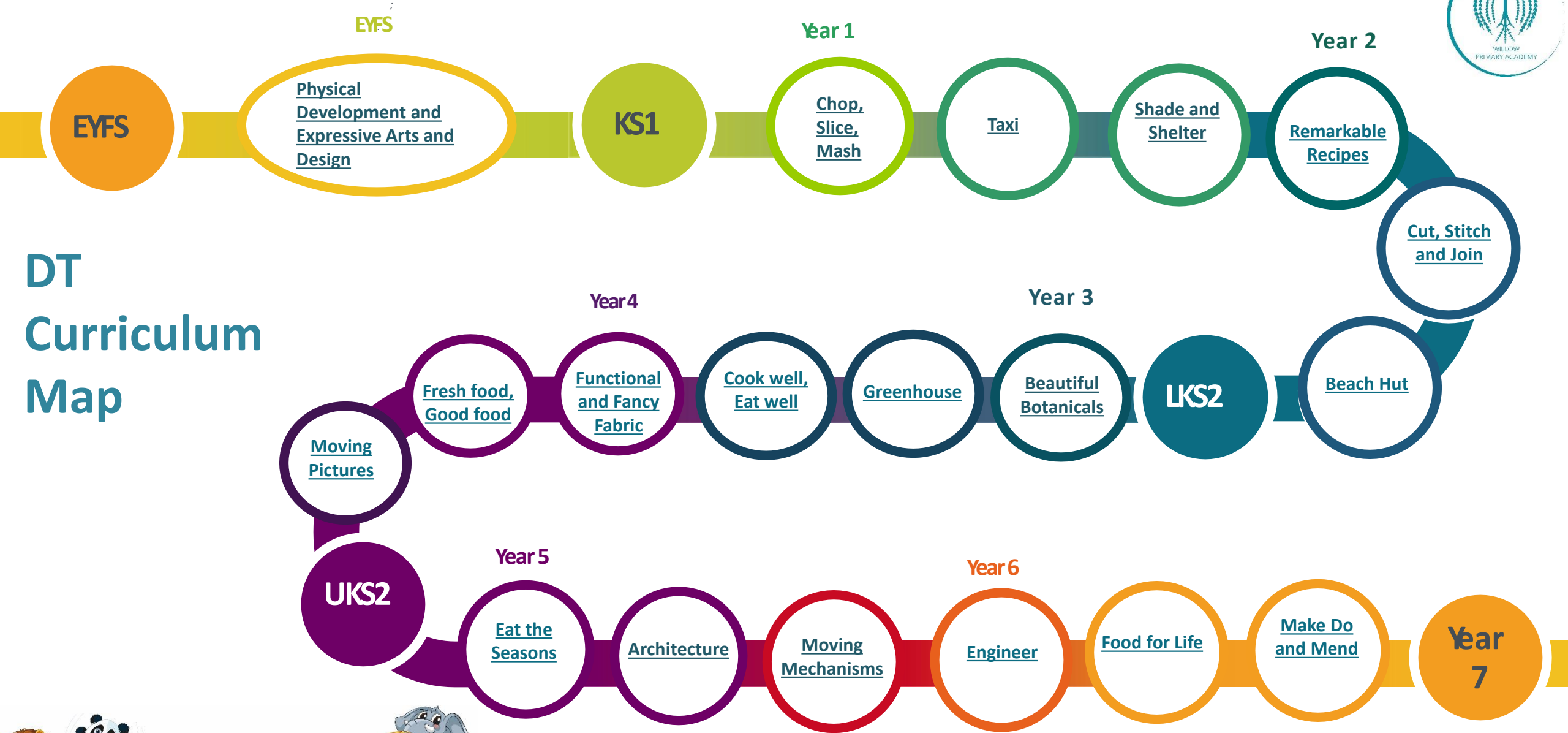




DT Curriculum Map



	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
FS	Evident in all projects and through enhanced provision					
Year 1	Chop, slice, mash Cooking and Nutrition		Taxi Mechanisms		Shade and shelter Structures	
Year 2	Remarkable Recipes Cooking and Nutrition		Cut, stitch, join Textiles		Beach Hut Structures	
Year 3	Beautiful Botanicals Textiles		Greenhouse Structures		Cook well, Eat well Cooking and Nutrition	
Year 4	Functional and Fancy fabric Textiles		Fresh food, good food Cooking and Nutrition		Tomb builders Mechanisms	
Year 5	Eat the Seasons Cooking and Nutrition		Architecture Structures		Moving Mechanism Mechanisms	
Year 6	Engineer Structures		Food for Life Cooking and Nutrition		Make Do and mend Textiles	

Chop, Slice, Mash

This project teaches children about sources of food and the preparatory skills of peeling, tearing, slicing, chopping, mashing and grating. They use this knowledge and techniques to design and make a healthy salad according to specific design criteria.

COOKING AND NUTRITION

L1. What types of food do we eat and where does it come from?

By the end of this lesson children should:

- Sort foods into groups by whether they are from an animal or plant source.
- Know that some foods come from animals, such as meat, fish and dairy products.
- Know that some come from plants, such as fruit and vegetables.

MAKING/COOKING

L2. How do we prepare fruit and vegetables for eating?

By the end of this lesson children should:

- Select the appropriate tool for a simple practical task.
- Know that some foods need to be prepared before eating.
- Know that peeling, slicing, chopping, grating, tearing or mashing are different methods of preparing foods.
- Explain why hand washing and cleanliness are important.
- Hand washing and good hygiene prevent the spread of germs.

DESIGNING

L4. What ingredients will I use in my salad design?

By the end of this lesson children should:

- Know that a product or project is usually guided by a set of design criteria.
- Create a design to meet simple design criteria.
- Select healthy ingredients for a fruit or vegetable salad.

PRODUCT EVALUATION

L3. What fruits and vegetables are used in a salad?

By the end of this lesson children should:

- Know that fruits and vegetables can be mixed to make a healthy salad.
- Know that salad dressings can improve the flavour of salads.
- Know that it is recommended that people eat at least five portions of fruit and vegetables every day.

MAKING

L5. Can I apply preparation techniques will I use to make my salad?

By the end of this lesson children should:

- Select the appropriate tool for a simple practical task
- Select healthy ingredients for a fruit or vegetable salad.
- Use peeling, slicing, chopping, grating, tearing or mashing to prepare foods
- Wash hands to prevent spread of germs.
- Follow the rules to keep safe during a practical task.

EVALUATING

L6. How successful was my salad?

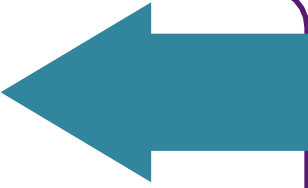
By the end of this lesson children should:

- Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Taxi



Chop, Slice, Mash

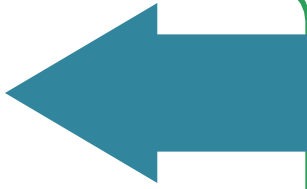


Prior Learning EYFS

Children in EYFS will develop their small motor skills so that they can use a range of tools competently and safely.

They will have explored, used and refined a variety of ways to express their ideas and feelings.

They will have worked collaboratively to apply resources and skills to create a project.



Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.

Chop, Slice, Mash

This project teaches children about sources of food and the preparatory skills of peeling, tearing, slicing, chopping, mashing and grating. They use this knowledge and techniques to design and make a supermarket sandwich according to specific design criteria.



Next Steps KS1

Children will continue to explore a range of tools and their uses.

Children will develop their understanding of a healthy diet and will identify more specifically where food comes from, e.g. beef from cows.



Next Steps KS2

Children will develop different cooking techniques including baking, boiling, frying, grilling and roasting.

They will know that seasonality is the time of year when certain foods can be harvested. They will also know that some country's climates are more suited for producing some products than others.

Chop, Slice, Mash

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Chop	Design	Animal	Evaluate
Grate	Design criteria	Dairy product	Improve
Grater	Diagram	Fish	Success
Knife	Label	Flower	
Mash		Leaf	Hygiene
Masher	Flavour	Meat	Rule
Peel	Fruit	Nut	Safety
Peeler	Healthy	Plant	
Slice	Ingredient	Root	
Tear	Salad	Seed	
	Vegetable	Source	
		Stem	





Taxi

This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.

PRODUCT EVALUATION

L1. How are vehicles designed to make them easier to move?

By the end of this lesson children should:

- Name and explore a range of everyday products and describe how they are used.
- Know that an axle is a rod that is connected to the centre of a wheel, which allows it to turn.
- Know that a chassis is the frame of a vehicle.

MAKING/EVALUATING

L2. Which is the best way to make axles and fix wheels to a chassis?

By the end of this lesson children should:

- Use wheels and axles to make a simple moving model.
- Know that an axle fixed to a chassis has freely moving wheels.
- Know that a freely moving axle has fixed wheels
- Describe the similarities and differences between two products.
- Two products can be compared by looking at a set of criteria and scoring both products against each one.

MAKING

L4&5. Can I apply techniques I have learnt to make a taxi?

By the end of this lesson children should:

- Select the appropriate tool for a simple practical task
- Follow the rules to keep safe during a practical task.
- Use wheels and axles to make a simple moving model.
- Most vehicles that move on land have axles and wheels that are fixed to a chassis.
- An axle fixed to a chassis has freely moving wheels.
- A freely moving axle has fixed wheels.

DESIGNING

L3. Can I apply what I've learnt to design a taxi?

By the end of this lesson children should:

- Create a design to meet simple design criteria.
- A product or project is usually guided by a set of design criteria.
- The project or product must meet the design criteria to be successful.

EVALUATING

L6. How successful was my taxi?

By the end of this lesson children should:

- Talk about their own and each other's work, identifying strengths or weaknesses and offering support.
- Know that a strength is something that is good about a piece of work.
- Know that a weakness is an area that could be improved

Shade and Shelter



Taxi

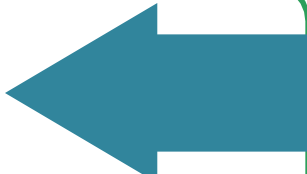


Prior Learning EYFS

Children in EYFS will explore how things work.

They will have explored, different materials freely, in order to develop their ideas about how to use them and what to make.

They will have developed their own ideas and then decided which materials to use to express them.



Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.

Taxi

This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.



Next Steps KS1

Children will continue to explore a range of tools and their uses.

Children will choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.



Next Steps KS2

Children will explore and use a range of mechanisms including levers, sliders, axles, wheels and cams in models and products.

Children will learn that simple machines make physical jobs easier by changing the strength or direction of a force.

Taxi

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Compare	Design	Axles	Evaluate
Difference	Design criteria	Chassis	Improve
Similarity	Diagram	Vehicle	Success
Product	Label	Wheel	Change
Transport	Model	Attach	Strength
Taxi	Part	Tool	Weakness
	Test	Material	
Rule		Purpose	
Safety		Move	
		Roll	





Shade and Shelter

This project teaches children about the purpose of shelters and their materials. They name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product.

PRODUCT EVALUATION

L1. What do we mean by 'shade' and 'shelter'?

By the end of this lesson children should:

- Know that a shelter is a structure designed to give protection from weather or danger.
- Describe the similarities and differences between two products.
- Name and explore a range of everyday products and describe how they are used.

PRODUCT EVALUATION

L2. What different properties do materials have?

By the end of this lesson children should:

- Identify and name what an object is made from, including wood, plastic, glass, metal, water and rock.
- Know that a material is what an object is made from.
- Know that everyday materials include wood, plastic, glass, metal, water, rock, brick, paper and fabric.
- Describe the properties of materials using adjectives.

MAKING

L4&5. Can I explore different techniques to make a shelter/play den?

By the end of this lesson children should:

- Create a design to meet simple design criteria.
- Select and use a range of materials, beginning to explain their choices.
- A product or project is usually guided by a set of design criteria.
- The project or product must meet the design criteria to be successful.

DESIGNING

L3. Can I apply what I've learnt to design a shelter/play den?

By the end of this lesson children should:

- Create a design to meet simple design criteria.
- A product or project is usually guided by a set of design criteria.
- The project or product must meet the design criteria to be successful.

EVALUATING

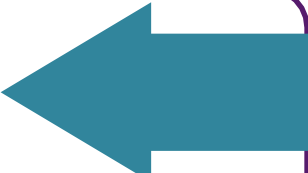
L6. How successful was my shelter/play den?

By the end of this lesson children should:

- Talk about their own and each other's work, identifying strengths or weaknesses and offering support.
- Know that a strength is something that is good about a piece of work.
- Know that a weakness is an area that could be improved



Shade and Shelter

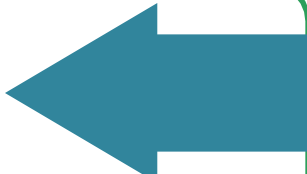


Prior Learning EYFS

Children in EYFS will explore how things work.

They will have explored, different materials freely, in order to develop their ideas about how to use them and what to make.

They will have developed their own ideas and then decided which materials to use to express them.



Prior Learning EYFS

Children will have made enclosed spaces and shapes such as walls, tunnels and houses.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.

Shade and Shelter

This project teaches children about the purpose of shelters and their materials. They name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product.



Next Steps KS1

Children will begin to explain how a structure can be made stronger, stiffer and more stable.

Children will know that structures can be made more stable by using cardboard rather than paper and triangular shapes rather than squares.



Next Steps KS2

Children will build a framework using arrange of materials to support mechanisms.

Children will learn that a strong and stable structure is necessary to support mechanisms in a machine.

Shade and Shelter

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Appearance	Design	Brick	Evaluate
Construction	Design criteria	Fabric	Improve
Entry point	Diagram	Rope	Success
Functionality	Label	Stick	Change
Finish	Function	Tarpaulin	Strength
Product	Materials	Wooden cane	Weakness
Roof	Plan/idea		Difficulty
Structure	Purpose	Compare	
Wall	Shape	Different	
	Size	Similar	



Remarkable Recipes

This project teaches children about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a Christmas cookie that fulfils specific design criteria.

COOKING AND NUTRITION

L1. Where does our food come from?

By the end of this lesson children should:

- Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables, honey, oils, sugar and nuts).
- Food comes from two main sources: animals and plants.

MAKING/COOKING

L2. How do we prepare our food and why do we cook it?

By the end of this lesson children should:

- Select the appropriate tool for a task and explain their choice.
- Prepare ingredients by peeling, grating, chopping and slicing.
- Know that tools have characteristics that make them suitable for specific purposes. For example, a knife is good for cutting food because it has a sharp metal edge.

DESIGNING

L4. How can we apply our knowledge in our own Christmas cookie design?

By the end of this lesson children should:

- Design an appealing cookie that meets the design criteria.
- Generate and communicate their ideas through a range of different methods.
- Write an ingredients list.

EVALUATING PRODUCTS

L3. Why do we cook our food?

By the end of this lesson children should:

- Explore and evaluate a range of existing cookies/biscuits with different flavourings and fillings.

MAKING

L5. Can I follow a recipe to prepare Christmas cookies?

By the end of this lesson children should:

- Know that a recipe is a set of instructions for preparing and cooking.
- Follow a recipe step by step.
- Measure and weigh food items.
- Prepare ingredients by weighing, stirring etc.

EVALUATING

L6. How successful were the Christmas cookies?

By the end of this lesson children should:

- Explain how closely their finished products meet their design criteria and say what they could do better in the future.

Cut, stitch and
join



Remarkable Recipes

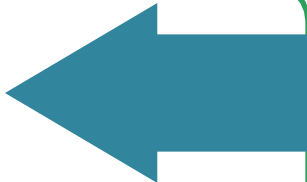


Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.



Prior Learning KS1

Children have selected healthy ingredients for a fruit or vegetable salad and have selected and used the appropriate tools for practical tasks.

They have used peeling, slicing, chopping, grating, tearing or mashing to prepare foods.

They know to wash hands to prevent spread of germs and to follow the rules to keep safe.

Remarkable Recipes

This project teaches children about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a new school meal that fulfils specific design criteria.



Next Steps KS2

Children will develop different cooking techniques including baking, boiling, frying, grilling and roasting.

They will know that seasonality is the time of year when certain foods can be harvested. They will also know that some country's climates are more suited for producing some products than others.



Next Steps KS2

Children will follow a recipe that requires a variety of techniques and sources the necessary ingredients.

They will learn that seasonality is the time of year when the harvest or flavour of a type of food is at its best.

They will plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.

Remarkable Recipes

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Grip	Design	Animal	Evaluate
Grate	Design criteria	Fruit	Improve
Grater	Diagram	Fish/Shellfish	Success
Knife	Label	Flower	Dislike
Mash	Ingredient	Leaf	Change
Masher	Equipment	Dairy product	
Peel	Instruction	Nut	Vegan
Peeler	Recipe	Plant	Vegetarian
Slice	Method	Root	
Tear	Picture	Seed	Hygiene
Spread	Prepare	Pulse	Rule
Measure		Stem	Safety





Cut, Stitch and Join

This project teaches children about fabric home products and the significant British brand Cath Kidston. They learn about sewing patterns and using a running stitch and embellishments before making sewn bunting.

PRODUCT EVALUATION

L1. Which products at home are made from fabric?

By the end of this lesson children should:

- Know that there are many home products made from fabric.
- Know some examples of fabric based products in the home including cushions, curtains, blinds and carpets.
- Explain how an everyday product could be improved.

PRODUCT EVALUATION

L2. Who is Cath Kidston and why is she famous?

By the end of this lesson children should:

- Compare different or the same products from the same or different brands.
- Explain why a designer or inventor is important.
- Know that a brand is a name, term, design, or symbol identifying a seller's products or services.
- Know that the Cath Kidston brand was an important British brand which began in the 1990s and that it was easily recognisable for its floral patterned fabric and use of classic British iconography including the Red London Bus and London black cab.

MAKING

L4. What is an embellishment and why is it used?

By the end of this lesson children should:

- Add simple decorative embellishments, such as buttons, prints, sequins and appliqué.
- Know that an embellishment is a decorative detail or feature added to something to make it more attractive.

MAKING

L3. What is a running stitch and how does it join fabric?

By the end of this lesson children should:

- Use different methods of joining fabrics, including running stitch.
- Know that a running stitch is a basic stitch used to join two pieces of fabric.

DESIGNING

L5. Can I apply what I have learnt to design a bag tag?

By the end of this lesson children should:

- Generate and communicate their ideas through a range of different methods.
- Create a design to meet simple design criteria.

MAKING & EVALUATING

L6. Can I apply what I have learnt to make a bag tag?

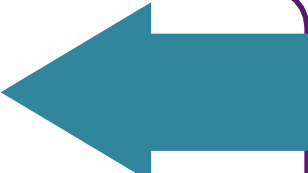
By the end of this lesson children should:

- Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
- Properties of components and materials determine how they can and cannot be used.
- Know that a finished product can be checked against design criteria to see how successfully it has been made or to evaluate how well it works.
- Plan improvements if needed.

Beach Hut



Cut, Stitch and Join

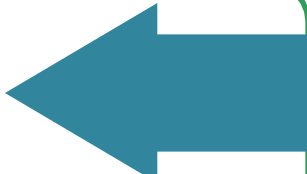


Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have sewed a series of running stitches.



Prior Learning KS1

Children have designed products so that they meet the design criteria.

They have selected tools and materials based on their properties and characteristics to suit a task.

Children have talked about their own and others work and identified strengths and weaknesses about them.

Cut, Stitch and Join

This project teaches children about fabric home products and the significant British brand Cath Kidston. They learn about sewing patterns and using a running stitch and embellishments before making a sewn bag tag.



Next Steps KS2

Children will create detailed decorative patterns on fabrics using printing techniques and add embellishments for effect.

They will also hand sew a hem or seam using running stitch.



Next Steps KS2

Children will pin and tack fabrics in preparation for sewing and more complex pattern work.

They will use different methods of fastening for function and decorations.

Cut, Stitch and Join

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Compare	Design	Fabric	Evaluate
Different	Design criteria	Textile	Improve
Same	Diagram	Printing	Success
Landmarks	Label	Cut	Dislike
Motif	Equipment	Fasten	Change
Spots	Product	Glue	
Stripes	Cushion	Join	Brand
Applique	Peg bag	Needle	Cath Kidston
Button	Pillow case	Running stitch	Distinctive
Decorative	Tablecloth	Sew	Vintage
Embellishment	Tea cosy	Thread	Fashion
Sequin	Toiletry bag	Tie	Inspire



Beach Hut

This project teaches children about making and strengthening structures, including different ways of joining materials.

PRODUCT EVALUATION

L1. What is a beach hut and what are they used for?

By the end of this lesson children should:

- Generate and communicate their ideas through a range of different methods

MAKING/EVALUATING

L2. What do we need to consider when making a beach hut for our toys?

By the end of this lesson children should:

- Explore how a structure can be made stronger, stiffer and more stable.
- Know that structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares.

DESIGNING

L4. Can I apply what I have learnt in my beach hut design?

By the end of this lesson children should:

- Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
- Know that properties of components and materials determine how they can and cannot be used.

MAKING/EVALUATING

L3. How can wood be joined to make a structure?

By the end of this lesson children should:

- Explore how a structure can be made stronger, stiffer and more stable.
- Know that structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares.

MAKING

L5. Can I apply what I have learnt when making my beach hut?

By the end of this lesson children should:

- Create a product to meet simple design criteria.
- Select the appropriate tools for a task and explain their choice.
- Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
- Know that structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares.

EVALUATING

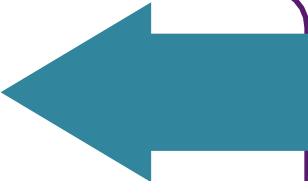
L6. How successful was my beach hut?

By the end of this lesson children should:

- Explain how closely their finished products meet their design criteria and say what they could do better in the future.



Beach Hut

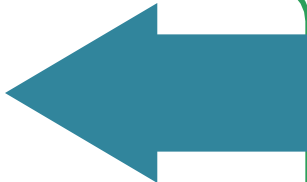


Prior Learning EYFS

Children will have made enclosed spaces and shapes such as walls, tunnels and houses.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.



Prior Learning KS1

Children have learnt about the purpose of shelters and their materials.

They can name and describe shelters and design and make shelter prototypes.

Children have designed and built a play den as a group and evaluated their completed product.

Beach Hut

This project teaches children about making and strengthening structures, including different ways of joining materials.



Next Steps KS2

Children will create a shell or frame structure using diagonal struts to strengthen them,

Children will know that by adding diagonal struts it adds strength and stability.



Next Steps KS2

Children will build a framework using arrange of materials to support mechanisms.

Children will learn that a strong and stable structure is necessary to support mechanisms in a machine.

Beach Hut

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Cut	Design	Construct	Evaluate
Finish	Design criteria	Frame	Improve
Model	Diagram	Join	Success
Support	Label	Joint	Change
Tool	Function	Stable	Strength
Material	Plan/idea	Stiff	Weakness
Property	Purpose	Strengthen	Difficulty
Use	Equipment	Structure	





Beautiful Botanicals

This project teaches children about the genre of botanical art. They create natural weavings, two-colour prints and beautiful and detailed botanical paintings of fruit.

Artist:
Katie Scott

ANALYSE/SKETCHBOOK

L1. What is a botanical artist?

By the end of this lesson children should:

- Know that a botanical artist is someone who draws and paints plants and flowers in a realistic style.
- Use preliminary sketches in a sketchbook to communicate an idea or experiment with a technique.

ANALYSE

L2. What are the characteristics of botanical art?

By the end of this lesson children should:

- Compare and contrast botanical artwork and identify significant characteristics of the same style.
- Know that traditional approaches to botanical art are mostly accurate, illustrative and sometimes scientific in style. More contemporary botanical examples can include more simplified graphic or digital representations.

TEXTILES/PRINTING

L4. What is lino printing?

By the end of this lesson children should:

- Know that lino printing is a technique used to create a relief print and involves carving away the surface so that the remaining raised alone picks up the ink.
- Know that a unit print is when an object is inked and is pressed on a surface to leave an impression.
- Create and explore creating lino prints of botanicals.

ANALYSE/SKETCHBOOK

L3. Who is Katie Scott?

By the end of this lesson children should:

- Work in the style of a significant artist, architect, culture or designer.
- Know that Katie Scott is an important contemporary printmaker and botanical artist.
- Know that Katie produced the Botanicum series.

TEXTILES/PRINTING

L5. Can I apply what I have learnt in my own work?

By the end of this lesson children should:

- Design a printed cushion cover.
- Use line printing to make a cushion cover based on botanical art.

EVALUATE

L6. Have I applied what I have learnt in my own work well?

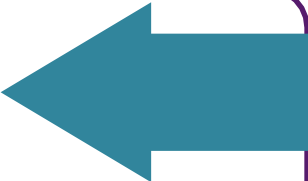
By the end of this lesson children should:

- Make suggestions for ways to adapt and improve a piece of artwork.

Colour theory

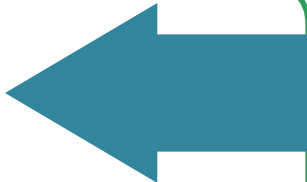


Beautiful Botanicals



Prior Learning EYFS

Children have manipulated malleable materials into a variety of shapes and forms using their hands and other simple tools, e.g. play doh and plasticine.



Prior Learning KS1

Children have learnt about the visual elements of flowers, including shape, texture, colour, pattern and form. They also explored various artistic methods, including 3-D forms, using paper and clay.

Beautiful Botanicals

This project teaches children about the genre of botanical art. They create natural weavings, two-colour prints and beautiful and detailed botanical paintings of fruit.



Next Steps LKS2

Children will make wall hangings in DT, using embellishments which will require using a range of materials and joining them together.



Next Steps KS2

Children will pin and tack fabrics in preparation for sewing and more complex pattern work.

They will use different methods of fastening for function and decorations.

Beautiful Botanicals

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Botanical	Detailed	Contemporary
Nature	Rough	Digital
Bold	Smooth	Illustration
Harmonious	Spiky	Line drawing
Bright	Textured	Vintage
Complementary		Watercolour
Contrasting		
Palette		Katie Scott
Muted		





Greenhouse

This project teaches children about the purpose, structure and design features of greenhouses, and compares the work of two significant greenhouse designers. They learn techniques to strengthen structures and use tools safely. They use their learning to design and construct a mini greenhouse.

PRODUCT EVALUATION

L1. What is a greenhouse and what are they used for?

By the end of this lesson children should:

- Explain how an existing product benefits the user.
- Know that particular products are designed for specific tasks. For example designing a product to help grow plants will require certain materials.

PRODUCT EVALUATION

L2. How and why has the design and structure of greenhouses changed over time?

By the end of this lesson children should:

- Compare artists, architects and designers and identify significant characteristics of the same style of artwork, structures and products through time, e.g. The Eden Project and Great Conservatory or Chatsworth House.
- Explain the similarities and difference between the work of two designers.
- Know that work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.

MAKING/EVALUATING

L4. How do we make a strong butt joint using wood?

By the end of this lesson children should:

- Use tools safely for cutting and joining materials and components (Glue gun).
- Know that triangular corners are most effective at strengthening a joint.

MAKING/EVALUATING

L3. What makes a frame structure successful?

By the end of this lesson children should:

- Create shell or frame using diagonal struts to strengthen them.
- Know that diagonal struts create triangular shapes within a frame structure.
- Understand that adding diagonal struts to a frame structure adds strength and stability.

MAKING/EVALUATING

L5. Which materials is best to make greenhouse roofs and walls?

By the end of this lesson children should:

- Plan which materials will be needed for a task and explain why.
- Know that materials for a specific task must be selected on the basis of their properties. For example greenhouses need transparent or translucent materials. Availability and cost have also got to be considered.

DESIGNING

L6. Can I apply what I have learned in my greenhouse design?

By the end of this lesson children should:

- Develop design criteria to inform a design.
- Know that design criteria are the exact goals a project must achieve to be successful and that they might include the product's use, appearance, cost and target user.

MAKING/EVALUATING

L7. Can I apply what I have learned when making and evaluating my greenhouse?

By the end of this lesson children should:

- Use tools safely for cutting and joining materials and components.
- Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.

Cook well, Eat well



Greenhouse

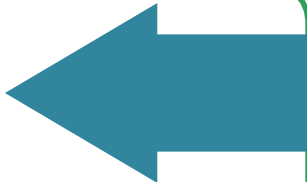


Prior Learning EYFS

Children will have made enclosed spaces and shapes such as walls, tunnels and houses.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.



Prior Learning KS1

Children have learnt about the purpose of shelters and their materials.

They can name and describe shelters and design and make shelter prototypes.

Children have learnt about making and strengthening structures, including different ways of joining materials.

Greenhouse

This project teaches children about the purpose, structure and design features of greenhouses, and compares the work of two significant greenhouse designers. They learn techniques to strengthen structures and use tools safely. They use their learning to design and construct a mini greenhouse.



Next Steps KS2

Children will build a framework using arrange of materials to support mechanisms.

Children will learn that a strong and stable structure is necessary to support mechanisms in a machine.



Next Steps KS2

Children will learn that strengths can be added to a framework by using multiple layers of changing its shape.

They will learn about bridge design and that triangles do not collapse or distort easily and so are used in architecture to provide support and stability.

Greenhouse

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Greenhouse	Design	Bench hook	Designer
Conservatory	Design criteria	Butt joint	Compare
Biome	Diagram	G clamp	Difference
Cold frame	Label	Gluing	Similarity
Cloche	Function	Hacksaw	Structure
Glass	Dimension	Glue gun	Style
Hardwearing	Purpose	Investigate	Change
Plastic	Equipment	Joining	Effective
Property		Reinforcing	Evaluation
Transparent		Strengthening	Improvement
Waterproof		Triangular corner	Suitability
			Observation



Cook well, Eat well

This project teaches children about food groups and the Eatwell guide. They learn about methods of cooking and explore these by cooking potatoes and ratatouille. The children choose and make a taco filling according to specific design criteria.

COOKING AND NUTRITION

L1. What is a healthy, balanced diet?

By the end of this lesson children should:

- Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).
- Describe how key events in design and technology have shaped the world.
- Explain the importance and characteristics of a healthy, balanced diet.

MAKING/COOKING

L2. In what different ways can we cook food?

By the end of this lesson children should:

- Use appliances safely with adult supervision.
- Prepare and cook a simple savoury dish.
- Safety rules must be followed when using electricity.
- Use preparation techniques such as peeling, chopping and slicing.
- Know that you can cook potatoes in many ways, including boiling, roasting, baking and mashing.

DESIGNING

L4. Can I use what I know to design a healthy wrap filling?

By the end of this lesson children should:

- Develop design criteria to inform a design.
- Identify and name foods that are produced in different places.
- Know that design criteria are the exact goals a project must achieve to be successful and might include the product's use, appearance, cost and target user.

COOKING

L3. How do we use a slow cooker?

By the end of this lesson children should:

- Prepare and cook a simple savoury dish.
- Use preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.
- Make a simple ratatouille.

MAKING

L5. Can I use what I know to make a healthy wrap filling?

By the end of this lesson children should:

- Prepare and cook a simple savoury dish.
- Measure and weigh food items.
- Prepare ingredients by peeling, skinning, deseeding, grating, chopping, slicing and mixing.

EVALUATING

L6. How successful was my wrap filling?

By the end of this lesson children should:

- Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.



Cook well, Eat well

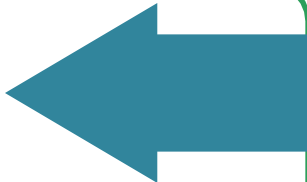


Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have shared their creations, explaining the process they have used.



Prior Learning KS1

Children have selected healthy ingredients for a fruit or vegetable salad and have selected and used the appropriate tools for practical tasks.

They have used peeling, slicing, chopping, grating, tearing or mashing to prepare foods.

They know about food hygiene.

They have designed a meal that fulfils design criteria.

Cook well, Eat well

This project teaches children about food groups and the Eatwell guide. They learn about methods of cooking and explore these by cooking potatoes and ratatouille. The children choose and make a taco filling according to specific design criteria.



Next Steps KS2

Children will know that some country's climates are more suited for producing some products than others.

They will use an increasing range of preparation and cooking techniques to cook both sweet and savoury dishes.



Next Steps KS2

Children will follow a recipe that requires a variety of techniques and sources the necessary ingredients.

They will learn that seasonality is the time of year when the harvest or flavour of a type of food is at its best.

They will plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.

Cook well, Eat well

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Bake	Mix	Balanced	Design	Evaluate
Barbecue	Oven	Carbohydrate	Design criteria	Improve
Boil	Peel	Dairy	Diagram	Success
Chop	Prepare	Diet	Label	Change
Cook	Roast	Eatwell guide	Function	Strength
Deseed	Skin	Fibre	Plan/idea	Weakness
Dice	Slice	Food group	Purpose	Difficulty
Fry	Slow cooker	Fruit	Equipment	
Grate	Steam	Vegetable	Health and safety	
Grill		Healthy	Ingredient	
Hob		Nutrient	Method	
Microwave		Protein	Food Standards Agency	
		Vitamin		





Functional and Fancy Fabric

This project teaches children about home furnishings and the significant designer William Morris. They learn techniques for decorating fabric, including block printing, hemming and embroidery and use them to design and make a fabric sample.

PRODUCT EVALUATION

L1. What different properties do fabrics have?

By the end of this lesson children should:

- Create and complete a comparison table to compare two or more products.
- Choose from a range of materials, showing an understanding of their different characteristics.
- Know that fabrics can be natural or synthetic. Natural fabrics include cotton, silk and wool. Synthetic fabrics include Lycra, polyester and nylon

PRODUCT EVALUATION

L2. What are the design features of some home products?

By the end of this lesson children should:

- Create and complete a comparison table to compare two or more products.
- Investigate and identify the design features of a familiar product.
- Design features are the aspects of a product's design that the designer would like to emphasise. For example, the use of a particular material or a feature that makes the product durable.

MAKING

L5. How do we use running stitch to sew a hem?

By the end of this lesson children should:

- Hand sew a hem or seam using a running stitch.
- Know that a hem runs along the edge of a piece of cloth or clothing. It is made by turning under a raw edge and sewing to give a neat and quality finish

MAKING

L4. Can I use block printing to create a wallpaper design?

By the end of this lesson children should:

- Combine a variety of printmaking techniques and materials to create a print on a theme.
- Know that a motif is a recurring shape in a design or pattern. Motifs can be figurative, vegetal, abstract or geometric. Islamic art features geometric motifs, which are made from regular shapes.
- Know that block printing and fabric paint are used to create decorative repeated patterns on fabrics.

PRODUCT EVALUATION

L3. Who is William Morris and why is he significant?

By the end of this lesson children should:

- Explain how and why a significant designer or inventor shaped the world.
- Know that William Morris was a British textile designer, artist and socialist activist associated with the British Arts and Crafts Movement. Know that he was a significant contributor to the revival of traditional British textile arts and methods of production.
- Know that William Morris' motifs consisted mainly of leaves, flowers, fruits and birds.

DESIGNING

L6. Can I apply what I have learnt to design a William Morris-inspired fabric?

By the end of this lesson children should:

- Use annotated sketches and exploded diagrams to test and communicate their ideas.

MAKING & EVALUATING

L7. Can I apply what I have learnt to make a William Morris-inspired fabric?

By the end of this lesson children should:

- Select, name and use tools with adult supervision.
- Hand sew a hem or seam using a running stitch.
- Combine a variety of printmaking techniques and materials to create a print on a theme.
- Add simple decorative embellishments, such as buttons, prints, sequins and appliqué.
- Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.

Fresh food,
good food



Functional and Fancy Fabric

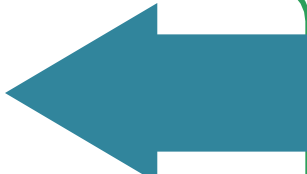


Prior Learning EYFS

Children will have used a range of small tools, including scissors, paintbrushes and cutlery.

They will have safely used and explored a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Children will have sewed a series of running stitches.



Prior Learning KS1

Children have looked at fabric used in home products and the significant British brand Cath Kidston.

They have learnt about sewing patterns and used a running stitch and embellishments to make a sewn bag tag.

Children have designed products so that they meet the design criteria and selected tools and materials to suit a task.

Functional and Fancy Fabric

This project teaches children about home furnishings and the significant designer William Morris. They learn techniques for decorating fabric, including block printing, hemming and embroidery and use them to design and make a fabric sample.



Next Steps KS2

Children will learn about the Make Do and mend campaign run by the Ministry of Information during WWII, which encouraged people to recycle and repurpose their old clothes rather than buy new.



Next Steps KS2

Children will pin and tack fabrics in preparation for sewing and more complex pattern work.

They will use different methods of fastening for function and decorations.

Functional and Fancy Fabric

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Appearance	Property	Fraying	Design	Evaluate
Colour	Comfortable	Hem	Design criteria	Improve
Compare	Delicate	Running stitch	Diagram	Success
Component	Durable	Sew	Label	Change
Different	Flexibility	Block printing	Function	Strength
Similar	Lightweight	Diamond	Plan/idea	Weakness
Embellishment	Man-made	Trellis	Purpose	Difficulty
Material	Natural	Wey	Equipment	
Pattern	Soft	Pattern structure	Annotate	William Morris
Size	Stretchy	Home furnishing	Sketch	Textile designer
Quality	Synthetic	Home product		Arts and Crafts movement
	Texture			
	Versatile			





Fresh food, Good food

This project teaches children about food decay and preservation. They discover key inventions in food preservation and packaging, then make examples. The children prepare, package and evaluate a healthy snack.

COOKING AND NUTRITION

L1. How do we keep food fresh?

By the end of this lesson children should:

- Know that food deteriorates due to the growth of microorganisms.
- Recognise how significant scientists such as Louis Pasteur and inventors such as Nicolas Appert have ensured decay can be prevented or delayed by preservation methods, such as drying, salting, pickling, canning, pasteurising, refrigerating or freezing the food.
- Know that the 'use by' date shows when the food is no longer safe to eat and the 'best before' date shows the date after which the food will lose some flavour or texture.

PRODUCT EVALUATION

L2. In what different ways is food packaged?

By the end of this lesson children should:

- Investigate and identify the design features of a familiar product.
- Identify ways in which packaging helps to preserve and protect food.
- Know that foods need packaging to keep them fresh, safe to eat and free from damage.
- Know that food packaging also provides nutritional information about the food inside.
- Understand the importance of having a balance between needing to keep the food fresh and the need to cut down on non-recyclable materials.

DESIGNING

L4. Can I apply my knowledge to design a fresh, healthy snack and its packaging?

By the end of this lesson children should:

- Design a healthy snack or packed lunch and explain why it is healthy.
- Use annotated sketches and exploded diagrams to design packaging.
- Choose from a range of materials, showing an understanding of their different characteristics.

PRODUCT EVALUATION

L3. Which different nets are used in packaging?

By the end of this lesson children should:

- Use annotated sketches and exploded diagrams to test and communicate their ideas.
- Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.

MAKING

L5. Can I use what I know to make a fresh, healthy snack and its packaging?

By the end of this lesson children should:

- Identify and use a range of cooking techniques to prepare a simple meal or snack.
- Select, name and use tools with adult supervision.
- Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray.
- Prepare appropriate packaging for their food product.

EVALUATING

L6. How successful was my healthy snack and packaging?

By the end of this lesson children should:

- Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.
- Know that evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made.

Tomb Raiders



Fresh food, Good food

Prior Learning KS1

Children have selected healthy ingredients for a fruit or vegetable salad and have selected and used the appropriate tools for practical tasks.

They have used peeling, slicing, chopping, grating, tearing or mashing to prepare foods.

They know about food hygiene.

They have designed a meal that fulfils design criteria.

Prior Learning KS2

Children have learnt about the different food groups and the Eatwell guide.

They have learnt about different methods of cooking and explored these by cooking potatoes and ratatouille.

The children have followed a design brief to choose and make a taco filling according to specific design criteria.

Fresh food, Good food

This project teaches children about food decay and preservation. They discover key inventions in food preservation and packaging, then make examples. The children prepare, package and evaluate a healthy snack.

Next Steps KS2

Children will know that some country's climates are more suited for producing some products than others.

They will use an increasing range of preparation and cooking techniques to cook both sweet and savoury dishes.

Next Steps KS2

Children will follow a recipe that requires a variety of techniques and sources the necessary ingredients.

They will learn that seasonality is the time of year when the harvest or flavour of a type of food is at its best.

They will plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.

Fresh food, Good food

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Bake	Bag	Build	Design	Evaluate
Blender	Bottle	Construct	Design criteria	Improve
Chop	Box	Deconstruct	Diagram	Success
Crush	Can	Net	Label	Change
Garlic press	Carton	Reconstruct	Function	Strength
Grate	Cling film	Sketch	Plan/idea	Weakness
Mash	Compostable		Purpose	Difficulty
Pastry brush	Packaging	Card	Equipment	
Peel	Jar	Cardboard	Health and safety	
Slice	Recyclable	Glass		
Spread	Reuse	Polystyrene		
Tear	Tetra pack	Plastic		
	Tupperware	Tin foil		



Moving Pictures

This project teaches children about simple machines, including wheels, axles, inclined planes, pulleys and levers, exploring how they helped ancient builders to lift and move heavy loads. Children will create a moving picture/book.

PRODUCT EVALUATION

L1. How do machines and mechanisms make jobs easier?

By the end of this lesson children should:

- Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.
- Know that simple machines make physical jobs easier by changing the strength or direction of a force.
- Know that there are six simple machines: pulley, lever, wheel and axle, wedge, inclined plane and screw.
- Recognise that simple machines can be combined to make complex, compound machines. For example, a wheelbarrow combines a lever with a wheel and axle.

PRODUCT EVALUATION

L2. How do different mechanisms work?

By the end of this lesson children should:

- Know that simple machines make physical jobs easier by changing the strength or direction of a force.
- Know that there are six simple machines: pulley, lever, wheel and axle, wedge, inclined plane and screw.
- Explain the effect of using the machine for a task and how the strength or the direction or force changes when a simple machine is used.

DESIGNING

L4. Can I apply my knowledge to design a moving picture book?

By the end of this lesson children should:

- Develop design criteria to inform a design.
- Plan which materials will be needed for a task and explain why.
- Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.

MAKING/EVALUATING

L3. Can I apply what I have learnt to make prototypes?

By the end of this lesson children should:

- Choose from a range of materials, showing an understanding of their different characteristics.
- Know that characteristics of materials, such as rigidity, strength and smoothness will affect the success of a working model.

MAKING

L5. Can I apply what I have learnt when making my moving picture?

By the end of this lesson children should:

- Make working models with simple mechanisms.
- Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.
- Use tools safely for cutting and joining materials and components.

EVALUATING

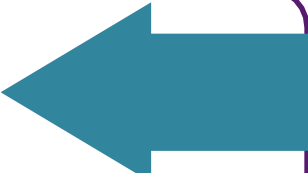
L6. How successful was my moving picture book?

By the end of this lesson children should:

- Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.
- Know that evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made.



Moving pictures



Prior Learning KS1

Children will have learnt about wheels, axles and chassis.

They will have applied this to see how they work together to make a vehicle move.



Prior Learning KS2

Children have learnt about cam mechanisms.

They have experimented with different shaped cams before designing, making and evaluating a child's automaton toy.

Tomb Builders

This project teaches children about simple machines, including wheels, axles, inclined planes, pulleys and levers, exploring how they helped ancient builders to lift and move heavy loads.



Next Steps KS2

Children will continue to explore a range of tools and their uses.

Children will choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.



Next Steps KS2

Children will explore and use a range of mechanisms including levers, sliders, axles, wheels and cams in models and products.

Children will learn that simple machines make physical jobs easier by changing the strength or direction of a force.

Moving Pictures

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Simple machine	Characteristic	Design	Evaluate
Compound machine	Material	Design criteria	Improve
Device	Property	Labelled Diagram	Success
Axle	Rigid	Annotated sketch	Change
Effort	Smooth	Function	Strength
Force	Strength	Plan/idea	Weakness
Fulcrum		Purpose	Difficulty
Inclined plane		Equipment	
Lever		Prototype	
Load			
Pulley			
Wedge			
Wheel			



Eat the Seasons

This project teaches children about the meaning and benefits of seasonal eating, including food preparation and cooking techniques. Children design and make a healthy seasonal soup.

COOKING AND NUTRITION

L1. What is seasonality and why is it beneficial?

By the end of this lesson children should:

- Describe what seasonality means and explain some of the reasons why it is beneficial.
- Know that seasonality is the time of year when the harvest or flavour of a type of food is at its best.
- Know that buying seasonal food is beneficial for many reasons.

PRODUCT EVALUATION

L2. What seasonal soups are there?

By the end of this lesson children should:

- Evaluate a range of existing soups and consider if they contribute towards a balanced diet and use seasonal foods.
- Know that a balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.

MAKING

L4. Can I use what I know to make a seasonal soup?

By the end of this lesson children should:

- Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.
- Select, name and use tools with adult supervision.

EVALUATING/DESIGNING

L3. Can I design a soup using seasonal vegetables?

By the end of this lesson children should:

- Identify ingredients used in a range of existing soups.
- Design a seasonal soup considering, appearance, taste and how it will contribute to a healthy diet (design brief).
- Know that ideas can be communicated in a range of ways

EVALUATING

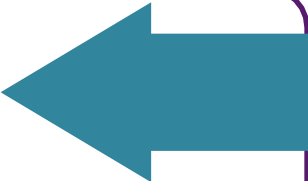
L5. Does my soup fulfil the design brief and taste good?

By the end of this lesson children should:

- Evaluate meals and consider if they contribute towards a balanced diet.
- Evaluate success against design specification.
- Make any amendments required based on feedback of others.
- Produce a final recipe for a class cookbook.



Eat the Seasons



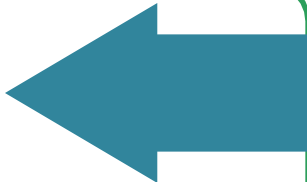
Prior Learning KS1

Children have selected healthy ingredients for a fruit or vegetable salad and have selected and used the appropriate tools for practical tasks.

They have used peeling, slicing, chopping, grating, tearing or mashing to prepare foods.

They know about food hygiene.

They have designed a meal that fulfils design criteria.



Prior Learning KS2

Children have learnt about the different food groups and the Eatwell guide.

They have learnt about different methods of cooking and explored these by cooking potatoes and ratatouille.

The children have learnt about food preservation and packaging.



Eat the Seasons

This project teaches children about the meaning and benefits of seasonal eating, including food preparation and cooking techniques. Children design and make a healthy seasonal soup.



Next Steps KS2

Children will know that some country's climates are more suited for producing some products than others.

They will use an increasing range of preparation and cooking techniques to cook both sweet and savoury dishes.

They will plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.

Eat the Seasons

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Blend	Food hygiene	Carbohydrate	Design	Evaluate
Boil	Food packaging	Fat	Design criteria	Improve
Brown	Food preparation	Fibre	Diagram	Success
Chop	Health and safety	Fresh	Label	Change
Dice	Nutritional value	Fruit	Function	Strength
Grate	Produce	Healthy	Plan/idea	Weakness
Mash	Seasonal fruit	Calorie	Purpose	Difficulty
Peel	Seasonality	Kilojoules	Equipment	
Puree	Seasonal vegetable	Mineral	Ingredients	
Raw		Protein	Recipe	
Saute		Salt	Method	
Simmer		Sugar		
Steam		Vegetable		
		Vitamin		





Architecture

This project teaches children about how architectural style and technology has developed over time and then use this knowledge to design a building with specific features.

PRODUCT EVALUATION

L1. How and why has architecture changed over time?

By the end of this lesson children should:

- Describe and discuss how different artists and cultures have used a range of visual elements in their work.
- Explain how the design of a product has been influenced by the culture or society in which it was designed or made.
- Describe the social influence of a significant designer or inventor.
- Know different types of architectural design including Classical, Gothic, Renaissance, Baroque and Postmodern.

PRODUCT EVALUATION

L2. What are the main features of Greek Architecture?

By the end of this lesson children should:

- Describe and discuss how different artists and cultures have used a range of visual elements in their work.
- Explain how the design of a product has been influenced by the culture or society in which it was designed or made.
- Know that the ancient Greeks developed the Classical form of architecture that has been copied for thousands of years.

DESIGNING

L4. Can I apply my knowledge to design a temple?

By the end of this lesson children should:

- Use pattern pieces and computer-aided design packages (TinkerCAD) to design a product.
- Know that computer-aided design (CAD) is the use of specialised computer software to design objects.

MAKING/EVALUATING

L3. How is support, stiffness and stability created in structures?

By the end of this lesson children should:

- Build a framework using a range of materials to support mechanisms.
- Support, stiffness and stability can be created by using triangular shapes to create strong frameworks, columns to support roofs and overlapping brickwork patterns.

MAKING/EVALUATING

L5. Can I apply what I have learnt to make an impressive, yet functional building?

By the end of this lesson children should:

- Build a framework using a range of materials to support mechanisms.
- Select and combine materials with precision.
- Evaluate at different stages of development against the design criteria.
- Modify the design as they work to improve stability, function and appearance of their structure.

EVALUATING

L6. Can I apply what I have learned when making and evaluating my temple?

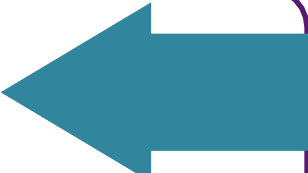
By the end of this lesson children should:

- Test and evaluate products against a detailed design specification and make adaptations as they develop the product.

Moving Mechanisms



Architecture

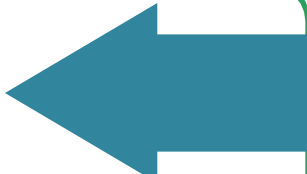


Prior Learning KS1

Children have learnt about the purpose of shelters and their materials.

They can name and describe shelters and design and make shelter prototypes.

Children have learnt about making and strengthening structures, including different ways of joining materials.



Prior Learning KS2

Children have learnt about the purpose, structure and design features of greenhouses, and compared the work of two significant greenhouse designers.

They have used techniques to strengthen structures and used tools safely.

They used their learning to design and construct a mini greenhouse.



Architecture

This project teaches children about how architectural style and technology has developed over time and then use this knowledge to design a building with specific features.



Next Steps KS2

Children will learn that strengths can be added to a framework by using multiple layers of changing its shape.

They will learn about bridge design and that triangles do not collapse or distort easily and so are used in architecture to provide support and stability.

Architecture

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Ancient Egyptian	Appearance	Design	Evaluate
Baroque	Functionality	Design criteria	Improve
Ancient Greek	Stability	Labelled Diagram	Success
Classical	Stiffness	Annotated sketch	Adjustment
Corinthian column		Function	Analysis
Doric column	Column	Plan/idea	Problem-solve
Ionic column	Framework	Purpose	Feedback
Gothic	Lintel	Prototype	Focus group
Modernist	Post	Technique	
Industrial	Support		
Renaissance			
Postmodern			



Moving Mechanisms

This project teaches children about pneumatic systems. They experiment with pneumatics before designing, making and evaluating a pneumatic machine that performs a useful function.

PRODUCT EVALUATION

L1. What are pneumatics and how do they work?

By the end of this lesson children should:

- Use mechanical systems in their products, such as pneumatics.
- Know that a pneumatic system uses compressed air to exert a force

PRODUCT EVALUATION

L2. How are pneumatics used to create movement?

By the end of this lesson children should:

- Test and evaluate products against a detailed design specification and make adaptations as they develop the product.
- Use mechanical systems in their products, such as pneumatics.
- Know that testing a product against the design criteria will highlight anything that needs improvement or redesign.
- Know that a pneumatic system uses compressed air to exert a force.

DESIGNING

L4. Can I apply my knowledge to design a prototype that uses pneumatics to make life easier around the home?

By the end of this lesson children should:

- Explain the functionality and purpose of safety features on a range of products.
- Use mechanical systems in their products, such as pneumatics.
- Know that pneumatic systems can be used to lift heavy loads, raise and lower platforms or soften a force by acting as a shock absorber.

MAKING/EVALUATING

L3. Can I apply what I have learnt to replicate a pneumatic machine?

By the end of this lesson children should:

- Build a framework using a range of materials to support mechanisms.
- Name and select increasingly appropriate tools for a task and use them safely.
- Know that mechanisms and systems can work together to perform a function.
- Understand that a strong and stable structure is necessary to support mechanisms in a machine.

MAKING/EVALUATING

L5. Can I apply my knowledge to make a prototype that uses pneumatics to make life easier around the home?

By the end of this lesson children should:

- Test and evaluate products against a detailed design specification and make adaptations as they develop the product.
- Select and combine materials with precision.
- Know that testing a product against the design criteria will highlight anything that needs improvement or redesign.

EVALUATING

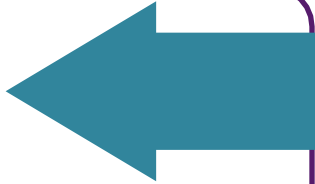
L6. How successful was my prototype?

By the end of this lesson children should:

- Survey users in a range of focus groups and compare results.
- Know that evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.



Moving Mechanisms



Prior Learning KS1

Children will have learnt about wheels, axles and chassis.

They will have applied this to see how they work together to make a vehicle move.



Prior Learning KS2

Children have learnt about cam mechanisms and have experimented with different shaped cams.

Children have explored how ancient builders used machines to help them lift and move heavy loads, these included wheels, axels, pulleys and levers.



Moving Mechanisms

This project teaches children about pneumatic systems. They experiment with pneumatics before designing, making and evaluating a pneumatic machine that performs a useful function.

Next Steps KS2

Children will continue to explore a range of tools and their uses.

Children will choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.

Moving Mechanisms

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Heavy lifting	Actuator	Design	Evaluate
Jack	Air pressure	Design criteria	Improve
Jack hammer	Compress	Labelled Diagram	Success
Machinery	Compressor	Annotated sketch	Adjustment
Paint sprayer	Force	Function	Analysis
Pneumatic machine	Hinge	Plan/idea	Problem-solve
Pneumatic system	Lever	Purpose	Feedback
Brace	Movement	Prototype	Focus group
Lifting arm	Piston	Technique	
Load	Plunger		
Structure	Power		
	Syringe		
	Valve		





Engineer

This project teaches children about remarkable engineers and significant bridges, learning to identify features, such as beams, arches and trusses. They complete a bridge-building engineering challenge to create a bridge prototype.

PRODUCT EVALUATION

L1. Which significant engineers have designed significant bridges?

By the end of this lesson children should:

- Analyse how an invention or product has significantly changed or improved people's lives.
- Present a detailed account of the significance of a favourite designer or inventor.
- Know how significant engineers have improved, safety, people's lives and trade through their constructions.
- Know that significant bridges include: the Menai Bridge, Clifton Suspension Bridge and Forth Bridge.

PRODUCT EVALUATION

L2. What different types of bridge are there?

By the end of this lesson children should:

- Create a detailed comparative report about two or more products or inventions.
- Know how bridge structures have changed over time. This is due to factors such as technology, design innovation and new and better access to materials.

MAKING/EVALUATING

L4. How can triangles be used to strengthen a bridge?

By the end of this lesson children should:

- Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
- Choose the best materials for a task, showing an understanding of their working characteristics. Know that triangles do not collapse or distort easily and so are used in architecture to provide support and stability.

MAKING/EVALUATING

L3. How can we strengthen a paper bridge?

By the end of this lesson children should:

- Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
- Choose the best materials for a task, showing an understanding of their working characteristics.
- Know that strength can be added to a framework by using multiple layers or changing its shape.

DESIGNING

L5. Can I apply what I have learnt to design a bridge prototype?

By the end of this lesson children should:

- Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.
- Know that ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

MAKING

L6. Can I apply what I have learned when making a bridge prototype?

By the end of this lesson children should:

- Choose the best materials for a task, showing an understanding of their working characteristics.
- Know the importance of understanding the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.

EVALUATING

L7. Evaluate the effectiveness of my bridge prototype?

By the end of this lesson children should:

- Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.
- Know that an iterative process starts with requirements and continues by creating a product, testing it, and revising it before creating a better version.

Food for life





Engineer

Prior Learning KS1

Children have learnt about the purpose of shelters and their materials.

They can name and describe shelters and design and make shelter prototypes.

Children have learnt about making and strengthening structures, including different ways of joining materials.

Prior Learning KS2

Children have used techniques to strengthen structures and used tools safely.

They used their learning to design and construct a mini greenhouse.

They know how architectural style of buildings has changed over time.

Children have designed a building with specific features.

Engineer

This project teaches children about remarkable engineers and significant bridges, learning to identify features, such as beams, arches and trusses. They complete a bridge-building engineering challenge to create a bridge prototype.

Engineer

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Arch bridge	Concertina	Design	Evaluate
Beam bridge	Investigation	Design criteria	Improve
Suspension bridge	Layers	Annotated Diagram	Success
Truss bridge	Shape	Exploded Diagram	Adjustment
Material	Strengthening	Modelling	Analysis
Span	Stability	Prototype	Problem-solve
Support		Test	Results
Type			
Compare	Engineer	Isambard Kingdom Brunel	
	Sir Benjamin Baker	Sir John Fowler	
	Thomas Telford		





Food for Life

This project teaches children about processed food and healthy food choices. They make bread and pasta sauces and learn about the benefits of whole foods. They plan and make meals as part of a healthy daily menu, and evaluate their completed products.

COOKING AND NUTRITION

L1. What is processed food?

By the end of this lesson children should:

- Create a detailed comparative report about two or more products or inventions.
- Know that a processed food is changed during preparation and includes processes, such as cooking, freezing, pasteurising, or the addition of ingredients.
- Know that processed foods can be convenient and increase availability, but often lack of nutrients and contain unhealthy ingredients when compared to whole foods.

PRODUCT EVALUATION

L2. How do processed foods compare to homemade food?

By the end of this lesson children should:

- Create a detailed comparative report about two or more products or inventions.
- Analyse how an invention or product has significantly changed or improved people's lives.
- Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
- Know that sliced bread is processed and is may contain many more ingredients than homemade bread, including preservatives.

DESIGNING

L4. Can I apply my knowledge to design a healthy meal for an 11-year-old?

By the end of this lesson children should:

- Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.
- Understand that eating a balanced diet is a positive lifestyle choice that should be sustained over time.
- Know that food packaging provides important nutritional information about the food inside.

COOKING AND NUTRITION

L3. What are whole foods?

By the end of this lesson children should:

- Explain how organic produce is grown.
- Whole foods have not been changed from their natural form.
- Organic whole foods are grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives.

MAKING

L5. Can I apply my knowledge to make a healthy meal for an 11-year-old?

By the end of this lesson children should:

- Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
- Know that ingredients can usually be bought at supermarkets, but specialist shops may stock different items such as specialist vegetables or coffees.
- Know that greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses.

EVALUATING

L6. Does my meal fulfil the design brief?

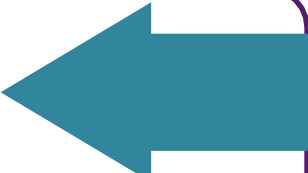
By the end of this lesson children should:

- Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.
- Know that an iterative process starts with requirements and continues by creating a product, testing it, and revising it before creating a better version.
- Know that the iterative process is a series of steps that are repeated, improving the product with each cycle.

Make Do and Mend



Food for Life



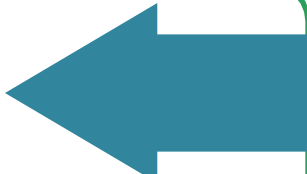
Prior Learning KS1

Children have selected healthy ingredients for a fruit or vegetable salad and have selected and used the appropriate tools for practical tasks.

They have used peeling, slicing, chopping, grating, tearing or mashing to prepare foods.

They know about food hygiene.

They have designed a meal that fulfils design criteria.



Prior Learning KS2

Children have learnt about the different food groups and the Eatwell guide.

They have learnt about food preparation and cooking techniques and used these to prepare recipes.

Children have learnt about seasonality and the benefits of eating seasonal foods.

Food for Life

This project teaches children about processed food and healthy food choices. They make bread and pasta sauces and learn about the benefits of whole foods. They plan and make meals as part of a healthy daily menu, and evaluate their completed products.

Food for Life



Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Blend	Advantage	Carbohydrate	Design	Evaluate
Brush	Disadvantage	Fat	Design criteria	Improve
Crush	Compare	Fibre	Diagram	Success
Dough	Ingredient	Fresh	Label	Change
Dice	Nutritional value	Dairy	Function	Feedback
Fry	Taste	Healthy	Plan/idea	Modification
Halve	Texture	Mineral	Purpose	Reflect
Hygiene	Use by date	Protein	Equipment	
Knead	Convenience	Vitamin	Ingredients	
Prove	Processed	Diet	Recipe	
Sprinkle	Unprocessed	Balanced	Method	
Store	Packaging	Healthy		
Yeast		Organic		
		Pesticide	Additive	
		Fertiliser	Whole food	



Make Do and Mend

This project teaches children a range of simple sewing stitches, including ways of recycling and repurposing old clothes and materials.

PRODUCT EVALUATION

L1. What was the Make Do and Mend campaign?

By the end of this lesson children should:

- Analyse how an invention or product has significantly changed or improved people's lives.
- Know the Make Do and Mend was a campaign run by the Ministry of Information during the Second World War to encourage people to recycle and repurpose their old clothes rather than buy new.
- Know that the Make Do and Mend campaigns aimed to limit the amount of labour and materials used in clothes production, so that it could be used to support the greater war effort.

PRODUCT EVALUATION

L2. How are different clothing items made and what are their features?

By the end of this lesson children should:

- Select appropriate tools for a task and use them safely and precisely.
- Know that deconstructing garments identifies how they were made, the materials used and their properties.

DESIGNING

L5. Can I apply what I have learnt to design an item made from recycled fabric?

By the end of this lesson children should:

- Develop a design that is fit for purpose and communicate ideas clearly.
- Know that ideas can be communicated in a range of ways, including through discussion, annotated sketches and prototypes.

MAKING/EVALUATING

L4. How can we repair our clothes?

By the end of this lesson children should:

- Choose the best materials for a task, showing an understanding of their working characteristics.
- Pin and tack fabrics in preparation for sewing and more complex pattern work.
- Know that it is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.

MAKING/EVALUATING

L3. What different stitches are there and how are they used?

By the end of this lesson children should:

- Select appropriate tools for a task and use them safely and precisely.
- Know and use hand stitches including running stitch, blanket stitch and whip stitch.

MAKING

L6. Can I apply what I have learnt to make an item made from recycled fabric?

By the end of this lesson children should:

- Pin and tack fabrics in preparation for sewing and more complex pattern work.
- Use different methods of fastening for function and decoration, including press studs, Velcro and buttons.

EVALUATING

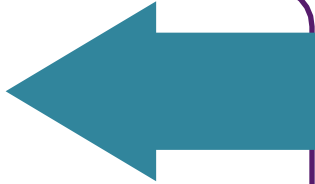
L7. Does my product fulfil the design brief?

By the end of this lesson children should:

- Products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money.
- Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.



Make Do and Mend

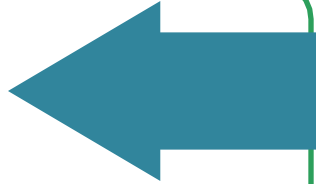


Prior Learning KS1

Children have looked at fabric used in home products and the significant British brand Cath Kidston.

They have learnt about sewing patterns and used a running stitch and embellishments to make a sewn bag tag.

Children have designed products so that they meet the design criteria and selected tools and materials to suit a task.



Prior Learning KS2

Children have looked at home furnishings and the significant designer William Morris.

They have used techniques for decorating fabric, including block printing, hemming and embroidery and used them to design and make a fabric sample.

Make Do and Mend

This project teaches children a range of simple sewing stitches, including ways of recycling and repurposing old clothes and materials.

Make Do and Mend

Vocabulary

Children will be expected to know and use this key vocabulary in their work and when discussing their learning.

Pin	Blouse	Blanket stitch	Design	Evaluate
Repair	Dress	Button	Design criteria	Improve
Stitch	Fabric	Decorative	Function	Success
Tack	Fashion	Needle	Plan/idea	Adapt
Button	Garment	Running stitch	Purpose	Change
Embroidery	Handmade	Seam	Equipment	Repurpose
Fastening	Hat	Thread	Material	
Press stud	Jacket	Whip stitch		
Ribbon	Jeans			
Sew	Recycle			
Tie	Repair			
Toggle	Shirt			
Velcro	Skirt			
Zip	Trousers			

