Bramcote Hills Primary School
'Make the future better for all'

Curriculum Depth Map – D&T

Intent:

At BHPS we provide children with a challenging and engaging D&T curriculum which is designed to prepare children for the developing world. The subject encourages children to become creative problem-solvers, both as individuals and as part of a team. Through the study of design and technology children combine practical skills with an understanding of aesthetic, social and environmental issues, in order to design and make a product. Evaluation is an integral part of the design process and allows children to adapt and improve their product, this is a key skill which they need throughout their life. Design and Technology helps all children to become discriminating and informed consumers and potential innovators.

Implementation:

Our design and technology curriculum is built around essential knowledge, understanding and key skills. These are broken into year group expectations and show clear continuity and progression. Our teaching of design and technology follows the design, make and evaluate cycle. The design process should be relevant in context, to give meaning to learning. While making, children should be given choice and a range of tools to choose freely from. When evaluating, children should be able to evaluate their own products against a design criteria. Each of these steps should be rooted in technical knowledge and vocabulary. We motivate and enthuse pupils by creating deep links with other curriculum areas including maths, science, history, art and SMSC. This ensures that their curiosity and fascination are maintained and that D&T is delivered in an exciting and engaging way.

Our D&T curriculum is designed to allow children time to think, discuss, practise, explore and embed. This allows time for teaching, practice and repetition – both in a year group and across both key stages. Curriculum coverage is mapped out carefully from EYFS to Year 6 which allows some key concepts to be developed at a deeper level of learning, understanding and mastery. Fundamental *knowledge* and **skills** are covered at key points throughout the primary phase and repeated to allow pupils to build on what has been taught before. Where year groups are covering an area in more depth, this will be highlighted in green on the Curriculum Depth Map below. Lessons will be planned and a knowledge organiser provided for pupils, which outlines the area to be taught, where the new knowledge and skills fit in with their prior learning, any sticky knowledge they need to understand and key vocabulary they need to learn.

Impact:

Impact is evidenced through:

- Pupils will have clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum
- Pupils will ultimately know more, remember more and understand more about Design Technology
- Demonstrating *knowledge* when using tools or **skills** in other areas of the curriculum and in enrichment opportunities both in and out of school
- The use and outcomes of the varied activities
- Low-stakes tests/quizzes
- As designers pupils will develop skills and attributes they can use beyond school and into adulthood.

Key Stage One

Year 1	Year 2
Plan Bee - Homes Plan Bee – Moving pictures Plan Bee – Eat More Fruit & Veg	Plan Bee- Christmas decorations Bread (Warburtons) Plan Bee - Making Fire Engines Plan Bee - Animal Puppets
Designing	
Design - purposeful, functional, appealing products for themselves and other users based on design criteria	Design - purposeful, functional, appealing products for themselves and other users based on design criteria
Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
Think of an idea and plan what to do next	Think of an idea and plan what to do next
Explain to someone else how they want to make their product and make a simple plan before making	Use own ideas to design something and describe how their own idea works
Design a product which moves	Design a product which moves
	Explain why they have chosen specific textiles
Making	
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 range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
Use own ideas to make something	Use own ideas to make something
Make a product which moves	Make a product which moves
Choose appropriate resources and tools	Choose tools and materials and explain why they have chosen them
	Join materials and components in different ways
	Measure materials to use in a model or structure
Evaluating	
Explore and evaluate a range of existing products	Explore and evaluate a range of existing products
Evaluate their ideas and products against design criteria	Evaluate their ideas and products against design criteria
Describe how something works	Describe how something works
Explain what went well with their work	Explain what works well and not so well in the model they have made
Technical Knowledge	
Build structures, exploring how they can be made stronger, stiffer and more stable	Build structures, exploring how they can be made stronger, stiffer and more stable
Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
Make their own model stronger	Make a model stronger and more stable
	Use wheels and axles, when appropriate to do so
Food Technology	
Use the basic principles of a healthy and varied diet to prepare dishes	Use the basic principles of a healthy and varied diet to prepare dishes
Understand where food comes from	*Understand where food comes from*
	Weigh ingredients to use in a recipe
Describe the ingredients used when making a dish or cake	Describe the ingredients used when making a dish or cake
Know what a healthy and varied diet is	*Know what a healthy and varied diet is*

Key Stage Two

Year 3	Year 4	Year 5	Year 6
Samosas Aqueducts Sewing felt trousers Pneumatics - skeleton	Money containers Pitched, stringed instrument (guitar) Seasonal vegetables	Sewing Christmas Textile Pizza making Structures , levers and gears, cams	Caribbean cooking Dragon's den chocolate project Textiles – make do and mend bunting with snapshot of different skills Electrical systems
Designing			
Prove that a design meets a set criteria.	**Prove that a design meets a set criteria.**	**Explain how a product will appeal to a specific audience**	**Explain how a product will appeal to a specific audience**
Design a product and make sure that it is fit for purpose	*Design a product and make sure that it is fit for purpose*	*Use market research to inform plans and ideas.*	*Use market research to inform plans and ideas.*
Choose a material for both its suitability and its appearance	**Choose a material for both its suitability and its appearance**	**Choose a material for both its suitability and its appearance**	**Choose a material for both its suitability and its appearance**
After collecting information from different sources, including from peers and professionals when designing, develop an idea	**After collecting information from different sources, including from peers and professionals when designing, develop an idea**	**Develop a range of suitable ideas after collecting information from different sources, including from peers and professionals when designing**	**Develop a range of suitable ideas after collecting information from different sources, including from peers and professionals when designing**
Produce a plan and explain it	**Produce a plan and explain it**	**Produce a detailed, step-by-step plan**	**Justify planning in a convincing way**
Persevere and adapt work when original ideas do not work	**Persevere and adapt work when original ideas do not work**	**Follow and refine original plans**	**Follow and refine original plans**
Communicate ideas in a range of ways, including by sketches and drawings which are annotated	*Communicate ideas in a range of ways, including by sketches and drawings which are annotated*	*Communicate ideas in a range of ways, including by sketches and drawings which are annotated*	*Communicate ideas in a range of ways, including by sketches and drawings which are annotated*
		Design a product that requires pulleys or gears	
Ensure that culture and society is considered in plans and designs	**Ensure that culture and society is considered in plans and designs**	**Ensure that culture and society is considered in plans and designs**	**Ensure that culture and society is considered in plans and designs**
Making			
Follow a step-by-step plan, choosing the most appropriate equipment, materials and techniques for a given task	**Follow a step-by-step plan, choosing the most appropriate equipment, materials and techniques for a given task**	**Competently follow a step-by-step plan, using a range of appropriate equipment, materials and techniques for a given task**	**Competently follow a step-by-step plan, using a range of appropriate equipment, materials and techniques for a given task**
Make a product which uses mechanical components		**Make a product which uses mechanical components**	**Make a product which uses both electrical and mechanical components**
Work accurately: to measure, to make cuts and to make holes	**Work accurately: to measure, to make cuts and to make holes**	**Work accurately: to measure, to make cuts and to make holes**	**Work accurately: to measure, to make cuts and to make holes**
Know what each tool is used for and how it correctly and safely	*Know what each tool is used for and how it correctly and safely*	*Know which tool to use for a specific practical task and explain why a specific tool is best for a specific action*	*Know which tool to use for a specific practical task and explain why a specific tool is best for a specific action*

Know which tools to use for a particular task and show knowledge of handling the tool	*Know which tools to use for a particular task and show knowledge of handling the tool*		
Know which material is likely to give the best outcome	*Know which material is likely to give the best outcome*	*Know which material is likely to give the best outcome*	*Know which material is likely to give the best outcome*
Make a template before making a final version	**Make a template before making a final version**	**Make a prototype before making a final version**	**Make a prototype before making a final version**
		Make a product that relies on pulleys or gears	
Evaluating			
Know why a model has, or has not, been successful	*Know why a model has, or has not, been successful*	**Evaluate product against clear criteria**	**Evaluate product against clear criteria**
Evaluate products for both their purpose and appearance	**Evaluate products for both their purpose and appearance**	**Evaluate appearance and function against original criteria**	**Evaluate appearance and function against original criteria**
Know how to test and evaluate designed products	*Know how to test and evaluate designed products*	**Evaluate and suggest improvements for design**	**Evaluate and suggest improvements for design**
Explain how the original design has been improved	**Explain how the original design has been improved**	**Explain how to improve a finished model**	**Explain how to improve a finished model**
		Present a product in an interesting way	**Present a product in an interesting way**
		Suggest alternative plans; outlining the positive features and draw backs	**Suggest alternative plans; outlining the positive features and draw backs**
Technical Knowledge			
Know how to strengthen a product by stiffening a given part or reinforce a part of the structure	*Know how to strengthen a product by stiffening a given part or reinforce a part of the structure*	*Use knowledge to improve a made product by strengthening, stiffening or reinforcing*	*Use knowledge to improve a made product by strengthening, stiffening or reinforcing*
Use a simple IT program within the design	**Use IT, where appropriate, to add to the quality of the product**	**Uses more complex IT program to help enhance the quality of the product produced**	*Know which IT product would further enhance a specific product*
	Links scientific knowledge by using lights, switches or buzzers		*Links scientific knowledge by using lights, switches or buzzers*
		Links scientific knowledge to design by using pulleys or gears	
			Use electrical systems correctly and accurately to enhance a given product
Food Technology			
Describe how food ingredients come together	**Describe how food ingredients come together**	**Describe how food ingredients come together**	**Describe how food ingredients come together**
Weigh out ingredients and follow a given recipe to create a dish	**Weigh out ingredients and follow a given recipe to create a dish**	**Weigh out ingredients and follow a given recipe to create a dish**	**Weigh out ingredients and follow a given recipe to create a dish**
Understand the principles of a healthy and varied diet	*Understand the principles of a healthy and varied diet*	*Understand the principles of a healthy and varied diet*	*Understand the principles of a healthy and varied diet*

	Know which season various foods are available for harvesting and when food is ready for harvesting		
Know how to be both hygienic and safe when using food	*Know how to be both hygienic and safe when using food*	*Know how to be both hygienic and safe when using food*	*Know how to be both hygienic and safe when using food*
		Bring a creative element to the food product being designed	
Know how to prepare a meal by collecting the ingredients in the first place			*Know how to prepare a meal by collecting the ingredients in the first place*
		Work within a budget to create a meal	**Work within a budget to create a meal**
Explain how food ingredients should be stored and give reasons	**Explain how food ingredients should be stored and give reasons**	**Explain how food ingredients should be stored and give reasons**	**Explain how food ingredients should be stored and give reasons**
Understand the difference between a savoury and sweet dish	*Understand the difference between a savoury and sweet dish*	*Understand the difference between a savoury and sweet dish*	*Understand the difference between a savoury and sweet dish*

Appendix – Key Knowledge and Vocabulary

D&T – KS1

Key Vocabulary

planning	evaluate	design	ideas
investigating	make	user	product
purpose			

Key Knowledge	Key Vocabulary	
Year 1- Designing		
❑ *Designs identify the materials you will need to make a product and what it will look like.* ❑ *'Design criteria' - what anproduct needs to be able to do.* ❑ *Designs can change as you make a product.* ❑ *A plan helps you to think about the steps you will need to take to make your product.*	project discussion materials criteria plan	label identify adapt equipment diagram
Making		
❑ When cutting a shape or covering, draw around a template or measure the object first. ❑ Use a ruler or straight edge to draw a straight line. ❑ Glue goes on the outside edge of something as well as in the middle. ❑ Pritt Stick will only stick paper or thin card. PVA glue is stronger than Pritt Stick. A glue gun will stick heavier or thicker objects together. ❑ Sellotape - strong but can be seen on a product. ❑ Finishing touches - added at the end and make the product look more attractive.	covering template measure edge thin/thinner thick/thicker	heavy/heavier light/lighter attractive finishing touches decoration
Evaluating		
❑ Evaluate means to test your product to see if it works and if it fits your design criteria. ❑ Evaluate means to think what you would do differently next time to make your product even better.	test improve change effective	taste texture sturdy neat
Technical Knowledge		
❑ Structures can be made stronger by adding more layers (stiffer) or adding supports near the base of the object. ❑ Textiles - used for softer finishes e.g. curtains, clothing or bedding. They are soft and flexible. ❑ Slider mechanisms - used to move in a straight line or move up and down. ❑ Lever mechanisms - used to move up and down. The lever is attached on a pivot. ❑ Wheel mechanisms - used to make things move round. A split pin can acts as a pivot.	structure strong/stronger stable layers base soft	flexible textile fabric mechanism pivot
Food Technology		
❑ Food comes from either animals or plants. ❑ Ingredients means what a food is made up of. ❑ A healthy diet has lots of carbohydrate and fruit & veg, some protein, dairy and a smaller amount of fat and sugar. ❑ Aim to eat at least 5 portions of fruit & vegetables a day. ❑ Aim to drink 6-8 glasses of water a day. ❑ Wash your hands before handling food. ❑ Peel - to take off the outside layer of skin. ❑ Chop - to cut something up into smaller pieces. Grip the food with your fingers and cut down through the food. Keep your fingers away from the blade. ❑ Core – to take out the middle that contains the seeds. Cut the fruit into sections first or use a coring tool. ❑ Grate - to rub something against a grating machine to make it into small pieces. Push the food away from you along the grating blade.	ingredients healthy carbohydrate fruit & veg protein dairy fat	sugar aim layer grip core grate blade

D&T – KS1

Key Vocabulary

investigating	make	design criteria	evaluate
planning	user	product	function
design	purpose	ideas	

Key Knowledge	Key Vocabulary
Year 2 – Designing	
❑ 'Design criteria' tells you what the purpose and function of a product is. ❑ Designs should be based on the design criteria. ❑ Designs focus on the function and appearance of a product. ❑ Designs consider how the purpose of the object will be met. ❑ Planning involves drawing and discussion. ❑ Designs change as you practice making skills.	design criteria, purpose, successful, appealing, diagram, develop, label, equipment, functional
Year 2 – Making	
❑ Fabric should be cut by drawing around a paper template first. ❑ Templates should be positioned on fabric or paper near the edge to avoid waste. ❑ Fabric scissors cut fabric. The sharp part of fabric scissors is usually closer to the handle. ❑ Sewing - used to join fabric using a needle and thread. ❑ Running stitch is the simplest stich to join two fabrics. ❑ An axel can be fixed or moving. ❑ Wheels can be fixed or moving. ❑ The chassis is the body of a vehicle. ❑ Sellotape cannot be covered with paint, felt tip or pencil crayon.	join, running stitch, over stitch, thread, needle, eye (needle), knot, felt, fabric, stuffing, accurate, fixed axle, not-fixed axle, washer, wheel, chassis, body, vehicle, roll, wood, rigid, stiff, hygiene, yeast, flour, measuring jug, knead, shape, dough, bake, measure, decorate
Year 2 – Evaluate	
❑ Evaluation means to test your product to see if it is effective and meets the design criteria. ❑ Evaluate means to think what you would do differently next time to make your product even better. ❑ Evaluating includes thinking about how well you have applied the making skills. ❑ The senses should be used to evaluate food.	improve, change, effective, purpose, taste, texture, sturdy, neat, accurate, colourful, inviting, feel, look, taste, smell
Year 2 – Technical Knowledge	
❑ Structures can be made more stable by ensuring the base is longer and wider than the height and that the weight of decorations is easily balanced. ❑ Stitches that are taut (the thread is pulled tight), even (the same size) and closer together make fabric products more stable. ❑ Axles allow wheels to be positioned on a stable object so that it can roll backwards or forwards. ❑ Washers are needed to ensure axels remain stable.	structure, strong, stable, balanced, base, height, taut, even, washers, mechanism
Year 2 – Food Technology	
❑ A healthy diet has lots of carbohydrate and fruit & veg, some protein, dairy and a smaller amount of fat and sugar. ❑ Aim to eat at least 5 portions of fruit & vegetables a day. ❑ Aim to drink 6-8 glasses of water a day. ❑ Wash your hands before handling food. ❑ Food can be farmed, caught or grown. ❑ Wash hands before handling food and ensure the work space is hygienic. ❑ Chop – Cut something into pieces. Grip the food with your fingers and cut down through the food. Keep your fingers away from the blade. ❑ Core – to take out the middle that contains the seeds. Cut the fruit into sections first or use a coring tool. ❑ Grate - to rub something against a grating machine to make it into small pieces. Push the food away from you along the grating blade. ❑ Knead – To work moistened flour into dough with hands by pushing and folding.	hygiene, measuring jug, knead, shape, whisk, dough, roll, sugar, ingredients, healthy, carbohydrate, fruit & veg, protein, dairy, fat, measure, weigh, cut, chop, chopping board, baking tray, skewer

D&T – KS2

Key Vocabulary

model	annotated sketch	label	user
evaluate	functional	drawing	purpose
prototype	innovative	function	design

Key Knowledge	Key Vocabulary	
Year 3		
Food Technology: Samosas ❑ Understand the importance of washing hands before preparing food. ❑ Pastry can be sweet or savoury. ❑ Filo, shortcrust, choux, flaky and puff are basic types of pastry. ❑ Kneading is used to mix ingredients and add strength to the final product. ❑ Water can be used as a 'glue' for pastry. ❑ Savoury foods are salty or spicy rather than sweet. ❑ Herbs are the leaves of a plant. ❑ Spices come from non-leafy parts, including roots, bark, berries, flowers, seeds	spice herb hygiene	savoury pastry knead
Pneumatics ❑ John Boyd Dunlop invented the pneumatic tyre, ❑ Pneumatic means filled with air. ❑ Air pressure can be used to produce and control movement when it is trapped within a closed system. ❑ A few common examples of things we use in our daily life that contain pneumatic fittings are: bicycle/ball pumps, the buttons which operate automatic doors, soft close fittings.	pneumatic pressure closed system	syringe tubing
Aqueducts ❑ Some features of Roman architecture and engineering were arches, columns, pediments, colonnades. ❑ Roman aqueducts used a colonnade of arches for strength ❑ Aqueducts needs to be built out of waterproof materials.	columns pediment colonnade	aqueduct architecture engineering
Sewing ❑ A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. ❑ I can name some desirable features of clothing for example, they need to be flexible and durable. ❑ Use of a template pinned on to fabric allows for more accuracy. ❑ Running stitch is the basic stitch in hand sewing. ❑ The smaller the stitches, the stronger the sewing. ❑ Overstitch creates an edge around the materials, it is useful when sewing two pieces of fabric together that frays. ❑ The backstitch is one of the strongest, most adaptable, and permanent hand stitches. ❑ Sewing right sides of the fabric together and turning it out avoids stitches being seen. ❑ Applique is decorating a garment or larger piece of fabric with other pieces of fabric to form pictures or patterns.	textile flexible durable running stitch overstitch	backstitch garment applique

D&T – KS2

Key Vocabulary

appealing	evaluating	innovative	purpose
design brief	function	prototype	user
design criteria			

Key Knowledge	Key Vocabulary
Year 4	
❑ Designers have to know what the purpose for their design is. ❑ Designers have to know who the end-user for their design is. ❑ Designers have to know where their product will be used. ❑ Designers need to know about suitability of the materials used for their product. ❑ Designers need to know about the manufacturing process for their product.	
Money containers: ❑ Designers research to influence their design ideas. ❑ Seams are sewn inside-out to hide the stitches. ❑ A running stitch is worked by passing the needle in and out of the fabric at a regular distance. The needle is always pushed through both layers of cloth starting on the side it is on and ending on the other side. ❑ A running stitch runs through the fabric. ❑ Running stitches are most often not visible as they are used to close seams. ❑ The backstitch can be used when you need a solid line, like when creating outlines or hand embroidered letters. ❑ Begin by pulling the needle and thread up through the fabric and do one stitch forward. From underneath, space the needle out the length of your desired stitch, pull up through the fabric, and bring the needle and thread back down through the end of the previous stitch. ❑ The blanket stitch can be used along the edge of a fabric hem, as a surface embroidery stitch, a decorative frame or border or to stitch elements in place. ❑ This stitch can be worked along straight or curved lines on the surface of the fabric. It can also be used along fabric edges as an edge finish.	aesthetics annotated sketches back stitch blanket stitch components cutting ergonomics finishing joining materials pattern pieces running stitch shaping template textiles
Cooking (Seasonal vegetables): ❑ It is important to eat a healthy and varied diet. ❑ Some people don't eat certain ingredients due to health, medical, religious or lifestyle reasons. ❑ Some foods can be eaten cooked or raw and some must be cooked. ❑ Some vegetables will only grow in this country at certain times of the year (seasons) and some don't grow here at all. ❑ Food is produced all around the world. ❑ Climate and conditions affect when and where food is produced. ❑ Food is processed on different levels to make it edible and safe. ❑ Different parts of plants are used for food. ❑ Heat can be applied to cook dishes in different ways. ❑ Ingredients can be combined in different ways and seasoned to suit a variety of tastes.	diet healthy hygiene ingredients nutrition raw recipe savoury seasoning smell sweet taste texture utensils varied
Pitched, stringed instrument (guitar): ❑ Sounds made by a stringed instrument are a result of the strings vibrating. ❑ The longer the string, the lower the pitch of the sound. ❑ The thicker the string, the lower the pitch of the sound. ❑ The looser the string, the lower the pitch of the sound. ❑ The harder the string is plucked or bowed, the louder the sound. ❑ Structures can be reinforced to make the materials more suitable for a particular function. ❑ Different joining techniques can be used dependent upon functionality and processes. ❑ Products can contain mechanical and/or electrical systems.	electrical high loud low mechanical pitch pluck quiet reinforce sound stiffen strengthen vibrate vibration

D&T – KS2

Key Vocabulary

design decisions	authentic	research	user
functionality	design specification	evaluate	purpose
design brief	innovative		

Key Knowledge	Key Vocabulary
Year 5	
Sewing - Christmas Textiles Embroidery ❑ There are a variety stitches for embroidery including cross, chain, blanket, etc. ❑ Stitches create different effects for their sewing, texture and overall effect. ❑ Squared paper can be used to generate ideas before transferring ideas and designs onto binca fabric. ❑ The aesthetic qualities of a design improve the overall finished product. ❑ When evaluating a product, identify its strengths and areas for development and improvement, ❑ A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. ❑ Fabrics can be strengthened, stiffened and reinforced where appropriate.	embroidery running stitch cross stitch blanket stitch binca fabric thread motif working drawing right side wrong side,
Food Technology - Pizza Making ❑ There are basic rules of food hygiene and other safe practices – e.g. hazards relating to ovens, knives, washing of hands, handling of different foods, use of different chopping boards, etc. ❑ The weighing of ingredients is important to the overall outcome of the product, as is the temperature and cooking timings. ❑ The processes involved in making bread/dough products are kneading, rising, knocking back. ❑ Yeast is a raising agent and there is a difference between dried/fresh yeast and other raising agent (soda). ❑ A product's sensory characteristics entices the consumer. ❑ Too many overpowering flavours can overload the taste buds.	specifications ingredients costing mixing topping knead quantities modify adapt rising, knocking back dough yeast elasticity bacteria food hygiene food poisoning decay mould savoury
Structures – Gears, Levers, Cogs and Cams (linked to Science Forces) ❑ A pulley helps with the lifting process, making it easier to lift an object essentially changing the direction of the pull or force applied. E.g. you pull down to make a weigh lift. ❑ Gears and pulleys can be used to speed up, slow down or change the direction of movement. ❑ There are three types of pulleys – fixed, movable and compound ❑ A lever increases an input force to give a greater output force. ❑ There are different levers and can identify that a nut- cracker a stapler, nail clippers a door handle are among levers in everyday use. ❑ Sliders and levers have different uses. ❑ Sliders move from side to side and up and down. ❑ Levers can be used with or without a slot ❑ Different mechanisms produce different types of movement. ❑ A cam will change rotary motion into linear motion ❑ Different shaped cams produce different movements – adopting the correct shape for the desired movement. ❑ The relationship between a cam and a follower is a combination of a relative turning motion and a relative oscillating motion: the cam remains fixed and the follower performs both the relative turning motion and oscillating motion. ❑ The choice of the correct material (its weight and properties) is vital to the end product and the movement required. ❑ It is crucial to measure, mark out and plan accurately. ❑ Mechanical and electrical systems have an input, process and an output. When evaluating the product identify its strengths and areas for development and improvement,	cam lever cogs gears cam mechanism, cam follower oscillating Movement linear motion rotary motion off-centre crank handle axle frame structure balanced forces unbalanced forces exploded diagram prototype exert a large force

D&T – KS2

Key Vocabulary

function	design brief	design brief	annotated sketch
innovative	user	design specification	purpose
design specification	purpose	prototype	

Key Knowledge	Key Vocabulary

Year 6

Sticky Knowledge: Sewing – Bunting

- ❑ Sketching and planning a pattern is key in the design process.
- ❑ Accurate measurements are key.
- ❑ A cross stitch pattern must be done on squared paper as a guide.
- ❑ The function of the product must come in to the design process.
- ❑ Fabrics have different properties, making them good for different purposes.
- ❑ Cotton is highly durable.
- ❑ Fabrics such as synthetics, linen, cashmere, silk and wool may change shape when sewing.
- ❑ Synthetics can withstand wear and tear.
- ❑ Some materials are eco-friendly
- ❑ Items need to be pinned before sewing together
- ❑ Pinning is a form of basting and is used to hold 2 or more fabrics together before sewing
- ❑ There are 2 main methods to pin fabric – horizontal to the seam or vertically
- ❑ There are 5 basic stitch types, some are functional and some for decoration
- ❑ The cross-stitch is X-shaped and arrayed like tiles, commonly used for decorative purposes
- ❑ In the whip stitch, the thread spirals around the edge of one or both pieces of fabric. It is commonly used to affix patches.
- ❑ The running stitch, has thread which runs straight along the fabric, going up and down with visible spacing between stitches on each side of the fabric.
- ❑ The ladder stitch goes to the right, up, to the left, up, and repeats.
- ❑ A blind or hidden stitch is useful for creating an invisible seam.
- ❑ The back stitch is similar to the running stitch, except that the thread doubles back so that there is no visible spacing between stitches.
- ❑ There are a range of fasteners that can be used for functionality or decoration e.g. buttons, zips.
- ❑ Sharp scissors are needed to cut fabric.
- ❑ Changes in design while sewing are inevitable.
- ❑ Evaluating the finished item is key in the design process

design process	needles
natural and synthetic	thread
textiles	pins
functional	scrap material
decorative	buttons
sewing fabric	scissors
bunting	needle
stitches	needle threader
running stitch	synthetics
cross stitch	linen
back stitch	wool
basting stitch	cashmere
whip stitch	eco friendly
double thread	aesthetics
seam lines	functionality

Sticky Knowledge: Fairground

- ❑ Rotating products are used in fairgrounds.
- ❑ Sliders and levers have different uses.
- ❑ Sliders move from side to side and up and down.
- ❑ Levers can be used with or without a slot
- ❑ Different mechanisms produce different types of movement.
- ❑ Mechanical and electrical systems have an input, process and an output.
- ❑ Gears and pulleys can be used to speed up, slow down or change the direction of move
- ❑ Electrical motors can create rotating parts.
- ❑ Products which incorporate a pulley and drive belt and are driven by a motor
- ❑ A design has a criteria which it must use
- ❑ Designs need to include accurate measurement.
- ❑ Designs need to use ratio and scaling.
- ❑ Designs can change but these would need to be adapted on original plans.
- ❑ A prototype is an early model - tests a product before it is made.
- ❑ Step by step instructions help when planning a product.
- ❑ Plans may change but would need to be amended on written planning if they were to be used again.
- ❑ Evaluating a plan is key in making future products more successful.
- ❑ Experimenting with mains electricity is dangerous

electrical motors	*criteria*
rotation	*rotation*
pulley	*spindle*
belt	*axle*
strengthening/ reinforcing	*drive belt*
structures	*pulley*
materials	*electric motor*
components	*speed*
stable framework	*framework*
motor	*horizontal*
materials	*vertical*
health and safety	*electric circuit*
electrical component	*switch*
model	*gearing up or down*
mock-up	*computer control*
improvements	*mechanism*
design proposal	

Sticky knowledge: Mesoamerican Cooking

- ❑ Food can be produced locally and from all around the world
- ❑ Where we source our food from another country, it is called importing.
- ❑ Fresh produce can be bought locally.
- ❑ It is important to consider global footprint when buying food.
- ❑ Many countries have their own traditional dish.
- ❑ In the UK traditional dishes often include fish and chips and Sunday Roast.
- ❑ Different cultures have their own traditional dishes.
- ❑ In Mexico food is spicier due to using in Puya.
- ❑ Puya, a tiny, bright-**red chilli** with tough skin, is very similar to the guajillo **pepper**, only spicier and smaller in size.
- ❑ Food can be grown, raised or caught.
- ❑ Fusion cuisine is cuisine that combines elements of **different** or **cultures**.
- ❑ It is important to consider allergies when cooking.
- ❑ Food can change depending on whether it is cooled, heated, mixed, stirred or whisked.
- ❑ Food can change when other ingredients are added to it e.g. egg and caster sugar.
- ❑ Slicing is cutting food using a handle.
- ❑ Mixing with a spoon blends ingredients together.
- ❑ Weighing and measuring is important when cooking to get the right amount of the ingredient.
- ❑ Baking is cooking in an oven; boiling is putting food in hot water; frying is cooking food using heated oil and grilling is putting food under a hot grill.
- ❑ A budget is a document that lists the money you earn and the money you spend over a particular length of time.
- ❑ It is common for a household to have a budget to buy food.
- ❑ Budgets can help make sure you don't spend too much on the ingredients for your meal.
- ❑ In order to stay healthy it is important we eat a range of food from the food groups.
- ❑ Food groups are fruit and vegetables, carbohydrates, proteins, dairy and fats.
- ❑ Children between 10 and 11 years old should have a maximum of 5/6g of salt per day.
- ❑ Food hygiene rules are key to safe cooking
- ❑ Hair should be tied back when cooking.
- ❑ Hands should be washed with soap and water.
- ❑ Sell by and use by dates tell us when food is no longer safe to use.
- ❑ Different chopping boards should be used for raw meat.
- ❑ Knives should be used with adult supervision.
- ❑ Pan handles should not be sticking out
- ❑ During cooking it is normal to follow and refine plans as appropriate.

Mesoamerica
market research
plan
kilograms/grams
litres/millilitres
spice
texture
taste (including 5 senses)
cultural differences
undercooked/overcooked
raw/not raw
global footprint
storage
sweet/savoury
cultural
inspired
boiling
serving
frying
import
slicing
measuring
sell by
use by