



DT Curriculum Map

INTENT

At Hoyle Court our Design and Technology curriculum has been adapted from the Kapow curriculum. It has been designed to engage, inspire and challenge our children. It is our vision to inspire children to develop a passion for design and to prepare children to deal with tomorrow's rapidly changing world.

We aim to develop the confidence to identify problems, generate ideas, plan and create products and evaluate their outcomes. We encourages pupils to become resourceful, enterprising individuals who have the skills to contribute to and improve the world around them. Our children develop an understanding of health and safety and protective measures whilst creating a product of a high standard.

We provide an established a learning environment where children feel safe to give something new ago and where creative risk taking and problem solving is encouraged. We provide opportunities to analyse a situation and enable the children to consider their own and others' needs and wants. We provide the children with knowledge and confidence to 'think outside the box' and have acquired the skills to become informed future consumers and potential innovators.

"In order to be irreplaceable, one must always be different" Coco Chanel.

IMPLEMENTATION

EYFS

DT is not explicitly taught at EYFS but through the teaching of Physical Development & Expressive Arts and Design, the children are prepared for learning in DT as they get older.

KS1 & KS2

DT is made up of five subject areas – Structures, Mechanisms/ mechanical systems, Cooking and Nutrition, Textiles & Electrical systems (KS2). These areas are covered through half-termly units adapted from the Kapow curriculum. Most DT units of work are taught in a consecutive block of lessons at the start or end of a half term.

Essential knowledge and skills

Vocabulary

Local context /
Enrichment

Early Years	Hedgehogs Physical Development - Develop manipulation and control - Explore different materials and tools Expressive Arts and Design - Explore different materials, using their senses to explore them - Manipulate and play with different materials - Use their imagination as they consider what they can do with different materials - Make simple models which express their ideas.	Craft / Painting Paint, draw, apron, colour, red, blue, green, yellow, purple, orange, black, white, brush, crayon, chalk, pom pom, feather, glue, scissors, cut, stick Describing materials Soft, hard Malleable Press, Dough, roll, squeeze, pat, pull, ball, cut Actions Mix, roll, brush Construction Strong, build	Construction After School Club Careers day showcase STEM KS1 trip to Skipton castle KS2 trip to Salts Mill Visitor to show crafts and handmaid clothes
	Squirrels Physical Development - Use one handed tools and equipment, for example, making snips in paper with scissors Expressive Arts and Design - Explore different materials freely, in order to develop their ideas about how to use them and what to make - Develop their ideas and decide which material to use to express them - Jion different materials and explore textures	Craft / Painting Brown, grey, mix, palette, dark, light, lollystick, tape, model, pencils, join, pastels, glitter, sequin, hole punch, straight, zigzag, spotty, stripy Actions Press, dab, squeeze, spread, stamp, drip Malleable playdough, clay, prod, pinch, roll, tear, flatten, twist, slice, cutter, extruder, pattern, bake, cook, soft, hard, smooth Describing materials Rough, sticky, bumpy, stretchy, bendy, lumpy Cooking Recipe, cooking, baking, ingredients, healthy, measure Construction Stack, balance, connect, stable, wobbly, sturdy	UKS2 partnership with feeder high schools for DT including use of cooking facilities, wood work classroom and computer suite
	Owls Physical Development - Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawings and writing, paintbrushes, scissors, knives, forks and spoons. Expressive Arts and Design - Return and build on their previous learning, refining ideas and developing their ability to represent them. - Create collaboratively sharing ideas, resources and skills.	Craft / Painting Shade, bold, pale, blend, artist, watercolours, join, plan, split pin, treasury tag, staple, attach, connect, symmetrical, spiral Actions Swirling, layering, splattering Malleable Mould, sculpt, sculpture, twist, pound, knead, stamp, press, indent, rough, bumpy, sticky, firm, stretchy, scented Describing materials Powdery, glossy, silky, runny Designing Create, improve, adapt, experiment, explore Construction Connect, link, arrange, measure, adjust, improve, rebuild, demolish, collapse, structure, foundation, design, solution	

Skills- KS1 Design - Design purposeful, functional, appealing products for themselves and other users based on design criteria - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Make - Select from and use a range of tools and equipment to perform practical tasks - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate - Explore and evaluate a range of existing products evaluate their ideas and products against design criteria			
Skills- KS2 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 – Structures			
KS1 - Recognising that different structures are used for different purposes. - Exploring the features of structures. - Describing structures as buildings or freestanding structures.	KS2 (NC) - apply their understanding of how to strengthen, stiffen and reinforce more complex structures - 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.	KS1 - Strong, structure, test, weak, design brief, design criteria, evaluate - flexible, improve, select, stiff - strong, thicker, thinner, weak	

• Making stable structures from card. • Creating supporting structures to aid stability. • Using stable objects like cylinders to create 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 the sails or blades of a windmill are moved by the wind. • To know that a structure is something built for a reason. • To know that stable structures do not topple. • To know that adding weight to the base of a structure can make it more stable. • Recognising that different structures are used for different purposes. • Exploring the features of structures. • Making stable structures from card. • Creating supporting structures to aid stability. • Using stable objects like cylinders to create structures. • Building a strong and stiff structure by folding paper. • Folding to strengthen or stiffen. • Comparing the stability of different shapes. • Identifying the weakest part of a structure. • 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	LKS2 • Beginning to understand how different structures are built. • Strengthening structures by ribbing. • Constructing a range of 3D shapes. • To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. • Strengthening structures by layering materials (lamination). • Strengthening structures by ribbing. • To know how some different structures are built. • To know that structures can be strengthened by manipulating materials and shapes. • To know a shell structure is a hollow shape with a thin outer layer. • To understand what a frame structure is • To know that a ‘free-standing’ structure is one which can stand on its own	UKS2 • To understand how triangles can be used to reinforce bridges. • To understand some different ways to reinforce structures. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on properties. • To understand the material (functional and aesthetic) properties of wood. • To know that structures can be strengthened by manipulating materials and shapes	LKS2 Analyse, effective, reflect, strengthen,2D shapes, 3D shapes castle, design criteria, evaluate façade, feature, flag, net, recyclable scoring, stable, strong, structure tab, weak UKS2 Landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, sketch, strong, structure, accurate arched bridge, beam bridge coping saw, evaluation file, mark out, material properties measure
Technical knowledge – Mechanisms/ mechanical systems			
KS1 • Recognising and exploring everyday objects that have mechanisms. • Recognising everyday objects that use a slider mechanism (e.g. drawers, sliding doors, paper trimmer). • To know that a mechanism is the parts of an object that move together.	KS2 (NC) • understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) LKS2 • To being to understand how mechanisms work. • To recognise pneumatic systems in everyday objects (e.g. car boot, adjustable chair.) • To understand how pneumatic systems work.		• UKS2 • That mechanical systems that use gears in everyday objects (eg bicycle, clock). LKS2 Aesthetic, air resistance, chassis

	• 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. • Recognising and exploring everyday objects that have mechanisms. • Many things that move have parts inside to help them work. • Mechanisms usually limit unwanted movement. • An axle allows the wheel to turn without falling off. • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move, it must be attached to a rotating axle. • To know that an axle moves within an axle holder, which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced. • To know that different materials have different properties and are therefore suitable for different uses. • To know that everyday objects have mechanisms. • To know that many things that move have parts inside to help them work. • To know that mechanisms usually limit unwanted movement. • To know that everyday objects utilise wheels and axles. • To know that wheels must be able to turn to work effectively. • To know that axles allow wheels to turn without falling off.	• 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 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 will affect how it moves due to air resistance.. • To understand that a mechanical system can allow us to move something more easily. • To know that mechanical systems have more than one mechanism that moves to make them work. • To know that mechanical systems are often hidden in products to make them look more appealing.	• That gears and pulleys allow us to transfer movement and force from one part of a mechanical system to another. • That gears allow us to increase the output of a mechanism. 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 the mechanism in an automata uses a system of cams, axles and followers. • To know that different shaped cams produce different outputs. To know which mechanisms are working together to make a mechanical system. • To know that there are different directions of movement. • To know that mechanisms can change one type of movement to another.	design, design criteria, function graphics, kinetic energy, mechanism net, structure, exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch UKS2 Aesthetic, computer-aided design (CAD), caption, design, design brief design criteria, exploded-diagram function, input, linkage, mechanism motion, output, pivot, prototype, slider, structure, template, automata, axle, cam, cam profile component, cross-sectional diagram, evaluate, function, mechanism, storefront visual	
	Technical knowledge – cooking and nutrition				

	KS1 (NC) - Use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from. - 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 fruit grow on trees or vines. - To know that vegetables can grow either above or below ground. - To know that a vegetable is any edible part of a plant. - To know that ‘diet’ means the food and drink that a person or animal usually eats. - To know what makes a balanced diet. - To know that the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. - To know that I should eat a range of different foods from each food group and roughly how much of each food group. - To know that ‘ingredients’ are the items in a mixture or recipe. - To know how to cut, grate, snip and spread to prepare foods. - To know how to review and give a score to evaluate.	KS2 (NC) - understand and apply the principles of a healthy and varied diet - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	KS1 blender, fruit, healthy, ingredients recipe, smoothie, vegetable, flavour design, cut, appearance, balanced carbohydrates, dairy, diet, grate grater, menu, oils, prepare, proteins review, scissors, smell, snip, spread	
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	Technical knowledge – textiles			
	KS1 - Discussing fabric properties. - Threading large needles. - Rehearsing sewing techniques with large needles and thick thread, like wool. - Sewing a running stitch in large-weave embroidery fabric or hessian. - Creating patterns and following them with stitching. - Spacing stitches evenly.	LKS2 - 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. - To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. - To know that different fastening types are useful for different purposes. - To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	UKS2 - Using pins effectively to secure a template to fabric without creases or bulges. - Threading needles independently. - Tying knots at the end of thread to secure it. - Selecting textiles and buttons to improve aesthetics and function. - Attaching objects like buttons using thread	KS1 Decorate, design, fabric, glue, model hand puppet, safety pin, staple, stencil, template, fabric, knot, pouch running-stitch, sew, shape, stencil template LKS2 Aesthetic, assemble, book sleeve, design criteria, evaluation, fabric, fastening, mock- up, net, target audience, target customer, applique cross-stitch, cushion, decorate detail, fabric, patch, seam, stuffing UKS2 Annotate, blanket-stitch, design criteria, detail, evaluation, stuffed toy adapt, annotate, knot, properties, unique, waistcoat, waterproof

	Technical knowledge – Electrical systems				
LKS2 - To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. - To understand common features of an electric product (switch, battery or plug, dials, buttons etc.). - To list examples of common electric products (kettle, remote control, etc.). - To understand that an electric product uses an electrical system to work (function). - To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits. - 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.	UKS2 - 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 motorized product is one which uses a motor to function. - To know that batteries contain acid, which can be dangerous if they leak. - To know the names of the components in a basic series circuit, including a buzzer.	LKS2Advantage, annotate, assemble, aesthetic, block, brand identity, brand bug, CAD, clipart, coding, criteria, debug, design, develop, disadvantage, display, ergonomic, evaluate, exhibition, feedback, form, function join, logo, loop, mindfulness, model, net, product, program, prototype, research, script, sketchpad, test timer, user, variable, develop, digital revolution, digital world display, electronic, fastening, feature feedback, form, function, initiate loops, Micro:bit, monitor, net point of sale, product, product concept, program sense, stimulator, technology, test user UKS23D CAD, application (apps), biodegradable, cardinal compass client, concept, corrode, environmentally friendly, feature finite, function, functional, GPS tracker, investment, lightweight loop, materials (wood, metal, plastic etc.), mouldable, navigation non-recyclable, product lifecycle product lifespan, program, recyclable sustainable, sustainable design unsustainable design, variable, workplace, alert, ambient, consumables, decompose, development, device, duplicate durable, electronic, lightweight, manipulate, microplastics, model monitor, monitoring device moulded, plastic pollution programming comment, programming loop, replica, research, sensor sustainability, synthetic, thermometer thermoscope, value, variable, versatile, water-resistant			

IMPACT

By the time our children leave our school they will:

- have covered all the National Curriculum Primary Design and Technology objectives, learnt and developed a wide range of skills in all areas of Design and Technology have applied the skills learnt in their own work.
- have gained knowledge and understanding to follow a design brief and to evaluate existing products.
- developed their own creativity and imagination and be able to express this through their work.
- be able to use problem solving skills and develop their resilience through designing and making their products
- be able to evaluate their own and others’ work

The impact of our Design and Technology curriculum is monitored through regular monitoring by the subject leader. This may include monitoring of books, finished products, displays, pupil voice, lesson observations, photos and staff questionnaires.