

Curriculum Intent**Intent**

Our vision for D&T is of an inspiring, rigorous subject based around the teaching and learning of technical knowledge and practical competencies in support of the design and realisation of different products in a range of media. Creative thinking and an understanding of the broader design process underpins all. Wherever possible, pupils address 'real life' design problems derived from contextual challenges. Students learn design skills and methods and use an iterative approach to designing.

Implementation

At KS3, we operate a rotation system whereby groups spend each term covering particular subject areas with different specialist teachers. In this way students experience the full range of D&T material areas. We aim to meet all the demands of the National Curriculum for Design & Technology. Our curriculum is accessible to all through provision of a range of opportunities and challenges for students of diverse abilities, talents and backgrounds. Students learn to work independently and in groups. All are encouraged to be well motivated and confident learners and problem solvers. Projects are based around design & make activities, covering a range of contexts and materials. Each project also aims to build technical knowledge and develop students' ability to analyse and evaluate their own work. We aim to make links to designs and designers throughout history, providing opportunities for children to critically reflect upon and evaluate their designs. We also aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing and art.

Impact

We assess projects termly and monitor progress over time. We aim to ensure that by the end of the key stage, students have:

- Developed the creative, technical and practical expertise needed to perform everyday tasks confidently.
- The ability to 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 and critique, evaluate and test their ideas and products and the work of others.
- An understanding and ability to apply the principles of nutrition and how to cook. Children will be able to design and make a range of products.
- Developed a critical understanding of the impact of Design & Technology on daily life and the wider world.

At the end of KS3, students are able to progress into a range of D&T specialist areas.

Yr7 (KS3)	Topic Area	Knowledge/Skills that are taught	Knowledge/Skills revisited	What does good look like?	Resources/support at home
Autumn 1	Key Skills Passport	<p>Design Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Technical Knowledge Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p>	Pupils arrive from feeder schools with different experiences of D&T. Few have significant experience using workshop tools & equipment.	Pupils become familiar with workshop rules, the concept of risk assessment and health & safety. Pupils build a repertoire of skills, using tools and equipment.	Project booklet - Key words / Key terms
Autumn 2	Structures	<p>Design Use research and exploration, such as the study of different cultures, to identify and understand user needs Identify and solve their own design problems and understand how to reformulate problems given to them Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Evaluate Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</p> <p>Technical Knowledge Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p>	Designing, making, developing technical knowledge and evaluating.	<p>Knowledge / understanding Students have learned the key words & terms for this unit. Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.</p> <p>Skills Students know how to use specialist tools, techniques, processes and equipment precisely. This is achieved through group / pair work on a structures design & make project.</p>	Google classroom - Project booklet & homework tasks PG Online resources
Spring 1	Mood Lamp	<p>Design Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses Develop and communicate design ideas using</p>	Designing, making, developing technical knowledge	<p>Knowledge / understanding Students have learned the key words & terms for this unit. Students are able to write a design brief and specification for their lighting product.</p>	Google classroom - Project booklet & homework tasks

		<p>annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Technical Knowledge Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</p>		<p>Students know how to generate, develop and communicate design ideas through hand and CAD drawings. Students understand how electrical and electronic systems can be powered and used in their products.</p> <p>Skills Students understand how to make a simple circuit using appropriate tools and equipment. Students use CAM output device in production of mood lamp diffuser. Students produce a well-made and working mood lamp. Knowledge / understanding Students understand how to evaluate work using given criteria.</p>	
Spring 2	Mood Lamp	As above	As above	As above	As above
Summer 1	Food	<p>COOKING & NUTRITION Understand and apply the principles of nutrition and health Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]. Understand the source, seasonality and characteristics of a broad range of ingredients.</p>	<p>Prior knowledge from KS2. Pupils should have some experience: Designing, making, developing technical knowledge and evaluating. This varies depending on feeder school.</p>	<p>Knowledge / understanding Should be able to name and sort foods into the 5 food groups - EatWell Plate. To learn the functions of ingredients for a variety of food products. Be able to consider to evaluate the characteristics of dishes, taking into consideration; taste, texture, aroma and appearance. To adapt basic recipes/ingredients to produce a personalised dish.</p> <p>Skills: To learn how to use a range of Food Preparation Skills; chopping, slicing, dicing, grating, peeling, mixing, kneading and baking to make their product. Take into consideration Safety and hygiene issues with regards to food preparation; safe handling of a sharp knife, putting food into and take it out of an oven. To work as part of an effective team to clean and tidy the kitchen units. To adapt and create a range of healthy snacks; Savoury Scones, Pasta Bake, Flapjacks., Spiced Tomato and Vegetable</p>	<p>Google classroom - Project booklet & homework tasks and recipe/ingredients information</p>

				Soup & Pizza using a heat source.	
Summer 2	Food	As above	As Above	As above	As above
Yr8 (KS3)	Topic Area	Knowledge/Skills that are taught	Knowledge/Skills revisited	What does good look like?	Resources/support at home
Autumn 1	Iterative design	<p>Design Identify and solve their own design problems and understand how to reformulate problems given to them Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Evaluate Investigate new and emerging technologies Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</p> <p>Technical knowledge Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p>	This project builds on designing & making skills learned in Year 7.	<p>Knowledge / understanding Students understand how to identify their own design problem within a given context. Students understand how to develop more detailed briefs and specifications for specific intended users. Students can use a range of techniques to generate and communicate ideas in an iterative process.</p> <p>Skills Students know how to select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture, in order to produce modelled iterations of their furniture product. Students can select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties, in order to produce a prototype furniture product.</p>	Google classroom - PG Online resources and worksheets
Autumn 2	Card Engineering -Pop up	<p>Design Identify and solve their own design problems and understand how to reformulate problems given to them Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</p>	This project builds on designing & making skills learned in Year 7.	<p>knowledge / understanding Students will have learned the key words & terms for this unit. Students will know how to devise a design brief / specification. for an intended user / client. Students will know about the work of origami</p>	Google classroom - Project booklet & homework tasks

		<p>Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make</p> <p>Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Evaluate</p> <p>Analyse the work of past and present professionals and others to develop and broaden their understanding</p> <p>Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</p> <p>Technical knowledge</p> <p>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p>		<p>& kirigami designers.</p> <p>Students will understand how to use storyboarding and other techniques to develop their product.</p> <p>Students will be able to use a range of 2D & 3D techniques in their design development.</p> <p>Skills</p> <p>Students will use hand, machine and CAM outputs in the production of paper & card models & prototypes.</p> <p>Students will know how to make and use card engineering devices and techniques to create movement in pop up products.</p>	
Spring 1	Mechanisms - Sweet Dispenser	<p>Design</p> <p>Identify and solve their own design problems and understand how to reformulate problems given to them</p> <p>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make</p> <p>Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Evaluate</p> <p>Analyse the work of past and present professionals</p>	This project builds on designing & making skills learned in Year 7.	<p>knowledge / understanding</p> <p>Students will have learned the key words & terms for this unit.</p> <p>Students will know how to devise a design brief / specification. for an intended user / client.</p> <p>Students will be able to use a range of 2D & 3D techniques in their design development.</p> <p>Skills</p> <p>Students will know how to use hand, machine and CAM outputs and standard components in the production of card and paper prototypes and wood based products containing mechanisms.</p>	Google classroom - Project booklet & homework tasks

		<p>and others to develop and broaden their understanding</p> <p>Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</p> <p>Technical knowledge</p> <p>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p> <p>Understand how more advanced mechanical systems used in their products enable changes in movement and force</p>			
Spring 2	Mechanisms - Sweet Dispenser	As above	As above	As above	As above

Summer 1	Textiles	<p>Design Identify and solve their own design problems and understand how to reformulate problems given to them Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Evaluate Analyse the work of past and present professionals and others to develop and broaden their understanding Investigate new and emerging technologies Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</p>	Pupils will build on their KS2 knowledge of Textiles.	<p>Knowledge / understanding Students have learned the key words & terms for this unit: Content from Core technical principles Units 1.3. This unit is tested in class. Pupils will know the difference between Natural & Synthetic Fibres. Pupils will learn there are 3 different types of fabrics in Textiles - woven, knitted and non-woven. Pupils will have investigated the origins of a number of Natural & Synthetic Fibres and learn how the fibre is transformed from fibre to thread to fabric to a garment. Pupils are to investigate an art movement that will influence the designing and making of their product. Pupils will learn how technology is influencing new modern material being developed and used in Textiles and other areas of DT.</p> <p>Skills: Pupils will be able to distinguish between different material types. Pupils will learn a range of hand embroidery stitches as well as applique which they will use to construct either a zip card holder or a pin cushion.</p>	Google classroom - Project booklet & homework tasks. Quizlet - testing.
Summer 2	Textiles	As Above	As Above	As Above	
Yr9 (KS3)	Topic Area	Knowledge/Skills that are taught	Knowledge/Skills revisited	What does good look like?	Resources/support at home
Autumn 1	<p>Energy, systems & devices:</p> <p>Energy generation & Storage Systems approach to designing</p>	<p>Design Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques,</p>		<p>Knowledge / understanding Students have learned the key words & terms for this unit: Content from Core technical principles Units 1.1, 1.4 & 1.5. These units are tested in class. Students understand the principles of simple and more complex electrical and electronic</p>	

		<p>processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Evaluate</p> <p>Investigate new and emerging technologies</p> <p>TEchnical knowledge</p> <p>Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</p> <p>Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</p>		<p>circuits.</p> <p>Students know how to use PICAXE programming software.</p> <p>Students can use SketchUp 3D CAD software.</p> <p>Skills</p> <p>Students know how to model a light sensor circuit.</p>	
Autumn 2	<p>Energy, systems & devices:</p> <p>Mechanical devices</p>	<p>Design</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make</p> <p>Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Technical knowledge</p> <p>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p> <p>Understand how more advanced mechanical systems used in their products enable changes in movement and force</p>	<p>Students revisit and develop knowledge and skills covered in the Structures project.</p>	<p>Knowledge / understanding</p> <p>Students understand the principles behind some mechanical devices, how they work and can be employed.</p> <p>Students understand how to design & make strong and efficient structures.</p> <p>Skills</p> <p>Students know how to use a wider range of tools, equipment and processes to make a catapult device for use in a class competition.</p>	
Spring 1	<p>Metalwork</p>	<p>Design</p> <p>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</p> <p>Develop and communicate design ideas using</p>	<p>Students revisit and develop knowledge and skills covered in the earphone holder Design & Make project.</p>	<p>Knowledge / understanding</p> <p>Students have learned the key words & terms for this unit: Content from Core technical principles Units 1.6. This unit is tested in class.</p>	

		<p>annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p> <p>Evaluate Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</p> <p>Technical knowledge Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p>		<p>Students know how to generate, develop and communicate design ideas in 2 & 3 dimensions as part of an iterative design process.</p> <p>Skills Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. Students know how to use a range of specialist tools, techniques, processes and equipment precisely.</p>	
Spring 2	Metalwork	As above	As above	As above	As above
Summer 1	Food	<p>COOKING & NUTRITION Understand and apply the principles of nutrition and health Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet. Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]. Understand the source, seasonality and characteristics of a broad range of ingredients.</p>	Building on practical skills and knowledge they have learnt in Year7.	<p>Knowledge / understanding Should be able to name and sort foods into the 8 Tips for Eating Healthy be able to take into account person preferences, socio-economic aspects as well as nutritional and health needs and food choices - the increased popularity of vegetarianism and plant based diets. To build on the knowledge of origins and functions of ingredients for a variety of food products. e.g. bacon is pork which comes from a pig. Be able to consider to evaluate the characteristics of dishes, taking into consideration; taste, texture, aroma and appearance. To adapt basic recipes/ingredients to produce a personalised dish. To understand the importance of using a wide range of ingredients such as meat, fish and meat alternatives like soya.</p>	

				<p>Skills:</p> <p>To learn how to use a range of Food Preparation Skills; preparing and cooking with raw meat and cooked fish as well as refining their skills when chopping, slicing, dicing, grating, peeling, mixing, kneading and baking to make their product. Take into consideration Safety and hygiene issues with regards to food preparation; safe handling of a sharp knife, putting food into and take it out of an oven.</p> <p>Pupils will also understand why it is important to store food correctly and at the right temperature.</p> <p>Also pupils will understand how hazards when cooking can lead to serious consequences on the consumer.</p> <p>To work as part of an effective team to clean and tidy the kitchen units.</p> <p>To adapt and create a range of healthy family friendly dishes; Vegetable Tart, No Meat Chilli, Fish and Vegetable Bake, Chicken & Veg Thai Green Curry (using standard components), Indian Chicken Curry (No paste) Tuna Pasta, & Chow Mein using a range of proteins and heat sources.</p>	
Summer 2	Food	As above	As above	As above	As above