


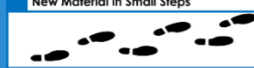

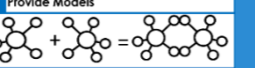






Swindon Academy Design and Technology Curriculum Map 2020-2021

Intent

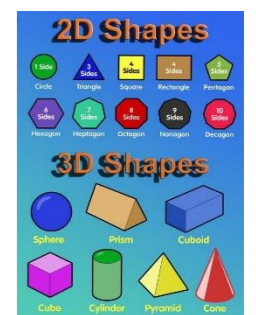
The aim of Design and Technology teaching at Swindon Academy, is to prepare children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of design and technology, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts.

Here at Swindon Academy, the Design and Technology curriculum uses the Rosenshine principles of instruction to develop on previously taught skills and knowledge, ensuring a consistent and progressive journey throughout every child's journey through the primary phase.

Implementation – Rosenshine principles of instruction



Daily Review	New Material in Small Steps	Ask Questions	Provide Models	Guide Student Practice	Check Student Understanding	Obtain High Success Rate	Scaffolds for Difficult Tasks	Independent Practice	Weekly and Monthly Review
									
Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity.	Our working memory is small, only handling a few bits of information at once. Avoid its overload—present new material in small steps and proceed only when first steps are mastered.	The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.	Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud, help to clarify the specific steps involved.	Students need additional time to rehearse, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers build in more time for this.	Less successful teachers merely ask "Are there any questions?" no questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.	A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.	Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.	Independent practice produces "overlearning"—a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.	The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.

EYFS	Learning goals	Pupil outcomes / Year 1 readiness Design and Technology knowledge and understanding	Other opportunities to develop understanding
	Children safely use and explore a variety of materials, tools and techniques, experimenting with design, form and function. Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.	<ul style="list-style-type: none"> - I can design a model before making it - I can construct for a purpose, using a variety of resources, including construction kits and 'found materials' - I can select appropriate resources - I can select tools and techniques needed to shape, assemble and join materials - I can talk about the size of shapes - I can name 2D and 3D shapes - I can use prepositional language. 	Provide opportunities indoors and outdoors to develop understanding of construction, e.g. a builder's yard. Resources readily available for building and constructing using a variety of materials, sizes and shapes. Gross motor activities Fine motor activities
	Children eat a healthy range of foodstuffs and understand the need for variety in food. (DM 40-60+ months) Children know the importance for good health of physical exercise and a healthy diet and talk about ways to keep healthy and safe.	<ul style="list-style-type: none"> - I can talk about some foods that are good for me, and why - I can help to prepare a healthy snack - I can make healthy choices regarding the food that I eat 	Stories about food and healthy eating. Food tasting opportunities. Snack and lunchtime conversations. 'Farm to Fork' experience (TESCO Link) Food preparation and cooking activities.
Skills and knowledge	<p>Recognise the main materials used to make items; cereal box - cardboard, milk carton - plastic. Materials have different textures – look at the difference in textures and strengths. Make models using different material types throughout child-initiated session following an adult led. Children to plan their ideas by mark making their ideas on paper before.</p> <p>Fine motor skills are small movements — such as picking up small objects and holding a spoon — that use the small muscles of the fingers, toes, wrists, lips, and tongue.</p> <p>Gross motor skills are the bigger movements — such as rolling over and sitting — that use the large muscles in the arms, legs, torso, and feet.</p> <p>Understand that there are different tools available to use; scissors, hammers, screw drivers etc. Understand that not all tools are suitable to create a product of choice; scissors – snip paper, hammers – blocks together, screwdrivers – nuts and bolts. Items can be made using a variety of different size resources and/or different shapes.</p> <p>Use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. Understand positional language; in front, behind, next to, on top. A roof can be a different shape and needs to be on top of the house.</p>		



Recognise the importance of healthy eating, exercise and hygiene. Understand the effects of our bodies when we exercise – hot, sweaty, heart rate. Understand the importance of washing and drying our hands – before food, after food, after outside. Healthy foods are important in our diet; fruit, vegetables, carbohydrates, protein and fibre. An unhealthy food can be included in our diet if We eat in moderation; for example, crisps, chocolate. Discuss good health of physical development, a healthy diet, and ways to keep healthy and safe.



Year 1	Construction - House	Textiles - Flag	Food technology – Fruit kebab
National curriculum objectives	<ul style="list-style-type: none"> - Generate, develop, model and communicate their ideas through talking, drawing, templates, mockups (where appropriate). - Select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining and finishing). - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Evaluate their ideas and products against design criteria. - Build structures, exploring how they can be made stronger, stiffer and more stable. 	<ul style="list-style-type: none"> - 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, mockups (where appropriate). - Select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining and finishing). - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Explore and evaluate a range of existing products. - Evaluate their ideas and product against design criteria. 	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining and finishing). - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Explore and evaluate a range of existing products (tinned fruit, frozen fruit etc). - Evaluate their ideas and product against design criteria. - Use the basic principles of a healthy and varied diet to prepare dishes. - Understand where new food comes from.
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore how products have been created. - I can recognise and name some different types of homes and their main features. - I can show through simple drawings the main features of a building, with a sense of proportion. - I can recognise and name mathematical shapes (square, rectangle, triangle, circle) in the context of building. <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can join 2D and 3D materials affectively in different ways . - I can begin to demonstrate a range of cutting and shaping techniques (tearing, cutting, folding and curling). - I can begin to use a range of joining techniques (glueing, hinges or combining materials to strengthen). - I can begin to understand how to make my structure more stable. - I can use construction kits to help develop ideas. 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore how products have been created. - I can talk about The different flag designs, describing how they have been made and what they are composed of . - I can make clear, labelled drawings of flags. <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can use basic fixing techniques using fabric glue. - I can shape textiles using templates. - I can use appropriate vocabulary to describe materials, components and process is. <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can design products that have a clear purpose and an intended user. - I can talk about what my flag represents. - I can talk about my finished flag in relation to how well it fulfils the design criteria. <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can recognise a name a number of different fruit and vegetables. - I can say which fruit and vegetables should be peeled before eating . - I can explore and evaluate a range of existing product (tinned fruit, frozen fruit etc). - I can use sensory vocabulary to describe texture, taste and appearance. - I can classify some fruit / vegetables according to colour, texture and taste and also by how and where they are grown. <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can begin to cut, peel or grate ingredients safely and hygienically. - I can understand and practise the hygiene rules for fruit and vegetable preparation. - I can name and demonstrate appropriate use of simple tools in preparing fruit and vegetables. - I can carry out simple tasting of fruit and vegetables e.g <i>preference tests</i> and record results. - I can understand that fruit and vegetables are an important part of a healthy diet. <p><u>To design, make, evaluate and improve</u></p>

To design, make, evaluate and improve

- I can say how I am going to make my model.
- I can design products that have a clear purpose and an intended user.
- I can construct a model by joining and combining 2D and 3D materials in appropriate ways .
- I can talk about my finished design Saying what I have done well, what I am pleased with, and what I could improve on next time.

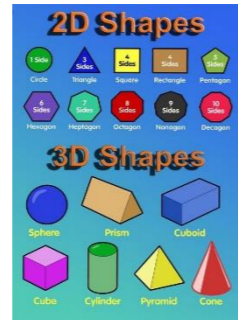


- I can suggest appropriate fruit and vegetables for a product, based on my tasting experiences.
- I can select and use appropriate equipment and ingredients to achieve the shapes and sensory properties required for my product.
- I can talk about my finished product, and record through pictures and words, how it looks and tastes and how well it matches my original ideas.



Skills & Knowledge

The difference between 2D and 3D shapes - 2D can be laid flat onto a piece paper. 3D shapes are solid objects that not flat.
Names of different 2D and 3D shape's.



of are

Recognise the main features of the building: windows, doors and roof. Compare houses, flats and bungalows - look at difference in height. Flats - have more homes inside, lots of stairs and therefore need to be bigger. Bungalow - rooms on the same level, no stairs therefore it is smaller in height. Houses - can have a couple of rooms or many rooms, can be big or small depending on the room size and can have one or two sets of stairs.

Understand that there can be many windows in a building and that they can be different shapes and sizes.
Understand that there can be more than one door in a building and that they can be different shapes and sizes.
A roof can be made from different materials and can be different shapes (flat, pointy or made from tiles or thatch).

Use cutting techniques: cutting (with scissors) and tearing.
Show the difference between the two techniques of 1 being a neat line on the other having a rough cut line.



Materials can be used to make a range of different things; for example, wood can be used to make tables , chairs , spoons, pencil's, shoes, floors and many more things.
An object can be made when different materials are used together (joining); for example, a chair can be made from metal and wood and plastic. Discussion on the difference in texture and strength between each of the materials.

Recognise that there are many different flags (look at different designs on the flags, differences in shape, some have block colours, some have more than one colour and some have shapes on).
Flags can be made from different materials all joined together. Discuss materials such as felt, cardboard and plastic.

Understand that there are a variety of cutting and shaping techniques to be used (Cook with scissors, tearing the felt, folding the felt, shaping with scissors).
joining technique to be used is with fabric glue. Compare with other glue – PVA, Pritt Stick (all are used to glue things together, however fabric glue is better because it lasts longer, is flexible, water resistant and 'bonds' (joins) the material together quickly). Look at why these traits are important when making a flag – flags are normally outside, therefore need to be weather resistant.

Templates are a shaped piece of material used as a pattern for cutting out or shaping something.

The difference between fruit and vegetables - vegetables are mainly grown from the ground. Fruit generally grows on trees unless it is a berry, where it normally grows on a bush.
Name different fruit (banana, apple, orange, pear , strawberries etc) and vegetables (potatoes, carrots, peas, cauliflower, broccoli etc) that the children are familiar with.



Recognise the main features of fruit and vegetables - fruits and vegetables either have skin, pips, stalk, stones. Bananas - skin, oranges - skin, apple - stalks, pips, carrot - skin.



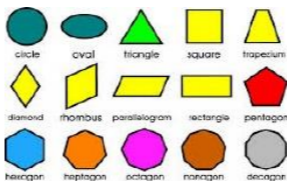

Understand that the texture, taste and appearance can be different e.g. juicy, fairy, smooth, rough, taste - tangie, sweet , appearance - bright colours, different colours, big, small.
A fruit kebab is a skewer that holds different pieces of fruit on it that have been prepared (cut, chopped, sliced). the skewers can be wooden or plastic.

Understand that basic hygiene of washing hands must be done before fruit / vegetables can be prepared in different ways.

Hygiene - some key pointers

- Jewellery is removed
- Hair is tied back
- Sleeves are rolled up
- Aprons are on
- Hands are washed
- Cuts are covered with blue waterproof dressing

Further information from www.foodsafetylife.org.uk

<p>Different shaping methods to be used: folding and curling. Folding is used to create straight smooth lines in paper. Killing is used to create a curl in the paper by wrapping it around a pen / pencil several times, diagonally.</p> <hr/> <p>Joining techniques are used to fix things together or onto another object. Different things are used and can create a different outcome for the design.</p>	 <p>Folding Curling</p> <hr/>  <p>Glue works by holding together two objects. As the glue dries, the hold gets stronger.</p> <p>Blot works by showing a sticky texture, just has a natural stickability with other surfaces.</p> <p>Sticky tape works by having a sticky side and non-sticky side and you use the sticky side to hold objects together.</p> <p>Paper clips work by one part of the paper clip in front and one behind and they hold the object together.</p>	<p>Investigate different templates to applying knowledge of different (link back to 2D shapes from previous use by shapes unit).</p>  <hr/> <p>Vocabulary should describe the materials being used : soft, flexible, transparent (you can see through it very clearly), strong, smooth.</p>	<p>Safety needs to be in place when different preparation ways are being followed. Cutting (using a knife or scissors), peeling (using a knife or peeler to peel fruit) and grating (using grater and discussing how something can be greater differently depending on the side that is used).</p>  <hr/> <p>Discussion on preparation techniques used on different fruit and vegetables (melon to be chopped/sliced, orange to be peeled with hands, potatoes normally peeled first and the cut/chopped etc) and decide the best technique they will need to use for their fruit kebab.</p>
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Year 2	Construction – Moving Vehicle	Textiles - Bunting	Food technology – Dips and dippers
National curriculum objectives	<ul style="list-style-type: none"> - 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 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. - Explore and evaluate a range of existing products. (toy cars) - Evaluate their ideas and products against design criteria. - Explore and use mechanisms (wheels and axels) in their products. 	<ul style="list-style-type: none"> - 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 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. - Explore and evaluate a range of existing products. (puppets) - Evaluate their ideas and products against design criteria. 	<ul style="list-style-type: none"> - 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 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. - Explore and evaluate a range of existing products. (Different types of bread/filling combinations/spreads) - Evaluate their ideas and products against design criteria.
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore objects and designs to identify likes and dislikes of the designs - I can suggest improvements to existing designs - I can give examples of how different vehicles are used for different purposes and what features they may contain - I can name the main parts of a vehicle - I can draw on my investigation of vehicles to inform my own design ideas - I can make simple drawings, with some labels of parts <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can join wheels and axels effectively and explain how they work 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore objects and designs to identify likes and dislikes of the designs - I can suggest improvements to existing designs - I can research examples of bunting and what it is used for <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can cut out a paper template and use chalk to trace around it onto fabric - I can master the skill of using scissors accurately - I can join textiles using a running stitch - I can sew a running stitch through the top and bottom layer of a piece of bunting - I can decorate textiles using a number of techniques (such adding sequins or printing using a running stitch, fabric glue or staples) 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore a range of dips from around the world (e.g. Hummus, Salsa, Guacamole, Raita, Thousand Island) - I can use my senses to help me describe a dip - I can explain what I like and dislike about a dip - I can name the countries where different dips come from - I can use my sense of sight, smell and taste to describe the dippers - I can taste different dippers and explain which I like and why - I can sort foods in dips and dippers into 5 food groups - I can tell you the jobs the different food groups do - I can explain why I should eat more fruit, vegetables and carbohydrates <p><u>To master practical skills</u></p>

- I can demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen)
- I can cut materials safely using tools provided
- I can measure and mark out to the nearest centimetre
- I can use a range of finishing techniques (e.g. axels equal length)

To design, make, evaluate and improve

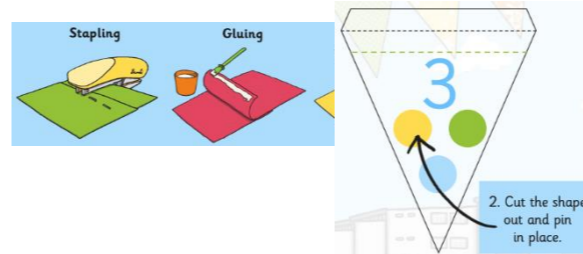
- I can make products and begin to refine the design as work progresses
- I can develop ideas for making a model vehicle which has a purpose, and which reflects my original idea
- I can suggest how I might make the vehicle I have designed (tissue box, cotton reels, wooden doweling)
- I can construct a vehicle which functions
- I can evaluate my finished vehicle, recording how it works and matches the original ideas (against the design criteria)



- I can use different joining techniques and talk about the advantages and disadvantages of different methods (e.g. stitching vs. gluing)

To design, make, evaluate and improve

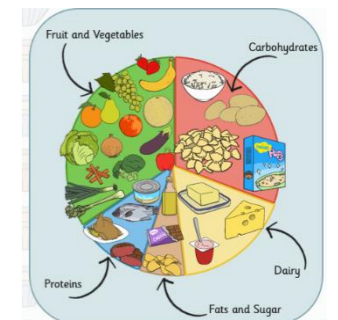
- I can make products and begin to refine the design as work progresses
- I can use existing products to help me design my own ideas
- I can apply what I have learnt when designing and making
- I can make and/or use a simple paper pattern/template to cut out accurate pieces
- I can make a piece of bunting to be attached to the final piece
- I can sew the fold on a piece of bunting using a running stitch
- I can make simple judgements about the completed bunting, pattern, style and suggest improvements



- I can assemble or cook ingredients
- I can cut, peel or grate ingredients safely and hygienically
- I can measure ingredients using cups and spoons
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To design, make, evaluate and improve

- I can follow the food hygiene rules before and whilst making my dip and dippers
- I can share some ideas about what our product must include to be successful
- I can include foods from different groups in my plan
- I can talk through my ideas then use illustrations or notes to plan the making work
- I can select and use kitchen equipment using my plan to guide me
- I can safely prepare ingredients
- I can make products and begin to refine the design as work progresses
- I can say what went well and what could have been improved
- I can explain how I have met my design criteria

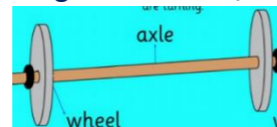


Skills & Knowledge

Vehicles are used for transporting people or goods. Explore different types of vehicles and what they are used for: bus – takes people to different places they need to go to, ambulance – save people’s lives who are ill and get them to hospital, car – take people to different places that are close by or far away, tractor – used on a farm to move things or in the field to help grow things, lorry – used to move heavy things or a lot of things to different places)

Identify features of the vehicles and label them: tyres/wheels, windows, doors, lights, seats)

Wheels – are used to make the vehicle move. They can be made with a range of materials (children to explore e.g. cotton balls, large buttons, glue lids) but wooden or cardboard wheels are best to create the smooth movement of the vehicle.



Axles – is a rod that allows the wheels to rotate (turn). It can be created with a range of different material (children to explore e.g. pipe cleaners, straws, pens) but dowel is best used to create sturdiness and strength.

Introduce bunting - It is often used as a decoration for special occasions that can be made from different fabric (or of plastic, paper and even cardboard). Typical forms of *bunting* are strings (rows) of small, colourful triangular flags (that are often in the colours of national flags) that can be hung across rooms.



Flags are made separately and then when they are joined together in a row, they create the bunting.

Different bunting designs need to be looked at and evaluated on what is liked and disliked. Opinions need to be given based on: is it colourful/neat/tidy? Does it tell a story or help somebody to learn? Is it the right shape?

Design criteria must be created (a set of goals that need to be followed for the design to be successful).

Templates need to be created – It is a pattern made of paper, used for making many copies of a shape or to help cut material accurately.

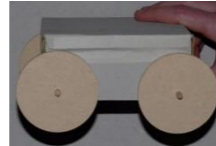
A dip is a thick sauce in which pieces of food are dipped before eating.

There are many different dips that come from all over the world and the countries of where they come from are identified (named and shown on a map). Hummus - Hummus was first made in Egypt. Today it is popular in Greece and Turkey. Guacamole - Guacamole was first made by the Aztecs in Mexico. Today it is often eaten with Mexican food. Salsa - Salsa is the Spanish term for sauce but it was first made in Mexico and is very popular in America. It is usually eaten with Mexican food. Raita - Raita is an Indian, Pakistani and Bangladeshi dip. Thousand Island - The name Thousand Island comes from the thousands of islands between the United States and Canada.

Choice of dippers need to be given (crisps/tortilla chips, crackers, bread/breadsticks, raw vegetables, fruit) and used to taste the different dips. The four of the five senses need to be used when trying dips and dippers to evaluate and give opinions based on what is liked/disliked and why (taste, smell, sight, touch).

Wheels need to be the same size on an axle to ensure balance and equal weighing on each end of the axle.

Construction of the vehicle using different materials and different combinations. One box/two boxes etc.



Joining techniques are used to fix things together or onto another object. Different things are used and can create a different outcome for the design.



Measure material needed to the nearest centimetre. Use a 30cm ruler and start from the 0 when measuring. If it does not go exactly on a number and is on a line (increment 0 between two numbers, then it is measured by which number it is closest to. If it is half way between both numbers, then it is measured to the highest whole number (e.g. 4.5 would be measured to 5).

Discuss and understand safety rules when using tools: Scissors need to be held properly, no moving around the room with them in their hands. Tearing is a technique used to cut but creates rough lines that are not straight.

Bending can create lines, but they are not always straight. The material is ripped/pulled at the bend so it tears/rips.

Using a bench hook, clamp and junior hacksaw:

Right-handed children cutting lengths of dowel or thin wood need space to the left side of the vice or bench hook; this space will be on the opposite side for left-handed children.

A corner bench hook prevents sideways movements. Use small, child-sized bench hooks as shown.

Children need good coordination to maintain the pressure on the hook while sawing.

Fix materials firmly before cutting, using a vice or a bench hook.

Clamp a bench hook to the table to prevent slipping.

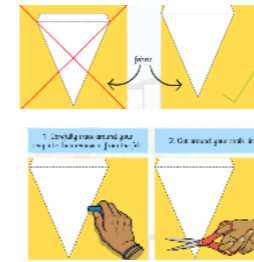
Always ensure that saw blades are securely fitted into the handles.



Scissors need to be used accurately and safely. Reminder of how to use scissors safely needs to be shared.



The template needs to be placed on the fabric and traced around using chalk. The template needs to be placed near to the edge so that it doesn't waste any of the material (felt).

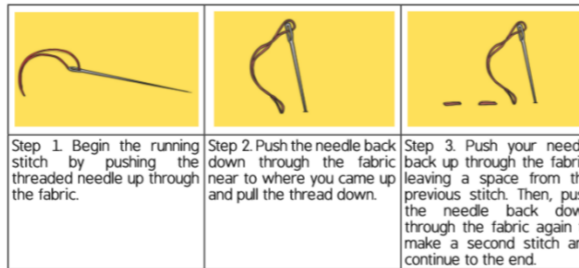


A running stitch is a quick and simple stitch that is often used for decoration which needs to be used when joining the top and bottom layer of the material together (fold). There are two layers of fabric to hold together.

Just like gluing or stapling two pieces of paper together, the thread is going to hold the two fabrics together by going in and out between the layers of fabric. Each time you go in and out from the front to the back of the fabric, you've created a stitch.

A running stitch is created by:

Starting Off
To start your stitching either tie a knot at the end of your thread or sew a few small stitches on the wrong side of the fabric.



Finishing Off
When you have finished sewing you will need to finish off to stop your stitches from coming undone. Bring the needle to the wrong side of the fabric and secure the thread with two small stitches. On the last stitch, as you pull through, push the needle through the loop to create a knot. Cut off the threads.

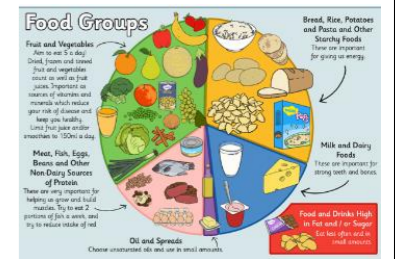
Different techniques can be used to join fabric together. Compare the different methods as to why one would be better than the other (gluing – glue might not be strong enough and it will come apart vs stitching – strong as the stitch goes through both parts of the material so holds it together better).

These techniques can also be used to add decoration to fabric (sequins, fabric glue, sewing, staples, printing) so that it is not plain but colourful and stands out.



Name the five food groups and identify where different ingredients go (group) from the dips that they have looked at.

Name the jobs of the different groups by describing what they do. Understand that ingredients can be assembled (to collect and bring/join/put together) or cooked (heated before it is eaten).



Understand that basic hygiene must be done before ingredients can be prepared in different ways (washing hands, tie hair back, roll up sleeves, clean the surface, put on an apron).



Different preparation ways are identified. Cutting (using a knife or scissors), peeling (using a knife or peeler to peel fruit) and grating (using a grater and discussing how something can be grated differently depending on the side that is used). Safety focus when cutting/slicing (the bridge or the claw technique to be modelled and used).



Correct cups and spoons to be used when measuring. Cups are used as a tool to measure the volume of liquid or solid cooking ingredients such as flour and sugar.

Measuring spoons are used to measure an amount of an ingredient, either liquid or dry, when cooking. They are available in many sizes. They can be made from plastic, metal or other things.



	Encourage a child holding a junior pistol-grip hacksaw to rest his/her index finger along the saw. The pointed finger helps with accuracy and discourages wagging the saw from side to side. Safety goggles to be worn when sawing and risk assessment read.		
Year 3	Construction – Making a kite	Textiles – Hand puppets	Food technology – Pizza
National curriculum objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at 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 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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 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.
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can name and explain the function of the different parts of a kite - I can disassemble products to understand how they work - I can identify and investigate different kite shapes (if possible, have a few different kite types to look at) - I can evaluate different kite shapes for their aero-dynamic effectiveness (which shape takes flight and stays in the air the longest?) <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can cut materials accurately and safely by selecting appropriate tools - I can use different techniques and materials for fixing the frame (e.g. string, tape, glue gun, blue-tac) - I can select appropriate joining techniques - I can explore kite tails for aesthetic reasons (bows, geometric shapes, ribbon etc) - I can demonstrate the correct and accurate use of measuring, marking out and cutting <p><u>To design, make, evaluate and improve</u></p>	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can talk about the different examples of puppets, describing how they have been made - I can disassemble products to understand how they work - I can make clear, labelled drawings of puppets <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can use a template for marking out identical pieces - I can practise a running stitch (learnt in Year 2) - I can experiment using a blanket cross stitch - I can join textiles with appropriate stitching (e.g. running stitch, blanket cross stitch). - I can use appropriate vocabulary to describe materials, components and processes (“I am going to use a running stitch because...”) <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can design with purpose by identifying opportunities to refine - I can apply what I have learnt when designing and making - I can join textiles with appropriate stitching (e.g. running stitch, blanket cross stitch). - I can adapt a given template and model my ideas using paper 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explore where pizza originates from and how it is traditionally made - I can record my opinions and the opinions of others on a table commenting on taste, appearance, smell and texture - I can identify the different food groups in the ‘balanced plate’ - I can put commonly eaten foods in their correct food groups - I have a sound understanding of appropriate terms used in food preparation and food products <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can identify important aspects of personal hygiene before handling food e.g. washing hands, keeping long hair tied back, wearing an apron - I can identify which foods should be kept in a fridge and why some foods are high risk - I can use sharp tools correctly to ensure safety and accuracy - I can measure or weigh ingredients using scales - I can follow a recipe (to make the pizza dough) <p><u>To design, make, evaluate and improve</u></p>

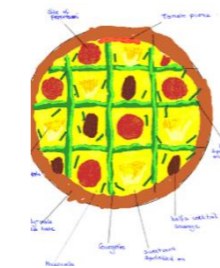
- I can apply what I have learnt when designing and making
- I can generate appropriate ideas through brainstorming and discussion of the constraints (e.g. issues with materials/frame structure/less effective)
- I can plan the stages of my work by designing my kite with labelled diagrams to explain my thoughts
- I can work safely and accurately with a range of simple hand tools (scissors, carving knives and mats) to measure and cut the body of the kite to join to the frame structure
- I can design with purpose by identifying opportunities to refine
- I can make a strong and stiff frame structure to support my kite
- I can evaluate my kite, after flying, and suggest improvements



- I can use a template or paper pattern to cut out two pieces of fabric for my puppet
- I can join my fabric pieces effectively using a running stitch
- I can add features to my puppet using appropriate materials and techniques (e.g. sequins/googly eyes etc.)
- I can talk about my finished puppet in relation to how well it works and how well it fulfils the design criteria



- I can design with purpose by identifying opportunities to refine
- I can apply what I have learnt when designing and making
- I can use my knowledge from my research to choose ingredients for a pizza e.g. most people preferred vegetables so I chose these for my design
- I can work through a sequence of tasks to produce a pizza topping with ingredients that complement each other making appropriate modifications
- I can show that I have worked safely and hygienically in my preparation and finishing to ensure a quality product
- I can evaluate my pizza and others' against the original design criteria (appearance not taste)



Skills & Knowledge

Name and explain the functions of different parts of a kite to include: Tail - Adds drag to keep the kite pointed into the wind. Also makes the kite look attractive. Sail - Directs the air to help lift the kite and keep it in the air. Spine - Helps to keep the kite stable. Spars - Gives the kite structure. Line - Prevents the kite from flying away; thicker lines are stronger.

Disassemble (take apart) kites to have a look at the different parts and understand how they are used together to make a product.

Different kite shapes to be investigated include:

Diamond:

It is the most recognised type of kite. This kite is effective because it has a bow built into it which allows it to fly in a more stable way.



Rokkaku:

A traditional Japanese fighting kite that is an easy kite to fly because the bow adds stability. The Rokkaku is hexagonal in shape.



Delta:

A triangular shaped kite. The design is effective because the shape of the kites means that it can



Look at different examples of puppets, looking at how they have been made (Sock puppet-socks, fabric puppet-felt, hand puppet – fabric, finger puppet-felt, shadow puppet-coloured plastic) Introduce a hand puppet (also known as a glove puppet) – it is often it is worn over the hand and controlled by the hand or arms that occupy the interior of the puppet. Commonly, the index finger serves as the neck while the thumb and the middle finger perform the arms of the puppet. Puppets can be used to create a puppet show – watch video.



Puppets are two pieces of material put together, they are the same size and shape and need to be joined. The front is often decorated to create an image e.g. pig, giraffe, butterfly, bumblebee. Puppets to be looked at and evaluated.

Disassemble (take apart) different puppet types to look at the different parts and understand how they work together to create a puppet.

Design criteria must be created. Clear, labelled drawing of the puppet to be completed with annotations of the ideas. Design must be based on purpose – what is the puppet going to be used for? Who is the puppet for? Materials must be thought about – what's appropriate?

Pizza is a food dish which was originated from Italy (a country located in Southern Europe). It is a savoury dish consisting of a usually round, flattened base of leavened wheat-based dough topped with tomatoes, cheese, and often various other ingredients and is baked at a high temperature, traditionally in a wood-fired oven. A small pizza is sometimes called a pizzezza.



Identify the five food groups that are need for a 'balanced plate' (Balanced meals include one food from each food group- Dairy; Vegetables; Fruits; Grains and Protein) and put commonly eaten foods in their correct food groups.



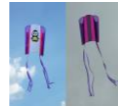
Understand personal hygiene when preparing and cooking food. Understand that basic hygiene must be done before ingredients can be prepared in different ways (washing hands, tie hair back, roll up sleeves, clean the surface, put on an apron).



travel smoothly in light winds. The Delta can be made with or without a keel.

Sled:

The original type of Sled has 2 straight spars running the length of the kite, and a tail hanging from the bottom end of each spar.

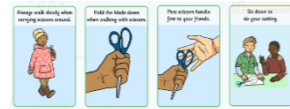


Easy to fly because air pressure keeps the sail open and holds the kite's shape while it flies.

The kite shapes to be evaluated on their aero-dynamic effectiveness. Aero-dynamic is the qualities of an object that affect how easily it is able to move through the air (takes flight the quickest, stays in the air the longest - lift).

Safety rules to be explained and shared when choosing appropriate tools to cut materials accurately – to cut exactly.

Simple hand tools to consider, scissors, fabric scissors, craft knives and mats.



The frame structure of the kite (the spars) needs to be strong to withstand the forces of the wind and support the covering used for the body of the kite but it also needs to be light so that it doesn't weigh the kite down.

Techniques to fix the frame include string (works by placing two pieces together and tying them into a knot so they join together), Sellotape (works by having a sticky side to hold objects together), glue gun (works by heating plastic glue which then melts and is used to join things together – the glue dries hard), blu tac (works by having a sticky texture, just has a natural stickability with other surfaces).



These techniques should be selected from when finding appropriate joining techniques to use.

A risk assessment to be carried out before using glue guns.

Kite tails to be explored for aesthetics (the beauty or appeal of something) reasons. A kite tail is added to either add stability or for decoration. Sometimes it is for both. Explore the tail as a decoration and what is added to it to make it aesthetic (bows, geometric shapes, ribbon etc).

Materials to be investigated to include felt, tissue paper, card, foil, plastic bag. Properties to be identified and used to make decisions on final design. Descriptions to include waterproof,

Joining technique – How can the fabric be joined together effectively? Look at previous fixing and joining techniques from other units taught (blu tac, fabric glue, staples etc) Design-What decoration is going to be used and how will it be fixed to the fabric? Measurements – How big is the puppet going to be (measurements in cm).

Templates (a guide which helps you cut out a piece of fabric the correct size and shape) need to be created-two identical pieces. Initially, a template is given at first a which is then adapted so the design template can be modelled first with paper.

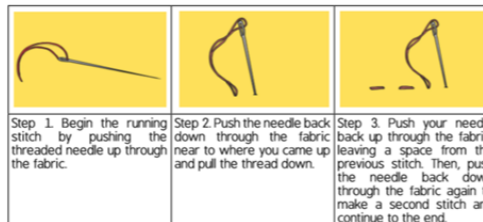


Templates can be changed for the basic shape, accurate measurements, joining techniques and cutting. The template needs to be placed on the fabric and traced around using chalk. The template needs to be placed near to the edge so that it doesn't waste any of the materials (felt). Two pieces of fabric need to be cut out based on the template (paper pattern) carefully and accurately so they are the same size and shape.

Material to be joined using appropriate stitching. A running stitch is a quick and simple stitch that is often used for decoration which needs to be used when joining the top and bottom layer of the material together (fold). There are two layers of fabric to hold together. Just like gluing or stapling two pieces of paper together, the thread is going to hold the two fabrics together by going in and out between the layers of fabric. Each time you go in and out from the front to the back of the fabric, you've created a stitch.

A running stitch is created by:

Starting Off
To start your stitching either tie a knot at the end of your thread or sew a few small stitches on the wrong side of the fabric.



Finishing Off
When you have finished sewing you will need to finish off to stop your stitches from coming undone. Bring the needle to the wrong side of the fabric and secure the thread with two small stitches. On the last stitch, as you pull through, push the needle through the loop to create a knot. Cut off the threads.

Blanket cross stitch to be experimented with and is created by:



Fig 1: Thru the needle out through A, take the needle in through B. Take it out through C. A point in the same stitch line as A. Loop the thread under the needle as shown.
Fig 2: Pull out the needle. Continue with this process till the end of the line.
Fig 3: A portion of the finished blanket stitch would reveal like this.
Fig 4: The blanket stitch can be given an interesting look by just altering the length of the vertical stitch as shown.

Different stitches to be practised so the option of preference is given, and the materials, components and processes can be described and evaluated saying which stitch is best to use and why.

Understand that ingredients need to be stored differently, look at "high risk" foods (cooked meat and fish, gravy, stock, sauces and soup, shellfish, dairy products such as milk, cream and soya milk and cooked rice). These are high risk because the food can go off (spoil) if it is not stored right and this can result in contamination and the spread of bacteria which makes people ill. Some foods need to be stored in a fridge, some need to be cooked before eating them. If the correct storage of food is not followed, it will make people very ill and can lead to a more dangerous illness.



Different preparation ways identified. Cutting (using a knife or scissors), peeling (using a knife or peeler), or grater. Safety focus of cutting/slicing techniques. Sharp tools are used correctly to ensure safety



accuracy.

Kitchen Scales to be used when measuring ingredients- easily measure portion sizes so you can accurately determine how much nutrients you're getting, and how much of the ingredient you are putting into your product. Scales uses grams and kilograms when measuring starting from 0.

Scales must always be at 0kg when measuring ingredients ne after the other.


Measurements also need to be made using measuring spoons and/or jugs. Millilitres (ml) need to be used when measuring liquid (oil, water) to make the dough and tablespoons (tbs) and teaspoons (tsp) to measure (salt, oil, baking powder)



Basic pizza dough to be made using a simple step by step recipe (Twinkl provide a basic pizza dough recipe <https://www.twinkl.co.uk/resource/TF-OR-31-we-are-all-different-fun-pizza-faces-recipe>)



Opinions of other types of pizza should be given after taste testing. This should include

	<p>stretchy, toughness, strength, hardness, softness, smooth, rough, elasticity, absorbency, bendability.</p> <p>The frame structure of the kite (the spars) needs to be strong to withstand the forces of the wind and support the covering used for the body of the kite but it also needs to be light so that it doesn't weigh the kite down.</p> <p>Draw a labelled diagram to explain the design (gives more detail about the design e.g. shape, material used, measurements, joining technique used, decoration, tail).</p> <hr/> <p>Templates (a pattern made of paper, used for making many copies of a shape or to help cut material accurately) need to be made of the kite body using accurate measuring (using a ruler and measuring in centimetres-cm).</p> <p>It needs to be traced and marked out onto the chosen material and cut out accurately using appropriate tools already explored.</p>	<p>A variety of features to be added to the puppet using appropriate materials (sequins, googly eyes, hair-wool, face-paint, eyes-buttons etc) along with different appropriate fixing techniques (gluing, sewing, staples, printing).</p> <hr/> <p>Talk about the finished puppet in relation to the design criteria:</p> <p>Evaluating something you have made means thinking about what went well, what was difficult, what you are pleased with and what you would change if you were to make it again. Evaluating is important because it helps you to make your work better in the future and to avoid making the same mistakes.</p>	<p>the taste, texture, appearance and smell. The five senses need to be used when evaluating the toppings and needs to be recorded in a table along with likes and dislikes. This should be shared as a class to use as a reference for their own ideas/designs. This research provides ideas for their chosen ingredients (e.g. people preferred X, so I chose X for my design).</p> <hr/> <p>A pizza topping should be created with ingredients that complement each other and make modifications if they do not. Look at other pizza toppings and evaluate if they complement each other and why. Also likes and dislikes of certain toppings.</p>  <p>There are many types of pizzas where toppings have been added and that is the reason pizza is one the most popular foods; it offers infinite possibility of variation with its crusts, toppings, cheeses and sauces. Chicago Pizza - ground beef, sausage, pepperoni, onion, mushrooms, and green peppers, placed underneath the tomato sauce. New York Style - tomato sauce and mozzarella cheese (with added toppings). California - no such thing as traditional toppings. This lack of specificity allows you to get inventive. Detroit - pepperoni, brick cheese (usually Wisconsin brick cheese), and tomato sauce. Thin Crust - slimmer in the centre where the sauce, cheese, and ingredients are placed, but lead up to a crunchy, yet doughy edge. Thick Crust - thick all throughout in order to handle the weight of the sauce and toppings.</p>
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Year 4	Construction – Moving mechanisms	Textiles – Purse	Food technology – Scones
National curriculum objectives	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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

	<ul style="list-style-type: none"> - 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 their ideas and products against their own design criteria and consider the views of others to improve their work - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> - 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 (fixings/closers on modern day purses and wallets) - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<ul style="list-style-type: none"> - 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 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.
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can explain the difference between a lever and a linkage - I can follow instructions to make a lever and linkage mechanism - I can explain how lever and linkage systems work using appropriate vocabulary - I can explain some of the techniques for making simple lever and linkage systems - I can discuss how products have been made, and how models replicate real-life features - I can improve upon existing designs, giving reasons for choices <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can construct effective pneumatic systems (e.g. balloons) - I can use techniques for fixing components (e.g. a split pin) - I can investigate ways of using their linkage and lever systems with other materials to control movement (e.g. card will be stiffer than paper) - I can measure and mark out to the nearest millimetre - I can apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs) - I can create products using levers, wheels and winding mechanisms <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can apply what I have learnt when designing and making - I can generate appropriate ideas through brainstorming and discussion of the constraints (e.g. issues with materials/less effective) - I can plan the stages of my work and record these at the end of the project in a storyboard - I can work safely and accurately with a range of simple hand tools (scissors, carving knives and mats) 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can understand that containers for money are designed for different purposes and users but have common features e.g. a fastener to keep the money safe - I can identify criteria for a successful money container - I can explore different fastenings (e.g. button, zip, tie) - I can draw products from different views, and label indicating the materials, fastenings, measurements and construction techniques used (e.g. closed view/ open view) <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can demonstrate a variety of ways of joining fabric – revisit running and blanket cross stitch - I can learn and practise backstitch - I can practise sewing on buttons - I can carry out simple fabric tests and choose fabric to meet functional requirements (e.g. do they stretch under the weight of coins) - I understand the need for a seam allowance - I can make a pattern/template with a seam allowance - I can select the most appropriate techniques to decorate textiles <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can make products by working efficiently (such as by carefully selecting materials) - I can refine work and techniques as work progresses, continually evaluating the product design - I can apply what I have learnt when designing and making - I can write a simple specification bearing in mind the intended user - I can produce drawings with labels to show what I intend to make and the sequence of my work - I can construct my money container with some accuracy, using stitching and attaching a button - I can evaluate my product against their specification 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can name and identify the origin of a number of scone products (e.g. Welsh cakes) - I can talk about the contribution that scones can make to a balanced diet - I can demonstrate through my recording sheets understanding of how different scone products can be classified - I can use a wide sensory vocabulary to describe scone products <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can explore the processes involved in making of scone products - I can measure ingredients to the nearest gram accurately - I can prepare ingredients hygienically using appropriate utensils - I can assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking) - I can demonstrate accurate, effective and appropriate use of equipment, using safe and hygienic working practices (cutting in butter with a knife) - I can follow safe procedures for food safety and hygiene <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can apply what I have learnt when designing and making - I can use investigations to select appropriate ingredients for my final product (e.g. consumer research regarding which type of cheese to use in a cheese scone) - I can write the appropriate specification - I can plan order of work with list of ingredients and equipment - I can make products by working efficiently (such as by carefully selecting materials)

- I can make products by working efficiently (such as by carefully selecting materials)
- I can refine work and techniques as work progresses, continually evaluating the product design



- I can refine work and techniques as work progresses, continually evaluating the product design
- I can work safely, hygienically and accurately
- I can evaluate the scone product, taking into account my design specification



Skills & Knowledge

Moving mechanisms are devices used to make movement in a product. They move with either a lever or a linkage.

Lever: The simplest type of mechanism is called a lever. A lever is a stiff bar which moves around a pivot (the central point on which a mechanism turns). The pivot can be loose or fixed. Levers are used in many products; sea saw, tweezers, scissors etc.

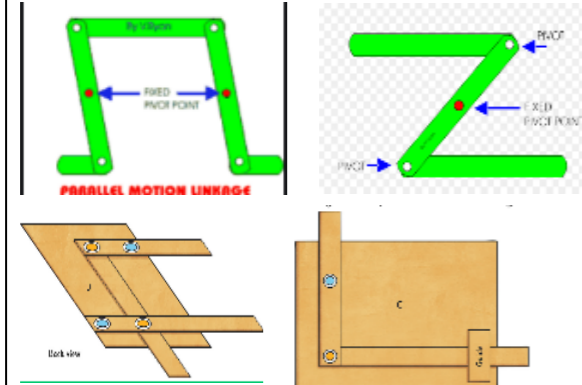


Linkage: joining one or more levers to produce the type of movement required. Simple lever and linkage systems to be made using paper and split pins where the lever, linkage and pivots (fixed and loose) can be created. Loose pivot - a split pin that joins card strips together.



Fixed pivot - a split pin that joins card strips to the backing card. Fixing components can either be still or moveable, moving mechanisms need a moveable fixing component such as a split pin to enable the correct movement (linear-straight line, reciprocating-backwards and forwards in a straight line, rotary-round and round, oscillating-backwards and forwards in an arc)

Look at and discuss other lever and linkage systems that replicate real-life features (scissors, car doors, wheels etc) and improve on those designs by giving reasons for how they could be improved and why. Lever and linkage systems to use and test:



Pneumatic systems - Pneumatics is the science and technology of pressurized air—using piped, compressed air (or a similar gas, such as nitrogen) to transmit force and energy.

Range of different coin/money containers to focus on (purse, bag, wallet). They are designed for different users and have different purposes. Common features are that they have a fastener to keep the money safe.

Criteria for to include purpose, materials and features to be successful. Different fastenings to be explored are button, zip and tie (string/ribbon) and the best method to attach them to the material.



Existing products to be explored and evaluated. Annotated drawings from different views are used to inform final designs. Annotations to include and focus on materials used, measurements, components, decoration, fastenings and construction technique used (stitching, gluing etc.). Evaluations of these annotations to include comparisons (why is X material better to use? Why is X construction technique better to use?).

Joining fabric together in different ways. Revisit and practice running and blanket stitch.

Running stitch:



Blanket stitch:



Learn and practise backstitch:

A scone is a British baked good, usually made of wheat, or oatmeal with baking powder as a leavening agent and baked on sheet pans. A scone is often slightly sweetened and occasionally glazed with egg wash. The scone is a basic component of the cream tea.



Personal hygiene when preparing and cooking food. Understand that basic hygiene must be done before ingredients can be prepared in different ways (washing hands, tie hair back, roll up sleeves, clean the surface, put on an apron).



Balanced Diet:

Grain is one of the five food groups and is part of a healthy balanced diet. Any food made from wheat, rice, oats, cornmeal, barley, or another cereal grain is a grain product. Bread, pasta, breakfast cereals, grits, and tortillas are examples of grain products. Foods such as popcorn, rice, and oatmeal are also included in the Grains Group.

Whole grains: whole-wheat flour, bulgur (cracked wheat), oatmeal, whole cornmeal, and brown rice.

Refined grains: white flour, de-germed cornmeal, white bread, and white rice.



Recipe: A recipe is a list of ingredients and a set of instructions that tell you how to cook something (a traditional recipe for oatmeal biscuits, a recipe book).

The process involved in making scones; the first stage is to cut the accurate amount of butter, then knead in self raising flour (or regular flour and baking powder). Add a small amount of salt and sugar to ground up the butter. Extra ingredients can be added such as lemon or raisins. Add enough milk to make the mixture

Use and experimentation with a pneumatic system to create a moving system – balloons to be used to demonstrate and investigated with to show how a system can move in a different way.

Material to be used when creating the lever and linkage system to be card. Discussion around the choice of this material and the properties of the material (card is stiffer than paper). Investigate how it can strengthen, stiffen and reinforce a structure and the benefits of this when creating a moving mechanism (sturdy, strong etc). Other material to be considered and looked at with discussions about the effectiveness and efficiency of the materials and any issues with them regarding strength-look at properties.

Measurements of the strips and backing card to be measured to the nearest millimetre (mm). Discuss conversions and how many millimetres are in a centimetre. Measurements of mm to be used when planning and annotating any designs made and a ruler to be used when designing and making.

Cutting and shaping techniques to be used when creating a design – slots and cut outs need to be measured and cut out accurately especially if they are in the perimeter (the length of the outline of the shape) of the material.

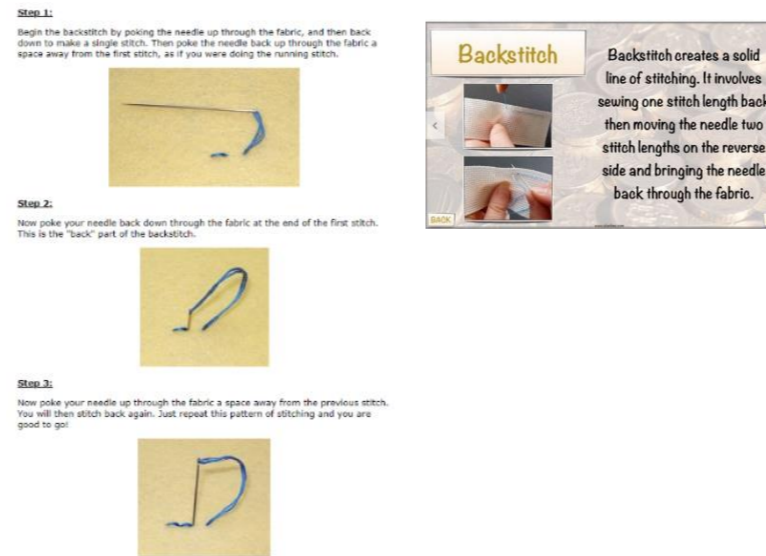
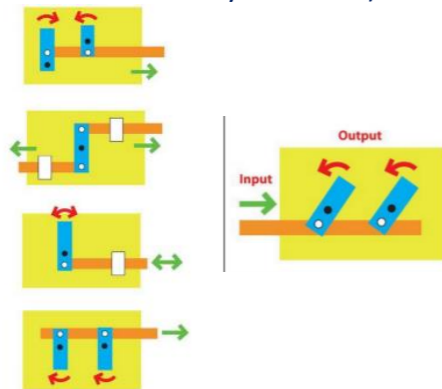
Safety rules to be explained and shared if simple hand tools are chosen to be used. Simple tools to consider include scissors, craft knives and mats.



Children must always keep fingers behind the sharp edges of cutting tools. A grooved metal safety rule with a profile like an 'M' - helps protect fingers when cutting with a craft knife. Use a safety rule to cut away from the hand; fingers behind the knife.

A risk assessment must be carried out and read before any tools are used in the classroom.

A moving product to be created using a lever and linkage system that has been explored. Ideas can include a moving poster (clapping hands, waving hand, open and closing mouth of an animal, moving flag, moving animal-both the head and the bottom of the body move etc)



Understand what a seam allowance is and why it is needed - A seam allowance is the area between the edge of the fabric and the line of stitching being used to join two or more pieces of material together. It is important because it keeps the material joined together.

A range of fabric evaluated to include felt, paper, tissue paper and card which is based on the functional requirement- weight of the coins (other resources to be used can include blocks, cubes, marbles etc.)

Pattern pieces/templates need to be created. They are drawings that are the exact shape and size as the sections of textiles used to make the product. They are used to transfer a design to cloth or other textiles. The template/ pattern piece needs to be pinned onto the fabric and traced around using chalk. The template needs to be placed near to the edge so that it doesn't waste any of the material (felt). It needs to include a seam allowance on the actual template.

Decorations need to be added to the material using appropriate techniques. This can include fabric glue (e.g. buttons added to the fasteners) or sewing, choosing an appropriate stitch from the ones that have been covered) to add decoration.

look gluggy, place them onto a greased tray and stick them in the oven at about 170C for about 20 mins or until they are golden.

Kitchen Scales to be used when measuring ingredients- easily measure portion sizes so you can accurately determine how much nutrients you're getting, and how much of the ingredient you are putting into your product. Scales uses grams and kilograms when measuring starting from 0. Scales must always be at 0kg when measuring ingredients next after the other.



Measurements also need to be made using measuring spoons and/or jugs. Millilitres (ml) need to be used when measuring liquid (oil, water) to make the dough and tablespoons (tbs) and teaspoons (tsp) to measure (salt, oil, baking powder)

The cooking to be used is baking. Baking techniques include oven preheating, preparing pan / tin, measuring ingredients, mixing, baking, how to know when something is done, cooling and storing.

Refine different recipes based on ingredients, methods that will be used to make it, cooking times (cook for longer times/shorter times) and temperatures (higher temperature – cook faster/cook properly/burn or lower temperature – longer to bake/not cook properly/inside not cooked properly etc.)

Evaluation of the product needs to be created, the evaluation will include senses; smell, touch, look, taste.

		Tasting Form				
		Smell	Touch	Look	Taste	Overall
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9
10	10	10	10	10	10	10

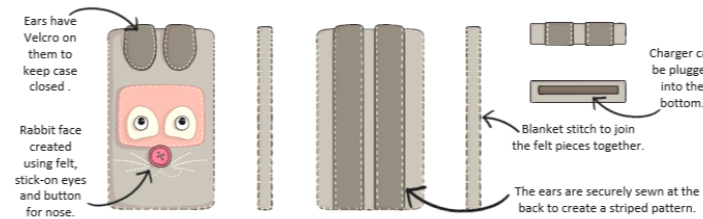
Year 5	Construction – Making alarms using electricity	Textiles – Mobile phone sleeve	Food technology – Bread making
National curriculum objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are 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 - 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 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. (Scratch coding) - 	<ul style="list-style-type: none"> - 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 - 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 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. (Scratch coding) 	<ul style="list-style-type: none"> - 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 - 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 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. (Scratch coding)
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can recognise the uses of alarm systems (e.g. home burglar alarms, car alarms, microwave timers and alarm clocks) - I can understand the dangers of mains electricity - I can explore electric circuits - I can understand that different switches work in different ways - I can explore criteria for an alarm e.g. noise/light - I can create innovative designs that improve upon existing products <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can make a complete circuit using bulbs and buzzers - I can produce a range of working circuits using different kinds of switches, conductors etc - I can use a computer control program to control outputs e.g. LEDs, bulbs, buzzers - I can begin to create series and parallel circuits within my construction - I can use innovative combinations of electronics (or computing) and mechanics in product designs <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can apply what I have learnt when designing and making - I can make products through stages of prototypes, making continual refinements - I can ensure products have a high-quality finish, using art skills where appropriate 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can think about the aesthetics of the phone case (how it looks). - I can evaluate phone covers considering appearance, function, cost and safety - I can distinguish between functional and decorative products - I can identify the different materials that have been used in a phone cover and why they have been chosen - I can write a design criterion that refers to the functionality of my phone case - I can create innovative designs that improve upon existing products <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can understand that a pattern/template must be used to make a phone cover which fits the device - I can transfer measurements onto squared paper - I can accurately cut out my template - I can join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration) - I can use a sewing machine to join or decorate a product (if available) <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can apply what I have learnt when designing and making - I can demonstrate a clear idea of who will use the phone case and show the ability to draw up an appropriate design specification - I can make a working drawing - I can work independently and systematically using my step-by-step plan (e.g. a flow chart to sequence their work) 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can name and identify the origin of a number of bread products - I can talk about the contribution that bread can make to a healthy diet - I can demonstrate through my recording sheets understanding of how different bread products can be classified - I can use a wide sensory vocabulary to describe bread products through sampling (e.g. doughy, crisp, elasticity, crumbly) - I can create innovative designs that improve upon existing products <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can explain the processes involved in making of bread products - I can follow instructions in order to conduct fair tests - I can demonstrate a range of baking and cooking techniques - I can create and refine recipes, including ingredients, methods, cooking times and temperatures - I can demonstrate accurate, effective and appropriate use of equipment, using safe and hygienic working practices - I can learn and demonstrate techniques (such as kneading, proving, knocking back) - I can practise different ways of representing bread (e.g. plaits) - I can understand that the properties and quantities of ingredients will affect the final product (particularly yeast) - I can follow safe procedures for food safety and hygiene

- I can produce a design sheet for the final product (e.g. an alarm clock that could use a bulb/buzzer or both)
- I can create the alarm system (e.g. constructing a circuit inside a cardboard alarm box using a bulb, buzzer or both)
- I can evaluate the effectiveness of my system linking back to the criteria



When the cardboard 'door' is opened, a conductor on the back of the door (such as tinfoil) touches another conductor (such as an opened paperclip attached to the wall) to complete the circuit and sound the alarm.

- I can join the fabric parts and use decorative techniques to achieve a well-constructed and finished phone case
- I can evaluate my phone case critically against the design specification
- I can make products through stages of prototypes, making continual refinements
- I can ensure products have a high-quality finish, using art skills where appropriate



To design, make, evaluate and improve

- I can apply what I have learnt when designing and making
- I can plan order of work with list of ingredients and equipment
- I can work safely, hygienically and accurately (oven safety)
- I can make products through stages of prototypes, making continual refinements
- I can ensure products have a high-quality finish, using art skills where appropriate
- I can evaluate the bread product, taking into account my design specification



Skills & Knowledge

Different type of alarms systems to look at include burglar alarms, car alarms, microwave/oven timers and alarm clocks. Look at purpose of each of alarm, how it is activated and what switch is used to activate it.



Mains electricity is the term used to refer to the electricity supply from power stations to households and can be very dangerous: contact with live parts cause shock and burns; faults can cause fires; fire or explosion where electricity could be the source of ignition in a potentially flammable or explosive atmosphere, e.g. in a spray paint booth. It can cause death. Understand the safety around electrics when making them.

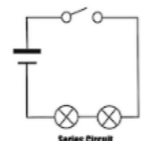


Alarms to have a criteria that needs to be followed including, noise, light, circuit and purpose. Explore different circuits and how they can be changed to create different outcomes (buzzer and light come on together, only light on, only sound)



Different electrical circuits to look at and use within the construction are series and parallel.

Series circuit - A series circuit is a circuit in which resistors (electrical component that limits or regulates the flow of electrical current in an electronic circuit) are arranged in a chain, so the current has only one path to take. The current (amount of

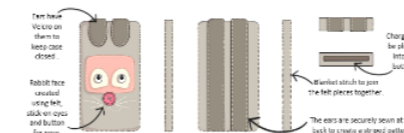


A design criterion is created by the children (a design criteria is a list that tells the designer what the product must do and what it must include). Ideas to think about and discuss:

- Have a fun and unique design.
- Appeal to a target market of girls aged between 7-10.
- Include contrasting colours.
- Include a hole for the camera and charger.
- Be well made with strong stitching.

Also to be included in the design criteria – aesthetics (what it looks like), target market (who is it aimed at?), quality (how well it has been made), functionality (how well the product works).

Draw detailed sketch to show the design from each side and add annotations (gives more detail about the design e.g. stitches to use, materials, sizes, where the material is joined etc.).



An exact template must be used – a phone needs to be available to base the template/design on (A template, also called a pattern, is a guide which helps you cut out a piece of fabric the correct size and shape). Understand why a template is used: the template can be reused, it is much easier to measure accurately using squared paper than to measure straight onto a piece of fabric, using a template can reduce your material costs. This is because a template allows you to explore the most efficient way to lay out the template on the fabric to reduce waste and using a template is also likely to give you a better-quality finish.

Name and identify the origin of bread products (According to history, the earliest bread was made in or around 8000 BC in the Middle East, specifically Egypt. The quern was the first known grinding tool. Grains were crushed and the bakers produced what we now commonly recognize in its closest form as chapatis (India) or tortillas (Mexico).

Bread to look at and origin: chapatis (India), tortillas (Mexico), bagel (Poland), English muffin (England), focaccia (Italy), pitta bread (Middle East) and Matzoh (Egypt). They originate from these countries but are baked, sold and eaten all over the world and some relate to religion (Matzoh).

Bread is one of the five food groups and is part of a healthy balanced diet. A carbohydrate (starchy food) is an important source of vitamins and iron. They contain sugars that give energy.

Some give us fibre, which keeps our digestive system working properly. Bread is an easy and convenient way to get carbohydrates into a meal that gives energy we need throughout the day. Carbohydrates should make up just over a third of the food we eat. There is a higher fibre version of white bread, which is healthier (wholemeal). It is the main source of a range of nutrients in a diet.

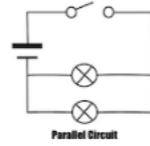


Bread should be classified by: taste, texture, appearance, weight and origin. Use of sensory vocabulary to describe the product to include: doughy, crisp, elasticity, crumbly, soft, smooth, rough, sweet, salty etc.)

Bread is made using different ingredients (depending on the bread that is being made). Yeast is used in most breads. This is what makes it rise. Some breads do not use yeast so are flat (such as pitta) These are called unleavened bread. Flour is the main

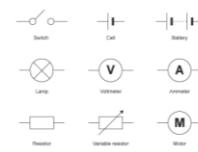
electricity flowing through the circuit) is the same through each resistor.

Parallel circuit - In a parallel circuit, there is more than one resistor (bulb) and they are arranged on many paths. This means electricity (electrons) can travel from one end of the cell (device used to generate electricity, or to make chemical reactions by applying electricity) through many branches to the other end of the cell.



Complete circuits (a complete loop with electricity flowing the way it's supposed to flow: from the battery, to the component, and back to the battery again) to be made using bulbs, buzzers, switches and conductors.

Recap the symbols that relate to circuits. Identify the symbols, what they represent in the circuit and their purpose.

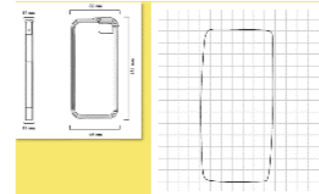


Switches are used in different ways - to turn things on and off, need to make a connection work, need to form part of a circuit. A switch is either open (off) or closed (on) and can look different.



A prototype needs to be created using different materials (cardboard, paper pipe cleaners/ sting/wool) to represent wire. A prototype normally looks and works like the real thing. It is the first example and there may be problems with it, which will probably need changing. The prototype model will be used for testing and development. Refinements then need to be made to the design.

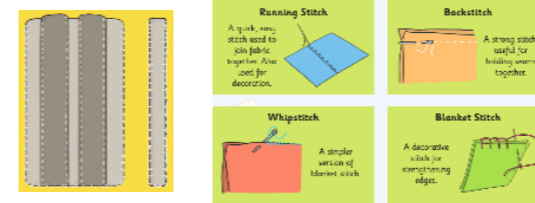
Taking exact measurements is important when working with fabric. To begin with, draw an outline sketch of the phone then measure the length, width and depth carefully. Write measurements in millimetres (mm) or centimetres (cm). The design and template need to be on **squared paper** along with the measurements.



Pin template onto the felt and trace around it with chalk. Cut out the felt shape.

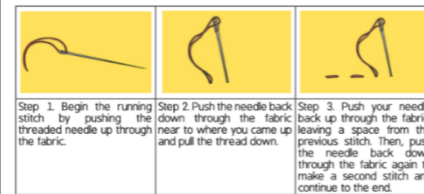
A prototype needs to be created using paper. A prototype normally looks and works like the real thing. It is the first example and there may be problems with it which will probably need changing. The prototype model will be used for testing and development. Refinements then need to be made to the design.

Join fabric together using different stitches need to be investigated and tried using paper. Two to focus on: **running and back stitches**.



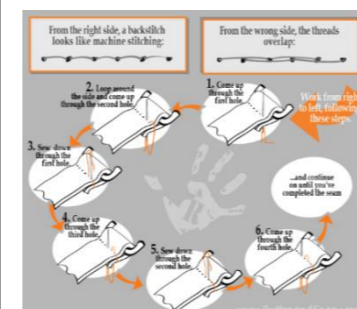
Running stitch (to be used for decoration):

Starting Off
To start your stitching either tie a knot at the end of your thread or sew a few small stitches on the wrong side of the fabric.



Finishing Off
When you have finished sewing you will need to finish off to stop your stitches from coming undone. Bring the needle to the wrong side of the fabric and secure the thread with two small stitches. On the last stitch, as you pull through, push the needle through the loop to create a knot. Cut off the threads.

Back stitch (to be used for the seams):



Decoration needs to be added to the felt using the stitches learnt. If it is to the front or back of the phone case (like eyes or a nose), it needs to be sewn onto the piece of felt before the front and back are sewn together (cut out all the pieces first, then arrange them on to the felt to see how they need to be arranged before sewing or gluing in to place. Fastenings can be added if the design needs them.

ingredient of bread. Flour is made by grinding cereals like wheat and maize into fine powder. Yeast can affect the outcome. It is a fungi (microorganism) and is the driving force behind fermentation (biological process that converts sugars and starches into simpler substances) that allows a dense mass of dough to become a well-risen loaf of bread. If you do not use yeast or other leavening in bread dough, the bread will be dense and will not rise.

The processes involved in making bread: The first stage is to mix the ingredients - water, flour, yeast and salt - to make the dough. The dough is then kneaded into different shapes and sizes to make round or stick loaves. Extra ingredients are added to the dough, such as seeds, olives, fruit or herbs, to add flavour to the basic bread. The unbaked bread dough is left in a 'prover' to allow it to rise, before being baked in a hot oven ready to be sent to the local market.

(<https://www.bbc.co.uk/bitesize/clips/zrxd7ty>)

The cooking to be used is baking. Baking techniques include oven preheating, preparing pan / tin, measuring ingredients, mixing, baking, how to know when something is done, cooling and storing.

Refine different recipes based on ingredients, methods that will be used to make it, cooking times (cook for longer times/shorter times) and temperatures (higher temperature – cook faster/cook properly/burn or lower temperature – longer to bake/not cook properly/inside not cooked properly etc.)

Safety rules and hygienic practise need to be in place and revised before baking based on preparation and baking (oven, heat)

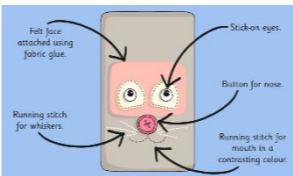



Techniques demonstrated are:


Kneading - is a process in the making of bread or pasta dough, used to mix the ingredients and add strength to the final product. Its importance lies in the mixing of flour with water (https://www.youtube.com/watch?v=t6d_XXYrqBk).

Proving - this is the correct name for the process of rising in bread making (can also be known as proofing) (<https://www.youtube.com/watch?v=U3EsuaUa0OU>).

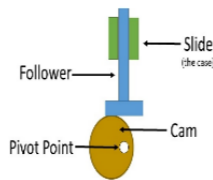
Knocking back - deflating the dough with a GENTLE punch. This evens out the texture of the bread (<https://www.youtube.com/watch?v=deYmiiTTNkk>).

		<p>Other joining techniques to be used such as fabric glue or added to the other fabric colours primarily decoration the running stitch (whiskers, nose etc.) depending on the design chosen.</p>  <p>techniques to be used Velcro (e.g. buttons fasteners, eyes, nose on top etc.) but should be done using (patterns, mouth, whiskers, nose etc.) depending on the design chosen.</p>	<p>Different ways of presenting the bread should include plaits, rolls, flat, round, triangular etc.). Designs can also include shapes, faces or animals as long as they are constructed before baking.</p>  <p>Prototypes of the product need to be created in stages. A prototype normally looks like the real thing. It is the first example and there may be problems with it, which will probably need changing – this may include the type of ingredients used. The prototype model will be used for taste testing and development. Refinements need to be made to the design to ensure a high-quality finish.</p>
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Year 6	Construction – Moving toys using CAMs	Textiles – Cushion	Food technology – Biscuits
National curriculum objectives	<ul style="list-style-type: none"> - 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 (the designing of the CAM to develop machinery, toys and moving mechanisms) - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> - 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 (the designing of the CAM to develop machinery, toys and moving mechanisms) - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> - 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 (the designing of the CAM to develop machinery, toys and moving mechanisms) - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
Pupil outcomes	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can recognise the movement of a mechanism within a toy or model 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can relate to the way cushions are designed for the intended user and purpose 	<p><u>To take inspiration from design</u></p> <ul style="list-style-type: none"> - I can compare biscuits in terms of appearance, flavour, texture and cost

	<ul style="list-style-type: none"> - I can understand that a cam will change rotary motion into linear motion - I can understand that different shaped cams produce different movements - I can identify the cam within a mechanism and explain how it changes movement - I can use a construction kit to model a cam mechanism - I can combine elements of design from a range of inspirational designers throughout history, giving reasons for choices - I can evaluate the design of products so as to suggest improvements to the user experience <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can measure and mark out accurately - I can use a drill to make an off-centre hole in a wheel - I can cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape) - I can develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding) - I can convert rotary motion to linear using cams <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can produce step-by-step plans for making my design which include the materials and tools needed - I can consider the characteristics of the cam mechanism when designing the moving part of my toy - I can design with the user in mind, motivated by the service a product will offer (rather than simply for profit) - I can use prototypes, cross-sectional diagrams or computer aided designs to represent designs - I can show my knowledge of cams and how their movement is reflected in my designs - I can cut and join with accuracy to ensure a good-quality finish to the product (sanding/ wood glue) - I can evaluate my toy personally and seek evaluation from others 	<ul style="list-style-type: none"> - I can evaluate cushion covers considering appearance, function, cost and safety - I can distinguish between functional and decorative products - I can identify the different materials that have been used in a cushion cover and why they have been chosen - I can investigate different joins - I can combine elements of design from a range of inspirational designers throughout history, giving reasons for choices - I can evaluate the design of products so as to suggest improvements to the user experience <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can understand that a pattern/template must be used to make a cushion cover - I can use a variety of sewing and decorating techniques and choose appropriate techniques for making cushion covers - I can create objects (such as a cushion) that employ a seam allowance - I can use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion) - I can use a sewing machine to join or decorate a product (if available) <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can design with the user in mind, motivated by the service a product will offer (rather than simply for profit) - I can use prototypes, cross-sectional diagrams or computer aided designs to represent designs - I can demonstrate a clear idea of who will use the cushion cover and show the ability to draw up an appropriate design specification - I can work independently and systematically using my step-by-step plan - I can accurately measure to ensure there is enough material around the edge to sew up, when turned inside out - I can join the fabric parts and use decorative techniques to achieve a well-constructed and finished cushion cover - I can evaluate my cushion cover critically against the design specification and consider the views of others to improve my work 	<ul style="list-style-type: none"> - I can understand that people have different preferences and that designers need to consider this when designing - I can record my opinions and the opinions of others on a table along with a graph commenting on preferences regarding flavour, appearance and fillings (consumer research) - I can evaluate the design of products so as to suggest improvements to the user experience <p><u>To master practical skills</u></p> <ul style="list-style-type: none"> - I can follow a recipe to make biscuits - I can adapt ideas using a basic biscuit recipe - I can understand and practise the rules of basic food hygiene and work safely - I can evaluate different outcomes and draw conclusions about the impact of added ingredients, different finishes/shape on the end product - I understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms) - I can measure accurately and calculate ratios of ingredients to scale up or down from a recipe <p><u>To design, make, evaluate and improve</u></p> <ul style="list-style-type: none"> - I can generate and develop ideas, from my consumer research, through brainstorming and discussion - I can use a consumer specification to inform my design - I can select food ingredients with appropriate qualities to achieve the desired outcome - I can plan the main stages of designing and producing my biscuits - I can make and measure accurately whilst working safely regarding the quality of the end product - I can decorate according to my design - I can work out profit margins/retail price to ensure profitability of my product - I can evaluate my product and use customer feedback to discuss next steps 
Skills & Knowledge	<p>A cam is part in a mechanical linkage; it can rotate or slide. https://www.youtube.com/watch?v=tzWQasmUfLY</p> <p>Cams work by converting rotary motion into linear motion or linear motion into rotary.</p>	<p>Designs of cushions are with an intended user and purpose in mind. Cushions are an everyday item which most homes have. In the past, they were luxury object-available only to the wealthiest of people. Earliest known use of cushions is around 7000BC. The fabric and dye to colour it were very expensive, so they became artworks. Today cushions are used by many for things such as sitting on, to provide back support/to soften the hardness of a chair, to kneel on etc.</p>	<p>Compare different varieties of biscuits based on appearance, texture, flavour (brand/non brand names) and cost (think about how the brand affects the cost of the biscuits. Types of biscuits to compare include digestive, ginger nut, rich tea, custard cream, bourbon, jammy dodger and chocolate finger. This will form the basis of their design as people have different preferences which need to be considered when thinking about a final product.</p>

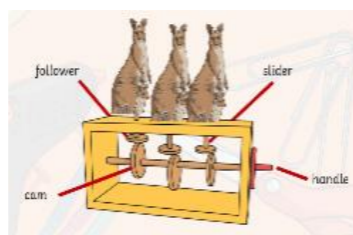
Cams are a little bit difficult to see directly in everyday life, though they are there. They are in the engine of cars to help with the timing of the engine. They are in electric drills, some food processors and old-fashioned wooden toys that move.



Handle - Operates the mechanism by turning the axle and cam wheel

Follower - The component which follows the movement of the cam wheel, moving up or down as a result

Cam - A rotating disk which is shaped to convert rotary into linear motion.

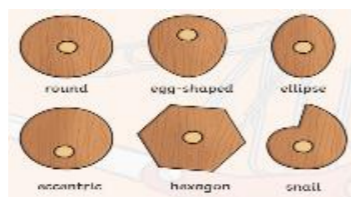


Axle - A rod or spindle which supports and turns the cam wheel

Linear - moving in a straight line, up and down or left and right

Rotary - turning around in a circle, like a wheel turning

There are different shaped cams



A prototype normally looks and works like the real thing. It is the first example and there may be problems with it which will probably need changing. The prototype model will be used for testing and development.

Risk assessments need to be completed based on the environment and tools being used.

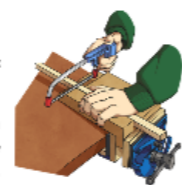
Safety goggles need to be worn to protect the eyes from dust and any debris that might go into them.

Tools should be kept at the designated station and not carried or moved around the classroom by children.

Sandpaper is used to make the wood smoother if it has been roughly cut

Using a bench hook, clamp and junior hacksaw: Right-handed children cutting lengths of dowel or thin wood need space to the left side of the vice or bench hook; this space will be on the opposite side for left-handed children.

A corner bench hook prevents sideways movements. Use small, child-sized bench hooks as shown. Children need good coordination to maintain the pressure on the hook while sawing.



They are often used in religious ceremonies such as prayer and marriage. In Japan, cushions are used as a form of seating that are big enough to protect the sitter's knees and ankles from the floor (large, flat cushions).

Understand the intended user (child, baby, adult, animal etc). Evaluate cushion covers based on the appearance (what it looks like/appealing), function (does it meet the intended purpose?), cost (reasonably/unreasonably priced for the product you get?) and safety (any decoration/fastenings that could be dangerous for a certain user?)



Functional products are items that are bought regularly in wide range of retail outlets, and those products have more stable and predictable demand, as well as long life cycle.

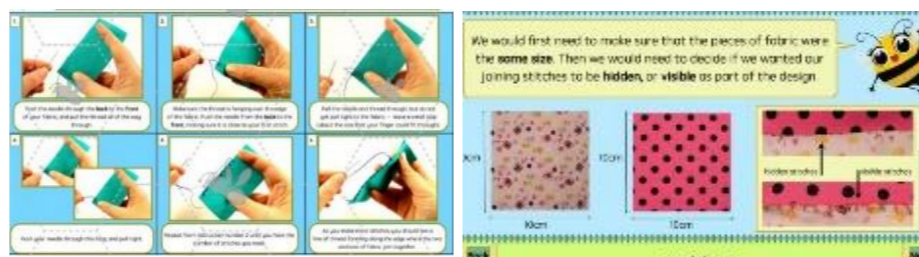
Decorative products (also known as decorative art when discussing textiles) - the arts concerned with the production of objects which are both useful and beautiful (aesthetic).

Identify different materials that can be used for cushion covers to include: felt, leather, plastic, fur, wool, cotton etc and why they have been chosen – properties to think about: waterproof, strong, durable, soft, smooth, stain resistant etc.

Inspirational design of the cushion to come from artists and their work that have already been studied in previous year groups. Favourite artists from the past and today to be considered. Artists to think about in textile design: William Morris, Karen Nichol, Pippa Caley. Choices for the art chosen to be justified.

Investigate different joins using stitching. Think about stitches being visible on the design or hidden. Choice of stitch to be used based on stitches already learnt:

Blanket stitch:



Running stitch:

Consumer research to be carried out- this is the action or activity of gathering information about consumers' (people who want to buy the product) needs and preferences, especially in relation to a product or service. Consumer research to be carried out in school – classes (children and adults) to be asked about different biscuits based on flavour, filling and appearance. From this, a table and graph need to be completed showing each of these along with conclusions that have been made from the research.

Existing products to be evaluated against the criteria of appearance, taste and texture along with suggestions of improvements that can be made. Research will then help to structure design.



Use a basic biscuit recipe that is trailed and followed. Based on the consumer research, adaptations need to be made to the original recipe that matches the research gathered. Evaluate what the impact on the final product would be based on added ingredients, shape and different finishes/colours/decoration.



Safety rules and hygienic practise need to be in place and revised before baking based on preparation and baking (oven, heat, use of utensils).



Important rules of the correct storage and handling of ingredients need to be followed - Sugar will keep indefinitely (or at least up to a year) if stored properly. Store in a cool, dry place, in an airtight container or freezer bag, away from moisture of any sort. Flour kept in a cupboard is fine for a few weeks; storing it in an airtight container will discourage bugs, dust, or other debris to find its way into the flour. It can also be stored in the fridge. Butter is safest to store wrapped or covered in the refrigerator, for long-term storage but it can be stored, fully covered, at room temperature. Handling food using gloves is always better as this stops germs and microorganisms getting on the ingredients (a microscopic organism, especially a bacterium, virus, or fungus) which can make people ill.

Measure out ingredients in grams (g) using scales. Ingredients to be measured exactly and the scales to be read accurately in order to be successful. Ratios to be adapted using the recipe (up or down) based on the type of biscuit they want to make, size of them and how many need to be made for one batch-link in with profit margins. The less ingredients used, the less is made? Does

Fix materials firmly before cutting or drilling, using a vice or a bench hook.

Clamp a bench hook to the table to prevent slipping.

Always ensure that saw blades are securely fitted into the handles.

Encourage a child holding a junior pistol-grip hacksaw to rest his/her index finger along the saw. The pointed finger helps with accuracy and discourages wagging the saw from side to side.

Using a craft knife:

Children must always keep fingers behind the sharp edges of cutting tools. A grooved metal safety rule with a profile like an 'M' - helps protect fingers when cutting with a craft knife.

Use a safety rule to cut away from the hand; fingers behind the knife.

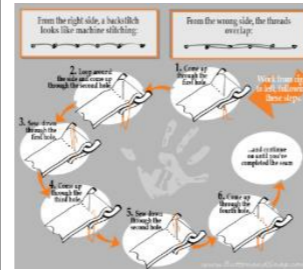
Hand drills:

Many hand drills have open gearing, which might pinch fingers, but some have the gears enclosed. They can be turned for left and right-handed use.



Finishing Off
When you have finished sewing you will need to finish off to stop your stitches from coming undone. Bring the needle to the wrong side of the fabric, and secure the thread with two small stitches. On the last stitch, as you pull through, push the needle through the loop to create a knot. Cut off the threads.

Back stitch:



Choices on stitching need to be made based on decoration of the cushion and the making of it.

An exact template must be used – (A template, also called a pattern, is a guide which helps you cut out a piece of fabric the correct size and shape). Understand why a template is used: the template can be reused, it is much easier to measure accurately using paper than to measure straight onto a piece of fabric, using a template can reduce your material costs. This is because a template allows you to explore the most efficient way to lay out the template on the fabric to reduce waste and using a template is also likely to give you a better-quality finish.

Understand what a seam allowance is and why it is needed to create a cushion - A seam allowance is the area between the edge of the fabric and the line of stitching being used to join two or more pieces of material together. It is important because it keeps the material joined together. Accurate measurements must be used (using a ruler and measuring in centimetre (cm) and/or millimetres (mm) – choice of the child) to ensure there is enough material around the edge to sew up, when turned inside out.

Quality of materials to be create suitable visual (pleasing to the eye) and tactile (feel of a surface) effects in the decoration. Visual to represent the material/fabric chosen to appeal to the user in mind. This can include bright block colours, patterns, pale colours, smooth material, textured material etc. Decoration can include beads, buttons, trim (around the outside of the pillow), stitching, adding other pieces of material on top of the fabric (applique).



A prototype needs to be created using paper. A prototype normally looks and works like the real thing. It is the first example and there may

it cost more? Think about the overhead costs of electricity (oven to bake them) and time spent designing/ making/baking/selling.

Consumer specification to be used for designing: to make biscuits that can be sold to a range of different consumers which will raise money for the year 6 prom. Consumer research to be used to base designs on – design must try and fit the majority of consumers tastes so that the biscuit will sell, and profits can be made.

Designs to be annotated which include ingredients (and amount), utensils, design that has been chosen and, include step by step instructions, purpose, decoration and any added ingredients (and amounts). This design should be based on the consumer research that has been carried out at the start of the unit.

		<p>be problems with it which will probably need changing. The prototype model will be used for testing and development. Refinements then need to be made to the design.</p> <p>Design with the user in mind and create an annotated design specification, making sure that materials, equipment, purpose, measurements, design, fastenings and decoration have been thought out and recorded.</p>	
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Impact