

Year 4 Curriculum subject plan Design and Technology

| YEAR 4 | Mechanical Systems Pneumatics | Textiles 2D shape to 3D product | Electrical Systems Simple Circuits and Switches | Structures Shell Structures |
|----------------------------|--|------------------------------------|--|--------------------------------|
| Component Knowledge | <ul style="list-style-type: none"> • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. • 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. • Test their product against the original design criteria and with the intended user. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. • 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 eg, user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Understand and use pneumatic mechanisms. • Know the words: pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight. • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. | | | |