



Hampreston CE VA First School Policy | Plan | Progression 2022/23

Vision

Our vision for Design and Technology is to encourage children to apply their growing practical skills to fashion objects and working models. We aim to give children a DT curriculum which allows them gain confidence when working with a range of materials and give them an understanding of the designing, making and evaluating process. We want children to ask questions and find answers. This will involve exciting, practical hands-on lessons that will inspire children of all abilities, releasing their potential.

Why we believe Design and Technology is Important

Children love to make things. Building, shaping, modelling, cutting and sticking are intrinsically enjoyable practical activities for us all. As teachers, we feel it is important to guide children through this natural inquisitive process and support the development of skills required to design and make products successfully. We believe that age-appropriate, progressive acquisition of designing, making and evaluating skills and techniques are the best way to allow this development to take place in our school.

Characteristics of Designers and Technologists

Children at Hampreston are encouraged to investigate, experiment and make. They are allowed to make mistakes and enabled to learn from these mistakes. They are taught skills and techniques which allow them to develop their technological abilities. Most importantly they enjoy themselves through practical activity and are aware of their progress in the subject. They experience a sense of achievement through their study and practice!

Subject Statement

Intent

Hampreston School offers a coherently planned sequence of lessons to help teachers ensure they have progressively covered the knowledge, understanding and skills required in the National Curriculum. We aim to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. The iterative design process is fundamental and runs throughout the work. This iterative process encourages children to identify real and relevant problems, critically evaluate existing products and then take risks and innovate when designing and creating solutions to the problems. As part of the iterative process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Opportunities are provided for children to evaluate key events and individuals who have helped shape the world, showing the real impact of design and technology on the wider environment and helping to inspire children to become the next generation of innovators.

Implementation

Design and Technology skills and understanding are built into lessons, following an iterative process. However, this is not to say that this structure should be followed rigidly: it allows for the revision of ideas to become part of good practice and ultimately helps to build a depth to children's understanding. Through revisiting and consolidating skills, our lesson plans and resources help children build on prior knowledge alongside introducing new skills, knowledge and challenge. We use DATA (Design And Technology Association) Projects on a Page to ensure knowledge and skills are being built upon in each of the main areas: Structures, Mechanisms, The revision and introduction of key vocabulary is built into each lesson. This vocabulary is then included in display materials and additional resources to ensure that children are allowed opportunities to repeat and revise this knowledge. Adult guides and accurate design and technology subject knowledge are always provided within lessons to allow the teacher and adults working in those lessons to feel confident and supported with the skills and knowledge that they are teaching.

Through these lessons, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

Level Expected at the End of EYFS:

Expressive Arts and Design (Exploring and Using Media and Materials)

Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Expressive Arts and Design (Being Imaginative)

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Physical Development (Moving and Handling)

Children handle equipment and tools effectively, including pencils for writing.

KS1 National Curriculum Expectations

Design

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

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

KS 2 National Curriculum Expectations

Design

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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.

Cooking and Nutrition

- Pupils should be taught to:
- understand and apply the principles of a healthy and varied diet;
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Impact

The impact of using the full range of resources, including display materials, will be seen across the school with an increase in the profile of Design and Technology. The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of design and technology-specific home learning tasks and opportunities suggested in lessons and overviews for wider learning. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons.

This is what some of our children say about D and T:



Design and Technology Curriculum Overview

Whole School DT Curriculum Overview 2022 – 2023

Year group	Autumn	Spring	Summer
EYFS	<p>Textiles Hats – properties of hats Joining and fixing textiles Make a hat</p>	<p>Mechanical Systems - Toys – making mixed and moving joints Finding out about mechanisms</p> <ul style="list-style-type: none"> • Hinges • Slider • Simple levers <p>Make a toy, e.g. kite, doll, swing</p>	<p>Mechanisms - Let's look at vehicles How do wheels work? Make a vehicle</p>
1	<p>Mechanisms - sliders and levers Generating, modelling and communicating ideas. Planning making, selecting tools and using finishing techniques. Exploring books and products; evaluating own product against original criteria. Exploring sliders and levers; understanding types of movement; technical vocabulary.</p>	<p>Food – Preparing fruit and vegetables Designing appealing products for a user; investigating fruit and vegetables and generating ideas; communicating through talk and drawings. Selecting a range of fruits and vegetables; using simple utensils and equipment. Tasting and evaluating user's preference; evaluating ideas and finished products against original criteria. Understand where ingredients come from and the basis of a healthy and varied diet.</p>	<p>Structures Play Making (link to Art unit Play Making)</p>
2	<p>Mechanisms – wheels and axles Generate ideas and simple design criteria. Develop and communicate ideas through drawings and mock-ups. Select a range of tools and equipment and materials to perform practical tasks. Explore wheels and axles and evaluate their ideas and products against original criteria.</p>	<p>Textiles – templates and joining techniques Design a functional, appealing product for a chosen user and purpose. Generate, develop, and communicate ideas. Use a range of textiles, tools and equipment to perform practical tasks. Explore and evaluate existing textile products and their own ideas and products. Understand how 3-D textile products are made, using joining, templates and finishing to create two identical shapes.</p>	<p>Structures – freestanding structures Generating design ideas; developing modelling and explaining using talk, mock-ups and drawings. Planning making, selecting tools and new and recycled materials; using finishing techniques. Exploring existing freestanding structures; evaluating their own products against original criteria. Know about strengthening structures; knowledge of vocabulary.</p>
3	<p>Mechanical systems – levers and linkages Generate realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas. Select and use tools with some accuracy to cut, shape and join paper and card Investigate and analyse their own and others' products with lever and linkage mechanisms. Understand and use lever and linkages, and fixed and loose pivots.</p>	<p>Food healthy and varied diet Generate ideas and develop design criteria for an appealing product for a user and purpose. Plan the main stages of a recipe, listing ingredients, utensils and equipment. Select from a range of ingredients to make appropriate food products. Carry out and record evaluations of a variety of ingredients and products. Know a range of appropriate ingredients, and whether they are grown, reared or caught.</p>	<p>Stand-alone DT Day: Electrical Systems – simple programming and control (fairground ride) <i>Introducing simple programming and control using the example of a Crumble controller and different output devices that children might include in their products. Please read in conjunction with Side 2 of the original 'Simple Circuits and Switches' planner</i></p> <p>Gather information and develop and communicate realistic design ideas using annotated sketches and prototypes. Connect simple electrical components in a series circuit and program an interface to enhance the way the product works. Investigate and analyse a range of powered products, including programmed, and evaluate their own products and design criteria. Understand and use computing to program and control products with electrical systems.</p> <p>Shell structures using computer aided design <i>Using simple CAD tools such as Microsoft Word and Techsoft 2D Primary to create nets for packaging and other shell structures in products that children design and make. Please read in conjunction with Side 2 of the original 'Shell Structures' planner.</i> Generate and develop realistic ideas and design criteria collaboratively and through analysis of existing products. • Order the stages of making; selecting tools and using with some accuracy. • Investigate and evaluate shell structures, and construct strong, stiff shell structures. • Test and evaluate own products against design criteria and intended user and purpose.</p>
4	<p>Mechanical systems – pneumatics <i>Exploring simple mechanisms and using a range of materials to help children design and make appropriate products using syringes, tubes, plastic bottles etc.</i></p>	<p>2D shape to 3D product Generate design criteria for an appealing, functional product for specific users. Produce annotated sketches, prototypes, final product sketches and</p>	<p>Electrical systems – simple circuits and switches Use annotated sketches, cross-sectional and exploded diagrams to develop and communicate ideas. Select and use tools with some accuracy to cut, shape, join and finish. Use construction materials and electrical components according to their functional properties and</p>

<p>Generate their own realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas.</p> <p>Select and use tools with some accuracy, cut and join materials and components such as tubing, syringes and balloons.</p> <p>Investigate and find information on and products with pneumatic mechanisms and evaluate their own products and ideas against criteria and user needs.</p> <p>Understand and use pneumatic mechanisms.</p>	<p>pattern pieces.</p> <p>Select fabrics and fastenings according to their functional characteristics.</p> <p>Investigate a range of 3-D textile products.</p> <p>Test their product against the original criteria and with the intended user.</p>	<p>aesthetic qualities.</p> <p>Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</p> <p>Structures – shell structures</p> <p>Generate ideas and designs, developing them through analysis of shell structures and use CAD to model and communicate ideas.</p> <p>Plan the making and use appropriate tools and software, explaining their choices. Use computer-generated finishing techniques.</p> <p>Evaluate shell structures and their own products. Develop knowledge of nets of cubes and cuboids and more complex 3D shapes and how to construct strong, stiff shell structures.</p>
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Promoting British Values Through Art and Design

We endeavour to promote the British Values of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs through our science curriculum. Please see our British Values policy for further information. Throughout our D and T lessons we promote individual liberty through encouraging children to make their own choices and mutual respect in listening to other people’s ideas.

Spiritual, Moral, Social and Cultural Aspects

Design and Technology provides opportunities to promote spiritual development through sensing the world they live in, reflecting on their part in it and asking questions. Moral development is promoted through drawing conclusions using observation and evidence rather than preconceptions. To ensure social development, children learn to respect the opinions of others and work together in groups. Cultural development is promoted through helping children’s recognise how human discoveries and ideas have affected the way people think, feel, create and behave and live. Beliefs, spiritual awareness, high standards of personal behaviour including a positive caring attitude towards other people, an understanding of their social and cultural traditions and an appreciation of the diversity and richness of other cultures are all critical skills and dispositions that we nurture, encourage and develop through National Curriculum areas and the wider curriculum.

Inclusion & Equal Opportunities

In school we aim to meet the needs of all our children by differentiation in our D and T planning and in providing a variety of approaches and tasks appropriate to ability levels. This involves providing opportunities for children with Special Education Needs (SEN) or Disabilities to complete their own projects, sometimes with support, to develop speech and language skills, as well as practical skills and knowledge. This will enable children with learning and/or physical difficulties to take an active part in practical activities and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities. Children with EAL will need support with language but should be able to access science lessons with appropriate resources and support. By being given enhancing and enriching activities, more able children will be able to progress to a higher level of knowledge and understanding appropriate to their abilities. Teachers ensure that a range of teaching and learning strategies are used which include and motivate all learners, ensuring that optimum progress is made throughout each part of the lesson.

Hampreston Design and Technology Knowledge and Skills Progression

Reception	Year One
<p>Reception children will be learning to: (Development matters)</p> <ul style="list-style-type: none"> Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources and skills. Explore how things work (Understanding the world) <p>Early Learning Goals – Creating and Materials</p> <ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used; Use a range of small tools, including scissors, paint brushes and cutlery; 	<p>National curriculum objectives:</p> <ul style="list-style-type: none"> DT M1 Select from and use a range of tools and equipment to perform practical tasks DT M2 Select from and use a wide range of materials and components including construction materials, textiles and ingredients according to their characteristics DT D1 Design purposeful, functional, appealing products for themselves and other users based upon the design criteria DT D2 generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology DT E1 Explore and evaluate a range of existing products DT E2 Evaluate their ideas and products against design criteria DT TK 2 Explore and use mechanisms DT TK1 Build structures exploring how they can be made stronger, stiffer and more stable DT CN2 Find out where food comes from DT CN 1 Use the basic principles of a healthy and varied diet to prepare dishes <p>Relationships and Health Education</p> <p>To know what constitutes as a healthy diet</p> <p>To know the principles of planning and preparing a range of healthy meals</p> <p>To know the characteristics of a poor diet and associated risks</p>
<p>Key Knowledge/skills:</p> <p>Choose tools such as rolling pin, cutters, cotton buds, forks, tweezers and use appropriately to roll and cut malleable materials</p> <p>Choose appropriate materials to make an object Join materials using tape, glue or string</p> <p>Build recognisable models using a range of materials</p> <p>To use a knife to spread (ELG)</p> <p>To hold and use a fork correctly (ELG)</p> <p>To hold and use scissors safely and correctly to cut an outline of a simple shape (ELG)</p> <p>To share what they have made and say how they made them (ELG)</p> <p>To use a variety of materials eg dough, cardboard, paper, cloth (ELG)</p> <p>To experiment before they make something (ELG)</p>	<p>Key Knowledge/skills:</p> <p><u>Understanding contexts, uses and purpose</u></p> <p>To begin to work within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</p> <p><u>State what products they are designing and making</u></p> <p>Say whether their products are for themselves or other users Describe what their products are for</p> <p><u>Generating, developing, modelling and communicating ideas</u></p> <p>Generate ideas by drawing on their own experiences Develop and communicate ideas by talking and drawing</p> <p><u>Model ideas by exploring materials, components and construction kits</u></p> <p><u>Planning</u></p> <p>Plan by suggesting what to do next</p> <p>Select from a range of tools and equipment, explaining their choices</p> <p><u>Practical skills and techniques</u></p> <p>Follow procedures for safety and hygiene (e.g. wash hands, wear apron, goggles, hair up). Begin to use some materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</p> <p><u>Cut and shape materials and components</u></p> <p>Begin to assemble, join and combine materials and components</p> <p><u>Own ideas and products</u></p> <p>Talk about their design ideas and what they are making</p> <p><u>Existing products</u></p>

	<p>Explore:</p> <p>what products are who products are for how products work how products are used what they like and dislike about products</p> <p><u>Making products work</u> Pupils should know:</p> <p>About the simple working characteristics of materials and components (e.g. strength, hardness, toughness, ability to bend, how stretchy it is).</p> <p>About the movement of simple mechanisms such as levers, sliders, wheels and axles</p> <p>The correct technical vocabulary for the projects they are undertaking (see below)</p> <p><u>Where food comes from</u> Pupils should know:</p> <p>That all food comes from plants and animals</p> <p>That food has to be farmed, grown elsewhere (home) or caught</p> <p>Food preparation, cooking and nutrition</p> <p>Pupils should know:</p> <p>That everyone should eat at least five portions of fruit and vegetables every day</p>
<p>Key Vocabulary: Healthy, Unhealthy, melting, mixing, hot, cold, cutting, rolling pin, cutters, thread, squeeze, press, join, squishy, squashy, tweezers, knife, fork, spread, thick, thin, card, foil, glitter, beads, sequins, dig, model</p>	<p>Key Vocabulary: Equipment, textiles, design, levers, sliders, wheels, axels, observing, moving, improvements, review, project, evaluate, structure, stable, stiffer, stronger, construction, baking, ingredients, labels, food hygiene</p>

Year Two	Year Three	Year Four
<p>National curriculum objectives:</p> <ul style="list-style-type: none"> DT M1 Select from and use a range of tools and equipment to perform practical tasks DT M2 Select from and use a wide range of materials and components including construction materials, textiles and ingredients according to their characteristics DT D1 Design purposeful, functional, appealing products for themselves and other users based upon the design criteria DT D2 generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology DT E1 Explore and evaluate a range of existing products DT E2 Evaluate their ideas and products against design criteria DT CN 1 Use the basic principles of a healthy and varied diet to prepare dishes DT CN2 Find out where food comes from DT TK1 Build structures exploring how they can be made stronger, stiffer and more stable <p>Relationships and Health Education To know what constitutes as a healthy diet To know the principles of planning and preparing a range of healthy meals To know the characteristics of a poor diet and associated risks</p>	<p>National curriculum objectives:</p> <p>DT D1 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.</p> <p>DT D2 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>DT M1 Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing), accurately</p> <p>DT M2 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.</p> <p>DT E1 Investigate and analyse a range of existing products</p> <p>DT E2 Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>DT TK1 Apply their understanding of how to strengthen, stiffing and reinforce more complex structures</p> <p>DT TK2 Understand and use mechanical systems in their produces (e.g. gears, pulleys, cams, levers and linkages)</p> <p>Relationships and Health Education To know what constitutes as a healthy diet To know the principles of planning and preparing a range of healthy meals To know the characteristics of a poor diet and associated risks</p>	<p>National curriculum objectives:</p> <p>DT D1 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.</p> <p>DT M2 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. DT M1 Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing), accurately</p> <p>DT CN2 Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>DT D2 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>DT TK1 Apply their understanding of how to strengthen, stiffing and reinforce more complex structures</p> <p>DT E2 Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>DT CN1 Understand and apply the principle of healthy and varied diet</p> <p>DT TK2 Understand and use mechanical systems in their products (e.g. gears, pulleys, cams, levers and linkages)</p> <p>DT E3 Understand how key events and individuals in design and technology have helped shape the world</p> <p>DT TK3 Understand and use electrical systems in their products (e.g. series circuits incorporating switches, bulbs, buzzers and motors)</p> <p>Relationships and Health Education To know what constitutes as a healthy diet To know the principles of planning and preparing a range of healthy meals To know the characteristics of a poor diet and associated risks</p>

Key Knowledge/skills:

Understanding contexts, users and purpose

Work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment

Say how their products will work

Say how they will make their products suitable for their intended users

Use simple design criteria to help develop their ideas

Generating, developing, modelling and communicating ideas

Use knowledge of existing products to help come up with ideas Model ideas by making templates and mock-ups

Use information and communication technology, where appropriate, to develop and communicate their ideas

Planning

Select from a range of materials and components according to their characteristics

Practical skills and techniques

Follow procedures for safety and hygiene and explain why (e.g. wearing goggles to protect eyes).

Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components

Measure and mark out materials and components

Assemble, join and combine materials and components by selecting the most appropriate resources/ materials.

Use finishing techniques, including those from art and design

Own ideas and products

Make simple judgements about their products and ideas against design criteria

Suggest how their products could be improved

Existing products

Explore:

where products might be used

what materials products are used from

Making products work

Pupils should know:

How freestanding structures can be made stronger, stiffer and more stable That a 3-D textiles product can be assembled from two identical fabric shapes (e.g. puppets).

The food ingredients should be combined according to their sensory characteristics

The correct technical vocabulary for the projects they are undertaking (see below)

Where food comes from

Pupils should know:

where food comes from referring to countries and counties that some

food changes from farm to fork

what 'processing' of food means and give some examples

Food preparation, cooking and nutrition

Pupils should know:

how to name and sort foods into the five groups in The eat-well plate

how to prepare simple dishes safely and hygienically, without using a heat source

how to use techniques such as cutting, peeling and grating.

Key Knowledge/skills:

Understanding contexts, users and purpose

Exploring a range of contexts such as the leisure, culture and the wider environment

Describe the purpose of their products

Indicate the design features of their products that will appeal to intended users

Generating, developing, modelling and communicating ideas

Share and clarify ideas through discussion

Model their ideas using prototypes

Use annotated sketches to develop and communicate their ideas

Generate realistic ideas, focusing on the needs of the user

Planning

Select tools and equipment suitable for the task e.g. scissors, ruler, paper punch, pencil, drills, compass, needles, magnets, paper clips, pins, weights, stapler, tape measure, safety specs, fasteners, adhesives, double sided tape, pinking shear, wooden blocks, elastic bands, craft knife (adult supervision).

Explain their choice of tools and equipment in relation to the skills and techniques they will be using.

Explain their choice of materials and components according to functional properties and aesthetic qualities

Order the main stages of making.

Tools / materials used and skills and techniques linked to using these

Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components

Practical skills and techniques

Follow procedures for safety and hygiene -

Measure, mark out, cut and shape materials and components with some accuracy – scoring, shaping materials such as paper, card, cardboard, modelling clay, fabric, stiffening web and net. (3D animal houses, Magnetic Game, Food Packaging, Aprons, Stone Circle)

Assemble, join and combine materials and components with some accuracy- stitching, joining using fasteners, plastic ties, adhesives, double-sided tape, wool, string, cotton etc. (Recycled metal chimes, 3D animal houses, Stone Age tools, Magnetic Game, Food Packaging - Shell structure), Aprons, Bronze Age weaving)

Apply a range of finishing techniques, including those from art and design with some accuracy – printing, embossing, corrugating, ribbing, laminating, lettering and graphics. (Iron Age Jewellery, Greek mosaics, embossed Iron Man, Food Packaging (Shell structure), Aprons)

Own ideas and products

Identify the strengths and areas for development in their ideas and products

With support refer to their design criteria as they design and make and evaluate

Existing products

How well products have been made

Why materials have been chosen

How well products meet user needs and wants

Whether products can be recycled or reused

Key Knowledge/skills:

Understanding contexts, users and purpose

Work confidently within a range of contexts such as the leisure, culture, enterprise, industry and the wider environment

Explain how particular parts of their products work

Gather information about the needs and wants of particular individuals and groups

Generating, developing, modelling and communicating ideas

Model their ideas using pattern pieces

Use cross-sectional drawings and exploded diagrams to develop and communicate their ideas

Use computer-aided design to develop and communicate their ideas

Make design decisions that take account of the availability of resources

Planning

Select tools and equipment suitable for the task

Explain their choice of tools and equipment in relation to the skills and techniques they will be using

Select materials and components suitable for the task

Explain their choice of materials and components according to functional properties and aesthetic qualities

Order the main stages of making

Tools / materials used and skills and techniques linked to using these

Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components

Practical skills and techniques

Follow procedures for safety and hygiene

Measure, mark out, cut and shape materials and components with some accuracy Assemble, join and combine materials and components with some accuracy

Apply a range of finishing techniques, including those from art and design with some accuracy

Own ideas and products

Consider the views of others, including intended users, to improve their work Independently refer to their design criteria as they design and make

Use their design criteria to evaluate their completed products with an increasing level of independence

Existing products

How well products have been designed

What methods of construction have been used How well products achieve their purposes

Evaluate how well products meet user needs and wants Where products were designed and made When products were designed and made

Key events and individuals

About inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products

	<p><u>Key events and individuals</u> About inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products - Landscape Architects: (Lubetkin Drake and Tektor - Animal Houses), (Logo designers such as Frank Mason Robinson Coca Cola, Salvador Dali Chup Chups -Packaging)</p> <p><u>Making products work</u> How to use learning from science and maths to help design and make products that work – forces and magnets, levers, volcanoes, plants. capacity, length, mass That materials have both functional properties and aesthetic qualities That materials can be combined and mixed to create more useful characteristics – Recycled metal chimes, 3D animal houses, Stone Age tools, Iron Age Jewellery, Magnetic Game How mechanical systems such as levers and linkages create movement.</p> <p><u>Where food comes from</u> That food ingredients can be fresh, pre-cooked and processed – food tasting. That a recipe can be adapted by adding or substituting one or more ingredients That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world tasting.</p> <p><u>Food preparation, cooking and nutrition</u> How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate the use of a heat source. How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. That a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat-well plate That to be active and healthy, food and drink are needed to provide energy for the body.</p>	<p><u>Making products work</u> How to use learning from science to help design and make products that work How to use learning from mathematics to help design and make products that work That materials have both functional properties and aesthetic qualities That materials can be combined and mixed to create more useful characteristics That electrical systems have an input, process and output The correct technical vocabulary for the products they are undertaking (see below) How simple electrical circuits and components can be used to create functional products How to make strong, stiff shell structures That a single fabric shape can be used to make a 3D textiles product</p> <p><u>Where food comes from</u> That food ingredients can be fresh, pre-cooked and processed That a recipe can be adapted by adding or substituting one or more ingredients That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</p> <p><u>Food preparation, cooking and nutrition</u> How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate the use of a heat source How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking That a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat-well plate That to be active and healthy, food and drink are needed to provide energy for the body.</p>
<p>Key Vocabulary: components, manipulate, product, health and safety, shaping, joining, finishing, design criteria, draft, appealing, disposing, packaged, non- packaged, abroad, heated, cooled, utensils, support, collapses</p>	<p>Key Vocabulary: User, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, annotated sketch, appealing utensils, appearance, preference, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested, shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, capacity, marking out, scoring, shaping, joining, corrugating, ribbing, laminating, font, lettering, text, graphics, seam, stiffening, mechanism, lever, linkage, pivot, rotary, oscillating, reciprocating.</p>	<p>Key Vocabulary: Artefact, source, user, fit for purpose, characteristic, carve- subtractive sculpting, embellish, enhance, air-dried, savoury, design features, visual representation, digital image, stitching, inventor, motor, propeller, buzzers, bulbs</p>