HOLLY PRIMARY SCHOOL

Happiness Pride Commitment

Design & Technology

Progression of Knowledge

Key substantive and disciplinary knowledge to be taught in each year group.

Holly Primary School

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Design & Technology Key Concepts Year Group Mapping

Expressive Arts and Design

ELG: Creating with Materials

Children at the expected level of development will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;
- Share their creations, explaining the process they have used;
- Make use of props and materials when role playing characters in narratives and stories.

Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Structures Small scale and large scale construction		Cooking and Nutrition Castle Tea Party food Mechanisms Paper folding/ Split Pin Dragons	Textiles Pirate Ship		Mechanisms Safari Transport Cooking and Nutrition South African food tasting
Year 1 & 2		Structures Bridges and Structures		Structures Exploring/ Testing Materials		Textiles Seaside Kites
Year 3 & 4		Textiles Hat/Container Design		Cooking and Nutrition Greek Cuisine		Structures Boats and Buoyancy
Year 5 & 6	Textiles Cross Stitch/ Cushion			Structures Shell Structure – Anderson Shelters		Electric/ Digital Computer Aided Design – Designing Structures

Cycle B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Structures Small scale and large scale construction		Cooking and Nutrition Dinosaur Stomp Party food Mechanisms Paper folding/ Split Pin Dinosaurs	Textiles Pond protection		Mechanisms Jungle Transport Cooking and Nutrition Brazilian food tasting
Year 1 & 2		Mechanics Design a car with wheels and axels		Electric/ Digital Lighting Design		Cooking and Nutrition Vegetarian Cooking
Year 3 & 4			Mechanics Pneumatics – Moving Animals	Electrical/ Digital Graphic Design - Show and Event Promotion		Textiles Hanging Decorations
Year 5 & 6		Electric/ Digital Mechanics Armoured Vehicle that Moves	Cooking and Nutrition Healthy cuisine of America		Textiles Carnival Costumes	

Mechanisms Textiles Structures Electrical/ digital Cooking and Nutrition

Key Concepts for Design and Technology

Substantive

Mechanics	Textiles	Structures	Electrical/ Digital	Cooking and Nutrition
				
Pupils will gain an understanding of how different mechanisms work, evaluate products with different mechanisms and design and make working products to fit a design brief. They will gain the technical knowledge needed to make different mechanisms work effectively.	Pupils will gain the technical knowledge needed to work with textiles such as stitching, sewing and threading. They will study textile designs and how to make products which are practical as well as stylish and then apply this learning to their own designs and products.	Pupils will learn the technical knowledge used by designers to make structures which are strong and stable. They will learn and apply strengthening techniques, explore the benefits of different shapes and materials and apply this to their own designs and products.	Pupils will learn how electronics and digital technologies are used when designing and creating products. They will gain the technical knowledge needed to programme devises and to make use of electric circuits including switches to power and control a product.	Pupils will learn where food comes from and how nutritional information can be used to plan a balanced and healthy diet. They will also learn techniques needed to prepare and cook food safely and design dishes and meals for specific purposes.

Substantive - Mechanics			
EYFS **Paper folding/ Split pin dragon/ dinosaur.** **Safari/ Jungle transport**	**Year 1 and 2** **Design a car with wheels and axels**	**Year 3 and 4** **Pneumatics – Moving animals**	**Year 5 and 6** **Armoured vehicle that moves**
<u>Nursery</u> Know that scissors are used to cut through a material. Know that a hole punch creates a hole in a piece of paper. Know that materials can be joined in a variety of ways. Know that paper can be folded to make moving parts. <u>Reception</u> Know that a split pin connects two or more pieces of material through a hole. Know that a split pin will create a moveable part. Know that scissors change the shape of a material. Know that wheels are round and can move.	<u>(Wheels and axles)</u> To know that the axle holder is the component through which an axle fits and rotates. Know that wheels are round, rotate and move because they are attached to an axle. Know that wheels and axles are used in everyday life not just in cars (bicycle, car tyres, Ferris wheel, analogue clock). Know that there are a range of wheeled products made for different users and for different purposes (tractor, motorbike, pushchair and golf buggy). Know that wheels and axles can be assembled to make a fixed or free axle. Know that a freely moving axle is when the axle moves with the wheels. Know that the frame of the vehicle (the chassis) needs to be balanced.	<u>(Pneumatics)</u> Know that a pneumatic system operates by drawing in releasing and compressing air. Know that a pneumatic system forces air over a distance to create movement as a type of mechanism. Know that air brakes on buses and trucks, air brakes on trains, air compressors, air engines for pneumatically powered vehicles and dental drills are all examples of pneumatic mechanisms. Know that thumbnail sketches are good for making sense of your ideas quickly with rough sketches Know that an exploded diagram can be used to illustrate how different parts of a product fit together, giving a clear idea of exactly how to make it.	<u>(Pulleys and Gears)</u> Know that there are a range of products that use pulley or gear mechanisms (blinds, elevators, tow trucks, clothes lines and garage doors). Know that mechanical systems have an input, process and an output. Know that gears and pulleys can be used to speed up, slow down or change the direction of movement. To know that the pulley and motor work together.
Key vocabulary: Split pins (small, metal pins that help hold things together), hole punch (a tool that makes a small hole in paper or other materials), hole, scissors (a tool with two sharp blades that are used for cutting paper), cardboard (a thick, stiff material made from recycled paper), join (to connect or put two or more things together), folding (when we bend a material, like paper or fabric, so it makes a	Key vocabulary: Vehicle (something that helps us move from one place to another), wheel (a round object that can roll), axle (a rod or bar that goes through the middle of a wheel), axle holder (a part that holds the axle in place so it can turn smoothly), chassis (the main frame or body of a vehicle or machine), body, mechanism (a group of parts that work together to make something move or do a job), fixed axle (a type of axle that stays in one place and does not move) and free axle (a type of axle that can move in and out of a frame or body).	Key vocabulary: Pneumatic system (a machine that uses air to make things move), input (something we do to start or control how a machine or system works), output (what happens after we do something to a machine or system), component (part of a machine or system that helps it work), mechanism (a set of parts that work together to make something move or do a job), lever (a long bar or handle that helps us lift or move things more easily), linkage system (a group of parts that are connected to move together), innovative (creating new ideas	Key vocabulary: Mechanism, mechanical component, input, process, output, pulley, drive belt, gear, rotation, spindle, driver, follower, axle, motor, ratio, motor, circuit, switch, mechanical system, electrical system, annotated drawings and exploded diagrams.

crease and changes shape), wheel (a round object that can roll), material (a substance or matter that things are made from).		or ways of doing things that are different and better than before), aesthetics (how something looks and feels), thumbnail sketch (a small, quick drawing that helps us show our ideas for a design), exploded diagram (a special drawing that shows how parts of a machine or object fit together), compressed (something is squeezed together to take up less space), inflate (to fill something with air or gas to make it bigger) and deflate (to let air or gas out of something, making it smaller or flatter).	

Substantive - Textiles			
EYFS **Pirate Ship/ Pond protection**	**Year 1 and 2** **Seaside kites/ Puppets**	**Year 3 and 4** **Hat/ container design and Hanging decoration (2D shape to 3D product)**	**Year 5 and 6** **Cross stitch cushion and Carnival costumers**
Nursery Know that materials can be joined together. Know that there are some ways to describe materials e.g. rough, smooth. **Reception** Know that materials can be joined together in different ways e.g. glue, pins, paper clips, treasury tags etc. Know that there are words to describe different materials e.g. soft, rough, hard, smooth, waterproof, light, heavy. Begin to know that fabrics are selected based on their properties.	•Know that a joining technique means connecting two pieces of material together. Know that there are various temporary methods of joining fabric by using staples, glue or pins. Know that fabrics can be joined using different techniques for various purposes. Know that a template creates two identical shapes. Know that textile products can be made from different fabrics (cotton, linen, denim) Know that fabrics are selected based on their properties (soft, hard, flexible, rigid, rough, smooth, shiny or dull). Know a range of finishing techniques (textiles paints, sequins and shiny fabrics or fabric crayons).	Know that 3D products can be made by joining two identical 2D shapes. Know that fabric pieces can be joined by stitching (running stitch and the back stitch). Know that the running stitch is used in hand sewing and tailoring to sew basic seams Know that the back stitch is a utility stitch which strongly and permanently attaches two pieces of fabric. Know that when two pieces of fabric are joined together, it's called a seam. To know that it's important to leave space on the fabric for the seam.	Cushion – Know that a 3D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To understand that some products are turned inside out after sewing so the stitching is hidden. To know that small, neat stitches which are pulled taught are important to ensure that the cushion holds the stuffing securely. To know that applique is a way of decorating a textile. To know that the blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. Carnival – Know that fabrics can be strengthened, stiffened and reinforced where appropriate. To know that creating a prototype of their design is useful for checking ideas and proportions. To know that it's important to design clothing with the clientele in mind. To know that using a clothing pattern helps to mark out a design on fabric accurately. To know that products need to be aesthetical pleasing.
Key vocabulary: Bubble wrap (a special kind of plastic with small air bubbles trapped inside), felt (a soft, thick fabric made from pressing fibres tightly together), card (a thick, stiff paper that is stronger than regular paper), shiny paper, netting material (a fabric that looks like a	Key vocabulary: Textiles (materials made from threads or fibres, usually used to make things like clothes, bags, and other fabric items), fabrics (soft materials made from weaving or knitting threads together), join (o connect two or more things together), sew (to use a needle and	Key vocabulary: Pattern pieces (shapes or templates that show us how to cut fabric or other materials to make something, like clothes or crafts), stitch (a small loop of thread that we make when we sew two pieces of fabric together), seam (the line where two pieces of fabric are sewn	Key vocabulary: Aesthetics (how something looks and feels), authentic (something that is real, original, and true), pinking shears (a type of cutting tool with two long blades that are used to cut through thick materials like fabric or cardboard), stitch (a small loop of thread that

mesh, with lots of tiny holes, almost like a web), wool (a soft material made from the hair of animals like sheep), materials (the different things we use to make objects), soft (something that feels gentle and easy to press or squeeze), rough (something that feels bumpy or uneven when we touch it), hard (something that feels solid and firm when we touch it), smooth (something that feels even and flat when you touch it), light (something that is easy to lift and not heavy), heavy (something that is difficult to lift because it weighs a lot), waterproof (that something does not let water get through it), join (to connect two or more things together), glue (a sticky substance that helps hold things together), pins (small, sharp tools that we use to hold things together), paper clips (small, bent pieces of metal or plastic that we use to hold papers together.)	thread to connect pieces of fabric together), glue (sticky substance that we use to hold things together), applique (a sewing technique where we stitch a piece of fabric onto another fabric to create a design or picture), staple (a small metal piece that is used to hold papers or materials together), pin (a small, sharp tool that we use to hold things together), cut (to use a tool, like scissors or a knife, to divide or shape something into smaller pieces) and join (to connect two or more things together).	together), seam allowance (the extra space we leave around the edge of the fabric when we sew two pieces together), embroider (to decorate fabric by stitching designs or patterns on it with thread), model (a small version or example of something we want to create), prototype (an early version of a product or project that we create to test and see how it works), annotated sketch (a drawing that includes notes or labels to explain what different parts are), needles (small, thin tools with a sharp point at one end and a hole called an eye for holding thread) and threads (a long, thin strand of material that we use for sewing).	we make when we sew two pieces of fabric together), seam (the line where two pieces of fabric are sewn together), seam allowance (the extra space we leave around the edge of the fabric when we sew two pieces together), hem (the finished edge of a piece of fabric), annotated drawings (pictures that show designs with extra notes or labels to explain what each part is).

Substantive - Structures			
EYFS **Small- and large-scale construction models using different materials**	**Year 1 and 2** **Bridges and structures and Exploring/ testing materials**	**Year 3 and 4** **Boats and Buoyancy**	**Year 5 and 6** **Shell structures – Anderson shelters**
Nursery Know that different construction materials can be used in different ways. **Reception** Know that a basic structure could be a bridge, tower or building. Know that construction pieces can be joined together to build and balance.	Bridges and structures – To know that shapes and structures with wide flat bases are most stable. Know that the shape of the structure affects its strength. Know that materials can be manipulated to improve strength and stiffness. Know that a structure is something that has been made or formed from parts. Know that examples of natural structures are our body, mountains and rivers. Know that examples of a man-made structures are cars, furniture and buildings. Know that structures support the load. Exploring and testing materials – To 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 examples of natural structures are our body, mountains and rivers. Know that examples of a man-made structures are cars, furniture and buildings. Know that the type of material with impact on its strength. Know that freestanding structures can be made stronger, stiffer and more stable by joining together, rolling, folding or layering.	Know that structures can be made of different materials (e.g. metal, wood, plastic, stone and brick). Know that structures can present, protect or contain another product. Know that structures are hollow shapes made from nets. Know that a 3D shape is made from a net. To know how the surface area affects buoyancy. Not wood Modelling clay	Know that there are a range of frame structures. Know that 3D frameworks can be strengthened, stiffened and reinforced. To know that a curve adds strengths to a structure. To know that triangular shapes support a join. To know that a cross-sectional diagram shows how a product can be assembled. To know that a saw cuts through wood. To know that a straight cut and a 45-degree cut can both be used to join two pieces of wood together.
Key vocabulary: Structure (something built to support or hold things up), bridge (a structure that helps people and vehicles cross over something), tower (a tall, upright	Key vocabulary: Structure (something built to support or hold things up), framework (a structure made of parts that supports or holds something up), weak (something	Key vocabulary: Shell structure (a type of shape that is strong and light, like a shell of an egg or a dome), three-dimensional (3D) shape (a shape that has length,	Key vocabulary: Frame structure (a type of structure that's made up of strong parts, like bars or beams, connected together to make a shape), stability (how steady or

structure that is often built for a specific purpose, like holding things up, providing a lookout point, or supporting equipment), building (a structure with walls and a roof that provides a space for people to live, work, or do activities), strong (something that can hold a lot of weight or withstand pressure without breaking or falling apart), tall (something that has a great height or stands high above the ground), short (something that does not have much height or is not very tall), long (something that has a great length or distance from one end to the other), length (how long something is from one end to the other), height (how tall something is from the bottom to the top) and width (how wide something is from one side to the other).	that is not very strong and can easily break or be damaged), strong (something that can hold a lot of weight or withstand pressure without breaking or falling apart), stable (something that is steady and does not fall over easily), stiff (something that is hard to bend or move) and freestanding (something that stands on its own without needing support from anything else).	width, and height, making it look like it takes up space), stiffen (to make something harder or less flexible so that it does not bend easily), net (a flat shape that can be folded to make a three-dimensional object, like a box or a pyramid), material (a substance or stuff that things are made from), scoring (the process of making a small line or indentation on a material, like paper or cardboard, to help it bend or fold easily), shaping (the process of changing the form or appearance of a material to make it look a certain way), tabs (small extensions or flaps on a piece of material, like paper or cardboard, that help hold things together), join (to connect or put together two or more parts to make something new) and assemble (to put together different parts or pieces to make a whole object).	balanced something is), strengthen (to make something stronger so it can hold more weight or not break easily), reinforce (to make something even stronger by adding extra support to it), stiffen (to make something harder or less bendy), portable (something that you can easily carry or move from place to place), permanent (something that is meant to last a long time and doesn't change or move easily), triangulation (when we use triangles to make a structure stronger and more stable), shape (the form or outline of an object), join (to put two or more things together to make them one), authentic (real or genuine), mock-up (a simple model or drawing that shows what something will look like when it is finished) and prototype (the first version of a product that you create to test out your ideas).

Substantive - Electrical/ Digital			
EYFS	**Year 1 and 2**	**Year 3 and 4**	**Year 5 and 6** **Computer Aided Design – Designing structures**
			Know that Computer-aided design (CAD) is the use of computer software to help create, change, analyse or optimise designs. Know that CAD can be done in 2D or 3D. Know that CAD allows designers to create a realistic model. Know that CAD is meant to help the designer create better quality, more precise, and neater designs. Know that CAD is used in many places such as architecture and product design. Know that CAD creates a better design. Know that CAD creates a more precise design. Know that CAD creates a neater design. Know that CAD takes longer to produce the design. Know that CAD costs more than doing it by hand.
Key vocabulary:	Key vocabulary:	Key vocabulary:	Key vocabulary: CAD (computer-aided design), shell structure (a hollow structure with a thin outer covering), edge (where two surfaces meet at an angle), face (a surface of a geometric shape), vertex (the corners of a geometric shape where edges meet), net (the flat or opened-out shape of an object such as a box), cuboid (a solid body with rectangular sides), prism (a solid geometric shape with ends that are similar, equal and parallel), three-dimensional (3-D) shape (solid shapes that have three dimensions including length, depth and width).

Substantive - Electrical/ Digital			
EYFS	**Year 1 and 2** **Lighting design**	**Year 3 and 4** **Graphic design – Show and event promotion**	**Year 5 and 6** **Armoured vehicle that moves**
	Know that electric paint is electrically conductive, water-based and non-toxic paint that air-dries at room temperature. Know that electric paint is used to create small printed circuits and capacitive sensors. Know that electric paint can be used on a variety of surfaces. Know that a thicker line drawn with electric paint creates a brighter light.	Know that graphic design is a practical art which helps in communication. Know that visual information is formed in such a way that it produces a message (by placing words and pictures in ways that will get the attention of others). Know that people who do graphic design as work are called graphic designers. Know that in printed media, graphic design includes typography (the art of arranging letters and text in a way that makes the copy legible, clear, and visually appealing to the reader),	**(Circuits and switches)** Know how different types of switch are operated and how they work. Know that a motor and the pulley work together to propel a vehicle forward. Know that a circuit needs to be complete to work. Know that the circuit needs a power source to enable the electrons to flow. Know that when a switch is turned on, it completes a circuit.

	Know that the wider the line, the more current flows through the circuit.	organising illustration, book design, page layout and specifying print. Know that graphic design can be done in different media (paper, video, labels, and web sites). Know that a mood board may include words, sketches, textures, colours, material samples etc and can act as inspiration when designing. To know that bespoke means a product was made for a particular reason or person.	
Key vocabulary:	Key vocabulary: Electric (something that uses electricity, which is a kind of energy that can make things work), conductive (something that can carry electricity), circuit (a path that electricity travels through to make things work), sensor (a special part that can detect things like light, sound, or movement), device (a tool or machine made to do a special job), electronic (something that uses tiny parts and electricity to work) and LED (a small light that uses very little electricity but shines brightly. LED stands for Light Emitting Diode).	Key vocabulary: Media (refers to different ways we share information, ideas, and pictures with others), graphics (pictures, drawings, or symbols that we use to show ideas or information), typography (the style and design of letters and words) and mood board (a collection of pictures, colours, and words that show the feelings or ideas for a project)	Key vocabulary: Control (when we use something to make a machine or device do what we want), input (the information or action we give to a machine or device to make it work), output (what a machine or device does after we give it an input), switch (a small part of a machine or device that lets us turn it on or off), push-to-make switch (a type of switch that only works when you press it down), push-to-break switch (a type of switch that turns something off when you press it), toggle switch (a switch that stays in one position until you move it again), series circuit (a type of circuit where all the parts are connected in a single loop, one after the other), input device (something we use to give information to a machine or computer), output device (something that shows or plays the result of what a machine or computer has done), system (a group of parts that work together to do a job or solve a problem), monitor (a screen that shows information, pictures, or videos from a computer or other device), control (making something work the way we want it to), fault (when something in a machine or system isn't working properly), connection (when two or more parts are joined together so they can work as a whole), battery (a small device that stores energy and gives power to things like toys, flashlights, and remote controls), battery holder (a special part that keeps a battery in place and helps connect it to a circuit), bulb (a part that produces light when electricity flows through it), bulb holder (a part that holds a light bulb in place and helps connect it to a circuit), crocodile clip (a small, spring-loaded clip that looks like a crocodile's mouth) and wire (a long, thin piece of material, usually metal, that carries electricity or signals from one place to another).

Substantive - Cooking and Nutrition			
EYFS **Tea Party** **Food tasting**	**Year 1 and 2** **Vegetarian cooking**	**Year 3 and 4** **Greek cuisine**	**Year 5 and 6** **Healthy cuisine of America**
Nursery Know that fruit and vegetables can be grown. Know that some fruits need to be peeled. Know that fruit and vegetables have different flavours. Know that some tools are used to mix. **Reception** Know that fruit and vegetables need to be washed. Know that some vegetables need to be cooked.	Know that food comes from plants or animals. Know that fruit and vegetables can be farmed or grown at home. Know that some foods typically known as vegetables are actually fruits. Know that a fruit has seeds and a vegetable does not. Know that vegetables can grow either above or below ground. Know that vegetables come from different parts of the plant.	Know that foods can be grouped according to the Eatwell plate (fruit and vegetables, bread, rice, potatoes and pasta, meat, fish, eggs and beans, foods and drinks high in fat and/ or sugar and milk and dairy foods). Know the sensory properties of a range of food and ingredients (appearance, odour, flavour, taste and texture). Know that different foods and ingredients are grown, reared or caught. Know that seasonality impacts food products as the products will be fresher, sweeter and perfectly ripe.	Know that food ingredients have a range of qualities which can be used to alter a basic recipe (appearance, including size, shape, colour, and consistency, texture, flavour, and nutritional content). Know that different foods have different substances needed for health (vitamins, minerals, protein, fats, water, diary and carbohydrates). Know that key chefs like Jamie Oliver have influenced eating habits to promote varied and healthy diets.

Know that fruit and vegetables can be grown under or above the ground. Know that fruit and vegetables have different textures. Know that some tools are used to spread. Know that some tools are used to cut. Know that heat will melt or cook an ingredient.	Know that fruit and vegetables can be described in terms of their taste, smell and texture. Know that a healthy diet is important because it is essential for good health and nutrition. Know that fruit and vegetables are a large section of the Eatwell plate (they make up just over a third of the food we eat. Aim to eat at least 5 portions of a variety of fruit and vegetables each day). Know that the bridge and claw are techniques used in chopping. Know that the ingredients mean the items in a mixture or recipe.	Know that not all fruits and vegetables can be grown in the UK. Know that climate affects food growth. Know that instructions are known as a recipe. To know that imported food is food which has been brought into the country and exported food is food that has been sent to another country. Know that food and ingredients need to be prepared and mixed to create products. Know a range of ways to prepare and combine ingredients. Know that a balanced and varied diet will help us stay healthy. Know that the bridge, claw, cross chop and flat surface down are techniques used in chopping.	Know that utensils and cooking equipment including heat sources are needed to prepare and cook food. Know that food has a nutritional value and a nutritional calculator can be used to see how healthy a food option is. Know that cross-contamination means that 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 taste. Know that countries have national dishes which are recipes associated with that country. Know what happens to a certain food before it appears on the supermarket shelf (farm to fork). Know that ingredients need to be accurately measured. Know that peeling and grating are techniques. Know where meat comes from – learning that beef is from cattle and how beef is reared and processed, including welfare issues. Know that recipes can be adapted to make them healthier by substituting ingredients.
Key vocabulary: Cut (to use a tool, like scissors or a knife, to divide or trim a material into smaller pieces), peel (to remove the outer layer or skin from something, like a fruit or vegetable), chop (to cut food into smaller pieces using a knife or another sharp tool), knife (a tool with a sharp edge used for cutting), cook (to prepare food by heating it in different ways, like boiling, baking, frying, or grilling), healthy (feeling good and being strong because we take care of our bodies), unhealthy (means not good for our bodies and can make us feel tired or sick), taste (how we experience flavours in our food using our tongues), fruit (a type of food that grows on trees or plants and is often sweet or juicy), vegetables (plants that we eat, and they are an important part of our meals), mix (to combine two or more things together so	Key vocabulary: Health (refers to how our bodies and minds feel and function), diet (the kind of food and drink that a person eats and drinks every day), recipe (a set of instructions that tells you how to make a food dish or drink), bridge and claw.	Key vocabulary: Seasonality (refers to the different times of the year when certain fruits and vegetables grow and are ready to eat), grown, reared (to raise or take care of something until it grows up), caught, processed (something has been changed or made in a factory or kitchen to prepare it for us to use or eat), harvested (to collect crops or plants when they are ready to be picked), health (how well our bodies and minds are feeling), varied diet (eating a wide range of different foods), hygiene (keeping ourselves and our environment clean to stay healthy), hygienic (something is clean and safe to use), bridge, claw, cross chop (a way of cutting food, like fruits or vegetables, into small pieces by making cuts in two different directions), flat surface down (placing an object so that its flat side is touching the table	Key vocabulary: Nutrition (about the food we eat and how it helps our bodies stay healthy and strong), peeling, welfare (taking care of people and making sure they are safe, happy, and healthy), grating (a way of cutting food into very small pieces by rubbing it against a rough surface called a grater), hygiene (keeping ourselves and our environment clean to stay healthy), hygienic (something is clean and safe to use), health (how well our bodies and minds are feeling), varied diet (eating different kinds of foods every day), harvested (to collect crops or plants when they are ready to be picked), grown, reared (to raise or take care of something until it grows up), caught, processed (something has been changed or made in a factory or kitchen to prepare it for us to use or eat), recipe (a set of instructions

that they become one) and spread (to evenly cover a surface with something).		or the ground) and recipe (a set of instructions that tells you how to make a dish or a drink).	that tells you how to make a dish or a drink), vitamins (special nutrients that our bodies need to grow and stay healthy), minerals (natural substances that our bodies need to work properly and stay healthy), protein (an important nutrient that helps our bodies grow and stay strong), fat (a type of nutrient that gives our bodies energy and helps keep us warm), diary (refers to foods that are made from milk, like cheese, yogurt, and butter) and carbohydrates (a type of food that gives us energy).

Disciplinary							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Know how to verbalise and explore how things work. Know how to use mark making to show what they are going to make and explain this to an adult. Know how to use contexts	Know how to generate ideas and explain what they want to do. Know what a product is for and how it will work. Know how to use pictures and words to plan and begin to use models.	Know how to explain their design ideas and describe how they may do it. Know how to explain the purpose of a product, how it will work and how it will be suitable for the user. Know how to describe a design using pictures, words,	Know how to research others' needs. Know how to show the design meets a range of requirements. Know how to describe the purpose of product. Know how to follow a given design criteria.	Know how to use research for design ideas. Know how to show that a design meets a range of requirements and is fit for purpose. Know how to create their own design criteria which includes essential criteria. Know at least one idea about how to create a product and suggest improvements for the design.	Know how to use the internet and questionnaires for research and design ideas. Know how to take a user's view into account when designing. Know that consideration must be given to the needs and wants of individuals/groups	Know how to draw on market research to inform design. Know how to use research of user's individual needs, wants, requirements for design. Know how to identify features of design that will appeal to the intended user.

	set by adults and themselves.	Know how to design a product for someone following design criteria. Know how to research similar existing products.	models, diagrams and begin to use ICT. Know how to design products for themselves and others following a design criteria. Know how to choose the best tools and materials and explain their choices. Know how to use knowledge of an existing product.	Know that when creating a product, you must have at least one idea about how to create it. Know how to create a plan which shows order, equipment and tools. Know how to describe a design using an accurately labelled sketch and words. Know how to make design decisions. Know how a product will work. Know how to make a prototype. Know how to use technology to present a simple design visually.	Know how to produce a plan and explain it to others. Know how realistic a plan is. Know how to include an annotated sketch. Know how to make and explain design decisions considering availability of resources. Know how a product will work and explain this in detail. Know how to make a prototype and explain their ideas. Know how to effectively present a design in an appropriate format.	when designing and ensure a product is fit for purpose. Know how to create their own design criteria which included essential and desirable criteria. Know the importance of having a range of ideas. Know how to produce a logical, realistic plan and explain it to others. Know how to use cross-sectional planning and annotated sketches. Know how to make design decisions considering time and resources. Know how to clearly explain how parts of a product will work. Know how to model and refine design ideas by making prototypes and using pattern pieces. Begin to use computer aided designs to present their design visually.	Know how to create their own design criteria which includes essential and desirable criteria as well as a specification. Know how to come up with innovative design ideas. Know how to follow and refine a logical plan. Know how to use annotated sketches, cross-sectional planning and exploded diagrams. Know how to make design decisions, considering, resources and cost. Know how to clearly explain how parts of a design will work, and how they are fit for purpose. Know how to independently model and refine design ideas by making prototypes and using pattern pieces. Know how to use computer aided designs to effectively present a design in an

							appropriate format with confidence.
Make	Know how to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces. Know how to construct with a purpose in mind – starting to think about the design they want to create. Know how to use a range of construction materials (E.g. wooden bricks, stickle bricks, magnetic shapes, duplo) Know how to use everyday materials. Know how to express original ideas. Know how to use simple tools and	Know that I need to explain what I'm making and why. Know that I need to consider what to do next. Know how to select tools/equipment to cut, shape, join, finish and explain choices. Know how to use simple tools, such as scissors, safely and confidently. Know that there are finishing techniques to make a product look good. Know how to work in a safe and hygienic manner.	Know that I need to explain what I am making and why it fits the purpose. Know how to make suggestions as to what I need to do next. Know how to join materials/components together in different ways. Know how to measure, mark out, cut and shape materials and components, with support. Know how to describe which tools I'm using and why. Know that I need to choose suitable materials and explain choices depending on characteristics. Know how to carry out finishing techniques that have been modelled by the teacher. Know how to work safely and hygienically.	Know that I need to select suitable tools/equipment and can explain my choices in relation to my design. Know that I need to select appropriate materials, fit for purpose. Know that I need to work through a plan. Know that I need to consider how good a product will be. Know how to measure, mark out, cut and shape materials/components with some accuracy. Know how to assemble, join and combine materials and components with support. Know how to use finishing techniques to make a product look good.	Know that I need to select suitable tools and equipment, explain choices in relation to required techniques and use accurately. Know that I need to select appropriate materials, fit for purpose and explain my choices. Know that I need to work through a plan in chronological order. Know if a product is going to be good quality. Know how to measure, mark out, cut and shape materials/components with some accuracy. Know how to assemble, join and combine materials and components mainly accuracy. Know how to choose finishing techniques to improve the appearance of their products using a range of equipment.	Know that I need to use selected tools/equipment with a good level of precision. Know that I need to produce suitable lists of tools, equipment/materials needed. Know that I need to select appropriate materials, fit for purpose; explain choices, considering functionality. Know how to create and follow a detailed step-by-step plan. Know that I need to explain how a product will appeal to an audience. Know how to measure, mark out, cut and shape materials/components accurately. Know how to assemble, join and combine materials/components accurately. Know how to carry out finishing	Know that I need to use selected tools and equipment precisely. Know that I need to produce suitable lists of tools, equipment, materials needed, considering constraints. Know that I need to select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics. Know how to create, follow and adapt detailed step-by step plans. Know how to explain how a product will appeal to an audience and make changes to improve quality. Know how to measure, mark out, cut and shape materials/components accurately. Know how to accurately assemble, join and combine materials/components. Know how to accurately apply a

	techniques competently and appropriately (cutting more fluently etc). Know how to select appropriate resources and adapt work where necessary (if glue isn't strong enough, what can you use etc.). Know how to select tools and techniques needed to shape, assemble and join materials they are using (scissors, PVA glue, pritt stick etc.).		Demonstrate and apply this knowledge.			techniques to enhance the appearance and function of their product.	range of finishing techniques to enhance a product.
Evaluate	Know how to use their creations in context. Know how to verbalise how they made their creation. Know how to verbalise what they like and	Know that I will talk about my design idea, linking it to what I was asked to do and say whether it worked or not. Know that I will talk about existing products considering: use,	Know what they would do differently next time to meet a given criterion. Know that I will talk about existing products considering: use, materials, how they work, audience, where they might be used. Express a	Know how their final design meets their given criteria. Know how to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose.	Know how adaptations inform/influence their final products, making reference to their criteria. Know how to explain ways that I could improve on an original design. Know how to evaluate existing products for both their purpose and appearance.	Know how to consider the view of others when evaluating my design/criteria. Know how to evaluate ideas and finished product against specification, considering purpose and appearance.	Know how to evaluate quality of design while designing and making against the specification; is it fit for purpose? Know how to evaluate the relative merits of a range of products when considering their design specification and choices.

	don't like about their creation. Know how to verbalise ways they would change their model if they made it again.	materials, how they work, audience and where they might be used. Know that I will talk about existing products, and say what is and isn't good. Know that I will talk about things that other people have made. Know that products can be made better.	personal opinion on this. Know how to evaluate how good existing products are. Know what could be done differently next time through discussion.	Know by whom products were designed. Learn about some inventors/designers/ engineers/chefs/ manufacturers of ground-breaking products.	Know by whom, when and where products were designed. Know how to research whether a product can be recycled or reused. Know how to ask questions about inventors/designers/ engineers/chefs/manufacturers of ground-breaking products.	Know how to test and evaluate the final product. Know how to evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made and if they were fit for purpose. Know how to evaluate how much products cost to make. Know how to research how sustainable materials are. Know how to compare some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products.	Know how to test and evaluate final product; explain what would improve it and the effect different resources may have had. Know how to carry out and present thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made and if they were fit for purpose. Know how to evaluate how much products cost to make and how innovative they are. Know that materials can be sustainable. Discuss and critique this. Know that I need to consider the impact of products beyond their intended purpose. Know how to critique key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products.
	Know how to explore	Know how to make their own	Know how to build structures, exploring	Know how to strengthen a product	Know how to apply their understanding of how to	Know how to strengthen, stiffen	Know how to use electrical systems in

Technical knowledge	building towers, making them stronger when they fall down. Know how to make a simple product with movable parts.	model stronger / stiffer. Know how to make a simple product that moves.	how they can be made stronger, stiffer and more stable. Know how to use wheels and axles in their product. Know how simple mechanisms work (wheels and axles).	by stiffening a given part or reinforce a part of the structure. Know how to create a product with a simple mechanism (e.g. pneumatic) Know how to create a simple product using digital software (Poster my wall).	strengthen, stiffen and reinforce more complex structures. Know how to apply scientific knowledge of Mechanical systems to their product. Know how to create a product which uses graphic design to communicate their ideas with texts and images (Poster my wall).	and reinforce more complex structures. Know how to apply scientific knowledge to their product design by using pulleys and gears. Know how to apply scientific knowledge of electrical systems to their structural or mechanical product (e.g. series circuits, motor and pulley). Know how to select and use CAD to accomplish given goals.	their products e.g. series circuits incorporating switches, bulbs, buzzers & motors. Know how to use knowledge to improve a made product by strengthening, stiffening or reinforcing. Know how to apply their understanding of computing to program and control their products. Know how to use Mechanical systems correctly and accurately to enhance a given product. Know how to use electrical systems correctly and accurately to enhance a given product. Know how to use CAD to create designs to accomplish a given goal.
Cooking and Nutrition	Know some basic hygiene practises. Know why we wash our hands before we cook.	Know how to prepare ingredients safely and hygienically with support. Know how to measure and	Know how to cut ingredients safely and hygienically with support. Know how to measure, assemble and cook ingredients using measures.	Know how to prepare ingredients and dishes safely and hygienically. Know that a healthy diet is made up of a variety and balance of different foods.	Know how to prepare and assemble ingredients hygienically using appropriate utensils and cooking methods. Know how to measure ingredients using scales and follow a recipe.	Know how to prepare and cook a variety of savoury ingredients hygienically and safely using appropriate utensils and cooking methods. Including a heat source.	Know how to use a range of cooking techniques to cook a variety of savoury ingredients hygienically and safely using appropriate utensils and cooking methods.

	Know when to ask for adult support and use some simple utensils independently. Know that there is a difference between healthy and unhealthy foods. Know the importance of healthy food choices.	assemble ingredients. Know how to cut food safely.	Know where ingredients come from (eg plants, animals, farmed, caught and grown).	Know how to use the bridge claw when cutting. Know and explain that food is grown, reared, and caught in the area studied.	Know how to apply growing knowledge of a healthy and varied diet. Know how to use a range of techniques when cutting (bridge claw, cross chop and flat surface down). Know, explain and give examples of food that is grown, reared, and caught in the area studied.	Know how to measure accurately and calculate ratios of ingredients to scale up from a recipe. Know a range of techniques (peeling and cutting) Know that foods contain different substances (protein, carbohydrates etc) that are needed for health and to apply this when planning dishes. Know that recipes can be adapted.	Including a heat source. Know how to measure accurately to the nearest gram and calculate ratios of ingredients to scale up or down from a recipe. Know and use a range of techniques such as peeling and cutting. Know and explain that foods contain different substances (protein, carbohydrates etc) that are needed for health and to apply this when planning dishes. Know and explain that recipes can be adapted Confidently use a range of techniques such as grating, peeling, cutting and slicing

Year 7		
Autumn Term1 Deliver Research, Design Brief and Specification components of the design process. Monitoring Point 1	**Autumn Term 2** Deliver Design and Development components of the design process. Monitoring Point 2	**Spring Term 1** Deliver Realisation and Evaluation components of the design process. End of unit assessment. Monitoring Point 3

Four Key concepts:
1. Research
2. Design
3. Realisation
4.Evaluation