

Lidlington Primary School - Curriculum Plan



Subject: Frame structure - Bridges		Year Group: 1			Term: Autumn		
							
Vocabulary		Knowledge			Understanding		
What children will know		What children will understand			What children will be able to do		
Define the word and include etymology if useful		Learning	Teaching	Assessment	Learning	Teaching	Assessment
		Remembering	Telling	Testing	Practising	Coaching	Observing
- structure – something built or made that has a particular purpose - frame structure – a structure made from connected parts forming a framework - bridge – a structure that allows people, vehicles or other things to cross an obstacle - engineer – someone who designs, builds or develops structures, machines or systems - stable – unlikely to fall over or move unexpectedly - strong – able to withstand force without breaking - reinforce – to make something stronger - support – something that holds or strengthens another part - join – to connect two or more materials - material – the substance from which something is made - fold - cut - shape - prototype – an early model used for testing an idea - test – to check how well something works		- Bridges are structures designed for a purpose. - Bridges can cross rivers, roads, railway lines and other obstacles. - Bridges have different designs depending on their purpose. - Structures need to be stable and strong. - Paper and card can be manipulated to create stronger structures. - Folding can increase the strength of paper or card. - Triangular structures can provide strength. - Materials have different properties. - Different joining methods produce different results. - A structure should be tested against its design requirements. - Engineers design, build and test structures.			- A successful structure needs to be strong, stable and fit for purpose. - The shape of a material can affect its strength. - Structures can be strengthened through folding, bracing and reinforcement. - Different materials are suitable for different purposes. - Engineers test structures and make improvements. - Design decisions should be based on the intended user and purpose.		
					- Explore existing bridge designs. - Sketch simple design ideas. - Cut paper and card safely and accurately. - Fold materials to create strength. - Join materials using appropriate techniques. - Build simple frame structures. - Reinforce a structure. - Make a prototype. - Test a bridge against a simple criterion. - Identify weaknesses. - Modify a design to improve performance. - Explain why particular materials or construction methods were chosen.		

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Subject: Rotary mechanisms - Windmills			Year Group: 1			Term: Spring		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- mechanism – a system of parts that produces or controls movement - movement – a change in position - motion – movement - rotary – moving around a central point - rotate – to turn around a central point - axle – a rod around which something rotates - hub – the central part of a wheel or rotary mechanism - sail – a surface designed to catch wind - windmill – a structure using wind to produce movement or energy - wind - force – a push or pull - energy - stable - balance - prototype - test			- A mechanism is a system that creates or controls movement. - Rotary motion involves movement around a central point. - An axle can allow parts to rotate. - Wind can provide energy that causes movement. - Windmill sails catch the wind. - The shape, size and material of sails affect their performance. - An axle needs to be positioned appropriately for effective rotation. - A windmill needs to be stable while its mechanism moves. - Designs can be tested and improved.			- A mechanism works because its parts work together as a system. - Wind can provide a force that produces movement. - Changing the design of one part can affect the performance of the whole system. - Friction and balance can affect rotary movement. - Designers need to test different possibilities rather than assuming the first design will work.		
						- Identify rotary movement. - Explore mechanisms that use wind. - Make simple sail prototypes. - Test different sail shapes and materials. - Select appropriate materials. - Construct an axle. - Assemble a simple rotary mechanism. - Make a freestanding windmill. - Test movement and stability. - Record observations. - Modify their design. - Explain why their final design works.		

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Subject: Templates in textiles – Hand puppets			Year Group: 1			Term: Summer		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
Lever – a simple machine that helps you lift or move something using a bar or a stick that turns around a point called a fulcrum Fulcrum – the point around which a lever turns Effort – the force you use to move the lever Load – the thing you are trying to lift or move with the lever Slider – a simple mechanism that moves back and forth			Know levers and sliders are simple mechanisms that help us move things with less effort. Know that levers have a fulcrum, which is the point around which the lever turns. Know how to identify likes and dislikes of the designs Suggest improvements to existing designs Explore how products have been created by taking things apart Use 2Design on Purple Mash Measure and mark out to the nearest centimetre. Explain to someone else how a product works and how it can be improved.			Understand that force must be applied to make the load move. The basic concepts of force, push and pull. Understand how levers and sliders are used in real life: seesaws, coat zips, doorknobs etc.		
						Follow simple instructions for how to assemble and use levers and sliders. Be able to lift objects of varying weights with levers. Safely manipulate small parts of mechanisms. Safely use tools like scissors, pencils and a ruler. Fold paper/card carefully and accurately. Join materials together using appropriate resources. Think critically about what type of slider or lever will be best for the task in hand.		

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Subject: Levers and sliders – Moving cards			Year Group: 2			Term: Autumn		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
Puppet: A puppet is a special toy or doll that you can move and make talk by putting your hand or fingers inside it. Stitch: A stitch is a small loop or knot made by sewing with a needle and thread to join two pieces of fabric together. Thread: Thread is a thin string-like material made of cotton, nylon, or other materials that is used for sewing or weaving. Product: A product is something that is made or created by someone, like a toy, a book, or a piece of artwork. Components: Components are the different parts or pieces that come together to make something, like the wheels, body, and engine of a toy car.			Know what a puppet is and how it is used. Know how to use a running stitch, thread and needle. Know how to use needles, threads and scissors safely. Know the purpose of their product. Know how products can be improved.			Discuss and explore a range of puppets, their features, what materials are used and what they are used for. Understand how to put different components together. Discuss their finished product and evaluate what is effective about it. Understand how to follow a set of design instructions.		
						Choose an existing product they like and explain why. Recognise and describe a variety of different puppets. Use a template to cut out appropriate sizes of fabric. Stitch buttons to the finished product. Describe the steps taken to design and make a puppet.		

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Subject: Wheels and axles – Fire engines			Year Group: 2			Term: Spring			
									
Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful	Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment
	Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating
Structure – something built or constructed (from latin ‘structura’, equivalent to struct and ‘ura’ = put together) Mechanism – an assembly of moving parts performing a complete functional motion (from Latin ‘mechanismus’ and Greek ‘mechan’ = machine) Engineer – a person trained and skills in the design, contructions and use of engines or machines (Latin ‘ingenia’ = to design) Design- to prepare the preliminary sketch or plans for a structure (Middle English ‘designen’ and Latin ‘designare’ = to mark out) Criteria- a standard for judgement or to test something (Greek ‘kriterion’ = to separate) Lever – rigid bar that pivots on one point to move an object (Latin ‘levare’ = to lighten) Product- a thing produced by labour Material- the substances of which a thing is made (Latin ‘materialis’ meaning belonging to matter) Hinge- a jointed device or flexible piece which allows other parts to move (Dutch – ‘henge’ meaning to hang)	Remember what an engineer is and what they do Test a variety of products, explaining how they work, knowing that some products use batteries and electricity. Know how to identify likes and dislikes of the designs Know how to suggest improvements to existing designs Explore how products have been created by taking things apart Remember what a wheel does and how it works Investigate levers and winding motions, design (on Purple Mash) and create products using levers and winding motions. Remember how to safely use a saw and cutting tools. Measure and mark out to the nearest centimetre. Testing a range of cutting and shaping techniques (such as tearing, cutting, folding and curling) to find the most suitable way.	Which engineers or companies make the same product? What do I like and dislike about a product? What do I notice? What is a lever and how can I make one? How does winding motion make something move? How has it been made? How does it work? Why is it faulty? What is a wheel? What is an axel and how does it move and support a wheel? What is it made from? How are tools used safely and efficiently? How can a ruler be used accurately? How can I join materials so my product is strong?	Explain what an engineer is and where they might work. Identify where a lever and winding motion has been used. Evaluate products, explaining how they would improve them. Use 2Design on Purple Mash Construct a lever and explain how it works, including the word pivot. Make a product with a winding motion and explain how it works. Cut materials safely using tools provided. Measure using a ruler and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen) Evaluate how my product matches the design criteria.						

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Subject: Structures – Castles (winding drawbridges)			Year Group: 2			Term: Summer					
											
Vocabulary			Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating
Structure – something built or constructed (from latin ‘structura’, equivalent to struct and ‘ura’ = put together) Mechanism – an assembly of moving parts performing a complete functional motion (from Latin ‘mechanismus’ and Greek ‘mechan’ = machine) Engineer – a person trained and skills in the design, contructions and use of engines or machines (Latin ‘ingenia’ = to design) Building – a structure made to provide a safe and secure place for people to live, work or play. Design- to prepare the preliminary sketch or plans for a structure (Middle English ‘designen’ and Latin ‘designare’ = to mark out) Criteria- a standard for judgement or to test something (Greek ‘kriterion’ = to separate) Lever – rigid bar that pivots on one point to move an object (Latin ‘levare’ = to lighten) Product – a thing produced by labour Material – the substances of which a thing is made (Latin ‘materialis’ meaning belonging to matter) Hinge- a jointed device or flexible piece which allows other parts to move (Dutch – ‘henge’ meaning to hang)			Know that a structure is something built or constructed. Know that a structure must hold up against weight or pressure, and that the way a structure is built affects its ability to do so. Know that drawbridges are a type of bridge that can be raised or lowered to allow or prevent passage. Remember what an engineer is and what they do Test a variety of products, explaining how they work, knowing that some products use batteries and electricity. Know how to identify likes and dislikes of the designs Know how to suggest improvements to existing designs Explore how products have been created by taking things apart			Understand that different materials can be used to build structures such as wood, cardboard, Lego etc. The weight or pressure in a structure needs to be distributed evenly in order for the structure to be stable. Understand how levers, wheels/axels, pulleys and gears can be used to make a winding mechanism work.			Generate sketches and plans of their design. Identify the required features of the finished product. Join materials together. Build a prototype. Select a range of materials to use.		

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Subject: Pneumatics – Moving toys			Year Group: 3			Term: Autumn		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- pneumatic – powered or operated by air - pneumatic system – a system using compressed air to create movement - air pressure – force exerted by air - pressure - force - mechanism - movement - compress – squeeze something into a smaller space - expand – increase in size or volume - cylinder – a tube-shaped container or component - syringe – a device that can push or pull air - tube - valve – a component controlling movement of air or fluid - prototype - design brief - design criteria			- Air can be used to create movement. - A pneumatic system uses air pressure. - Air can be pushed through tubes. - Pneumatic systems contain connected components that work together. - Pushing air can cause another component to move. - Pneumatic mechanisms can be used in toys and machines. - Components need to be connected securely for a system to work. - Products should be designed around a clear purpose and user. - A design brief explains what a product needs to achieve.			- A pneumatic system is a system of connected parts. - Movement is produced because pressure is transferred through the system. - Changing one component can affect the whole mechanism. - Successful products need to meet specific design criteria. - Testing allows designers to identify and solve problems.		
						- Investigate pneumatic mechanisms. - Build simple pneumatic prototypes. - Connect components securely. - Control movement using air pressure. - Draw annotated designs. - Develop a design brief. - Plan the construction of a moving toy. - Select appropriate materials. - Construct a working pneumatic system. - Integrate a mechanism into a product. - Test movement. - Identify faults. - Refine a product against design criteria. - Evaluate the final product.		

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Subject: Shell structures – Packaging		Year Group: 3			Term: Spring		
							
Vocabulary		Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful		Learning	Teaching	Assessment	Learning	Teaching	Assessment
		Remembering	Telling	Testing	Practising	Coaching	Observing
- shell structure – a hollow structure with an outer covering - packaging – materials used to contain and protect products - product - net – a flat pattern that can be folded into a 3D shape - prototype - structure - function – what something is designed to do - form – the shape or appearance of something - property – a characteristic of a material - stiff - flexible - rigid - reinforce - join - fold - score – make a controlled groove to help a material fold - branding - logo - sustainable - recyclable		- Packaging protects and contains products. - Packaging also communicates information and can advertise a product. - Shell structures have an outer covering. - Packaging can be created from nets. - Card can be cut, folded, scored and joined. - Materials have different functional properties. - Packaging needs to be strong enough to protect its contents. - Packaging should be appropriate for its intended user and product. - Packaging materials have environmental impacts. - Some packaging can be reused or recycled.			- Good packaging balances function, appearance, user needs and environmental impact. - The structure of packaging affects its strength and usefulness. - The properties of materials influence design decisions. - Packaging design involves more than making something look attractive. - Designers increasingly need to consider the whole life of a product and its packaging.		
					Skills What children will be able to do		
		Learning	Teaching	Assessment	Learning	Teaching	Assessment
		Reflecting	Facilitating	Evaluating	Reflecting	Facilitating	Evaluating
					- Analyse existing packaging. - Identify materials and structural features. - Develop packaging ideas. - Draw accurate nets. - Annotate designs. - Measure and mark card. - Score and fold accurately. - Join card securely. - Reinforce weak areas. - Create appropriate branding. - Make a prototype. - Test packaging for strength and function. - Evaluate environmental impact. - Improve the design.		

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Subject: 2d shapes to 3D products – Stationery storage			Year Group: 3			Term: Summer		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- 2D – two-dimensional; having length and width - 3D – three-dimensional; having length, width and height - shape - form - net - dimension – a measurable aspect such as length, width or height - measurement - prototype - template - product - storage - function - structure - score - fold - join - assemble - accuracy			- 2D shapes can be developed into 3D forms. - Nets can be folded and joined to create 3D products. - Accurate measurement is important when creating products. - Products need to be stable and fit for purpose. - Different joining methods can be used to construct a product. - Stationery storage needs to consider the size and type of objects it will hold. - Design criteria help determine whether a product is successful.			- A successful 3D product begins with an accurate 2D plan. - Changing dimensions changes the final product. - Mathematical knowledge supports accurate design. - A product needs to balance appearance, function, stability and user needs. - Precision becomes increasingly important as pupils make more complex products.		
						- Identify 2D and 3D shapes. - Create and interpret nets. - Measure accurately. - Mark out materials. - Cut and score precisely. - Fold and assemble 3D forms. - Select suitable joining techniques. - Develop a product for a specific user. - Produce annotated design drawings. - Make a prototype. - Test the product for stability and function. - Evaluate against design criteria. - Make improvements.		

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Subject: Torches		Year Group: 4			Term: Autumn		
							
Vocabulary		Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful		Learning	Teaching	Assessment	Learning	Teaching	Assessment
		Remembering	Telling	Testing	Practising	Coaching	Observing
Torch: A torch is a handheld device that produces a bright beam of light when you switch it on, and it helps you see in the dark. Power source: A power source is something that provides energy to make things work, like a battery or electricity from a plug in the wall. Light: Light is something that brightens up a place and helps us see, like the Sun during the day or a lamp that you switch on in your room. Circuit: A circuit is a path that electricity can flow through, like a loop that connects the battery, wires, and bulbs in a torch. Illuminate: Illuminate means to make something brighter or light up, like when you switch on a lamp, it illuminates the room and makes it less dark.		Know what a torch is and how it used. Know that a torch needs a power source. Know that a torch needs a light source. Know how a circuit works. Know which materials are suitable for different parts of the torch. Know how to use tools safely such as screwdrivers, pliers and wire.			Understand the features of a torch. Understand electrical safety. Understand simple circuitry. Understand how to safely use a range of tools.		
					Identify the features of a torch. Select a range of suitable materials. Design the torch using sketches and diagram. Include: - The size and shape of the casing - Location of the switch - Wiring layout Construct a circuit. Assemble the torch by combining the components. Test the torch and identify what they could improve. Handle the torch and electrical components carefully.		

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Subject: Bridges		Year Group: 4			Term: Spring					
										
Vocabulary		Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful	Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment	
	Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating	
Bridge: A bridge is a structure that helps us cross over obstacles like rivers, valleys, or roads, and it is built to be strong and safe. Durability: Durability means how long something can last and stay strong without breaking or getting damaged easily. Columns: Columns are tall, strong pillars that support and hold up the weight of a bridge, building, or structure. Piers: Piers are solid structures built in water, like rivers or seas, to support and hold up the parts of a bridge that are in the water. Abutments: Abutments are the strong supports at each end of a bridge that hold it in place and help distribute the weight. Beams: Beams are long, sturdy pieces of metal or wood that span across the supports of a bridge and help carry the weight. Cables: Cables are strong, thick ropes or wires made of steel that are used to support and hold up the bridge, like the cables you might see on a suspension bridge.	Know what a bridge is and what it is used for. Know the properties, strength, durability and weight of each material used in building a bridge. Know the size and scale of bridges. Know the structural elements of bridges: • Columns • Piers • Abutments • Beams • Cables Know how to safely use saws, drills, clamps and glue.			Understand the principles behind each bridge. Understand the advantages and disadvantages of each bridge type. Understand size and dimension of their bridge based on the available materials. Understand that forces and loads affect bridges, such as: • Compression • Tension • Bending • Shearing			Identify different bridges: • Suspension • Arch • Beam • Truss • Cable stayed Choose appropriate materials. Construct a bridge to withstand different forces. Include all the structural elements in their design. Safely join materials using tools safely. Identify how to improve their finished product.			

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Subject: Bread		Year Group: 4			Term: Spring				
									
Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful	Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment
	Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating
Bread: Bread is a delicious food that we eat made from dough, which is baked in the oven and becomes soft and fluffy. Ingredients: Ingredients are the different things we use to make a recipe, like flour, water, yeast, and salt that go into making bread. Mix: To mix means to combine or stir ingredients together, like when we mix flour, water, and yeast to make dough. Temperature: Temperature is how hot or cold something is, like the temperature in an oven when we bake bread. Rising: Rising is when dough gets bigger and puffy because of the yeast inside it, making the bread soft and airy. Hygienic: Hygienic means being clean and taking care to keep things free from dirt and germs, like washing our hands and using clean utensils when we make bread.	Know what bread is. Know the ingredients required: • Flour • Yeast • Salt • Water • Sugar Know how to mix ingredients together to form the dough. Know to preheat the oven and set temperatures and timers. Know to act safely in the kitchen: • Use oven gloves • Keep hair tied back • Wash hands thoroughly			Understand the role of each ingredient in making bread. Understand the precise measurements in baking. Understand the concept of rising. Understand that base tapping helps identify if the bread is ready. Understand simple food hygiene. Explore rolls, buns and braids.			Accurately measure ingredients using cups, spoons and a kitchen scale. Knead dough together to develop the gluten and give the bread structure. Create a warm, draft-free environment for the bread to rise. Follow rising times in a recipe. Use a thermometer to check the temperature of bread. Experiment with adding herbs, spices or cheese.		

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Subject: CAD structures - Architecture			Year Group: 5			Term: Autumn			
									
Vocabulary	Knowledge What children will know			Understanding What children will understand		Skills What children will be able to do			
Define the word and include etymology if useful	Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment
	Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating
- CAD – computer-aided design - computer-aided design - architecture – the design and construction of buildings - architect – someone who designs buildings - structure - frame structure - load – a weight or force carried by a structure - stable - reinforce - support - beam - column - truss - prototype - model - scale - dimension - sustainable - iteration – a revised version of a design	- Architects design buildings for particular users and purposes. - Structures must support loads. - Structural elements have different functions. - Frames can be strengthened through appropriate construction techniques. - CAD allows designers to create and modify digital models. - Digital models can be tested and refined before physical manufacture. - Scale allows buildings to be represented proportionally. - Sustainable architecture considers environmental impact and resource use. - Structural design requires consideration of materials, forces, users and location.			- The form of a building is influenced by its function, structure, users and environment. - Structural strength depends on how components are arranged and supported. - CAD allows designers to iterate rapidly. - Digital design is a genuine design and engineering tool, not simply drawing on a computer. - Sustainable design requires designers to consider environmental impact throughout the design process.		- Analyse existing structures. - Identify structural components. - Develop architectural design ideas. - Create accurate technical drawings. - Use CAD software to create digital designs. - Manipulate dimensions and components. - Develop a 3D digital model. - Consider scale. - Apply structural reinforcement. - Evaluate structural and environmental performance. - Iterate and improve a design. - Present a design using appropriate technical vocabulary.			

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Subject: Pulleys and gears – Electric vehicles			Year Group: 5			Term: Spring		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- mechanical system – connected components that create or control movement - gear - gear train - gear ratio - driver gear – the gear providing movement - driven gear – the gear receiving movement - pulley - belt - axle - torque – turning force - rotation - speed - force - motor - electric motor - battery - vehicle - efficiency - prototype			- Gears transfer rotary motion. - Different gear sizes affect speed and turning force. - A pulley transfers movement using a wheel and belt. - Gears can change the speed and direction of rotation. - Electric motors convert electrical energy into movement. - Batteries provide electrical energy to a circuit. - Vehicles combine mechanical and electrical systems. - Electric vehicles use electric motors rather than conventional internal combustion engines. - Mechanical systems need to be designed for a particular purpose.			- Gears and pulleys can change the behaviour of movement. - A smaller driving gear and larger driven gear produce a different mechanical advantage from the reverse arrangement. - Mechanical systems involve trade-offs between speed and force. - Electrical and mechanical systems can work together. - Designers select components according to the required performance of the product.		
						- Identify gears and pulleys in products. - Construct simple gear systems. - Construct pulley systems. - Investigate gear ratios. - Change speed and direction of rotation. - Connect a motor to a mechanical system. - Build a simple electric vehicle. - Select appropriate components. - Test speed, movement and reliability. - Record test results. - Modify gear/pulley arrangements. - Evaluate the vehicle against design criteria.		

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Subject: Combining fabrics – Accessible textiles			Year Group: 5			Term: Summer		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- textile – a material made from fibres - fabric - fibre - weave - knit - seam - stitch - sew - appliqué – attaching fabric shapes to another fabric - embroidery - fastening - zip - button - Velcro - accessible – designed so that it can be used by as many people as possible - inclusive - user - adaptive design - function - aesthetic – relating to appearance			- Fabrics have different properties. - Fabrics can be combined using different techniques. - Textiles can be joined through stitching, appliqué and other methods. - Fastenings have different advantages and disadvantages. - Products should be designed around the needs of the intended user. - Accessibility means considering how a product can be used by people with different needs. - Design decisions can improve independence and ease of use. - Textiles can combine function and appearance.			- Good design begins with the user. - Products should not assume that every user has the same physical abilities or preferences. - A small design change can make a product significantly easier to use. - Materials and fastenings need to be selected according to the user's needs. - Inclusive design benefits a wide range of users, not just one individual.		
						- Investigate users' needs. - Develop a clear design brief. - Generate multiple design ideas. - Select appropriate fabrics. - Combine different fabrics. - Measure and cut fabric accurately. - Use appropriate stitching techniques. - Attach appliqué. - Select appropriate fastenings. - Construct a functional textile product. - Test accessibility with the intended user criteria. - Gather feedback. - Modify the product. - Explain and justify design decisions.		

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Subject: Cams - Automata		Year Group: 6			Term: Autumn			
								
Vocabulary		Knowledge What children will know			Understanding What children will understand		Skills What children will be able to do	
Define the word and include etymology if useful		Learning	Teaching	Assessment	Learning	Teaching	Assessment	
		Remembering	Telling	Testing	Practising	Coaching	Observing	
- cam – a rotating component that changes rotary motion into another type of movement - follower – the component that moves in response to the cam - automata – a mechanical device that creates movement - mechanism - rotary motion - linear motion - reciprocating motion - oscillating motion - axle - shaft - eccentric cam - offset - motion - force - friction - prototype - iteration - mechanical system		- A cam is a rotating mechanism. - Cams can convert rotary movement into another type of movement. - A follower moves as the cam rotates. - Different cam shapes produce different movements. - The position and shape of a cam influence the movement of the follower. - An automaton is a mechanical device designed to create movement. - Mechanical systems contain interacting components. - Designers need to consider friction, alignment and stability.			- The shape of a cam determines the movement it produces. - A mechanical system can transform one type of movement into another. - Small changes to a component can significantly change the behaviour of a system. - Complex products can be understood as systems made from interacting parts. - Effective mechanical design requires repeated testing and refinement.		- Identify cam mechanisms. - Investigate different cam shapes. - Construct cam and follower systems. - Explore different types of movement. - Design an automaton. - Produce accurate technical drawings. - Select appropriate materials. - Construct and align mechanisms accurately. - Troubleshoot mechanical problems. - Test and refine movement. - Evaluate against design criteria. - Explain how the mechanism works.	

Lidlington Primary School – Curriculum Plan



Subject: Systems and control – Sensor alarms			Year Group: 6			Term: Spring		
								
Vocabulary			Knowledge What children will know			Understanding What children will understand		
Define the word and include etymology if useful			Learning	Teaching	Assessment	Learning	Teaching	Assessment
			Remembering	Telling	Testing	Practising	Coaching	Observing
- system – a set of connected parts working together - control - input – information entering a system - output – the action produced by a system - sensor – a component that detects a change or condition - switch - circuit - electrical circuit - component - battery - buzzer - LED - motor - program - code - condition - trigger - monitor - automation - microcontroller - debug – find and correct errors			- An electrical system contains connected components. - A circuit needs to be complete for electrical current to flow. - Batteries provide electrical energy. - Sensors detect changes in the environment. - Inputs can trigger outputs. - A buzzer, light or motor can act as an output. - Systems can be programmed to respond to particular conditions. - A sensor alarm can detect a change and trigger an output. - Programs can contain conditions such as if...then. - Systems need to be tested and debugged.			- A control system can be represented as: Input → Processing/Control → Output - Sensors allow products to respond to their environment. - Different sensors are appropriate for different inputs. - Programming allows a system to make decisions. - A successful system depends upon both hardware and software working together. - Designers need to consider reliability, user needs and safety.		
						- Construct simple electrical circuits. - Identify inputs and outputs. - Connect sensors appropriately. - Program a control system. - Use conditional instructions. - Create a sensor-triggered alarm. - Test different inputs and outputs. - Debug errors. - Modify a program. - Test system reliability. - Evaluate the system against design criteria. - Explain how the complete system works.		

Lidlington Primary School - Curriculum Plan



Subject: Products and people – Inspirational design			Year Group: 6			Term: Summer			
									
Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful	Learning	Teaching	Assessment	Learning	Teaching	Assessment	Learning	Teaching	Assessment
	Remembering	Telling	Testing	Practising	Coaching	Observing	Reflecting	Facilitating	Evaluating
- designer - design brief - user - need - want - function - innovation – a new idea or method - invention - prototype - iteration - inspiration - aesthetic - ergonomics – designing products to suit how people use them - accessibility - inclusive design - sustainability - materials - manufacture - technology - impact - evaluation - criteria Knowledge Pupils should know that:	- Designers solve problems for particular users. - Products are influenced by function, materials, technology, culture and user needs. - Designers use research to understand problems. - Designers develop and test prototypes. - Famous designers have influenced everyday products and environments. - Design can make products more accessible. - Design can address environmental and social problems. - Products can have positive and negative impacts. - Materials and manufacturing processes influence environmental impact. - Successful products are refined through iteration.			- Design is problem-solving. - There is rarely one perfect design solution. - Good designers balance competing requirements. - The best design is not necessarily the most complicated. - User needs should influence design decisions. - Designers have responsibilities towards people and the environment. - Technological developments can change what is possible. - Design can influence society and people's everyday lives. - Evaluation should lead to improvement rather than simply judging whether something is "good".			- Research designers and products. - Analyse why a product was designed. - Identify the intended user. - Identify the problem being solved. - Analyse materials and manufacturing techniques. - Create a design brief. - Establish measurable design criteria. - Generate multiple ideas. - Annotate technical drawings. - Select appropriate materials and mechanisms. - Build prototypes. - Test products systematically. - Gather user feedback. - Evaluate against criteria. - Refine a design through iteration. - Explain and justify design decisions. - Present a final design professionally.		