Purpose of study

We want design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, our children will design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They will acquire a broad range of subject knowledge and draw on learning from mathematics, science, engineering, computing and art. Children will learn how to take risks, become resourceful, innovative, enterprising and capable. Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world.

We want to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Our curriculum is taught through a range of contexts, such as: imaginary, story-based, home, school, gardens, playgrounds, local community, industry and wider environment

		Nursery	EYFS	1/2 Cycle A	1/2 Cycle B	3/4 Cycle A	3/4 Cycle B	5/6 Cycle A	5/6 Cycle B
Topics	Mechanisms		• Split pin pictures	• Sliders and Levers- make a moving picture (Spring 2)	• Wheels and Axels- moving vehicle (summer 2)	• Pneumatics- moving mascot (Spring 2)	• Electrical- simple circuits and switches (Spring 1)		• Cams- moving advertisement (Spring 2) • Fairground ride with electrical links/ coding (Summer 2)
	Structures		• Box models		• Freestanding - playground equipment (Aut 2)		• Shell structures (environment link) Summer 1	• Frame structures- catapults (Spring 2)	
	Textiles	Describing and exploring materials Threading.	• Joining different materials	• Templates and joining- (Summer 2)		• 2D shape to 3D product (Spring 2)		• Combining fabric shapes- embroidery (Aut 2)	
	Food		• Food for celebrations	• Food – Smoothies (Aut 2)	• Food- Preparing fruit and vegetables (Spring 2)	• Sandwich snacks (Summer 2)	• Soups (Aut 2)	• Food – Celebrating Caribbean Cuisine (Summer 2)	• WWII – Seasonality and culture4 (Aut 2)
Designing	Understand users and purposes	• say who they are making things for.	• say who they are making things for • Talk about how their products work	• say who their products are for • Talk about how their products will work • describe what their products are for say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas		• describe what their products are for say how their products will work • explain how particular parts of their products work • use design criteria to shape their ideas • explain how the features of their products will appeal to intended users • gather information about the needs and wants of particular individuals and groups • develop their own simple design criteria and use these to shape their ideas		• describe the purpose of their products • indicate the design features of their products that will appeal to the intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop a simple design specification to guide their thinking • explain how particular parts of their products work • use market research to inform ideas	
	Ideas	• Use ideas from imagination or the world to make something. • To create closed shapes with continuous lines, and begin to use these to represent objects.	• Use ideas from imagination or the world to make something	• Use own ideas to make something • Test out some ideas and materials with support	• Use own experiences in their ideas • draw ideas and explain why they have been chosen • model ideas (try materials, parts and construction kits) • make a templates and mock-ups	• design a product, how it looks and works • think through ideas with someone else • draw and label my design • share and clarify ideas through discussion • model ideas using prototypes and pattern pieces • use annotated sketches to develop and communicate ideas • use ICT to design to develop and communicate their ideas		• share and clarify ideas through discussion • model ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use ICT to develop and communicate their ideas • generate innovative ideas, drawing on research • make design decisions, taking account of constraints such as time and resources	
Making	Planning	• Talk about what they are doing. • Develop their own ideas and decide which materials to use to express them.	• Talk about how their idea will work	• Explain how they will make their product	• Choose tools and materials and explain why they have been chosen • Make a simple plan before making	• select tools and equipment suitable for the task • follow a step by step plan, choosing the right materials and tools	• explain their choice of tools and equipment in relation to the skills and techniques they will be using and the task • Choose materials and components according to how they work and look • order the main stages of making	• select tools and equipment suitable for the task • explain their choice of tools and equipment in relation to the skills and techniques they will be using • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities • produce appropriate lists of tools, equipment and materials that they will need • make step-by-step plans as a guide to making	
	Practical skills and techniques	• Joining two materials together.	• Use scissors to cut straight and curved lines. • Cut around marked lines with increased accuracy • Colour finished work • Explore arrange of materials, tools and techniques.	• use scissors safely to cut around a marked line • Make a product which moves • Colour my finished product	• Join and combine materials in different ways • Choose appropriate resources and tools safely • measure, mark out, cut and shape materials • use finishing techniques, including those from art and design **Food**: • how to prepare simple dishes safely and hygienically without heat • how to use techniques such as cutting, peeling and grating	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy **Food**: • prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.		• follow procedures for safety and hygiene • use a wider range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • use techniques that involve a number of steps • demonstrate resourcefulness when tackling practical tasks **Food**: • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • adapt recipes to change the appearance, taste, texture and aroma	
Evaluating	Own ideas and products	• Talk about what they have made.	• Return to and build on their previous learning. • Say if their idea worked	• talk about their design ideas and what they are making • Say if their idea worked • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved		• Show how their final product meets the design criteria • Explain what went well and what they would change in their final design • use design criteria as they design and make • use their design criteria to evaluate their completed products • explain how they improved their original design		• identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • evaluate their ideas and products against their original design specification	

		Nursery	EYFS	1/2 Cycle A	1/2 Cycle B	3/4 Cycle A	3/4 Cycle B	5/6 Cycle A	5/6 Cycle B
	Investigating existing products	• talk about how toys work and what different parts do.	• talk about how toys work and what different parts do.	• who are they for? • what are they for? • how does it work? • how and where are they used • what materials is it made from? • what do you like and dislike about it?		• how well have products been designed and made? • why have those materials been chosen? • what methods of construction have been used? • how well do they work and achieve their purposes and meet user needs and wants? **Investigate and analyse:** • where products were designed and made • when products were designed and made • whether products can be recycled or reused		• how well have products been designed and made? • why have those materials been chosen? • what methods of construction have been used? • how well do they work and achieve their purposes and meet user needs and wants? **Investigate and analyse:** • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose	

		Nursery	EYFS	1/2 Cycle A	1/2 Cycle B	3/4 Cycle A	3/4 Cycle B	5/6 Cycle B
Technical knowledge	Designers	•	•	•	•	• Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	• Use learning from science and maths helps design and make products that work • Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	• Apply learning from science and maths to help design and make products that work • Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
	textiles	• Explore different materials	• explore what materials are like.	• Know simple properties of materials	• Know characteristics of materials and components • that a 3-D textiles product can be assembled from two identical fabric shapes	• that materials have both functional properties and aesthetic qualities • that a single fabric shape can be used to make a 3D textiles product	• Know materials can be combined and mixed to create more useful characteristics	• that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that a 3D textiles product can be made from a combination of fabric shapes
	Structure		• explore building structures from construction materials (blocks)	•	• Know how to make structures stronger, stiffer and more stable	• how to make strong, stiff shell structures	• how to make strong, stiff shell structures	• how to reinforce and strengthen a 3D framework (eg triangulation, Jinx Joints, cross beams)
	Mechanism	• To know how to fold paper to create a spring with support	• To create movement with split pins • To make a moving picture (pop up card) • To use simple tools such as scissors and brushes.	• Know how to make part of a model move (slider, wheels)	• Know how to make a model move using simple mechanisms such as levers, sliders, wheels and axles • about the movement of simple mechanisms such as levers, sliders, wheels and axles	• how mechanical systems such as levers and linkages create movement	• how mechanical systems such as levers and linkages or pneumatic systems create movement • Know how simple electrical circuits and components can be used to create functional products	• how mechanical systems such as cams or pulleys or gears create movement • that mechanical and electrical systems have an input, process and output • how to program a computer to monitor changes in the environment and control their products
	Food	• Melting, mixing	• Spreading, making • Sorting healthy and un-healthy	• that all food comes from plants or animals • that everyone should eat at least five portions of fruit and vegetables every day	• know that food has to be farmed, grown elsewhere (e.g. home) or caught • that food ingredients should be combined according to their sensory characteristics • how to name and sort foods into the five groups in The Eatwell plate	• know that food is **grown** (such as tomatoes, wheat and potatoes), **reared** (such as pigs, chickens and cattle) and **caught** (such as fish) in the UK, Europe and the wider world. • know that seasons may affect the food available • know how food is processed into ingredients that can be eaten or used in cooking • that food ingredients can be fresh, pre-cooked and processed • know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body		• Know that seasons may affect the food available • Know how food is processed into ingredients that can be eaten or used in cooking • Know the environmental impact of food and food miles • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health • that a recipe can be adapted by adding or substituting one or more ingredients

		Nursery	EYFS	Year 1/2	Year 3/4	Year 5/6
Vocabulary	Design process	• make, build	• ideas, make,	• design, make, evaluate, user, ideas, product, function, features, • purpose, design criteria, function, suitable	• prototype, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate • model, annotated sketch, functional, aesthetics, function,	• functionality, authentic, user, market research • annotated sketches, exploded diagrams
	Mechanisms		• push, pull	• slider, lever, pivot, slot, bridge/guide • card, masking tape, paper fastener, join **Wheels and axels:** • vehicle, wheel, axle, axle holder, chassis, body, cab • assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism	**Pneumatics**: • components, attaching, tubing, syringe, plunger, split pin, • pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight • linear, rotary, oscillating, reciprocating (motion) **Electrical circuits** • series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip • control, program, system, input device, output device	Cams: • cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, • axle, shaft, crank, handle, housing, framework • rotation, rotary motion, oscillating motion, reciprocating motion • mechanical system, input movement, process, output movement electrical circuits: • series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart
	structures	• build	• stack	• structure, wall, tower, framework, weak, strong, • base, top, underneath, side, edge, surface, corner, point • thinner, thicker, straight, curved • metal, wood, plastic	• shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity • marking out, scoring, shaping, tabs, adhesives, joining, assemble, • stiff, strong, corrugating, ribbing, laminating	• frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent
	textiles	• soft, rough, smooth	• thread, pins, needles, staplers, fabric, glue • template, pattern pieces, mark out, join, decorate, finish	• thread, pins, needles, staplers, staples, fabric glue, template, pattern pieces, mark out, join, decorate, finish	• fabric, fastening, compartment, zip, button, structure, finishing technique, • strength, weakness, stiffening, templates, • stitch, seam, seam allowance, pattern pieces	• seam, seam allowance, wadding, reinforce, right side, wrong side, hem, • template, pattern pieces • pins, needles, thread, pinking shears, iron transfer paper • mock-up, prototype
	Food	• mix, melt	• spread	• fruit and vegetable names, names of equipment and utensils • sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard • flesh, skin, seed, pip, core, • slicing, peeling, cutting, squeezing, • healthy diet, ingredients, • arranging,	• name of products, names of equipment, utensils, techniques and ingredients • texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, sensory evaluations • hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	• ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs • fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality • utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble