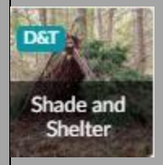
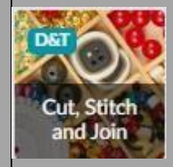
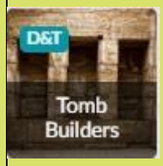
Thorndon CE Primary School– Cornerstones DT Curriculum – Progression in knowledge

Aspect/NC Descriptor	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	  	  	   	  	  	  	  
Everyday Products **DESIGN AND INVESTIGATE** Design purposeful, functional, appealing products for themselves and other users based on design criteria. 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.	To begin to understand everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose.	Everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose. **Shade and Shelter Taxi**	Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. **Cut, Stitch and Join Push and Pull**	Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. **Making it Move Greenhouse**	Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. **Misty Mountain, Winding River (Geog) Functional and Fancy Fabrics Tomb Builders Circuits and Conductors (Sci) Fresh Food, Good Food (DT)**	Culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. **Moving Mechanisms Architecture**	People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. **Make Do and Mend Engineer Food For Life Circuits and Components (Sci)**

Staying Safe **MAKE** select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons. To know that rules are there to keep people safe.	Rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food. **Shade and Shelter Taxi** **Chop, Slice, Mash**	Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills. **Remarkable Recipes Beach Hut** **Animal Survival (Sci) Push and Pull**	Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord. **Cook Well,** **Eatwell** **Greenhouse**	Chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken. **Fresh Food, Good Food**	Safety features are often incorporated into products that might cause harm. Some examples include the child-safety caps on medicine bottles, seatbelts in cars, covers for electrical sockets and finger guards on doors. **Moving Mechanisms**	The safety of the user has to be taken into account when designing a new product. Methods to help keep users safe include providing clear instructions for use; clear indication of the age range for which it is designed; safety features (such as child- resistant packaging); warning symbols and electrical safety checks.
Mechanism and Movement **TECHNICAL KNOWLEDGE** Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	Wheels help things to move.	An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels. **Taxi**	A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, linkages, gears, pulleys and cams. **Push and Pull**	Levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into upand- down motion. **Making it Move**	Mechanisms can be used to add functionality to a model. For example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning toys, pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures. **Tomb Builders**	Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. **Moving Mechanisms**	Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics. Engineer

Generation of Ideas DESIGN AND MAKE Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate.	Design criteria are the explicit goals that a project must achieve. **Shade and Shelter Taxi** **Chop, Slice and Mash**	Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. **Beach Hut** **Cut, Stitch and Join Remarkable Recipes Push and Pull Animal Survival (Sci)**	Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user. **Cook Well, Eat Well Making it Move** **Greenhouse**	Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. **Fresh Food, Good Food Functional and Fancy Fabrics Circuits and Conductors (Sci) Tomb Builders**	A pattern piece is a drawing or shape used to guide how to make something. There are many different computer aided design packages for designing products. **Architecture**	Design criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross- sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Engineer** **Electrical Circuits and Components (Sci)**
Structures **MAKE AND TECHNICAL KNOWLEDGE** build structures, exploring how they can be made stronger, stiffer and more stable. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Different materials can be used for different purposes. Plastic is waterproof. Paper and cardboard are not. Certain materials are stronger than others.	Different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper. Plastic is light and can float. Clay is heavy and will sink. **Childhood (His)** **Shade and Shelter** **Bright Lights, Big City (Geog)** **Seasonal Changes**	Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares. A broader base will also make a structure more stable.	Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the structure shape and support. Diagonal struts can strengthen the structure. **Greenhouse**	A prototype is a mock-up of a design that will look like the finished product but may not be full size or made of the same materials. Shell and frame structures can be strengthened by gluing several layers of card together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners	Various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes. **Moving Mechanisms** **Architecture**	Strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover.

		(Sci) School Days **(His)** **Taxi** **Everyday Materials** **(Sci)**	**Coastline** **(Geog)** **Beach** **Hut** **Push and Pull**		(small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them). **Fresh Food, Good Food**		**Engineer**
Investigation - Investigation **MAKE AND EVALUATE** Explore and evaluate a range of existing products. Investigate and analyse a range of existing products	Tools are used for particular purposes.	Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking. **Taxi** **Chop, Slice and Mash**	Different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials. **Movers and Shakers** **(His) Beach Hut** **Cut, Stitch and Join** **Remarkable Recipes** **Animal Survival (Sci)**	Specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision. **Making it Move** **Greenhouse**	Useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed. **Functional and Fancy Fabrics**	There are many rules for using tools safely and these may vary depending on the tools being used. For example, someone using a chisel should chip or cut with the cutting edge pointing away from their body. All tools should be cleaned and put away after use, and should not be used if they are loose or cracked. **Moving Mechanisms**	Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. **Make Do and Mend Engineer** **Food For Life**
Evaluation **EVALUATE** Evaluate their ideas and products against design criteria. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Share their creations, explaining the process they have used. To be able to talk about what is good and what could be improved.	A strength is a good quality of a piece of work. A weakness is an area that could be improved. **Shade and Shelter Taxi** **Chop, Slice, Mash**	Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. **Remarkable Recipes Beach Hut** **Cut, Stitch and Join Push and Pull**	Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. **Cook Well, Eat Well Greenhouse** **Making It Move**	Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made. **Fresh Food, Good Food** **Functional and Fancy Fabrics Tomb Builders** **Circuits and Conductors (Sci)**	Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. **Moving Mechanisms** **Architecture**	Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it. **Make Do and Mend Engineer** **Electrical Circuits and Components** **(Sci) Food For Life**
Cutting and joining textiles **MAKE** Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. 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.	Begin to understand scissors are used to cut fabrics. Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by passing a needle in and out of fabric at an even distance.	Scissors are used to cut fabrics. Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by passing a needle in and out of fabric at an even distance. **Funny Faces and Fabulous Features**	A running stitch is a basic stitch that is used to join fabric. It is made by passing a needle in and out of fabric at an even distance. **Cut, Stitch and Join**	A loom is a piece of equipment that is used for making fabric by weaving wool or thread. Weaving involves interlacing pieces of thread or yarn. **Beautiful Botanicals**	A hem runs along the edge of a piece of cloth or clothing. It is made by turning under a raw edge and sewing to give a neat and quality finish. **Functional and Fancy Fabrics**	A collage is artwork made by sticking materials, such as scraps of paper or fabric, onto a background. A mixed media collage is made using various materials and media, such as ink and paint. **Mixed Media**	Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing. **Make Do and Mend**

Decorating and embellishing textiles **MAKE** Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. 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.	Fabric can be decorated by gluing sequins and buttons on.	Fabric can be decorated using materials and small objects, such as buttons and sequins. Decorations can be attached to the fabric by gluing, stapling or tying. **Funny Faces and Fabulous Features**	Embellishment is a decorative detail or feature added to something to make it more attractive. **Cut, Stitch and Join**	A loom weaving is a piece of fabric that has been woven on a loom by interlacing threads. An embellishment is a decorative detail or feature, such as a silk flower, tassel or bow, added to something to make it more attractive. **Beautiful Botanicals**	Block printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics. **Functional and Fancy Fabrics**	Applique is a technique where pieces of material are attached to another material by stitching or gluing. **Mixed Media**	Fastenings hold a piece of clothing together. Types of fastenings include zips, press studs, Velcro and buttons. **Make Do and Mend**
Materials for Purpose **MAKE** Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. 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.	To begin to understand that you can use a range of materials depending on the use.	Different materials are suitable for different purposes, depending on their specific properties. For example, glass is transparent, so it is suitable to be used for windows. **Shade and Shelter Taxi**	Properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint. **Movers and Shakers (His) Beach Hut Magnificent Monarchs (His) Cut, Stitch and Join Push and Pull Animal Survival (Sci)**	Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. **Making it Move Greenhouse**	Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season. **Fresh Food, Good Food Warp and Weft Misty Mountain, Winding River (Geog) Functional and Fancy Fabrics Tomb Builders Circuits and Conductors (Sci)**	Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques. **Architecture Moving Mechanisms**	It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability. **Make Do and Mend Engineer Circuits and Components (Sci)**
Compare and Contrast **EVALUATE** Evaluate their ideas and products against design criteria. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.		Two products can be compared by looking at a set of criteria and scoring both products against each one. **Taxi**	Products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose. **Cut, Stitch and Join Push and Pull**	Work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market. **Greenhouse**	A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. **Functional and Fancy Fabrics Circuits and Conductors (Sci)**	A focus group is a small group of people whose reactions and opinions about a product are taken and studied. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria. **Moving Mechanisms**	Products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money **Make Do and Mend Engineer Food For Life**
Food preparation and cooking. **DESIGN AND INVESTIGATION** Use the basic principles of a healthy and varied diet to prepare dishes. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time'	Using non-standard measures is a way of measuring that does not involve reading scales. For example, weight may be measured using a balance scale and lumps of plasticine. Length may be measured in the number of handspans or pencils laid end to end. **Chop, Slice, Mash Human**	Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate;	Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.	Cooking techniques include baking, boiling, frying, grilling and roasting.	Sweet dishes are usually desserts, such as cakes, fruit pies and trifles. Savoury dishes usually have a salty or spicy flavour rather than a sweet one	Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses.

	- having a good sleep routine	**Senses (Sci)**	chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples. **Remarkable Recipes**	**Cook Well, Eat Well**	**Fresh Food, Good Food**	**Eat the Seasons**	**Food For Life**
Origins of food **MAKE** Understand where food comes from. Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	Begin to understand that some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts.	Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts. **Chop, Slice, Mash**	Food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish.	The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate and soil type. For example, many crops, such as potatoes and sugar beet, are grown in the south-east of England. Wheat, barley and vegetables grow well in the east of England. **Cook Well, Eat Well**	Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America. **Fresh Food, Good Food**	Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons: the food tastes better; it is fresher because it hasn't been transported thousands of miles; the nutritional value is higher; the carbon footprint is lower, due to reduced	Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control **Food For Life**
Nutrition **DESIGN AND EVALUATE** Use the basic principles of a healthy and varied diet to prepare dishes. Understand and apply the principles of a healthy and varied diet	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day. **Chop, Slice, Mash**	A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables. **Remarkable Recipes**	There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and vegetables; carbohydrates (potatoes, bread, rice and pasta); proteins (beans, pulses, fish, eggs and meat); dairy and alternatives (milk, cheese and yoghurt) and fats (oils and spreads). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet. **Cook Well, Eat Well**	Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low- fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi- skimmed milk. **Fresh Food, Good Food**	A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions. **Eat the Seasons**	Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet. **Food For Life**
Significant People		The importance of a product may be that it fulfils its goals and performs a useful purpose. **Chop, Slice, Mash Taxi**	Many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles. **Remarkable Recipes Cut, Stitch and Join**	Key inventions in design and technology have changed the way people live. **Cook Well, Eat Well**	Significant designers and inventors can shape the world. **Fresh Food, Good Food Functional and Fancy Fabrics Warp and Weft (Art)**	Many new designs and inventions influenced society. For example, laboursaving devices in the home reduced the amount of housework, which was traditionally done by women. This enabled them to have jobs. **Architecture**	The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology. It may enhance culture in different areas, such as fashion, ceramics or computer games. **Engineer**