

Design & Technology

Year Group	Autumn term	Spring term	Summer term
<p align="center">Y1/2 YEAR A</p>	<p align="center">Mechanisms</p> <p align="center">Focus: Sliders & Levers</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Early experiences of working with paper and card to make simple flaps and hinges. • Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. 	<p align="center">Structures</p> <p align="center">Focus: Freestanding structures</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Experience of using construction kits to build walls, towers and frameworks. • Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. • Experience of different methods of joining card and paper. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. 	<p align="center">Textiles</p> <p align="center">Focus: Templates and joining techniques</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Explored and used different fabrics. • Cut and joined fabrics with simple techniques. • Thought about the user and purpose of products. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.

	<p><u>Making</u></p> <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. 	<ul style="list-style-type: none"> • Develop, model and communicate their ideas through talking, mock-ups and drawings. <p><u>Making</u></p> <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. 	<p><u>Making</u></p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.
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	<ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the topic 	<p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the topic 	<ul style="list-style-type: none"> • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the topic
<p>Y3/4</p> <p>YEAR A</p>	<p style="text-align: center;">Textiles</p> <p style="text-align: center;">Focus: 2-D shape to 3-D product</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Have joined fabric in simple ways by gluing and stitching. • Have used simple patterns and templates for marking out. • Have evaluated a range of textile products. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate realistic ideas through discussion and design criteria for an 	<p style="text-align: center;">Mechanical systems</p> <p style="text-align: center;">Focus: Levers and linkages</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Explored and used mechanisms such as flaps, sliders and levers. • Gained experience of basic cutting, joining and finishing techniques with paper and card. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. 	<p style="text-align: center;">Mechanical systems</p> <p style="text-align: center;">Focus: Pneumatics</p> <p><u>Prior learning</u></p> <ul style="list-style-type: none"> • Explored simple mechanisms, such as sliders and levers, and simple structures. • Learnt how materials can be joined to allow movement. • Joined and combined materials using simple tools and techniques. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate realistic and appropriate ideas and their own design criteria

	<p>appealing, functional product fit for purpose and specific user/s.</p> <ul style="list-style-type: none"> • Produce annotated sketches, prototypes, final product sketches and pattern pieces. <p><u>Making</u></p> <ul style="list-style-type: none"> • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. 	<ul style="list-style-type: none"> • Use annotated sketches and prototypes to develop, model and communicate ideas. <p><u>Making</u></p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Understand and use lever and linkage mechanisms. 	<p>through discussion, focusing on the needs of the user.</p> <ul style="list-style-type: none"> • Use annotated sketches and prototypes to develop, model and communicate ideas. <p><u>Making</u></p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make.
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	<ul style="list-style-type: none"> • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project 	<ul style="list-style-type: none"> • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the topic 	<p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the topic
Y5 & 6 YEAR A	<p>Mechanical systems</p> <p>Focus: Cams</p> <p><u>Prior learning</u></p>	<p>Textiles</p> <p>Focus: Combining different fabric shapes</p> <p><u>Prior learning</u></p>	<p>Structures</p> <p>Focus Frame structures</p> <p><u>Prior learning</u></p>

	<ul style="list-style-type: none"> • Experience of axles, axle holders and wheels that are fixed or free moving. • Basic understanding of different types of movement. • Experience of cutting and joining techniques with a range of materials including card, plastic and wood. • An understanding of how to strengthen and stiffen structures. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. <p><u>Making</u></p> <ul style="list-style-type: none"> • Produce detailed lists of tools, equipment and materials. Formulate 	<ul style="list-style-type: none"> • Experience of basic stitching, joining textiles and finishing techniques. • Experience of making and using simple pattern pieces. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. <p><u>Making</u></p> <ul style="list-style-type: none"> • Produce detailed lists of equipment and fabrics relevant to their tasks. 	<ul style="list-style-type: none"> • Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. • Basic understanding of what structures are and how they can be made stronger, stiffer and more stable. <p><u>Designing</u></p> <ul style="list-style-type: none"> • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. <p><u>Making</u></p> <ul style="list-style-type: none"> • Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.
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	<p>step-by-step plans and, if appropriate, allocate tasks within a team.</p> <ul style="list-style-type: none"> • 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. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • 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. <p><u>Technical knowledge and understanding</u></p>	<ul style="list-style-type: none"> • 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. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • A 3-D textile product can be made from a combination of accurately 	<ul style="list-style-type: none"> • 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. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • 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. <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the topic
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	<ul style="list-style-type: none">• 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 topic	<p>made pattern pieces, fabric shapes and different fabrics.</p> <ul style="list-style-type: none">• Fabrics can be strengthened, stiffened and reinforced where appropriate	
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