

Design and Technology Progression of Knowledge and Skills

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 [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils will be taught to:

Design	<ul style="list-style-type: none"> • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Make	<ul style="list-style-type: none"> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities computer-aided design
Evaluate	<ul style="list-style-type: none"> • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world
Technical Knowledge	<ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

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. Pupils will be taught to:

- 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.

Design and Technology Curriculum Coverage 2023-24

	Cooking and nutrition	Mechanical systems	Electrical systems	Structures	Textiles
Year 3	Dips and dippers			Stone-Age shelters	
Year 4		Moving toys	Electric vehicles		
Year 5				Furniture	Islamic prayer mats
Year 6	WW2 baking		Fairground rides		Christmas stockings

Year 3

Autumn 1	
Cooking and Nutrition: Dips and Dippers	
In Year 3 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):	
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Planning	<ul style="list-style-type: none"> gather information about user needs; develop their own design criteria; describe the user, purpose and design features of their products and explain how they will work; generate realistic ideas based on user needs; use a range of drawing skills, discussion and prototypes.
Make Planning Practical skills and techniques	<ul style="list-style-type: none"> order the main stages of making; select suitable equipment and ingredients and explain their choices; follow procedures for safety and hygiene.
Evaluate Own ideas and products Existing products	<ul style="list-style-type: none"> evaluate their ideas and products against their design criteria evaluate existing dips based on their taste, smell, appearance, texture and order of preference; know why ingredients have been chosen and how the dips have been made;
Technical Knowledge Making products work	<ul style="list-style-type: none"> use the correct technical vocabulary.
Cooking and nutrition Where food comes from Food preparation, cooking and nutrition	<ul style="list-style-type: none"> know that food is prepared in the UK, Europe and the wider world; know how to prepare a variety of dishes safely and hygienically; know that a healthy diet is made from a variety and balance of different food; know that food is needed to provide energy for the body.
Practical Foods Skills Food	mix/stir <ul style="list-style-type: none"> fold ingredients together carefully
	spoon <ul style="list-style-type: none"> be able to gauge the quantities spooned to ensure an equal amount of ingredients in each container
	measure <ul style="list-style-type: none"> using a measuring jug independently and accurately using digital and analogue scales accurately and independently
	cut <ul style="list-style-type: none"> higher resistance food with a vegetable knife, using the claw grip higher resistant foods from using the bridge hold
Vocabulary	user a person who uses something
	purpose the reason why something is done or created
	design brief a document or set of instructions that outline what the purpose of a project is and what is required
	design criteria the goals that a project must achieve to be successful
	design features characteristics that meet an intended user and purpose
	evaluate to judge something against a set of criteria
	taste how something tastes
	smell how something smells
	appearance how something looks
	texture how something feels
	preference a greater liking for something over other things
	recipe a set of instructions for preparing a particular dish, including a list of ingredients that are needed
	spooning to put food into/on something using a spoon
mixing to combine/put together to form a substance/mass	

	measuring	to calculate the size, amount or degree of something
	cutting	to divide something into pieces using a sharp implement
	bridge hold	a method used for cutting safely with a knife
	claw grip	a method used for slicing safely with a knife
	nutrition	the process of eating food necessary for health and growth

'Sticky Knowledge'

In Design and Technology, pupils should know:

- who the user of their product is
- what the purpose of their product is
- what a design brief is
- how to develop their own design criteria
- how to evaluate their products against their design criteria

By the end of this unit, pupils should know:

- how to follow a recipe
- how to use the bridge hold to cut vegetables with a knife
- how to use the claw grip to slice vegetables with a knife
- understand the basis of a healthy diet as dictated by the Eatwell Guide
 - drink plenty of fluids – the government recommends 6 to 8 cups or glasses a day
 - eat foods high in fat, salt and sugar less often and in small amounts
 - choose unsaturated oils and spreads, and eat in small amounts
 - have some dairy or dairy alternatives (such as soya drinks and yoghurts)
 - eat some beans, pulses, fish, eggs, meat and other protein foods
 - base meals on potatoes, bread, rice, pasta or other starchy carbohydrates
 - eat at least 5 portions of a variety of fruit and vegetables a day

Year 3

Spring 1																									
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Technical Knowledge Making products work	<ul style="list-style-type: none"> ● know that materials have functional and aesthetic qualities; ● know how to make strong, stiff shell structures; ● use the correct technical vocabulary. 																								
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Year 4

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By the end of this unit, pupils should know:

- what an input is
- what a process is
- what an output is
- what a pneumatic system is and how it works
- how pneumatic systems are used in everyday life

Year 4

Summer 2																																											
Electrical Systems: Electric vehicles																																											
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- how to evaluate their products against their design criteria

By the end of this unit, pupils should know:

- how to measure, mark out, cut, shape, assemble, join and finish with accuracy
- how to use an electrical system (motor) to power a product
- what an input is
- what a process is
- what an output is

Year 5

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Textiles: Islamic prayer mats																																					
In Year 5 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):																																					
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Planning	<ul style="list-style-type: none"> ● carry out research; ● develop a simple design specification; ● describe the user, purpose and design features of their products and explain how they will work. ● generate innovative ideas drawing on research; ● use a range of drawing skills, discussion and prototypes. 																																				
Make Planning Practical skills and techniques	<ul style="list-style-type: none"> ● formulate lists of resources and step-by-step plans; ● select suitable tools, equipment, materials and components and explain their choices. ● follow procedures for safety and hygiene; ● use a wider range of materials; ● measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. 																																				
Evaluate Own ideas and products Existing products	<ul style="list-style-type: none"> ● identify strengths and areas to develop in their ideas and products against their design specification; ● consider the views of others to make improvements. ● investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; ● know why materials have been chosen, how well they work, and how innovative and sustainable they are. 																																				
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'Sticky Knowledge'

<p>In Design and Technology, pupils should know:</p> <ul style="list-style-type: none">• who the user of their product is• what the purpose of their product is• what a design brief is• how to develop their own design specification• how to undertake research to gather user needs• how to evaluate their products against their design criteria	<p>By the end of this unit, pupils should know:</p> <ul style="list-style-type: none">• how to sew a running stitch• how to sew a blanket stitch• how to measure, mark out, cut, shape, assemble, join and finish with accuracy
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Year 5

Summer 2																																					
Structures: Furniture																																					
In Year 5 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):																																					
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Planning	<ul style="list-style-type: none"> • carry out research; • develop a simple design specification; • describe the user, purpose and design features of their products and explain how they will work. • generate innovative ideas drawing on research; • use a range of drawing skills, discussion and prototypes. 																																				
Make Planning Practical skills and techniques	<ul style="list-style-type: none"> • formulate lists of resources and step-by-step plans; • select suitable tools, equipment, materials and components and explain their choices. • follow procedures for safety and hygiene; • use a wider range of materials; • measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. 																																				
Evaluate Own ideas and products Existing products	<ul style="list-style-type: none"> • identify strengths and areas to develop in their ideas and products against their design specification; • consider the views of others to make improvements. • investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; • know why materials have been chosen, how well they work, and how innovative and sustainable they are. 																																				
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'Sticky Knowledge'

In Design and Technology, pupils should know:

- who the user of their product is
- what the purpose of their product is
- what a design brief is
- how to develop their own design specification
- how to undertake research to gather user needs
- how to evaluate their products against their design criteria

By the end of this unit, pupils should know:

- how to measure components accurately
- how to mark out wood
- how to cut wood using a Tennon saw safely and with accuracy
- how to shape a product with accuracy
- how to assemble a product with accuracy
- how to join two or more components together with accuracy
- how to finish a product to suit their user and purpose

Year 6

Autumn 1																															
Electrical Systems: Fairground rides																															
In Year 6 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):																															
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Planning	<ul style="list-style-type: none"> ● carry out research; ● develop a simple design specification; ● describe the user, purpose and design features of their products and explain how they will work. ● generate innovative ideas drawing on research; ● use a range of drawing skills, discussion and prototypes. 																														
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Evaluate Own ideas and products Existing products	<ul style="list-style-type: none"> ● identify strengths and areas to develop in their ideas and products against their design specification; ● consider the views of others to make improvements. ● investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; ● know why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are. 																														
Technical Knowledge Making products work	<ul style="list-style-type: none"> ● know that materials have functional and aesthetic qualities; ● that systems have an input, process and output; ● how to reinforce and strengthen a framework; ● use the correct technical vocabulary. 																														
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	finish	to complete the decoration of something by giving it an attractive appearance
	components	a part that when put together makes a product
	input	the trigger that makes a system do what it is supposed to do
	process	the part of a system that receives a signal from the input components and then tells the output components what to do
	output	the part of the system that does the work
	electrical system	an electric system consists of all the elements needed to distribute electrical power
	reciprocating motion	moves in a straight line one way and then the other way
	oscillating motion	moves in a circular path, first one way and then the other way
	rotary motion	moves in a circular path in one direction only
	linear motion	moves in one direction only

'Sticky Knowledge'

<p>In Design and Technology, pupils should know:</p> <ul style="list-style-type: none"> • who the user of their product is • what the purpose of their product is • what a design brief is • how to develop their own design specification • how to undertake research to gather user needs • how to evaluate their products against their design criteria 	<p>By the end of this unit, pupils should know:</p> <ul style="list-style-type: none"> • how to measure, mark out, cut, shape, assemble, join and finish with accuracy • how to use an electrical system (motor) to power a product • what the different types of motion are (reciprocating, oscillating, rotary and linear) and their definitions
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Year 6

Autumn 2		
Textiles: Christmas stockings		
In Year 6 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):		
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Planning	<ul style="list-style-type: none"> carry out research; develop a simple design specification; describe the user, purpose and design features of their products and explain how they will work. generate innovative ideas drawing on research; use a range of drawing skills, discussion and prototypes. 	
Make Planning Practical skills and techniques	<ul style="list-style-type: none"> formulate lists of resources and step-by-step plans; select suitable tools, equipment, materials and components and explain their choices. follow procedures for safety and hygiene; use a wider range of materials; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. 	
Evaluate Own ideas and products Existing products	<ul style="list-style-type: none"> identify strengths and areas to develop in their ideas and products against their design specification; consider the views of others to make improvements. investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; know why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are. 	
Technical Knowledge Making products work	<ul style="list-style-type: none"> know that materials have functional and aesthetic qualities; use the correct technical vocabulary. 	
Vocabulary	user	a person who uses something
	purpose	the reason why something is done or created
	design brief	a document or set of instructions that outline what the purpose of a project is and what is required
	design specification	a list of characteristics a product must have
	research	investigating something to gain more information about it
	design features	characteristics that meet an intended user and purpose
	prototype	an original model of a product from which improvements, upgrades or fundamental changes can be made
	evaluate	to judge something against a set of criteria
	functional qualities	how something works
	aesthetic qualities	how something looks
	measure	to calculate the size, amount or degree of something
	mark out	to outline a particular section or area
	cut	to divide something into pieces using a sharp implement
assemble	to make something by fitting together different components	
join	to hold two components together physically	

	finish	to complete the decoration of something by giving it an attractive appearance
	chain stitch	can be used to hold two edges together, to neaten edges or just produce a decorative effect
	running stitch	can be used for tacking seams and hems before sewing, joining two pieces of fabric together and also for decoration using coloured thread
	blanket stitch	used as a decorative stitch

'Sticky Knowledge'	
<p>In Design and Technology, pupils should know:</p> <ul style="list-style-type: none"> • who the user of their product is • what the purpose of their product is • what a design brief is • how to develop their own design specification • how to undertake research to gather user needs • how to evaluate their products against their design criteria 	<p>By the end of this unit, pupils should know:</p> <ul style="list-style-type: none"> • how to sew a chain stitch • how to sew a running stitch • how to sew a blanket stitch • how to measure, mark out, cut, shape, assemble, join and finish with accuracy

Year 6

Spring 1		
Cooking and Nutrition: World War 2 baking		
In Year 6 pupils at Waverley Abbey will be able to (red = knowledge, green = skills):		
<p>Design Understanding contexts, users and purposes</p> <p>Generating, developing, modelling and communicating ideas</p> <p>Planning</p>	<ul style="list-style-type: none"> ● carry out research; ● develop a simple design specification; ● describe the user, purpose and design features of their products and explain how they will work. ● generate innovative ideas drawing on research; ● use a range of drawing skills and discussion 	
<p>Make Planning</p> <p>Practical skills and techniques</p>	<ul style="list-style-type: none"> ● formulate lists of resources and step-by-step plans; ● select suitable equipment and ingredients and explain their choices. ● follow procedures for safety and hygiene 	
<p>Evaluate Own ideas and products</p> <p>Existing products</p>	<ul style="list-style-type: none"> ● identify strengths and areas to develop in their ideas and products against their design specification; ● consider the views of others to make improvements. ● investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; ● evaluate ingredients and foods used/eaten during World War 2 based on their taste, smell, appearance, texture, and order of preference ● know why ingredients have been chosen within the context of World War 2 	
<p>Technical Knowledge Making products work</p>	<ul style="list-style-type: none"> ● use the correct technical vocabulary. 	
<p>Cooking and Nutrition Where food comes from</p> <p>Food preparation, cooking and nutrition</p>	<ul style="list-style-type: none"> ● know that food is grown, reared and caught in the UK, Europe and the wider world; ● that seasons may affect the food available; ● how food is processed into ingredients. ● know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; ● that different food and drink contain nutrients, water and fibre that are needed for health. 	
<p>Practical Foods Skills Foods</p>	<p>peel</p>	<ul style="list-style-type: none"> ● with a swivel peel to create food ribbons to be used in a dish
<p>Practical Foods Skills Foods</p>	<p>shape and mould</p>	<ul style="list-style-type: none"> ● to create visually appealing products
<p>Practical Foods Skills Foods</p>	<p>mix/stir</p>	<ul style="list-style-type: none"> ● fold ingredients together carefully
<p>Practical Foods Skills Foods</p>	<p>spoon</p>	<ul style="list-style-type: none"> ● be able to gauge the quantities spooned to ensure an equal amount of ingredients in each container
<p>Practical Foods Skills Foods</p>	<p>measure</p>	<ul style="list-style-type: none"> ● using a measuring jug independently and accurately ● using digital and analogue scales accurately and independently
<p>Practical Foods Skills Foods</p>	<p>cut out</p>	<ul style="list-style-type: none"> ● place the cutter in positions to make good of the material available and avoid waste
<p>Practical Foods Skills Foods</p>	<p>cut</p>	<ul style="list-style-type: none"> ● higher resistance food with a vegetable knife, using the claw grip ● higher resistant foods from using the bridge hold

Vocabulary	evaluate	to judge something against a set of criteria
	taste	how something tastes
	smell	how something smells
	appearance	how something looks
	texture	how something feels
	preference	a greater liking for something over other things
	recipe	a set of instructions for preparing a particular dish, including a list of ingredients that are needed
	nutrition	the process of eating food necessary for health and growth
	rations	a fixed portion of food or other goods allowed to each person in times of shortages

'Sticky Knowledge'	
<p>In Design and Technology, pupils should know:</p> <ul style="list-style-type: none"> • who the user of their product is • what the purpose of their product is • what a design brief is • how to develop their own design specification • how to undertake research to gather user needs • how to evaluate their products against their design criteria 	<p>By the end of this unit, pupils should know:</p> <ul style="list-style-type: none"> • how to follow a recipe • how to use the bridge hold to cut with a knife • how to use the claw grip to slice with a knife • understand the basis of a healthy diet as dictated by the Eatwell Guide <ul style="list-style-type: none"> ◦ drink plenty of fluids – the government recommends 6 to 8 cups or glasses a day ◦ eat foods high in fat, salt and sugar less often and in small amounts ◦ choose unsaturated oils and spreads, and eat in small amounts ◦ have some dairy or dairy alternatives (such as soya drinks and yoghurts) ◦ eat some beans, pulses, fish, eggs, meat and other protein foods ◦ base meals on potatoes, bread, rice, pasta or other starchy carbohydrates ◦ eat at least 5 portions of a variety of fruit and vegetables a day