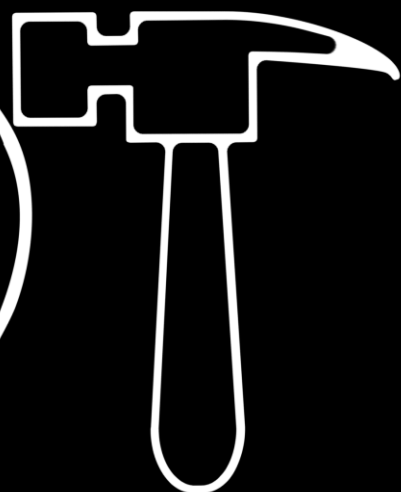
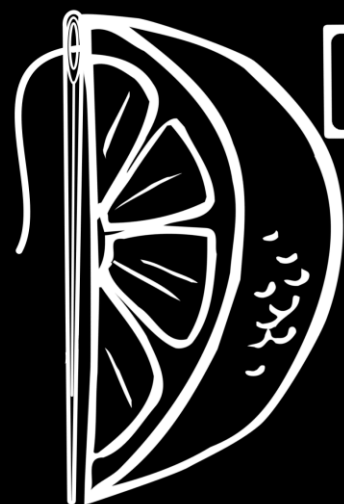


ST MARY'S, WELHAM GREEN

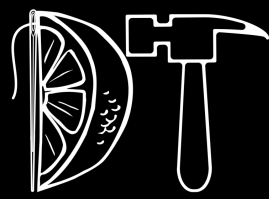


DESIGN AND TECHNOLOGY

ALPHA

“Creatively designing and making products”





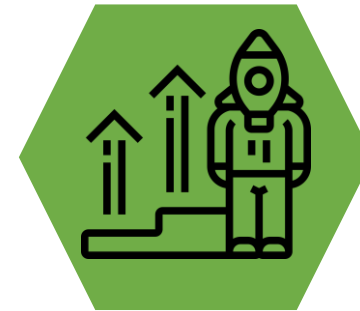
Three broad areas of learning:



food technology



building and joining



mechanics and circuits

We don't follow a scheme, we follow our curriculum.

As a school we have bought into some high-quality schemes and are able to provide a number of high quality resources. We realise, however, that it is essential that learning starts with where our children are and that learning is sequenced and adapted to each individual class. This is why we have created our Year Group Guides.

The prompts in our Year Group Guides have been designed to help teachers identify the steps in progression within each topic in order for children to achieve the broad National Curriculum objectives. We have also signposted where previous learning has happened so that teachers can ensure objectives from previous years are embedded and where not ensure they are revisited.

Many schemes of work have far too much content, so teachers need to be selective based on what best covers the national curriculum knowledge statements whilst maximising the opportunities for developing children's working scientifically skills through the full range of enquiry types. We also know that some schemes of work do not stick to the national curriculum statements and stray into content from later year groups or key stages. Using our Year Group Guides helps teachers to identify what is necessary and what is not and select activities accordingly.

Schemas we have that you can use to implement the teaching of our Design and Technology curriculum at St. Mary's School.

These can be located on the staff server in the Teacher Folder / 10. DT

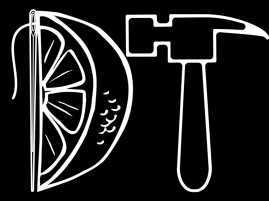
- Planbee
- Primary Solutions: Design and Technology
- Twinkl

How we celebrate Design & Technology

We want our Design and Technology lessons and the skills the children learn to be memorable and stand out. We complete each sequence on a special day (such as our "Festival of Food") or during the course of consecutive afternoons.

The products being created are celebrated by sharing on our learning platform and a selection will be "exhibited" in the school newsletter, which will also highlight the skills children have used.





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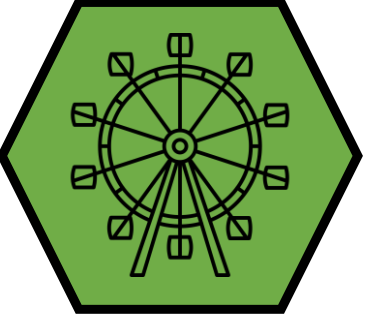
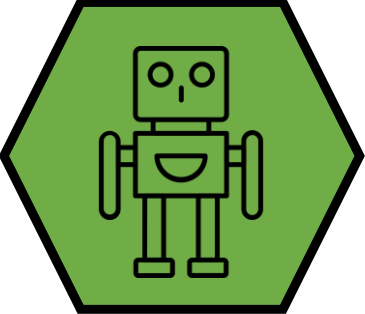
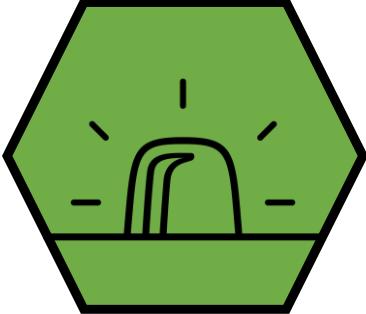
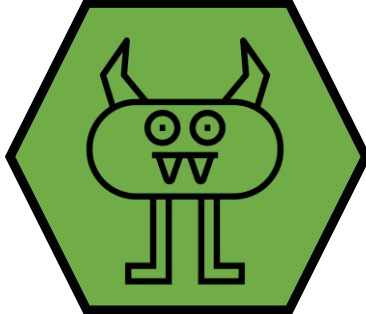
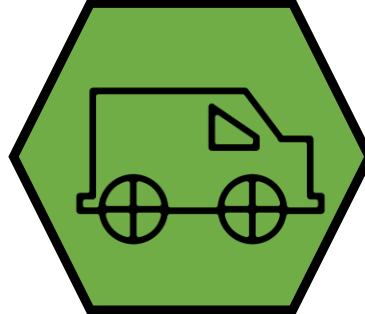
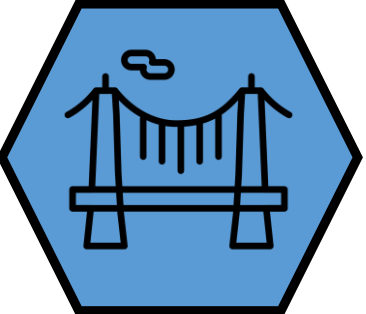
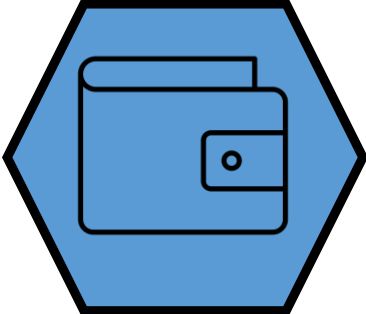
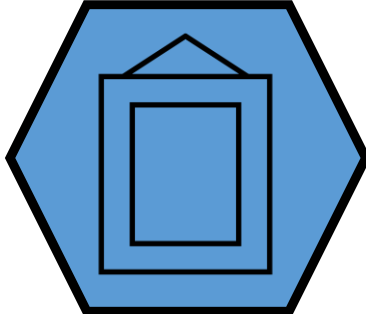
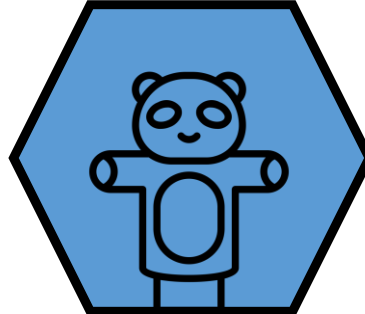
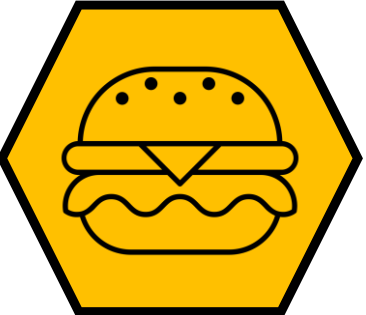
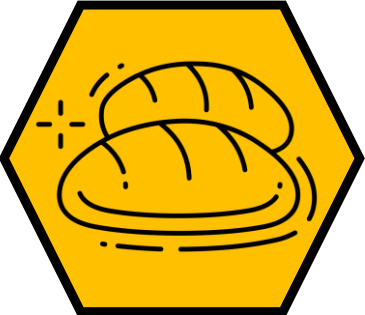
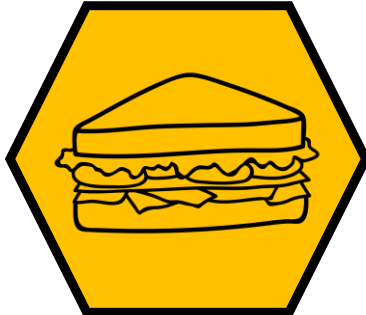
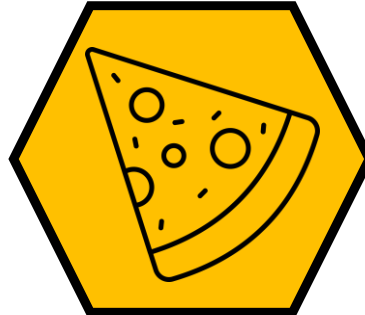
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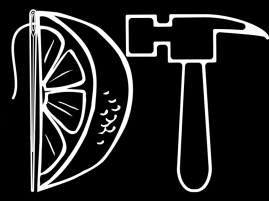
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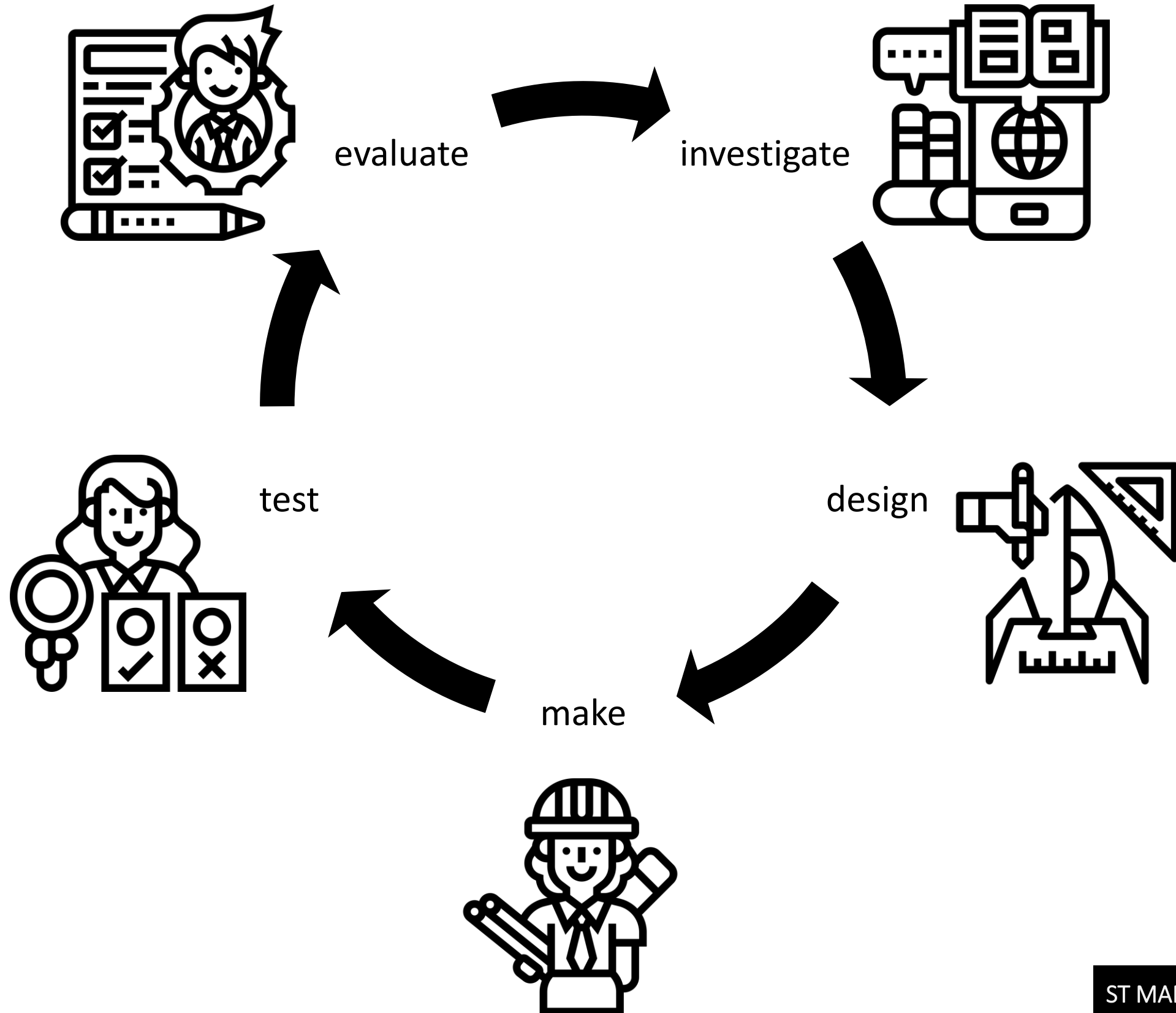
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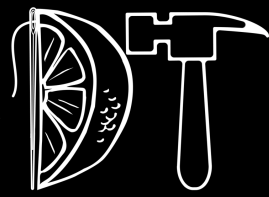
Expressive Arts and Design: Creating with materials
 Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
 Share their creations explaining the process they have used





ITERATIVE DESIGN PROCESS





DESIGN AND TECHNOLOGY

SKILLS PROGRESSION

1

Use the basic principles of a healthy and varied diet to prepare dishes
Cut, grate, peel and prepare fruit and vegetables.
Design, make and evaluate a food product to meet a design criteria

Use engineering and mathematics to build a model home/house.
Critique, evaluate and develop their designs
Design with purpose before selecting and using a range of tools and equipment to construct .
Cut, shape and join materials
Build structures, exploring how they can be made stronger, stiffer and more stable

Create a functional and appealing product based on design criteria
Design for a purpose before selecting from and using a range of tools and equipment to perform practical tasks (hole punching, cutting, shaping, joining and finishing)
Consider a range of existing products and evaluate against a set design criteria
Explore and use mechanisms (levers, sliders), in their products.

2

Identify food features – fats, sugars etc.
Evaluate and adapt work
Compare different ingredients to choose the one that is best fit for purpose
Sort and categorise food into the 5 food groups
Read pie charts and tally charts
Design to meet a set criterion
Write instructions
Identify the required tools and use them safely

Identify and imitate key features of a variety of puppets
Design a functional, appealing products based on design criteria
Use templates to produce an end product
Thread a needle, learn new stitches and how to tie the thread off.
Work safely and sensibly considering health and safety parameters
Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, sewing and finishing]
Consider which textile and stitch offer the most suitable outcome for a puppet.
Evaluate the end product against the design criteria

Identify features of vehicles (wheels, windows, sirens etc.) labelling them
Make a vehicle to match the set design criterion
Construct by joining materials, then decorate the product
Present to a partner explaining the processes used, leading to peer assessment
Consider how to improve the finished product and then amend it accordingly
Evaluate the end product and consider what skills could be used in the future

3

Taste and describe different foods
Create exploded diagrams
Meet a design criterion
Use peer assessment to fairly evaluate work suggesting improvements
To work safely and appropriately with food

Design a photo frame, which is functional, appealing, and meets the design criteria.
Develop their ideas through discussions, sketches and testing.
Investigate and analyse a range of existing products.
Join and strengthen paper/card by rolling, folding and layering it considering the successfulness of the techniques
Work with peers to assess and evaluate products
Apply their understanding of how to strengthen, stiffen and reinforce structures

Draw annotated diagrams and use these to make pneumatic systems with moving parts
Peer teaching and interviews
Make predictions then test and improve designs
Create an end product to be evaluated.
Meet a design criterion
Working safely consider risks before they occur

4

Weigh and measure ingredients, use an oven and follow recipes
Use a variety of tools to: peel, slice, dice, grate
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.
Design a menu using seasonal ingredients and vegetarian alternatives

Write a simple specification for the design based on the intended user. Produce a detailed design for their money container?
Draw, label and evaluate different money containers
Draw and cut templates and test a variety of designs before creating the end product using exact measurements (seam allowance and marking out measurements accurately)
Use a range of different sewing stitches including knowing how to prepare and finish off stitching
Use finishing techniques to make their money container aesthetically pleasing
Use peer assessment and redesign the product following evaluation.

Investigate and analyse a range of existing products before using their new knowledge to inform their design choices to fit the a design criteria
Generate, develop, model and communicate their ideas through discussion and annotated sketches
Make an appealing alarm to disguise the circuit into a functional product.
Use electrical systems in their products (series circuits incorporating switches and bulbs) working safely to build functional electrical circuits.
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
Consider any improvements before annotating any future changes

5

Design a bread to reflect a culture and, or religion, and takes account of allergens/vegetarian alternatives/religious requirements
Create their own recipe to follow to weigh/measure/mix ingredients
Record information from tests carried out
Understand a range of cooking methods and their uses including kneading and proving.
Evaluate cooking sessions and their skills.
To work safely and appropriately with food, cooking equipment and a range of kitchen tools.

Investigate and test cam options before choosing final one to add to design, make cams using thick card, discuss/note types of movement, combine materials and components, peer sharing of learning/teaching, design, make and evaluate (annotate original design) a moving toy with cam mechanism, consider target market (purpose and audience), accurate measurements and precision, insure the cam mechanism works effectively and that the finished product looks like the design, finishing work to a high standard, decoration, amend and improve work as well as considering their successes

Use research to consider different techniques to join textiles (hand sewing, gluing, and fasteners)
Deconstruct an item of clothing then draw and label the constituent parts, identifying materials
Learn more stitches and sewing techniques (threading needle, basting stitch, hemming, back stitch, straight stitch, zig zag stitch, blanket/whip stitch, blind stitch, tying thread off securely)
Design an item then draw/measure pattern pieces before cutting and transferring the designs onto fabric
Apply their knowledge to make a product, which fills the design brief
Use peer assessment to evaluate the product and consider how it could be improved

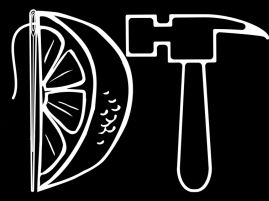
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Design a menu (burger, bun, sides) which reflects a balanced diet (carbohydrates, fats, proteins, calories) and takes account of allergens/vegetarian alternatives/religious requirements
Create their own recipe to follow to weigh/measure/mix ingredients
Record information from tests carried out
Understand a range of cooking methods and their uses.
Evaluate cooking sessions and their skills.
To work safely and appropriately with food, cooking equipment and a range of kitchen tools.

Describe, draw and record findings whilst testing bridges (weight bearing abilities)
Learn more about the different types of bridges.
Investigate how the style of bridge effects the length, strength and weight bearing abilities of it.
Explain the limitations of certain bridges using technical vocabulary
Develop and write a design criteria before designing the final bridge prototype
Construct prototype bridges fit for purpose (100:1 scale) with correct dimensions
Draw and annotate/label bridges with reference to show the tension and compression forces at work
Analyse and evaluate models against the design criteria before improving them and continuing to adapt the end product.
Use peer constructive feedback and suggestions for improvements

Sketch rides and label how the rotating parts work – design a circuit to match
Consider how pulley and belt systems could be used
Join components, strengthening and reinforcing materials/structures/frameworks
Peer assessment and feedback
Problem solving
Evaluate – annotate original design with any changes they would make next time as well as recognising their successes, write a recount

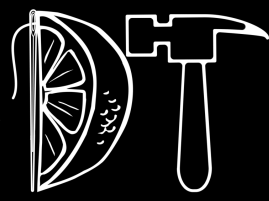




VOCABULARY PROGRESSION




1	cut, grate, segment, peel, section, slice, hygiene, design, make, evaluate	features, structure, strengthen, stabilise, hinge, purpose, brief, join	sliding, mechanism, lever, pivot, join, combine, movement
2	balanced diet, healthy eating, food groups (grains, fruit and vegetables, protein, dairy, foods high in fats and sugars), food features (fats, sugars, carbohydrates, salt), ordering, features, criteria, time connectives, hygiene, hazards, safety, tools, design, make, evaluate, instructions, describe	features, materials, detail, fabric, puppets (maisonette, finger, glove), uses, decoration, storytelling, perform, sew, needle, eye, thread, running stitch, over stitch, secure, sharp, improve	definition, type, vehicle, feature, uses, describe, axels, chassis, wheels, attach, design, make, evaluate, materials, instructions, dowelling, card, cardboard, disks, straws, construction, sketch, experiment, vehicle body, recycled, logo, combine, components, detail, quality, evaluate.
3	healthy, sandwich, balanced diet, food pyramid, food groups, package, design, flavours, textures, successful end product, food hygiene, knife skills, grating, spreading, health and safety, recipe, design criterion, exploded diagram	stability, purpose, sturdy, strong, strengthening, sketch, test, features, rolling, folding, layering, purpose	pneumatic, syringe, prediction, diagram, annotate, investigate/investigation, design, make, evaluate, accuracy, effective, technique
4	seasonal, seasonality, ingredients, weigh, measure, mill, grains, hemisphere, hygiene, commercially, climate, weather conditions, harvested, ripening, preserved, recipe, healthy and varied diet, vitamins, minerals, fibres, versatile, raw, preparations, fats, dairy products, vegetarian, nutrients, savoury, environment, production	Join, sew, velcro, hook and eye, buckle, materials, textiles, money holder, draw, cut, template,	system, switch, activated, electricity, circuits, components, bulbs, buzzers, batteries, wires, voltage, short circuit, aesthetics, functionality
5	Products, regional, cultural, adapt/change, develop, plaited, bun, bake,	cam mechanism, rotary motion, linear motion, follower, dowel, sturdy, structure, target market, test, components, purpose, audience	cotton, textiles, synthetic fibres, lint, woven, fabric, sewing patterns, stitches, deconstruct, pattern pieces, dimensions, basting stitch, hemming, back stitch, straight stitch, zig zag stitch, blanket/whip stitch, blind stitch, fabric chalk
6	Nutritional value of food, calories, cuisines/flavours, healthy eating, cuisine, flavours, lamb, pork, chicken, beef, patty, pan-fry, grilled, oven-baked, steam, weigh, measure, mix, carbohydrates, fats, proteins, calories allergens/vegetarian alternatives/religious requirements, Hygiene and food safety	pillars, beams, span gaps, complex beam bridges, decks, sides, parapets, clapper bridges, concrete, steel, construction, cross section, tubular pillars, trusses/truss sections, engineer, weight distribution, arches, compression, tension, abutments, specified weight clearance, suspension bridges, tension forces, anchored cables, prototype, scale	rotating, mechanism, components, electric motors, circuit, pulley and belt system, axle, wires, motors, switches, reels, motion, doweling, annotate, accuracy



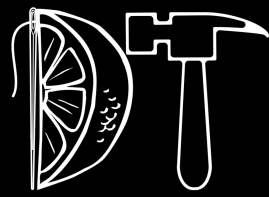


DESIGN AND TECHNOLOGY

YEAR 1 GUIDE


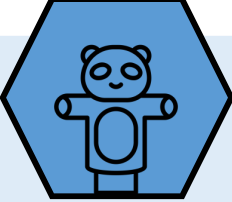
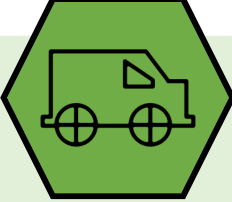
Question	<p>Why should we eat more fruit and vegetables? How can you identify fruit and vegetables? What do you need to do to work hygienically around food? Which tools can you use skillfully? (grater, peeler, knife)</p> 	<p>What makes a home? What does a home look like? Which features are key to building a model house? How are shapes relevant to house building? What can we do to support recycling during this project?</p> 	<p>How do pop up books work? How do sliding mechanisms, lever and wheel mechanisms work? (Paper and card) What are the effects of the mechanisms? Which steps do you need to take to work safely using sharp tools? (scissors, paper fasteners)</p> 
Previous Learning	EYES – Expressive Arts and Design: Creating with materials 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	EYES – Expressive Arts and Design: Creating with materials 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	EYES – Expressive Arts and Design: Creating with materials 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
Vocabulary	cut, grate, segment, peel, section, slice, hygiene, design, make, evaluate	features, structure, strengthen, stabilise, hinge, purpose, brief, join	sliding, mechanism, lever, pivot, join, combine, movement
Knowledge	Understand what healthy eating means, considering what a healthy plate could look like Recognise a range of fruits and vegetables considering what identifies them as such Design, make and evaluate a salad/smoothie.	Know what the key features of homes are Design, make and evaluate their own model homes Test different methods of joining materials Understand how to strengthen structures.	Investigate moving mechanisms made from card and paper Consider how the mechanisms create movement Understand how to make moving mechanisms in a pop up book Design, make and evaluate moving mechanisms
Skills	Use the basic principles of a healthy and varied diet to prepare dishes Cut, grate, peel and prepare fruit and vegetables. Design, make and evaluate a food product to meet a design criteria	Use engineering and mathematics to build a model home/house. Critique, evaluate and develop their designs Design with purpose before selecting and using a range of tools and equipment to construct . Cut, shape and join materials Build structures, exploring how they can be made stronger, stiffer and more stable	Create a functional and appealing product based on design criteria Design for a purpose before selecting from and using a range of tools and equipment to perform practical tasks (hole punching, cutting, shaping, joining and finishing) Consider a range of existing products and evaluate against a set design criteria Explore and use mechanisms (levers, sliders), in their products.
Resources	Fruit/veg to investigate/taste/smell/feel, knives, chopping boards, graters, peeler, digital camera, aprons, access to a sink (wash fruit and veg/hands), forks and plates for presenting then eating the salads.	- Picture Cards, Question Cards, Riddle Cards, Recycling materials e.g. boxes, card, cardboard, tubes, etc., Tools, e.g. scissors, glue, masking tape, blu-tack, etc., Variety of materials, e.g. paper, card, cardboard, cardboard tubes, matchsticks, lolly sticks, cupcake cases, fabric, ribbon etc., Variety of tools, e.g. glue, blu-tack, plasticine, scissors, masking tape, sticky tape, etc., Challenge cards,	Equipment -Storybooks with moving parts, Card, Scissors, challenge cards, paper fasteners, hole punch, art materials for decoration – felt tips, paints, coloured pencils etc.



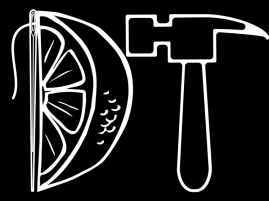


DESIGN AND TECHNOLOGY

YEAR 2 GUIDE

Question	<p>What makes the perfect pizza? What does eating healthily mean? What can a balanced diet consist of? Which tool will be fit for purpose? How can you work safely and hygienically?</p> 	<p>Can you sew a puppet? Which stitches would be best to join textiles? Is glue as strong an alternative to sewing? How do you thread a needle and knot it off? Why is using a template important?</p> 	<p>How do vehicles move? What is a vehicle? How do axels, wheels and chassis work? Which way of creating the body of a vehicle is most effective? Why do you experiment with a range of materials and techniques?</p> 
Previous Learning	Yr1 – cutting, grating, peeling, health and safety	Yr 1 – Cutting, shaping and joining materials (card/paper), building and strengthening structures	Yr 1 – creating moving mechanisms from card and paper, pop up books
Vocabulary	balanced diet, healthy eating, food groups (grains, fruit and vegetables, protein, dairy, foods high in fats and sugars), food features(fats, sugars, carbohydrates, salt), ordering, features, criteria, time connectives, hygiene, hazards, safety, tools, design, make, evaluate, instructions, describe	features, materials, detail, fabric, puppets (masonette, finger, glove), uses, decoration, storytelling, perform, sew, needle, eye, thread, running stitch, over stitch, secure, sharp, improve	definition, type, vehicle, feature, uses, describe, axels, chassis, wheels, attach, design, make, evaluate, materials, instructions, dowelling, card, cardboard, disks, straws, construction, sketch, experiment, vehicle body, recycled, logo, combine, components, detail, quality, evaluate.
Knowledge	What is healthy eating? Understand the value of a balanced diet and what a balanced plate is. Consider what a vegetable is and how we can identify them Which food can be sorted into each of the 5 food groups? Food hygiene and safety - identifying potential hazards (area specific)	What different types of puppets there are and what some of their features are Which stitches can be used to join textiles How to sew, use needles and scissors safely considering finger placement and moving around whilst holding equipment. Understand the value of planning and evaluating.	What different types of vehicles are there and what are their uses? What are the different features of vehicles ? How do vehicles move and turn? Health and safety (safety using tools, working safely and sensibly).
Skills	Identify food features – fats, sugars etc. Evaluate and adapt work Compare different ingredients to choose the one that is best fit for purpose Sort and categorise food into the 5 food groups Read pie charts and tally charts Design to meet a set criterion Write instructions Identify the required tools and use them safely	Identify and imitate key features of a variety of puppets Design a functional, appealing products based on design criteria Use templates to produce an end product Thread a needle, learn new stitches and how to tie the thread off. Work safely and sensibly considering health and safety parameters Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, sewing and finishing] Consider which textile and stitch offer the most suitable outcome for a puppet. Evaluate the end product against the design criteria	Identify features of vehicles (wheels, windows, sirens etc.) labelling them Make a vehicle to match the set design criterion Construct by joining materials, then decorate the product Present to a partner explaining the processes used, leading to peer assessment Consider how to improve the finished product and then amend it accordingly Evaluate the end product and consider what skills could be used in the future
Resources	Equipment - Pizza Sheet, Balanced Plate, Name Cards, A selection of breads/toppings/sauces, bread/serrated knives and chopping knives, chopping boards, aprons, graters, baking trays, oven, plates for finished product	Equipment - picture cards, felt and other fabrics, buttons, sequins, needles, thread, fabric/felt glue, ribbon, wool,	Picture cards, wheels and axles (and/or materials that can be used as such), card, cardboard boxes, cardboard discs, straws, dowels, pre-cut thick card circles, wooden wheels, Variety of materials, e.g. cardboard boxes, cartons, plastic bottles, card, etc., Variety of tools, e.g. scissors, glue, masking tape, etc., Materials for decoration, e.g. paint, crayons, ICT based designs

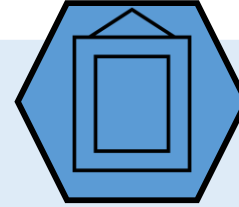
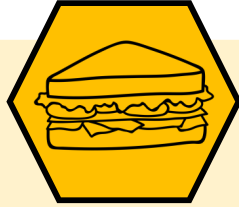


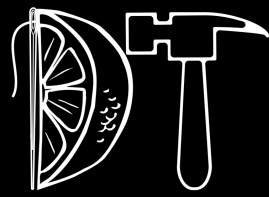


DESIGN AND TECHNOLOGY

YEAR 3 GUIDE


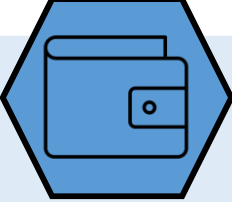
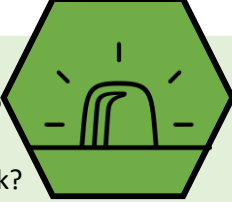
Question	What does a healthy sandwich look like? How different combinations of ingredients affect the taste and texture of the product? How does the food pyramid and food groups link to healthy eating? How can an exploded diagram help us to plan?	Can you frame a photograph? How can you join paper/card successfully? (rolling, folding, layering) What can you do to strengthen and stabilise your free-standing photo frame?	How do pneumatic systems work? Which familiar objects use air to make them work? What makes an effective pneumatic system? How can we develop a pneumatic system?
Previous Learning	Yr2 – Making a pizza, discussing healthy choices, health and safety	Yr 2 – building, stabilising and strengthening structures, joining materials (textiles, paper/card, gluing and sewing)	Yr2 – joining card, wood, dowels, moving vehicles
Vocabulary	healthy, sandwich, balanced diet, food pyramid, food groups, package, design, flavours, textures, successful end product, food hygiene, knife skills, grating, spreading, health and safety, recipe, design criterion, exploded diagram	stability, purpose, sturdy, strong, strengthening, sketch, test, features, rolling, folding, layering, purpose	pneumatic, syringe, prediction, diagram, annotate, investigate/investigation, design, make, evaluate, accuracy, effective, technique
Knowledge	Know what healthy choices consist of. Understand the value of being able to identify food groups and being able to read the food pyramid. How to read a recipe successfully. Consider the impact of presentation, packaging and design. Food hygiene and safety – being aware of their control over this	Know how to help stabilise and strengthen free standing structures Understand how to use a variety of techniques to join materials (paper/card) Why design, testing, making and evaluating are such important steps in the design process.	How does air make an object work? What are pneumatic systems? How to join and fix different components to create a successful end product
Skills	Taste and describe different foods Create exploded diagrams Meet a design criterion Use peer assessment to fairly evaluate work suggesting improvements To work safely and appropriately with food	Design a photo frame, which is functional, appealing, and meets the design criteria. Develop their ideas through discussions, sketches and testing. Investigate and analyse a range of existing products. Join and strengthen paper/card by rolling, folding and layering it considering the successfulness of the techniques Work with peers to asses and evaluate products Apply their understanding of how to strengthen, stiffen and reinforce structures	Draw annotated diagrams and use these to make pneumatic systems with moving parts Peer teaching and interviews Make predictions then test and improve designs Create an end product to be evaluated. Meet a design criterion Working safely consider risks before they occur
Resources	Equipment – Variety of breads and sandwiches, Chopping boards, knives, graters, spreaders/butter knives, plates, Table coverings (if necessary), Aprons, Variety of sandwich ingredients (chosen with the children)	Variety of free standing objects – mug, music stand etc., paper, card, glue, sticky tape, paper clips, scissors, pipe cleaners, items for decoration (sequins, beads, glitter, paint)	Equipment - Syringes, tubing, balloons, plastic bottles, elastic bands, straws, masking tape, burger boxes, plastic bottles, card, challenge cards, scissors, craft knives



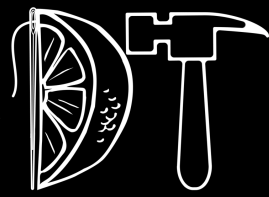


DESIGN AND TECHNOLOGY

YEAR 4 GUIDE

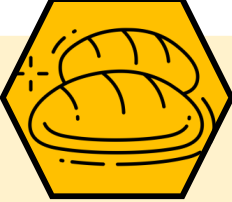
Question	<p>What is seasonality and why does it matter? What does seasonality mean? How is food produced? What does a balanced diet look like?</p> 	<p>How can I keep my money safe? What are the key features of money containers? Which stitches are most effective for the desired outcome?</p> 	<p>How do alarms work? What components are needed to create a circuit? How does electricity travel around a circuit? What are switches used for and how do they work?</p> 
Previous Learning	<p>Considering what a healthy and balanced diet might consist of with reference to the food pyramid and food groups Discussion around hygiene and health and safety.</p>	<p>Yr2 – Sewing and exploring textiles Yr 3 – Strengthening and stabilizing structures, joining card/paper, designing for a purpose and design criteria</p>	<p>No previous experience of using electrical circuits in D&T – however this can be tied into Science Electricity module in the summer term.</p>
Vocabulary	<p>seasonal, seasonality, ingredients, weigh, measure, mill, grains, hemisphere, hygiene, commercially, climate, weather conditions, harvested, ripening, preserved, recipe, healthy and varied diet, vitamins, minerals, fibres, versatile, raw, preparations, fats, dairy products, vegetarian, nutrients, savoury, environment, production</p>	<p>Join, sew, Velcro, hook and eye, buckle, materials, textiles, money holder, draw, cut, template,</p>	<p>system, switch, activated, electricity, circuits, components, bulbs, buzzers, batteries, wires, voltage, short circuit, aesthetics, functionality</p>
Knowledge	<p>Know which British ingredients are seasonal and which are available all year round The importance of hygiene and food safety Understand the use of greenhouses to grow non seasonal foods, what 'grown commercially' means and the benefits of eating seasonally. How different food types are harvested/grown/reared/ripened/caught/processed and the impact of this on the environment.</p>	<p>Consider the history of money holders and the different types already available. Name some different types of stitching Understand that modelling can be used to try out different ideas</p>	<p>Know how different switches work What alarm systems are and how they are built Understand the importance of health and safety around mains electricity Know how to control a circuit</p>
Skills	<p>Weigh and measure ingredients, use an oven and follow recipes Use a variety of tools to: peel, slice, dice, grate 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</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <p>Design a menu using seasonal ingredients and vegetarian alternatives</p>	<p>Write a simple specification for the design based on the intended user. Produce a detailed design for their money container? Draw, label and evaluate different money containers Draw and cut templates and test a variety of designs before creating the end product using exact measurements (seam allowance and marking out measurements accurately) Use a range of different sewing stitches including knowing how to prepare and finish off stitching</p> <p>Use finishing techniques to make their money container aesthetically pleasing</p> <p>Use peer assessment and redesign the product following evaluation.</p>	<p>Investigate and analyse a range of existing products before using their new knowledge to inform their design choices to fit the a design criteria Generate, develop, model and communicate their ideas through discussion and annotated sketches Make an appealing alarm to disguise the circuit into a functional product. Use electrical systems in their products (series circuits incorporating switches and bulbs) working safely to build functional electrical circuits. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Consider any improvements before annotating any future changes</p>
Resources	<p>Equipment – Oven, fairy cake oven tray, cake cases, weighing scales, fork, whisk, bowl, mixing bowl, wooden spoon/spatula, measuring spoons, cooling rack, sieve, Cake ingredients, rolling pin, pastry cutter, teaspoon, chopping board, knives, grater, jam tart ingredients, stuffed peppers ingredients, oven dish, tablespoon, measuring jug, peeler, fork, recipes, food calendar, cooking skill cards, Ingredient lists available in Plan bee 'worksheets'</p>	<p>Equipment - Money containers (purses, wallets, belt bags, etc.), Needles, pins, Thread, Small pieces of fabric, Scissors, Newspaper, Thread, Fabric, Fasteners (e.g. buttons, zips, Velcro etc), Items for decorations (e.g. sequins, ribbon etc)</p>	<p>Equipment – challenge cards, bulbs, batteries, wires, clips, buzzers, strips of card, paper clips, butterfly clips, masking tape, pins, If completing the demonstration in Lesson 4 - wire wool, baking tray, oven proof dish</p>



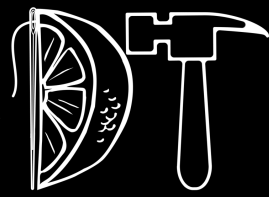


DESIGN AND TECHNOLOGY

YEAR 5 GUIDE



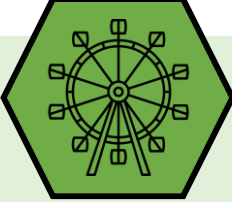
Question	<p>Can you design bread? Where does bread come from and how does it vary in different cultures? How can we adapt and change recipes to improve them? Can bread be part of a healthy, balanced diet?</p> 	<p>How do toys move? What is a cam mechanism? How do different shaped cams affect the movement of the follower? What makes a sturdy structure for a moving toy?</p> 	<p>What use is a pattern? How are textiles made? When and why are certain fabrics used? What does fair trade mean? How do fashion designers design products? Which stitches are decorative and which are functional?</p> 
Previous Learning	Year 4 - Considering what a healthy and balanced diet might consist of with reference to the food pyramid and food groups Discussion around hygiene and health and safety.	Looking at moving mechanisms in Yr1,2 and 3	Yr4 – sewing to join textiles, exploring textiles, drawing templates
Vocabulary	Products, regional, characteristics, cultural, adapt/change, develop, plaited, bun, bake,	cam mechanism, rotary motion, linear motion, follower, dowel, sturdy, structure, target market, test, components, purpose, audience	cotton, textiles, synthetic fibres, lint, woven, fabric, sewing patterns, stitches, deconstruct, pattern pieces, dimensions, basting stitch, hemming, back stitch, straight stitch, zig zag stitch, blanket/whip stitch, blind stitch, fabric chalk
Knowledge	Know about different types of bread and the cultures and/or regions which they originate. Learn the nutritional qualities of bread and how it can be eaten as part of a balanced diet. Evaluating finished products fairly and see how the iterative design cycle could be used for future improvements.	Know what cam mechanisms are and how they work Understand different shaped cams affect movement on the follower Can children make suggestions for how different cams could be used for different kinds of toys? Know how to strengthen a structure (pull on previous learning and new knowledge)	Know which textiles are used for different reasons. Understand the uses of a pattern and how to make one (construction, deconstruction and properties) What clothing labels mean and how to read them Which stitches are functional and which are purely decorative Considering market appeal in product design.
Skills	Design a bread to reflect a culture and, or religion, and takes account of allergens/vegetarian alternatives/religious requirements Create their own recipe to follow to weigh/measure/mix ingredients Record information from tests carried out Understand a range of cooking methods and their uses including kneading and proving. Evaluate cooking sessions and their skills. To work safely and appropriately with food, cooking equipment and a range of kitchen tools.	Investigate and test cam options before choosing final one to add to design, make cams using thick card, discuss/note types of movement, combine materials and components, peer sharing of learning/teaching, design, make and evaluate (annotate original design) a moving toy with cam mechanism, consider target market (purpose and audience), accurate measurements and precision, insure the cam mechanism works effectively and that the finished product looks like the design, finishing work to a high standard, decoration, amend and improve work as well as considering their successes	Use research to consider different techniques to join textiles (hand sewing, gluing, and fasteners) Deconstruct an item of clothing then draw and label the constituent parts, identifying materials Learn more stitches and sewing techniques (threading needle, basting stitch, hemming, back stitch, straight stitch, zig zag stitch, blanket/whip stitch, blind stitch, tying thread off securely) Design an item then draw/measure pattern pieces before cutting and transferring the designs onto fabric Apply their knowledge to make a product, which fills the design brief Use peer assessment to evaluate the product and consider how it could be improved
Resources	Equipment – types of bread, strong flour, butter, sugar, yeast, scales, seeds, sugar flours, raisins (NO NUTS), warm water	Equipment - Different shaped cams, thick card, dowelling, tubing, materials (e.g. dowelling, wood, card, paper, cams, etc.), tools (glue, saws, scissors, rulers etc.) Future possibilities - Examples of cam toys	Equipment - sewing stitches guide, a number of different items of old clothing, magnifying glasses, scissors, needles, thread, pins, scrap material, buttons, scissors, dressmaker’s chalk/pencils, large sheets of plain paper, fabric, needles, sharp scissors, ribbon, buttons, sequins, cord, large eyelets and eyelet tool



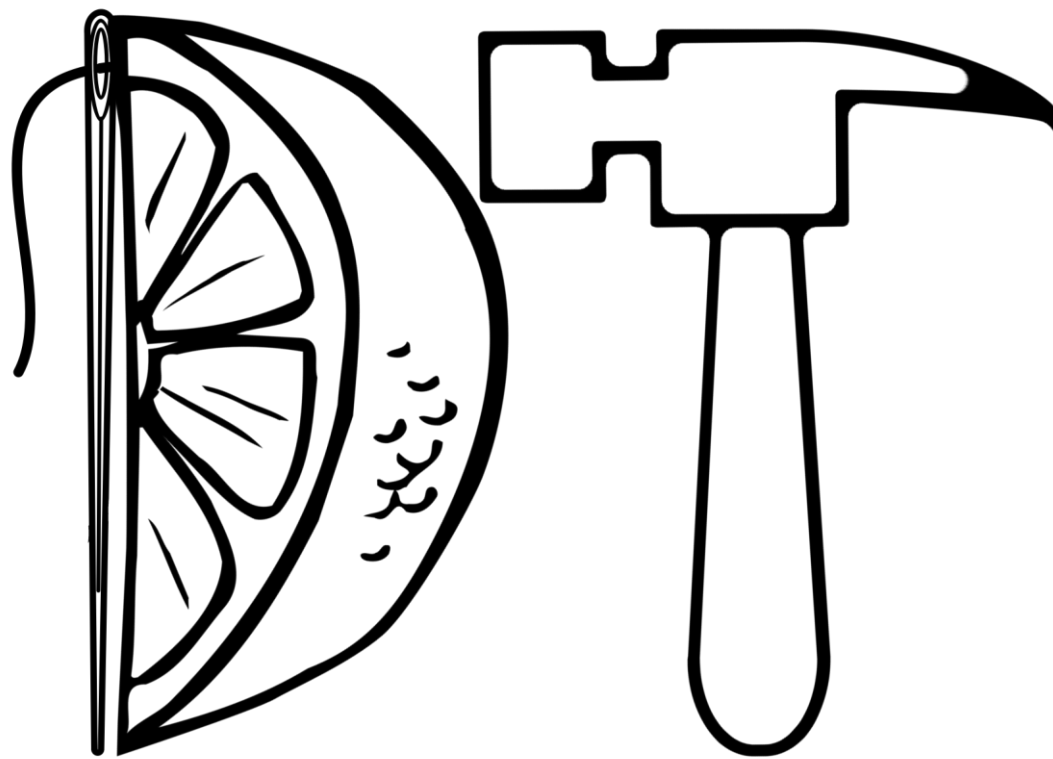


DESIGN AND TECHNOLOGY

YEAR 6 GUIDE

Question	<p>What makes the best burger? Why are food labels important? How do you read, follow and write a recipe? Can children make informed decisions about the type of ingredients to use?</p> 	<p>Can you build a strong bridge? Why are bridges constructed in different ways? How does the type of bridge affect the support, strength, length and weight bearing ability of it? What can you do to ensure that your bridge is stable enough to span the gap? How do tension and compression forces affect bridges?</p> 	<p>How do you get round at the fairground? How do electrical motors make rotating parts work? How can the speed of rotations can be adapted? What makes an effective ride?</p> 
Previous Learning	<p>This will be a culmination of a variety of skills learnt from yr1-5 in which children have learnt about healthy eating, different textures and taste combinations and a variety of cooking methods and preparation techniques.</p>	<p>Year 5 – strengthening and securing structures,</p>	<p>This will be a culmination of a variety of skills learnt from yr1-5 in which children have investigated electrical circuits, axles and moving mechanisms</p>
Vocabulary	<p>Nutritional value of food, calories, cuisines/flavours, healthy eating, cuisine, flavours, lamb, pork, chicken, beef, patty, pan-fry, grilled, oven-baked, steam, weigh, measure, mix, carbohydrates, fats, proteins, calories allergens/vegetarian alternatives/religious requirements, Hygiene and food safety</p>	<p>pillars, beams, span gaps, complex beam bridges, decks, sides, parapets, clapper bridges, concrete, steel, construction, cross section, tubular pillars, trusses/truss sections, engineer, weight distribution, arches, compression, tension, abutments, specified weight clearance, suspension bridges, tension forces, anchored cables, prototype, scale</p>	<p>rotating, mechanism, components, electric motors, circuit, pulley and belt system, axle, wires, motors, switches, reels, motion, doweling, annotate, accuracy</p>
Knowledge	<p>Know how to check the nutritional value of food (read nutrition labels How our bodies get energy from calories and the different factors that affect our intake Exchanging not so healthy options for healthier alternatives Hygiene and food safety (knife skills, cooking, working sensibly).</p>	<p>Know how different bridges are used to span gaps Have an understanding of the history of bridges Which materials can affect construction of bridges The effectiveness and purposes of different styles of bridges Consider how spreading the load and redirecting the compression forces can affect a bridge</p>	<p>Understand that the speed of rotations can be adapted That pulley and belt systems can be used to transfer movement from one axle to another Consider ways of making a framework for the ride – strong structure Health and safety – electricity and using sharp tools</p>
Skills	<p>Design a menu (burger, bun, sides) which reflects a balanced diet (carbohydrates, fats, proteins, calories) and takes account of allergens/vegetarian alternatives/religious requirements Create their own recipe to follow to weigh/measure/mix ingredients Record information from tests carried out Understand a range of cooking methods and their uses. Evaluate cooking sessions and their skills. To work safely and appropriately with food, cooking equipment and a range of kitchen tools.</p>	<p>Describe, draw and record findings whilst testing bridges (weight bearing abilities) Learn more about the different types of bridges. Investigate how the style of bridge effects the length, strength and weight bearing abilities of it. Explain the limitations of certain bridges using technical vocabulary Develop and write a design criteria before designing the final bridge prototype Construct prototype bridges fit for purpose (100:1 scale) with correct dimensions Draw and annotate/label bridges with reference to show the tension and compression forces at work Analyse and evaluate models against the design criteria before improving them and continuing to adapt the end product. Use peer constructive feedback and suggestions for improvements</p>	<p>Sketch rides and label how the rotating parts work – design a circuit to match Consider how pulley and belt systems could be used Join components, strengthening and reinforcing materials/structures/frameworks Peer assessment and feedback Problem solving Evaluate – annotate original design with any changes they would make next time as well as recognising their successes, write a recount</p>
Resources	<p>Equipment -Variety of Recipes (patty, sauces, bread), Bread rolls, Ingredients List, Cooking Safely Poster, equipment to use a range of chosen cooking methods, knives, bowls, oven, hand washing facilities Children will need to ensure that their hair is tied up due to food hygiene practices</p>	<p>Equipment - Paper, card, scissors, glue, sticky tape, sets of weights, toy cars, Truss Patterns, art straws, sets of weights; toy cars; K’NEX, Meccano or similar construction kits, rulers, plasticine, string</p>	<p>Equipment - Wires, motors, switches, etc. for electrical circuits, elastic bands, cotton reels, doweling, card, doweling, string, paper, straws, etc., glue, scissors, rulers, tape etc., empty boxes, batteries, pipe cleaners, If children are cutting their own dowels we will need hacksaws and bench vices</p>





“Creatively designing and making products”

