Preston Grange Primary School

Design and Technology Curriculum

KS1 and KS2 Overview

	Autumn	Spring	Summer
1	Textiles To design make and evaluate a decorative stocking for a family member.	Structures To design, measure and join materials to make a model of an insect as a garden decoration.	Cooking and Nutrition To design, make and evaluate a fruit salad to be eaten as part of a healthy meal.
2	Cooking and Nutrition To taste and evaluate healthy drinks. To design, make and evaluate a healthy smoothie.	Mechanisms To make a moving vehicle that will help people in the community.	Textiles To design, make and evaluate a puppet for a friend to express their emotions.
3	Cooking and Nutrition To design, make and evaluate a healthy and nutritious wrap for a family member.	Mechanisms To design, make and evaluate a toy with a moving part using a pneumatic system.	Textiles To use templates and select and join fabrics to design, make and evaluate a decorative cushion.
4	Electrical systems To design, make and evaluate a new functioning torch with a working switch.	Structures To design, make and create packaging to protect contents and appeal to the buyer.	Cooking and Nutrition To design, make and evaluate a nutritious, savoury dish from another culture.
5	Textiles To design a stuffed toy to support children with sensory needs.	Cooking and Nutrition To design, make and evaluate a hot, nutritious meal using seasonal vegetables.	Mechanisms To design, make and evaluate a toy with a moving part.
6	Structures To research, design and make an attractive bird box which will provide shelter and nesting for local birds and be desirable for people to buy.	Electrical Systems To design, make and evaluate a quiz board using an electrical circuit.	Cooking and Nutrition To research seasonal food and design, make and evaluate a menu using seasonal ingredients.

Cooking and nutrition
Structures
Mechanisms
Electrical systems
Textiles

Nursery Overview

Term	Objectives covered
Autumn 1	Make marks on a range of scales with a range of tools and grips. Make marks with a wide range of tools and grips.
Autumn 2	Make marks with large tools using arms and shoulders. Make Marks on a range of scales with a range of tools and grips. Actively explore the properties of everyday materials through spontaneous experimentation. Make marks with a wide range of tools and grips.
Spring 1	Make marks with different size pens with a palmer grip. Take turns with verbal prompts from adults to pass over equipment. Choose and locate resources they need to achieve a goal. Focus on marks as they are being created by a range of tools. Explain how things work. e.g windup toys pulleys. Use materials for a purpose. Use mark making tools to make enclosed shapes.
Spring 2	Use pincer movements to pick up small items or nip malleable materials. Post and thread. Choose the tools and materials they need to achieve their goal. Make continuous linear marks and other effects with hands and tools on a range of scales. Ascribe meaning to 3D shapes when building, according to their properties. Process language to fill and empty containers. Process language to create structures or arrangements longer, shorter, taller, wider than mine. Talk about the differences between materials and changes they notice. Join materials for a purpose. Use mark making tools to make a range of enclosed shapes.
Summer 1	Choosing resources. Ask and answer why questions. Develop techniques for working simple mechanism. Create a range of marks with different tools and talk about their purposes. Use absolute measurement vocabulary to describe everyday objects such as heavy, tall, big, tiny empty. Compare lengths by aligning and accurately identify longer, taller and shorter. Join materials in a range of ways to make things for a purpose. Use mark making tools with control to add detail to shapes.
Summer 2	Follow two part instructions. Use a tripod grip to make marks, including enclosed spaces. Repeat the same mark making movement with control and ascribe meaning to marks. Combine 2D and 3D shapes to make new shapes and narrate the effects created. Use mark making tools to make very simple representational drawings.

Reception Overview

Term	Objectives covered
Autumn 1	Follow one step instructions. Thread, peg and sew on cards. Cut along straight lines. Use squashing techniques including rolling pins to achieve desired effects. Use marks or some letters for meaning. Write labels. Describe changes of state with 'cement' and clay and with ingredients when cooking.
Autumn 2	Formulate and respond to I wonder, why? and how? questions. Follow two step instructions. Join and separate small construction kit components by clicking and twisting. Use small hammers accurately. Cut and turn along outlines. Articulate and demonstrate hand washing and food preparation. Identify healthy ingredients in healthy snacks.
Spring 1	Weave, thread and tie. Articulate simple problem solving approaches. Design with 2D shapes. Make 2D shapes out of other 2D shapes. Twist, wrap and weave with pressure and precision, narrating choices about colour and texture.
Spring 2	Safely use a wider range of food preparation tools including chopping boards and knives, graters and fruit squeezers. Use fine mark-making tools to create texture and pattern in clay.
Summer 1	Process and follow three step instructions. Join with tape and glue. Dismantle objects and mechanisms using a range of hand actions. Articulate the reasons for success or failure in a challenge. Name and describe attributes of 3D shapes in relation to their usefulness when model building.
Summer 2	Use hand moulding and building techniques with malleable materials. Use fine pincer mark-making tools with precision. Use a range of tools to dismantle mechanisms. Set simple goals and articulate how they will set out to achieve them. Shape and mould wet sand and clay with hand tools to create particular effects.

Knowledge Organisers

Year 1

Year 1- Textiles

User: - A child on Christmas Eve

Purpose: To design, make and evaluate a stocking that will hold small gifts at Christmas.

Context: XXX is worried that he won't get any presents for Christmas as he doesn't have a stocking. He has asked you to design and make a stocking that he can hang out on Christmas Eve that will hold small gifts.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

fabric	Cloth or other fabrics often used to make clothes or furniture.
felt	A heavy material.
Join	Connect or fasten two or more things together.
Design	To plan how something will look or how it will work.
template	A model or guide for producing something.
Evaluate	To think about how well something went, and what we can do to make it better next time.

Key Processes:

Designing

- Look at a range of Christmas stockings, discuss the shapes and designs.
- Look at the materials used to make different stockings and talk about their effectiveness.
- Look at a range of Christmas designs.
- Practise joining materials using a range of methods. .
- Draw a design.

Making

- Draw and cut material to make a stocking shape.
- Practise joining materials in different ways (including gluing, stapling and safety pinning)
- Decorate one side of the stocking using glue to join the pieces.
- Use an overstitch to join two pieces of material to create a stocking.
- Think of ways to adapt the design when problems occur.
- Work safely with the needle.

Evaluating

- Is the design secure on the stocking?
- Are the two pieces of material joined securely?
- Have they used an overstitch effectively?

Technical knowledge

- To know how to join materials in a variety of ways.
- To know and use technical vocabulary relevant to the topic

Year 1- Structures

User: - A person with a garden

Purpose: To design, make and evaluate an insect themed garden decoration.

Context: XXX is designing a new insect themed garden. Can you help them to design a wooden insect themed decoration?

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words	
wood	A hard material from trees.
saw	A bladed tool.
fasten	To attach items together.
design	To create a plan to make something visually appealing.
connect	To join or link something together.
measure	Ensure that something is the correct size.
clamp	A tool to hold wood still for cutting.

Key Processes:

Designing

- Look at a range of wooden decorations discuss the shapes and designs.
- Look at the materials used to make outdoor decorations.
- Look at a range of insect designs.
- Practise joining wood using card and glue.
- Draw a design and make a template.

Making

- Measure and cut wood.
- Practise connecting the pieces of wood using glue and card.
- Decorate the wood to represent the insect chosen.
- Think of ways to adapt the design when problems occur.
- Work safely with the saw.

Evaluating

- Are the pieces of the insect joined together securely?
- Does the design look like an insect?
- Have they used a saw safely and effectively.

Technical knowledge

- To know how to join materials.
- To know and use technical vocabulary relevant to the topic.

Year 1- Food and Nutrition

User: Year 1

Purpose: To design, make and evaluate a healthy fruit salad.

Context: We need to encourage children to eat more fruit and vegetables in Year 1. Can we design a healthy and tasty fruit salad to encourage others to eat more fruit and veg?

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account);




Key Words

fruit	A healthy food that's grown on a tree that contains a seed.
vegetables	A plant that is used for food.
pictogram	A graph that uses images to represent the data.
hygiene	A way we care for our bodies including washing our hands, bathing and brushing our teeth.
safety	Protecting themselves and others from harmful accidents.
utensils	A tool you can hold in your hand eg. peeler, grater, knife.
healthy	To not be sick. Including having a healthy diet and lifestyle.

Key Processes:

Design

- Look at a range of fruits and vegetables.
- Handle and describe fruits.
- Taste a range of fruits. Share their opinions about which fruits they enjoy and why.
- Practise using utensils including knives, graters and peelers to prepare fruit.
- Talk about the fruits they wish to have in their fruit salads and how they intend to present their fruit salad.
- Draw a design for their fruit salad and write an ingredients list.

Make

- Demonstrate good hygiene including washing hands and tying hair up.
- Use utensils safely to prepare fruit.
- Follow their design to create their fruit salad.

Evaluate

- Evaluate the safety procedures while preparing their fruit.
- Evaluate the hygiene procedures.
- Evaluate if they have followed their design.
- Evaluate the appearance of their fruit salad and if it is pleasing to the eye.
- Discuss what they like about their finished product.
- Suggest ways in which they could improve their final product.

Technical Knowledge

- Use knives, graters and peelers safely.
- To understand the importance of a healthy diet.

Knowledge Organisers

Year 2

Year 2- Food and Nutrition

User: Children that want to be healthy.

Purpose: To taste and evaluate healthy drinks and design and make a healthy fruit smoothie.

Context: Children today are drinking far too many unhealthy drinks. You have been asked by a drinks company to design a tasty smoothie that can help children stay healthy.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

Hygiene	Ensuring that everything is clean
Blender	A machine that is used for chopping and mixing ingredients
Evaluate	To think about things that went well and what you would improve next time.
Appearance	What something looks like.
Texture	What something feels like.
Rate	Give a score to show how much you like or dislike something.
Slice	Cut into thin pieces.

Key Processes:

- Tasting and rating a range of existing smoothies
- Selecting ingredients to design a particular flavour smoothie

Make

- Following a recipe, using the correct quantities of each ingredient
- Adapting a recipe based on design
- Working as a team
- Working safely and hygienically with independence

Evaluation

- Evaluating a recipe, considering: taste, smell, texture and appearance
- Taste testing and rating final products
- Suggesting how to improve the product next time
- Evaluating health and safety during the making process

Technical Knowledge

- Understand where a range if fruit and vegetables come from
- Understand and use the basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of the eatwell plate
- Know and use technical vocabulary relevant to the project

Year 2- Mechanisms

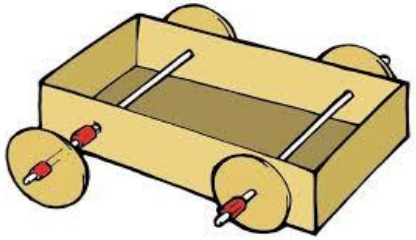
User: People who help us.

Purpose: To make a moving vehicle that will help people in the community.

Context: You have been asked by the Mayor to design a vehicle that will help people in the community.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):



Key Words

Vehicle	A thing used to transport people or goods.
Wheel	A circular objects that revolves on an axel, enabling a vehicle to move.
Axle	A rod passing through the centre of a wheel.
Vice	A metal tool that holds objects in place.
Hacksaw	A tool used to cut wood.
Accurate	To be exact and precise in details like measuring and cutting.
Evaluate	To think about what went well and what we

Key Processes:

Design
- Research existing vehicles that help us in the community
- Decide on the purpose of the vehicle and how it will help the community
- Draw and label what the body of the vehicle will look like

Make
- Make a measuring template using cm squared paper
- Measure wood accurately using the measuring template
- Use a junior hacksaw to cut pieces of wood
- Use strengthening techniques to glue parts together
- Cut and fold templates accurately

Evaluation
- Evaluate the process considering which aspects went well and which aspects were difficult
- Suggest how to improve the product next time
- Evaluate health and safety during the making process
- Evaluate accuracy during the making process

Technical Knowledge
- Explore and use wheels, axles and axle holders
- Know and use technical vocabulary relevant to the project

Year 2 - Textiles

User: 5-6 year old child to play with and express their emotions.

Purpose: To design ,make and evaluate a puppet for a friend to express their emotions.

Context: A friend is struggling to express their emotions. We are going to make a puppet to help them act out how they are feeling.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

Running stitch	Asimple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping.
Needle threader	A needle threader is a device for helping to put thread through the eye of a needle.
Knotted	Tied with a knot to hold a stitch in place.
Puppet	A movable model of a person or animal that is typically moved y a hand inside it
Joining	Connect two pieces of materials together.
Thimble	A small metal or plastic cap with a closed end, worn to protect the finger and push the needle in sewing

Key Processes:

Design

- Using a template to create a design for a puppet.
- Design a puppet and use a template.
- Sequencing steps of construction.

Make

- Sew a running stitch with regular-sized stitches and understand that both ends must be knotted.
- Prepare and cut fabric to make a pouch from a template.
- Use a running stitch to join the two pieces of fabric together.
- Decorate their pouch using the materials provided.

Evaluation

- Reflecting on a finished product, explaining likes and dislikes.
- Discussing as a class, the success of their stitching against the success criteria.

Technical knowledge

- To know that sewing is a method of joining fabric.
- To know that different stitches can be used when sewing.
- To understand the importance of tying a knot after sewing the final stitch.
- To know that a thimble can be used to protect my fingers when sewing.

Knowledge Organisers

Year 3

Year 3- Food and Nutrition

User: Year 3 children and family

Purpose: To design, make and evaluate a healthy wrap with a filling for lunch.

Context: You have been asked by a nursery to design a healthy balanced wrap for the children to have for lunch with a tasty filling.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account);

Key Words

Appearance	How the food looks
Texture	How the food feels in the mouth
Preference test	Trying different foods and deciding which one you like best.
Grating	**Turning** firm **food** items into small pieces by rubbing the item against a grater.
Bridging technique	Create a bridge over the food with your hand. Use a knife to cut food under the bridge.
Claw technique	Use your fingers to create a claw like hold on to the food you are cutting. Protecting your nails.
Healthy	Eating a variety of food that gives you the correct nutrients your body needs.

Key Processes:

Design

- Generate and ideas through discussion with class and adults to develop design criteria including appearance, taste, texture for an appealing wrap.
- Taste a range of ingredients that can be included in the wrap to build up a balanced filling.

Make

- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select and use appropriate utensils and equipment to prepare and combine ingredients including the bridging and claw cutting techniques.
- Select from a range of ingredients to make the wrap thinking about its appearance, smell, look and taste.

Evaluation

- Evaluating a recipe, considering: taste, smell, texture and origin of the food group
- Taste testing and scoring final products
- Suggesting improvements for the wrap.
- Evaluating health and safety during the making process.

Technical Knowledge

- Know how to use appropriate equipment and utensils to prepare and combine food.
- Know about a range of fresh and processed ingredients appropriate for their product, and how they are produced/grown.
- Know and use relevant technical and sensory vocabulary appropriately

Year 3- Textiles

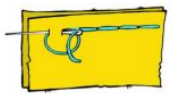
User: Y3 children.

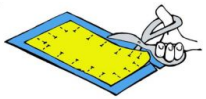
Purpose: To use templates and select and join fabrics to design, make an evaluate a decorative cushion.

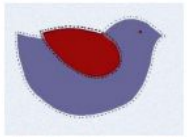
Context: We are trying to make our classroom reading area more inviting to encourage children to read more. We have been asked to design and make a decorative cushion, to improve our reading area and encourage children to use the reading area more.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):







Key Words

Appliqué	A method of stitching/ gluing patches onto fabric.
Pattern	A shape drawn to exact shape and size and used to assist cutting out.
Seam	A line of stitching that joins pieces of fabrics together.
Prototype	A model that is made to test whether a design will work.
Aesthetics	The way a product looks.
Running stitch	A simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping.
Back stitch	A method of sewing with overlapping stitches.
	A cloth or material

Key Processes:

Design

- Discuss what cushions are used for - comfort, decorative effect, cosy feel
- Look at existing cushions for ideas and suggest improvements- do they have features we like? Is colour the most important aspect?
- Produce sketches and design a pattern/ template to use when cutting material.

Make

- Plan the main stages of making to ensure there is a step by step process to follow.
- Using the pattern, cut out the shape required and ensure that there is excess.
- Select fabric colours according to their design (style - e.g. fun), and colour impact e.g. aesthetics.
- Join fabrics using running stitches and back stitches.

Evaluation

- Evaluate the finished product against the original design criteria and intended user.
- Compare finished products and discuss the benefits and limitations of different fabrics used.
- Peer evaluation- ask peers to give their feedback and suggest improvements.

Technical Knowledge

- Know how to join fabrics and enhance appearance of fabrics.
- Understand how to securely join two fabrics together.
- Understand the need for patterns and seam allowances.
- Know and use technical vocabulary related to the project.

Year 3- Mechanisms

User: Y1children.

Purpose: To design, make and evaluate a toy with a moving part using a pneumatic system

Context: XXX wants a toy with a moving part for Christmas. Can you use a pneumatic system to create a toy with a moving part?

mechanism	Parts that make something move
pneumatic	A system of movement using air
syringe	A tube with a plunger
hydraulics	A system of movement using water
reinforce	To make stronger
piston	The part that moves to propel another (plunger)

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Processes:

Design

- A festive toy which includes moving parts
- Investigate the effect of a pneumatic or hydraulic system
- Consider a variety of festive images (snowman, santa, tree, elf etc)

Make

- Plan the main stages of making
- Consider ways to combine and strengthen (reinforce) materials
- Solve problems associated with above inc durability
- Consider aesthetics of product - colour, style etc

Evaluation

- Evaluate the finished product against the original design criteria and intended user.
- Compare finished products and discuss the benefits and limitations of different fabrics used.
- Peer evaluation- ask peers to give their feedback and suggest improvements.

Technical Knowledge

- Know how to join paper and card and enhance appearance of both.
- Understand how to securely join two surfaces together.
- Understand the need for planning and problem solving.
- Know and use technical vocabulary related to the project.

Knowledge Organisers

Year 4

Year 4 - Structures

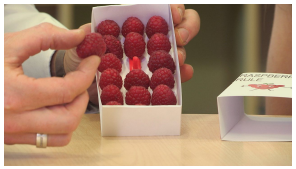
User: Noodle lovers

Purpose: To make, design and evaluate packaging to protect contents and appeal to the buyer.

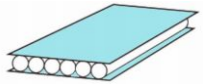
Context: A food company has designed a new food product. They want you to design and make some packaging that will protect the food items as they are being transported, as well as being appealing to the buyer.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

structures	Objects that are built for a purpose for example to support something or hold something.
laminating	Glue together several layers of card
corrugating	Zig-zag a piece of paper or card and glue in between two layers 
ribbing	Glue layers of straws between layers of card 
scoring	Process of marking a sheet to make it easier to 
tabs	Additional strips on the net for sticking vertices together

Key Processes:

Design

- Discuss food packaging and its purpose.
- Investigate existing and innovative packaging structures.
- Consider the strength of material being used.
- Consider 3D shapes most appropriate to prevent movement and damage to item being packaged.
- Consider how the design of the package might be appealing to the user.
- Remember that curved shell structures are most effective at spreading weight.
- Produce sketches and design how the packaging will look from different angles
- Draw nets of the packaging.

Make

- Plan the main stages of making to ensure there is a step by step process to follow.
- Make and assemble nets of product.
- Strengthen card using laminating, corrugating or ribbing.
- Use measuring, cutting and joining skills to ensure a quality product that matches the intention of the design.

Evaluation

- Evaluate the finished product against the original design criteria and intended user.
- Compare the finished products and discuss the benefits and limitations of different designs.
- Peer evaluation - Invite peers to give feedback and suggest improvements.

Technical Knowledge

- Packaging needs to have a solid outer surface (curved or flat) and a hollow inner area.
- Packaging can serve many different purposes, including protecting, containing and/or presenting and can include examples such as food packaging, drinks cans, tunnels, boats.
- A rounded outer surface is particularly strong because it spreads force throughout the whole structure which means every part of the structure supports only a small part of the load.

Year 4 - Food and Nutrition

User: Year 4 class and anyone wanting to enjoy learning new skills and prepare a delicious meal.

Purpose: To make a nutritious, savoury dish from a different culture.

Context: Research, plan and cook a dish from another culture that can be replicated and shared with family members .

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):






Key Words

staple	A food that is eaten routinely and in such quantities that it makes up a major part of a standard diet for a given group of people.
kneading	The action of pulling and squeezing the dough to make it smooth. 
resting	The process of letting dough set for a period of time to prevent shrinkage.
boiling	The cooking of food by immersion in water that has been heated to near its boiling point 100°C
claw grip	Method used to hold food when slicing with a knife. 
bridge method	A method for cutting using a knife in which your hand makes a bridge shape to protect fingers from the blade. 

Key Processes:

Design

- Discuss ideas, research existing products, draw annotated sketches, generate simple specification.
- List ingredients and equipment required.
- Plan the order of the activity and timescale
- Who am I making the snack for? What is it for? How can I make it appealing for the range of users? What kind of snack shall I make? What ingredients could it contain? How could it be innovative? Where will the snack be served/eaten?

Make

- Prepare, cook and finish making changes throughout as appropriate.
- Select equipment.
- Follow instructions and recipe accurately.
- Read scales and measure accurately
- Mix and combine ingredients in the correct order.
- Exhibit safe knife skills: claw grip, bridge method.
- What techniques will I use and what equipment do I need? What order will I work in? How long will it take?

Evaluation

- Evaluate the meal against the original design specification.
- Appraise, reflect and refine.
- Sensory evaluation: Appearance, Smell, Texture, Taste.
- Has the meal met the needs of the user and achieved its purpose?

Technical Knowledge

- Know how to use appropriate equipment and utensils to prepare and combine food.
- Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.
- Know and use relevant technical and sensory vocabulary appropriately.

Year 4 - Electrical Systems

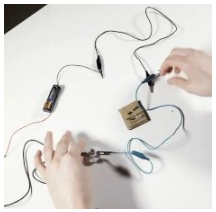
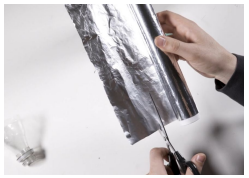
User: Local Cub group

Purpose: To design and make a successful working torch with a switch.

Context: You are going on a Cub camping trip and need a way to see in the dark at night time. The Cub leader has asked you to design and make a functioning torch so that the Cubs can find their way back to their tyent in the dark .

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

packaging	Materials used to wrap or protect goods.
recyclable	An object that can be used more than once.
assemble	Fit together the separate component parts to create a model.
insulator	A material that does not let electricity pass through it e.g plastic.
conductor	A material that lets electricity allow through it e.g. metal.
series circuit	A closed circuit where the current follows one path.
torch	A battery powered electric lamp.
electricity	A type of energy, usually invisible, that can be made or stored and used to make objects work.

Key Processes:

Design

- Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.

Make

- Making a torch with a working electrical circuit and switch.
- Using appropriate equipment to cut and attach materials.
- Assembling a torch according to the design and success criteria.

Evaluation

- Evaluating electrical products.
- Testing and evaluating the success of a final product.

Technical Knowledge

- Know how to use appropriate electrical products to create a successful working torch.
- Electrical conductors are materials which electricity can pass through.
- Electrical insulators are materials which electricity cannot pass through.
- A battery contains stored electricity that can be used to power products.
- An electrical circuit must be complete for electricity to flow.
- A switch can be used to complete and break an electrical circuit.

Knowledge Organisers

Year 5

Year - Food and Nutrition

User: A person in the UK with access to Seasonal Winter vegetables

Purpose: To make a hot, nutritious meal using seasonal vegetables.

Context: Design and cook a tasty recipe for soup that can only use seasonal ingredients for inclusion in a cookbook.

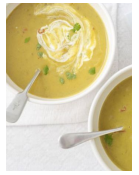
Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Children will produce their own soup recipe, cook soup in groups and also design and bake a loaf of bread.







Key Words

knead	Pressing and pulling dough to work the ingredients together and increase the strength of the gluten.
yeast	Type of microorganism which makes bread rise.
dice	To cut into cubes.
finishing	The appearance of a product. Its shape, decoration and colour.
dough	A mixture of flour, water and yeast before it is cooked.
proofing	Allowing dough to rise.
seasonal	Locally available only at a particular time of the year.
stock	A liquid used as a base for soups and sauces.

Key Processes:

Design

- Generate and ideas through discussion with class and adults to develop design criteria including appearance, taste, texture for an appealing soup/loaf.

Make

- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select and use appropriate utensils and equipment to prepare and combine ingredients including the bridging and claw cutting techniques.

Evaluation

- Evaluating a recipe, considering: taste, smell, texture and origin of the food group
- Taste testing and scoring final products
- Suggesting improvements for the wrap.
- Evaluating health and safety during the making process.

Technical Knowledge

- Know how to use appropriate equipment and utensils to prepare and combine food.
- Know about a range of fresh and processed ingredients appropriate for their product, and how they are produced/grown.
- Know and use relevant technical and sensory vocabulary appropriately
- Kneading: A pressing-folding-turning action performed by pressing down into the dough on a lightly floured workbench with the heels of both hands, then pushing it away from the body. Well-kneaded dough is smooth and elastic.
- Forming/shaping a loaf: Once the dough has risen. You need to form it into a loaf shape. This can be traditional loaf shaped, long and thin, plaited or round the surface should be smooth and tight.
- Proofing: An essential stage where the dough is left to rise before being shaped into a loaf.
- Weighing: Using a scale to accurately follow a recipe and include the right amounts of ingredients. You usually weigh dry ingredients and measure wet ones.
- Measuring: The use of a jug to measure amounts of wet ingredients e.g. water.






Year - Mechanisms: Pulleys, Gears and Cams

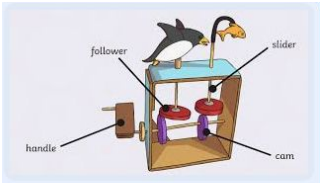
User: A nursery child

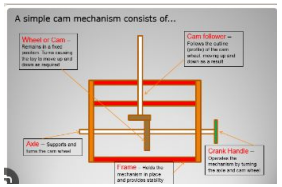
Purpose: To design, make an evaluate a toy with a moving part.

Context: The Nursery class is running out of toys for the children to play with. Te Nursery teacher has asked you to design a toy with a moving part for the Nursery children to play with.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):





Key Words

pulley	A wheel attached to another by chain or rope.
gear	A wheel with teeth which interlock. When gears of different sizes are connected they react in different ways.
driver	The wheel or gear that provides the input.
follower	The wheel or gear that provides the output.
cam	A cam turns a circular motion into an up and down motion.
spindle	A rod which rotates often connected to a cam or gear.

Key Processes:

Design

- Discuss parade floats and their purpose.
- Look at existing floats for ideas and suggest improvements/ magpie ideas.
- Produce sketches and design how the float will look from different angles and how the mechanism will work/ how to best use a cam mechanism for the greatest effect.
- Produce scale drawings as this product will be a scale model of a full-sized float.

Make

- Plan the main stages of making to ensure there is a step by step process to follow.
- Use measuring, cutting and joining skills to ensure a quality product and it matches the intention of the design.

Evaluation

- Evaluate the finished product against the original design criteria and intended user.
- Compare finished products and discuss the benefits and limitations of different designs.
- Peer evaluation- ask peers to give their feedback and suggest improvements.

Technical Knowledge

- Different types of cams for different effect e.g. snail, eccentric, oval.
- Cutting wood safely using bench grip and saw.
- Joining wood with glue and corners to strengthen
- Uses previous knowledge of Wheels and Axles
- Uses previous knowledge of simple circuits.
- Use of pulleys to attach motor to axle.

Year 5 - Textiles

User: A pupil at Preston Grange Primary School with sensory needs

Purpose: To design a stuffed toy to support children with sensory needs.

Context: There is a new sensory area at Preston Grange, however we don't have any toys to go in it. Mrs Taylor has asked you to design a toy for the sensory area, to provide comfort for children with sensory needs.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account):

Key Words

blanket-stitch	a buttonhole stitch used on the edges of a blanket or other material too thick to be hemmed
design criteria	The goals that a project needs in order to be successful.
accurate	Being exact.
sew	To join, fasten, or repair (something) by making stitches with a needle and thread or a sewing machine
appendage	a thing that is added or attached to something larger or more important.
reinforce	To strengthen or support

Key Processes:

Design

I can ensure that my template is proportional.

I can make a paper template.

To include details that reflect my final design

Make

It is easier to finish simpler designs to a high standard.

Stitches need to be small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.

Soft toys are often made by creating appendages separately and then attaching them to the main body.

The blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.

Evaluation

Evaluating final product

Evaluating current products to generate inspiration

Technical Knowledge

Knowledge Organisers

Year 6

Year 6 - Electrical Systems

User: 10-11 year old child

Purpose: To produce a quiz board using an electrical circuit.

Context: You have been asked by your class teacher to produce a an electronic quiz, which will test curriculum knowledge in Y6

Product Outcomes: Quix board
(taking design decisions, innovation and authenticity into account);




Key Words

series circuit	An electric circuit in which the electric passes through each circuit element in order.
parallel circuit	A closed circuit in which the current divides into two or more paths before recombining to complete the circuit.
input device	A piece of computer hardware equipment used to provide data and control signals to an information processing system.
output device	An output device is any that receives data from a computer.
crocodile clip	A sprung metal clip with long, serrated jaws which is used for creating a temporary electrical connection.
battery holder	A battery holder is a compartment or chamber for holding a battery.

Key Processes:

Design

- To design a quiz game - identifying the components required
- Draw a design from 3 different perspectives
- Generate ideas through sketching and discussion
- Model ideas through prototypes

Make

- Construct a stable base for an electronic game
- Accurate cutting and assembling
- Decorate the base of the game to a high quality finish
- Make and test a circuit
- Incorporate a circuit into a base

Evaluation

- Test own and others finished games, identifying what went well and make suggestions for improvement

Technical Knowledge

- Batteries contain acid, which can be dangerous if they leak
- When electricity enters a magnetic field it can make a motor

Year 6 - Food and Nutrition

User: PGPS School Kitchen

Purpose: To research seasonal food and design a menu using seasonal ingredients.

Context: You have been asked by our Healthy Schools coordinator, to produce a lunchtime menu, which will encourage our younger children to eat a wider variety of seasonal summer fruit and vegetables.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account);




Key Words

healthy	In good physical or mental condition.
nutrition	Food or nourishment.
nutritional value	Measure of a well-balanced ratio of essential nutrients.
seasonality	Something that changes according to the seasons.
sustainable	Method of managing or using a resource so that the resource is not depleted or permanently damaged.
design brief	Document for a design project developed by a person or a team.
research	An investigation carried out to establish facts.
evaluate	To judge the level or value of.

Key Processes:

Design

- Write a recipe, explaining the key steps, method and ingredients
- Include facts and drawings from research undertaken during an enrichment visit to a local supermarket or farm

Make

- Follow a recipe, using the correct quantities of each ingredient
- Adapt a recipe based on research
- Work to a given timescale
- Work safely and hygienically with independence

Evaluation

- Evaluate a recipe, considering: taste, smell, texture and origin of the food group
- Taste test and score final products
- Suggest and write up points of improvements in productions
- Evaluate health and safety in production to minimise cross contamination

Technical Knowledge

- Learn how to research a recipe by ingredient
- Record relevant ingredients and equipment needed for a recipe
- Understand the combinations of food that will complement one another
- Understand where food comes from, describing the process of 'Farm to Fork'

Year 6 - Structures

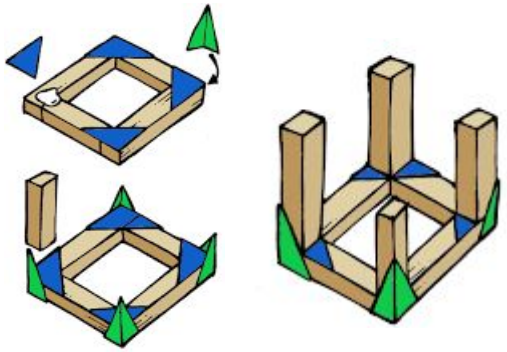
User: A customer buying a bird box for their garden.

Purpose: To research, design and make an attractive bird box which will provide shelter and nesting for a local birds and be desirable enough for people to buy.

Context: You have been asked to design a bird box which is attractive and provides shelter to nesting birds which could be sold at a local shop.

Possible Product Outcomes

(taking design decisions, innovation and authenticity into account);



Key Words

join	Securely link two pieces so they will withstand the purpose.
strengthen	Make stronger using a range of techniques e.g. struts.
triangulation	The use of triangular shapes to strengthen a structure
design brief	Document for a design project developed by a person or a team.
research	An investigation carried out to establish facts.
evaluate	To judge the level or value of.

Key Processes:

Design

- Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.
- Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.
- Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.

Make

- Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate.
- Decorate and seal the bird box so it is weatherproof.
- Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.
- Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
- Use finishing and decorative techniques suitable for a bird box.

Evaluation

- Evaluate if the product matches the brief.
- Strength and stress test the product.
- Market research on the attractiveness

Technical Knowledge

- Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project