



Hardingstone Academy DT Curriculum Overview



	Mechanisms	Food	Textiles	Structures	Mechanical Systems	Electrical Systems
	Year 1	Year 2	Year3	Year 4	Year 5	Year 6
Autumn	Sliders and Levers	Templates and Joining Techniques	Levers and Linkages	Shell Structures / Shell Structures using Computer-Aided Design (CAD)	Cams	Combining Different Fabric Shapes / Using CAD in Textiles
	Mechanisms	Textiles	Mechanical Systems	Structures	Mechanical Systems	Textiles
Spring	Freestanding Structures	Preparing Fruit and Vegetables	Pneumatics	2-D Shape to 3-D Product	Frame Structures	More Complex Switches and Circuits
	Structures	Food	Mechanical Systems	Textiles	Structures	Electrical Systems
Summer	Wheels and Axles		Healthy and Varied Diets	Simple Circuits and Switches	Celebrating Culture and Seasonality	Pulleys or Gears
	Mechanisms		Food	Electrical Systems	Food	Mechanical Systems



Hardingstone Academy – DT Curriculum



Year 1		Aut		Spr		Sum		Key Vertical DT Links	Horizontal/Diagonal Links		
		1	2	1	2	1	2				
Sliders and Levers – Making Toys	Design	Generate ideas based on simple design criteria and their own experiences, explaining what they could make							<p>Moving and Handling Children show good control and co-ordination in large and small movements They move confidently in a range of ways, safely negotiating space They handle equipment and tools effectively, including pencils for writing.</p> <p>Exploring and using media and materials children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<p>Year 1 Autumn 2 Science Identify the material objects are made from. Describe some simple physical properties of materials. Group together materials by their physical properties. Explore everyday materials which are opaque or transparent.</p>	
		Develop, model and communicate their ideas through drawings and mock-ups with card and paper.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	Explore and use sliders and levers.									
		Understand that different mechanisms produce different types of movement.									
Know and use technical vocabulary relevant to the project											
Freestanding Structures – Building Playground Equipment	Design	Generate ideas based on simple design criteria and their own experiences, explaining what they could make.							<p>Being imaginative Children use what they have learnt about media and materials in original ways, thinking about users and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories</p> <p>Shape, space and measures Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.</p> <p>Technology Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p> <p>Understanding Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.</p>	<p>Year 1 Autumn 2 Science Identify the material objects are made from. Describe some simple physical properties of materials. Group together materials by their physical properties. Explore everyday materials which are opaque or transparent.</p> <p>Year 1 Spring 1 Science Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. Know how to test materials for their strength; understand that some materials are nature, and some are man-made.</p> <p>Year 1 Autumn 2 Maths Recognise and name 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</p>	
		Develop, model and communicate their ideas through talking, mock-ups and drawings.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	Know how to make freestanding structures stronger, stiffer and more stable									
Know and use technical vocabulary relevant to the project.											
Wheels and Axels – Making a Vehicle	Design	Generate initial ideas and simple design criteria through talking and using own experiences.							<p>Year 1 Autumn 2 Science Identify the material objects are made from. Describe some simple physical properties of materials. Group together materials by their physical properties. Explore everyday materials which are opaque or transparent.</p> <p>Year 1 Spring 1 Science Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. Know how to test materials for their strength; understand that some materials are nature, and some are man-made.</p> <p>Year 1 Autumn 2 Maths Recognise and name 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</p>		
		Develop and communicate ideas through drawings and mock-ups.									
	Make	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.									
	Evaluate	Explore and evaluate a range of products with wheels and axles.									
		Evaluate their ideas throughout and their products against original criteria.									
	Technical Knowledge	Explore and use wheels, axles and axle holders.									
		Distinguish between fixed and freely moving axles.									
		Know and use technical vocabulary relevant to the project.									
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems	



Hardingstone Academy – DT Curriculum



Year 2		Aut		Spr		Sum		Key Vertical DT Links	Horizontal/Diagonal Links		
		1	2	1	2	1	2				
Templates and Joining Techniques - Creating a Character	Design	Design a functional and appealing product for a chosen user and purpose based on simple design criteria.						<p>EYFS Explored and used different fabrics.</p> <p>EYFS Cut and joined fabrics with simple techniques.</p> <p>Year 1 DT Thought about the user and purpose of products.</p>	<p>Year 1 Autumn 2 Science Identify the material objects are made from. Describe some simple physical properties of materials. Group together materials by their physical properties. Explore everyday materials which are opaque or transparent.</p> <p>Year 1 Spring 1 Science Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. Know how to test materials for their strength; understand that some materials are nature, and some are man-made.</p> <p>Year 1 Autumn 2 Maths Recognise and name 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</p>		
		Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology									
	Make	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									
	Evaluate	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.									
	Technical Knowledge	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									
Preparing Fruit and Vegetables - Food from around the world	Design	Design appealing products for a particular user based on simple design criteria.						<p>EYFS Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</p> <p>EYFS Experience of cutting soft fruit and vegetables using appropriate utensils.</p> <p>Year 1 DT Design and Evaluate</p>	<p>Year 1 Autumn 1 Science Understand the importance of taking care of your body. Learn about the senses of hearing and smell.</p> <p>Year 1 Spring 2 Science Understand that some food is grown as a crop on a farm. Know about different arable crops grown by farmers.</p> <p>Year 2 Autumn 1 Science Know about different sources of food grown by farmers. Understand the journey food makes from the farm to the supermarket.</p>		
		Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.									
		Communicate these ideas through talk and drawings.									
	Make	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.									
	Evaluate	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									
	Technical Knowledge	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.									
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems	



Hardingstone Academy – DT Curriculum



Year 3		Aut	Spr	Sum	Key Vertical DT Links	Horizontal/Diagonal Links					
		1	2	1			2	1	2		
Levers and Linkages - Human Joints	Design	Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.					<p>Year 3 Autumn 2 Science Introduction to the skeleton. Know about the skeleton – tendons and ligaments. Explore how skeletons and muscles are used for support, protection and movement.</p> <p>Year 2 Spring 2 Science Explain why we use certain materials. Investigate squashing, bending, twisting and stretching. Compare the uses of everyday materials.</p> <p>Year 1 Spring 1 Science Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. Know how to test materials for their strength; understand that some materials are nature, and some are man-made.</p>				
		Use annotated sketches and prototypes to develop, model and communicate ideas.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	Understand and use lever and linkage mechanisms.									
Distinguish between fixed and loose pivots.											
Know and use technical vocabulary relevant to the project.											
Pneumatics - Forces and movement	Design	Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user.					<p>Year 1 Autumn Explored simple mechanisms, such as sliders and levers, and simple structures.</p> <p>Year 1 Autumn Year 1 Summer Learnt how materials can be joined to allow movement.</p> <p>Year 1 Spring Year 2 Autumn Joined and combined materials using simple tools and techniques.</p> <p>Year 3 Autumn 2 Science Compare how things move on different surfaces.</p> <p>Year 2 Spring 2 Science Explain why we use certain materials. Investigate squashing, bending, twisting and stretching. Compare the uses of everyday materials.</p> <p>Year 1 Spring 1 Science Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. Know how to test materials for their strength; understand that some materials are nature, and some are man-made.</p>				
		Use annotated sketches and prototypes to develop, model and communicate ideas.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	Understand and use pneumatic mechanisms.									
Know and use technical vocabulary relevant to the project											
Healthy and Varied Diets - Lunch on the road	Design	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.					<p>Year 2 Spring Know some ways to prepare ingredients safely and hygienically.</p> <p>Year 2 Spring Have some basic knowledge and understanding about healthy eating and The Eatwell plate.</p> <p>Year 2 Spring Have used some equipment and utensils and prepared and combined ingredients to make a product.</p> <p>Year 1 Autumn 1 Science Understand the importance of taking care of your body. Learn about the senses of hearing and smell.</p> <p>Year 1 Spring 2 Science Understand that some food is grown as a crop on a farm. Know about different arable crops grown by farmers.</p> <p>Year 2 Autumn 1 Science Know about different sources of food grown by farmers. Understand the journey food makes from the farm to the supermarket.</p> <p>Year 2 Spring 2 PSHE I can sort foods into the correct food groups and know which foods my body needs every day to keep me healthy. I can decide which foods to eat to give my body energy. I can make some healthy snacks and explain why they are good for my body.</p>				
		Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	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.									
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems	



Hardingstone Academy – DT Curriculum



Year 4		Aut		Spr		Sum		Key Vertical DT Links	Horizontal/Diagonal Links		
		1	2	1	2	1	2				
Shell Structures (using CAD) - Containers for equipment	Design	Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.						<p>Year 3 Autumn Experience of using different joining, cutting and finishing techniques with paper and card.</p> <p>Year 2 Spring 2 Science Explain why we use certain materials. Investigate squashing, bending, twisting and stretching. Compare the uses of everyday materials.</p> <p>Year 3 Spring 2 Maths Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p>			
		Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.									
	Make	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									
	Evaluate	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									
	Technical Knowledge	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									
2-D Shape to 3-D Product - Reusable products	Design	Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.						<p>Year 2 Autumn Have joined fabric in simple ways by gluing and stitching.</p> <p>Year 2 Autumn Have used simple patterns and templates for marking out.</p> <p>Year 2 Autumn Year 2 Spring Have evaluated a range of textile products</p> <p>Year 2 Spring 2 Science Explain why we use certain materials. Investigate squashing, bending, twisting and stretching. Compare the uses of everyday materials.</p> <p>Year 3 Spring 2 Maths Draw 2-D Shapes. Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</p>			
		Produce annotated sketches, prototypes, final product sketches and pattern pieces.									
	Make	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.									
	Evaluate	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.									
	Technical Knowledge	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.											
Simple Circuits and Switches - Light	Design	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.						<p>Year 2 Autumn Year 3 Autumn/Spring Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</p> <p>Year 3 Summer 2 Science Light - Describe how light travels</p> <p>Year 4 Summer 2 Science Describe the basic parts of a circuit. Identify when a lamp will light in a simple series circuit. Understand the difference between a series and a parallel circuit. Explain how to recognise electrical conductors and insulators. Explore how electricity is transported. To know how to work safely with electricity.</p>			
		Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.									
	Make	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									
	Evaluate	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.									
	Technical Knowledge	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.									
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems	



Hardingstone Academy – DT Curriculum



Year 5			Aut			Spr			Sum			Key Vertical DT Links	Horizontal/ Diagonal Links
			1	2	1	2	1	2	1	2	1		
Cams - Viking Longboat	Design	Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.										Year 1 Summer Experience of axles, axle holders and wheels that are fixed or free moving. Year 3 Autumn/Spring Basic understanding of different types of movement. Year 3 Autumn Year 3 Spring Experience of cutting and joining techniques with a range of materials including card, plastic and wood. Year 4 Autumn An understanding of how to strengthen and stiffen structures.	Year 5 Autumn 1 Science Describe the properties of different materials. Compare the properties and uses of different materials. Year 3 Spring 1 Science Compare how things move on different surfaces. Year 5 Autumn 2 History Britain's Settlement by the Anglo Saxons, Vikings and Scots.
		Develop a simple design specification to guide their thinking.											
		Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.											
	Make	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.											
	Evaluate	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	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.													
Frame Structures - Shelter Building	Design	Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.									Year 3 Autumn Year 4 Autumn Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. Year 3 Autumn Year 4 Autumn Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.	Year 5 Autumn 1 Science Describe the properties of different materials. Compare the properties and uses of different materials. Year 3 Autumn 2 Maths Draw 2-D Shapes. Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.	
		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.											
	Make	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.											
	Evaluate	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	Understand how to strengthen, stiffen and reinforce 3-D frameworks.											
Know and use technical vocabulary relevant to the project.													
Celebrating Culture and Seasonality - Savoury Food	Design	Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.									Year 3 Summer Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Year 3 Summer Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.	Year 4 Autumn 2 Science Understand the food pyramid and why it is important. Know about vitamins and minerals. Know the different types of teeth. Understand the food chain, know how natural cycles work. Year 5 Spring 2 PSHE Know what makes a healthy lifestyle including healthy eating and the choices needed to made to be healthy and happy.	
		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											
	Make	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											
	Evaluate	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	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.													
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems			



Hardingstone Academy – DT Curriculum



Year 6		Aut		Spr		Sum		Key Vertical DT Links	Horizontal/ Diagonal Links		
		1	2	1	2	1	2				
Combining Different Fabric Shapes - Tool / Equipment Belt	Design	Generate innovative ideas by carrying out research including surveys, interviews and questionnaires.						<p>Year 4 Spring Experience of basic stitching, joining textiles and finishing techniques.</p> <p>Year 4 Spring Experience of making and using simple pattern pieces.</p>	<p>Year 5 Autumn 1 Science Describe the properties of different materials. Compare the properties and uses of different materials.</p> <p>Year 3 Autumn 2 Maths Draw 2-D Shapes. Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</p>		
		Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer aided design (CAD).									
		Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification									
	Make	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									
	Evaluate	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.									
	Technical Knowledge	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.											
More Complex Switches and Circuits - Security Alarms	Design	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.					<p>Year 4 Summer Understanding of the essential characteristics of a series circuit and experience of creating a battery powered, functional, electrical product.</p> <p>Year 4 Summer 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.</p>	<p>Year 6 Autumn 2 Science Explain how objects become charged. Describe the parts of an electric circuit. Explain what effects the output of a circuit. Explain how variable resistors can work like a switch. Compare electrical conductors and insulators. Build a set of traffic lights.</p>			
		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.									
	Make	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									
	Evaluate	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.									
	Technical Knowledge	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.									
Pulleys or Gears - Vehicles	Design	Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.					<p>Year 5 Autumn Experience of axles, axle holders and wheels that are fixed or free moving.</p> <p>Year 6 Spring Basic understanding of electrical circuits, simple switches and components.</p> <p>Year 5 Autumn Year 5 Spring Experience of cutting and joining techniques with a range of materials including card, plastic and wood.</p> <p>Year 5 Spring An understanding of how to strengthen and stiffen structures.</p>	<p>Year 6 Autumn 2 Science Explain how objects become charged. Describe the parts of an electric circuit. Explain what effects the output of a circuit. Explain how variable resistors can work like a switch. Compare electrical conductors and insulators.</p> <p>Year 5 Summer 2 Science Explore gravity and air resistance. Investigate mechanisms – gears Investigate mechanisms – levers and pulleys.</p>			
		Develop a simple design specification to guide their thinking.									
		Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.									
	Make	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.									
	Evaluate	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	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.									
Mechanisms		Food		Textiles		Structures		Mechanical Systems		Electrical Systems	