

Design & Technology Mapping 2022-2023 - Highlees Primary School

<u>Year 1</u>				
<u>Term</u>	<u>Topic</u>	<u>Main Area of Science</u>	<u>DT units</u>	<u>Knowledge</u>
Autumn 1	Dinosaur Planet (Hlstory)	Animals Including Humans (Seasonal Changes - Ongoing throughout the year)	Food- Fruit and veg	<ul style="list-style-type: none"> • Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).
Autumn 2	Moon Zoom (DT)	Everyday Materials (Seasonal Changes - Ongoing throughout the year)	No DT	
Spring 1	Bright Lights, Big City (Geography)	(Seasonal Changes - Ongoing throughout the year)	Structures- constructing a windmill	<ul style="list-style-type: none"> • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. • To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the

				three main parts of a windmill are the turbine, axle and structure.
Spring 2	Childhood (History) Funny Faces (Art and Design)	(Seasonal Changes - Ongoing throughout the year)	Textiles- Puppets	<ul style="list-style-type: none"> • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.
Summer 1	The Enchanted Woodland (Science)	Plants (Seasonal Changes - Ongoing throughout the year)	No DT	
Summer 2	Paws, Claws and Whiskers (Art and Design)	Animals Including Humans (Seasonal Changes - Ongoing throughout the year)	Mechanisms- making a story book- lesson 1 only	<ul style="list-style-type: none"> • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. • To know that in Design and technology we call a plan a 'design'.

<u>Year 2</u>				
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Autumn 1	Towers, Tunnels and Turrets (DT)	Living Things and their Habitats	Mechanisms- making a moving monster	<ul style="list-style-type: none"> • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To

				<p>know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.</p> <p>• To know some real-life objects that contain mechanisms.</p>
Autumn 2	Muck, Mess and Mixtures (Art and Design)	Everyday Materials	No DT	
Spring 1	Street Detectives (History)	<p>Living Things and their Habitats</p> <p>Everyday Materials</p>	Structures- Baby bears chair	<p>• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.</p> <p>• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.</p>
Spring 2	Wriggle and Crawl (Science)	<p>Living Things and their Habitats</p> <p>Animals Including Humans</p>	No DT	
Summer 1	The Scented Garden (Science)	Plants	No DT	
Summer 2	Coastline (Geography)		Mechanisms- fairground wheel	<p>• To know that different materials have different properties and are therefore suitable for different uses.</p> <p>• To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur.</p>

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Autumn 1	Gods and Mortals (History)	Light	Electrical systems- torches	<ul style="list-style-type: none"> • To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit. • To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.
Autumn 2	Scrumdiddlyumptious (DT)	Animals Including Humans Plants	Cooking and Nutrition - eating seasonally	<ul style="list-style-type: none"> • To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country.. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.
Spring 1	Through The Ages (History)		Structures- constructing a castle	<ul style="list-style-type: none"> • To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a

				paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product.
Spring 2	Mighty Metals (Science)	Forces	Mechanical system- pneumatic toy Lesson 1 only	<ul style="list-style-type: none"> • To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air. • To understand how sketches, drawings and diagrams can be used to communicate design ideas. • To know that exploded-diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches are small drawings to get ideas down on paper quickly.
Summer 1	Rocks, Relics and Rumbles (Geography)	Rocks and Soils	No DT	
Summer 2	Predator (Science)	Animals Including Humans Plants	Textiles- cross stitch and applique Lesson 1 only	<ul style="list-style-type: none"> •To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. •To know that when two edges of fabric have been joined together it is called a seam. •To know that it is important to leave space on the fabric for the seam. •To understand that some products are turned inside out after sewing so the stitching is hidden.

Year 4				
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Autumn 1	I Am Warrior (History)		Mechanical systems- making a slingshot	<ul style="list-style-type: none"> • To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object

				<p>will affect how it moves due to air resistance.</p> <ul style="list-style-type: none"> • To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. • To know that it is important to assess and evaluate design ideas and models against a list of design criteria.
Autumn 2	Potions (Science)	States Of Matter	No DT	
Spring 1	Burps, Bottoms and Bile (Science)	Animals Including Humans	No DT	
Spring 2	Road Trip USA (Geography)	Electricity	Digital world- electronic charm	<ul style="list-style-type: none"> • To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer. • To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. • To know that in Design and technology the term 'smart' means a programmed product. • To know the difference between analogue and digital technologies. • To understand what is meant by 'point of sale display.' • To know that CAD stands for 'Computer-aided design'.
Summer 1	Traders and Raiders (History)		No DT	
Summer 2	Misty Mountain Sierra (Geography)	Living Things and their Habitats	Structures- Pavillains	<ul style="list-style-type: none"> • To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own. • To know that a pavilion is a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience

				means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.
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<u>Year 5</u>				
<u>Term</u>	<u>Topic</u>	<u>Main Area Of Science</u>	<u>DT Units</u>	<u>Knowledge</u>
Autumn 1	Off With Her Head (History)		No DT	
Autumn 2	Stargazers (Science)	Earth and Space	No DT	
Spring 1	Pharaohs (History)		Electrical systems- Doodlers	<ul style="list-style-type: none"> • To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function. • To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.
Spring 2	Beast Creator (Science)	Living Things and their Habitats	No DT	
Summer 1	Sow, Grow and Farm (Geography)	Living Things and their Habitats	Food- what could be healthier?	<ul style="list-style-type: none"> • To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.

Summer 2	Time Traveller (Art and Design)		Mechanical systems- Pop-up book	<ul style="list-style-type: none"> • To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms. • To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.
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Year 6				
<u>Term</u>	<u>Topic</u>	<u>Main Area Of Science</u>	<u>DT Units</u>	<u>Knowledge</u>
Autumn 1	Revolution (History)	Electricity	No DT	
Autumn 2	Frozen Kingdom (Geography)	Living Things and Their Habitats	Structure-playgrounds	<ul style="list-style-type: none"> • To know that structures can be strengthened by manipulating materials and shapes. • To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.
Spring 1	A Child's War (History)		No DT	
Spring 2	Blood Heart (Science)	Animals Including Humans	Digital world-navigating the world	<ul style="list-style-type: none"> • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input. • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.
Summer 1	I.D (Science)	Living Things and Their Habitats	Textiles- waistcoats	<ul style="list-style-type: none"> • To understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or clothing pattern)

		Evolution and Inheritance		helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches.
Summer 2	Hola Mexico (Art)	Light	No DT	