D & T long term plan

National Curriculum coverage

Additional content to support the GC

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.

Attainment targets

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.

Key concepts to incorporate through Design and Technology units			
Design	**Make**	**Evaluate**	**Technical Knowledge**

			(technology and skills)
Vocabulary which could relate to this concept design, research, diagram, photos, materials, equipment, finish, labels, explosive diagram, equipment, client, consumer, customer, audience, footprint, plan, discuss	**Vocabulary which could relate to this concept** measure, mark, cut, select, tools, equipment, practical, shape, join, finish, materials components, construction, textiles, ingredients, characteristics.	**Vocabulary which could relate to this concept** peer, test, compare, adapt, review, explore, product, consumer, client, audience, criteria, design,	**Vocabulary which could relate to this concept** **Textiles** sewing, cross stitch, running stitch, blanket stitch, fabric glue, fastenings, material, texture, fabric, pattern, cost, scissors, measure, mark **Structures** structure, stable, strength, stiff, base, engineer, architect, design, 2D, 3D, frame, measure, saw, reinforce, **Mechanisms and Mechanical Systems** mechanisms, levers, pulleys, axle, wheel, movement, sliders, rotation **Cooking and Nutrition** cooking, nutrition, knife, ingredients, recipe, knead, bread, healthy, fruit, vegetables, taste, texture, smell, appearance, cost, hygiene, slice, claw grip, bridge grip, contamination, **Electrical Systems** electricity, bulb, circuit, battery, power, switch, reflector,

Foundation stage

Early Learning Goals

Expressive Arts and Design: Creating with materials Children at the expected level will:

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

Physical Development: Fine Motor Skills

Children at the expected level of development will:

- Hold a pencil e ectively in preparation for fluent writing – using the tripod grip in almost all cases; - Use a range of small tools, including scissors, paint brushes and cutlery; - Begin to show accuracy and care when drawing.

	Autumn	Spring	Summer
Reception	Identity and Diversity	Sustainable Development	Peace and Con ict
	• Use their senses to explore and describe objects. Make models of their own choosing. • Explore making, with di erent equipment including new ways of joining (e.g. split pins, staples, tags, string). • Be proud of what they have made. • Be aware that ingredients are available from a range of sources • (shops, markets, grown at home). • Complete basic hygiene tasks (e.g. wash hands). •	• Talk about what they want to make. • Think of some ideas of their own. • Explain what they are making. • Use tools safely. Share their creations, explaining the process • they have used. •	• Make observations about the features of objects. • Plan how best to approach a task. • Select appropriate resources and • tools. Explain which tools they are using and why. • Use tools to manipulate materials. • Identify success and next steps. • Change their strategy as needed. • Select and use appropriate tools • needed for a recipe. • •

	• • Talk about foods they like and dislike with reasons. Discuss the food that they eat during special occasions or cultural celebrations (e.g. birthday, Eid, etc.) • Be willing to try new foods. • Understand the importance of healthy food choices.		• Use tools e ectively and safely • Identify and use the appropriate ingredients for a recipe

Key Stage 1

National Curriculum objectives

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 and school, gardens and playgrounds, the local community, industry and the wider environment].

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 [for example, cutting, shaping, joining and finishing]
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **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, sti er 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.

Cycle A	Power and Governance	Sustainable Development	Peace and Con ict
- **Mechanisms: wheels and axles** - **Textiles: templates and joining techniques** - **Food: preparing fruit and veg cooking and nutrition in ks1**	**Topic** Positions of Power Voice of People **Supportingtext/book** VladandtheGreatFireofLondon TheKingWhoBannedtheDark **Rainbow challenges:** **Mechanisms: Levers and Linkages**: Explore how materials can be connected to make a moving object (eg split pins) https://www.kapowprimary.com/subjects/ design-technology/key-stage-1/year-2/me chanisms-making-a-moving-monster/	**Topic** **MITNE: Inventors** **Key Project** **Mechanisms: Wheels and axles:** **What is a fair ground?** Design a ferris wheel. How do the components fit together so the wheels rotate? How does the structure stand freely? https://www.kapowprimary.com/subjects/ design-technology/key-stage-1/year-2/me chanisms-fairground-wheel/ **National Curriculum objective**	**Topic** Living During Conflict What Causes Conflict? **Supportingtext/book** LionandtheUnicorn TheOneHundredSteps **Key Project** **Textiles: How can I join materials?** **Pouches** Design and create a simple pouch to store something precious. Use templates, consider di erent joining techniques including glue, staples and pin. Evaluate andremaketouseasimplestitch

	National Curriculum objective ● Explore and evaluate a range of existing products ● Explore and use mechanisms [for example, levers, sliders, wheels and axles] ● 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 ● Select and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) ● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics ● Explore and evaluate a range of existing products ● Evaluate their ideas against design criteria **Key Vocabulary** Design, Criteria, Evaluation, Input, Linkage, Mechanical, Mechanism, Output, Pivot, Survey, Motion Other vocabulary: Linear motion, Reciprocating motion, Rotary motion, Oscillating motion **Core concepts:** Evaluate, Design, Make, Technical Skill	● Explore and evaluate a range of existing products ● Generate, develop and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology ● Explore and use mechanisms in their products ● Design purposeful, functional, appealing products for themselves and other users based on design criteria ● Explore and use mechanisms in their products.	https://www.kapowprimary.com/subjects/d esign-technology/key-stage-1/year-2/textil es-pouches/ **National Curriculum objective** ● Select from and use a range of tools and equipment to perform practical tasks ● Design purposeful, functional, appealing products for themselves and other users ● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristics Evaluate their ideas and products against a design criteria ● **Key Vocabulary** Accurate, Fabric, Knot, Pouch, Running-stitch, Sew, Shape, Stencil, Template, Thimble, Needle, Needle eye Other vocabulary: Shoes, Rucksack, Shirt, Skirt, Vest **Key People, Dates, Events:** - Evacuation began 1st sept 1939 - While the 1930s provided scope for exploration of the aesthetics of bags and purses, the 1940s focused on functionality and practicality. - The 1940s was the decade of make-do-and-mend, innovation, and functionality. This approach has resulted in perhaps the first truly practical bags for women, of which many styles are still worn today. **Core concepts:** Design, Make, Evaluate, Technical knowledge

		● Evaluate their own ideas and products against a design criteria ● Build structures exploring how they can be made stronger, sti er, and more stable ● Explore and use mechanisms in their products ● Select from and use a range of tools and equipment to perform practical tasks **<u>Key Vocabulary</u>** Axle, Decorate, Evaluate, Ferris Wheel, Ferris wheel pod, Mechanism, Stable, Strong, Test, Waterproof, Weak <u>Other vocabulary</u>: Fairground, Inventor, Design, Base, Materials, Bricks, Wood, Metal **<u>Key People, Dates, Events:</u>** - 3500 bc - the wheel - The first ferris wheel built called the 'Chicago Wheel' in 1893 and was 80m tall. Invented by George Washington Gale	

	Key Skills: - Make linkages using card for levers and split pins for pivots - Experiment with linkages adjusting width and length and thickness of card - Cut and assemble components - Use peer feedback to modify - Know that mechanisms are moving parts - Understand input and output to mechanisms - Understand input is energy to make something start working - Understand output is the movement that happens as a result. - Know that a lever is something that turns on a pivot - Know that a linkage is made up of a series of levers	Ferris - It was unveiled at an exhibition to to celebrate the 400th anniversary of Christopher Columbus' discovery of America. - London Eye - Tyne Ferris Wheel https://www.newcastleworld.com/news/gia nt-ferris-wheel-whey-aye-wheel-set-to-ope n-on-quayside-in-2024-everything-you-ne ed-to-know-about-the-ps100m-plan-33439 20 **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Select a suitable linkage system - Design a wheel selecting materials - Delect materials based on characteristics	**Key Skills:** - Design a pouch - Select and cut fabrics for sewing - Decorate a pouch using fabric glue or running stitch - Thread a needle - Sew a running stitch with even spaces - Use pins and cut fabric using a template.

	Topic **STEM WEEK** **Structures:** **How can we use lolly sticks to support a structure?** Make a new chair for baby bear using lolly sticks - consider shape and how to get it to stand. https://www.kapowprimary.com/subjects/ design-technology/key-stage-1/year-2/str uctures-baby-bears-chair/ **National Curriculum objective** ● Explore and evaluate a range of existing products ● Evaluate their ideas and products against design criteria ● Build structures, exploring how they can be made stronger, sti er and more stable	- Follow a design brief - Evaluate di erent designs - Test and adapt a design - Di erent materials have di erent properties for di erent uses - Recognise the features of a ferris wheel frame, pod, base, axel and axel holder.	**Topic** Living During Conflict What Causes Conflict? **Supportingtext/book** LionandtheUnicorn TheOneHundredSteps **Key Project** **Food: How can we maintain a balanced diet?** Consider how people during the war may not have been able to maintain a healthy diet as a result of rationing and available food. Recognise our ability to have a varied and healthy diet. https://www.kapowprimary.com/subjects/d esign-technology/key-stage-1/year-2/food -a-balanced-diet/ **National Curriculum objective**

	● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics ● 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 **Key Vocabulary** Function, Man-made, Mould, Natural, Stable, Sti , Strong, Structure, Test, Weak Comfortable **Core concepts:** Evaluate, Design, Make, Technical Skill **Key Skills:** - Generate and communicate ideas using sketching and modelling - Learn about di erent structures found in the world. - Make a structure based on a design criteria - Create joints and structures from paper, card and tape. - Explore the features of structures. - Compare stability of di erent structures. - Test strength of own structure. - Evaluate strength of structures.		● Understand where food comes from ● Use the basic principles of a healthy and varied diet to prepare dishes ● Explore and evaluate a range of existing products ● Design purposeful, functional, appealing products for themselves and other users based on design criteria ● Evaluate their ideas and products against design criteria Evaluate their ideas and products against design criteria ● **Key Vocabulary** Alternative, Diet, Balanced diet, Evaluation, Expensive, Healthy, Ingredients, Nutrients, Packaging, Refrigerator, Sugar Other vocabulary: Similarities, Di erence, Change, Rationing, War, Preserve. **Key People, Dates, Events:** -Rationing was introduced starting with sugar in December 1917, then with meat and butter in February 1918. In January 1940, the British government introduced food rationing - The end of the war saw additional cuts. Bread, which was never rationed during wartime, was put on the ration in July 1946. - Meat was the last item to be de-rationed and food rationing ended completely in 1954. - The British population emerged healthier than it had ever been before, and families had been educated in putting nutritional, frugal meals on their tables.

	- Identify the weakest point of a structure. - Understand shapes and structures with wide flat bases will be stronger. - stable = firmly fixed and unlikely to change or move - strong = does not break easily		

	- sti = does not bend easily. - Understand the di erence between a natural and man-made structure.		**Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Design a wrap working on combinations of food that go well together. - Slice food safely using the claw grip - Slice food safely using the bridge grip - Evaluate most e ective slicing technique. - Construct a wrap which meets the brief. - Describe taste, texture and smell of fruit and vegetables - taste test combinations of food and final product. - Understand 'diet' refers to food and drink consumed by a person or animal. - understand 'ingredients' means items in a mixture or recipe.
Cycle B	Identity and Diversity	Social Justice	Globalisation and Interdependence

- **Mechanisms: sliders and levers** **-Structures: free standing** - **Food: preparing fruit and veg cooking and nutrition in ks1**	**Topic** Belonging and Identity **Supportingtext/book:** ThePaperBagPrincess **Key Project:** **Can I use a variety of tools with accuracy?** Developing fine motor skills to cut, tape and trace implemented through Rainbow challenges **National Curriculum objective** ● Select from and use a range of tools and equipment to perform practical tasks. ● Select from and use a wide range of materials and components,	**Topic** Helping others and contributing to the wider community **Supportingtext/book** UP! **Key Project:** **Food: What is afternoon tea?** Categorise foods and consider the importance of fruit and veg in our diets. Design a menu, taste and evaluate foods and make items to hold a tea party for the elderly. (FruitSkewers,vegetable dippers,sandwiches,decoratecakes) https://www.kapowprimary.com/subjects/ design-technology/key-stage-1/year-1/frui t-and-vegetables/	**Topic** Links to the wider world and similarities and di erences in the world **Supportingtext/book** TheLonelyBeast **Key Project** **Mechanisms: How can you help the lonely beast travel around the world?** **Wheels and Axels: How do wheels move?** Design a vehicle to include wheels and axles . Understand how wheels move, where we find wheels (ie vehicles, trolleys etc) problem solve to identify why wheels wont rotate.

	including construction materials, textiles and ingredients, according to their characteristics. ● Follow procedures for safety. **Key Vocabulary** Cut, Trace, Scissors, Tape, Masking Tape, Cellotape, Glue, Pencil, Pen, Design, Shape, Grip **Core concepts:** Design, Make, Technical knowledge **Key Skills:** - Use scissors to cut simple shapes with accuracy - Use accurate pencil grip to draw and trace lines - Use a variety of tapes and glue to stick things together (selecting the most appropriate for purpose) - Combine a variety of items to create a model. - Use language to describe your ideas.	**National Curriculum objectives** ● Understand where food comes from ● Begin to select foods based on healthy choices. ● Evaluate existing products ● Design purposeful and appealing products for others ● Generate ideas and communicate through talking and drawing ● Select from tools to perform practical tasks (Slicing, Spreading, Mixing) ● Select materials, including ingredients based on their characteristics ● Evaluate ideas based on given criteria. **Key Vocabulary** Fruit, Healthy, Ingredients, Peel, Peeler, Recipe, Slice, Vegetable, Knife, Menu, Taste, Strawberry, Banana, Orange, Apple, Potato, Broccoli, Carrot, Sandwich, Filling, Spread, Dish, Plate, Prepare, Seed Other vocabulary: Leaf, Stem, Root, Vine, Tree, Underground, Above ground **Key People, Dates, Events:** - England's seventh Duchess of Bedford, **Anna Maria Russell**, introduced the afternoon tea, sometime around 1840. - During the 1880's upper-class and society women would change into long gowns, gloves and hats for their afternoon tea **Core concepts:** Evaluate, Design, Make, Technical knowledge	https://www.kapowprimary.com/subjects/d esign-technology/key-stage-1/year-1/mech anisms-wheels-and-axles/ **National Curriculum objective** ● Explore and evaluate a range of existing products. ● Explore and use mechanisms (for example wheels and axles) ● Select from and use a range of tools and equipment to perform practical tasks ● Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology ● Evaluate their ideas and products against design criteria **Key Vocabulary** Accurate, Axel, Axel holder, Chassis, Design, Fix, Mechanic, Model, Test, Wheel **Key People, Dates and Events** - 3500 bc - the wheel - Pneumatic tyre - Robert William Thomson 1846, John Boyd Dunlop 1888, 1967 racing card **Core concepts:** Evaluate, Technical knowledge **Key Skills:** - Create labelled drawings which show movement.

			- Adapt mechanisms - Test mechanisms and recognise what stops wheels from turning. - Know that a wheel needs an axel and must be attached to a rotating axle.

		Key Skills: - Describe appearance, smell, taste of foods. - Understand the di erence between fruit and vegetables - Learn how and were veg and fruit come from/grow - Identify fruits and veg (categorise) - Suggest packaging information - Taste and evaluate di erent combinations - Chop fruit and vegetables safely - Use a blunt knife to spread	- Wheels need to be round to move. - Frame of a vehicle (chassis) must be balanced - Real life items use wheels - identify and categorise (wheelbarrow, car, hamster wheel etc)

	Topic **STEM WEEK** **Mechanisms: Levers and Sliders** Using levers and sliders, design a moving copy of the lonely beast Experiment with sliders, create moving parts and assemble with backgrounds. https://www.kapowprimary.com/subjects/ design-technology/key-stage-1/year-1/me chanisms-making-a-moving-story-book/ **National Curriculum objective** • Explore and evaluate a range of existing products • Explore and use mechanisms (for example, levers, sliders) • 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. • Select and use a range of tools and equipment to perform	**Topic** **MITNE: Bridges** **Structures: How do bridges stand?** Design your own bridge for pedestrians to cross the Tyne. Identify the purpose of bridges and how they are built - identify key features. Recognise the roles of people behind some of the bridges in the North East (architect, engineer). **National Curriculum objective** • Build structures, exploring how they can be made stronger, sti er and more stable. • Design purposeful, functional, appealing products for themselves and other users based on design criteria • Generate, develop, model and communicate their ideas through talking, drawing. • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).	**Topic** **Rainbow challenges:** **Textiles: Puppets: How can we join materials?** Making simple puppets of classic story characters to support technical skills to join materials. https://www.kapowprimary.com/subjects/design-technology/key-stage-1/year -1/textiles-puppets/ **National Curriculum Objectives** • Explore and evaluate a range of existing products. • Select and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Evaluate their ideas against design criteria

	practical tasks (for example, cutting, shaping, joining) ● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ● Evaluate their ideas against design criteria **Key Vocabulary** Assemble, Draw, Design, Criteria, Evaluation, Mechanism, Model, Sliders, Stencil, Template, Audience, Test, Character, Landscape, Portrait, Direction, Left, Right, Up, Down **Core concepts:** Design, Make Evaluate, Technical knowledge **Key Skills:** - Explain how to adapt a mechanism using bridges or guides - design a moving story scene - Follow a design to create a moving model with levers and sliders - Test a finished product to see if it moves - Explain how something could be fixed - Know a mechanism is parts of an object that move together. - A slider moves something from side to side - Bridges and guides are bits of card built to restrict movement.	● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ● Evaluate their ideas and products against design criteria. **Key Vocabulary** Structure, Construct, Build, Bridge, Design, Criteria, Evaluate, Stable, Strong, Structure, Test, Weak, Engineer, Shape, Arch Bridge, Suspension Bridge **Key People, Dates, Events:** - Abraham Darby (1678 - 1717) - Iron, Iron Bridge - Isambard Kingdom Brunel (1806 - 1859) engineer, Clifton Suspension Bridge - Tyne Bridge construction - Millennium bridge **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Make stable structures from card, tape and glue. - Learn how to turn a 2D net into 3D structures. - Follow instructions to cut and assemble the supporting structure of a bridge. - understand how shape of materials can be changed to improve strength and sti ness - understand cylinders are a strong type of structure. - understand how di erent structures have di erent purposes. - understand the named roles of people (engineer, designer, architect).	**Key Vocabulary** Decorate, Design, Fabric, Wool, Cotton, Buttons, Glue, Model, Stick Puppet, Template, Technique. **Key People, Dates, Events:** - Puppets were first invented over 3,000 years ago in Egypt and were made from clay. **Core concept** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Joining technique means connecting materials - temporary methods of joining - a template is used to cut the same shape - use a template to create a design - cut fabric with scissors - use joining methods to decorate a puppet - sequence construction steps - reflect on finished product with likes and dislikes.

Lower Key Stage 2

National Curriculum objectives

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].

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 [for example, cutting, shaping, joining and finishing], 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, sti en and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys,cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] 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.

Cycle A	Power and Governance	Sustainable Development	Globalisation and Interdependence

- Textiles: 2d to 3d product - Food: healthy and varied diet, cooking and nutrition in ks2 - Structures: shell structures including computer aided design	**Topic** Ancient Egyptians and Roman Britain **Supportingtext/book** TheEgyptianCinderella EscapefromPompeii **Key Project** **Food: How can I alter a recipe?** Think about the diet of those in Ancient Egypt. Design and make a Rice Salad. Evaluate and consider the changes to be made to the item for taste, appearance and health. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-4/food-adapting-a-recipe/ **National Curriculum objective** ● 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 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	**Topic** **MITNE: Castles** **Key Project** **Structures: What is a castle?** Learn about the features of a castle design and make one based on these features using nets, recycled materials and a strong base. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-3/structures-constructing-a-castle/ **National Curriculum objective** ● Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ● Select from and use a wide range of materials and components, including construction materials according to characteristics. ● 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 ● Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **Key Vocabulary** 2D, 3D, Castle, Design, Criteria, Evaluation, Facade, Feature, FLag, NEt, Recyclable, Scoring, Stable, Structure, Tab, Weak Other vocabulary: Battlements, Crenulations, Gatehouse,	**Topic** Human Rights - How did people settle (Stone age to Iron Age) and Refugees Why do people move? **Supportingtext/book** TheStoneAgeBoy TheBoyattheBackoftheClass **Key Project** **Textiles: How can we support refugee children?** Use di erent sewing techniques to make a cushion toy for a refugee. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-3/textiles-cushions/ **National Curriculum objective** ● Select from and use a range of tools and equipment to perform practical tasks ● Design purposeful, functional, appealing products for themselves and other users based on design criteria ● Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **Key Vocabulary** Accurate, Applique, Cross-stitch, Cushion, Decorate, Detail, Fabric, PAtch, Running-stitch, Seam, Stencil, Stu ng, Audience. Other vocabulary: Beads, Buttons, Sequins, Knot, Thread, Needle, Sew **Key People, Dates, Events:** - https://www.wers.org.uk/

	• 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. • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], 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 **Key Vocabulary** Adapt, Equipment, Evaluation, Flavour, Ingredients, Method, Prototype, Quantity, Recipe, Audience, Unit of measure, Utilities Other vocabulary: Gramms, Kilograms, Ounces, Import, Export, Season **Key People, Dates, Events:** - Heset - Egyptian God of Food and drink - Min - Egyptian god of crops - Hapi - God of the Nile - Romans brought new animals and plants **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Design an egyptian Rice Salad	Turret, Drawbridge, Moat, Monarchy, Motte and Bailey, Keep, Stone, Concentric, Mote **Key People, Dates, Events:** - 1066 Battle of Hastings - King William - stone castles - Motte and Bailey Castles - Concentric Castles 12th, 13th Century. - Stone Keep Castles 10th, 11th, 12th Century **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Design a castle with key features - Draw a label a castle using 2D shapes Label the 3D shapes which will create features - Label materials and colours needed. - Make facades from a range of recycled materials. - Create special features for designs. -Evaluate work of yourself and others - Compare final product against the design. - Suggest points for modification. - Recognise key features of a castle (flag, towers, battlements, turrets, moat, drawbridge etc) - Facade = front of a structure. - Understand the purpose of a castle and their need for strength and stability.	- https://www.refugee.org.uk/ - World Refugee Day - June 20th **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Design and make a template from existing cushion - Follow a criteria - Select and cut fabric using fabric scissors with ease. - Thread needles with greater independence. - Tie knots in thread - Sewing cross stitch to join fabric - Decorate fabric using applique - Complete design with stu ng - Evaluate end product

	- Suggest points for improvement. - Understand basic rules to avoid contamination of foods. - Follow instructions within a recipe - Evaluate a recipe based on taste, texture, smell. - Consider areas of improvement. - Understand not all fruits/veg come from the UK - Establish a criteria to test and review - Recognise the di erence between import and export - understand safety rules for storing, using and cleaning a knife.		

	Topic **STEM WEEK** **Mechanical Systems**: **How can air be used to make a moving object?** Pneumatic toys - using air to understand how this makes moving parts. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-3/mechanical-systems-pneumatic-toys/ **National Curriculum objective** ● 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		

	● Understand and use mechanical systems in their products, for example, gears, pulleys, cams, levers and linkages **Key Vocabulary** Exploded diagram, Function, Input, Linkage, Mechanism, Motion, Net, Output, Pivot, Pneumatic system, Thumbnail sketch Other vocabulary: Air, Card, Pipecleaner, Plastic, Tape, Scissors, Glue, Shaft, Compressed, Gas, Material, Direction **Key People, Dates, Events:** - Pneumatic tyre - Robert William Thomson 1846, John Boyd Dunlop 1888, 1967 racing card - The history of pneumatics dates back to the days of steam engines. **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Generate ideas using thumbnail sketch and exploded diagram - Understand di erent types of design explain ideas clearly. - Create a pneumatic system to create a desired motion - Building secure housing for a pneumatic system - Use syringes and balloons to create di erent pneumatic systems - Select materials based on aesthetics and function. - Manipulate materials to create e ects by cutting, creasing, folding and weaving. - Use the views of others to improve design - Test and modify the outcome		

	- Understand pneumatics operate through drawing in, compressing and releasing air.		
Cycle B	Social Justice and Equity	Sustainable Development	Globalisation and interdependence

- Electrical systems: Simple circuits and switches - Food: healthy and varied diet, cooking and nutrition in ks 2 - Mechanical systems levers and linkages	**Topic** Settlements - Vikings and Anglo Saxons **Supportingtext/book** TheAngloSaxonBoy TheYoungestMarcher **Key Project** **Structures: What were viking long ships?** Create simple frame structures of Viking longships. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-4/structure-pavilions/ **National Curriculum objective** ● 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 and CAD ● Select from and use a wider range of materials, components and construction materials according	**Topic** Fair Trade **Supportingtext/book** Flood EarthFriends **Key Project** **Food: Where do our healthy foods come from?** Compare fair trade and normal food costs - why is there di erence? Consider the seasonality of our produce. Create a food item made from fair trade only to sell at a fair - consider how this would be priced. How could this be packaged? https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-3/food-eating-seasonally/ **National Curriculum objective** ● 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	**Topic** **Supportingtext/book** **Key Project** **Textiles: Mindfulness Matters** Look at di erent techniques of fastening. Create a book sleeve for your favourite book - perfect for your mindful moments. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-4/textiles-fastenings/ **National Curriculum objective** ● Investigate and analyse a range of existing products ● 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 ● Evaluate their ideas and products against a design criteria ● Build structures, exploring how they can be made stronger, sti er or more stable ● Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according

	to their functional properties and aesthetics • Select from and use a wider range of tools and equipment to perform practical tasks • Investigate and analyse a range of existing products • Apply their understanding of how to strengthen, sti en and reinforce more complex structures **Key Vocabulary** Aesthetic, Cladding, Design, Criteria, Frame, Frame structure, Function, Inspiration, Purpose, Shelter, Reinforce, Stable, Structure, Audience, Texture. Other vocabulary: 3D, Net, Triangular prism, Cube, Cuboid, Square-based pyramid, Thatch, Wood **Key People, Dates, Events:** - Saxons lived in villages - Viking longhouses - Thatch, Wattle, Daub **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Build frame structures designed to support weight. - Create a range of shaped framed structures. - Make a variety of free standing structures. - Select appropriate materials to build a strong structure and cladding. - Reinforce corners to strengthen a structure. - Create a design form a plan	ingredients are grown, reared, caught and processed • Begin to understand the impact of cost on food **Key Vocabulary** Budget, Building hire, Net, Packaging, Climate, Season, Exported, Imported, Nationality, Nutrients, Recipe, Seasonal, Seasons, Fairtrade, Farmers, Rainforest, Temperature, Country, Creaming, Sieving Other vocabulary: Fruits, Vegetables, Location, Equality, Weather, Quantity **Key People, Dates, Events:** - 2019 marks 25 years since Fairtrade certified products first became available to buy in the UK - Fairtrade was established in 1992 - Fairtrade bananas in UK in 2000 - George Alagiah - Fairtrade Patron 2002 - Coop uses fairtrade chocolate for own brand 2002 - Greggs - Fairtrade Co ee - 2006 - Cadburys - Fairtrade - 2009 - 2014 - Stick with Fondo - Bananas **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Describe the benefits of seasonal food - understand not all fruit and vegetables come from the UK - Evaluate recipes on taste, smell, texture, appearance - Follow a baking recipe - Cook safely following hygiene rules - Adapt a recipe - Describe the impact of the budget on	to their functional properties and aesthetic qualities **Key Vocabulary** Aesthetic, Assemble, Books sleeve, design , criteria, Evaluation, Fabric, Fastening, Prototype, Net, Running-stitch, Stencil, Audience, Customer, Template, Zipper, Velcro, Press Stud, Buckle, Button, Toggle Other vocabulary: Needle, Needle eye, thread, threading, knot. **Key People, Dates, Events:** - George De Mestral - Velcro - 1955 - Heribet Bauer - the snap fastener - 1885 (press stud or popper) - Apparel fastenings can be traced to the Mesolithic - needle and thread to sew and combine materials - Buttons is from the twelfth century (Epstein and Safro 1991) **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Write a design criteria articulating decisions made - Design a personalised sleeve - Make and test a paper template with accuracy - Measure, mark and cut fabric using template - Select a stitch style to join fabric - Sew small neat stitches - Incorporate a fastening - Test and evaluate end product - Understand a fastening holds two pieces of material together (Zipper, toggle, button, press stud and velcro) - Di erent fastenings have di erent purposes.

	- Consider how to create di erent textural e ects with materials.	selection of ingredients - Suggest modifications.	

	- Evaluate structures made by the class. - Describe which characteristics of a design and construction made it the most e ective. -Understand a frame structure. - Understand that free standing means stand on its own. - Understand cladding can be applied for di erent e ects - Understand architects consider light, shadow and patterns when designing.	-Understand the importance of oven gloves to remove food from ovens. - Know the following cooking techniques: sieving, creaming, rubbing method, cooling - understand the impact of imported foods - amounts of ingredients 'quantity'	

	Topic **STEM WEEK (and science topic)** **Key Project** **Electrical systems:** **How has electricity developed over time?** Compare di erent sources of light candle, gas, torch electric. Evaluate e ectiveness. Apply scientific understanding to create a compact torch for someone on an expedition. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-4/electrical-systems-torches/ **National Curriculum objective** ● Investigate and analyse a range of existing products ● Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ● 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	**Topic** **MITNE: Transport** **Key Project** **Mechanical Systems: Making a slingshot car.** Create a slingshot car using sticks, dowels, straws, wheels. Construct using a glue gun and make the launch mechanism. https://www.kapowprimary.com/subjects/ design-technology/lower-key-stage-2/yea r-4/mechanical-systems-making-a-slings hot-car/ **National Curriculum objective** ● Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], 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 ● Investigate and analyse a range of existing products ● Understand how key events and individuals in design and	

	• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • Understand and use electrical systems in their products • Select from and use a wider range of tools and equipment to perform practical tasks • 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 their ideas and products against their own design criteria and consider the views of others to improve their work **Key Vocabulary** Battery, Bulb, Buzzer, Cell, Conductor, Copper, Design, Criteria, Electrical, Electricity, Electronic, Insulator, Series circuit, Switch, Test, Torch, Wire, Inventor. Other vocabulary: Mobile, Remote, Control, Change, Progression, Inventor, LED **Key People, Dates, Events:** - Joseph Swan 1828 - 1914 - chemist shop in Newcastle - 1879 first lightbulb before Thomas Eddison (US) - included incandescent filament. - 1799 - the battery - Alessandro Volta - 1963 - Light Emitting Diode (LED) **Core concepts:** Design, Make, Evaluate, Technical knowledge	technology have helped shape the world • Apply their understanding of how to strengthen, sti en and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] **Key Vocabulary** Aesthetic, Air resistance, Chassis, Design, Criteria, Function, Graphics, Kinetic energy, Mechanism, Structure. Other vocabulary: Front view, Birds-eye view, Side view **Key People, Dates, Events:** - Michael Faraday 1791 - 1867 - scientist, electric motor - Pneumatic tyre - Robert William Thomson 1846, John Boyd Dunlop 1888, 1967 racing card - First Toy cars made in 1901 - Renzo Piano (1937 -) Architect, 1990's Kansai International Airport Terminal Building. In 2000 drew first designs for the Shard. **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Design a shape to reduce air resistance - Draw a net to create a structure form - Choose shapes to increase and decrease speed. - Measure, mark, cut and assemble with increasing accuracy. - Make a model based on design - Evaluate speed based on the e ect of shape. - Understand moving things have kinetic energy	

	Key Skills: - Design a torch - Make a torch with a working circuit and switch - Use appropriate equipment to cut and attach materials - Assemble a torch with design and success criteria. - Evaluate - Understand electrical system is a group of components to transport electricity. - Carry our research based on a given topic - Plan the positioning of a bulb and its purpose. - Fit an electrical component - Learn to give and accept constructive criticism - Recognise common features of electrical system (switch battery plug etc) - Recognise features of a torch (case battery contacts switch reflector lamp - Know the facts from the history of the invention of the electric lightbulb.	- Understand air resistance is the level of drag on an object. - Understand aesthetics mean how something looks. - Recognise di erent view - (side view, birds eye view).	
Upper Key Stage 2			

National Curriculum objectives

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].

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 [for example, cutting, shaping, joining and finishing], 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, sti en and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys,cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] 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.

Cycle A	Social Justice and Equity	Identity and Diversity	Globalisation and Interdependence Power and Governance
- Textiles: combining di erent fabric shapes - Structures: - Food: celebrating culture and seasonality, cooking and nutrition in ks2	**Topic** Poverty, Homelessness, Victorians **Supportingtext/book** StreetChild AChristmasCarol **Key Project** **Textiles:** **How do people in Victorian society dress?** Look at the design features of past and modern waistcoats. Design and make a waistcoat using templates, pins, stitching to fit a given person/item. Consider the fastenings used for buttons	**Topic** Discrimination **Supportingtext/book** Wonder **Key Project** **Food: How does Myan food di er from British food?** Evaluate and compare foods from other cultures against your own. How does the seasons impact food? Consider the impact of climate on produce (cocoa beans). (Use KAPOW: What could be healthier to support)	**Topic** Globalisation and interdependence Power and Governance **Supportingtext/book** Cosmic TheAccidentalPriminister **Key Project** **Structures: How do areas in the community suit children?** Consider changes to the environment. Look at the purpose of playgrounds carry out a census of their use. Design and create a playground model with apparatus. (Use structures: bridges to support making of models and apparatus)

	https://www.kapowprimary.com/subjects/ design-technology/upper-key-stage-2/ye ar-6/textiles-waistcoats/ **National Curriculum objective** ● Generate, develop, model and communicate their ideas through discussion, annotates sketches, cross-sectional and exploded diagrams, prototypes, patterns pieces and computer aided design ● Select from and use a wider range of tools and equipment to perform practical tasks ● Understand how key events and individuals in design and technology have helped shape the world **Key Vocabulary** Adapt, Annotate, Detail, Fabric, Fastening, Knot, Properties, Running-stitch, Seam, SEw, Shape, Audience, Customer, Template, Thread, Unique, Waistcoat, Waterproof Other vocabulary: Similarities, Di erence, Change, Production, Measure, Length, Width **Key People, Dates, Events:** - Industrial Revolution - prior to this made in homes, Richard Arkwright - new machine to make the process quicker 1771. - Waterproofing Fabric - Charles Macintosh - 1824 - Heribet Bauer - the snap fastener - 1885 (press stud or popper) - Queen Victoria - Fashion - Victoria and Albert Museum - Victorian Fashion - Victorian designers - **Ti any, Dresser, Christian Herter, and Walter Crane**	**National Curriculum objective** ● 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. ● Understand how culture impacts diet **Key Vocabulary** Climate, Seasonal produce, Dry climate, Mediterranean climate, Polar climate, Temperate climate, Temperature, Tropical climate, Rainforest, Jungle, Culture, Seasonality, Chocolate, Packaging, Method, Harvest, Farming, Research. Other vocabulary: Import, Export, Design, Evaluate, Taste, Bitter, Sweet **Key People, Dates, Events:** - Coop uses fairtrade chocolate for own brand 2002 - Mayan's were the first to take the seeds of the fruit and roast them to make hot chocolate - When the Spanish invaded Maya lands in the 1500s, they adopted the beverage, adding sugar and milk to make it sweet and creamy. **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:**	**Bridges:** https://www.kapowprimary.com/subjects/ design-technology/upper-key-stage-2/ye ar-5/structure-bridges/ **Playgrounds:** https://www.kapowprimary.com/subjects/ design-technology/upper-key-stage-2/ye ar-6/structure-playgrounds/ ● Select from and use a wider range of tools and equipment to perform practical tasks ● Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics ● Use research to develop and **National Curriculum objective** inform the design of innovative, functional and appealing products that are fit for purpose and aimed at particular groups ● Generate, develop, model and communicate ideas through discussion and annotated sketches ● 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 ● Generate, develop, model and

			communicate ideas through discussion and annotated sketches ● 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

	- First waistcoat created for/by King Charles II in 1630 **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Measure mark and cut fabric accurately and independently - Create strong and secure blanket stitch when joining - Thread needles independently - Use applique to attach fabric decoration	- Adapting a traditional recipe - Writing the method for a recipe to incorporate changes - Designing appealing packaging - Cutting and preparing with safety - Using equipment with safety - Know how to avoid cross-contamination - Follow a step-by step-method - Understand the process of making food within other cultures (grinding cocoa beans)	• Apply understanding of how to strengthen, sti en and reinforce complex structures **Key Vocabulary** Apparatus, Accurate, Bench hook, Coping Saw, Dowel, Jelutong, Mark, Modify, Natural, Materials, Plan, Design, Evaluate, Prototype, Reinforce, Structure, Tenon Saw, User, Vice, File, Sandpaper, Set Square

	- Use a template when pinning panels onto fabric - Sew a running stitch - Tie strong knots - Consider decorative stitches - Understand a blanket stitch is useful to reinforce edges of fabric - Understand it is important to design with a client/customer in mind - Test and evaluate work continually.	**Topic** **MITNE: Mining** **Key Project** **Food: What is the diet of a miner?** Look at typical foods consumed by miners - pasty, bread etc. make some irish soda bread - learning to knead**.** Understand the a ordability of this bread (Soda bread recipe in 'Really Useful Primary DT Book') (Use what could be healthier to support) **National Curriculum objective** ● 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. **Key Vocabulary**	Other vocabulary: Slides, Swings, Trimtrail, Join, 3D, 2D, Equipment, Strength, Frame **Key People, Dates, Events:** - First playground built in Manchester 1859 - Monstrum - The Mulighedernes Park, Denmark - Victorian Cave Park - Bounce Below, Northern Wales - Wright Brothers Playground, New York - Crocheted Playground, Japan - Nature's Playground, Adelaid Zoo - 1907 when US President Roosevelt properly introduced them. This brought about a new enthusiasm and propelled the idea further - After World War II London saw the introduction of "junk playgrounds". These were the brainchild of landscape architect and children's rights activist Lady Allen of Hurtwood. In 1953 she changed the name to Adventure Playground and established the National Playing Fields Association – today this is known as the Fields in Trust **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:**

		Knead, Rise, Dough, Crust, Yeast **Key People, Dates, Events:** -Evidence suggests that the Romans burned and excavated coal in the region. - In 1298 there is a record of 'sea coal' mined at Hett, near Spennymoor - By 1334 Newcastle was the fourth wealthiest town in England after London, Bristol and York - Increasingly important during the Industrial revolution when coal was burnt on a large scale to fuel stationery and locomotive engines and heat buildings. - The **Miners' Federation of Great Britain** (**MFGB**) was established after a meeting of local mining trade unions in Newport, Wales in 1888. - Northumberland Miners Association The union was founded in 1864 to represent coal miners in Northumberland **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Adapting a traditional recipe - Writing the method for a recipe to incorporate changes - Designing appealing packaging - Cutting and preparing with safety - Using equipment with safety - Know how to avoid cross-contamination - Follow a step-by step-method - Understand the importance of kneading dough.	- Design stable structures to support weight. - Create frame structures with a focus on triangulation. - Make a range of di erent shapes using beams. - Independently measure and mark wood - Select appropriate tools and equipment for tasks. - Use correct techniques to saw safely. - Use a hacksaw with safety - Identify points of weakness and where a structure needs reinforcing - Use a card corner to support a structure. - Understand basic wood functional properties. - Understand di erent ways to reinforce structures. - Understand how triangles can be used to reinforce bridges - Understand why material selection is important based on material properties. - Understand that a footprint is a plan.
Cycle B	Peace and Con ict	Sustainable Development	Human Rights

- Electrical systems: using more complex	**Topic** World War 1 and 2	**Topic** Water	**Topic** Changes and Breakthroughs How to Change the World

switches and circuits - Mechanical systems pulleys and gears - Food: celebrating culture and seasonality, cooking and nutrition in ks2	**Supportingtext/book** LettersfromtheLighthouse LastPost/OrangesinNoMan'sLand **Key Project** **Electrical systems: What is the purpose of a lighthouse?** - Recognise the purpose of a lighthouse. Design and build a lighthouse using crumble programming (Computing) **National Curriculum objective** ● Investigate and analyse a range of existing products ● Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ● 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 ● Understand and use electrical systems in their products ● Select from and use a wider range of tools and equipment to perform practical tasks ● Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according	Impacts on the Ocean **MITNE: Ship Building** **Supportingtext/book** ALongWalktoWater Flotsam **Key Project** **Mechanics** **How do boats float?** Design a boat that uses understanding of upthrust and buoyancy. **How do boats move/change direction?** Understand the mechanics of pulleys and levers behind sails/motors/propellers https://www.stem.org.uk/polar-explorer-educational-resources **National Curriculum objective** ● Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design ● Understand how key events and individuals in design and technology have helped shape the world ● Understand and use mechanical systems in their products [for example, gears, pulleys,cams, levers and linkages] **Key Vocabulary** Floating, upthrust, buoyancy, displacement, submerge, submarine, ship, boat, density, capsize, gravity, Other vocabulary: Engines, propellers, starboard, port, oars,	**Supporting text/book** PigHeartBoy CanYouSeeMe **Key Project** **Food: Celebrating the culture of our partner school. (Come Dine With Me, Inspired by French Trip)** France Trip Crepe workshop making crepes Evaluate this and consider how these could be made di erently and more healthily based on seasonal fruits. Understand the process from farm to fork for some of the ingredients used and develop a Come Dine with Me experience https://www.kapowprimary.com/subjects/ design-technology/upper-key-stage-2/ye ar-6/food-come-dine-with-me/ **National Curriculum objective** ● 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. ● Understand how culture impacts diet **Key Vocabulary** Culture, seasonality, cuisine, flavour, Equipment, Farm, Preserve, Process, Nationality, Reared, Recipe, Unit of measurement, Methods, Ingredients, Contamination, Tradition

	to their functional properties and aesthetic qualities ● Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **Key Vocabulary** Crumble, Micro controller, Control, Programming, Function, Sparkle, Input, Variables, Camouflage, Black Out Other Vocabulary Tower, Light, Electricity, Engineer, Shipwreck, Design, Evaluate, Circuit. **Key People, Dates, Events:** - Before the development of clearly defined ports, mariners were guided by fires built on hilltops. - According to Homeric legend, Palamedes of Nafplio invented the first lighthouse. - The Eddystone Rocks, an extensive reef near Plymouth Sound, England and one of the major shipwreck hazards for mariners sailing through the English Channel,was the site of many technical and conceptual advances in lighthouse construction. The civil engineer, John Smeaton, rebuilt the lighthouse from 1756–59 (Smeatons Tower). - The lights on many lighthouses and lightvessels were extinguished during the Second World War, but not all lights were extinguished outright. Trinity House worked extensively with the Admiralty to decide which lights should be merely dimmed, so as to aid navigation for Britain's merchant and fighting ships (many were also painted with camouflage paint). **Core concepts:**	poles, sails, **Key People, Dates, Events:** - Sir Charles Parson 1854 - 1931 - Engineer, steam turbine and electricity generator turbine powered ship Turbinia - faster than Royal Navy. - Archimedes (Archimedes Principle) - 287 212 bc - levers and pulleys in maths terms - Ships to defend against romans. - The air that is inside a ship is much less dense than water. That's what keeps it floating! - 10,000BCE: First boats include rafts, skin, hide and bark boats, kayaks, and dugouts. 5000BCE–3000BCE: Mesopotamian sailors invent sails. 1500BCE–27BCE: Greeks build giant warships, including biremes and triremes. 300: Vikings invent clinker building. 1200: The central rudder starts to replace the "steerboard." 15th century: Great voyages by Christopher Columbus (1451–1506), Vasco da Gama (1460–1524), Ferdinand Magellan (1480–1521), and others pioneer ocean exploration and circumnavigation. https://www.explainthatstuff.com/how-shipswork.html **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - understand the term buoyancy - understand key people and events - theories behind a test	Other vocabulary: Starter, Main, Dessert, Course, Preparation, Mixture, Croms, Welfare, Raw **Key People, Dates, Events:** - Some of the inspiration for French cuisine can be traced back to medieval times. Back then, nobility dined on multi-course meals composed of wild game, meat, fruit, and grains, while peasants ate diets high in vegetables and legumes. - With few ways to preserve food, people in ancient times decided what ingredients to use based on what they had immediately available. As the French colonized other countries – including parts of Asia, Africa, North America, and the Caribbean – throughout the 1700s and 1800s, they spread their culinary knowledge and cooking techniques. **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Understand countries have national dishes - flavour is how things taste - understand where foods have come from ie beef is from cattle, rearing and the processed (welfare issues) - processed food is food put through multiple changes - Farm to Fork - Write a recipe explaining key steps, method and ingredients, including facts and drawings - Follow a recipe using accurate measures - adapt a recipe based on research - Work to a given timescale - Work safely and hygienically

Design, Make, Evaluate, Technical

	knowledge **Key Skills:** - Test and evaluate a simple circuit. - Recognise the features of a circuit. - Build a circuit using a crumble board - Connect and programme the sparkle using the crumble board. - Test, evaluate and modify the programme. - Create and use a reflector - how does this alter the light?		- evaluate - taste, texture, smell, and origin of food group
			Topic **BEE WEEK** **Key Project:** **How can we support the bee population?** Design and create an eco friendly way to distribute bee friendly plants to support the bee's need for pollen. Create a wooden frame to display these on. **National Curriculum objective** ● Use research and develop design criteria to inform the design of innovative functional appealing products fit for purpose ● Generate, develop, model and communicate ideas through discussion, annotated sketches, cross sectional and exploded diagrams / CAD ● Select from a wider range of tools and equipment to perform practical tasks ● Select from and use a wider range of materials and components according to functional properties. ● Investigate and analyse a range of existing products ● Evaluate idea and products against their design criteria **Key Vocabulary**

			Bee, Pollinator, Endangered, Species, Insect, Native, Pollen, Farm, Welfare, Preserve Other vocabulary: Honey **Key People, Dates, Events:** https://www.buglife.org.uk/our-work/b-lines/ https://www.wwf.org.uk/learn/fascinating-facts/bees - Scientists from the University of Bristol have discovered that bumblebees have the ability to use their 'smelly footprints' to distinguish between their own scent - Since 1900, the UK has lost 13 species of bee, and a further 35 are considered under threat of extinction. - The strategy for the sustainability of the honey bee was published in February 2011 **Core concepts:** Design, Make, Evaluate, Technical knowledge **Key Skills:** - Understand where food comes from. - Understand how food is processed and preserved. - Design packaging for seeds. - Consider the costs behind production and its impact when selling. - Evaluate existing products.