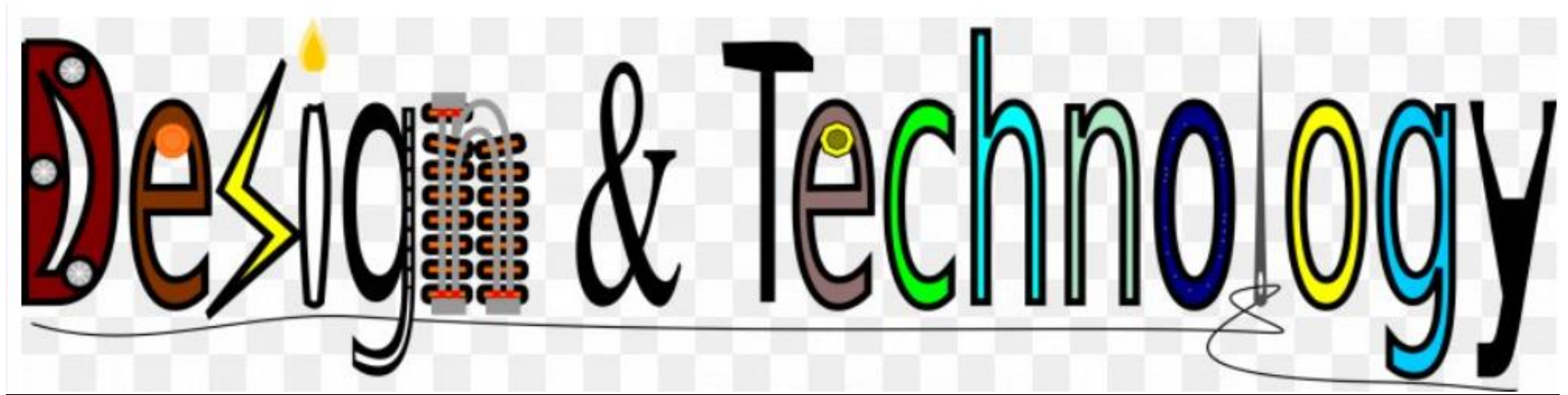


# Design Technology Curriculum Map



Ladbrooke JMI School

## Design Technology and the Foundation Stage

In Nursery and Reception Design Technology skills appear in **Expressive Art and Design: Creating with Materials**, **Physical Development: Fine Motor Skills**, **Communication and Language: Listening, Understanding, Attention & Speaking** and **Maths: Numerical Patterns**. The complete progression ladders can be found in the EYFS curriculum document and on the EYFS website page.

### **Expressive Art and Design: Creating with Materials**

Nursery	Reception
<p>CWM7: Representations and responses show understanding that different media and materials will support the expression of their own ideas.</p> <p>CWM8: Demonstrates creativity and imagination, constructs with a purpose in mind using a variety of resources to create models</p> <p>CWM9: Regularly uses simple tools and techniques competently and appropriately to create something new to express their creativity.</p>	<p>CWM10: Selects appropriate resources to express themselves imaginatively</p> <p>CWM10: Revisits and adapts work where necessary to create and change a picture or model</p> <p>CWM11: Safely uses and explores a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>CWM11: Uses what they have learned to create with a purpose, explaining the process</p> <p>CWM12: Selects and uses materials to work on processes that interest them.</p> <p>CWM12: Through their explorations finds out and make decisions about how materials, tools and techniques can be combined and changed.</p> <p>ELG: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>ELG: Share their creations, explaining the process they have used.</p>

### **Physical Development: Fine Motor Skills**

Nursery	Reception
<p>FMC7: Able to use resources that require twisting, turning and rotating.</p> <p>FMS8: Able to manipulate resources such as small world toys, simple puzzles pieces, page turning with growing control</p> <p>FMS9: Able to use one handed tools and equipment with control.</p>	<p>FMS10: Able to use precision to control and manipulate resources and small equipment</p> <p>FMS11: Is proficient in handling equipment and tools, (including cutlery) effectively.</p> <p>ELG: Is proficient in handling equipment and tools, (including cutlery) effectively.</p>

### **Maths: Numerical Patterns**

Nursery	Reception
<p>NP4: Builds a tower or creates lines with objects.</p> <p>NP5: Plays with a range of block/ solid shapes to construct and position.</p> <p>NP6: Engages in lining up, placing, arranging and repositioning materials</p> <p>NP8: With a purpose in mind, recognises and selects simple geometric shapes in their construction and block play.</p>	<p>NP10: Creates patterns by lining, placing, building and arranging</p> <p>NP12: Can talk about the properties of shape and patterns, using vocabulary to describe position, direction and movement</p>

## Communication and Language: Listening, Attention & Understanding - Speaking

Nursery	Reception
<p>LAU 8: Can describe how they carried out an activity or made a model.</p> <p>LAU9: Understands 'how' and 'why' questions.</p> <p>S8: Make plans and describe them to others</p>	<p>LAU11: Answers 'how' and 'why' questions about their experiences and in responses to stories or events.</p> <p>S10: In a range of situations, begins to offer their ideas and simple explanations.</p> <p>S12: Uses new vocabulary in imaginative ways to add information, express ideas, explain and justify actions.</p> <p>ELG: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.</p> <p>ELG</p>

# National Curriculum Design Technology Curriculum

### **Purpose of study**

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

### **Aims**

Aims The national curriculum for design and technology aims to ensure that all pupils:




- ♣ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- ♣ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- ♣ critique, evaluate and test their ideas and products and the work of others
- ♣ understand and apply the principles of nutrition and learn how to cook..

### **Design Technology at Ladbrooke**




Throughout a child's time at Ladbrooke the children will part in projects that fall into the following categories, structures, mechanisms, textiles and electrical. Some projects may involve more than one area. Children will have opportunities to design, make and evaluate their work and look at the work of famous inventors and designers, drawing inspiration from life around them.







## DT CURRICULUM MAP – Y1

<b>1</b>	Autumn		Spring		Summer	
		Mechanisms – Sliders and Levers		Bird Boxes		Fruit Kebabs
Brief	To design, make and evaluate sliders and levers that can move.		To Design, Make and Evaluate a Bird/Animal hide.		To design, Make and Evaluate fruit kebabs.	
Skills	<ul style="list-style-type: none"> <li>• Begin to draw on their own experience to help generate ideas and research conducted on criteria.</li> <li>• Begin to understand the development of existing products: What they are for, how they work, materials used.</li> <li>• Start to suggest ideas and explain what they are going to do.</li> <li>• Understand how to identify a target group for what they intend to design and make based on a design criteria.</li> </ul>		<ul style="list-style-type: none"> <li>• Begin to make their design using appropriate techniques.</li> <li>• Begin to build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>• With help measure, mark out, cut and shape a range of materials.</li> <li>• Explore using tools e.g. saw safely.</li> <li>• Begin to assemble, join and combine materials and components together using wood glue</li> <li>• Begin to use simple finishing techniques to improve the appearance of their product.</li> </ul>		<ul style="list-style-type: none"> <li>• Begin to understand that all food comes from plants or animals.</li> <li>• Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught.</li> <li>• Start to understand how to name and sort foods into the five groups in 'The Eat well plate'</li> <li>• Begin to understand that everyone should eat at least five portions of fruit and vegetables every day.</li> <li>• Know how to prepare simple dishes safely and hygienically, without using a heat source.</li> <li>• Know how to use techniques such as</li> <li>• cutting, peeling</li> </ul>	
Vocabulary	Moving, mechanism, slider, evaluate, assemble, fix, Lever, split pin, pivot, Design criteria, annotated sketch, idea, discuss, choose, drawing, label, appealing, evaluate, make, improve.		plywood, veneers, laminated, dowel, PVA wood glue, sandpaper, perch, metal eyes, string / wire, sides, front, back, base, roof, camouflage, design, existing products, function, freestanding, strong, stable, hang-up		Design, make, evaluate, taste, sweet, bitter, sour, salty, crunchy, texture, peel, chop, cut, Strawberries, grapes, kiwi, banana, raspberries, blueberries, melon, pineapple, orange, skewer, slide, patterns.	
Inventor	<p><b>Mary Anderson</b> invented windscreen wipers. She invented a swinging arm with a rubber blade that could be operated by the driver from inside the vehicle to solve the problem.</p>		<p>Kew's Pagoda was completed in 1762 as a gift for Princess Augusta, the founder of the Gardens. It was one of several Chinese buildings designed for Kew by <b>Sir William Chambers</b>, who had spent time travelling and studying the architecture of East Asia.</p>		<p><b>Ainsley Denzil Dubriel Harriott</b> MBE (born 28 February 1957) is an English chef and television presenter. He is known for his BBC cooking game shows Can't Cook, Won't Cook and Ready Steady Cook.</p>	




## DT CURRICULUM MAP – Y2

<b>2</b>	Autumn		Spring		Summer	
		Joining Fabrics  Textiles and sewing		Fire Engines  Wheels, axles, pivots and levers		Salads  Food and nutrition
Brief	To design, make and evaluate a fabric face as a piece of artwork		To design, make and evaluate a fire engine for a child to use as a toy.		To design, make and evaluate a tasty colourful salad for us to enjoy as a meal.	
Skills	<ul style="list-style-type: none"> <li>Start to generate ideas by drawing on their own and other people's experiences.</li> <li>Begin to develop their design ideas through discussion, observation, drawing and modelling.</li> <li>Make and use templates and mock ups of their ideas in card and paper or using ICT.</li> <li>Begin to select tools and materials; use correct vocabulary to name and describe them.</li> <li>Demonstrate how to cut, shape and join fabric to make a simple product.</li> <li>Use basic sewing techniques.</li> <li>With confidence talk about their ideas, saying what they like and dislike about them</li> </ul>		<ul style="list-style-type: none"> <li>Identify a purpose for what they intend to design and make.</li> <li>Develop their ideas through talk and drawings and label parts.</li> <li>Begin to select tools and materials; use correct vocabulary to name and describe them.</li> <li>Build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>With help measure, cut and score with some accuracy.</li> <li>Learn to use hand tools safely and appropriately.</li> <li>Start to assemble, join and combine materials in order to make a product.</li> <li>Start to choose and use appropriate finishing techniques based on own ideas.</li> <li>Evaluate their work against their design criteria.</li> <li>Look at a range of existing products explain what they like and dislike about products and why.</li> <li>Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.</li> </ul>		<ul style="list-style-type: none"> <li>Understand how to identify a target group for what they intend to design and make based on a design criteria.</li> <li>Understand that all food comes from plants or animals.</li> <li>Know that food has to be farmed, grown elsewhere (e.g. home) or caught.</li> <li>Understand how to name and sort foods into the five groups in 'The Eat well plate'</li> <li>Know that everyone should eat at least five portions of fruit and vegetables every day.</li> <li>Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source.</li> <li>Demonstrate how to use techniques such as cutting, peeling and grating.</li> <li>Taste a range of different vegetables and explain what they like and dislike about them and why.</li> </ul>	
Vocabulary	Design, make, evaluate, templates, scissors, fasten, glue, glue-gun, staple, Sellotape, masking tape, thread, needle, sew, fabric, felt, silk, card, buttons, ribbon,		pine, chassis, dowel, wheels, axles, lever, pivot, structure, design, make, evaluate, user, purpose, ideas, design criteria, product, function, travel, movement, forwards, backwards, paint, paintbrush, PVA wood glue, glue stick, scissors		Design, make, evaluate, taste, sweet, bitter, sour, salty, crunchy, texture, peel, chop, cut, grate, carrot, tomato, cucumber, radish, broccoli, lettuce, spring onion, bell pepper, celery, beetroot, olives	
Inventor	Based on artwork Senecio (1922) by Paul Klee The family of <b>Gideon Sundback</b> established the G. Sundback Graduate Fellowship in Mechanical Engineering in his honour. Gideon Sundback, credited as inventor of the modern-day zipper, developed the "Hookless No. 2" in 1914		In the early 18th century, Englishman <b>Richard Newsham</b> received two patents for his fire engine design. The first, in 1721, depicted an invention that could direct a stream of water toward a fire.		<b>George Washington Carver</b> was an American agricultural scientist and inventor. Carver worked in Alabama, USA to help farmers grow better quality crops and improve the soil's quality so it can be used again for growing other crops.	

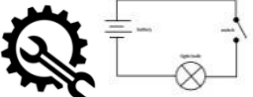


## DT CURRICULUM MAP – Y3

<b>3</b>	<b>Autumn</b>		<b>Spring</b>		<b>Summer</b>	
		<b>Clock Making</b>	 	<b>Roman Chariots</b>		<b>Soup</b>
<b>Brief</b>	<b>To design and construct a stable and freestanding clock structure with mechanical gears.</b>		<b>To design and construct a model roman horse drawn chariot with moving mechanical parts.</b>		<b>To use home grown ingredients to prepare and cook vegetable soup, with a bread roll.</b>	
<b>Skills</b>	<p>Confidently generate ideas for an item Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product. Start to understand whether products can be recycled or reused. Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. <b>Start to understand that mechanical and electrical systems have an input, process and output.</b> <b>Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement.</b> <b>Know how simple electrical circuits and components can be used to create functional products.</b> Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose. Evaluate the key designs of individuals in design and technology has helped shape the world.</p>		<p>Understand how well products have been designed, made, what materials have been used and the construction technique. Know to make drawings with labels when designing. When planning explains their choice of materials and components including function and aesthetics. When planning explains their choice of materials and components including function and aesthetics.  <b>Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.</b> <b>Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</b> <b>Measure, mark out, cut, score and assemble components with more accuracy.</b> <b>Start to work safely and accurately with a range of simple tools. Start to measure, tape or pin, cut and join fabric</b>  Begin to disassemble and evaluate familiar products and consider the views of others to improve them.</p>		<p>Start to know 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.  Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.  Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.  Start to understand that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate'  Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.</p>	
<b>Vocabulary</b>	MDF, shape, form, sand, freestanding, dowel, join, PVA wood glue, measure and mark, cut, junior hacksaw, bench hook, g- clamp, design style, movements, layout, numbers, hole, drill, mechanism, gears, hands, thread, washer, nut, push fit		horse, chariot base, axles, strengthen, wheels, dowel, metal hook, wire, shaping, accuracy, aesthetic, abrasives, decoupage, decoration		vegetable names, equipment, utensils, slicing, peeling, cutting, crunchy, sticky, smooth, sharp, soften, hard, healthy diet, ingredients, planning, tasting, design, evaluate, criteria, knead, roll, mixture, dough, seasoning	
<b>Inventor</b>	<b>Thomas Tompion</b> , FRS (1639–1713) was an English clockmaker, watchmaker and mechanic who is still regarded to this day as the "Father of English Clockmaking".		1872 Invention of the penny-farthing bicycle. by British engineer, <b>James Starley</b> . The huge front wheel was almost six feet from top to bottom. and the seat was above the wheel. It had no brakes!		<b>Delia Ann Smith</b> CH CBE is an English cook and television presenter, known for teaching basic cookery skills in a direct style. One of the best-known celebrity chefs in British popular culture, Smith has influenced viewers to become more culinarily adventurous	



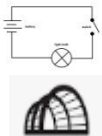
## DT CURRICULUM MAP – Y4

<b>4</b>	<b>Autumn</b>		<b>Spring</b>		<b>Summer</b>	
		<b>Greenhouses</b>		<b>Egyptian Collars</b>		<b>Motorised Buggies</b>
<b>Brief</b>	<b>To design, make and evaluate the making of a model greenhouse.</b>		<b>To design, make and evaluate a motorised buggy, for a specific purpose.</b>		<b>To design, make and evaluate a motorised buggy, for a specific purpose.</b>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Design a greenhouse which is fit for purpose.</li> <li>• Generate annotated sketches, labelling the different parts and materials that could be used.</li> <li>• Consider how to produce this design, as a smaller scale model.</li> <li>• Select and use a range of tools.</li> <li>• Accurately cut, finish and join materials.</li> <li>• Reflect on process and evaluate.</li> </ul>		<ul style="list-style-type: none"> <li>• Design and plan a textile collar, based on Egyptian designs.</li> <li>• Annotate designs, suggesting suitable materials to use and ways to embellish.</li> <li>• Cut fabric, using a pattern.</li> <li>• Combine materials using joining techniques such as pinning, sewing, stitching and glueing.</li> <li>• Experiment with a variety of stitches, to create patterns and design features.</li> <li>• Apply decoration – buttons, sequins and beads, to add detail.</li> </ul>		<ul style="list-style-type: none"> <li>• Design a product which is fit for a particular design brief.</li> <li>• Generate annotated sketches, using technical language to label the different mechanical and electrical components.</li> <li>• Select and use a range of tools.</li> <li>• Accurately cut, finish and join materials.</li> <li>• Understand and use electrical systems.</li> <li>• Use electrical circuits to create a functional product.</li> </ul>	
<b>Vocabulary</b>	Greenhouse, greenhouse gases, atmosphere, environment, plastic, condensation, temperature, protection, sunlight, growth, timber, junior hacksaw, bench-hook, g-clamp, hot glue gun, timber.		Collar, fabric, material, felt, thread, cotton, sew, needle, join, stitch, embroider, embellish, bead, button, sequin, scissors, glue, hemming, running stitch, overcast stitch, catch stitch, cross stitch, back stitch, blanket stitch, template, pattern		Cell, cell holder, battery pack, wires, measure, bench-hook, junior hacksaw, g-clamp, pulley, chassis, axle, dowel, motor, wheels, elastic band, cable tie, movement, motion, linear, rotary, sandpaper	
<b>Inventor</b>	The French botanist <b>Charles Lucien Bonaparte</b> is often credited with building the first practical modern greenhouse in Leiden, Holland, during the 1800s to grow medicinal tropical plants. Originally only on the estates of the rich, the growth of the science of botany caused greenhouses to spread to the universities.		1846 Sewing Machine invented by <b>Elias Howe</b> . 1850 <b>Isaac Singer</b> produced a sewing machine which could be used at home.		On January 29, 1886, <b>Carl Benz</b> applied for a patent for his “vehicle powered by a gas engine.” The patent – number 37435 – may be regarded as the birth certificate of the automobile.	

## DT CURRICULUM MAP – Y5

<b>5</b>	Autumn		Spring		Summer	
		Fairgrounds		Viking Long Boats		Vegetable cookies/Muffins
Brief	To design, make and evaluate the making of a motorized fairground ride		To design, make and evaluate a Viking Long Boat		To design, make and evaluate a healthy, savoury dish	
Skills	<ul style="list-style-type: none"> <li>• Design a product which is fit for purpose</li> <li>• Generate annotated sketches, using technical language to label the different mechanical and electrical components</li> <li>• Select and use a range of tools</li> <li>• Accurately drill, cut, finish and join materials</li> <li>• Understand and use electrical systems.</li> <li>• Use electrical circuits to create a functional product.</li> <li>• Evaluate a product</li> </ul>		<ul style="list-style-type: none"> <li>• Design a product which is fits a particular design brief</li> <li>• Generate annotated sketches to label components and joins</li> <li>• Select and use a range of tools</li> <li>• Accurately drill, cut, finish and join materials</li> <li>• Know how to reinforce 3D framework</li> <li>• Apply knowledge of how to strengthen joins</li> <li>• Evaluate own work and suggest ideas for improvement</li> </ul>		<ul style="list-style-type: none"> <li>• Cleaning work surfaces and equipment before and after use</li> <li>• Understanding the importance of preventing cross contamination</li> <li>• Measuring and weighing accurately</li> <li>• Using a range of utensils safely</li> <li>• Chopping and preparing ingredients</li> <li>• Mixing and combining ingredients</li> <li>• Portioning batter evenly</li> <li>• Following a recipe accurately and adapting if necessary.</li> <li>• Evaluating the finished product for taste, texture, and appearance.</li> <li>• Suggesting improvements for future attempts.</li> </ul>	
Vocabulary	Cell, cell holder, battery pack, wires, measure, template, bench-hook, junior hacksaw, g-clamp, bench drill, motor, small pulley, elastic band, cable tie, movement, motion, rotary		Design, timber, junior hacksaw, bench-hook, g-clamp, bench drill, wood glue, measure, strengthen, reinforce, base, mast, evaluate, improve		Healthy choices, allergens, cross contamination, savoury, ingredients, measure, dice, grate, portion, mixture, combine, bake, evaluate, improve	
Inventor	In the middle of the 19th century, power was starting to become a major downfall of the ride until <b>Thomas Bradshaw</b> came along. He invented the first steam-powered carousel in 1861, which was introduced at the Aylsham Fair.		<b>Isambard Kingdom Brunel</b> was a famous engineer. He is famous for building bridges, <b>ships</b> and railways. He was born in 1806 during the British Industrial Revolution. He died in 1859 ages only 53 due to too much hard work and worry		<b>1856 Louis Pasteur</b> found how to make food safer to eat by pasteurizing it. This killed bacteria in certain foods.	

## DT CURRICULUM MAP – Y6

<b>6</b>	<b>Autumn</b>		<b>Spring</b>		<b>Summer</b>	
		<b>Mechanisms – Cam Toys</b>		<b>Textiles - Weaving</b>		<b>Structures and Electrical</b>
<b>Brief</b>	<b>To design a moving toy using Cams</b>		<b>To design and construct a bag</b>		<b>To design and make a replica WWII Anderson shelter with a light.</b>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Investigate how cams change movement</li> <li>• Understand different types of movement</li> <li>• Know that different shaped cams produce different movements</li> <li>• Know that a cam will change a rotary movement into a linear motion</li> <li>• Understand mechanical systems</li> <li>• Formulate step by step plans</li> <li>• Design toy using cams</li> <li>• Measure, cut and join materials</li> <li>• Select and use tools accurately</li> <li>• Accurately assemble and finish products well</li> </ul>		<ul style="list-style-type: none"> <li>• Design and plan a textile</li> <li>• Make fabric/products by interlacing pieces of materials</li> <li>• Combine materials using joining techniques such as pin, sew, stitch.</li> <li>• Annotate designs</li> <li>• Experiment with a variety of techniques</li> <li>• Create a visually decorated textile with a specific purpose</li> </ul>		<ul style="list-style-type: none"> <li>• Design a product which is fit for purpose</li> <li>• Generate annotated sketches</li> <li>• Select and use a range of tools</li> <li>• Accurately cut, finish and join</li> <li>• Apply knowledge of how to strengthen joins</li> <li>• Understand and use electrical systems in their design</li> <li>• Use electrical circuits to create functional product</li> <li>• Know how to reinforce 3D framework</li> <li>• Evaluate own work and suggest ideas</li> </ul>	
<b>Vocabulary</b>	Cam, snail cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, framework, rotation, rotary motion, linear motion, mechanical system, input movement, design, function, user, purpose.		Weave, weaving loom, loom, warp, wool, interlace, join, fabric, technique, back-strap, God’s Eye, sew, stitch, running stitch, thread, needle, eye, string, design, function, user, purpose.		Series circuit, parallel circuit, input/output, control boxes, program, control, monitor, bulb, circuit, circuit symbol, switch, battery, assemble, prototype, LED, frame structure, strengthen, design, function, user, purpose.	
<b>Inventor</b>	In 1738 <b>Frenchman Jacques de Vaucanson</b> invented one of the first mechanical robots - a duck that was able to eat wheat, drink and excrete.		<b>Christian Ernest Dior</b> was a French fashion designer and founder of one of the world's top fashion houses, Christian Dior SE. His fashion house is known all around the world, having gained prominence "on five continents in only a decade		The Morrison shelter, officially termed Table (Morrison) Indoor Shelter, had a cage-like construction beneath it. It was designed by <b>John Baker</b> and named after Herbert Morrison, the Minister of Home Security at the time.	