes to develop and share ideas. ▪ Think ahead about the order of their work and decide upon tools and materials. ▪ Propose realistic suggestions as to how they can achieve their design ideas. ▪ Consider aesthetic qualities of materials chosen. 	<ul style="list-style-type: none"> ▪ Prepare pattern pieces as templates for their design. ▪ Cut slots. ▪ Cut internal shapes. ▪ Select from a range of tools for cutting shaping joining and finishing. ▪ Use tools with accuracy. ▪ Select from techniques for different parts of the process. ▪ Select from materials according to their functional properties. ▪ Plan the stages of the making process. ▪ Use appropriate finishing techniques. 	<ul style="list-style-type: none"> ▪ Investigate similar products to the one to be made to give starting points for a design. ▪ Draw/sketch products to help analyse and understand how products are made. ▪ Research needs of user. ▪ Identify the strengths and weaknesses of their design ideas in relation to purpose/user. ▪ Decide which design idea to develop. ▪ Consider and explain how the finished product could be improved. ▪ Discuss how well the finished product meets the design criteria of the user. <p>Investigate key events and individuals in Design and Technology</p>	<ul style="list-style-type: none"> ▪ Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. ▪ Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury). ▪ Follow instructions/recipes. ▪ Make healthy eating choices – use the <i>Eatwell plate</i>. ▪ Join and combine a range of ingredients. ▪ Explore seasonality of vegetables and fruit. ▪ Find out which fruit and vegetables are grown in countries/continents studied in Geography. <p>Develop understanding of how meat/fish are reared/caught.</p>	<ul style="list-style-type: none"> ▪ Develop vocabulary for tools materials and their properties. ▪ Understand seam allowance. ▪ Join fabrics using running stitch, over sewing, blanket stitch. ▪ Prototype a product using J cloths. ▪ Use prototype to make pattern. ▪ Explore strengthening and stiffening of fabrics. ▪ Explore fastenings (inventors?) and recreate some. ▪ Sew on buttons and make loops. <p>Use appropriate decoration techniques.</p>	<ul style="list-style-type: none"> ▪ Develop vocabulary related to the project. ▪ Create shell or frame structures. ▪ Strengthen frames with diagonal struts. ▪ Make structures more stable by giving them a wide base. ▪ Measure and mark square section, strip and dowel accurately to 1cm. 	<ul style="list-style-type: none"> ▪ Develop vocabulary related to the project. ▪ Use mechanical systems such as gears, pulleys, levers and linkages. ▪ Incorporate a circuit into a model. ▪ Use electrical systems such as switches bulbs and buzzers. ▪ Use ICT to control products. ▪ Use lolly sticks/card to make levers and linkages. <p>Use linkages to make movement larger or more varied.</p>

	DESIGN	MAKE	EVALUATE	FOOD	TEXTILES	STRUCTURES	MECHANISMS & ELECTRICAL SYSTEMS & ICT
<u>YEARS 4 5 & 6</u>	<ul style="list-style-type: none"> ▪ List tools needed before starting the activity. ▪ Plan the sequence of work e.g. using a storyboard. ▪ Record ideas using 	<ul style="list-style-type: none"> ▪ Make prototypes. ▪ Develop one idea in depth. ▪ Use researched information to inform decisions. ▪ Produce detailed lists 	<ul style="list-style-type: none"> ▪ Research and evaluate existing products (including book and web based research). ▪ Consider user and purpose. 	<ul style="list-style-type: none"> ▪ Prepare food products taking into account the properties of ingredients and sensory characteristics. ▪ Weigh and measure 	<ul style="list-style-type: none"> ▪ Use the correct vocabulary appropriate to the project. ▪ Create 3D products using patterns pieces and seam allowance. 	<ul style="list-style-type: none"> ▪ Use the correct terminology for tools materials and processes. ▪ Use bradawl to mark hole positions. ▪ Use hand drill to drill 	<ul style="list-style-type: none"> ▪ Develop a technical vocabulary appropriate to the project. ▪ Use mechanical systems such as cams, pulleys and

	<p>annotated diagrams.</p> <ul style="list-style-type: none"> ▪ Use models, kits and drawings to help formulate design ideas. ▪ Combine modelling and drawing to refine ideas. ▪ Devise step by step plans which can be read / followed by someone else. ▪ Use exploded diagrams and cross-sectional diagrams to communicate ideas. ▪ Sketch and model alternative ideas. ▪ Decide which design idea to develop. 	<p>of ingredients / components / materials and tools.</p> <ul style="list-style-type: none"> ▪ Use a computer to model ideas. ▪ Select from and use a wide range of tools. ▪ Cut accurately and safely to a marked line. ▪ Select from and use a wide range of materials. ▪ Use appropriate finishing techniques for the project. ▪ Refine their product – review and rework/improve. 	<ul style="list-style-type: none"> ▪ Identify the strengths and weaknesses of their design ideas. ▪ Give a report using correct technical vocabulary. ▪ Consider and explain how the finished product could be improved related to design criteria. ▪ Discuss how well the finished product meets the design criteria of the user. Test on the user! ▪ Understand how key people have influenced design. 	<p>using scales.</p> <ul style="list-style-type: none"> ▪ Select and prepare foods for a particular purpose. ▪ Work safely and hygienically. ▪ Show awareness of a healthy diet (using the eatwell plate). ▪ Use a range of cooking techniques. ▪ Know where and how ingredients are grown and processed. ▪ Consider influence of chefs e.g. Jamie Oliver and school meals, and sustainable fishing.... 	<ul style="list-style-type: none"> ▪ Understand pattern layout. ▪ Decorate textiles appropriately (often before joining components). ▪ Pin and tack fabric pieces together. ▪ Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision). ▪ Combine fabrics to create more useful properties. ▪ Make quality products. 	<p>tight and loose fit holes.</p> <ul style="list-style-type: none"> ▪ Cut strip wood, dowel, square section wood accurately to 1mm. ▪ Join materials using appropriate methods. ▪ Build frameworks to support mechanisms. ▪ Stiffen and reinforce complex structures. 	<p>gears.</p> <ul style="list-style-type: none"> ▪ Use electrical systems such as motors. ▪ Program, monitor and control using ICT.
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<p>WIDER EXPERIENCES Cultural capital & multiculturalism.</p>	<p>As you will see from the curriculum map above there are many planned opportunities for pupils at Nateby to engage with architects and buildings from the UK and around the world which exemplify the objectives they are learning about. They are encouraged to bring products in from home to share with the class or discuss the professions of their family who may be chefs, designers and engineers etc. The School also arranges for children to experience design first-hand by visiting local factories and shops. In addition to this we plan other experiences for our pupils so that they have a broad experience of Design Technology and how it is integrated in to our society today. Examples are: workshops provided by local designers, visits to museums such as The Science Museum in Manchester and Peer2Peer Days.</p>
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Impact

Design work is assessed in a formative manner throughout lessons so that the teacher can make constructive interventions where needed without damaging a pupil’s sense of self-expression or belief in themselves as a designer. Sketch books and final pieces of work are assessed continually by the teacher throughout the year. Teachers use this information to inform future lessons; ensuring children are supported and challenged appropriately. This data is analysed on a termly basis to inform and address any trends or gaps in attainment. Children in Foundation Stage are assessed within Expressive Arts and Design and their progress is tracked. Age related expectation levels are reported to all parents or carers at the end of the year.

Pupils are also encouraged to assess their own work. They learn how to make a positive appraisal of the work of others and offer their own, constructive opinions of how work could be improved. This enables them to apply these skills when being selective in the real world and forming their own, informed decisions.

Art and Design work is celebrated in assemblies, through newsletters, on the school website and through rewards and certificate. This creates a high-profile for the subject and high expectations for pupils. It creates a desire for pupils to achieve as well as giving all pupils a feeling of self-worth.

A well-thought out Design Technology curriculum enhances achievement across the curriculum and enables all learners to access other subjects by developing how their problem solving abilities and enabling them to use the skills of planning, reviewing and editing their work across the curriculum.