



Mid-Trent
Multi Academy Trust

St Andrew's Church of England Primary School

Design and Technology Overview



Reception only (Willow)	<i>In Willow Class the children explore and use a variety of media and materials through a combination of child initiated and adult led activities.</i> <i>Our children are given access to a wide variety of DT resources during our continuous provision, both indoors and outdoors. These include construction kits such as Lego, Duplo, Kinex as well as small and large wooden blocks. They also have opportunities to refine cutting and joining skills with equipment such as scissors, hole punches, Selotape, split pins, glue and string. The children are encouraged to use our key vocabulary, share their creations and explain the processes that they have used.</i> <i>DT focussed activities are also planned to link with our topics and may include projects such as a greeting card with a moving part such as a slider or split pins and using kitchen tools to chop, peel and grate fruit or vegetables to make a healthy snack.</i>		
Y1/Y2 (Oak)	Mechanisms - Sliders 1.2 <i>(slide the astronaut into space, or Christmas card reindeer sliders)</i>	Frame Structures (Unit 1.3 CQ) - Design and make a chair (for an explorer / Traction Man?)	Structures <i>Design and make a bridge</i>
Year 3	Paper Circuits <i>Electrical connections between LEDs, switches and batteries may be made with copper tape, a conductive material that acts in the same way as a wire. The children will explore this new knowledge to design pictures that light up.</i>	Linked Levers <i>A linked lever system is a number of levers that are joined together. They are connected by fixed or moving pivots. A linked lever system is designed to change the direction of force and movement. The children will use this knowledge to make a fold-away barrier.</i>	Pneumatics <i>A pneumatic-powered machine uses compressed air or other gases to create motion. Air or gas is squeezed into a small space or container and is therefore at a higher pressure than normal. The pressure is used to create movement. The children will use this principle to create a lifting device.</i>

Year 4 (Beech Cycle B for Year 3 & 4)	Frame Structures <i>A structure is strong if it is rigid. Some shapes are more rigid than others. Triangles are the most rigid shapes for frames and they are used in almost all structures that need strength.</i>	Vegetable Soup <i>Chunky or smooth, colourful or plain, vegetable has many ways it can be prepared and presented. The children will explore ingredients, cooking techniques and food preparation making their own vegetable soup.</i>	Shell Structures <i>Shell structures are usually curved, hollow, light-weight structures. The children will explore the shell structures of different nets. They will use what they have learned to design some seating.</i>
Year 5 (Sycamore)	Electric Motors <i>Electric motors produce rotary movement. The movement can be used to turn something such as a pulley, propeller, a fan or an axle. The children will explore this to make a motor powered vehicle.</i>	Arch Structures <i>True arches were perfected by the Romans. In a true arch, weight is transferred from the top of the arch to ground level, creating a very strong structure. The children will explore this to create an arched structure to protect their cream eggs from a 2kg weight.</i>	Frame Structures <i>One of the benefits of frame structures is that the materials they are made from are usually lightweight. Their strength comes from the way in which they are joined and assembled. The children will explore this to make tetrahedral kites.</i>
Year 6 (Maple)	Pulleys and Gears <i>Gears and pulleys are types of mechanisms. Gears can be used in combination to change the speed and direction of movements.</i>	Bread <i>Bread comes in many guises, textures and flavours. The children will explore bread preparation and learn about baking techniques.</i>	Cams <i>A cam and a follower mechanism turns rotary motion into linear motion. As the cam rotates, the follower rises and falls in a process known as reciprocating motion. The children will use this principle in their design for an automaton.</i>