Design and Technology

Year Group	Autumn	Spring	Summer
KS1 – Year A	BABY BEARS CHAIR (Summer 2023 and then Autumn 2024) *Using the tale of Goldilocks and the Three Bears as inspiration, pupils help Baby Bear by making him a brand new chair.*	MAKE A HOUSE *Children will design and make a house for a given purpose based on their scientific understanding of materials.*	MOVING PICTURES Autumn 2022 and Summer 2025) *Children will make three pages of a moving story book, based on Antarctica topic, drawing the page backgrounds, creating the moving parts and assembling it.*
Key Concepts **Key Knowledge**	*STABILITY AND STRUCTURES* Children will be able to talk about what makes a structure stable and learn different techniques to help do so.	*MECHANISMS* Hinged doors – different ways. Roof Children will develop their cutting and folding schools to make different hinges and flanges…communicating their ideas through sketches and labels	*MECHANISMS* Sliders and Levers and Wheels Children will understand the term mechanism and experiment with different techniques for moving pictures before deciding which to incorporate in to their own picture.
KS1 – Year B	PUPPETS *Children will make their own puppet.*	VEHICLES Children will design and make their own moving fire engine after studying the components of a fire engine.	FRUIT SALAD KEBAB Children will make their own kebabs and packaging
Key Concepts **Key Knowledge**	*TEXTILES* Children will investigate different types of puppets and how to join different materials, before making their own following a sequence and reflecting on their finished product.	*FOOD AND NUTRITION* Children will learn that a fruit has seeds and a vegetable does not and after testing them decide on what to incorporate into their own smoothie. Then how they will package it through evaluating existing products.	*MECHANISMS* Wheels and Axles Children will learn how and why wheels move and create their own fire engine that wheels move.
Lower KS2 – Year A	*ITALIAN INSPIRED DISH* *Children will design and make their own Italian inspired dish.*	PNEUMATIC ANIMALS *Children will design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts.*	*PAVILLIONS* *Children will investigate how to create strong and stable structures before designing and creating their own pavilions, complete with cladding*
Key Concepts **Key Knowledge**	*FOOD AND NUTRITION* Children will look when and where different fruits and vegetables grow nd design their own Italian inspired dish using seasonal ingredients, following food hygiene rules.	*MECHANISMS* Children will investigate pneumatics and communicate their designs through drawings and labels, thumbnail sketches and exploded diagrams. They will then proceed to make a working pneumatic system.	*MATERIALS AND STRUCTURES* Children will build on their work on stability to design and make a pavilion, selecting appropriate materials and construction techniques.

Lower KS2 – Year B	*LIGHTHOUSES* *Children will apply their scientific understanding of electrical circuits to create a lighthouse made from recycled and reclaimed materials and objects.*	CASTLES *Children will learn about the features of a castle, before designing and making one of their own.*	*BOOK SLEEVES* *Children will make their own book sleeve from materials and decorate with sticthes.*
Key Concepts **Key Knowledge**	*MECHANISMS* *ELECTRICAL SYSTEMS AND COMPONENTS* Children will identify electrical products and explain why they are useful. They will look at the features of a lighthouse before designing their own and making a a lighthouse with a working switch. They will them evaluate their work against their own success criteria.	*MATERIALS AND STRUCTURES* Children will look at the most common features present in castles and incorporate these into their own design, recognising that castles are made up of multiple 3D shapes. The children will then utilise skills to build a complex structure from handmade nest before constructing a stable base.	*TEXTILES* Joining and layering materials. Children will firstly work on basic sewing stitches before designing and creating a book sleeve; exploring a variety of fastenings and selecting the most appropriate for their design based on strength and appropriate-use.
Upper KS2 – Year A	*FAIRGROUNDS* *Children will design and make an aesthetically pleasing new ride for the annual Ashby Statutes.*	*CUDDLY TOYS for their buddy* *Children will look at existing toys for children of their buddy's age and research their buddy's interests.* *Children will design and create a stuffed toy building on textiles units previously*	*DIGITAL WORLD*: Navigating our World *Children will program a navigation tool to produce a multifunctional device for trekkers*
Key Concepts **Key Knowledge**	*STRUCTURES & MECHANISMS* Children will look at the rides present at the Ashby Statutes (community link) and research the rides and common features. They will then design and create a model for a new fairground ride using a footprint as the base and combined mechanisms of cams, levers and pulleys, they will design and make a new ride for the Ashby Statutes	*TEXTILES* Children will make a clear design using previous techniques and use blanket stich to join the material for their stuffed toy and decorate according to their buddy's interests. They will then evaluate it.	*USING CAD* The children will combine 3D virtual objects to form a complete product concept in 3D computer-aided design modelling software and understanding when CAD is used in industry. They will identify errors (bugs) in the code and suggest ways to fix (debug) them and complete a product pitch plan that includes key information.
Upper KS2 – Year B	ELECTRIC BUGGIES From Formula 1 to Space Rovers! *Children will create their own electric buggy with a switch and motor. explore series circuits further and introduce*	*SHELTERS* From historical air-raid shelters to Eco-houses *The children will create their own shelter testing its durability including the use of woodworking tools and techniques.*	COME DINE WITH ME! *Children will research and prepare a three-course meal and taste-test and score their food.* .
Key Concepts **Key Knowledge**	*ELECTRICAL SYSTEMS* The children will explore how the design cycle can be approached at a different starting point, by investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed, ready to develop their own incorporating series circuit and motor and then explain the steps to assemble it. .	*STABILITY AND STRUCTURES* After previously looking at bridges (KS1) and pavilions (Yr3/4) children will bring this knowledge to their learning about various types of shelters. They will explore how the strength of structures can be affected by the shapes used and create their own shelter using wood and woodwork tools, identifying some areas for improvement, reinforcing their bridges as necessary	*FOOD & NUTRITION* Children will I build on the learning in KS1 of where food comes from and Yr3/4 where food is grown and research their 3 key ingredients from 'farm to fork' (Fairtrade ethic / Fairtrade breakfast bars).They will find a suitable recipe and record the relevant ingredients and equipment needed. They will then follow it to make their 3 course meal.