

Design & Technology- Whole School Overview

In D&T we build upon the learning in KS1 and by the end of year 6 we aim for all pupils to have studied a broad and progressive curriculum. We focus on analysing, designing, making & evaluating a range of real life products in order to solve problems for a varied audience. The process enables pupils to think creatively and draw upon knowledge from subjects such as science, mathematics, computing and art. Pupils are taught about the impact of design on everyday life and the contribution it makes to the wealth and culture of our nation. We focus on a range of key concepts, skills, knowledge & vocabulary, which ensures pupils have the necessary understanding to embrace the KS3 curriculum.



JUNIOR SCHOOL

Together we make a difference

Year Group	Autumn Term	Spring Term	Summer Term
Y3	leisure – textiles felt purse/wallet	industry -structures – picture frame	school - mechanical systems – levers and linkages pop up story.
Y4	home -ingredients - soup	enterprise - electrical systems - light	industry– monitoring and control -light
Y5	Mechanical systems – cams – moving toys	Textiles – 3D character toy	school -structures – frame structures
Y6	ingredients - pizza	school - electrical systems - game	leisure– monitoring and control – being active

Previous Learning from KS1			
Textiles	Food technology	Structures	Generic D&T vocabulary
Christmas Stocking <ul style="list-style-type: none"> • sewing • gluing • needle • scissors • join • running stitch 	Created a party tart. <ul style="list-style-type: none"> • nutrition • healthy • varied diet • ingredients 	Aeroplane/underwater box <ul style="list-style-type: none"> • wheel • axle • mechanism, • lever and slider • template • mock up 	<ul style="list-style-type: none"> • communicate • evaluate • product • construction • materials • purpose • design brief
Year 3			
	Autumn	Spring	Summer
Context	leisure – textiles Felt Purse/Wallet <i>By the end of this unit children will have continued to develop their sewing skills and will now be able to use blanket stitch to join two pieces of material together. During the design process they will have created a prototype of their design.</i>	industry – structures photo frames <i>By the end of this unit children will have developed their wood working skills to cut and join wood together. During the design process they will have researched existing photo frames.</i>	school - mechanical systems – levers and linkages pop up storybook <i>By the end of this unit children will have continued to develop their knowledge of levers and linkages to produce a storybook. During the evaluation phase children will seek feedback from children in KS1.</i>
Linked to school values	Together, we are problem solvers. Together, we do our best.	Together, we are problem solvers. Together, we are safe.	Together, we are problem solvers. Together, we are safe.
Recall vocabulary and knowledge.	<ul style="list-style-type: none"> • sewing • running stitch • gluing • join • design • evaluate • product • materials • communicate 	<ul style="list-style-type: none"> • construction • materials • purpose • design brief • join • product 	<ul style="list-style-type: none"> • joining • lever and slider • cutting • communicate • evaluate • materials • purpose • design brief
Key concepts and vocabulary	Design <ul style="list-style-type: none"> • target group • functionality 	Equipment <ul style="list-style-type: none"> • Junior hacksaw • Bench hook 	Design <ul style="list-style-type: none"> • annotate • prototype

	<ul style="list-style-type: none"> aesthetics effectiveness durability prototype/paper pattern <p>Make</p> <ul style="list-style-type: none"> seam allowance blanket stitch components fabric tie a knot thread a needle 	<ul style="list-style-type: none"> G clamp 	<p>Make</p> <ul style="list-style-type: none"> mechanism linkage guide or bridge fixed pivot loose pivot input and output
<p>To understand how key events and individuals in design and technology have helped shape the world</p>	<p>To learn more about the Swiss Engineer, George de Mestral</p> <p>Home learning- find 10 – 20 textile materials, identify how they are joined together.</p>	<ul style="list-style-type: none"> To learn about the carpenter Robert (Mouseman) Thompson. <p>Home learning - Find examples of wood around the home and look at how they are joined together. Identify similarities and differences.</p>	<ul style="list-style-type: none"> To learn about the engineer Archimedes. <p>Home learning – how many items around the home can children photograph of levers and linkages eg corkscrew, nut cracker and scissors</p>
<p>Design</p>	<ul style="list-style-type: none"> To communicate design ideas for a wallet/purse by creating a paper prototype based upon research 	<ul style="list-style-type: none"> To use their research to design an appealing photograph frame. Target group – themselves. 	<ul style="list-style-type: none"> To generate ideas for a storybook, considering the needs of the user, creating annotated sketches to communicate ideas.
<p>Make</p>	<ul style="list-style-type: none"> To select and use fabric and textile components according to their functional properties and aesthetic qualities for their purse/wallet. To select appropriate tools to join material together (needle and thread, fabric scissors). 	<ul style="list-style-type: none"> To select and use materials (wood, card, glue) and components (craft supplies), according to their functional properties. To use equipment (bench hook, g clamp, junior hacksaw) to create a photo frame that stands up. 	<ul style="list-style-type: none"> To select and use construction materials to measure, cut and join to create moving images.
<p>Evaluate</p>			

	<ul style="list-style-type: none"> To evaluate existing products against a design criteria. Identify item functional and aesthetically features. To evaluate their own purse/wallet the design criteria 	<ul style="list-style-type: none"> To investigate and analyse a range of existing free-standing photograph frames 	<ul style="list-style-type: none"> To investigate and analyse existing products with lever and linkage mechanisms. To evaluate their own product, considering the views of others against a design criteria.
Technical knowledge	<ul style="list-style-type: none"> To sew using running stitch or blanket stitch. To choose the best stich for the purpose To attach a button or press stud to felt for the purpose of functionality 	<ul style="list-style-type: none"> To apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<ul style="list-style-type: none"> To understand and use mechanical systems in their products
Cooking & nutrition			



Year 4

	Autumn	Spring	Summer
Context	<p align="center">home -ingredients – soup</p> <p align="center"><i>By the end of this unit, children will have developed skills in using a paring knife to cut seasonal vegetables. Children will follow a simple recipe to create a winter soup.</i></p>	<p align="center">industry– monitoring and control -screensaver</p> <p align="center"><i>By the end of this unit children will use their computing skills to program and control Scratch to create a screensaver that meets a design brief.</i></p>	<p align="center">enterprise - electrical systems – light</p> <p align="center"><i>By the end of this unit children will build on their knowledge of electricity to create a light. They will use their research skills to design and make a light suitable for their bedroom.</i></p>
Linked to school values	<p>Together, we are safe. Together, we do our best.</p>	<p>Together, we are problem solvers. Together, we do our best.</p>	<p>Together, we are problem solvers. Together, we are safe.</p>
Recall vocabulary and knowledge.	<ul style="list-style-type: none"> ● nutrition ● healthy ● varied diet ● ingredients 	<p>Taken from Year 3 computing</p> <ul style="list-style-type: none"> ● input ● event ● code ● sequence ● repetition ● loop ● command ● count-controlled loop ● design brief 	<ul style="list-style-type: none"> ● construction ● materials ● purpose ● design brief ● join ● product
Key concepts and vocabulary	<p>Equipment & Utensils</p> <ul style="list-style-type: none"> ● paring knife ● blender <p>Design</p> <ul style="list-style-type: none"> ● aesthetics ● effectiveness ● functional ● seasonal, ● taste: sweet, sour, hot, spicy, fresh, savoury <p>Make</p> <ul style="list-style-type: none"> ● batons 	<p>Taken from Year 4 spring computing</p> <ul style="list-style-type: none"> ● co-ordinates ● infinite loop ● decomposition 	<p>Make</p> <ul style="list-style-type: none"> ● series circuit ● fault ● connection ● battery ● battery holder ● bulb ● bulb holder ● wire ● insulator ● conductor ● crocodile clip

	<ul style="list-style-type: none"> • coins • dice • claw and bridge method of cutting 		
To understand how key events and individuals in design and technology have helped shape the world	<ul style="list-style-type: none"> • To find out about the TV chef Jamie Oliver. <p>Home learning – read three different recipes of the same soup, identify similarities and differences.</p>	<ul style="list-style-type: none"> • To discover more about the software designer Bill Gates. <p>Home learning – Bill Gates is not only passionate about programming he is passionate about helping others. Write a list of what you are passionate about.</p>	<ul style="list-style-type: none"> • To discover more about the electrical engineer, Dame Caroline Harriet Haslett DBE. <p>Home learning – write a list of electrical items in their homes that saves time.</p>
Design	<ul style="list-style-type: none"> • To create a design criteria for a functional and aesthetically pleasing seasonal soup. 	<ul style="list-style-type: none"> • Through discussion create a design brief. • To generate, develop and communicate ideas about a screen saver. 	<ul style="list-style-type: none"> • To plan and produce an exploded diagram of a nightlight design in response to the design criteria
Make	<ul style="list-style-type: none"> • To follow a basic soup recipe adding extra ingredients so that a seasonal soup is tasty and aesthetically pleasing. 		<ul style="list-style-type: none"> • To select and use materials and electrical components, including construction materials and electrical components according to their functional properties and aesthetic qualities. • To investigate a variety of switches and identify which best meets the design criteria.
Evaluate		<ul style="list-style-type: none"> • Evaluate their ideas using the design criteria, identify the strengths and areas for improvement in their work. 	<ul style="list-style-type: none"> • To research different types of nightlights and use the findings to develop a design criteria. • To be able to honestly evaluate the final product and to suggest alternative solutions where necessary.
Technical knowledge			

	<ul style="list-style-type: none"> • To prepare, slice, chop or dice vegetables using a paring knife safely using either the claw or bridge method. • To select and use utensils and equipment safely and hygienically to make a seasonal soup. 	<ul style="list-style-type: none"> • To apply their understanding of programming to produce a screensaver which meets the design brief. <p>Links To ICT</p>	<ul style="list-style-type: none"> • To understand and use electrical systems in their products <p>Links to science</p>
Cooking & nutrition	<ul style="list-style-type: none"> • To understand seasonality to make a savoury seasonal soup which could be part of a healthy and varied diet. 		



Year 5

	Autumn	Spring	Summer
Context	<p>leisure – cams – moving toy</p> <p><i>By the end of this unit, children will continue to develop their wood working skills to cut and join wood to create a moving toy using various cams.</i></p>	<p>homes - textiles – 3D character toy</p> <p><i>By the end of this unit, children will build on the skills they learnt in Year 3 to create a 3D toy decorating with applique.</i></p>	<p>school -structures – frame structures</p> <p><i>By the end of this unit, children will have evaluated various prototype structures to enable them to work together to create a large structure suitable for a small amount of children to fit inside.</i></p>
Linked to school values	<p>Together, we are problem solvers. Together, we are safe</p>	<p>Together, we are problem solvers. Together, we do our best.</p>	<p>Together, we are problem solvers. Together, we are safe.</p>
Recall Key concepts and vocabulary	<ul style="list-style-type: none"> • axles • mechanisms, • levers and sliders • mock up • slider • lever • junior hacksaw • bench hook • G clamp 	<ul style="list-style-type: none"> • sewing • running stitch • product • materials • target group • functionality • aesthetics • effectiveness • durability • prototype/paper pattern • Seam allowance • blanket stitch • components • fabric • tie a knot • thread a needle 	<ul style="list-style-type: none"> • 3 dimensional • design brief • prototype • annotated sketch • target group/user • functional • join
Key concepts and vocabulary	<p>Equipment</p> <ul style="list-style-type: none"> • drill & drill bit • drill bit <p>Design</p> <ul style="list-style-type: none"> • cams – snail, off centre, peg, pear shaped • shaft • crank 	<p>Design</p> <ul style="list-style-type: none"> • applique • 3 dimensional • measure 	<p>Design</p> <ul style="list-style-type: none"> • frame structure • stiffen • strengthen • reinforce • triangulation • stability • temporary

	<ul style="list-style-type: none"> • housing • framework • rotary motion • linear motion • oscillating motion • reciprocating motion • prototype • The eccentric cam - • The follower cam – • follower 		<ul style="list-style-type: none"> • permanent
To understand how key events and individuals in design and technology have helped shape the world	<ul style="list-style-type: none"> • To discover how designers communicate ideas/messages/key points with their target audience. <p>Home learning To create the object/character that will be on top of the moving toy.</p>	<ul style="list-style-type: none"> • To find out about the designer Richard Steiff. <p>Home learning Research them most expensive Steiff bears.</p>	<ul style="list-style-type: none"> • To discover more about the architect Zaha Hadid. <p>Home learning Research a list of buildings Zaha designed during her life time.</p>
Design	<ul style="list-style-type: none"> • To generate ideas using Tradcard resource to create a prototype. 	<ul style="list-style-type: none"> • Design object/character soft toy for a target audience of 4-6 year old. • Design using an annotated sketch. • Design pattern pieces for their product. 	<ul style="list-style-type: none"> • To develop a simple design brief for a structure • To use art straws to create a prototype of the structure.
Make	<ul style="list-style-type: none"> • To select and use woodwork components and cams, according to their functional properties and aesthetic qualities. • To make an automata toy using woodwork equipment (bench hook, adjustable set square, G clamp, saw, drill and glue). 	<ul style="list-style-type: none"> • To select and use fabric and textile components according to their functional properties and aesthetic qualities for their 3D characters. 	<ul style="list-style-type: none"> • To competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make structure. • To formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.

Evaluate	<ul style="list-style-type: none"> To analyse a range of existing automata toys. 	<ul style="list-style-type: none"> Evaluate their product (consider asking Reception/y1 class at DIS if they would help evaluate their work). 	<ul style="list-style-type: none"> To investigate and evaluate a range of existing frame structures. Critically evaluate their structure, carrying appropriate tests against their design brief, identifying strengths and areas for development.
Technical knowledge	<ul style="list-style-type: none"> To understand and use mechanical systems (cams) in automata toys. 	<ul style="list-style-type: none"> Use applique to add aesthetic qualities Use 3 types of stitches to add aesthetic qualities (blanket, running, back) Be able to end stitches (sewing off) Use small stitching to strengthen the item 	<ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks.
Cooking & nutrition			



Year 6

	Autumn	Spring	Summer
Context	<p align="center">culture – ingredients – pizza</p> <p align="center"><i>By the end of this unit, children will have analysed existing pizza products and learnt how to knead dough, then using skills previously learnt, create a tasty pizza.</i></p>	<p align="center">school - electrical systems – game</p> <p align="center"><i>By the end of this unit, using skills learnt in Year 4 and during science lessons children will design and make an interactive game using electrical components.</i></p>	<p align="center">school– monitoring and control –security system.</p>
Linked to school values	<p align="center">Together, we are problem solvers. Together, we are safe</p>	<p align="center">Together, we are problem solvers. Together, we do our best.</p>	<p align="center">Together, we are problem solvers. Together, we do our best.</p>
Recall vocabulary and knowledge.	<p>Equipment & Utensils</p> <ul style="list-style-type: none"> • paring knife • blender <p>Design</p> <ul style="list-style-type: none"> • aesthetics • effectiveness • functional • seasonal, • taste: sweet, sour, hot, spicy, fresh, savoury <p>Make</p> <ul style="list-style-type: none"> • batons • coins • dice • claw and bridge method of cutting 	<ul style="list-style-type: none"> • construction • materials • purpose • design brief • series circuit • fault • connection • battery • battery holder • bulb • bulb holder • wire • insulator • conductor • crocodile clip 	<ul style="list-style-type: none"> • program • microcontroller • system • output devices • input devices • process • control • loop
Key concepts and vocabulary	<p>Technical Skills & Knowledge</p> <ul style="list-style-type: none"> • knead • combine • analyse • appetising/appealing • texture • garnish <p>Ingredients</p> <ul style="list-style-type: none"> • dough 	<ul style="list-style-type: none"> • parallel circuit • conductors 	<ul style="list-style-type: none"> • pseudocode or flowchart algorithm • iteration • selection • variables

	<ul style="list-style-type: none"> • yeast 		
To understand how key events and individuals in design and technology have helped shape the world	<ul style="list-style-type: none"> • To discover the origins of pizza. <p>Home learning – research and create a list of different pizza toppings.</p>	<ul style="list-style-type: none"> • To find out about Senior Computer Games Designer at Rebellion <p>Home learning - create a list of the values you need to have to be a successful games designer?</p>	
Design	<ul style="list-style-type: none"> • To create a design criteria for a pizza. 	<ul style="list-style-type: none"> • To design a game comprising of an electrical circuit. 	<ul style="list-style-type: none"> • To communicate ideas through discussion to create a programmable product which meets the user's needs.
Make	<ul style="list-style-type: none"> • To make a basic pizza dough. • To prepare ingredients to meet design criteria. 	<ul style="list-style-type: none"> • To select tools and electrical components suitable to create an electrical game. • To measure, cut and shape accurately. 	<ul style="list-style-type: none"> • To program and create and test a programmable product.
Evaluate	<ul style="list-style-type: none"> • To investigate and analyse a range of existing pizza products 	<ul style="list-style-type: none"> • To reflect on the progress of their work as they design and make, identifying ways they could improve their products 	<ul style="list-style-type: none"> • To create, test and evaluate the product
Technical knowledge	<ul style="list-style-type: none"> • To use a paring knife to slice, chop or dice. • To select utensils and equipment safely and hygienically. • To select and use a wider range of ingredients for their functional properties and aesthetic qualities 		<ul style="list-style-type: none"> • To use their understanding of computing to program, monitor and control a security system.
Cooking & nutrition	<ul style="list-style-type: none"> • To prepare a savoury dish which could be part of a healthy and 	<ul style="list-style-type: none"> • To use electrical circuits, including those with simple switches to produce an electrical game. 	

	varied diet using a range of cooking techniques.		
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