

## Pimperne Primary whole school Design and Technology overview

	Autumn		Spring	Summer
Reception	<b>Food and Nutrition</b> Make hedgehog bread (Me and My Community/Autumn Starry Night)		<b>Structures</b> Make Easter Bonnets (Winter Wonderland Dinosaurs)	<b>Structures</b> Make the Three Little Pigs Houses (Once Upon a Time Sunshine and Sunflowers)
Year 1	<b>Structures</b> Animal enclosures (Paws, Claws and Whiskers)		<b>Food and Nutrition</b> Making bread (Bright Lights, Big City)	<b>Mechanisms</b> (sliders) Sliding pictures (Victorians)
Year 2	<b>Mechanisms</b> (Wheels and axles) Create build moon buggies (Moon Zoom)		<b>Food and nutrition</b> Create healthy flapjacks (Muck, Mess and Mixtures)	<b>Textiles</b> Sewing sea creatures (Land Ahoy)
Year 3	<b>Structures</b> Make a Christmas box		<b>Food and Nutrition</b> Make a healthy soup	<b>Textiles</b> Make a small animal cushion
Year 4	<b>Structures / mechanisms</b> Make a slingshot chariot (Emperors and Empires)		<b>Food and nutrition</b> Make healthy breakfast snacks (Bottoms, Burps and Bile)	<b>Electrical</b> create a circuit with a warning sound or light
Year 5	<b>Mechanisms</b> Moving Christmas cards using pulleys		<b>Electrical devices</b> Make a map with a working torch (Alchemy Island)	<b>Food and Nutrition / digital</b> Seasonality - make vegetable wraps and create food packaging (Sow, grow and farm)
Year 6	<b>Structures</b> Make Anderson shelters (Child's War)	<b>Food and Nutrition</b> Mexican Savoury Dishes (Halo Mexico)	<b>Structures</b> Make a working stethoscope (Blood Heart)	<b>Electrical</b> Design a circuit and send a morse code message

Progression of Technical Knowledge

DT

Bold - key learning

Highlighted yellow - make skill to be moved

Science objective

Concept	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Technical knowledge materials / structures		<ul style="list-style-type: none"><li>Know that structures can be made stronger by making them thicker, propping up, gluing or using a stronger material</li></ul>	<ul style="list-style-type: none"><li>Know that a product can be made stronger by rolling, joining or folding materials</li></ul>	<ul style="list-style-type: none"><li>Know how to make a structure stronger by using suitable materials and joining techniques</li></ul>	<ul style="list-style-type: none"><li>know that materials need to be measure carefully to avoid mistakes</li><li>Know how to construct and strong freestanding structure</li></ul>	<ul style="list-style-type: none"><li>know that materials need to be measured accurately to ensure precision</li><li>ensure product is strong and fit for purpose</li><li>know how to reinforce and strengthen a 3D frame</li></ul>	<ul style="list-style-type: none"><li>know how to reinforce and strengthen a 3D frame accurately</li></ul>
Technical Knowledge mechanisms		<ul style="list-style-type: none"><li>know that a slider moves along a bar or a strip</li></ul>	<ul style="list-style-type: none"><li>know that a lever is a handle, bar or strip that turns around a pivot</li><li>wheels are fixed to axles. Axles cannot be fixed to their holders</li></ul>	<ul style="list-style-type: none"><li>know that levers and linkages can create movement on a product</li></ul>	<ul style="list-style-type: none"><li>know that levers and linkages can create movement on a product</li></ul>	<ul style="list-style-type: none"><li>know how to use cams, pulleys or gears to create movement</li></ul>	<ul style="list-style-type: none"><li>know how to use cams, pulleys and gears to create movement</li></ul>

Technical knowledge Textiles		<p>*know that fabric can be joined together using fabric glue</p> <p>*know that some materials will be better than others</p>	<p><b>*Know that fabric can be joined together using a basic running stitch</b></p>	<p><b>*know that different textiles can be joined in different ways</b></p> <p><b>*know that simple fabric shapes can joined together to make 3D shapes and objects</b></p>	<p><b>*Know that different fabrics and stitches can create a strong product</b></p> <p>*know that there are different ways of joining fabrics together</p>	<p>* know which techniques to use to make a product stronger</p> <p>*think of a range of ways to join things</p> <p>* Understand that a single 3D textiles project can be made from a combination of fabric shapes.</p>	<p>*understand that a single 3D textiles project can be made from a combination of fabric shapes.</p>
Technical knowledge Food and Nutrition	<p>*know that eating well contributes to good health</p> <p>*fruits and vegetables are healthy</p> <p>*Too much sugar is not healthy</p>	<p><b>*know that foods have different textures (soft, hard, sticky, smooth)</b></p> <p><b>*Understand the need to wash hands and use clean surfaces when cooking and preparing food</b></p> <p><b>*know that food comes from plants or animals</b></p> <p><b>*Know that fruits and vegetables are healthy</b></p>	<p><b>*Explain hygiene and keep a hygienic kitchen</b></p> <p>* know that foods have different textures (soft, hard, sticky, smooth)</p> <p><b>*Say where food comes from (animal, underground etc)</b></p> <p><b>*know that foods can be farmed, home grown or caught</b></p> <p><b>*know that 5 portions of fruit and vegetables a day is healthy</b></p>	<p>*know that plants can be used in cooking</p> <p>* Understand food comes from UK and wider world</p> <p><b>*know that a healthy diet includes a balance of all food groups</b></p> <p>*know how food and drink are needed for active/healthy bodies.</p> <p><b>*understand that food needs to be prepared hygienically and safely</b></p>	<p><b>*know how to be safe and hygienic</b></p> <p><b>*Understand ingredients can be fresh, pre-cooked or processed</b></p> <p><b>*Understand about food being grown, reared or caught in the UK or wider world</b></p> <p>*Describe eat well plate and how a healthy diet=variety / balance of food and drinks</p> <p>*Explain importance of food and drink for active, healthy bodies</p>	<p><b>*Explain how to be safe / hygienic and follow own guidelines</b></p> <p><b>*Understand seasonality of foods</b></p> <p><b>*Understand food can be grown, reared or caught in the UK and the wider world</b></p> <p><b>*understand that recipes can be adapted to change appearance, taste, texture, aroma</b></p> <p>*understand there are different substances in food / drink needed for health</p>	<p><b>*Understand a recipe can be adapted by adding / substituting ingredients</b></p> <p>*understand the seasonality of foods</p> <p>*know that there are different ways of processing food</p> <p><b>*Name some types of food that are grown, reared or caught in the UK or wider world</b></p> <p><b>*Adapt recipes to change appearance, taste, texture or aroma.</b></p> <p>*Describe some of the different substances in food and drink, and how they can affect health</p>

Technical knowledge Electrical				<p>*Use a simple circuit in product</p> <p>*Know how to program a computer to control product</p>	<p><b>*Use number of components in circuit</b></p> <p>*Program a computer to control product</p>	<p><b>*incorporate switch into product</b></p> <p><b>*confidently use number of components in circuit</b></p> <p>*begin to be able to program a computer to monitor changes in environment and control A product</p>	<p>*use different types of circuit in a product</p> <p>* think of ways in which adding a circuit would improve product</p> <p>* program a computer to monitor changes in environment and control A product</p>
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## Whole school progression map of skills

### DT

Key learning in bold    mechanics   textiles   food   structures   electrical

Specific examples to be included on concept planning

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Design</b>	<p><b>*Say what I want to make</b></p> <p><b>*I can draw a picture of my idea and use words to say what I've drawn</b></p>	<p>*Have own ideas</p> <p><b>*Say what I want to make</b></p> <p>*Explain what my product is for, and how it will work</p> <p><b>*Use pictures and words to plan e.g. show what their idea looks like and talk about what they've drawn</b></p> <p>*Research similar existing products as a class</p>	<p>*Have own ideas and plan what to do next</p> <p><b>*Say what I want to make and how I might make it</b></p> <p>*Explain the purpose of a product, how it will work and how it will be suitable for the user</p> <p><b>*Describe my design using pictures, words, models, diagrams (I can say and show what it looks like and which materials I would need to use)</b></p> <p>*Design a product for myself and others following given design criteria</p> <p>*use knowledge of existing products to produce ideas</p>	<p>• Research others' needs</p> <p>• Show design meets a range of requirements</p> <p>• Describe the purpose of a product</p> <p>• Follow a given design criteria</p> <p><b>•Have a least one idea about how to create a product</b></p> <p>• Create a plan that shows order, equipment, and tools</p> <p><b>•Describe design using an accurately labelled sketch and labels (I can show and talk about different parts of my design and show how it will work)</b></p> <p>• Make design decisions</p> <p>• Make a prototype</p> <p>• Begin to use computers to show design</p>	<p>• Use research to inform design ideas</p> <p>• Show design meets a range of requirements and is fit for purpose</p> <p>• Use whole class discussion to create own design criteria</p> <p><b>•Have at least one idea about how to create a product and suggest improvements to the design</b></p> <p><b>•Produce a plan and describe it to others (e.g. I can talk about what I'm going to do)</b></p> <p>• Say how realistic a plan is</p> <p>• Include annotated sketches</p> <p>• Make and explain design decisions considering availability of resources</p> <p>• Explain how a product will work</p> <p>• Make a prototype</p> <p>• Begin to use computers to show design</p>	<p>• Use the internet and questionnaires for research and design ideas</p> <p>• Take a user's view into account when designing</p> <p>• Consider the needs/ wants of individuals and groups when designing</p> <p>• ensure a product is fit for purpose</p> <p>• create own design criteria</p> <p>• have a range of ideas</p> <p><b>•produce a logical and realistic plan and explain it to others</b></p> <p><b>•use cross – sectional planning and annotated sketches</b></p> <p>• make design decisions considering time and resources</p> <p><b>•clearly explain how parts of a product will work</b></p> <p>• model and refine design ideas by making prototypes and using pattern pieces</p> <p>• use computer aided designs</p>	<p>• use market research to inform design</p> <p>• use research of user's individual needs, wants, requirements for design</p> <p>• identify features of design that will appeal to the intended user</p> <p>• create own design criteria and specification</p> <p>• come up with innovative design ideas</p> <p>• follow and refine a logical plan</p> <p><b>•use annotated sketches, cross-sectional planning and exploded diagrams (I can talk about how the different parts of a design will fit together.)</b></p> <p>• make design decisions, considering resources and cost</p> <p><b>•clearly explain how parts of design will work, and how they are fit for purpose</b></p> <p>• independently model and refine design ideas by making prototypes and using pattern pieces</p> <p>• use computer aided designs</p>

Make	<ul style="list-style-type: none"><li><b>*Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</b></li><li><b>*Make use of props and materials when role playing characters in narratives and stories.</b></li><li><b>* use Scissors and a knife safety</b></li><li><b>* Understand some food preparation tools, techniques and processes</b></li><li><b>*Practise stirring, mixing and pouring</b></li><li><b>*Discuss as a class how to make an activity safe and hygienic</b></li><li><b>*discuss the need for a variety of foods in a diet to stay healthy</b></li></ul>	<ul style="list-style-type: none"><li><b>*explain what I'm making and why</b></li><li><b>*consider what I need to do next</b></li><li><b>*select tools / equipment to cut, shape, join, finish and explain choices (e.g. scissors, glue, Sellotape, string, etc)</b></li><li><b>*measure, mark out, cut and shape, with support</b></li><li><b>*choose suitable materials and explain choices (e.g. card, paper, junk modelling etc)</b></li><li><b>*work in a safe and hygienic manner with support</b></li><li><b>*Cut, peel, grate and mix safely with support</b></li></ul>	<ul style="list-style-type: none"><li><b>*explain what I am making and why it's fit for purpose</b></li><li><b>*make suggestions as what I need to do next</b></li><li><b>*join materials / components together in different ways (e.g. using PVA glue, Sellotape, string etc)</b></li><li><b>*measure, mark out, cut and shape materials and components with support</b></li><li><b>*describe which tools I'm using and why</b></li><li><b>*choose suitable materials and explain choices depending on characteristics (cardboard, plastic, wood, junk modelling etc)</b></li><li><b>*begin to use finishing techniques to make a product look good</b></li></ul>	<ul style="list-style-type: none"><li><b>*select suitable tools / equipment, explain choices, begin to use them accurately (e.g. scissors, knives, vegetable peelers, grater etc)</b></li><li><b>*select appropriate materials fit for purpose</b></li><li><b>*work through a plan in order</b></li><li><b>*consider how good a product will be</b></li><li><b>* Measure, mark out, cut and shape materials/ components with some accuracy</b></li><li><b>* know the importance of assembling, joining and combining materials and components precisely</b></li><li><b>begin to apply a range of finishing techniques with some accuracy</b></li><li><b>*alter product after checking, to make it better</b></li><li><b>*Make product look attractive</b></li></ul>	<ul style="list-style-type: none"><li><b>*select suitable tools and equipment, explain choices in relation to required techniques and use accurately (e.g. scissors, glue, glue gun, rulers, knives, spoons etc)</b></li><li><b>*select appropriate materials fit for purpose and explain choices</b></li><li><b>*work through a plan in order and realise if product is going to be good quality</b></li><li><b>*measure, mark out, cut and shape materials/ components with some accuracy</b></li><li><b>* know the importance of assembling, joining and combining materials and components precisely</b></li><li><b>*apply a range of finishing techniques with some accuracy</b></li><li><b>*continue working on product even if original didn't work</b></li><li><b>*explain alterations to product after checking it</b></li><li><b>*Think about presenting product in interesting/ attractive ways</b></li><li><b>*think about user when choosing textiles</b></li><li><b>* begin to devise a template</b></li><li><b>*Prepare and cook some dishes safely and hygienically</b></li><li><b>*Use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading</b></li></ul>	<ul style="list-style-type: none"><li><b>*use selected tools / equipment with a good level of precision (e.g. knives, spoons, scissors, batteries, wires etc.)</b></li><li><b>*produce suitable lists of tools equipment and materials needed</b></li><li><b>*select appropriate materials, fit for purpose, explain choices, considering functionality</b></li><li><b>*create and follow a detailed step by step plan</b></li><li><b>*explain how a product will appeal to an audience</b></li><li><b>*Accurately measure, mark out, cut and shape materials / components</b></li><li><b>*understand that products need to be assembled, joined and combined precisely to ensure products are strong and fit for purpose.</b></li><li><b>*mainly accurately apply a range of finishing techniques</b></li><li><b>*use techniques that involve a small number of steps</b></li><li><b>*begin to be resourceful with practical problems</b></li><li><b>*explain how product meets design criteria</b></li><li><b>*refine product after testing</b></li><li><b>*Present a product well - interesting, attractive, fit for purpose</b></li><li><b>*think about user and aesthetics when choosing textiles</b></li><li><b>*use own template</b></li><li><b>*Prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</b></li><li><b>* Use range of techniques such as peeling, chopping, slicing, grating, spreading</b></li></ul>	<ul style="list-style-type: none"><li><b>*use selected tools and equipment precisely</b></li><li><b>*produce suitable lists of tools, equipment, materials needed considering constraints</b></li><li><b>*select appropriate materials, fit for purpose, explain choices, considering functionality and aesthetics</b></li><li><b>*create, follow and adapt detailed step by step plans</b></li><li><b>*explain how a product will appeal to an audience: make changes and improve quality</b></li><li><b>*accurately measure, mark out, cut and shape materials/ components</b></li><li><b>* understand that products need to be assembled, joined and combined precisely to ensure products are strong and fit for purpose.</b></li><li><b>*accurately apply a range of finishing techniques</b></li><li><b>*use techniques that involve a number of steps</b></li><li><b>be resourceful with practical problems</b></li><li><b>*explain how product meets design criteria</b></li><li><b>*refine product after testing, considering aesthetics, functionality and purpose</b></li><li><b>*incorporate hydraulics and pneumatics</b></li><li><b>*think about how product might be sold</b></li><li><b>*think carefully about what would improve product</b></li><li><b>*think about user's wants/needs and aesthetics when choosing textiles</b></li><li><b>*make product attractive and strong</b></li><li><b>*make a prototype</b></li><li><b>*use a range of joining techniques</b></li><li><b>*Prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.</b></li><li><b>*Use a range of techniques confidently such as chopping, slicing, mixing</b></li></ul>

Evaluate	<p><b>*Share my creations, explaining what I have made</b></p>	<p><b>*talk about my work, linking it to what I was asked to do</b>  <b>*talk about existing products considering: use, materials, how they work, audience and where they might be used</b>  <b>*talk about existing products and say what is and isn't good</b>  <b>*talk about products that other people have made</b>  <b>*Talk about one way I could make a product better (e.g. next time I will use glue instead of Sellotape etc)</b></p>	<p><b>*describe what went well, thinking about pre-set design criteria (e.g. this went well because ...)</b>  <b>*talk about existing products considering use, materials, how they work, audience, where they might be used and express a personal opinion</b>  <b>*evaluate how good existing products are</b>  <b>*talk about what I would do differently if I were to do it again and why</b></p>	<p><b>*look at design criteria while designing and making (e.g. checking design criteria to ensure a product is fit for purpose)</b></p> <p><b>*use design criteria to evaluate a finished product (e.g I used glue because the design criteria said it needed to be strong etc)</b></p> <p><b>*say what I would change to make a design better</b></p> <p><b>* Evaluate existing products, considering how well they have been made and whether they're fit for purpose as a class</b>  <b>*As a class, discuss different designers</b></p>	<p><b>*refer to design criteria while designing and making (e.g. I know I needed to use lollipop sticks instead of paper because they're stronger etc)</b></p> <p><b>*use criteria to evaluate a product</b></p> <p><b>*Explain how I could improve my original design</b>  <b>*evaluate existing products, considering: how well they've been made and whether they're fit for purpose</b>  <b>*discuss by whom, when and where products were designed</b>  <b>*research whether products can be recycled or reused</b></p>	<p><b>*evaluate quality of design while designing and making</b>  <b>*evaluate ideas and finished products against specification, considering purpose and appearance</b>  <b>*test and evaluate final product</b>  <b>*evaluate and discuss existing product, considering how well they've been made, materials whether they work, how they have been made and whether the product is fit for purpose</b>  <b>*Evaluate how much products cost to make and how innovative they are</b>  <b>*research how sustainable materials are</b>  <b>talk about some key inventors/designers/ engineers/ chefs/ manufacturers of ground break products</b></p>	<p><b>*evaluate quality of deign while designing and making considering whether it is for purpose</b>  <b>*keep checking the design is as good as it can be (e.g. I can pause the making process to check I'm following the design criteria and make changes if necessary etc.)</b>  <b>*evaluate ideas and finished product against specification, stating if it's fit for purpose</b>  <b>*test and evaluate final products: explain what would improve it and the effect different resources may have had</b>  <b>*do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made</b>  <b>*evaluate how much products cost to make and how innovative they are</b>  <b>research and discuss how sustainable materials are</b>  <b>*consider the impact of products beyond their intended purpose</b>  <b>*discuss some key inventors/designers/engineers/chefs/manufacturers of ground-breaking products</b></p>
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