



Christopher Pickering Primary School

Progression of Knowledge and Skills

Design Technology

The intent of the Design Technology curriculum

To ensure that all pupils:

- use creativity and 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.
- acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art.
- learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens.
- evaluate past and present design and technology in order to develop a critical understanding of its impact on daily life and the wider world.
- acquire the skills and knowledge to make a contribution to the creativity, culture, wealth and well-being of the nation as design technologists.

What are the key features of 'knowledge-rich' assessment for Design Technology?

At key stage 1 and 2, the sticky knowledge takes full account of the national curriculum's main characteristics of:

Designing

Making

Evaluating

Using technical knowledge

Food technology

There are relatively few assessment statements as these knowledge statements should be what pupils retain for ever. In other words, this knowledge is within their long-term memory and will be retained.

Investigate



Focused Practical Task



Design



Make



Evaluate

Design Technology: Key Stage 1

		Year 1			Year 2		
		Construction – Mechanisms –moving picture book	Construction – Freestanding- bug hotel	Food – Fruit Platter	Construction – Mechanisms – moon buggies	Food – Afternoon Tea	Textiles – Pirate Puppets
Investigate	<p><i>Research existing products and key individuals who have contributed towards the development of the product being studied.</i></p> <p><i>Understand where food comes from.</i></p>	<ul style="list-style-type: none"> Investigate how levers and sliders are used in the real world (drawers, scissors etc.) 	<ul style="list-style-type: none"> Investigate the purpose of a bug hotel and how they are structured 	<ul style="list-style-type: none"> Investigate a range of fruit, how they are grown and where they come from (know it comes from somewhere other than shop) Taste and explore a range of fruit 	<ul style="list-style-type: none"> Investigate what a vehicle is and how they are made from different components to work Investigate what wheels, axles and chassis are and their purpose Investigate key individuals - Karl Benz, Elton Musk and Eduardo San Juan and the impact they had on modern-life 	<ul style="list-style-type: none"> Investigate a range of sandwiches and find out about the history of the sandwich Investigate how a sandwich can be healthy Investigate where various sandwich fillings come from Consider which fillings they may use and why based on taste testing (like, don't like, appearance, smell and texture) Investigate key individuals – Anna Marie Russell – duchess of Bedford. Requires a selection of sweet and savoury snacks to be brought to her room between luncheon and dinner to prevent her hunger 	<ul style="list-style-type: none"> Investigate a range of different puppets and how they have been made. Investigate the purpose of puppets and their uses Investigate the different fabrics used in the puppet. Investigate key individual – Jim Henson and the types of puppets he makes
Designing	<p><i>Design - purposeful, functional, appealing products for themselves and other users based on design criteria</i></p>	<ul style="list-style-type: none"> Generate ideas through talking and drawing Design an Antarctic scene, thinking about setting and characters (1 design) Label design identifying moving parts and materials used 	<ul style="list-style-type: none"> Generate ideas informed by Focussed Practical Task Design and label diagrams stating what materials they will need, which insects they will attract and how they will build it (2 designs) Choose a final design and explain why 	<ul style="list-style-type: none"> Generate ideas informed by Focussed Practical Task Design and label diagrams stating which fruits they have chosen and why based on taste listing how much of each ingredient they will need (2 designs) Choose a final design and explain why 	<ul style="list-style-type: none"> Generate ideas informed by Focussed Practical Task Design and label diagrams of ideas ensuring clear labelling of wheels, axles and chassis (2 designs) Choose a final design and explain why Ask children to assemble some examples of wheel, axle and axle holder combinations 	<ul style="list-style-type: none"> Generate ideas informed by Focussed Practical Task Design and label diagrams stating which fillings they have chosen and why based on the investigation and for a specific purpose (fit for a king) Thinking about type of bread, variation of fillings and ingredients list (2 designs) Choose a final design and explain why 	<ul style="list-style-type: none"> Generate ideas informed by Focussed Practical Task Draw and label diagrams of ideas – stating which fabrics have been used, which stitches have been used and any other resources used (2 designs) Choose a final design and explain why
Making	<p>Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, ICT</p> <p>use the basic principles of a healthy and varied diet to prepare dishes</p>	<ul style="list-style-type: none"> Discuss the sequence of making the product Using given resources (scissors, split pins, card and drawing implements) children to create their design 	<ul style="list-style-type: none"> Discuss the sequence of making the product Using given resources and collected resources children to create their design With adult supervision children to use a variety of simple tools 	<ul style="list-style-type: none"> Discuss the sequence of making the product Using given resources children to create their design With adult supervision children to use a variety of simple utensils 	<ul style="list-style-type: none"> Discuss the sequence of making the product Make Moon Buggies based on chosen design choosing appropriate resources With adult supervision children to use a variety of simple tools 	<ul style="list-style-type: none"> Discuss the sequence of making the product Choosing appropriate utensils children to make their design With adult supervision, children to use a variety of simple utensils 	<ul style="list-style-type: none"> Discuss the sequence of making the product Choosing appropriate resources, children to make their designed product. Attach a range of finishes using glue

<p>Evaluating</p>		<ul style="list-style-type: none"> • Simple evaluation based on traffic light system of the success criteria Did they like it? Did it work? Did they follow their design? 	<ul style="list-style-type: none"> • Simple evaluation based on traffic light system of the success criteria Did they like it? Did it work? Did they follow their design? 	<ul style="list-style-type: none"> • Simple evaluation based on traffic light system of the success criteria Did they like it? Did it work? Did they follow their design? Taste evaluation. 	<ul style="list-style-type: none"> • Evaluation based on what went well, what didn't and suggest one change if they were to do the project again 	<ul style="list-style-type: none"> • Write a set of instructions on how they made the sandwich • Evaluation based on taste, what went well, what didn't and a change for the future. • Would the king eat this sandwich? 	<ul style="list-style-type: none"> • Evaluation based on what went well, what didn't and suggest one change if they were to do the project again
<p>Technical Knowledge/skills</p>	<p><i>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. use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from</i></p>	<ul style="list-style-type: none"> • To know how a slider works • To know how a lever works • To know how to make a simple slider and lever using split pins • To know how to use scissors safely 	<ul style="list-style-type: none"> • To know how to use scissors safely • To know how to safely use a hammer with adult supervision • To know how to join a variety of natural materials (glue, masking tape, nails) • To know how to strengthen a structure to enable it to stand freely 	<ul style="list-style-type: none"> • know how to wash hands before preparing food and to maintain cleanliness throughout the process • To use a blunt knife to cut soft fruit • To use a juice squeezer safely • To peel a variety of fruit using a peeler • To grate fruit such as coconut safely with adult supervision • To understand which fruits are healthy • To understand what role fruit plays in a balanced diet 	<ul style="list-style-type: none"> • To know how a wheel works • To know how an axle works • To know how a chassis works • To know how to join wheels to axles • To know how to use a saw safely to cut through dowel • To know how to use a ruler to measure accurately (to the nearest cm) 	<ul style="list-style-type: none"> • know how to wash hands before preparing food and to maintain cleanliness throughout the process • To use a blunt knife to spread butter • To use a utility knife to cut fillings and sandwich • To peel a variety of vegetables • To grate a range of vegetables • To understand which sandwich fillings and types of bread are healthy • To understand what role sandwiches play in a balanced diet 	<ul style="list-style-type: none"> • To know how to use a running stitch to join 2 pieces of fabric together (binca/felt with pre-punched holes) • To know how to thread wool through a large plastic needle with a large eye • To know how to use glue to attach a range of finishes to the puppet • To know how to use paint pens to add finishing details

Investigate



Focused Practical Task



Design



Make



Evaluate

(including research)

Design Technology: Lower Key Stage 2							
		Year 3			Year 4		
		Food – healthy soup	Textiles – Iron age tunic	Construction – freestanding – earthquake-proof building	Construction – electricity – light box	Textiles – Roman coin purse	Food – sustainable rainforest biscuits
Investigate	<ul style="list-style-type: none"> Research existing products and key individuals who have contributed towards the development of the product being studied. understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed 	<p>Investigate the seasonality of fresh produce</p> <p>Investigate the nutritional value of a variety of soups (shop bought/homemade)</p> <p>To investigate how and where vegetables are grown</p> <p>To taste a variety of soups and ingredients and describe their characteristics using appropriate vocabulary.</p> <p>Investigate key individuals - Marguerite Patten and the impact she had on cooking during WW2.</p>	<ul style="list-style-type: none"> Investigate what a traditional tunic is and who used to wear them Investigate different materials and their properties, evaluating how suitable they would be to make a tunic Investigate how clothing is made from a 2D paper pattern which is then used to cut out the correct size and shaped pieces. Investigate key individuals – Christi Johnson – sustainable fashion designer and user of natural dyes 	<p>Investigate the challenges surrounding architecture posed by earthquakes</p> <p>To examine a range of existing real-life earthquake-proof buildings and focus on their design features</p> <p>Investigate key individuals: William (Bill) Henry Robinson – inventor of lead rubber bearing seismic isolation device</p> <p>William Pereira – famous for futuristic designs of landmark buildings such as the Transamerica Pyramid in San Francisco</p>	<p>Investigate a range of existing light-up electronic battery-powered products.</p> <p>Investigate how lights can be switched on and off using a remote control or a control device.</p> <p>Investigate a range of switches – push to make, push to break & toggle switch. Investigate how they work in a circuit.</p> <p>Investigate key individuals – Lewis Latimer – inventor of the long lasting filament</p>	<p>Investigate a range of money containers/purses, examining the range of textiles, stitches and fastenings used.</p> <p>Investigate and research the history of purses and who they were used by in ancient history.</p> <p>Consider the source of different materials – leather from cows, cotton from plants.</p> <p>Investigate a range of different fastenings – discuss which of these would have been available in the Roman era and ones that are a more modern addition.</p>	<p>Investigate a range of ingredients that are derived from the rainforest and understand how they are sourced and ethical implications this can have.</p> <p>To develop skills in evaluating and describing food characteristics, building on the vocabulary learned in Year 3.</p> <p>To investigate how organisations such as the Rainforest Alliance and Fairtrade ensure that ingredients originating from the rainforest reach our supermarket shelves in an ethical and sustainable way.</p> <p>To know the source of basic ingredients used to make biscuits (milk, butter, sugar, flour)</p> <p>To know that products are designed for different users and this is an important consideration when designing.</p> <p>Investigate key individuals – Alex Atala – a chef who cooks with indigenous Brazilian ingredients</p>

<p style="text-align: center;">Designing</p>	<p><i>use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</i></p> <p><i>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</i></p> <p><i>understand and apply the principles of a healthy and varied diet</i></p>	<p>Generate and clarify ideas through discussion with peers and adults to create a design based on a given design specification, paying attention to appearance, texture, taste and aroma.</p> <p>Design a soup using annotated sketches stating which ingredients they are using and why – reasoning why they have chosen each ingredient with reference to nutrition and seasonality. (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one.</p> <p>To plan and order the main stages of making their chosen design/recipe, listing ingredients, utensils and equipment.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a design based on a given design specification, paying attention to appearance and practicality.</p> <p>Design a tunic using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to appearance and practicality (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one.</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment needed.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a design based on a given design specification, paying attention to strengthening methods</p> <p>Design a structure using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to strengthening and appearance (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one.</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment needed.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a simple design specification and design, paying attention to appearance and practicality.</p> <p>Design a light box using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to appearance and practicality (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, evaluating against their design specification.</p> <p>Produce a detailed circuit diagram – using the appropriate symbols – to represent their product</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment needed.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a simple design specification and design, paying attention to appearance and practicality.</p> <p>Design a coin purse using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to appearance and practicality (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, evaluating against their design specification.</p> <p>Produce a mock-up of design ideas using alternative materials to use as a template to make a paper pattern.</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment needed.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a simple design specification and design, paying attention to appearance, texture, taste and aroma.</p> <p>Design biscuits using annotated sketches stating which ingredients they are using and why – reasoning why they have chosen each ingredient with reference to sustainability and ethics (2 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, evaluating against their design specification.</p> <p>To plan and order the main stages of their chosen design/recipe, listing ingredients, utensils and equipment and suggesting changes to existing recipes.</p>
	<p style="text-align: center;">Making</p>	<ul style="list-style-type: none"> <i>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</i> <i>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</i> <i>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</i> 	<ul style="list-style-type: none"> Independently select and use appropriate equipment and utensils to prepare and combine ingredients. With adult supervision, children to use a variety of simple utensils (including utility knives) and cook their soup over heat. 	<ul style="list-style-type: none"> Independently choosing appropriate resources, children to make their designed product. Use a simple paper pattern template to cut 2 pieces of equal size and shape fabric To cut, shape and join fabric to make a simple garment 	<ul style="list-style-type: none"> Independently choosing appropriate resources, children to make their designed product. Use finishing and decorative techniques suitable for the product they are making 	<ul style="list-style-type: none"> Independently choosing appropriate tools and resources, children to make their designed product with increasing independence To select from and use materials and components, including construction materials and electronic components according to their functional properties and aesthetic qualities. 	<ul style="list-style-type: none"> Independently choosing appropriate resources, children to make their designed product with increasing independence Use a self-made paper pattern template to cut 2 pieces of equal size and shape fabric To cut, shape and join fabric to make a coin purse with embellishment and a fastening

<p>Evaluating</p>	<ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas & 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 	<p>Evaluate the final product against the given design specification, reflecting on nutrition and seasonality.</p> <p>Reflect on what went well and what did not go so well. Suggest some changes for the future.</p>	<p>Evaluate the final product against the given design specification, reflecting on appearance and practicality.</p> <p>Reflect on what went well and what did not go so well. Suggest some changes for the future.</p>	<p>Evaluate the final product against the given design specification, reflecting on appearance and practicality.</p> <p>Reflect on what went well and what did not go so well. Suggest some changes for the future</p>	<p>Evaluate the final product against the given design specification, reflecting on appearance and practicality.</p> <p>Evaluate the success of the product and reflect on the constraints of the design. Suggest some changes for the future and explain how these could be achieved.</p>	<p>Evaluate the final product against the given design specification, reflecting on appearance and practicality.</p> <p>Evaluate the success of the product and reflect on the constraints of the design. Suggest some changes for the future and explain how these could be achieved.</p>	<p>Evaluate the final product against the created design specification, reflecting on sustainability and ethics.</p> <p>Evaluate the success of the product and reflect on the constraints of the design. Suggest some changes for the future and explain how these could be achieved.</p>
<p>Technical Knowledge/skills</p>	<ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [e.g. gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [e.g. series circuits incorporating switches, bulbs, buzzers, motors] apply their understanding of computing to program, monitor and control their products. 	<p>To know how to use utensils and equipment, safely and hygienically.</p> <p>To know how to cook on a hob safely.</p> <p>To know how to correctly hold and use knives (bridge and claw grips/holds)</p> <p>To know the importance of good hygiene when working with food.</p>	<p>To know how to thread a needle</p> <p>To know how to use a running stitch and overstitch to join 2 pieces of fabric together (hessian)</p> <p>Using a pre-made pattern, know how to cut out 2 equal size and shape pieces of material.</p>	<p>To use a construction kit to build 2-D frameworks</p> <p>To know how different shapes provide different levels of strength</p> <p>To understand how to reinforce using cross-hatching</p> <p>To know how to use a range of joining methods to build strong, solid, sturdy structures</p>	<p>To know how to work safely around electricity</p> <p>To be able to make a simple circuit, incorporating a battery, light bulb, different switches and connecting wires</p> <p>To know how to find a fault in a simple circuit</p> <p>To know that a variety of metals will conduct electricity</p> <p>To know how to program a simple control device</p> <p>Cut, shape, join and finish with some accuracy</p>	<p>To know how to thread a needle with increasing accuracy, efficiency and independence.</p> <p>To know how to use a running stitch and overstitch to join 2 pieces of fabric together and how to use a back tac stitch to strengthen and secure stitching.</p> <p>To be able to use a range of stitches to create strong seams, and attach a range of fastenings and embellishments.</p> <p>To measure, tape/pin, cut and join fabric with some accuracy</p> <p>To create and use their own paper pattern accurately</p>	<p>To know how to use utensils and equipment, safely and hygienically – and how to handle these carefully when washing up.</p> <p>To know how to use an oven safely.</p> <p>To apply prior knowledge of bridge and claw grips/holds when using knives.</p> <p>To know the importance of good hygiene and how this is achieved when working with food.</p> <p>To use weighing scales to accurately measure out ingredients.</p>

Investigate



Focused Practical Task



Design



Make



Evaluate

(including research)

Design Technology: Upper Key Stage 2

		Year 5			Year 6		
		Textiles – Greek sandals	Food - bread	Construction – pulley system	Food – chocolate truffles (CAD)	Construction – electricity – alarm system	Textiles – upcycling
Investigate	<ul style="list-style-type: none"> Research existing products and key individuals who have contributed towards the development of the product being studied. understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed 	<p>Investigate a range of existing sandals and examine the materials, stitching, joining and embellishment methods used. Discuss what makes them appropriate for the purpose and user.</p> <p>To understand that designers have to consider appearance, function, cost and safety when designing products.</p> <p>To explore how many different materials can be used on a product for different purposes e.g. to stiffen, to provide longevity and some for appearance.</p> <p>To research how sandals have changed since the Ancient Greeks wore them.</p> <p>Research key individual – Christian Louboutin and how he is famous for making fashionable footwear</p>	<p>Investigate a variety of bread products from a range of cultures and traditions and periods in history.</p> <p>To know that bread products are an important part of a balanced diet and can be eaten in a variety of ways.</p> <p>To know the nutritional value of bread.</p> <p>To further develop skills in evaluating and describing bread characteristics, record a sensory profile for each one tasted. Comment on personal preferences, like and dislikes.</p> <p>To investigate the process involved in making flour and how this compares to how the Anglo Saxons produced flour.</p> <p>Research key individual – Thomas Warburton</p>	<p>Investigate, analyse and evaluate existing everyday products and existing or pre-made toys that incorporate pulley systems.</p> <p>Explore how pulley systems work and what they are used for.</p> <p>Research the history of the pulley system, where it originated from and its use throughout history</p> <p>Research key individuals: Archimedes of Syracuse invested the first compound pulleys 287BC-212BC</p> <p>1730 Benjamin Franklin devised a rope pulley-system to lift a printing press up 3 floors.</p>	<p>Investigate a range of existing chocolate products – conduct taste tests and produce a hedonic sensory analysis for each product tasted.</p> <p>To know the source of different staple ingredients for chocolate products.</p> <p>To investigate a range of dietary needs and allergies and how these can be accommodated in chocolate products.</p> <p>Investigate and evaluate a range of shell structures, including the materials, components and techniques that have been used.</p> <p>Research key individual – John Cadbury</p>	<p>Investigate a range of battery-powered products, including those which are commercially available. (if practical, disassemble these)</p> <p>Investigate different types of alarm systems and how they work. Know what their purpose is.</p> <p>Investigate a range of switches, building on knowledge from year 4 on push to make, push to break and toggle switches.</p> <p>Introduce different types of switches - reed switches and tilt switches.</p> <p>Research key individual – Marie Van Brittan Brown - inventor of the first home alarm system</p>	<p>Investigate how different materials are manufactured and the environmental impact the fashion industry has.</p> <p>To investigate the ethical implications of “fast fashion”</p> <p>Research fashion brands and companies that upcycle clothing.</p> <p>Research sustainable/eco-conscious fashion brands such as Bode and 1/off Paris</p>

Designing	<p><i>use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</i></p> <p><i>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</i></p> <p><i>understand and apply the principles of a healthy and varied diet</i></p>	<p>Generate and clarify ideas through discussion with peers and adults to create a detailed design specification and design, paying attention to the purpose and user of the product</p> <p>Design a pair of sandals using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to key the role they play in the final product (strengthening/appearance etc..) (3 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, critically evaluating against their design specification.</p> <p>To plan and order the main stages of making their chosen design, listing resources, materials and equipment they will need.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a detailed design specification and design, paying attention to the sensory profile of the desired product.</p> <p>Modify and adapt a basic bread recipe, indicating the type of flour, extra ingredients and the stage in the process that they will be added.</p> <p>Design bread using annotated sketches stating which ingredients they are using and why – reasoning why they have chosen each ingredient with reference to key ingredients and the role they play in the cooking process (3 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, critically evaluating against their design specification.</p> <p>To plan and order the main stages of making their chosen design/recipe, listing ingredients, utensils and equipment they will need as well as the quantity of ingredients.</p>	<p>Generate and clarify ideas through discussion with peers and adults to create a detailed design specification and design, paying attention to the purpose and user of the product</p> <p>Design a pulley system using annotated sketches stating which materials they are using and why – reasoning why they have chosen each material with reference to key the role they play in the final product (strengthening/appearance etc..) (3 designs)</p> <p>Choose a final design and explain with justification, why they have chosen that one, critically evaluating against their design specification.</p> <p>To plan and order the main stages of making their chosen design, listing resources, materials and equipment they will need</p>	<p>To generate innovative ideas by carrying out research, using surveys, interviews, questionnaires and web-based resources.</p> <p>To draw up a detailed specification for their design, working within a budget.</p> <p>To produce detailed, sketched designs for their truffles, labelling key ingredients used. (4 designs)</p> <p>To evaluate their initial ideas against the design specification and identify and explain any constraints e.g. cost</p> <p>To plan and order the main stages of making their chosen design/recipe, listing ingredients, utensils and equipment they will need as well as the quantity of ingredients.</p> <p>To work out the overall cost of the product and profit margins.</p> <p><i>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product.</i></p> <p><i>Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas.</i></p>	<p>To generate innovative ideas by carrying out research, using surveys, interviews, questionnaires and web-based resources.</p> <p>To draw up a detailed specification for their design – paying close attention to user and purpose.</p> <p>Develop, model and communicate ideas through talking, drawing templates, mock-ups and prototypes and if possible, computer aided design. (4 designs)</p> <p>To evaluate their initial ideas against the design specification and identify and explain any constraints e.g. cost of materials</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment they will need.</p>	<p>To generate innovative ideas by carrying out research, using surveys, interviews, questionnaires and web-based resources.</p> <p>To draw up a detailed specification for their design – paying close attention to user and purpose.</p> <p>Develop, model and communicate ideas through talking, drawing templates, mock-ups and prototypes and if possible, computer aided design. (4 designs)</p> <p>To evaluate their initial ideas against the design specification and identify and explain any constraints e.g. cost of materials</p> <p>To plan and order the main stages of making their chosen design, listing resources and equipment they will need.</p>

<p style="text-align: center;">Making</p>	<ul style="list-style-type: none"> 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques 	<p>Select and use the most appropriate equipment and resources to make their product.</p> <p>Work independently and systematically by using their step-by-step plan to sequence their work.</p> <p>Critically evaluate the success of the product throughout the making process.</p>	<p>Select and use the most appropriate equipment and utensils to prepare and combine ingredients, as well accurately weighing wet and dry ingredients.</p> <p>Critically evaluate the texture of the dough and the success of the product throughout the making process.</p>	<p>Select and use the most appropriate equipment, tools and resources to make their product.</p> <p>Work independently and systematically by using their step-by-step plan to sequence their work.</p> <p>Critically evaluate the success of the product throughout the making process.</p>	<p>Select and use the most appropriate equipment and utensils to prepare and combine ingredients, as well accurately weighing ingredients.</p> <p>Critically evaluate the success of the product throughout the making process, acting decisively to make changes to the recipe when necessary,</p> <p>Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy.</p> <p>Explain their choices of materials according to functional properties and aesthetic qualities.</p> <p>Use computer-generated finishing techniques suitable for the product they are creating.</p>	<p>Select and use the most appropriate equipment and resources to make their product.</p> <p>Work independently and systematically by using their step-by-step plan to sequence their work to make a high-quality product.</p> <p>Critically evaluate the success of the product throughout the making process.</p>	<p>Select and use the most appropriate equipment and resources to make their product.</p> <p>Work independently and systematically by using their step-by-step plan to sequence their work to make a high-quality product.</p> <p>Critically evaluate the success of the product throughout the making process.</p>
<p style="text-align: center;">Evaluating</p>	<ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas & 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 	<p>Evaluate the final product against the created design specification, reflecting on the purpose and user of the product</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with (explored in the investigate stage).</p>	<p>Evaluate the final product against the created design specification, reflecting on the sensory profile of the product.</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with (explored in the investigate stage).</p>	<p>Evaluate the final product against the created design specification, reflecting on the purpose and user of the product</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with (explored in the investigate stage).</p>	<p>Evaluate the final product against the created design specification, critically reflecting on the sensory qualities of the product.</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with (explored in the investigate stage).</p> <p>Test and evaluate their own products against design criteria and the intended user and purpose.</p>	<p>Evaluate the final product against the created design specification, critically reflecting on the desired qualities of the product and assessing its appropriateness for purpose and user.</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with – how does the level of quality compare?</p>	<p>Evaluate the final product against the created design specification, critically reflecting on the desired qualities of the product and assessing its appropriateness for purpose and user.</p> <p>Critically evaluate the success of the product and reflect on the constraints of the design. Suggest some detailed changes for the future and explain how these could be achieved.</p> <p>Draw comparisons between their end product and commercial products they are familiar with – how does the level of quality compare?</p>

Technical Knowledge/skills

<ul style="list-style-type: none"> • <i>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</i> • <i>understand and use mechanical systems in their products [e.g. gears, pulleys, cams, levers and linkages]</i> • <i>understand and use electrical systems in their products [e.g. series circuits incorporating switches, bulbs, buzzers, motors]</i> • <i>apply their understanding of computing to program, monitor and control their products</i> 	<p>To know how to thread a needle with accuracy, efficiency and independence.</p> <p>To build on their knowledge of how to use a running stitch and overstitch to join 2 pieces of fabric together and how to use a back tac stitch to strengthen and secure stitching. To understand the role that glue can have in strengthening products.</p> <p>To be able to use a range of stitches to create strong seems, and attach a range of fastenings and embellishments to make the product aesthetically pleasing</p> <p>To measure, tape/pin, cut and join fabric with accuracy</p> <p>To create and use their own paper pattern accurately by measuring their feet.</p>	<p>To know how to use utensils and equipment, safely and hygienically – and how to handle these carefully when washing up and storing.</p> <p>To use weighing scales and measuring jugs to accurately measure out wet and dry ingredients.</p> <p>To understand the role that yeast plays in making bread.</p> <p>To be able to knead bread and know why this is an important process.</p> <p>To know how to use a variety of cooking methods to cook bread, including baking, frying, grilling, boiling and the effect this has on the end product.</p> <p>To know how to use an oven, grill and hob safely.</p> <p>To know how to use a bread knife to safely slice bread.</p> <p>To know the importance of good hygiene and how this is achieved when working with food.</p>	<p>Understand how a pulley system works and the considerations that go into making them</p> <p>Understand that 2 different sized pulleys can combine</p> <p>Know how to change the speed and direction of a pulley system</p> <p>To be able to measure, mark, cut, shape and join using tools such as junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames.</p> <p>To work safely with an increasing amount of independence</p>	<p>To be able to roll, shape and form truffles from a mixture.</p> <p>To know how to use a hob safely to melt chocolate and butter.</p> <p>To use weighing scales and measuring jugs to accurately measure out wet and dry ingredients.</p> <p>To know the role that temperature plays when making products and how heating and cooling can effect ingredients.</p> <p>To work safely and hygienically at all times, including when washing up and storing equipment.</p> <p><i>Develop and use knowledge of nets of cubes and cuboids (and where appropriate knowledge of more complex 3D shapes)</i></p> <p><i>Develop and use knowledge of how to construct strong, stiff shell structures.</i></p> <p><i>Know and use technical vocabulary relevant to the project.</i></p>	<p>To know how to work safely around electricity</p> <p>To build on knowledge from Year 4 of how to make manually controlled simple series circuits with batteries, bulbs, buzzers, motors and different types of switches.</p> <p>To know the difference between “input” and “output” components</p> <p>To be able to correct faults in increasingly more complex circuits</p> <p>To be able to make a variety of home-made switches using classroom materials (push to make, push to break, tilt)</p> <p>To be able to suggests the appropriate switch for different purposes and give reasoned justification why</p> <p>To be able to join electrical components to ensure secure connections</p>	<p>To know how to thread a needle with accuracy, efficiency and independence.</p> <p>To build on their knowledge of how to use a running stitch and overstitch to join 2 pieces of fabric together and how to use a back tac stitch to strengthen and secure stitching. To understand the role that glue can have in strengthening products. To use embellishment stitches such as cross stitch and chain stitch to add embellishment to their piece of clothing.</p> <p>To create a hem on material to create neat edges and prevent fraying.</p> <p>To be able to use a range of stitches to create strong seems, and attach a range of fastenings and embellishments, including fabric paint and sequins to make the product aesthetically pleasing</p> <p>To measure, tape/pin, cut and join fabric with accuracy</p>
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