


| DT Year 4 Autumn 2 Theme: Hednesford Hills Strand: Mechanisms | | Learning in this topic: TECHNICAL KNOWLEDGE: Develop the creative, technical and practical expertise needed to perform everyday tasks confidently Children will be able to explain how simple mechanisms work, the range of mechanisms we use everyday and where these may be found. Children will develop their understanding of how to use a range of equipment: hacksaw, bench hook and cutting block. Children will identify how a cam turns the follower and the effect different cams have. | | | |
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| NC objectives covered: | <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials evaluate their ideas and products against their own design criteria and consider the views of others to improve their work | DESIGN AND MAKE: 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 Children to research the animals (types, how they move, relative sizes) which can be found on the Hednesford Hills and look at examples of Automata Animals . Children will look at the different types of cams : eccentric, snail, round, hexagon, egg-shaped and hexagonal and the effects they have. To use their research to design their own automata, including: type of cams, animals, materials needed to construct according to their functional needs and aesthetic qualities. The design should be innovative, functional, appealing and aimed at individuals or groups. To select from and use a wide range of tools and equipment to cut, shape and join materials. | | | |
| Prior Knowledge needed: | <ul style="list-style-type: none"> Use a hack saw and bench hook safely. Identify the cam within a simple mechanism and explain how movement is changed. Deconstruct and reconstruct a range of sliders and levers. | EVALUATE: critique, evaluate and test their ideas and products and the work of others (including in the real world) Children will need to evaluate their final product against their design. What did they find difficult when constructing their design? What would they do differently next time? What skills, eg. sawing, did they find challenging ? How accurate was their final product compared to their design? Did their product work ? Would any other mechanisms work better -eg. sliders? | | | |
| Curriculum Concepts and Themes: | Link to nature and the Hednesford Hills Moving Toys Making Modells | Curriculum Skills Progression: | <ul style="list-style-type: none"> Deconstruct and reconstruct a range of sliders and levers. Vary the position of the pivot point to lift a load using a lever. Construct a pneumatic system with two moving parts. Identify the cam within a simple mechanism and explain how movement is changed. Create a range of sliders and levers to produce horizontal and vertical movement. Combine sliders and levers to produce a range of movements. Generate questions to investigate and compare the efficiency of pneumatic systems. Describe the way in which a cam changes rotary motion into linear motion. | Direct links to made other subjects: | Science- Animals and habitats Topic- The Hednesford Hills/Our Local Area |
| Inspirational Start: (hook to capture the imagination) Walk on the Hills to look at the landscape, to try and identify any animals whose habitat is there. | | Mid-way Milestone: Drawing and constructing of the animals that will be included on their automata. | | Extraordinary End: (a recognised end point to work towards) Showcasing the final working products. Each child has 5 cubes which they place a number of their choice against the design which they think works and looks the best. | |

| DT Year 4 Spring 2 Theme: Our European Neighbours Strand: Textiles | | Learning in this topic: TECHNICAL KNOWLEDGE: <ul style="list-style-type: none"> To understand the term cross-stitch. To understand the term running stitch. To understand the term applique. To understand what a seam allowance is. | | | |
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| NC objectives covered: <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. investigate and analyse a range of existing products understand how key events and individuals in design and technology have helped shape the world | DESIGN AND MAKE: <ul style="list-style-type: none"> To make the paper patterns for a bag. Show children the bag that has been unstitched – discuss how the bag has been put together. Children to create a paper template for their bag using A3 paper remembering to allow a 1cm gap for seam allowance. Children to cut out the material for their bag using their paper templates. Consider the straps. Think about the size of the straps. How long/short will they be? Children to create paper templates for their straps and then use these to cut out the correct amount of material. To decorate the bag using cross-stitch and applique. Children learn how to cross-stitch and do running stitch. Make decisions about what will be on the bag. Consider the order that elements are going to be applied to the bag. Children to decorate the front of their bags. To assemble the bag. Remind children that they will need to place their decorated side inwards so that you can see the stitching on the back of the decoration – this is so that when it is turned out you will not see the stitching/messy edges. Remind children of the seam allowance. Children to sew their bag together remembering to leave a gap for the opening at the top using running stitch. | | | | |
| Prior Knowledge needed: <ul style="list-style-type: none"> Talk about and begin to select textiles based on characteristics of an increasing range of materials. Use a simple template. Join fabrics using glue, staples and thread. Talk about the similarities and differences between textiles based on the characteristics of an increasing range of materials. Use a simple pattern with increasing accuracy. Cut and join fabrics using running stitch, buttons and bond web. Decorate fabric by applying beads and sequins. | EVALUATE: <ul style="list-style-type: none"> To consider the appearance and function when designing a bag. Bags – who uses them? What are they used for? When do we use them? What is their function? Where do you take them? What do they look like? What are they made from? Show children different types of bags – who would use them? E.g. handbags, rucksacks, sports bags, shopping bags. Show children images of bags from European fashion designers. (Louis Vuitton, Giorgio Armani, Dolce & Gabbana, Gucci, Prada) children to complete product analysis for bags. Consider what elements of each design they would like to include in own bag. Children to design several bags thinking about target audience, type of bag, colours, design etc. To evaluate a bag. Children complete an evaluation of their product thinking about the appearance and functionality. | | | | |
| Curriculum Concepts and Themes: <p>European Designers of bags including Gucci, Prada, Chanel etc.</p> | Curriculum Skills Progression: <ul style="list-style-type: none"> Give reasons for the selection of fabrics and techniques based on knowledge of characteristics. Make and use a simple paper pattern. Join fabrics in a range of different ways using zips, tie clasp, toggles, press-studs and buttons. Use a wide range of simple finishing techniques. Support reasons for selections with justifiable evidence and facts. Make and use a paper pattern that includes a seam allowance. Sew using a range of stitches including, backward running stitch and over sewing. Use a wide range of techniques to add colour, texture and pattern to fabric. | Direct links to made other subjects: <p>European Neighbours topic – Geography.</p> | | | |
| Inspirational Start: Video of London Fashion Week catwalk. | Mid-way Milestone: Children have decorated their bag using different stitches and applique. | | Extraordinary End: Fashion Show/Catwalk of bags designed and made. | | |

| DT Year 4 Spring 2 Theme: The Rainforest Strand: Electrical and Mechanical components | | Learning in this topic: TECHNICAL KNOWLEDGE: <ul style="list-style-type: none"> To understand the vocabulary associated with circuits (cell, battery, bulb, wires, buzzer etc) To recognise and be able to draw the symbols for a circuit To know how electricity is used within games To understand target audience 3D shape names DESIGN AND MAKE: <ul style="list-style-type: none"> To identify the components of a steady hand game. Show children images of steady hand games – have they ever seen these before? Do they know the aim of the game? Children to look at several images of steady hand games – how are they similar? How are they different? Discuss how a circuit is being used within the games. Look at the components that make up a steady hand game. To design and draw a steady hand game. Children in groups to think about the criteria for a steady hand game. Children to discuss the design of their game – will it have a theme? Remind children about target audience – who is it aimed at? What are people of that age interested in? Talk about the base – explain that the base needs to be a size and shape that will support the game and that they must be able to make these shapes out of card. Explain that a cube or cuboid might be the best options for stability and ease. Talk about the backboard – this will be themed and will make the game look more appealing. Talk about the wire shape – what will it look like – needs to be able to be completed. Children to design their game. To use a net to create a base for the steady hand game. Show children a range of net templates and ask them to identify which net they will need to create their shape for their base. Model how to create one of the nets: Cut the template out and stick it onto cardboard. When cutting out, stress the importance of not cutting off the tabs. Children to decorate base before assembling. Children make and decorate backboard and attach to the base. To make and test a circuit and incorporate it into the steady hand game. Children to create their shape in wire. Provide children with the diagram of how to put the circuit together. Children to build and test their circuit. To complete their games, the children will need to hide the electrical components inside their bases. EVALUATE: <ul style="list-style-type: none"> To test and give feedback to others about their steady hand game. Children to play each others games and complete evaluations for each group. Children go back to their own game and read the feedback – do they agree? Children do a group evaluation. | | | |
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| NC objectives covered: | <ul style="list-style-type: none"> Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] | | | | |
| Prior Knowledge needed: | <ul style="list-style-type: none"> Use remote controlled devices, e.g. a remote-controlled vehicle, Bee bot etc Talk about how common electrical equipment works, e.g., kettle, telephone, and microwave. Talk about how equipment can be used safely. Create a simple circuit using a battery, bulb and wires. Describe how a simple battery powered circuit can be controlled by different kinds of switches. Talk about simple electrical safety. Create simple circuits incorporating a battery, bulb, switch, buzzer and wires. | | | | |
| Curriculum Concepts and Themes: | Electricity and electrical components. Circuits. Electrical safety. Design. <div style="text-align: center;">  </div> | Curriculum Skills Progression: | Identify key features of electrical safety. Discuss in depth the hazards and safety issues associated with electricity. Use a remote-controlled device to switch lights on and off. Explore and describe how electrical circuits can be created and controlled. Link discussions about ideas, plans and designs to the investigation, disassembly and evaluation of a range of products describing in detail their parts and their function. Produce a well-finished product that fulfils the functional and aesthetic design criteria. Investigate and use analysis of existing products to inform own work. | Direct links to made other subjects: | Science – Electricity. Maths- Nets and 3D shape |
| Inspirational Start: (hook to capture the imagination) Play board games that involve electricity e.g. operation, wire loop game. | | Mid-way Milestone: Making the circuit for their wire loop game. | | Extraordinary End: (a recognised end point to work towards) Play each other's wire loop games to test them out. | |