Key Areas of learning for Design and Technology
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 apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 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.
Cooking and nutrition 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 understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

D&T Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Cushions		Eating seasonally	Pneumatic toys	Constructing a Castle (Volcano)	
Year 4	Designing and making a chocolate bar	Structures 3 Little Pigs houses	Making Roman chariots (Kapow)	Making a Torch (Kapow)		
Year 5	Textiles – making an alien		Pop-up book		Food – links to Greece	Structures (bridges) - Trojan Horse
Year 6	Steady Hand game Kapow			Playgrounds – get in touch with Gedling Council to design Phoenix Park		Come dine with me.

The following tables show our knowledge, skills and vocabulary progression across the key areas of Design and Technology as children progress through our school.

Bold text: This refers to sticky knowledge within each section in the progression document as well as key vocabulary (Know).

Design and Technology Curriculum Progression Priory Junior School

Italics = Skills (Know how to…)

D&T progression					
	Year 2	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Design	Know that a plan/design can be created and adapted. Know that some ways of developing, modelling and communicating ideas are more appropriate than others in the design process.	Know that research can inform plans/design criteria which can be altered and improved for a range of purposes.	Know that the outcome from a design will be affected by the designer's choice.	Know that design of a product can be revisited and re-shaped in stages and sections.	Know that purpose and audience subsequently shapes the design of a product.
Make	Know that some tools and materials are more useful than others when creating a product.	Know that the characteristics of tools and materials informs their use in the making process.	Know that the success of the making process is reliant on the accurate selection and use of appropriate tools and materials.	Know that a prototype is an experimental process and that preliminary versions can inform the final product.	Know that a prototype can be refined, is a key part of the making process and can be tested out on a wide range of users so that the final product is fit for purpose.
Evaluate	Know that in order to evaluate ideas and products a set of design criteria is needed.	Know that the purpose of evaluation is for reflection and to help inform any changes required to make a product more effective.	Know that your own evaluation and the views of others can lead to modifications to the criteria and the creation of a new and improved design.	Know that products have evolved over time as a result of constant evaluation and modification in line with the changing world.	Know that evaluation of past and present DT leads to an understanding about its impact on modern day life.
Cooking and Nutrition	Know that food choices have an impact on health. Know that some food sources are more readily available in different countries and different climates.	Know that food can be classified into groups and that each group can contribute towards a balanced diet. Know that food has a limited lifespan without intervention and that there are methods which can prolong and preserve food.	Know that your own food choices have a direct impact on your own health. Know that there are a range of techniques that can be used in preparing and cooking different types of food.	Know that it can be a challenge to apply knowledge of a healthy diet where for a number of factors, food or a range of food is limited. Know that there are different processes that food goes through to get to the final product and that there are complexities which impact on the distribution of this food.	Know that globally health can be adversely impacted when food choices are limited due to environmental and social circumstances beyond an individual's control. Know that not all countries have the necessary infrastructure to support food processes and distribution and that this impacts on the ability to make food choices.
Progression of **Vocabulary**	purpose, design, function, suitable	design criteria, feature, evaluate, thumbnail sketch, target audience, target customer, template	prototype, appealing, design brief, research, evaluation, ideas, annotated sketch, aesthetics	accurate, functionality, authentic, user, annotated sketches, aesthetic, caption, constraints	market research, adapt, modify, assemble, fit for purpose, innovative, design specification

Technical Knowledge progression					
	Year 2	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Structures	Know that materials can be manipulated to improve strength and stiffness. Know that a structure is something which has been formed or made from parts. **Know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.** Know that a 'strong' structure is one which does not break easily. Know that a 'stiff' structure or material is one which does not bend easily.	Know that wide and flat based objects are more stable. **Know the importance of strength and stiffness in structures.**	Know what a frame structure is. **Know that a 'free-standing' structure is one which can stand on its own**	**Know some different ways to reinforce structures.** *Know how triangles can be used to reinforce bridges.* Know that properties are words that describe the form and function of materials. Know why material selection is important based on properties. Know the material (functional and aesthetic) properties of wood.	**Know that structures can be strengthened by manipulating materials and shapes.**
Progression of **Vocabulary**	man-made, mould, natural, stable, stiff, strong, structure, test, weak	2d shapes, 3d shapes, castle, façade, feature, flag, net, recyclable, scoring, tab **revisited:** stable, strong, structure, weak	aesthetic, cladding, frame structure, inspiration, pavilion, reinforce, target audience, texture, theme **revisited:** stable, structure	abutment, arched bridge, beam bridge, coping saw, file, mark out, material properties, measure, predict, reinforce, research, sandpaper, set square, suspension bridge, tenon saw, test, truss bridge, wood **revisited:**	apparatus, bench hook, cladding, coping saw, dowel, feedback, idea, jelutong, landscape, mark out, measure, natural materials, plan view, playground, prototype, reinforce sketch, tenon saw, texture, vice **revisited:** strong, structure, texture, weak

Technical Knowledge progression					
	Year 2	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Mechanisms/ Electrical systems	**Know that mechanisms are a collection of moving parts that work together as a machine to produce movement.**	*Know how pneumatic systems work.* Know that pneumatic systems can be used as part of a mechanism. **Know that pneumatic systems operate by drawing in, releasing and compressing air.**	**Know that air resistance is the level of drag on an object as it is forced through the air.** Know that the shape of a moving object will affect how it moves due to air resistance. <u>Torches</u> Know that electrical conductors are materials which electricity can pass through. Know that electrical insulators are materials which electricity cannot pass through. Know that a battery contains stored electricity that can be used to power products. Know that an electrical circuit must be complete for electricity to flow. Know that a switch can be used to complete and break an electrical circuit.	Know that mechanisms control movement. **Know that mechanisms can be used to change one kind of motion into another.** *Know how to use sliders, pivots and folds to create paper-based mechanisms.*	Know that batteries contain acid, which can be dangerous if they leak. **Know the names of the components in a basic series circuit, including a buzzer.**
Progression of **Vocabulary**	input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion	exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system,	air resistance, chassis, graphics, kinetic energy, mechanism, net, structure <u>Torches</u> Battery, Bulb, Buzzer, Cell, Component, Conductor, Copper, Design criteria, Electrical item, Electricity, Electronic item, Function, Insulator, Series circuit, Switch, Test, Torch, wire	computer-aided design (cad), exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, slider, structure	battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, fine motor skills, gross motor skills, insulator, led

Technical Knowledge progression

Design and Technology Curriculum Progression Priory Junior School

	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	**Know that sewing is a method of joining fabric.** **Know that different stitches can be used when sewing.** Know the importance of tying a knot after sewing the final stitch. Know that a thimble can be used to protect my fingers when sewing.	Know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. **Know that when two edges of fabric have been joined together it is called a seam. Know that it is important to leave space on the fabric for the seam.** Know that some products are turned inside out after sewing so the stitching is hidden.		**Know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.** Know that it is easier to finish simpler designs to a high standard. Know that soft toys are often made by creating appendages separately and then attaching them to the main body. Know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely	
Progression of **Vocabulary**	fabric, knot, pouch, running-stitch, sew, shape, stencil, template, thimble	applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing,		appendage, blanket-stitch, fabric, sew, shape, stuffed toy, stuffing, mock up, prototype.	

Technical Knowledge progression					
	Year 2	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Food	Know that 'diet' means the food and drink that a person or animal usually eats. Know what makes a balanced diet. Know where to find the nutritional information on packaging. **Know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.** **Know that I should eat a range of different foods from each food group, and roughly how much of each food group.** Know that nutrients are substances in food that all living things need to make energy, grow and develop. Know that 'ingredients' means the items in a mixture or recipe. Know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. Know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.	Know that not all fruits and vegetables can be grown in the UK. Know that climate affects food growth. Know that vegetables and fruit grow in certain seasons. **Know that cooking instructions are known as a 'recipe'.** Know that imported food is food which has been brought into the country. Know that exported food is food which has been sent to another country. Know that imported foods travel from far away and this can negatively impact the environment. Know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. Know that vitamins, minerals and fibre are important for energy, growth and maintaining health. **Know safety rules for using, storing and cleaning a knife safely.** Know that similar coloured fruits and vegetables often have similar nutritional benefits.	**Know that the amount of an ingredient in a recipe is known as the 'quantity.'** Know that it is important to use oven gloves when removing hot food from an oven/ microwave. **Know the following cooking techniques: sieving, creaming, rubbing method, cooling.** Know the importance of budgeting while planning ingredients for chocolate bars/ chocolate biscuits	Know where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. Know that I can adapt a recipe to make it healthier by substituting ingredients. Know that I can use a nutritional calculator to see how healthy a food option is. **Know 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.**	Know that 'flavour' is how a food or drink tastes. Know that many countries have 'national dishes' which are recipes associated with that country. Know that 'processed food' means food that has been put through multiple changes in a factory. Know that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. **Know what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).**

Progression of **Vocabulary**	alternative, diet, balanced diet, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute	climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate	budget, cooling rack, creaming, equipment, flavour, ingredients, method, net, packaging, quantity, recipe, rubbing, sieving, unit of measurement, utilities	beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, substitute, supermarket, vegan, vegetarian, welfare	accompaniment, collaboration, cookbook, cross-contamination, equipment, farm, flavour, ingredients, method, nationality, preparation, processed, reared, recipe, storyboard, unit of measurement