Wilbury Primary School Year 4 DT

	Term 1	Term 2	Term 3
Unit of work	Mechanical systems – Levers and linkages	Shell Structures	Simple programming and control
Link to Programme of study	**Design** 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 **Make** 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, textiles and ingredients, according to their functional properties and aesthetic qualities **Evaluate** 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 how key events and individuals in design and technology have helped shape the world **Technical knowledge** apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products.		
Composite knowledge	Which part of the card is the linkage/lever? Which are the fixed pivots and which are the loose pivots?	What is a shell structure? How can we join our shell structure? What is triangulation and how does it help?	What is a program? How can we create a simple program? How can we create a program with a control aspect?
Intentional knowledge they need to understand (Component knowledge)	Identify successfully levers and linkages in systems Identify fixed and loose pivots in a mechanical system	Describe what a simple shell structure is and observe shell structures in the local area Observe and construct a variety of different methods to join a shell structure Recognise triangulation in shell structures and understand that it helps to strengthen and reinforce the structure	Explain and describe what a program is and observe programs in the school environment. Oberve and construct a simple program.

Vocabulary	mechanism, lever, linkage, input, process, output,	marking out, scoring, shaping, stiff, strong, design criteria, innovative, prototype	series circuit, fault, connection, wire, insulator, conductor, program, system,
Links to prior knowledge	Explored and used mechanisms such as flaps, sliders and levers. Gained experience of basic cutting, joining and finishing techniques with paper and card.	Experience of using different joining, cutting and finishing techniques with paper and card. • A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.	Constructed a simple series electrical circuit, using bulbs, batteries, switches and buzzers. • Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue
Cross-curricular links	Mathematics – use the vocabulary of position, direction and movement. Use a ruler to measure to the nearest cm, half cm or mm. Art and design – use colour, pattern, line, shape. Computing – digital graphics and text could be incorporated into final products as the background or moving parts	Science – discuss the properties and suitability of materials for particular purposes. • Mathematics – compare and sort common 2-D and 3-D shapes in everyday objects. Recognise 3-D shapes in different orientations and describe them. Mathematics – use a ruler to measure to the nearest cm, half cm or mm. Draw 2-D shapes and make 3-D shapes using modelling materials. • Computing – design and create digital content on screen, creating nets for their products and combining text with graphicsArt and design – use and develop drawing skills. • Writing – write for real purposes and audiences. • Computing – design and create digital content on screen using computer-aided design (CAD) software, creating nets for their products and combining graphics with text.	Science – know how to construct simple series circuits and have a basic understanding of conductors, insulators and open and closed switches. • Computing – design, write and debug programs that accomplish specific goals, including controlling physical systems. • Art and design – using and developing drawing skills.
Oracy & Outdoor Learning Links	Spoken language – ask relevant questions to extend knowledge and understanding. Build their technical vocabulary.		What is a program? How can we create a simple program? How can we create a program with a control aspect?