



West Croft School

# Design Technology Curriculum

## Intent



Through a **creative, engaging** and **experience-based** design and technology curriculum we aim to **ignite** children's **imagination** to **design** and **make** products that solve real and relevant problems within a variety of **contexts**, considering their own and others' needs, wants and values.

At West Croft pupils will learn **how to take risks, becoming resourceful, innovative, enterprising and capable citizens**. Knowledge, skills and vocabulary gained through a hands-on experience to design and technology.

# Design and Technology programmes of study: Key Stages 1 and 2 National Curriculum in England

## **Purpose of study**

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

## **Aims**

The national curriculum for design and technology aims to ensure that all pupils: develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world

- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

## **Attainment targets**

- By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

## **By the End of Key Stage 1**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

### **Design**

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

### **Make**

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

### **Evaluate**

- explore and evaluate a range of existing products ☐ evaluate their ideas and products against design criteria

### **Technical knowledge**

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

## By the End of Key Stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

### **Design**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### **Make**

select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### **Evaluate**

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

understand how key events and individuals in design and technology have helped shape the world

### **Technical knowledge**

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

# Skills Progression in Design Technology

DESIGN

MAKE

EVALUATE



	By the end of Year 1	By the end of Year 2	By the end of Year 3	By the end of Year 4	By the end of Year 5	By the end of Year 6
DESIGN	<ul style="list-style-type: none"> <li>have own ideas</li> <li>explain what I want to do</li> <li>explain what my product is for, and how it will work</li> <li>use pictures and words to plan, begin to use models</li> <li>design a product for myself following design criteria</li> <li>research similar existing products</li> </ul>	<ul style="list-style-type: none"> <li>have own ideas and plan what to do next</li> <li>explain what I want to do and describe how I may do it</li> <li>explain purpose of product, how it will work and how it will be suitable for the user</li> <li>describe design using pictures, words, models, diagrams, begin to use ICT design products for myself and others following design criteria</li> <li>choose best tools and materials, and explain choices</li> <li>use knowledge of existing products to produce ideas</li> </ul>	<ul style="list-style-type: none"> <li>begin to research others' needs</li> <li>show design meets a range of requirements</li> <li>describe purpose of product</li> <li>follow a given design criteria</li> <li>have at least one idea about how to create product</li> <li>create a plan which shows order, equipment and tools</li> <li>describe design using an accurately labelled sketch and words</li> <li>make design decisions</li> <li>explain how product will work</li> <li>make a prototype</li> <li>begin to use computers to show design</li> </ul>	<ul style="list-style-type: none"> <li>use research for design ideas</li> <li>show design meets a range of requirements and is fit for purpose</li> <li>begin to create own design criteria</li> <li>have at least one idea about how to create product and suggest improvements for design.</li> <li>produce a plan and explain it to others</li> <li>say how realistic plan is</li> <li>include an annotated sketch</li> <li>make and explain design decisions considering availability of resources</li> <li>explain how product will work</li> <li>make a prototype</li> <li>begin to use computers to show design.</li> </ul>	<ul style="list-style-type: none"> <li>use internet and questionnaires for research and design ideas</li> <li>take a user's view into account when designing</li> <li>begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose</li> <li>create own design criteria</li> <li>have a range of ideas</li> <li>produce a logical, realistic plan and explain it to others</li> <li>use cross-sectional planning and annotated sketches</li> <li>make design decisions considering time and resources.</li> <li>clearly explain how parts of product will work</li> <li>model and refine design ideas by making prototypes and using pattern pieces</li> <li>use computer-aided designs</li> </ul>	<ul style="list-style-type: none"> <li>draw on market research to inform design</li> <li>use research of user's individual needs, wants, requirements for design</li> <li>identify features of design that will appeal to the intended user</li> <li>create own design criteria and specification</li> <li>come up with innovative design ideas</li> <li>follow and refine a logical plan.</li> <li>use annotated sketches, cross-sectional planning and exploded diagrams</li> <li>make design decisions, considering, resources and cost</li> <li>clearly explain how parts of design will work, and how they are fit for purpose</li> <li>independently model and refine design ideas by making prototypes and using pattern pieces</li> <li>use computer-aided designs</li> </ul>
MAKE	<ul style="list-style-type: none"> <li>explain what I'm making and why</li> <li>consider what I need to do next</li> <li>select tools/equipment to cut, shape, join, finish and explain choices</li> <li>measure, mark out, cut and shape, with support</li> <li>choose suitable materials and explain choices</li> <li>try to use finishing techniques to make product look good</li> <li>work in a safe and hygienic manner</li> </ul>	<ul style="list-style-type: none"> <li>explain what I am making and why it fits the purpose</li> <li>make suggestions as to what I need to do next.</li> <li>join materials/components together in different ways</li> <li>measure, mark out, cut and shape materials and components, with support</li> <li>describe which tools I'm using and why</li> <li>choose suitable materials and explain choices depending on characteristics</li> <li>use finishing techniques to make product look good *work safely and hygienically</li> </ul>	<ul style="list-style-type: none"> <li>select suitable tools/equipment, explain choices; begin to use them accurately</li> <li>select appropriate materials, fit for purpose.</li> <li>work through plan in order</li> <li>consider how good product will be</li> <li>begin to measure, mark out, cut and shape materials/components with some accuracy</li> <li>begin to assemble, join and combine materials and components with some accuracy</li> <li>begin to apply a range of finishing techniques with some accuracy</li> </ul>	<ul style="list-style-type: none"> <li>select suitable tools and equipment, explain choices in relation to required techniques and use accurately</li> <li>select appropriate materials, fit for purpose; explain choices</li> <li>work through plan in order.</li> <li>realise if product is going to be good quality</li> <li>measure, mark out, cut and shape materials/components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> <li>apply a range of finishing techniques with some accuracy</li> </ul>	<ul style="list-style-type: none"> <li>use selected tools/equipment with good level of precision produce suitable lists of tools, equipment/materials needed</li> <li>select appropriate materials, fit for purpose; explain choices, considering functionality</li> <li>create and follow detailed step-by-step plan</li> <li>explain how product will appeal to an audience</li> <li>mainly accurately measure, mark out, cut and shape materials/components</li> <li>mainly accurately assemble, join and combine materials/components</li> <li>use techniques that involve a small number of steps</li> <li>begin to be resourceful with practical problems</li> </ul>	<ul style="list-style-type: none"> <li>use selected tools and equipment precisely</li> <li>produce suitable lists of tools, equipment, materials needed, considering constraints</li> <li>select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics</li> <li>create, follow, and adapt detailed step-by-step plans</li> <li>explain how product will appeal to audience; make changes to improve quality</li> <li>accurately measure, mark out, cut and shape materials/components</li> <li>accurately assemble, join and combine materials/components</li> <li>accurately apply a range of finishing techniques</li> <li>use techniques that involve a number of steps</li> <li>be resourceful with practical problems</li> </ul>
EVALUATE	<ul style="list-style-type: none"> <li>talk about my work, linking it to what I was asked to do</li> <li>talk about existing products considering: use, materials, how they work, audience, where they might be used</li> <li>talk about existing products, and say what is and isn't good</li> <li>talk about things that other people have made</li> <li>begin to talk about what could make product better</li> </ul>	<ul style="list-style-type: none"> <li>describe what went well, thinking about design criteria</li> <li>talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion</li> <li>evaluate how good existing products are</li> <li>talk about what I would do differently if I were to do it again and why</li> </ul>	<ul style="list-style-type: none"> <li>look at design criteria while designing and making</li> <li>use design criteria to evaluate finished product</li> <li>say what I would change to make design better</li> <li>begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose</li> <li>begin to understand by whom, when and where products were designed</li> <li>learn about some inventors/designers/ engineers/chefs/ manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>refer to design criteria while designing and making</li> <li>use criteria to evaluate product</li> <li>begin to explain how I could improve original design</li> <li>evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>discuss by whom, when and where products were designed</li> <li>research whether products can be recycled or reused</li> <li>know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>evaluate quality of design while designing and making</li> <li>evaluate ideas and finished product against specification, considering purpose and appearance</li> <li>test and evaluate final product</li> <li>evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>begin to evaluate how much products cost to make and how innovative they are</li> <li>research how sustainable materials are</li> <li>talk about some key inventors/designers/ engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>evaluate quality of design while designing and making; is it fit for purpose?</li> <li>keep checking design is best it can be</li> <li>evaluate ideas and finished product against specification, stating if it's fit for purpose</li> <li>test and evaluate final product; explain what would improve it and the effect different resources may have had</li> <li>do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose</li> <li>evaluate how much products cost to make and how innovative they are</li> <li>research and discuss how sustainable materials are</li> <li>consider the impact of products beyond their intended purpose</li> <li>discuss some key inventors/designers/ engineers/chefs/manufacturers of ground-breaking products</li> </ul>

# Skills Progression in Design and Technology

	By the end of Year 1	By the end of Year 2	By the end of Year 3	By the end of Year 4	By the end of Year 5	By the end of Year 6
TECHNICAL KNOWLEDGE – MATERIALS / STRUCTURES	<ul style="list-style-type: none"> <li>begin to measure and join materials, with some support</li> <li>describe differences in materials</li> <li>suggest ways to make material/product stronger</li> </ul>	<ul style="list-style-type: none"> <li>measure materials</li> <li>describe some different characteristics of materials</li> <li>join materials in different ways</li> <li>use joining, rolling or folding to make it stronger</li> <li>use own ideas to try to make product stronger</li> </ul>	<ul style="list-style-type: none"> <li>use appropriate materials</li> <li>work accurately to make cuts and holes</li> <li>join materials</li> <li>begin to make strong structures</li> </ul>	<ul style="list-style-type: none"> <li>measure carefully to avoid mistakes</li> <li>attempt to make product strong</li> <li>continue working on product even if original didn't work</li> <li>make a strong, stiff structure</li> </ul>	<ul style="list-style-type: none"> <li>select materials carefully, considering intended use of product and appearance</li> <li>explain how product meets design criteria</li> <li>measure accurately enough to ensure precision</li> <li>ensure product is strong and fit for purpose</li> <li>begin to reinforce and strengthen a 3D frame</li> </ul>	<ul style="list-style-type: none"> <li>select materials carefully, considering intended use of the product, the aesthetics and functionality</li> <li>explain how product meets design criteria</li> <li>reinforce and strengthen a 3D frame</li> </ul>
TECHNICAL KNOWLEDGE – MECHANISMS		<ul style="list-style-type: none"> <li>use levers or slides</li> <li>begin to understand how to use wheels and axles</li> </ul>	<ul style="list-style-type: none"> <li>select appropriate tools / techniques</li> <li>alter product after checking, to make it better</li> <li>begin to try new/different ideas</li> <li>use simple lever and linkages to create movement</li> </ul>	<ul style="list-style-type: none"> <li>select most appropriate tools / techniques</li> <li>explain alterations to product after checking it</li> <li>grow in confidence about trying new / different ideas</li> <li>use levers and linkages to create movement</li> <li>use pneumatics to create movement</li> </ul>	<ul style="list-style-type: none"> <li>refine product after testing</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use cams, pulleys or gears to create movement</li> </ul>	<ul style="list-style-type: none"> <li>refine product after testing, considering aesthetics, functionality and purpose</li> <li>incorporate hydraulics and pneumatics</li> <li>be confident to try new / different ideas</li> <li>use cams, pulleys and gears to create movement</li> </ul>
TECHNICAL KNOWLEDGE – TEXTILES	<ul style="list-style-type: none"> <li>measure, cut and join textiles to make a product, with some support</li> <li>choose suitable textiles</li> </ul>	<ul style="list-style-type: none"> <li>measure textiles</li> <li>join textiles together to make a product, and explain how I did it</li> <li>carefully cut textiles to produce accurate pieces</li> <li>explain choices of textile</li> <li>understand that a 3D textile structure can be made from two identical fabric shapes. (example a puppet or Christmas Sticking)</li> </ul>	<ul style="list-style-type: none"> <li>join different textiles in different ways</li> <li>choose textiles considering appearance and functionality</li> <li>begin to understand that a simple fabric shape can be used to make a 3D textiles project</li> </ul>	<ul style="list-style-type: none"> <li>think about user when choosing textiles</li> <li>think about how to make product strong</li> <li>begin to devise a template</li> <li>explain how to join things in a different way</li> <li>understand that a simple fabric shape can be used to make a 3D textiles project</li> </ul>	<ul style="list-style-type: none"> <li>think about user and aesthetics when choosing textiles</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use own template</li> <li>think about how to make product strong and look better</li> <li>think of a range of ways to join things</li> <li>begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.</li> </ul>	<ul style="list-style-type: none"> <li>think about user's wants/needs and aesthetics when choosing textiles</li> <li>make product attractive and strong</li> <li>make a prototype</li> <li>use a range of joining techniques</li> <li>think about how product might be sold</li> <li>think carefully about what would improve product</li> <li>understand that a single 3D textiles project can be made from a combination of fabric shapes.</li> </ul>
TECHNICAL KNOWLEDGE – FOOD and NUTRITION	<ul style="list-style-type: none"> <li>describe textures</li> <li>wash hands &amp; clean surfaces</li> <li>think of interesting ways to decorate food</li> <li>say where some foods come from, (i.e. plant or animal)</li> <li>describe differences between some food groups (i.e. sweet, vegetable etc.)</li> <li>discuss how fruit and vegetables are healthy</li> <li>cut, peel and grate safely, with support</li> </ul>	<ul style="list-style-type: none"> <li>explain hygiene and keep a hygienic kitchen</li> <li>describe properties of ingredients and importance of varied diet</li> <li>say where food comes from (animal, underground etc.)</li> <li>describe how food is farmed, home-grown, caught</li> <li>draw eat well plate; explain there are groups of food</li> <li>describe "five a day" *cut, peel and grate with increasing confidence</li> </ul>	<ul style="list-style-type: none"> <li>carefully select ingredients</li> <li>use equipment safely</li> <li>make product look attractive</li> <li>think about how to grow plants to use in cooking</li> <li>begin to understand food comes from UK and wider world</li> <li>describe how healthy diet= variety/balance of food/drinks</li> <li>explain how food and drink are needed for active/healthy bodies</li> <li>prepare and cook some dishes safely and hygienically</li> <li>grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	<ul style="list-style-type: none"> <li>explain how to be safe/hygienic</li> <li>think about presenting product in interesting/ attractive ways</li> <li>understand ingredients can be fresh, pre-cooked or processed</li> <li>begin to understand about food being grown, reared or caught in the UK or wider world</li> <li>describe eat well plate and how a healthy diet=variety / balance of food and drinks</li> <li>explain importance of food and drink for active, healthy bodies</li> <li>prepare and cook some dishes safely and hygienically</li> <li>use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	<ul style="list-style-type: none"> <li>explain how to be safe / hygienic and follow own guidelines</li> <li>present product well - interesting, attractive, fit for purpose</li> <li>begin to understand seasonality of foods</li> <li>understand food can be grown, reared or caught in the UK and the wider world</li> <li>describe how recipes can be adapted to change appearance, taste, texture, aroma</li> <li>explain how there are different substances in food / drink needed for health</li> <li>prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</li> <li>use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul>	<ul style="list-style-type: none"> <li>understand a recipe can be adapted by adding / substituting ingredients</li> <li>explain seasonality of foods</li> <li>learn about food processing methods</li> <li>name some types of food that are grown, reared or caught in the UK or wider world</li> <li>adapt recipes to change appearance, taste, texture or aroma.</li> <li>describe some of the different substances in food and drink, and how they can affect health</li> <li>prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source</li> <li>use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul>
TECHNICAL KNOWLEDGE – ELECTRICAL MECHANISMS			<ul style="list-style-type: none"> <li>use simple circuit in product</li> <li>learn about how to program a computer to control product.</li> </ul>	<ul style="list-style-type: none"> <li>use number of components in circuit</li> <li>program a computer to control product</li> </ul>	<ul style="list-style-type: none"> <li>incorporate switch into product</li> <li>confidently use number of components in circuit</li> </ul>	<ul style="list-style-type: none"> <li>use different types of circuit in product</li> <li>think of ways in which adding a circuit would improve product</li> <li>program a computer to monitor changes in environment and control product</li> </ul>

# D&T Curriculum Map Year 1

## Something for Someone for Some purpose

Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<u>Where would you like to live?</u>	<u>Which West Croft is Best Croft?</u>	<u>Too hot to handle, too cold to hold?</u>	<u>Can we reap what we sow?</u>	<u>Francis Drake – hero or pirate?</u>	<u>Weather - friend or foe?</u>
<p>By the end of this unit, pupils know the differences between a city, a town and a village and will demonstrate their knowledge by planning out one of these as a class and independently creating a structure to sit within it.</p> <p><b>Can I design and make a free standing structure for a city/town/village?</b></p>	<p>By the end of this unit, pupils will know about the importance of books and stories in school throughout history. Children will inspire others to engage with stories by designing and creating a hand puppet to use in a puppet show to retell a well known story.</p> <p><b>Can I design and make a hand puppet to use in a puppet show to retell a well know story to an audience?</b></p>	<p>By the end of this unit, pupils will know about the structure of a shelter. Children will apply their knowledge to use a range of resources to build a shelter for a given purpose and make it strong and durable.</p> <p><b>Can I design and make a shelter for the desert / arctic/ woodlands for an explorer?</b></p>	<p>By the end of this unit, pupils will know how to plant and grow their own food. They will design and create a dish for a picnic using healthy foods that they can enjoy with their family and friends.</p> <p><b>Can I design and make a healthy fruit salad to enjoy on a picnic with my family?</b></p>	<p>By the end of this unit, pupils will know what a boat is and what they can be used for (transport of people and goods). They will demonstrate their knowledge and understanding by designing and making a boat that will carry a given load.</p> <p><b>Can I design and build a boat to carry cargo across the sea?</b></p>	<p>By the end of this unit, pupils will know about weather and the affect it can have on humans. Children will apply the sewing skills and techniques that they have learned to enable them to design a hat for a given purpose.</p> <p><b>Can I design and make a hat that will protect me from the sun?</b></p> <p><b>Can I design and make a hat that will keep me warm in winter?</b></p>
<ul style="list-style-type: none"> <li>begin to measure and join materials (using a range of glues and tapes), with some support</li> <li>describe differences in materials (explore a variety of recyclable materials)</li> <li>suggest ways to make material/product stronger</li> </ul> 	<ul style="list-style-type: none"> <li>measure, cut and join textiles to make a product, with some support</li> <li>How to thread a needle, cut, glue and trim material (Link to ART components)</li> <li>choose suitable textiles (e.g. felt and other materials that are easy for children to cut and sew)</li> </ul>	<ul style="list-style-type: none"> <li>begin to measure and join materials, with some support.</li> <li>describe differences in materials.</li> <li>suggest ways to make material/product stronger.</li> </ul>	<ul style="list-style-type: none"> <li>describe textures</li> <li>wash hands &amp; clean surfaces</li> <li>think of interesting ways to decorate food</li> <li>say where some foods come from, (i.e. plant or animal)</li> <li>describe differences between some food groups (i.e. sweet, vegetable etc.)</li> <li>discuss how fruit and vegetables are healthy</li> <li>cut, peel and grate safely, with support</li> </ul>	<ul style="list-style-type: none"> <li>begin to measure and join materials (using a range of glues and tapes), with some support</li> <li>describe differences in materials</li> <li>suggest ways to make material/product stronger</li> </ul>	<ul style="list-style-type: none"> <li>measure, cut and join textiles to make a product, with some support</li> <li>How to thread a needle, cut, glue and trim material</li> <li>choose suitable textiles</li> </ul> 

	Materials and Structures
	Mechanisms (2-6)

# D&T Curriculum Map Year 2

## Something for Someone for Some purpose


	Textiles
	Food and Nutrition
	Electrical Mechanisms (3-6)



Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<p>By the end of this unit, pupils will know about bridges and how they are designed and constructed. They will demonstrate their knowledge by designing and building a bridge that is both strong and stable and can carry a given load.</p> <p><b>Can I design and make a bridge for a car to travel from one side of a river to the other?</b></p>	<p>By the end of this unit, pupils will know about how flight has developed over the past 100 years. They will demonstrate their knowledge by designing and making a parachute that ensures safe landing of the stuntman.</p> <p><b>Can I design and make a parachute for a stuntman so he can jump from out of a plane?</b></p>	<p>By the end of this unit, pupils will know how vehicles move using wheels and axels. To demonstrate their understanding they will design and make an explorer vehicle that can travel across the ocean floor.</p> <p><b>Can I design and make a vehicle that can explore the ocean floor?</b></p>	<p>By the end of this unit, pupils will know about the different flags that represent the many countries of Africa. Children will apply their textiles knowledge and skills to design and create their own flag to represent 'the world'.</p> <p><b>Can I design and make a 'world' flag to represent unity and peace?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of how anyone invents something. Children need to design and make a moving picture that promote equality. They need to use a range of materials such as paper, card, found pictures, found materials and paper fasteners. Children need to be able to describe what is in the picture, what is happening and what might happen next</p> <p><b>Can I design and make a moving picture using levers to promote equality?</b></p>	<p>By the end of this unit, pupils will know about the types of foods that were rationed during WW2 and why they were in short supply. Children will know about how people used innovation to create dishes using the foods and will apply their knowledge and understanding to design and make their own dish using WW2 rationed foods.</p> <p><b>Can I design and make a dish using WW2 rationed foods for a party?</b></p>
<ul style="list-style-type: none"> <li>measure materials</li> <li>describe some different characteristics of materials</li> <li>join materials in different ways</li> <li>use joining, rolling or folding to make it stronger</li> <li>use own ideas to try to make product stronger</li> </ul>	<ul style="list-style-type: none"> <li>measure materials</li> <li>describe some different characteristics of materials</li> <li>join materials in different ways</li> <li>use joining, rolling or folding to make it stronger</li> <li>use own ideas to try to make product stronger</li> </ul>	<ul style="list-style-type: none"> <li>begin to understand how to use wheels and axles</li> </ul>	<ul style="list-style-type: none"> <li>measure textiles</li> <li>join textiles together to make a product, and explain how I did it</li> <li>carefully cut textiles to produce accurate pieces</li> <li>explain choices of textile</li> </ul>	<ul style="list-style-type: none"> <li>measure materials</li> <li>describe some different characteristics of materials</li> <li>join materials in different ways</li> <li>use joining, rolling or folding to make it stronger</li> <li>use own ideas to try to make product stronger</li> </ul>	<ul style="list-style-type: none"> <li>explain hygiene and keep a hygienic kitchen</li> <li>describe properties of ingredients and importance of varied diet</li> <li>say where food comes from (animal, underground etc.)</li> <li>describe how food is farmed, home-grown, caught</li> <li>draw eat well plate; explain there are groups of food</li> <li>describe "five a day" *cut, peel and grate with increasing confidence</li> </ul>

# D&T Curriculum Map Year 3

## Something for Someone for Some purpose

Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<p>By the end of this unit, pupils will have developed their understanding of the importance of carts for agricultural and farming products. They will investigate different axles and how changing the weight and size of the axle impacts on how well a cart moves.</p> <p><b>Can I design and make cart to transport a given load for a farmer?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of how purses are produced. They need to explore a range of purses for different purposes and audiences. Children use their knowledge of materials and their properties (Science objectives) and investigate textiles (Art objectives) to learn how textile products can be designed and made using a range of simple joining techniques.</p> <p><b>Can I design and make a blanket for Cave Baby to sleep inside to keep him warm at night?</b></p> <p><b>Can I design and Make a Bronze Age purse? (making a 2D design into a 3D product)</b></p>	<p>By the end of this unit, pupils will have developed their understanding of to design an earthquake-proof building, children need to reinforce the structure and counteract an earthquake's forces. Children will design and make a house that will survive an earthquake for someone living in an earthquake zone.</p> <p><b>Can I design and make a house that will survive an earthquake for someone living in an earthquake zone?</b></p>	<p>By the end of this unit, pupils will explore the difference between 'electrical' and 'electronic' and revisit how to create a simple circuit. Pupils will evaluate a range of different torches and identify the features of a torch. Pupils create a torch design and circuit.</p> <p><b>Can I design and make a torch to be using in an earthquake emergency?</b></p> <p><a href="https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/electrical-systems-torches/">https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/electrical-systems-torches/</a></p>	<p>By the end of this unit, pupils will have developed their understanding of greek myths. Children need to design and make a moving picture that tells a Greek Myth using a range of resources. They need to be able to describe what is in the picture, what is happening and what might happen next</p> <p><b>Can I design and make a moving picture using levers to retell a Greek Myth?</b></p>	<p>By the end of this unit, pupils will know about about the wide variety of different ingredients available to design and make their own salads. They will know about healthy eating through a balanced diet and ways of preparing and combining their salad ingredients. There are opportunities to plan a dish, ensure the salad has varied ingredients, identify salads from around the world and evaluate salads in terms of appearance, taste, smell etc.</p> <p><b>Can I design and make a salad for friends and family to enjoy at a Greek feast?</b></p>
<ul style="list-style-type: none"> <li>• use appropriate materials</li> <li>• work accurately to make cuts and holes</li> <li>• join materials</li> <li>• begin to make strong structures</li> </ul>	<ul style="list-style-type: none"> <li>• join different textiles in different ways</li> <li>• choose textiles considering appearance and functionality</li> <li>• begin to understand that a simple fabric shape can be used to make a 3D textiles project</li> </ul>	<ul style="list-style-type: none"> <li>•use appropriate materials</li> <li>•work accurately to make cuts and holes</li> <li>•join materials</li> <li>•begin to make strong structures</li> </ul>	<ul style="list-style-type: none"> <li>• use simple circuit in product</li> <li>• learn about how to program a computer to control product.</li> </ul>	<ul style="list-style-type: none"> <li>•select appropriate tools / techniques</li> <li>•alter product after checking, to make it better</li> <li>•begin to try new/different ideas</li> <li>•use simple lever and linkages to create movement</li> </ul>	<ul style="list-style-type: none"> <li>•carefully select ingredients</li> <li>•use equipment safely</li> <li>•make product look attractive</li> <li>•think about how to grow plants to use in cooking</li> <li>•begin to understand food comes from UK and wider world</li> <li>•describe how healthy diet= variety/balance of food/drinks</li> <li>•explain how food and drink are needed for active/healthy bodies</li> <li>•prepare and cook some dishes safely and hygienically</li> <li>•grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul> <p><a href="https://www.bbc.co.uk/teach/cls-cls-video/design-and-technology-ks2--ks3-salad/znwc8xs">https://www.bbc.co.uk/teach/cls-cls-video/design-and-technology-ks2--ks3-salad/znwc8xs</a></p>

Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<p>By the end of this unit, pupils will recognise the power &amp; success of the Roman army through their knowledge of tactics and weapon design. They will design and make their own Roman catapult using art straws, wooden sticks, wooden construction DT equipment, balsawood, card, rubber bands, junk modelling equipment, wheels, etc. They will design their catapults to ensure they stand alone and be able to fling a small stone.</p> <p><b>Can I design and make catapult to launch an object at an enemy?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of different types of burgers and their nutrition facts. Children will need to explore how to make burger patties and how to make sauces and sides for the burger. They will plan and design a burger to make.</p> <p><b>Can I design and make a burger for a customer at a fast-food restaurant?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of what materials were available within the time period. They will be challenged to make a boat using art straws exploring how to join and strengthen.</p> <p><b>Can I design and make a boat for an ancient Egyptian to cross the Nile in using materials that were available to them during that time period?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of how cotton cloth is manufactured, then go on to look at how textiles like this are used to make clothes and other items. As they learn about the design and manufacturing processes of the fashion industry.</p> <p><b>Can I design and make an item of clothing that will keep me cool in the hot weather / warm in the cold weather?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of how the Steady hand game involves trying to get a metal wand from one side of a wavy wire to the other, without the two touching. The game works because it is made from an incomplete electrical circuit. When the metal wand touches the metal wire course, the circuit is completed, and this triggers an alarm. The steady hand game can sense when the circuit is completed using its legs and can then tell the player that they have lost the game.</p> <p><b>Can I design and make a steady hand game that incorporates sound for a stall at the school fayre?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of the operations of a waterwheel. They will design and make a waterwheel that will create sustainable power.</p> <p><b>Can I design and make waterwheel that will create sustainable power?</b></p>
<ul style="list-style-type: none"> <li>select most appropriate tools / techniques</li> <li>explain alterations to product after checking it</li> <li>grow in confidence about trying new / different ideas</li> <li>use levers and linkages to create movement</li> <li>use pneumatics to create movement</li> </ul>	<ul style="list-style-type: none"> <li>explain how to be safe/hygienic</li> <li>think about presenting product in interesting/ attractive ways</li> <li>understand ingredients can be fresh, pre-cooked or processed</li> <li>begin to understand about food being grown, reared or caught in the UK or wider world</li> <li>describe eat well plate and how a healthy diet=variety / balance of food and drinks</li> <li>explain importance of food and drink for active, healthy bodies</li> <li>prepare and cook some dishes safely and hygienically</li> <li>use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	<ul style="list-style-type: none"> <li>measure carefully to avoid mistakes</li> <li>attempt to make product strong</li> <li>continue working on product even if original didn't work</li> <li>make a strong, stiff structure</li> </ul> 	<ul style="list-style-type: none"> <li>think about user when choosing textiles</li> <li>think about how to make product strong</li> <li>begin to devise a template</li> <li>explain how to join things in a different way</li> <li>understand that a simple fabric shape can be used to make a 3D textiles project</li> </ul> <p>Explore the history of Egyptian clothing and why they designed their clothes as they did.</p>	<ul style="list-style-type: none"> <li>use number of components in a circuit</li> </ul>	<ul style="list-style-type: none"> <li>select most appropriate tools / techniques</li> <li>explain alterations to product after checking it</li> <li>grow in confidence about trying new / different ideas</li> <li>use levers and linkages to create movement</li> <li>use pneumatics to create movement</li> </ul>

Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<p>By the end of this textiles unit, pupils will have learned a range of techniques for working with textiles through designing and making bags. They will look at bags for a variety of users and purposes and learn that designers must address a range of needs when designing bags, including appearance, safety, comfort, practicality and size. They will learn about making accurate patterns/templates and detailed working drawings and how to pin, sew and stitch materials including using a sewing machine. The emphasis is on making a quality product and on developing their making and finishing skills.</p> <p><b>Can I design and make bag for life to promote 'save the rainforest'?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of how Mayan solar calendar were used in Mayan Times. They will explore how to incorporate a switch into their product and use number of components in circuit. They will design and make a Mayan Solar Calendar.</p> <p><b>Can I design and make a Mayan Solar Calendar ?</b></p>	<p><a href="https://planbee.com/collections/design-technology-primary-resources/products/programming-pioneers">https://planbee.com/collections/design-technology-primary-resources/products/programming-pioneers</a></p> <p>Links to computing</p> <ul style="list-style-type: none"> <li>Can I create programs by decomposing them into smaller parts?</li> <li>Can I use selection in programs?</li> <li>Can I use conditions in repetition commands?</li> <li>Can I work with variables?</li> <li>Can I create programs that control or simulate physical systems?</li> <li>Can I evaluate my work and identify errors?</li> </ul>	<p>By the end of this unit, pupils will have developed their understanding of cam toys use of hand-powered mechanisms to create cyclical motions that animate a scene. Children will design and create cam toy machines with moving objects/characters that symbolize abstract concepts and represent dynamic situations.</p> <p><b>Can I design and make a mechanical cam toy for a Viking child?</b></p> 	<p>By the end of this unit, pupils will have developed their understanding of the diversity of foods available in this period. They will discover some ways in which the Tudor grew, caught, gathered, prepared and cooked. Children will understand about cultural influences within this period. Also, they will understand the value of eating a Tudor feast.</p> <p><b>Can I design and make a dish for King Henry to enjoy at a Tudor Feast?</b></p>	<p>By the end of this unit, pupils will recognise how to design a rocket, how to make a launcher and how to launch the rocket. Children need to explore a range of materials to design their own rockets.</p> <p><b>Can I design, make and launch a rocket from a 'Stomp Rocket'?</b></p>
<ul style="list-style-type: none"> <li>think about user and aesthetics when choosing textiles</li> <li>use own template</li> <li>think about how to make product strong and look better</li> <li>think of a range of ways to join things</li> <li>begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.</li> </ul>	<ul style="list-style-type: none"> <li>refine product after testing</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use cams, pulleys or gears to create movement</li> <li>Mechanisms</li> <li>Apply their understanding of computing to program, monitor and control their products (if making own toy).</li> </ul> 	<ul style="list-style-type: none"> <li>refine product after testing</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use cams, pulleys or gears to create movement</li> <li>Mechanisms</li> <li>Apply their understanding of computing to program, monitor and control their products (if making own toy).</li> </ul>	<ul style="list-style-type: none"> <li>refine product after testing</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use cams, pulleys or gears to create movement</li> <li>Mechanisms</li> <li>Apply their understanding of computing to program, monitor and control their products (if making own toy).</li> </ul>	<ul style="list-style-type: none"> <li>explain how to be safe / hygienic and follow own guidelines</li> <li>present product well - interesting, attractive, fit for purpose</li> <li>begin to understand seasonality of foods</li> <li>understand food can be grown, reared or caught in the UK and the wider world</li> <li>describe how recipes can be adapted to change appearance, taste, texture, aroma</li> <li>explain how there are different substances in food / drink needed for health</li> <li>prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</li> <li>use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul>	<ul style="list-style-type: none"> <li>select materials carefully, considering intended use of product and appearance</li> <li>explain how product meets design criteria</li> <li>measure accurately enough to ensure precision</li> <li>ensure product is strong and fit for purpose</li> <li>begin to reinforce and strengthen a 3D frame</li> </ul>

Autumn		Spring		Summer	
Evolution	Legacy	Exploration	Discovery	Conflict and Resolution	Debate
<p>By the end of this unit, pupils will investigate and analyse items made using textiles: the materials used and how they are made. They will explore some ways in which textiles are joined and decorated. Children will design an item made using textiles and draw pattern pieces. Finally, they will measure, mark and cut fabric; to sew design elements according to a design.</p> <p><b>Can I design and make a fashion item for a catwalk show that reflects a chosen genre or time period?</b></p>	<p>By the end of this unit, pupils will find out the diversity of foods grown in Africa's diverse climates and develop cooking skills. They will discover some ways in which African people grow, gather, prepare and cook their food. Also, they will learn about the cultural significance which influence their food.</p> <p><b>Can I design and make a dish for an African feast that shows the diversity of this continent?</b></p>	<p><b>By the end of this unit, pupils will have developed their understanding of why the lights are so important during an emergency. Children to discuss how the lights flash. They will write algorithm for a simple alternating flash. children will set up their Crumble and write code for the simple flash.</b></p> <p><b>Can I create a program to simulate the alarm for the Jack room?</b></p> <p><a href="https://redfernelectronics.co.uk/projects/police-lights/">https://redfernelectronics.co.uk/projects/police-lights/</a></p>	<p>By the end of this unit, pupils will recognise the power &amp; success of the Roman army through their knowledge of tactics and weapon design. They will design and make their own Roman catapult using scrap heap. They will design their catapults to ensure they stand alone and be able to fling objects.</p> <p><b>Can I design and make catapult to launch an object at an enemy?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of different frames and their need or purpose within the wider community. Children will need to explore different joining techniques to support their frames. They will design and make their own frame to support their artwork for 'Express yourself.'</p> <p><b>Can I design and make a frame to support a piece of artwork?</b></p>	<p>By the end of this unit, pupils will have developed their understanding of</p> <p><b>Can I</b></p>
<ul style="list-style-type: none"> <li>think about user's wants/needs and aesthetics when choosing textiles</li> <li>make product attractive and strong</li> <li>make a prototype</li> <li>use a range of joining techniques</li> <li>think about how product might be sold</li> <li>think carefully about what would improve product</li> <li>understand that a single 3D textiles project can be made from a combination of fabric shapes.</li> </ul>	<ul style="list-style-type: none"> <li>understand a recipe can be adapted by adding / substituting ingredients</li> <li>explain seasonality of foods</li> <li>learn about food processing methods</li> <li>name some types of food that are grown, reared or caught in the UK or wider world</li> <li>adapt recipes to change appearance, taste, texture or aroma.</li> <li>describe some of the different substances in food and drink, and how they can affect health</li> <li>prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source</li> <li>use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul>	<ul style="list-style-type: none"> <li>use different types of circuit in product</li> <li>think of ways in which adding a circuit would improve product</li> <li>program a computer to monitor changes in environment and control product</li> </ul>	<ul style="list-style-type: none"> <li>select materials carefully, considering intended use of the product, the aesthetics and functionality</li> <li>explain how product meets design criteria</li> <li>reinforce and strengthen a 3D frame</li> </ul>	<ul style="list-style-type: none"> <li>select materials carefully, considering intended use of the product, the aesthetics and functionality</li> <li>explain how product meets design criteria</li> <li>reinforce and strengthen a 3D frame</li> </ul>	<ul style="list-style-type: none"> <li>refine product after testing</li> <li>grow in confidence about trying new / different ideas</li> <li>begin to use cams, pulleys or gears to create movement</li> </ul>

## Implementation

Explore  
Practice  
Design  
Make  
Evaluate