



The primary intent for our Design Technology Curriculum: (what does ready for KS3 mean?)

- Children to recognise the result of design and technology in everyday life
 - Children to know that DT is a subject – where they learn to make and evaluate things effectively
 - Leave KS2 with a firm grasp of the design, make, evaluate cycle, through the 5 key areas of DT:
 - **Food Technology**
 - **Textiles**
 - **Structures**
 - **Mechanisms**
 - **Electrical Systems** (linked to Computing curriculum)
- Whilst these are discrete strands, the knowledge and skills gained in each are interdisciplinary – and applied and built upon sequentially across the curriculum.
- Is key that food technology is weaved across wider learning opportunities, e.g. creating a cedar plate when learning about Judaism, hot cross buns when learning about Easter symbolism etc), in order to practise the knowledge and skills taught during these discrete units of learning
 - Children to be confident and safe with a range of simple tools – able to choose and select them safely and sensibly
 - Know the **key knowledge** identified in each unit, so that they have a firm knowledge base to study at KS2
 - The Design and Technology and Computing curricula are linked – Electrical Systems 'Monitoring and Control' technology is primarily delivered through the computing curriculum planning
 - The curriculum is supported and delivered through the DT Association advocated approach of 'Projects on a Page'

Key Stage 1 and 2 Overview

	Autumn		Spring		Summer	
	1	2	1	2	1	2
Year 1	Food Technology: Preparing Fruit and Vegetables		Structures: Freestanding Structures		Mechanisms: Sliders and Leavers	
Year 2		Textiles: Templates and Joining Techniques		Mechanisms: Wheels and Axels		Mechanisms: Pneumatics (KS2 transition unit)
Year 3		Textiles: From 2D to 3D		Structures: Shell Structures		Food Technology: A Healthy and Varied Diet
Year 4	Structures: Shell Structures CAD		Electrical Systems: Simple Circuits and Switches		Mechanisms: Levers and Linkages	
Year 5	Mechanisms: Cams		Food Technology: Celebrating Culture and Seasonality		Textiles: Combining Different Fabric Shapes	Textiles: CAD In Textiles
Year 6		Electrical Systems: More Complex Switches		Structures: Frame Structures		Mechanisms: Pulleys or Gears

Foundations of Learning – The Early Years

Our Design Technology starts with firm foundations, in Reception. Key knowledge and skills are taught explicitly in order to ensure that children are effectively prepared for the demands of the Key Stage 1 Curriculum. Designing, making and creating are at the heart of strong Early Years provision; we harness this natural creativity in order to develop our youngest children's knowledge and skills.

The Design Technology opportunities below are some of the key opportunities that are afforded to our children, however, as part of our continuous provision, children are designing, trialling, creating and evaluating all of the time – be it in a construction area with a range of building blocks, in the junk modelling area, at the creation station or outside with the large loose parts.

It is important to give our children lots of opportunities to develop the strength in their fingers, hand –eye coordination, to name and know the purpose of common tools as well as precision when using small tools correctly.

Our approach ensures that children are able to meet the demands of the Early Learning Goal: **Creating with Materials** (DT linked strands – this ELG also links to Art and Design)

Children at the expected level of development will:

- Draw and paint using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the process they have used

Importantly, a strong foundation in Design Technology will also support children's development in relation to an aspect of the ELG: **Fine Motor Skills**

- Use a range of small tools, including scissors, paint brushes and cutlery;

In addition, Design Technology is a great subject to support children's development in relation to Personal, Social and Emotional development;

ELG: Self-Regulation

- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate

ELG : Managing Self

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge
- Explain the reasons for rules, know right from wrong and try to behave accordingly

The specific learning opportunities aligned to Design Technology are detailed below:

Year 1 Curriculum

Food Technology:		Term: Autumn 1
<p>Foundations of previous learning: Early Years Curriculum Name and use of simple cutlery, utensils, equipment (vocabulary – cutlery, knife, fork, spoon, sharp knife, chopping board, wooden spoon, metal spoon, whisk, measuring jug, mixing bowl baking tray, pan, frying pan) To use the tools for cooking safely and with control. Experience of cooking/ baking throughout the year. The children will have made bread, cakes, biscuits, sandwiches, pancakes, smoothies, soup (vocabulary – ingredients, chop, cut, mix, pour, spread) Discussion to describe what it looks like, feels like, how it changes through cooking (vocabulary – colour words, soft, runny, sticky, hard, wet, crunchy, hot, cold, change) Discussion of likes and dislikes (simple evaluation)</p>		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
<p>Designing</p> <ul style="list-style-type: none"> • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. <p>Making</p> <ul style="list-style-type: none"> • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. <p>Evaluating</p> <ul style="list-style-type: none"> • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eatwell plate. • Know and use technical and sensory vocabulary relevant to the project. 	<p>fruit and vegetable names, names of equipment and utensils</p> <p>sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard</p> <p>flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating, tasting, arranging, popular, design, evaluate, criteria</p>	

Structures: Free Standing Structures		Term: Spring 1
<p>Foundations of previous learning: Early Years Curriculum Name and use of simple tools and equipment (vocabulary – pencil, pen, felt tip, paintbrush, scissors, celotape, masking tape, glue, split pin) To use scissors accurately by knowing which hand (colour of scissors), hold correctly, cut forwards, hold the paper with the other hand, keep looking To use the scissors safely and know how to carry the (blades in hand) and how to store (downwards) (vocabulary – cut, sharp, straight, round, edge) To use glue correctly (stick on the underside, press firmly, amount of glue, orientation) (vocabulary – glue, stick, press) To use tape correctly and efficiently, begin to use a tape dispenser (vocabulary -join, stick, fold) Build models/structures using junk materials using own ideas Build models/structures using junk materials by following a given plan Construct with a purpose in mind using construction equipment Follow a given plan to build a model using construction equipment (vocabulary – idea, plan, build, describe it) To talk about what they have made and improve it if necessary. (simple evaluation)</p>		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	

<p>Designing</p> <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings. <p>Making</p> <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project. 	<p>cut, fold, join, fix</p> <p>structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved</p> <p>metal, wood, plastic</p> <p>circle, triangle, square, rectangle, cuboid, cube, cylinder</p> <p>design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>
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Mechanisms – Sliders and Levers		Term: Summer 1
<p>Foundations of previous learning: Early Years Curriculum</p> <p>Opportunities to make characters from stories with moving parts, make stick puppets to move around a story scene.</p> <p>Name and use of simple tools and equipment (vocabulary – scissors, celotape, masking tape, glue, blue tack, split pin)</p> <p>To use scissors accurately by knowing which hand (colour of scissors), hold correctly, cut forwards, hold the paper with the other hand, keep looking</p> <p>To use the scissors safely and know how to carry them (blades in hand) and how to store (downwards) (vocabulary – cut, sharp, straight, curved)</p> <p>To use glue correctly (stick on the underside, press firmly, amount of glue, orientation) (vocabulary – glue, stick, press)</p> <p>To use tape correctly and efficiently, begin to use a tape dispenser (vocabulary -join, stick, fold, press)</p> <p>To use a split pin correctly by making a hole with a sharp pencil, use blue tack underneath to cushion it, then push split pin through and split it</p> <p>To talk about what they have made and improve it if necessary. (simple evaluation)</p>		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
<p>Designing</p> <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. <p>Making</p> <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know how to create and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project. 	<p>slider, lever, pivot, slot, bridge/guide</p> <p>card, masking tape, paper fastener, join</p> <p>pull, push, up, down, straight, curve, forwards, backwards</p> <p>design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	

Year 2 Curriculum

Textiles: Templates and Joining		Term: Autumn 2
<p>Foundations of previous learning: Early Years Curriculum</p> <p>Year 1 Mechanisms – Making a Moving Dinosaur Scene unit – this built upon the key EYFS skills linked to cutting, joining and sticking. Children should now be confident in the design, make and evaluate cycle from their Y1 experiences.</p>		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
<p>Designing</p> <ul style="list-style-type: none"> • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. <p>Making</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. <p>Evaluating</p> <ul style="list-style-type: none"> • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project. 	<p>names of existing products, joining and finishing techniques, tools, fabrics and components</p> <p>template, pattern pieces, mark out, join, decorate, finish</p> <p>features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function</p>	

Mechanisms: Wheels and Axels		Term: Spring 2
Foundations of previous learning: Year 1 Year 1 Mechanisms – Making a Moving Dinosaur Scene unit – this built upon the key EYFS skills linked to cutting, joining and sticking. Children should now be confident in the design, make and evaluate cycle from their Y1 experiences. The Y1 'Structures' unit should have developed children's understanding of how to make freestanding structures stronger, stiffer and more stable.		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
Designing <ul style="list-style-type: none"> Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups. 	vehicle, wheel, axle, axle holder, chassis, body, cab	
Making <ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. 	assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism	
Evaluating <ul style="list-style-type: none"> Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria. 	names of tools, equipment and materials used	
Technical knowledge and understanding <ul style="list-style-type: none"> Know how to use wheels, axles and axle holders in a moving model. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project. 	design, make, evaluate, purpose, user, criteria, functional	

Mechanisms: Pneumatics		Term: Summer 2
Foundations of previous learning: Year 1 Year 1 Mechanisms – Making a Moving Dinosaur Scene unit – this built upon the key EYFS skills linked to cutting, joining and sticking. Children should now be confident in the design, make and evaluate cycle from their Y1 experiences. The Y1 'Structures' unit should have developed children's understanding of how to make freestanding structures stronger, stiffer and more stable. The Spring unit (above) will have further developed children's understanding of creating a moving model – distinguishing between fixed and moving parts.		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
Designing <ul style="list-style-type: none"> Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas. 	components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener	
Making <ul style="list-style-type: none"> Order the main stages of making. Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. Select from and use finishing techniques suitable for the product they are creating. 	pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight	
Evaluating <ul style="list-style-type: none"> Investigate and analyse books, videos and products with pneumatic mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. 	user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate	
Technical knowledge and understanding <ul style="list-style-type: none"> Understand and use pneumatic mechanisms. Know and use technical vocabulary relevant to the project 		

Year 3 Curriculum

Textiles: From 2D to 3D		Term: Autumn 2
Foundations of previous learning: Year 2 In year 2 children completed a textiles unit called templates and joining, with key learning being to Understand how simple 3-D textile products are made, using a template to create two identical shapes and to understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Children have also learned the importance of developing prototypes and evaluating designs against key criteria.		
Unit Learning		
Unit Knowledge and Skills:	Key Transferrable Vocabulary	
Designing <ul style="list-style-type: none"> Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. Produce annotated sketches, prototypes, final product sketches and pattern pieces. 	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	
Making <ul style="list-style-type: none"> Plan the main stages of making. Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. 	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	
Evaluating <ul style="list-style-type: none"> Investigate a range of 3-D textile products relevant to the project. Test their product against the original design criteria and with the intended user. Take into account others' views. Understand how a key event/individual has influenced the development of the chosen product and/or fabric. 		

<p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project. 	
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Structures: Shell Structures	Term: Spring 2
<p>Foundations of previous learning: Key Stage 1 <i>Experience of using different joining, cutting and finishing techniques with paper and card. An understanding of how to stiffen structures and the need for stability. A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.</i></p>	
Unit Learning	
Unit Knowledge and Skills:	Key Transferrable Vocabulary
<p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project. 	<p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity</p> <p>marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating</p> <p>font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype</p>

Food Technology: A Healthy and Varied Diet	Term: Summer 2
<p>Foundations of previous learning: KS1 <i>Know some ways to prepare ingredients safely and hygienically. Have some basic knowledge and understanding about healthy eating and The eatwell plate. Have used some equipment and utensils and prepared and combined ingredients to make a product. Designing meals for a specific purpose.</i></p>	
Unit Learning	
Unit Knowledge and Skills:	Key Transferrable Vocabulary
<p>Designing</p> <ul style="list-style-type: none"> • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. <p>Evaluating</p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately. 	<p>name of products, names of equipment, utensils, techniques and ingredients</p> <p>texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury</p> <p>hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet</p> <p>planning, design criteria, purpose, user, annotated sketch, sensory evaluations</p>

Year 4 Curriculum

Structures: Shell Structures CAD	Term: Autumn 1
<p>Foundations of previous learning: Year 2 <i>This units builds on Y3 Spring 2 Unit – Shell Structures. Children will have experience of using different joining, cutting and finishing techniques with paper and card. A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science. Developed and used knowledge of how to construct strong, stiff shell structures. Developed and used knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</i></p>	
Unit Learning	
Unit Knowledge and Skills:	Key Transferrable Vocabulary

<p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use computer-generated finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes – using CAD design to improve the precision of design. • Know and use technical vocabulary relevant to the project. 	<p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity</p> <p>marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating</p> <p>font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype</p>
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Electrical Systems: Simple Circuits and Switches		Term: Spring 1
<p>Foundations of previous learning: <i>This is the first formal 'Electrical Systems' unit of work in the DT Curriculum, however, children will have constructed a simple series electrical circuit in science, using bulbs, switches and buzzers (Y2 science). The children also cover the Y4 Electricity science unit this half term. Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</i></p>		
Unit Learning		
<p>Unit Knowledge and Skills:</p> <p>Designing</p> <ul style="list-style-type: none"> • Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project. 	<p>Key Transferrable Vocabulary</p> <p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip</p> <p>control, program, system, input device, output device</p> <p>user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	

Mechanisms: Levers and Linkages		Term: Summer 1
<p>Foundations of previous learning: <i>Explored and used mechanisms such as flaps, sliders and levers. Gained experience of basic cutting, joining and finishing techniques with paper and card. Understand pneumatic systems as an approach to create movement within a model</i></p>		
Unit Learning		
<p>Unit Knowledge and Skills:</p> <p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project. 	<p>Key Transferrable Vocabulary</p> <p>mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating</p> <p>user, purpose, function prototype, design criteria, innovative, appealing, design brief</p>	

Year 5 Curriculum

Mechanisms: Cams	Term: Autumn 1
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Foundations of previous learning:

Experience of axles, axle holders and wheels that are fixed or free moving. Basic understanding of different types of movement – including Y4 unit, levers and linkages and Y2 unit, pneumatics. Experience of cutting and joining techniques with a range of materials including card, plastic and wood. An understanding of how to strengthen and stiffen structures.

Unit Learning**Unit Knowledge and Skills:****Key Transferrable Vocabulary****Designing**

- Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.
- **Develop a simple design specification to guide their thinking.**
- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.

Making

- Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Evaluating

- Compare the final product to the original design specification.
- Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.
- Consider the views of others to improve their work.
- **Investigate famous manufacturing and engineering companies relevant to the project.**

Technical knowledge and understanding

- **Understand that mechanical systems have an input, process and an output.**
- **Understand how cams can be used to produce different types of movement and change the direction of movement.**
- Know and use technical vocabulary relevant to the project.

cam, snail cam, off-centre cam, peg cam, pear shaped cam

follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams

mechanical system, input movement, process, output movement

design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief

Food Technology: Celebrating Culture and Seasonality

Term: Spring 1

Foundations of previous learning:

This unit of work builds on learning from Y3, plus cookery that has taken place across the curriculum offer. Children will: Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.

Unit Learning**Unit Knowledge and Skills:****Key Transferrable Vocabulary****Designing**

- **Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.**
- Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.
- Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.

Making

- **Write a step-by-step recipe, including a list of ingredients, equipment and utensils**
- Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.
- Make, decorate and present the food product appropriately for the intended user and purpose.

Evaluating

- Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.
- **Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.**
- Understand how key chefs have influenced eating habits to promote varied and healthy diets.

Technical knowledge and understanding

- **Know how to use utensils and equipment including heat sources to prepare and cook food.**
- **Understand about seasonality in relation to food products and the source of different food products.**
- Know and use relevant technical and sensory vocabulary.

ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs

fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality

utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble

design specification, innovative, research, evaluate, design brief

Textiles: Combining Different Fabric Shapes

Term: Summer 1

Foundations of previous learning:

Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces. A thorough understanding of the design and make process – including using a design brief and specification.

Unit Learning**Unit Knowledge and Skills:****Key Transferrable Vocabulary****Designing**

- Generate innovative ideas by carrying out research including surveys, interviews and questionnaires.
- Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computeraided design.
- Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.

Making

- Produce detailed lists of equipment and fabrics relevant to their tasks.
- Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. **Work within the constraints of time, resources and cost.**

seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces

name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper

design criteria, annotate, design decisions, functionality, innovation, authentic, user,

<p>Evaluating</p> <ul style="list-style-type: none"> Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. 	<p>purpose, evaluate, mock-up, prototype</p>
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Textiles: CAD in Textiles	Term: Summer 2
<p>Foundations of previous learning: This unit of work builds directly on the unit from the previous half term</p>	
Unit Learning	
Unit Knowledge and Skills:	Key Transferrable Vocabulary
<p>Designing</p> <ul style="list-style-type: none"> Generate innovative ideas through research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. <p>Making</p> <ul style="list-style-type: none"> Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. <p>Evaluating</p> <ul style="list-style-type: none"> Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. 	<p>computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype</p> <p>seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces</p> <p>names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper annotate, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype</p>

Year 6 Curriculum

Electrical Systems: More Complex Switches	Term: Autumn 2
<p>Foundations of previous learning: <i>Children are also covering the Y6 Science Electricity unit this half term. Children will have an understanding of the essential characteristics of a series circuit and experience of creating a battery powered, functional, electrical product. Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.</i></p>	
Unit Learning	
Unit Knowledge and Skills:	Key Transferrable Vocabulary
<p>Designing</p> <ul style="list-style-type: none"> Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Generate and develop innovative ideas and share and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. <p>Making</p> <ul style="list-style-type: none"> Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. <p>Evaluating</p> <ul style="list-style-type: none"> Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Investigate famous inventors who developed ground-breaking electrical systems and components. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project. 	<p>series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart</p> <p>function, innovative, design specification, design brief, user, purpose</p>

Structures: Frame Structures	Term: Spring 2
Foundations of previous learning:	

Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. Basic understanding of what structures are and how they can be made stronger, stiffer and more stable. The creation of structures through NET development – including the use of CAD.

Unit Learning

Unit Knowledge and Skills:

Key Transferrable Vocabulary

Designing

- Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.

- Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.**

- Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.

Making

- Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.

- Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.**

- Use finishing and decorative techniques suitable for the product they are designing and making.

Evaluating

- Investigate and evaluate a range of existing frame structures.

- Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and **carrying out appropriate tests.**

- Research key events and individuals relevant to frame structures.

Technical knowledge and understanding

- Understand how to strengthen, stiffen and reinforce 3-D frameworks.**

- Know and use technical vocabulary relevant to the project.

frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent

design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional

Mechanisms: Pulleys or Gears

Term: Summer 2

Foundations of previous learning:

Experience of axles, axle holders and wheels that are fixed or free moving. An understanding of levers, linkages and pneumatics. Basic understanding of electrical circuits, simple switches and components. Experience of cutting and joining techniques with a range of materials including card, plastic and wood. An understanding of how to strengthen and stiffen structures.

Unit Learning

Unit Knowledge and Skills:

Key Transferrable Vocabulary

Designing

- Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.**

- Develop a simple design specification to guide their thinking.

- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.

Making

- Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.**

- Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Evaluating

- Compare the final product to the original design specification.

- Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.**

- Consider the views of others to improve their work.

- Investigate famous manufacturing and engineering companies relevant to the project.

Technical knowledge and understanding

- Understand that mechanical and electrical systems have an input, process and an output.

- Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.**

- Know and use technical vocabulary relevant to the project.

pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram

annotated drawings, exploded diagrams

mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief