Design and Technology Progression of Knowledge and Skills

Intent: At Waverley Abbey, we intend for our Design and Technology curriculum to encourage our pupils to develop an interest and appreciation of the world and everything in it. They will recognise that Design and Technology is not only a subject to be learnt in school, it is something that is integrated into every aspect of the modern world: everything that they use in day-to-day life has been designed for a user and a purpose. Furthermore, learning about the design, make and evaluate cycle will give them the skills to critically analyse their work, knowing that everything can always be improved to better suit a particular audience.

Implementation: At Waverley Abbey, pupils are given opportunities to develop their skills in all of the five topic areas: structures, mechanical systems, electrical systems, textiles, and cooking and nutrition. In each year group, pupils study at least two of the topics, showing a clear progression of skills throughout the school. In year 3, pupils are able to develop their skills in making structures and preparing and making food. In year 4, pupils are able to further develop their skills in making structures, as well as learn new skills related to mechanical and electrical systems. In year 5, pupils further develop their skills in mechanical systems and are given the opportunity to work with different textiles by sewing prayer mats. Pupils in year 6 further consolidate their skills in mechanical and electrical systems as well as using more advanced cooking techniques to make desserts inspired by those eaten during World War II.

Impact: Pupils at Waverley Abbey enjoy Design and Technology create products which not only fit a specific user and purpose, but are designed in the exact way they want them. Learning is child-led and activities planned by teachers focus on real-life experiences that are relevant to the pupils they teach. Pupils can critically analyse their own work, and the work of others, using vocabulary which is relevant to the topic they have covered. As they move up the school, pupils develop their knowledge and skills so that by Year 6, they are ready to enhance their learning in a more specialised environment at secondary school.

		Key Stage 2 **(green text denotes knowledge and red text denotes skills)**		
Designing	Understanding contexts, users and purposes	**Across Key Stage 2 pupils should:** • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work	**In years 3 and 4 pupils should also:** • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	**In years 5 and 6 pupils should also:** • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking
	Generating, developing, modelling and communicating ideas	**Across Key Stage 2 pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas	**In years 3 and 4 pupils should also:** • generate realistic ideas, focusing on the needs of the user	**In years 5 and 6 pupils should also:** • generate innovative ideas, drawing on research

		• use computer-aided design to develop and communicate their ideas		
Making	Planning	**Across Key Stage 2 pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities		
	Practical skills and techniques	**Across Key Stage 2 pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components	**In years 3 and 4 pupils should also:** • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy	**In years 5 and 6 pupils should also:** • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • demonstrate resourcefulness when tackling practical problems
Evaluating	Own ideas and products	**Across Key Stage 2 pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work	**In years 3 and 4 pupils should also:** • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	**In years 5 and 6 pupils should also:** • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
	Existing products	**Across Key Stage 2 pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants	**In years 3 and 4 pupils should also investigate and analyse:** • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused	**In years 5 and 6 pupils should also investigate and analyse:** • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
	Key events and individuals	**Across Key Stage 2 pupils should know:** • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products		

Technical Knowledge	Making products work	**Across Key Stage 2 pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking	**In years 3 and 4 pupils should also know:** • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed	**In years 5 and 6 pupils should also know:** • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients
Cooking and Nutrition	Where food comes from	**Across KS2 pupils should know:** • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world		**In years 5 and 6 pupils should also know:** • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
	Food preparation, cooking and nutrition	**Across KS2 pupils should know:** • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	**In years 3 and 4 pupils should also know:** • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body	**In years 5 and 6 pupils should also know:** • that recipes can be adapted to change the appearance, taste, texture and aroma • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

Design and Technology Curriculum Overview

	Year 3	Year 4	Year 5	Year 6
Autumn 1	Cooking and Nutrition *Dips*			Mechanical Systems and Electrical Systems *Fairground rides*
Autumn 2		Mechanical Systems *Moving toys*		
Spring 1	Structures *Beds*		Textiles *Islamic prayer mats*	
Spring 2			Structures *Furniture*	Cooking and Nutrition *Scones*
Summer 1		Electrical Systems *Electric vehicles*		
Summer 2		Textiles *Pouches*		

Year 3

(green text denotes knowledge and red text denotes skills)

		Cooking and Nutrition: Dips	Structures: Beds for Ug
Designing	Understanding contexts, users and purposes	**Pupils should:** • describe the purpose of their products • develop their own design criteria and use these to inform their ideas	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas
	Generating, developing, modelling and communicating ideas	**Pupils should:** • share and clarify ideas through discussion • use annotated sketches to develop and communicate their ideas	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user
Making	Planning	**Pupils should:** • select tools and equipment suitable for the task	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities
	Practical skills and techniques	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including food ingredients	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits and textiles • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy

Evaluating	Own ideas and products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products
	Existing products	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused
	Key events and individuals	**Key practitioners:** • Alfred Prasad – Great British Chef (focus on fava dip)	**Key practitioners:** • Saudah Saleem – interior designer (Saudah Saleem interiors)
Technical Knowledge	Making products work	**Pupils should know:** • know how to use learning from science to help design and make products that work • know how to use learning from mathematics to help design and make products that work • the correct technical vocabulary for the projects they are undertaking	**Pupils should know:** • know how to use learning from science to help design and make products that work • know how to use learning from mathematics to help design and make products that work • know that materials have both functional properties and aesthetic qualities • the correct technical vocabulary for the projects they are undertaking

Cooking and Nutrition	Where food comes from	**Pupils should know:** • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world	
	Food preparation, cooking and nutrition	**Pupils should know:** • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body	

Year 4

(green text denotes knowledge and red text denotes skills)

		Mechanical Systems: Moving toys	Electrical Systems: Electric cars	Textiles: Pouches
Designing	Understanding contexts, users and purposes	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas
	Generating, developing, modelling and communicating ideas	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user
Making	Planning	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities
	Practical skills and techniques	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and mechanical components	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and electrical components	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including textiles,

		• measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy	• measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy	• measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy
Evaluating	Own ideas and products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products
	Existing products	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused
	Key events and individuals	**Key practitioners:** • Leonardo da Vinci – engineer/painter/scientist/architect (focus on mechanisms)	**Key practitioners:** • Henry Ford – car manufacturer (Ford cars)	**Key practitioners:** • Coco Chanel – founded Chanel (high-end fashion/bag brand) • Christian Dior – founded Dior (high-end fashion/bag brand)

				• Michele Taddei and Renzo Zengiaro – founders of Bottega Veneta (high-end fashion/bag brand)
Technical Knowledge	Making products work	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that mechanical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as levers and linkages or pneumatic systems create movement	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how simple electrical circuits and components can be used to create functional products	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • the correct technical vocabulary for the projects they are undertaking • that a single fabric shape can be used to make a 3D textiles product

Year 5

(green text denotes knowledge and red text denotes skills)

		Textiles Islamic Prayer mats	Structures: Furniture
Designing	Understanding contexts, users and purposes	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking
	Generating, developing, modelling and communicating ideas	**Pupils should:** • share and clarify ideas through discussion • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • generate innovative ideas, drawing on research	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • generate innovative ideas, drawing on research
Making	Planning	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities
	Practical skills and techniques	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including textiles • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • demonstrate resourcefulness when tackling practical problems	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • demonstrate resourcefulness when tackling practical problems

Evaluating	Own ideas and products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
	Existing products	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
	Key events and individuals	**Key practitioners:** • Kamal Ali – founded a company who created an interactive prayer mat for Muslim children (My Salah Mat)	**Key practitioners:** • Bodil Kjaer – architect and furniture designer (Bodil Kjaer designs)
Technical Knowledge	Making products work	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • the correct technical vocabulary for the projects they are undertaking • that a 3D textiles product can be made from a combination of fabric shapes	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • the correct technical vocabulary for the projects they are undertaking • how to reinforce and strengthen a 3D framework

Year 6

(green text denotes knowledge and red text denotes skills)

		Mechanical and Electrical Systems Fairground rides	Cooking and Nutrition Scones
Designing	Understanding contexts, users and purposes	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking	**Pupils should:** • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking
	Generating, developing, modelling and communicating ideas	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • generate innovative ideas, drawing on research	**Pupils should:** • share and clarify ideas through discussion • model their ideas using prototypes • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • generate innovative ideas, drawing on research
Making	Planning	**Pupils should:** • select tools and equipment suitable for the task • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities	**Pupils should:** • select tools and equipment suitable for the task
	Practical skills and techniques	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, mechanical components and electrical components • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • demonstrate resourcefulness when tackling practical problems	**Pupils should:** • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including food ingredients • demonstrate resourcefulness when tackling practical problems

Evaluating	Own ideas and products	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	**Pupils should:** • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
	Existing products	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose	**Pupils should investigate and analyse:** • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
	Key events and individuals	**Key practitioners:** • George Washington Ferris Jr – engineer (inventor of the Ferris Wheel)	**Key practitioners:** • Jamie Oliver – chef • Nadiya Hussain – British television chef, author and presenter • Tom Hovey – Great British Bake Off illustrator

Technical Knowledge	Making products work	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to reinforce and strengthen a 3D framework	**Pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • the correct technical vocabulary for the projects they are undertaking • that a recipe can be adapted by adding or substituting one or more ingredients
Cooking and Nutrition	Where food comes from		**Pupils should know:** • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
	Food preparation, cooking and nutrition		**Pupils should know:** • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • that recipes can be adapted to change the appearance, taste, texture and aroma • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

Design and Technology Sticky Knowledge

'Sticky knowledge' is knowledge that will stay with us forever. In other words, it is when an alteration has happened to our long-term memory. We can divide sticky knowledge into two main parts. Firstly, it includes interesting facts that will remain with us forever. Secondly, it includes knowledge that individuals need to learn as part of the National Curriculum.

-Focus Education

Key Knowledge	Key Vocabulary
• An intended user is a person, or group, whom a product is designed for • The purpose of a product is the reason why it was designed/created • Design features are characteristics that meet an intended user and purpose • A prototype is an original model of a product from which improvements, upgrades or fundamental changes can be made • Functional properties are how something works • Aesthetic qualities are how something looks • A design brief is a document or set of instructions that outline what the purpose of a project is and what is required • Design criteria are goals that a product must achieve to be successful (LKS2) • A design specification is a list of characteristics that a product must have (UKS2)	User Purpose Design features Prototypes Functional properties Aesthetic qualities Design brief Design criteria (LKS2) Design specification (UKS2)

Year 3 Sticky Knowledge

	New Knowledge	New Vocabulary
Cooking and Nutrition: Dips	• A healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate • There are five different food groups – carbohydrates; dairy; saturated fats; proteins; fruit and vegetables	Taste Smell Appearance Texture Preference Healthy Dips Ingredients Food groups The 'claw grip' The bridge hold
Structures: Beds for Ug	• A structure is something constructed of several several parts put together • A framework is an essential supporting structure of a building, vehicle or object • Frameworks need to be reinforced to support the weight of a structure	Structure Framework Reinforce Measuring Marking out Cutting Assembling Joining Finishing

Year 4 Sticky Knowledge

	New Knowledge	New Vocabulary
Mechanical Systems: Moving toys	• There are different types of cams which create different movements • A cam is a piece of material, usually made out of wood, that makes something move • A simple cam mechanism consists of a cam, a cam follower, an axle, a frame and a crank handle • Linear motion – in one direction only • Rotary motion – in a circular path in one direction only • Mechanical systems have an input, process and output • An input component is the trigger that makes a system do what it is supposed to do • A process determines what the system does with the input • An output component presents the results of the process	Pneumatics Cam mechanism Cam Eccentric cam Frame Crank handle Axle Cam follower Linear motion Rotary motion Input Process Output
Electrical Systems: Electric cars	• A pulley system is a grooved wheel over which a drive belt can run • An axle is a bar that goes through the wheels and keeping them in place lets the wheels turn • 'The bearings' is a friction device to help aid the efficiency of rotation • Electrical systems have an input, process and output	Simple circuit Pulley system Axle Motor Drive belt
Textiles: Pouches	• There are two different ways you can sew either by hand or by using a sewing machine • You need one needle and one piece of cotton or thread to start sewing • There are different types of stitches, which are good for different things • The easiest stitch to use is the running stitch	Needle Thread Running stitch Blanket stitch

Year 5 Sticky Knowledge

	New Knowledge	New Vocabulary
Textiles: **Islamic Prayer mats**	• A running stitch is used for tacking seams and hems before sewing, joining two pieces of fabric together and also for decoration using coloured threads • A blanket stitch can be used to hold two edges together, to neaten edges or just to produce a decorative effect • A chain stitch is used for decoration	Chain stitch Tacking Seams
Structures: **Furniture**	• Triangulation is the use of triangular shapes to strengthen a structure • Triangles can be created to improve rigidity of structures • Thin sectioned pieces of wood can be strengthened by using joints	Triangulation Rigidity Joints

Year 6 Sticky Knowledge

	New Knowledge	New Vocabulary
Mechanical and Electrical Systems: **Fairground rides**	• There are four different types of movement – linear motion, rotary motion, reciprocating motion and oscillating motion • Reciprocating motion – in a straight line one way and then the other • Oscillating motion – in a circular path, first one way and then the other way	Reciprocating motion Oscillating motion
Cooking and Nutrition: **Scones**	• All foods have a nutritional value • Nutrition information on food packaging shows the percentage of energy, fat, saturates, sugars and salt that a serving of food has • There are five different tastes – food can either be sweet, sour, bitter, salty or umami • Chefs balance tastes to create flavour combinations • Seasonal food is fresh food that is ready to eat during its preferred season	Nutritional value Recipe Flavours Sweet Sour Bitter Salty Umami Seasonal Savoury Mixing Stirring Combining
Textiles: **Fashion design**	• Colour theory is a practical combination of art and science that's used to determine what colours look good together • Colours that look good together are called a colour harmony • An analogous combination is when shades next to one another on the colour wheel are used in conjunction • A complementary combination is when shades opposite one another on the colour wheel are used in conjunction • A greyscale combination is entirely void of colour – only using black and white in conjunction • A monochromatic combination is when a single colour is used with varying shades of the same hue	Colour theory Analogous Complementary Greyscale Monochromatic