Purpose of Study Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.			Aims The national curriculum for design and technology aims to ensure that all pupils: ♣ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world ♣ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users ♣ critique, evaluate and test their ideas and products and the work of others ♣ understand and apply the principles of nutrition and learn how to cook.		
New Key Vocabulary for progression is shown in bold in each year group strand.					
Key Concepts of Design for year group	Mechanisms	Structures	Food	Textiles	Electrical Systems
Y1 design purposeful, functional, appealing products for themselves and other users based on design criteria **(2 points i.e colourful and tasty)** evaluate their ideas and products against design criteria **evaluate, product, design,**	Mechanisms 1 Sliders and Levers Example: A Christmas card with moving characters https://www.youtube.com/watch?v=9-bG8BM3d3Y explore and evaluate a range of existing products **(rank 3+ against different criteria)** select from and use a range of tools and equipment **to cut and stick card – tape, sticky back tape, glue stick, PVA glue, scissors.** select from and use a wide range of materials and components, including **thick/ thin/ sturdy/ flexible/strong paper/card**	Structures 1 Free Standing Structures Example: Bridges select from and use a range of tools and equipment to perform practical tasks build structures, exploring how they can be made **suitable, stronger, stiffer and more stable**	Food 1 Summer Fruit Treats Example: fruit salad made with soft fruits and a focus on taste and colour (pattern) explore and evaluate a range of existing products **(taste test and match vocab)** select from and use a range of tools and equipment to **cut/slice soft fruit** select from and use a wide range of materials and components, including **sweet/sharp/tangy/ripe/ juicy/soft/hard fruits**		
Y2	Mechanisms 2		Food 2	Textiles 1	

design purposeful, functional, appealing products for themselves and other users based on design criteria **(3 points i.e tasty, healthy appealing to the eye)** evaluate their ideas and products against design criteria **evaluate, product, design, design criteria, reflection**	Wheels and Axles Example: cars/ transport with ready cut wheels and body provided. explore and evaluate a range of existing products **(rank 3)** select from and use a range of tools and equipment to **cut, fix, join and secure axels and wheels** select from and use a wide range of materials and components, including **plastic/ wood axels, card/ plastic wheels, metal pins**		A Healthy Snack (Links with nutrition) Example: Sandwich designed to be healthy, tasty and neat (user friendly – not falling out) explore and evaluate a range of existing products **(healthy/ unhealthy)** select from and use a range of tools and equipment to **cut/slice different textures to planned sizes.** select from and use a wide range of materials and components, including **carbohydrate/protein/ vitamins/healthy/savoury /** **balanced diet ingredients**	Templates and Joining Sew and glue Example – a puppet made from ready cut pieces with the focus on joining and using a pattern to dress/personalise the puppet. explore and evaluate a range of existing products **(quality – durability)** select from and use a range of tools and equipment to **join/ secure/pin/ pattern /strengthen fabrics** select from and use a wide range of materials and components, including **felt/ cotton// sequins,/decorations**	
Y3 use research and develop design criteria to inform the design of **functiona**l, appealing products that are **fit for purpose**, aimed at particular individuals or groups	Mechanisms 3 Pneumatics Example: Ancient Greek Monster operated by a pneumatic – use of kits for examples may be useful. The focus here is understanding the system and seeing that it can be put to use so group work is possible. investigate and analyse a range of existing products	Structures 2 Shell structures Example: Gift boxes – Take apart existing packaging to disassemble and rebuild following design of own. investigate and analyse a range of existing packaging products **(Answering questions Who/How) graphics/lettering/ 3D shapes vocabulary / nets**	Food 3 Healthy and Varied Diet Example: Italian themed food i.e mini pizza (filled pitta until oven is fixed) understand and apply the principles of a healthy and **varied** diet **food groups, nutrients etc**		

♣ generate, develop, model and communicate their ideas through discussion, **annotated sketches, cross-sectional and exploded diagrams**, **materials, components, characteristics, textiles, ingredients, functional, aesthetic, design brief**	**(Answering questions Who/How)** select from and use a wider range of tools and **equipment to measure, cut(within 5mm)/ and join accurately/ seal/ air tight** select from and use a wider range of materials and components, including, **tubing, according to their functional properties and aesthetic qualities/ flexible/** understand and use mechanical systems in their products **pneumatic system, compression, input, output**	select from and use a wider range of tools and **equipment to measure, cut(within 5mm) join/ score/ mark make/ adhesive** apply their understanding of how to strengthen, stiffen and reinforce more complex structures **score/tabs/shape/ corner reinforce** select from and use a wider range of materials and components, including construction materials, **recycle/reuse/corrugate/ laminate**	prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques – **bake, proove, knead, preheat, peel, chop, cube, hygienic, edible** understand **seasonality**, and know where and how a variety of ingredients are **grown, reared**,		
Y4 use research and develop design criteria to inform the design of **functional, appealing products that are fit for purpose,** aimed at particular individuals or **groups** ♣ generate, develop, model	Mechanisms 4 Levers and Linkages Example: Themed Poster with input and out put movements supported by knowledge of mechanisms. Focus on using bridges etc to make movement accurate https://www.youtube.com/watch?v=1kC4uX2BoDw investigate and analyse a range of existing products **(answering questions Who/How)**			Textiles 2 2d shape to 3d product Example: Simple bag which is sewn inside out with simple pockets investigate and analyse a range of existing products **(answering questions Who/How)**	Electrical systems 1 Simple circuits and switches Example: Night light for a young child. The focus is to make a product for particular group with a function. The children will need to think about how design appeal interferes with function.

and communicate their ideas through discussion, **annotated sketches**, cross-sectional and exploded diagrams, **prototypes**, **materials, components, characteristics, textiles, ingredients, functional, aesthetic, design brief**	select from and use a wider range of tools and **equipment to measure, cut (within 4mm and join accurately) including paper guillotine, split pins, single hole punch, blue tac** understand and use mechanical systems in their products **lever, linkage, fixed pivot, loose pivot, guide, bridge, linear, rotary, oscillation, reverse motion, input and output movements.**			select from and use a wider range of tools and equipment to join, strengthen, **hem allowance, right side, wrong side,** accurately select from and use a wider range of materials and components, including **textures, pocket, stretch, zips, poppers** etc according to their **functional properties** and **aesthetic qualities**	investigate and analyse a range of existing products **(answering questions Who/How)** select from and use a wider range of materials and tools to create a strong structure. understand and use electrical systems in their products **series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip**
Y5 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**	Mechanisms 5 Levers and Pulleys Example: Moving Toy investigate and analyse a range of existing products **(Asking and answering questions Who/How)** Carry out surveys/ questionnaires select from and use a wider range of tools and **equipment to measure, cut and join accurately (within 3mm) including cutting**	Structures 3 Free-standing Fram Structure Example: Shelter - Bird Hide investigate and analyse a range of existing products **(Asking and answering questions Who/How)** select from and use a wider range of tools, materials and **equipment to measure, cut (within 5mm) join/ score/ strengthen/ fan out/ tabs/ saw/**	Food 4 Celebrating culture and seasonality Example: Couscous dish understand and apply the principles of a healthy and **varied** diet **food groups, nutrients, diet, restriction, vegan, gluten-free, allergy, intolerance** prepare and cook a variety of predominantly savoury dishes using a range of		

generate, develop, model and **communicate** their ideas through **group discussion**, annotated sketches, cross-sectional and exploded diagrams, **prototypes**,	**knife, junior hacksaw, glue gun** **apply** their understanding of how to strengthen, stiffen and **reinforce** more complex structures understand and use mechanical systems in their products axels, wheels **pulleys and levers, gear, drive belt**	apply their understanding of how to strengthen, stiffen and reinforce more complex structures stand**/support/ triangulation/frame structure**	cooking techniques – **bake, boil, simmer, preheat, peel, chop, cube, sweet, sour, moist, spicy, hot,** understand **seasonality**, and know where and how a variety of ingredients are **grown, reared, caught, frozen, canned, transported, preserved, hygiene**		
Y6 use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and **communicate** their ideas through **group discussion,** annotated sketches, cross-sectional and	Mechanisms 6 Cams Example: Message board investigate and analyse a range of existing products **(Answering questions Who/How)** select from and use a wider range of tools and **equipment to measure, cut and join accurately (within 2mm) including cutting knife, junior hacksaw, glue gun** **independently apply** their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in			**Textiles: 3** Combining Different Fabric Shapes Example – A deeper bag/pencil case etc with gussets, functional pockets, fastenings and decoration investigate and analyse a range of existing products **(answering questions Who/How)** select from and use a wider range of tools and equipment to join, strengthen, **shape (gussets),** hem allowance, accurately	Electrical systems 2 More complex circuits and switches Example: An alarmed vehicle with 2 components investigate and analyse a range of existing products **(answering questions Who/How)** select from and use a wider range of materials and tools to create a strong structure and circuit **wire cutters/strippers/** tape/box

exploded diagrams, prototypes, **pattern pieces and computer-aided design**	their products **cam, snail cam, off-centre cam, peg cam, pear shaped cam** **follower, axle, shaft, crank, handle, housing, framework**			select from and use a wider range of materials and components, including textures, stretch, z**ips, poppers, template, pattern pieces, decoration, wadding** etc according to their functional properties and aesthetic qualities	understand and use electrical systems in their products **parallel push switch sensor switch (microcontroller output devices input device) switches**