

Camelford Primary School DT Skills Progression

Design Technology Pathway

Subject Lead: A. Howard

INTENT:

Design and Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Camelford Primary, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to topic themes which engineers a purpose for the project. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

IMPLEMENTATION:

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children design and create products that consider function and purpose and which are relevant to a range of sectors (for example, the home, school, leisure, culture, enterprise, industry and the wider environment).

Expectations are based on 'End of Phase Expectations' and teachers should ensure the use of differentiation due to the skills and knowledge being new for half the class and building on for the other half. Planning below makes clear which topics build are being 'built on', as well as which have 'linked' skills.

This scheme of work supports those who are not as confident in the teaching of DT and ensure a progression of skills that should be explicitly taught. The projects are based on the old QCA project plans.

When designing and making, the children are taught to:

Design:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional diagrams, prototypes, pattern pieces and computer-aided design.

Make:

- select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing, as well as chopping and slicing) accurately.
- select from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

Evaluate:

- investigate and analyse a range of existing products.
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- understand how key events and individuals in design and technology have helped shape the world.

Technical knowledge:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- understand and use mechanical systems in their products.
- understand and use electrical systems in their products.
- apply their understanding of computing to program, monitor and control their products
- Understand some of the ways that food can be processed and the effect of different cooking practices (including baking and grilling).

Key skills and key knowledge for D and T have been mapped across the school to ensure progression between year groups. The context for the children's work in Design and Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons are also taught as a block so that children's learning is focused throughout each unit of work.

At Camelford Primary School, we work on a 2 year rolling programme – Year A starting Sept 2020.

IMPACT:

We ensure the children:

- 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, skills and vocabulary in order to design and make high-quality prototypes and products for a wide range of users and 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. Children will design and make a range of products.

A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child

Children 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.

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	Autumn		Christmas	Spring		Summer	
	Autumn 1 (10 weeks) Rebellion and Invasion: <i>Humanities focus</i>	Autumn 2 Christmas around the World (3weeks) <i>RE focus</i>	Spring 1 (5 weeks) <i>Civilization/British Values Humanities focus</i>	Spring 2 (5 weeks) Environmental Warrior <i>Science/school ethos focus</i>	Summer 1 (5 weeks) <i>Our community/Our World Humanities focus</i>	Summer 2 (5 weeks) Evolution of Man <i>Science focus</i>	
EYFS:	Playing and Exploring in Nursery: Finding out and exploring •Showing curiosity about objects, events and people •Using senses to explore the world around them •Engaging in open-ended activity •Showing particular interest Playing with what they know •Pretending objects are things from their experience •Representing their experiences in play •Taking on a role in their play •Acting out experiences with other people Being willing to 'have a go •Initiating activities •Seeking challenge •Showing a 'can do' attitude •Taking a risk, engaging in new experiences, and learning by trial and error Keeping on trying •Persisting with activity when challenges occur •Showing a belief that more effort or a different approach will pay off •Bouncing back after difficulties Creating and Thinking Critically thinking Having their own ideas •Thinking of ideas •Finding ways to solve problems •Finding new ways to do things Making links: •Making links and noticing patterns in their experience •Making predictions •Testing their ideas •Developing ideas of grouping, sequences, cause and effect Choosing ways to do things •Planning, making decisions about how to approach a task, solve a problem and reach a goal •Checking how well their activities are going •Changing strategy as needed •Reviewing how well the approach worked DESIGN: Explore the world around them Use contexts set by the teacher and myself Use gestures, talking and arrangements of materials and components to show design Select appropriate resources MAKE: Construct with a purpose, using a variety of resources, Use simple tools and techniques, Build/construct with a wide range of objects, Select tools & techniques to shape, assemble and join, Replicate structures with materials/components, Discuss how to make an activity safe and hygienic, Record experiences by drawing, writing and voice recording, Understand different media can be combined for a purpose EVALUATE: Adapt if necessary, Dismantle, examine, talk about existing objects/structures, Consider and manage some risks, Practise some appropriate safety measures indep., Talk about how things work, Look at similarities and differences between existing obj/materials/tools Show an interest in technological toys, Describe textures						
NUR	DT KNOWLEDGE: Knowledge of how toys work; paint programme; explore how sails on windmill work; explore technology in school/identify technology, wind up mechanisms; computing/ safety; explore wheel turning; cogs and wheels; make rotary whisk work DT SKILLS: I can complete a simple puzzle, positional language, explore 2D/3D shapes, simple pattern, explain what next, mark making; sequential language; how and why questions; follow/give instructions						
REC	DT KNOWLEDGE: Knowledge of how bread dough changes; comparing bread dough/clay and pastry; before electricity; explore bridges/traps ; complete challenge, explore mechanisms; moving parts with pins ; computer safety; identify technology at home; handle approp. Equipment; pasty making; know about tin mining(historical tech) (see progression of skills) DT SKILLS: Use tools; manipulate dough; working with partner; asking questions; use a search engine; can listen to others suggestion; collaboarte in small group; talk about ideas; present ideas;						
Years 1/2 A	1A- Pirate Moving Picture - slides/pivots- MECH	2D- Christmas Bookmark- TEXT (link to 1D)	2C-Wind Bridge – MECH/STRUC (linked to 2A)			1C- Eating more Fruit & Veg- FOOD	
Years 1/2 B	ID- Homes- STRUCT (linked to 1A)		2A- Vehicles- MECH (linked to 1A)		Where does Food come From (FOOD)- SUM 1	2B Puppets-TEXT (build from 1D)	
Years 3/4 A		4A Christmas Tree Decoration-TEXT (build from 1D,2B)	3C Moving Monster-MECH (build from 1A,2C, linked to 3A)			3B Sandwich Snacks-FOOD (build from 1C)	
Years 3/4 B			4B Mechanical Story Books-MECH (build from 1A)		4D Alarms- ELECT(build from 2A,2C, linked to 3C)	3A Packaging-STRUCT & FOOD (build from 1A,1D,2C)	
Years 5/6 A		5D Biscuits-FOOD (build from 1C, 3B)			5C Moving Toy- MECH (build from 1A, 2C, 3C)	6B Phone Case/ Money Purse- TEXT (build from 2B,4A)	
Years 5/6 B			6A Shelters- STRUCT (build from 1B,1D,3A,3D,5C)	6D SELF Powered Vehicle- MECH (build from 2C,3C,5C)	5B Making Bread- FOOD (build from 1C, 3B)	6C Double Unit - Fairgrounds- STRUCT & ELECT (build from 2A,3C,4D,linked to 5C)	

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The following documents detail the National Curriculum statements and the progression of skills within each of the given topic areas. Each progression of skills document shows expectations for Working Towards, Working At and Working Beyond the expected for that subject area.

How should this be used to help plan learning opportunities?

Teachers and subject leads must ensure that they use the progression of skills to guide their planning, teaching and assessment. The Working At section should be used to pitch the lesson and success criteria correctly. However, due to the fact that we have mixed classes at Camelford, teachers must use their professional judgement by using the Working Towards and Working Beyond criteria when planning and setting learning opportunities.

How can this be used by subject leads and SLT?

Subject Leads and SLT should use the progression of skills and subject coverage documents to ensure the correct coverage is happening across the school, at the right times, that the areas being taught are relevant (as per the pathway) and that they are pitched to the right level ensuring challenge. The journey of a child throughout the school (starting from Reception to Year 1 rotation A) should be carefully monitored to ensure their learning is progressive and varied.

National Curriculum Design Technology Statement 2014

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

Assessment

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

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National Curriculum 2014 Key Stage 1 Design Technology

Subject Content

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts.

Cooking and Nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and nutritionally now and in later life.

National Curriculum 2014 Key Stage 1

Statutory Learning Intentions - pupils should be taught about:

Design:

- Design purposeful, functional, appealing products for themselves and other users based on design criteria
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology

Make:

- Select from and use a range of tools and equipment to perform practical tasks (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

Evaluate:

- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria

Technical knowledge:

- 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

Cooking and Nutrition:

- Use the basic principles of a healthy and varied diet to prepare dishes
- Understand where food comes from

CPS KS1 DT Projects:

YEAR 1/2 - A

- 1A- Pirate Moving Picture - slides/pivots- MECHANISMS (linked to 1D)
- 2D- 2 Dimensional Tree Decoration – TEXTILE (linked to 1D)
- 2C- Wind Up Bridge - MECHANISMS (linked to 2A)
- 1C- Eating more Fruit & Veg- FOOD

YEAR 1/2 - B

- 1D- Homes- STRUCTURAL (linked to 1A)
- 2A- Vehicles- MECHANISMS (linked to 1A)
- Where does our food come from- FOOD
- 2B Puppets-TEXTILE (build from 1D)

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1A Pirate Moving Picture - MECHANISMS - Design Technology

It is helpful if the children have:

- * used scissors safely to cut paper and thin card
- * joined materials using tape, glue and paper fasteners
- * drawn pictures that they can cut out
- * followed simple oral instructions

This unit builds on children's early experiences of working with paper and card.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond Y2	Vocabulary
Year 1/2 Year A Autumn 1	Pirate Moving Picture- 1A	OUTCOME OF TOPIC		have made a moving picture with help – either in developing their ideas or in using tools to make it; have a limited understanding of how simple moving products work	have used tools safely to make a moving picture that incorporates a simple lever or slider; have used given techniques to practise their making skills and as a starting point for developing their own ideas; have been able to talk about how simple moving products work	have developed their own ideas from the initial starting points and will have used tools relatively accurately to make their moving picture(s); have made simple judgements about their work eg 'The lever is a bit floppy but I could stiffen it with a lolly stick', 'I am pleased with the way the boat moves but sometimes it gets stuck'; have been able to explain how the lever or slider works and will have recorded through drawing and labelling	* <u>designing</u> eg idea, discuss, choose, drawing, labelling * <u>making</u> eg hole punch, paper fastener, join, cut carefully, planning * <u>knowledge and understanding</u> eg moving, handle, lever, pivot, pull, push, slider, direction, blade, metal, balance, movement, forward, backwards, order, sequence, length
		DESIGN	Understanding contexts, users and purposes	Begin to identify levers and sliders being used in products eg scissors, balances and moving books	Can identify levers and sliders being used in products eg scissors, balances and moving books	Can explain how levers and sliders work in products eg scissors, balances and moving books	
			Generating, developing, modelling and communicating ideas	Generate ideas by drawing on their own experiences	Suggest ideas and explain what they are going to do Model their ideas in card and paper	Model ideas by exploring materials, components and construction kits and by making templates and mock-ups	
		MAKING	Planning	Plan by suggesting what to do next	Select from a range of tools and equipment, explaining their choices	Select from a range of materials and components according to their characteristics	
			Practical skills and techniques	Begin to use procedures for safety Begin to assemble, join and combine materials and components Cut materials safely Demonstrate a range of cutting and shaping techniques such as tearing, folding, cutting, curling Make simple sliding and lever mechanisms using appropriate techniques	Follow procedures for safety Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Use finishing techniques, including those from art and design Make simple sliding and lever mechanisms Make their design using appropriate techniques	Confidently follow procedures for safety Explaining procedures to others With increasing accuracy measure, mark out, cut, assemble, join and combine Make effective sliding and lever mechanisms explaining how it works Use finishing techniques, including those from art and design, explaining their reasoning.	
		TECHNICAL KNOWLEDGE	Making products work	Talk about the simple working characteristics of the components of a slider or lever	Talk about the movement of simple mechanisms such as levers, sliders, wheels and axles, and how they can create movement	Explain providing valid reasons of how parts move	
		EVALUATING	Own ideas and products	Talk about their design ideas and what they are making	Make simple judgements about their products and ideas against design criteria	Suggest how their products could be improved based on the success criteria	

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2D Christmas Bookmark - TEXTILES - Design Technology

It is helpful if the children have:

- * some basic experience of sewing *eg lacing or stitching in binca using a plastic bodkin*
- * cut fabrics
- * used the computer for drawing

This unit builds on early experiences of working with fabrics *eg collage* and on Unit 1D 'Homes'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 1/2 Year A Autumn 2	Christmas Bookmark 2D	OUTCOME OF TOPIC		have used a graphics program with support; have used pre-drawn patterns or templates to create a Christmas Bookmark; have required support in cutting and joining fabric; have found it difficult to achieve a good-quality finish	have used a graphics program to try out their ideas and suggest improvements in order to create a design for Christmas Bookmark; Used a running stitch to create a design, have worked with minimal guidance and with increasing care using safely and with some accuracy the tools and techniques shown to them	have used a graphics program competently to show realistic ideas for a Christmas Bookmark; have clear plans for the order of their work; have used materials with care and some accuracy; have made a coat that is similar to their original design	* <u>designing</u> <i>eg discuss, choose, try out ideas, adapt, design, experiment, evaluate, decide, mock-up, predict, expensive</i> * <u>making</u> <i>eg pin, pattern, join, cut, shape, measure, fabric, template, needle, thread, ruler, tape measure</i> * <u>knowledge and understanding</u> <i>eg outline, background, coat, strengthen, stitch, quality, pattern repeat, seam, centre, side, line, flat, symmetry, turn</i>
		DESIGN	<i>Understanding contexts, users and purposes</i>	State what products they are designing and making Begin to describe the purpose of their products	That fabrics can be patterned in different ways Use existing fabric designs as inspiration for their own pattern-making	Develop their own design criteria and use these to inform their ideas	
			<i>Generating, developing, modelling and communicating ideas</i>	Generate ideas by drawing on their own experiences	Use knowledge of existing products to help come up with ideas Develop and communicate ideas by talking and drawing	Use information and communication technology, where appropriate, to develop and communicate their ideas	
		MAKING	<i>Planning</i>	Plan by suggesting what to do next Plan for some tasks have to be done prior to others Make and a simple paper pattern/template	Select from a range of tools and equipment, explaining their choices Plan for some tasks have to be done prior to others Make use a simple paper pattern	Select from a range of materials and components according to their characteristics Plan the order of tasks to complete the project Effectively use a simple paper pattern to accurately cut out main body	
			<i>Practical skills and techniques</i>	Begin to use procedures for safety Begin to assemble, join and combine materials and components Shape textiles using templates Colour and decorate textiles Attempt with some accuracy follow their computer-generated pattern	Follow procedures for safety Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Join textiles using running stitch Follow their computer-generated pattern	Confidently follow procedures for safety Explaining procedures to others With increasing accuracy measure, mark out, cut and shape materials and components With confidence assemble, join and combine materials and components Use a computer-gen. pattern as a model for design	
		TECHNICAL KNOWLEDGE	<i>Making products work</i>	Talk about the simple working characteristics of materials and components With support, use a paper pattern to mark out identical pieces with accuracy	Describe how to make repeat patterns Describe how to use a graphics program to try out different patterns Describe how to use different techniques for joining fabric Use a paper pattern to mark out identical pieces	Describe how to use a graphics program to try out different patterns with confidence Describe how to use different techniques for joining fabric using the technical vocabulary for the project Use a paper pattern to mark out identical pieces with accuracy	

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		<i>EVALUATING</i>	<i>Own ideas and products</i>	Talk about their design ideas and what they are making	Make simple judgements about their products and ideas against design criteria	Suggest how their products could be improved based on the success criteria	
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2C Winding Bridge – MECHANISMS & STRUCTURES - Design Technology

It is helpful if the children have:

- * used construction kits
- * made strong and stable structures
- * discussed their ideas

This unit builds on Unit 2A 'Vehicles' and other work with construction kits and reclaimed materials.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 1/2 Year A Spring 1	Winding Bridge	OUTCOME OF TOPIC		have made a winding mechanism from construction kits but will have needed support in making with reclaimed materials <i>eg the axle may not be parallel, they may not have understood about fixing the axle securely and may have found it hard to make a robust structure;</i> have suggested at least one improvement to their idea after prompting	have gained an understanding of simple winding mechanisms and made realistic suggestions as to how their ideas can be achieved; have constructed mechanisms using construction kits and reclaimed materials; have built a simple model of a winding bridge <i>assembled it</i> ; have been able to say what works well in their model	have communicated their ideas clearly and made a model with two or more winding mechanisms; have taken the theme from another poem or story – maybe making one character chase another up and down; have connected one mechanism to another so that one turns the other so that it is driven; have made judgements about their product in relation to their design idea and suggested improvements to their design	* <u>designing</u> <i>eg explore, investigate, choose, decide, brainstorm, fast, faster, fastest, slow, slower, slowest, quick, quicker, quickest</i> * <u>making</u> <i>eg collecting, punching, connecting, fixing, straight, doweling, masking tape, hole punch, cotton reel</i> * <u>knowledge and understanding</u> <i>eg axle, winding mechanism, stable, structure, handle, turning, free, fixed, second, minute, timer</i> stable
		<i>DESIGN</i>	<i>Understanding contexts, users and purposes</i>	State what products they are designing and making Say whether their products are for themselves or other users Begin to describe how the winding mechanism has an axle that turns and a handle	Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment Describe the purpose of their products Indicate the design features of their products that will appeal to intended users Explain how particular parts of their products work and that a winding mechanism has an axle that turns and a handle Identify criteria for their design	Develop their own design criteria and use these to inform their ideas Explain how a mechanism works and describe what is happening using vocabulary	
		<i>MAKING</i>	<i>Planning</i>	Plan by suggesting what to do next	Select from a range of tools and equipment, explaining their choices	Select from a range of materials and components according to their characteristics	
			<i>Practical skills and techniques</i>	Begin to use procedures for safety Use of materials and components to make a product Begin to assemble, join and combine materials and components Cut materials safely	Follow procedures for safety Use and combine materials and components, including mechanical components Measure, mark out, cut and shape, assemble, join and combine materials and components Use finishing techniques, including those from art and design	Confidently follow procedures for safety Explaining procedures to others Use a range of materials and components, including mechanical components With increasing accuracy measure, mark out, cut, shape assemble, join and combine materials and components Use finishing techniques, including those from art and design, explaining their reasoning.	

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		<i>TECHNICAL KNOWLEDGE</i>		Talk about the simple working characteristics of a winding mechanism and recognize when a structure needs to be stronger, stiffer and more stable to support the mechanism	Talk about the movement of simple mechanisms such as winding mechanisms Explain how freestanding structures can be made stronger, stiffer and more stable to support the mechanism	Know the correct technical vocabulary for the projects they are undertaking Able to make freestanding structures stronger, stiffer and more stable to support the mechanism	
		<i>EVALUATING</i>	<i>Own ideas and products</i>	Talk about their design ideas and what they are making	Make simple judgements about their products and ideas against design criteria	Suggest how their products could be improved based on the success criteria	

1C Eating more Fruit and Vegetables – FOOD - Design Technology

It is helpful if the children have:

- * listened to stories/poems about fruit and vegetables
- * seen and handled common fruit and vegetables
- * developed ideas through discussion
- * cut soft fruit and vegetables

This unit builds on home and early school experiences with food

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 <i>(Use to help pitch lessons and success criteria)</i>	Working Beyond	Vocabulary
Year 1/2 Year A Summer 2	Eating more Fruit & Veg 1C	OUTCOME OF TOPIC		with support, have gained some understanding in order to make a product; have described tastes and textures of some fruit and vegetables; have used some tools appropriately	have gained an understanding of the properties, including taste, texture and appearance, of a range of fruit and vegetables and then prepared and combined ingredients into a specific product; have used basic tools safely; have recognised that it is important to eat more fruit and vegetables	have considered alternative appropriate ideas and justified their choices as they designed and made their product	* <u>designing</u> eg choosing, investigating, tasting, arranging, experimenting, popular, sort, blockgraph, pictogram * <u>making</u> eg washing, cleaning, peeling, cutting, slicing, grating * <u>knowledge and understanding</u> eg salad, fruit, vegetables, peel, flesh, skin, grater, chopping board, peeler, seeds, pips, stalk, juice, root, leaf, stone, bunch * sensory eg crisp, sharp,
		COOKING and NUTRITION	<i>Where food comes from</i>	Know that fruit and vegetables can be classified according to their sensory and other properties	Know that there is a wide variety of fruit and vegetables available which can be grouped and individually named to develop a sensory vocabulary	Know and explain that there is a wide variety of fruit and vegetables available which can be grouped and individually named	
			<i>Food, preparation and cooking</i>	Begin to name and sort foods into the five groups in the eat-well plate Know that everyone should eat at least five portions of fruit and vegetables every day Begin to know how to use techniques such as cutting, peeling and grating	Able to name and sort foods into the five groups in the eat-well plate Know that everyone should eat at least five portions of fruit and vegetables every day, suggesting different fruits and vegetables Know how to prepare simple dishes safely and hygienically, without using a heat source Know how to use techniques such as cutting, peeling and grating safely and hygienically Measure or weigh using measuring cups or electronic scales.	Confidentially able to name and sort a number of foods into the five groups in the eat-well plate Confidently able to explain why everyone should eat at least five portions of fruit and vegetables every day, suggesting different fruits and vegetables Able to explain how to prepare simple dishes safely and hygienically, without using a heat source Know how to use techniques such as cutting, peeling and grating and confidently carry these techniques out when producing a product.	

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							<i>juicy, sweet, sour, sticky, squashy, smooth, crunchy, scented, waxy</i>
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1D Homes – STRUCTURES - Design Technology

It is helpful if the children have:

- * used basic tools safely and appropriately
- * discussed ideas
- * worked with paper and card – cutting, shaping and joining

This unit builds on experience of play with construction kits and early opportunities for making with reclaimed materials. It also builds on Unit 1A 'Moving pictures'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 1/2 Year B Autumn 1	Homes STRUCTURES 1D	OUTCOME OF TOPIC		have built a model from construction kit components/ junk modelling and attached features to the model <i>eg roofs and windows using sheet or reclaimed materials</i> or, with support, have built a model from reclaimed materials	have built a model from construction kit components/ junk modelling and attached features to the model <i>eg roofs and windows using sheet or reclaimed materials</i> or, with support, have built a model from reclaimed materials	have added more details and features <i>eg stairs, interior rooms, cut-out windows, curtains, gutters</i> and be able to say why they have included them; have used a basic understanding of structures to make their models strong and stable	* <u>designing</u> <i>eg choose, try out ideas, discuss, drawing, label, list</i> * <u>making</u> <i>eg join, fix, plan, scissors, hole punch, masking tape</i> * <u>knowledge and understanding</u> <i>eg structure, strong, weak, wall, roof, window, glass, brick, transparent, hinge</i>
		DESIGN	Understanding contexts, users and purposes	State what products they are designing and making	Know that we live in many different types of homes and the names of different buildings with the main features Use their own experiences when developing ideas	Develop their own design criteria and use these to inform their ideas	
			Generating, developing, modelling and communicating ideas	Generate ideas by drawing on their own experiences Make suggestions as to how to proceed	Use knowledge of existing products to help come up with ideas Develop and communicate ideas by talking and drawing simple shapes	Follow a multi-step plan of how to proceed	
		MAKING	Planning	Plan by suggesting what to do next	Select from a range of tools and equipment, explaining their choices Know what steps need to be taken next	Select from a range of materials and components according to their characteristics	
			Practical skills and techniques	Begin to use procedures for safety Begin to assemble, join and combine materials and components Cut materials safely Demonstrate a range of cutting and shaping techniques such as tearing, folding, cutting, curling	Follow procedures for safety Measure, mark out, cut, shape, assemble, join and combine materials and components Use finishing techniques, including those from art and design to use construction kits to aid modelling	Confidently follow procedures for safety Explaining procedures to others With increasing accuracy measure, mark out, cut and shape materials and components With confidence assemble, join and combine materials and components Explain how hinges allow for movement	
		TECHNICAL KNOWLEDGE	Making products work	Talk about the simple working characteristics of materials and components Begin to explore hinges	Explain how freestanding structures can be made stronger, stiffer and more stable Make simple hinges with support	Know the correct technical vocabulary for the projects they are undertaking Make simple hinges	
			Existing products	Explain what products are Who products are for What products are for	Suggest how homes have changed over time and why Suggest what materials products are made from	Suggest how products are used, giving reasons for their views Suggest what materials products are made from and suggesting why materials have been chosen	

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2A Vehicles – MECHANISMS - Design Technology

Year 1/2 Year B Spring 1

Topic Name: Vehicles –MECH

It is helpful if the children have:

- * joined and combined materials
- * cut and shaped card and reclaimed materials
- * discussed ideas
- * made hinges

This unit builds on Unit 1A ‘Moving pictures’.

It also builds on Science ‘Sorting and using materials’, ‘Pushes and pulls’

Lesson Sequence	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Lesson 1- I know there are different types of vehicles for different purposes I can identify different parts of a vehicle Lesson 2- I can disassemble, assemble and explain how 2 types of wheels/ axles systems Lesson3- I can design a vehicle to carry toys across the county focussing on the wheel/axle Lesson 4- I can build a working wheel/axle model and explain how it works Lesson 5- I can build a vehicle following my plan Lesson 6- I can judge the success of my vehicle against my plan and criteria. I can make improvement suggestions	OUTCOME OF TOPIC		have a limited understanding of simple mechanisms; have attempted to create a vehicle which represents their original idea	have gained an understanding of how simple mechanisms related to moving vehicles work, after clarifying their ideas through discussion; have made a wheeled vehicle which moves and which generally matches their design intention	have shown a wider understanding and will have incorporated moving parts <i>eg opening doors and windows, tipping bodies or simple steering</i> into their design, after reflecting on their early ideas; have created a working model which matches their design intention, after having made judgements about what they want the design to do	* <u>designing</u> <i>eg purpose, ideas, discuss, explore, predict, guess, survey, table, venn diagram, most/least common</i> * <u>making</u> <i>eg joining, combining, connecting, testing, punching</i> * <u>knowledge and understanding</u> <i>eg vehicle, wheels, chassis, axles, doweling, hole punch, logo, distance</i>
	DESIGN	Understanding contexts, users and purposes	State what products they are designing and making Begin to describe the purpose of their products	Indicate the design features of their products that will appeal to intended users Explain how particular parts of their products work	Develop their own design criteria and use these to inform their ideas With increased confidence, explain how particular parts of their products work	
		Generating, developing, modelling and communicating ideas	Generate ideas by drawing on their own experiences	Use knowledge of existing products to help come up with ideas Develop and communicate ideas by talking and drawing	Model ideas by exploring materials, components and construction kits and by making templates and mock-ups	
	MAKING	Practical skills and techniques	Begin to use procedures for safety Use of materials and components to make a product Begin to assemble, join and combine materials and components Cut materials safely Demonstrate a range of cutting and shaping techniques such as tearing, folding, cutting, curling Shape textiles using templates	Follow procedures for safety Use and combine materials and components, including construction materials and kits and mechanical components Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Use finishing techniques, including those from art and design	Confidently follow procedures for safety Explaining procedures to others Use a range of materials and components, including construction materials and mechanical components With increasing accuracy measure, mark out, cut and shape materials and components With confidence assemble, join and combine materials and components Use finishing techniques, including those from art and design, explaining their reasoning.	

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		<i>Making products work</i>	Talk about the simple working characteristics of materials and components Use wheel and axle to make a moving vehicle with some support	the axle Use wheels and axles, understanding that wheels and axles can be assembled in two different ways: – either the wheel is attached tightly to the axle and the axle is free to rotate, or is fixed with the wheel free to rotate around it	Know the correct technical vocabulary for the projects they are undertaking Explain which way and why they plan to assemble wheel and axles	
	TECH KNOW	<i>Own ideas and products</i>	Talk about their design ideas and what they are making	Make simple judgements about their products and ideas against design criteria – to evaluate against their design criteria	Suggest how their products could be improved based on the success criteria	

Where does our Food Come From – Food Technology - Design Technology

Year Group Cohort	Topic Name	National Curriculum Area	Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 1/2 Year B Sum1	Where does our Food Come From? FOOD	OUTCOME OF TOPIC	Begin to recognise that all food comes from plants or animals Begin to recognise that food has to be farmed, grown elsewhere (e.g. home) or caught	Know that all food comes from plants or animals Know that food has to be farmed, grown elsewhere (e.g. home) or caught Know what food is grown in Cornwall	Know and explain that all food comes from plants or animals, giving some examples Know and explain that food has to be farmed, grown elsewhere (e.g. home) or caught, giving examples	<u>knowledge & Understanding</u> plants, agriculture , seasonal , food groups , farmed, caught, crops , grown elsewhere, allotment , gardening

Camelford Primary School DT Skills Progression

2B Puppets – TEXTILES - Design Technology

It is helpful if the children have:

- * drawn around a template
- * joined sheet materials using glue
- * discussed ideas with others
- * drawn products

This unit builds on early experiences with textiles *eg collage* and using the computer for drawing, and on Unit 1D 'Homes'.

It also builds on Science Unit 'Sorting and using materials'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y2 Working At Y1	Working At Y2 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 1/2 Year B Sum2	Puppets- TEXT 2B	OUTCOME OF TOPIC		have made suggestions as to what they intend to do; have created a puppet with support by gluing two pieces of fabric together and added features using appropriate materials and techniques	have discussed their ideas as they developed and be able to say what their design has to do; have created a puppet that works (ie is the right size and reflects the character) using a given technique; have stitched two pieces of fabric together and added features using appropriate materials and techniques	have reflected on their own ideas and have worked independently to create their puppet using appropriate techniques to measure, mark out and join the fabric pieces they have selected; have added features to their puppet to capture particular characteristics and expressions; have been able to identify how well the puppet works in relation to simple design criteria	* <u>designing</u> <i>eg user, list, label, drawing, ideas, mock-up, choose, decide, evaluate, try out ideas, standard unit</i> * <u>making</u> <i>eg plan, template, fabric, cutting out, sewing, needle, running stitch, gluing, adding</i> * <u>knowledge and understanding</u>, <i>eg character, puppet, seam, stitch, thread, strong, quality, features, strengthen, reflective symmetry, position, to, towards</i>
		DESIGN	<i>Understanding contexts, users and purposes</i>	State what products they are designing and making Begin to describe the features of their products	Work confidently within a range of contexts, such as the home, school, leisure, culture and the wider environment Explain how there are different types of puppets and how particular parts of their products work	Develop their own design criteria and use these to inform their ideas Explain the features of their puppet and the importance of the features	
			<i>Generating, developing, modelling and communicating ideas</i>	Generate ideas by drawing on their own experiences	Use knowledge of existing products to help come up with ideas Develop and communicate ideas by talking Develop simple ideas for their own designs by looking at a selection of puppets and drawing	Generate and communicate ideas through labelled plans Develop more complex ideas for their own designs by looking at a selection of puppets and drawing	
		MAKING	<i>Planning</i>	Model their ideas by making a paper mock-up with some support	Model their ideas by making a paper mock-up	Model their ideas by making a paper mock-up	
			<i>Practical skills and techniques</i>	Begin to use procedures for safety Begin to assemble, join and combine textiles and embellishments Cut materials safely Shape textiles using templates Colour and decorate textiles	Follow procedures for safety Use and combine textiles and embellishments Measure, mark out, cut and join fabric pieces to make the main body of the puppet Join textiles using a back stitch Colour and decorate textiles using a number of techniques	Confidently follow procedures for safety. Explaining procedures to others With increasing accuracy measure, mark out, cut and shape, join and combine a range of materials textiles and embellishments Use finishing techniques, including those from art and design, explaining their reasoning.	
		TECHNICAL KNOWLEDGE	<i>Making products work</i>	Talk about the simple working characteristics of materials and components	Know that a 3-D textiles product can be assembled from two identical fabric shapes simple vocabulary associated with the use of textiles	The child can provide some valid reasons for Know the correct technical vocabulary for the projects they are undertaking	
		EVALUATING	<i>Own ideas and products</i>	Talk about their design ideas and what they are making	Make simple judgements about their products and ideas against design criteria	Suggest how their products could be improved based on the success criteria	

Camelford Primary School DT Skills Progression

National Curriculum 2014 Key Stage 2 DT

Subject Content

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

Cooking and Nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

National Curriculum 2014 Key Stage 2

Statutory Learning Intentions - pupils should be taught about:

CPS KS2 DT Projects:

Learning Intentions Pupils should be taught about

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 - understand how key events and individuals in design and technology have helped shape the world
- Technical knowledge**
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
 - understand and use mechanical systems in their products
 - understand and use electrical systems in their products
 - apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

YEARS 3/4 - A

- 4A Christmas Tree Decoration-TEXTILE (build from 1D,2B)
- 3C Moving Monster-MECHANISMS (build from 1A,2C, linked to 3A)
- 3B Sandwich Snacks-FOOD (build from 1C)

YEARS 3/4 - B

- 4B Mechanical Story Books-MECHANISMS (build from 1A)
- 4D Alarms- ELECTRICAL (build from 2A,2C, linked to 3C)
- 3A Packaging-STRUCTURAL & FOOD (build from 1A,1D,2C)

YEARS 5/6 - A

- 5D Biscuits-FOOD (build from 1C, 3B)
- 5C Moving Toy- MECHANISMS (build from 1A, 2C, 3C)
- 6B phone case- TEXT (build from 1A,1D,2C)

YEARS 5/6 - B

- 6A Shelters- STRUCTURAL (build from 1B,1D,3A,3D,5C)
- 6D Wind powered vehicle- MECHANISMS (build from 2C,3C,5C)
- Healthy Eating Recipe (where our food comes from)- FOOD (build from 1C, 3B)
- Fairgrounds- ELECTRICAL (build from 2A,3C,4D,linked to 5C)

Camelford Primary School DT Skills Progression

4A Christmas Tree Decoration - TEXTILES - Design Technology

It is helpful if the children have:

- * joined fabrics in simple ways by gluing and stitching (running & back stitch)
- * used simple patterns/templates for measuring and marking out
- * evaluated products

This unit builds on Units 1D 'Homes' and 2B 'Puppets'.

It also builds on Science Units 'Grouping and changing materials' and 'Characteristics of materials'.

Year Group Cohort Term	Topic Name	National Curriculum Area		Working Towards Y4 Working At Y3	Working At Y4 <i>(Use to help pitch lessons and success criteria)</i>	Working Beyond	Vocabulary
Year 3/4 Year A Autumn 2	3D Christmas Tree Decoration	OUTCOME OF TOPIC		have used given techniques and simple patterns/templates when joining fabric (using blanket stitch) to make a stuffed/3D Christmas Tree Decoration, although seams and fastenings may not be secure	have sufficient understanding and skills in working with textiles to design and make (using blanket stitch) a stuffed/3D Christmas Tree Decoration that meets their design criteria; have evaluated existing products, testing fabrics to choose an appropriate one; have applied decorative techniques appropriately.	have modelled their ideas, tested appropriate fabrics and justified choices; have decorated the product choosing from a range of decorative techniques; have made accurate drawings and identified the stages of making their design criteria; have worked independently in designing and making using blanket stitch a stuffed/3D Christmas Tree Decoration that is well finished, works well and is suitable for the identified user	<u>designing</u> eg user, purpose, design criteria, model, evaluating, labelled drawings, stiffening, reinforcing, coins, notes <u>making</u> eg pattern/templates, strength, weaknesses, pattern, accurate, finishing knowledge and understanding eg fabric, , seam, seam allowance, thread, cotton reinforce, gusset, dye, embroidery properties eg strength, hard-wearing, stretch, fray design, blanket stitch
		DESIGN	<i>Understanding contexts, users and purposes</i>	Begin to describe the purpose of their products Create success criteria based on existing products	Indicate the design features of their products that will appeal to intended users Create success criteria based on existing products	Develop their own design criteria and use these to inform their ideas Create success criteria innovating on existing products	
			<i>Generating, developing, modelling and communicating ideas</i>	Share and clarify ideas through discussion Use annotated sketches to communicate their ideas	Share and clarify ideas through discussion Use annotated sketches to communicate their ideas	Make design decisions that take account of the availability of resources	
		MAKING	<i>Planning</i>	Select materials and components suitable for the task Make a paper pattern/template with some understanding of seam allowance	Select materials and components suitable for the task Order the main stages of making Make a paper pattern/template that uses a seam allowance	Explain their choice of materials and components according to aesthetic qualities Confidently order the main stages of making With accuracy make a paper pattern/template that uses a seam allowance	
			<i>Practical skills and techniques</i>	Follow procedures for safety and hygiene Use materials and components from KS1	Follow procedures for safety Use a wider range of materials than KS1, including textiles & accessories Apply a range of finishing techniques	Correctly follow procedures for safety Confidently use a wider range of materials and components than KS1 including textiles	
		TECHNICAL KNOWLEDGE		Measure, tape or pin, cut and join (using running, back stitch) fabric with some accuracy <i>With some support use blanket stitch to join 2 pieces</i>	Measure, tape or pin, cut and join (using running, back stitch) fabric with some accuracy Use simple decorative techniques <i>eg embroidery or sewn on embellishments</i> <i>With some support use blanket stitch to join 2 pieces</i>	Know the correct technical vocabulary for the projects they are undertakin With accuracy measure, tape or pin, cut and join (using running, back stitch) fabric with some accuracy With less support use blanket stitch to join 2 pieces	
		EVALUATING		Identify the strengths and areas for development in their products	Consider the views of others to improve their work Use their design criteria to evaluate their completed products considering the intended user	Consider the views of others, including intended users, to improve their work Use their design criteria to evaluate their completed products considering the intended user	

Camelford Primary School DT Skills Progression

			<i>Existing products</i>	Investigate and analyse: ▪ How well products have been designed ▪ How well products have been made	Investigate and analyse: ▪ How well products have been designed ▪ How well products have been made ▪ What methods of construction have been used	Investigate and analyse: ▪ How well products have been designed for the intended user ▪ Why materials have been chosen. Explaining their reasoning.	
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3C Moving Monsters - MECHANISMS - Design Technology

It is helpful if the children have:

- * learnt how materials can be joined to allow movement
- * generated and communicated ideas in a variety of ways
- * joined and combined materials using simple hand tools
- * evaluated their work as it progresses and at the end

This unit builds on Units 1A 'Moving pictures', 2C 'Winding up' and 3A 'Packaging'.

Year Group Cohort Term	Topic Name	National Curriculum Area		Working Towards Y4 Working At Y3	Working At Y4 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 3/4 Year A Spring 1	Moving Monsters 3C	OUTCOME OF TOPIC		have developed a limited understanding of simple pneumatic systems; have needed support in working with others to design and make a model monster with a moving part controlled by a pneumatic system	have developed an understanding of simple pneumatic systems; have worked as part of a team to design and make a model monster with at least one moving part controlled by a pneumatic system	have developed an understanding of simple pneumatic systems relating their work in the classroom to products in the wider world; have worked as part of a team to design and make a model of a monster that incorporates two or more moving parts controlled effectively by pneumatic systems, taking account of available	* designing eg brainstorm, suggestion, evaluate, ideas, constraints, appropriate, graph, data, sort, order, set, label, title, list, probable, possible, impossible * making eg planning, storyboard, components, fixing, tubing, syringe, attaching, finishing * knowledge and understanding eg control, pneumatic system, pressure, inflate, deflate, input, output, pump, hinge, fastest, slowest, often, always, sometimes, never
		<i>DESIGN</i>	<i>Understanding contexts, users and purposes</i>	Indicate the design features of their products that will appeal to intended users Develop a simple design specification to guide their thinking	Consider the design features of their products that will appeal to intended users Think about how particular parts of their products work Develop understanding of techniques for making simple pneumatic systems	Explain how particular parts of their products work Develop a design specification to guide their thinking Explain the techniques for making simple pneumatic systems	
			<i>Generating, developing, modelling and communicating ideas</i>	Share through discussion Contribute to a simple design specification to guide thinking Begin to use annotated sketches and exploded diagrams to develop and communicate their ideas Generate ideas for products Use appropriate vocabulary when referring to parts of system	Develop a simple design specification to guide their thinking Use appropriate vocabulary to describe how things work Use a storyboard to record the sequence of their work	Share and clarify ideas through discussion, taking on board the views of others Generate innovative ideas, drawing on research Make design decisions, taking	
		<i>MAKING</i>	<i>Planning</i>	Select tools and equipment suitable for the task Select materials and components suitable for the task Produce appropriate lists of tools, equipment and materials	Select and explain tools and equipment suitable for the task Select and explain materials and components suitable for the task Formulate step-by-step plans as a guide to making	Confidently select and explain materials and components suitable for the task, naming the specific name of the materials and components Formulate step-by-step plans as a guide to making for others to confidently follow	
			<i>Practical skills and techniques</i>	Know the procedures for safety and hygiene Use a wider range of materials and components than KS1 Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Apply a range of finishing techniques, including those from art and design Begin to use techniques that involve a number of steps	Follow procedures for safety Use a wider range of materials and components than KS1 Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components Accurately apply a range of finishing techniques, including those from art and design Use techniques that involve a number of steps Begin to demonstrate resourcefulness when tackling practical problems Explore ideas through 3D modelling	Follow procedures for safety and supporting others to do so Accurately use a wider range of materials and components than KS1 Accurately measure, mark out, cut and shape materials and components to fine measurements Accurately assemble, join and combine materials and components to fine measurements Accurately apply a range of finishing techniques suitable for the product, including those from art and design Confidently use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems and showing support to others	
		<i>TECHNICAL KNOWLEDGE</i>		How to use learning from science to help design and make products that work How to use learning from mathematics to help design and make products that work That materials have both functional properties and aesthetic qualities	That mechanical and electrical systems have an input, process and output Use the correct technical vocabulary for the projects they are undertaking Know how air pressure can be used to produce and control movement	How to program a computer to monitor changes in the environment and control their products How to reinforce and strengthen a 3D framework Can explain how the pneumatics work Can identify different uses for pneumatics	

Camelford Primary School DT Skills Progression

				That materials can be combined and mixed to create more useful characteristics Can begin to use pneumatic systems	Understand how to assemble simple pneumatic systems Can express ways of using pneumatic systems in conjunction with simple levers to control movement	Can create more complicated systems using levers and pivots to control movement	
		<i>EVALUATING</i>	<i>Own ideas and products</i>	Identify the strengths and areas for development in their products	Use their design criteria to evaluate their completed products considering the intended user	Use their design criteria to evaluate their completed products considering the intended user	

3B Sandwich Snacks- FOODS - Design Technology

It is helpful if the children have:

- * learnt that food products are made of several components
- * learnt that there is a need for a variety of foods in a healthy diet
- * learnt about personal hygiene when working with food

This unit builds on Unit 1C 'Eat more fruit and vegetables'.

It also builds on Science Units 'Ourselves', 'Health and growth' and 'Teeth and eating'.

Year Group Cohort Term	Topic Name	National Curriculum Area		Working Towards Y4 Working At Y3	Working At Y4 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 3/4 Year A SUMMER2	Sandwich Snacks	OUTCOME OF TOPIC		have prepared a range of ingredients that they have selected, with assistance, to create a sandwich; have discussed how well their sandwich meets the original purpose	have used information from an evaluation activity to select and prepare a range of sandwich ingredients for a purpose, combining the ingredients to create an appealing sandwich; have considered how well their sandwich meets the original purpose; have an understanding of the 'balanced plate' model for healthy eating and will have applied this to ideas about how the sandwich contributes to a healthy diet	have competently prepared a range of ingredients that they have selected based on information they have gathered; have been able to offer suggestions for modifications and improvements to their original idea	* <u>designing</u> eg texture, taste, appearance, healthy, preference, criteria, cost, questionnaire, data, frequency diagram * <u>making</u> eg cut, mix, spread, slice, blend, grate, chop, chopping board, knife, grater * <u>knowledge and understanding</u> eg sandwich, filling, ingredients, fridge, food groups, hygiene, high risk, healthy eating, 'balanced plate', thick, thin sensory eg sweet, sour, bitter, salty
		COOKING and NUTRITION	<i>Where food comes from & Knowledge about food</i>	That a recipe can be adapted a by adding or substituting one or more ingredients	that people have different preferences that databases are useful for holding survey information that food can be divided into different groups that sandwiches can form part of a healthy diet that different combinations of ingredients can affect the taste and texture of the product to use appropriate language related to food products to identify a purpose for their sandwich eg for a summer picnic and establish criteria for a successful product	Explain different food preferences Use databases to collect and evaluate information that food can be divided into different groups that sandwiches can form part of a healthy diet that different combinations of ingredients can affect the taste and texture of the product to use appropriate language related to food products to identify a purpose for their sandwich eg for a summer picnic and establish criteria for a successful product Explain why sandwiches can be part of a healthy diet	
			<i>Food preparation, cooking and nutrition</i>	That recipes can be adapted to change the appearance, taste, texture and aroma Begin to use hygienic food preparation and storage, & use tools safely and effectively	That recipes can be adapted to change the appearance, taste, texture and aroma Use hygienic food preparation and storage, & use tools safely and effectively Evaluate their product against original design criteria	Knowing that recipes can be adapted to change the appearance, taste, texture and aroma, put this into practice in their own cooking Understand the importance of hygienic food preparation and storage, & use tools safely	

Camelford Primary School DT Skills Progression

				Evaluate their product against original design criteria		and effectively and with more accuracy Evaluate their product against original design criteria and suggest improvements	
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4B Storybooks/Pict- MECHANISMS - Design Technology

Year 3/4 Year B SPR1 Mechanical Picture/ Storybook

It is helpful if the children have:

- * learnt about hinges and sliders
- * used different joining and cutting techniques with paper and card
- * used basic cutting tools suitable for a variety of paper and card

This unit builds on Units 1A 'Moving pictures'.

Lesson 1- I can identify items that use hinges and levers to work Lesson 2- I can explain how a lever/hinge system work using approp. vocab Lesson 3- I can explore making several moving mechanisms Lesson 4- I can design my own moving picture/card focusing moving part & design for a purpose Lesson 5- I can make a storybook/card following my plan Lesson 6- I can evaluate my product against original specification	National Curriculum Area		Working Towards Y4 Working At Y3	Working At Y4 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
	OUTCOME OF TOPIC		have suggested a way of working and produced a page of a book incorporating one type of movement	be able to use ideas gained from investigating a variety of products and will have increased their repertoire of skills and techniques; have used tools safely to design and make pages, incorporating levers and linkages, for a book finished to a high standard; have developed skills in making a range of simple mechanisms; have been able to work as part of a group; have been able to evaluate, in use, both their own and others' products have suggested a way of working and produced a page of a book incorporating one type of movement	have produced step-by-step plans for the production of their chosen designs; have combined several types of mechanisms within their book pages; have evaluated their ideas systematically and made on-going modifications; have created a product that functions well and is visually effective	* <u>designing</u> eg <i>model, mock-up, plan, fit for the purpose</i> * <u>making</u> eg <i>fold, adhesive, scoring, cutting, joining, temporary fixing, permanent fixing</i> * <u>knowledge and understanding</u> eg <i>linkage, lever, pivot, flexible, shape, joint, hinge, area, surface, covers</i> types of movement eg <i>rotary, linear</i>
	DESIGN	Understanding contexts, users and purposes	Investigate products with lever and linkages systems, in order to learn how they function	Relate the way things work to their intended purpose Investigate products with lever and linkages systems, in order to learn how they function	Explain how particular parts of their products work Investigate and evaluate products with lever and linkages systems, in order to learn how they function	
		Generating, developing, modelling and communicating ideas	Share through discussion Generate ideas for products Indicate the design features of their products that will appeal to intended users Develop a simple design specification to guide their thinking	Share and clarify ideas through discussion Use appropriate technical vocabulary to describe materials and mechanisms Develop a simple design specification to guide their thinking	Share and clarify ideas through discussion, taking on board the views of others Confidently use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Develop a design specification to guide their thinking	
	MAKING	Planning	Select tools, equipment & materials suitable for the task Explain their choice of materials and components	Formulate step-by-step plans as a guide to making	Explain their idea of what has to be done, planning how to use materials to make it work	
		Practical skills and techniques	Know the procedures for safety Use a wider range of materials and components than KS1 Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components	Follow procedures for safety Accurately measure, mark out, cut, shape, assemble, join and combine materials and components Demonstrate resourcefulness when tackling practical problems	Follow procedures for safety and supporting others to do so Accurately measure, mark out, cut, assemble, join, combine and shape materials and components to fine measurements Confidently use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems and showing support to others	

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		<i>TECHNICAL KNOWLEDGE</i>		Begin to explain how simple mechanisms can be used to produce different types of movement	Explain simple mechanisms can be used to produce different types of movement	A wide range of correct technical vocabulary for the projects they are undertaking is used when communicating the design and mechanism	
		<i>EVALUATING</i>	<i>Own ideas and products</i>	Identify the strengths and areas for development in their ideas	Evaluate their ideas and products against their original design specification to evaluate their design ideas as these	Evaluate their ideas and products against their original design specification, identifying successes and next steps	

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4B Alarms- - Design Technology

It is helpful if the children have:

- used construction materials *eg wood, card* and appropriate adhesives
- built simple series electric circuits and rectified faults that occur
- learnt how the components work and used simple tools required to connect these together

This unit builds on Units 2A ‘Vehicles’, 2C ‘Winding up’ and 3C ‘Moving monsters’.

It also builds on Science ‘Using electricity’ and 4F ‘Circuits and conductors’, which focus on using electricity, electric circuits and conductors.

Year Group Cohort	Term (length)	Topic Name	National Curriculum Area		Working Towards Y4 Working At Y3	Working At Y4 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 3/4	Year B SUM1	Alarms	OUTCOME OF TOPIC		have needed support to identify the specific purpose for their alarm; have used given techniques and tools to create their product	have drawn on their understanding of simple electrical circuits and switches to help them generate ideas about their alarm; have produced a labelled drawing to communicate their ideas to others; have joined components and cut and shaped materials with some precision to help assembly; have joined the materials of their device using a range of appropriate techniques; have used a control program to activate their alarm	have evaluated their alarm system by comparing it with their design intentions and suggested ways of improving it	* <u>designing</u> <i>eg prototype, labelled drawings, communicate, model</i> * <u>making</u> <i>eg join, circuit, alarm, rectify fault, connection knowledge and understanding</i> <i>eg circuit, toggle switch, push-to-break, push-to-make, reed switch, tilt switch, rocker switch, slide switch, micro switch, feedback, am, pm, timer, control, sensor, input, output, switch on/off, wait</i>
			DESIGN	Understanding contexts, users and purposes	Describe the purpose of their products Develop a simple design specification to guide their thinking Describe what alarm systems are used for	Describe the purpose of their products Know to never to use mains electricity in their work Describe possible output warning devices	Describe the purpose of their products to an audience using persuasive techniques Develop a design specification to guide their thinking	
				Generating, developing, modelling and communicating ideas	Share ideas through labelled diagram Generate ideas for products	Share and clarify ideas through labelled diagram Generate ideas, considering the purposes for which they are designing	Share and clarify ideas through detailed labelled diagram Generate ideas, considering the design purposes and available material	
			MAKING	Planning	Select tools, equipment and materials suitable for the task	Formulate step-by-step plans as a guide to making	Formulate step-by-step plans as a guide to making for others to confidently follow	
				Practical skills and techniques	Know the procedures for safety and hygiene Accurately measure, mark, cut, assemble, join and combine materials and components Use techniques that involve a number of steps Begin to use techniques that involve a number of steps	Follow procedures for safety Accurately measure, mark, cut, assemble, join and combine materials and components Use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems	Follow procedures for safety and hygiene and supporting others to do so Accurately measure, mark, cut, assemble, join and combine materials and components Confidently use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems and showing support to others	
			TECHNICAL KNOWLEDGE		How to use learning from mathematics to help design and make products that work Can build a simple working circuit.	How different types of switches can be activated That electrical circuits can be used to achieve functioning results How to control their alarm using a control box/program	Explain how and why electrical circuits can be used to achieve functioning results	
			EVALUATING	Own ideas and products	Begin to evaluate their ideas and products against their original design specification	Evaluate their ideas and products against their original design specification	Evaluate their ideas and products against their original design specification, identifying successes and next steps	

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3A Packaging-STRUCTURES & FOOD - Design Technology

It is helpful if the children have:

- * used different joining and cutting methods relating to paper and card
- * learnt the differences between 2D and 3D shapes

This unit builds on Units 1A 'Moving pictures', 1D 'Homes' and 2C 'Winding Up'.

It also builds on Science Units 'Sorting and using materials', 'Grouping and changing materials' and 'Forces and movement'.

Year Group Cohort	Term (length)	Topic Name	National Curriculum Area	Working Towards Y4 Working At Y3	Working At Y4 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year 3/4	Year B SUM2	Packaging	OUTCOME OF TOPIC	have required support to design their package for the given purpose; have used pre-drawn nets as the basis for their packaging; have used a more restricted range of materials and tools Recognise ingredients listed in foods	have investigated a range of commercially made packaging and recognised that many examples are constructed from nets; have made paper models (mock-ups) of their ideas before measuring, marking out, cutting and assembling with accuracy; have evaluated their packaging against their original design criteria; have produced packaging that is visually lively, accurately made and appropriate for its purpose have investigated labelling of food products including ingredients & nutritional labelling	have produced labelled drawings showing alternative packaging ideas; have suggested a step-by-step approach to how their packaging will be made and matched materials, tools and techniques to the task; have identified what is and what is not working well with their chosen designs and suggested at least one modification have investigated labelling of food products including ingredients & nutritional labelling including sugar & fats Explore why some ingredients are not real foods & why they are in what we eat	* <u>designing</u> eg font, graphic, decision, evaluating, criteria, fit for purpose, holds * <u>making</u> eg scoring, tabs, adhesives, join, assemble, accuracy * <u>knowledge</u> <u>and</u> <u>understanding</u> eg three-dimensional (3D) shape, cube, cuboid, prism, net, vertex, edge, face, packaging, shell structure, breadth, capacity nutritional value, ingredients, food groups, preservatives, carbohydrates
			DESIGN	<i>Understanding contexts, users and purposes</i>	Describe the purpose of their products Indicate the design features of their products that will appeal to intended users Develop a simple design specification to guide their thinking	Describe the purpose of their products Consider the design features of their products that will appeal to intended users Develop a simple design specification to guide their thinking	Describe the purpose of their products to an audience using persuasive techniques Develop a design specification to guide their thinking
				<i>Understanding Food</i>	That purchased food is labelled and how it impacts on choice	How to read nutritional labels and how it impacts on choice	Explain nutritional labels and how it impacts on choice
				<i>Generating, developing, modelling and communicating ideas</i>	Share through discussion Begin to model their ideas using prototypes and pattern pieces Generate ideas for products	Generate innovative ideas for an item of packaging, considering its purpose and user/s to create a package for a given purpose	Generate innovative ideas, drawing on research of packaging, considering its purpose and user/s as well as different approaches
			MAKING	<i>Planning</i>	Formulate step-by-step plans as a guide to making	Formulate step-by-step plans as a guide to making	Formulate step-by-step plans as a guide to making for others to confidently follow
				<i>Practical skills and techniques</i>	Know the procedures for safety Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Apply a range of finishing techniques inc. different styles of writing for a purpose	Follow procedures for safety Accurately measure, mark out, cut, score and assemble the net of a 3D shape Accurately apply a range of finishing techniques inc. different styles of writing for a purpose Demonstrate resourcefulness when tackling practical problems	Follow procedures for safety and supporting others to do so Accurately measure, mark out, cut, score and assemble the net of a 3D shape to fine measurements Accurately apply a range of finishing techniques inc. different styles of writing for a purpose Demonstrate resourcefulness when tackling practical problems and showing support to others
			TECHNICAL KNOWLEDGE		Some correct technical vocabulary for the projects they are undertaking Using a simple net, create 3D packaging for purpose	The correct technical vocabulary for the projects they are undertaking How to make 3D shapes from nets and that the final 3D shape is dependent on the shape of the net	With increasing accuracy use nets to create more complex 3D shapes

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			EVALUATING	<i>Own ideas and products</i>	Begin to evaluate their ideas and products against their original design specification	Begin to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make Evaluate their ideas and products against their original design specification	Critically evaluate the quality of the design, manufacture and fitness for purpose of their Evaluate their ideas and products against their original design specification, identifying successes and next steps	
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5D Biscuits -FOOD - Design Technology

It is helpful if the children have:

- * experience of describing the characteristics of food
- * skills in using equipment safely
- * awareness of food hygiene
- * used criteria to inform their design
- * used simple evaluation techniques
- * used weighing and measuring skills

This units builds on Units 1C 'Eat more fruit and vegetables' and 3B 'Sandwich snacks'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year A Autumn 2 Yr5/6	Biscuits	OUTCOME OF TOPIC		with help, have chosen appropriate ingredients to adapt a recipe and make a product	have used their experiences of using food to help generate ideas; have explained why they have chosen certain foods and processes; have followed an order of work and have chosen equipment appropriately; have made and evaluated a new biscuit for a particular occasion/person; have used tools and equipment safely and tried to be accurate in their making	have evaluated several ideas and drawn up a specification to inform their design; have applied their understanding of the functional properties and characteristics of ingredients; have used tools and equipment accurately and safely to create a quality outcome that meets their original design specification	* <u>designing</u> <i>eg investigate, research, evaluate, brainstorm, consumer, quality, specification</i> * <u>making</u> <i>eg combining, creaming, mixing, finishing, sandwiched, hygiene, antibacterial</i> * <u>knowledge and understanding</u> <i>eg names of equipment and ingredients, names of products, quality control, texture, flavour, crisp, crunchy, sticky, soft</i>
		COOKING and NUTRITION	<i>Where food comes from & Understanding Food</i>	That a recipe can be adapted a by adding or substituting one or more ingredients Classify biscuits based on appeal	That biscuits come in many forms <i>eg sweet and savoury</i> , with a variety of shapes, textures and finishes To develop skills in evaluating and describing food characteristics That products are designed for different users and this is an important consideration when designing To draw conclusions from research	How food is processed into ingredients that can be eaten or used in cooking To be able to suggest who may like which product and designing appropriately To draw conclusions from research and make own suggestions	
			<i>Food preparation, cooking and nutrition</i>	Prepare and cook safely and hygienically including, where appropriate, the use of a heat source Use a range of techniques such as measuring, mixing and baking Follow instructions/recipe with some support Begin to develop appropriate ways of adapting a basic recipe	That recipes can be adapted to change the appearance, taste, texture and aroma Use a range of techniques such as measuring, mixing and baking Follow instructions/ recipe independently Make alterations to the recipe to handle food safely and hygienically Develop appropriate ways of adapting a basic recipe to select appropriate ingredients and equipment	Suggesting how a recipes can be adapted to change the appearance, taste, texture and aroma, put this into practice in own cooking Use a range of techniques such as measuring, mixing and baking and support others Follow recipe with confidence Adapt and explain effect of adapting a basic recipe to select appropriate ingredients and equipment	

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							<i>dough, elastic dough</i>
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5C Moving Toy - MECHANISMS - Design Technology

It is helpful if the children have:

- * learnt how to handle tools safely
- * learnt about the working characteristics of some sheet materials
- * made models with construction kits

This unit builds on Units 1B 'Playgrounds', 2C 'Winding up' and 3C 'Moving monsters'.

It also builds on Science 'Forces and movements' and 'Friction'.

Year Group Cohort	Topic Name	National Curriculum Area	Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year A Summer 1 Yr5/6	Moving Toy	OUTCOME OF TOPIC		have generated one viable idea after discussion with the teacher; have assembled a simple mechanism as part of the design; have used tools with some accuracy and finished their toy in a design that they have prepared with some assistance	have used their knowledge of the movement made by the cam in the design of their toy; have produced sketches and step-by-step plans and identified tools and materials; have measured, marked out and cut accurately, evaluating their work as it develops and at the end	through discussion, have sketched ideas using their knowledge of mechanisms; have tested these ideas through prototypes before developing a set of plans to work from; have made a model which is accurate, functions well and is well finished and appropriate for the user; have compared their model to the original plan when evaluating and suggested ways to improve the finished product; have considered other ideas for cam-based toys not cased in a box
		DESIGN	Understanding contexts, users and purposes	Describe the purpose and the movement of a mechanism within a toy or model of their products	Describe the purpose a cams and the movement of a mechanism within a toy Think about how particular parts of their products work	Describe the purpose and the movement of a mechanism within a toy or model of their products to an audience using persuasive techniques
			Generating, developing, modelling and communicating ideas	Begin to model their ideas using an annotated sketches Develop a simple design specification to guide their thinking	Use annotated sketches/plans to develop and communicate their ideas Develop a simple design specification to guide their thinking	Model their ideas using annotated sketches, cross-sectional drawings and exploded diagrams to develop /communicate their ideas Develop a design specification to guide their thinking
		MAKING	Planning	Select tools and equipment suitable for the task Select materials and components suitable for the task Explain their choice of materials and components	Select tools and equipment suitable for the task Select materials and components suitable for the task Formulate step-by-step plans as a guide to making	Explain their choice of tools and equipment in relation to the skills and techniques they will be using Formulate step-by-step plans as a guide to making for others to confidently follow
			Practical skills and techniques	Know the procedures for safety Use a wider range of materials and components than KS1 Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Apply a range of finishing techniques, including those from art and design	Follow procedures for safety Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components Accurately apply a range of finishing techniques, including those from art and design Demonstrate resourcefulness when tackling practical problems Use a drill to make an off-centre hole in a wheel Test out their design ideas before proceeding	Follow procedures for safety, supporting others to do so Accurately measure, mark out, cut and shape materials and components to fine measurements Accurately assemble, join and combine materials and components to fine measurements Accurately apply a range of finishing techniques suitable for the product, including those from art and design Demonstrate resourcefulness when tackling practical problems and showing support to others Continuously test out design and make appropriate alterations
		TECHNICAL KNOWLEDGE		Identify how the cam is turning making the follower move in a different way	that a cam will change rotary motion into linear motion that different shaped cams produce different How to use different cams for different motion Understand the relationship between a cam and a follower	Explain and effectively use more complex relationships between cams and a follower
		EVALUATING	Own ideas and products	Begin to evaluate their ideas and products against their original design specification	Begin to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	Critically evaluate the quality of the design, manufacture and fitness for purpose of their design suggesting plausible improvements

- * designing
eg sequence, annotated diagram, sketch, decision, choice, prototype, model, communicate
- * making
eg shape, assemble, accurate, saw, mark out
- * knowledge and understanding
eg cam, **mechanism**, movement, linear motion, **rotary motion**, pivot, **off-centre**, axle, force, framework, **follower**, guide, offset, **shaft**

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6B Phone Case/ Money Purse - TEXTILES - Design Technology

It is helpful if the children have:

- * made and used simple patterns
- * stitched and joined textiles
- * written simple specifications
- * planned their work in a step-by-step approach

This unit builds on Units 2B 'Puppets' and 4A 'Tree Decoration'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 <i>(Use to help pitch lessons and success criteria)</i>	Working Beyond	Vocabulary
Year A Summer 2 Yr5/6	Phone Cases/ Money Purse	OUTCOME OF TOPIC		have gathered some information with help and guidance; have developed limited skills in working with textiles and will have required support in designing and making their slipper <i>eg they may have needed to use simple pre-drawn patterns and also needed support in cutting and joining fabric</i>	have used information from investigating phone case to inform their own designing and making; have developed their skills in working with textiles and will have designed and made a cases using appropriate materials and techniques; have been able to evaluate critically both the appearance and function of the cases against the original specifications	have worked independently and systematically to design and make a phone case of high quality, drawing on their evaluation of existing products and trialling of their own ideas; have been able to give clear reasons for choosing a specific idea, taking into account construction methods, appearance and function of slippers; have identified in their evaluation why they made changes to their design as it developed	* <u>designing</u> <i>eg specification, flow chart, mock-up, accurate, users, fabric swatches, working drawing</i> * <u>making</u> <i>eg pattern/template, working properties</i> * <u>knowledge and understanding</u> <i>eg seam, seam allowance, inner lining, reinforce, right side/wrong side, stitch, stitching, tacking, wadding, sewing machine, hem</i>
		DESIGN	Understanding contexts, users and purposes	Indicate the design features of their products that will appeal to intended users	Investigate the product considering the design features of their products that will appeal to intended users	Investigate the product and indicate the design features of their products that will appeal to intended users	
			Generating, developing, modelling and communicating ideas	Begin to model their ideas using prototypes and pattern pieces	Model their ideas using prototypes and pattern pieces	Model their ideas using prototypes and pattern pieces, exploring many different approaches	
		MAKING	Planning	Formulate simple step-by-step plan with support ensuring pupil refers to it while making product	Formulate step-by-step plans as a guide to making	Formulate step-by-step plans as a guide to making for others to confidently follow	
			Practical skills and techniques	Know the procedures for safety Measure, mark out, cut and join by pinning, sewing and stitching (using running, back and blanket stitch) Apply a range of finishing techniques, including those from art and design	Follow procedures for safety Accurately measure, mark out, cut and join by pinning, sewing and stitching (using running, back and blanket stitch) Accurately apply a range of finishing techniques, including those from art and design Demonstrate resourcefulness when tackling practical problems	Follow procedures for safety and supporting others to do so Accurately measure, mark out, cut and join by pinning, sewing and stitching (using running, back and blanket stitch) to fine measurements Accurately apply a range of finishing techniques suitable for the product, including those from art and design Demonstrate resourcefulness when tackling practical problems and showing support to others	
		TECHNICAL KNOWLEDGE		Use some correct technical vocabulary for the projects How to pin, sew and stitch materials Use different stitch types effectively	The correct technical vocabulary for the projects How to pin, sew and stitch materials Use different stitch types effectively	The correct technical vocabulary for the projects confidently Effectively use a variety of stitches with confidence	
		EVALUATING	Own ideas and products	Begin to evaluate their ideas and products against their original design specification	Begin to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	Critically evaluate the quality of the design, manufacture and fitness for purpose	

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6A Shelters - STRUCTURES - Design Technology

Year B Spring 1 Yr5/6

It is helpful if the children have:

- * learnt how to mark out, cut and join materials to make frameworks
- * practised ways of showing their design ideas on paper

This unit builds on Units 1D ‘Homes’, 3A ‘Packaging’ and 5C ‘Moving toys’.

It also builds on Science Units ‘Pushes and pulls’, ‘Grouping and changing materials’, ‘Forces and movement’ and ‘Characteristics of materials’.

Focus on joins/ strength of structure (see planning sheet in Teams/DT/Resources) <i>Challenge: To create a model shelter to keep a toy dry from rain</i> Lesson 1- I can evaluate a range of shelters and explain how they are effective for their purpose (use eval Qs in QCA doc) I can find out about performance textiles in tents and outdoor equipment Lesson 2: I can explore strongest shapes and structures and can add reinforcements to strengthen it I can identify characteristics of performance textiles in tents and outdoor equipment Lesson 3: I can design a model of a shelter for a purpose including details of structural design and weatherproofing Lesson 4: I can build my model following my plan Lesson 5: I can conduct a fair test I can identify the strengths and ares of development	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
	OUTCOME OF TOPIC		have investigated at least one example of a shelter; have made a simple model shelter incorporating framework and a textiles cover	have investigated several shelters; have made, used and recognised the use of tubes as a material from which to make a framework; have reinforced and strengthened frameworks using triangulation and carried out a fair test; have included in their designs drawings showing several alternative shelter ideas; have chosen to make an appropriate scale or full-size shelter for a specific purpose; have incorporated a framework and a textiles cover	have investigated several framework structures including shelters and others showing a thorough understanding of materials used and methods of construction; have set out a step-by-step approach to how their shelter will be made and listed tools and materials to be used; have made their shelter using a wider range of materials and techniques; have been able to identify what is and what is not working well with their chosen shelter designs and modified their shelter as they went along	• <u>designing</u> eg modelling, scale model, fair test • <u>making</u> eg rolling, strengthening, reinforcing • <u>knowledge and understanding</u> eg triangulation, diagonal, stable, strength, framework, material, tube, rigid, section, water resistance, tie, strut, beam, bracket, stay, member, horizontal, vertical, gusset forces eg tension, compression, bending, twisting
	DESIGN	Understanding contexts, users and purposes	Describe the purpose of their products Indicate the design features of their products Investigate & develop a simple design specification to guide their thinking	Work confidently within a different context, such as the home, school, leisure, culture, enterprise, industry and the wider environment Investigate shelters & consider the design specification to guide their thinking	Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment	
		Generating, developing, modelling and communicating ideas	Begin to use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Generate ideas for products making design decisions	Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Make design decisions, taking account of constraints such as time and resources	Confidently use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Make design decisions, taking account of constraints such as time and resources	
	MAKING	Planning	Select tools and equipment suitable for the task Produce appropriate lists of tools, equipment and materials that they need	Select tools and equipment suitable for the task Formulate step-by-step plans as a guide to making	Explain their choice of tools & equipment in relation to the skills and techniques they will be using Formulate step-by-step plans as a guide to making for others to confidently follow	
		Practical skills and techniques	Know the procedures for safety Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Begin to use techniques that involve a number of steps Explore the use of tubes as a material from which to make a framework	Follow procedures for safety Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components Use & recognise the use of tubes as a material from which to make a framework	Follow procedures for safety and supporting others to do so Accurately measure, mark out, cut, assemble, join and combine materials and components to fine measurements Confidently use multi step techniques Demonstrate resourcefulness when tackling practical problems and showing support to others Creatively use tubes as a material from which to make a framework	
	TECH KNOW		Explore how to build 3D structures	How to reinforce and strengthen a 3D framework How to use different materials to create a waterproof lining	How to reinforce and strengthen a 3D framework	

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	<i>EVAL</i>	<i>Own ideas and products</i>	Begin to evaluate their ideas and products against their original design specification	Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests	Evaluate their ideas and products against their original design specification, identifying successes and next steps	
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6D Self Powered Vehicles -MECHANISMS - Design Technology

Year B Spring 2 Yr5/6

It is helpful if the children have:

- * produced labelled drawings
- * used tools safely and accurately
- * built a framework from square section wood
- * fixed wheels and axles to a chassis

This unit builds on Units 2A 'Vehicles', 3C 'Moving monsters', 4D 'Alarms' and 5C 'Moving toys'.

It also builds on Science Units 'Using electricity', 'Circuits and conductors'

CHALLENGE: <i>To build the fastest self-propelled vehicle challenge</i> Bloodhound: https://www.bbc.co.uk/teach/class-clips-video/science-design-and-technology-ks2-experimenting-with-balloon-powered-cars/zjsygvwx Lesson 1: I have researched and can explain in simple terms how different types of vehicle engines propel move. I can label the basic parts of a simple DT vehicle. Lesson 2: I can plan and design a simple investigation using balloons or rubber bands to achieve the challenge of creating the fastest vehicle. Lesson 3: I can build a self-propelling vehicle and conduct a fair test Lesson 4: I can evaluate and explain how my design propelled my vehicle forward and changes I would make to improve its performance.	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
	OUTCOME OF TOPIC		have explored how to propel a vehicle forward, will have required support to construct a basic model and will be able to explain how it propels forward with support.	have gained an understanding of how sustainable energy can be created and used to propel a vehicle. Pupils will build own cars, explore different ways to power them and explore which travel the fastest. Pupils will explain how vehicles are propelled using vocabulary and evaluate ways to improve design.	have designed and made a well-finished working model and have considered and trialled ways to control the direction and the speed; have identified the extent to which particular features of their model work and what could be done to improve them	* <u>designing</u> <i>eg design proposal, criteria, exploded diagrams, labelled drawings</i> * <u>modifications</u> <i>eg cutting jig, finishing technique, assembling, components</i> * <u>knowledge and understanding</u> <i>eg combustion engine and jet (rocket engine) engine, electric engine, chassis, axle</i>
	DESIGN	Understanding contexts, users and purposes	Develop a simple design specification to guide their thinking	Develop a simple design specification to guide their thinking	Indicate the design features of their products that will appeal to intended users Develop a design specification to guide their thinking	
		Generating, developing, modelling and communicating ideas	Share through discussion Begin to use annotated sketches to develop and communicate their ideas Generate ideas for products	Share and clarify ideas through discussion Use annotated sketches and exploded diagrams to develop their ideas Design and make as part of a team	Confidently use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Generate innovative ideas, drawing on research	
	MAKING	Planning	Explain their choice of materials and components Produce appropriate lists of tools, equipment and materials that they need	Formulate step-by-step plans as a guide to making	Formulate step-by-step plans as a guide to making for others to confidently follow	
		Practical skills and techniques	Know the procedures for safety Measure, mark out, cut and join materials and components Begin to use techniques that involve a number of steps	Follow procedures for safety Accurately measure, mark out, cut and shape materials and components Accurately assemble components to make working parts	Follow procedures for safety and supporting others to do so Accurately use a wider range of materials and components	

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	<i>TECHNICAL KNOWLEDGE</i>		How a vehicle moves using wheels and axles How a vehicle moves using the push of air The correct technical vocabulary for the projects they are undertaking	How not all vehicles are powered in the same way How a vehicle moves using wheels and axles The correct technical vocabulary for the projects they are undertaking and ability to debate the strengths of each system	Able to explain how a vehicle moves using wheels and axles The correct technical vocabulary for the projects they are undertaking and ability to debate the strengths of each system.	
	<i>EVALUATING</i>	<i>Own ideas and products</i>	Begin to evaluate their ideas and products against their original design specification	to evaluate their work according to their design criteria and to suggest improvements	Evaluate their ideas and products against their original design specification, identifying successes and next steps to increase power.	

5B Bread -FOOD - Design Technology

It is helpful if the children have:

- * an awareness of basic food hygiene and using equipment safely
- * experience of investigating existing products to inform design ideas
- * experience of evaluating food products according to appearance, texture and taste
- * weighing and measuring skills

This unit builds on Units 1C 'Eat more fruit and vegetables' and 3B 'Sandwich snacks'.

It also builds on Science Units 'Teeth and eating' and 'Characteristics of materials'.

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year B Summer 1 Yr5/6	Bread	OUTCOME OF TOPIC		have designed and made a bread product with support and guidance; have indicated why choices were made after discussion with the teacher; have demonstrated some skills when making the product	have used their experiences of food ingredients and cooking methods to help generate ideas; have explained why they have chosen certain foods and processes; have produced an order of work and chosen equipment appropriately; have made and evaluated their bread product against objective design criteria; have a clear understanding of issues related to food safety and hygiene	have used findings from their investigative work to draw up a specification for a new bread product; have drawn on their understanding of the characteristics and properties of foods to select appropriate ingredients; have worked accurately to make bread products that match the sensory properties required; have implemented improvements as the design developed	* <u>designing</u> eg <i>evaluating, investigation, preferences, profile, specification, criteria, fair test, costing</i> * <u>making</u> eg <i>ingredients, quantities, shaping, mixing, topping, kneading, proving, baking, cooking method, grilling, boiling, frying, glazing</i> * <u>knowledge and understanding</u> eg <i>yeast, wheat, grain,</i>
		COOKING and NUTRITION	<i>Where food comes from & Understanding Food</i>	Develop skills in evaluating and describing food characteristics That there is a wide variety of bread products from a variety of cultural traditions & important part of balance diet Investigate and evaluate bread products according to their characteristics Compare the processes involved in making bread products – commercial and domestic	Develop skills in evaluating and describing food characteristics That there is a wide variety of bread products from a variety of cultural traditions & important part of balance diet Investigate and evaluate bread products according to their characteristics Compare the processes involved in making bread products – commercial and domestic	Developing skills in evaluating and describing food characteristics That there is a wide variety of bread products from a variety of cultural traditions & important part of balance diet Investigate and evaluate bread products according to their characteristics Compare the processes involved in making bread products – commercial and domestic	
			<i>Food preparation, cooking and nutrition</i>	Prepare and cook safely and hygienically including, where appropriate, the use of a heat source Use a range of techniques such as measuring, mixing and baking	That recipes can be adapted to change the appearance, taste, texture and aroma Use a range of techniques such as measuring, mixing and baking Follow instructions/ recipe independently Make alterations to the recipe	Knowing that recipes can be adapted to change the appearance, taste, texture and aroma, put this into practice in their own cooking Use a range of techniques such as measuring, mixing and baking and support others Follow recipe with confidence	

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				Follow instructions/recipe with some support Begin to develop appropriate ways of adapting a basic recipe	to handle food safely and hygienically Develop appropriate ways of adapting a basic recipe to select appropriate ingredients and equipment how to work safely and hygienically	Explain effect of adapting a basic recipe to select appropriate ingredients and equipment	<i>flour, dough, crust, rise</i> – names of tools and equipment – sensory characteristics <i>eg texture, doughy, crisp, chewy, yeasty, stretchy, elastic</i> food safety <i>eg hygiene, bacteria, mould, decay, food poisoning</i>
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6C Fairgrounds –STRUCTURES & MECHANISMS - Design Technology

It is helpful if the children have:

- * learnt about electrical circuits and a variety of electrical components
- * made models with rotating parts *eg wheeled vehicles* and a variety of models made with construction kits

This unit builds on Units 2A ‘Vehicles’, 3C ‘Moving monsters’, 4D ‘Alarms’ and 5C ‘Moving toys’.

It also builds on Science Units ‘Using electricity’, ‘Circuits and conductors’, ‘Changing circuits’ (short unit) and on IT Unit ‘Controlling devices’

Year Group Cohort	Topic Name	National Curriculum Area		Working Towards Y6 Working At Y5	Working At Y6 (Use to help pitch lessons and success criteria)	Working Beyond	Vocabulary
Year B Summer 2 Yr5/6	Fairground Motorized ride & marble roller coaster to explore structures and movement	OUTCOME OF TOPIC		have relied more on a construction kit to produce a model with a rotating part, which may or may not be driven by an electric motor and may not have used computer control	have become familiar with how an electric motor behaves when connected in an electrical circuit; have generated several ideas to choose from; have harnessed the rotation produced by the motor to drive a moving part on a model they have made, employing belts and pulleys; have designed, made, evaluated and modified their ride and linked it to computer control	have analysed possible designs to some depth against the design criteria, displaying an awareness of constraints and the implications of changes; have produced a working model which can rotate at different speeds and may include other rotating mechanisms within the model; have produced a model whose appearance and finish is of a high standard; have communicated their design ideas clearly and implemented improvements	* <u>designing</u> <i>eg model, mock-up, select, modify, improvements, design proposal, criteria</i> * <u>making</u> <i>eg framework, construct, temporary joins, permanent joins</i> * <u>knowledge and understanding</u> <i>eg rotation, spindle, axle,</i>
		DESIGN	<i>Understanding contexts, users and purposes</i>	Work within a different context, such as leisure Indicate the design features of their products that will appeal to intended users Develop a simple design specification to guide their thinking	Work confidently within a different context, such as leisure Think about how particular parts of their products work Consider the needs, wants, preferences and values of particular individuals and groups Develop a simple design specification to guide their thinking	Work confidently within a range of contexts, such as leisure wider environment Explain how particular parts of their products work Develop a design specification to guide their thinking	
			<i>Generating, developing, modelling and communicating ideas</i>	Share through discussion Begin to model their ideas using prototypes and and construction kits Generate ideas for products	Share and clarify ideas through discussion Model their ideas using prototypes and construction kits Use computer-aided design to develop and communicate their ideas Generate innovative ideas	Share and clarify ideas through discussion, taking on board the views of others Model their ideas using prototypes and construction kits, exploring many different approaches	
		MAKING	<i>Planning</i>	Select tools and equipment suitable for the task Select materials and components suitable for the task Explain their choice of materials and components Produce appropriate lists of tools, equipment and materials that they need	Select tools and equipment suitable for the task Explain their choice of materials and components according to functional properties Formulate step-by-step plans as a guide to making Make modifications as they go along	Explain their choice of tools and equipment in relation to the skills and techniques they will be using Produce appropriate lists of tools, equipment and materials that they need Formulate step-by-step plans as a guide to making for others to confidently follow	

Camelford Primary School DT Skills Progression

			<i>Practical skills and techniques</i>	Know the procedures for safety Use a wider range of materials and components than KS1 Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Begin to use techniques that involve a number of steps	Follow procedures for safety Use a wider range of materials and components than KS1, including construction materials and kits, mechanical components and electrical components Accurately measure, mark out, cut and join Use techniques that involve a number of steps Demonstrate resourcefulness when tackling practical problems	Accurately use a wider range of materials and components than KS1, including construction materials and kits, mechanical components and electrical components Accurately measure, mark out, cut, assemble, join and combine materials and components to fine measurements Confidently use multistep techniques Demonstrate resourcefulness when tackling practical problems and showing support to others	<i>drive belt, pulley, electric motor, speed, framework, horizontal, vertical, electric circuit, switch, gearing up or down, computer control, mechanism</i> (Rollercoaster): <i>acceleration, inertia, prototype, reinforcement, angle, height, modify, connections, safety testing, structure</i> <i>stable</i>
		<i>TECHNICAL KNOWLEDGE</i>		How mechanical systems such as cams or pulleys or gears create movement Begin to describe how the motor is creating movement	That mechanical and electrical systems have an input, process and output The correct technical vocabulary for the projects they are undertaking How the direction of rotation and speed of an electric motor can be controlled How rotation can be transferred from one part of a model to another by using pulleys and a belt How a belt and pulley system can reverse the direction of rotation (by twisting the belt through 180 degrees) and turn the plane of rotation through 90 degrees	How to reinforce and strengthen a 3D framework Use their knowledge of circuits, electric motors in simple circuit to change the rotation and speed of a product powered by an electric motor Explain how the item is moving using an increasing amount of appropriate vocabulary	
		<i>EVALUATING</i>	<i>Own ideas and products</i>	Identify the strengths and areas for development in their ideas Consider the views of others, including intended users, to improve their work Begin to evaluate their ideas and products against their original design specification	Identify the strengths and areas for development in their ideas and products Begin to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make Evaluate their ideas and products against their original design specification	Identify the strengths and areas for development in their ideas and products and use this to refine their products Consider the views of others, including intended users, to improve their work and use this to refine their products Critically evaluate the quality of the design, manufacture and fitness for purpose of their Evaluate their ideas and products against their original design specification, identifying successes and next steps	