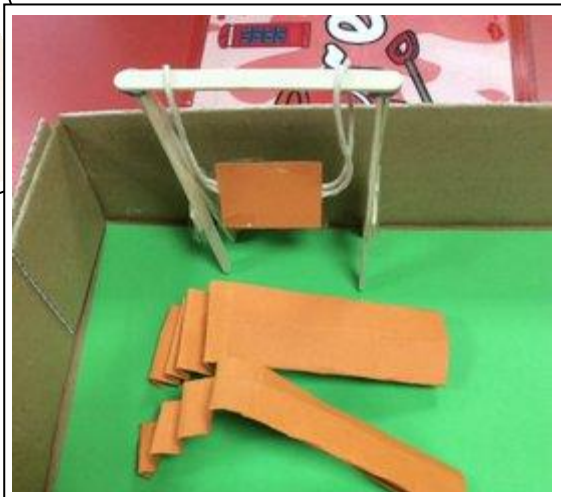


Design & Technology

Progression of conceptual knowledge, skills & vocabulary

Year 1



Year 1: Projects

Playground - Autumn 2; Moving Pictures - Spring 2;

Preparing a healthy plate – Summer 2

Knowledge

Children will learn:

- A material is something from which a product can be made.
- Products can be made from materials we find at home or at school, including recycled materials.
- Before making something, we need to make a plan of what we want it to look like and consider what we will use to make it. This is called a design. A design is used to help you make your product.
- Materials can be joined together in different ways using glue, tape, string etc. Different joining materials are suitable for different purposes and for joining different materials.
- When making a product, tools need to be used and transported safely in order to avoid injury.
- A product has to be suitable for the purpose for which it has been made.
- When making a product, we need to evaluate it to check that it is suitable for its purpose. If not, we need to change our product to make it better.
- When working with food, it is important to keep hands and surfaces clean, in order to avoid contamination.

Skills:

- Talk about pre-existing products, saying what is good about them and how they might be improved.
- Think of their own ideas for their design.
- Design a product, following given design criteria, using pictures, diagrams and words.
- Describe how their design works, explaining what is being made and why.
- Select appropriate tools and equipment for the purpose.
- Join materials or components together in different ways.
- Say whether their own product does what it is meant to (fits the design brief) and identify how it could be improved.
- Build Structures.
- Explore the movement of simple mechanisms such as wheels and axles.
- Identify food that are healthy and the variety of food needed to have a healthy diet.
- Cut food safely and say why it is important to make sure surfaces are clean.

Vocabulary

Anchor words	Goldilocks words	Step on words
make	Build	stable
stick	materials	improve
join	plan	design
cut	ideas	product
roll	prepare	evaluate
shape	healthy	describe
clean	surfaces	users
slice	hygiene	contamination

Design and Technology

Progression of conceptual knowledge, skills & vocabulary

Year 2



Year 2 – Design and Technology throughout the school year

Projects: Sew a stocking – Autumn 2; Moon Buggy – Spring 1;

Make a healthy smoothie– Summer 2

Knowledge:

Children will learn:

- Mechanisms such as wheels and axles can be used to make a moving vehicle. During the 'Pioneers' topic, children will use different materials and tools to create a moving space buggy, designing, testing and evaluating their own and others' work against a design brief.
- Planning and prototypes are an essential part of designing and creating a functional product. They will begin to use the design process to consider the materials and methods that have been used and suggest improvements to be made.
- Children will learn how to suggest improvements that could be made, considering materials and methods that have been used.
- The children will be learning how to tread a needle and practise a running stitch.
- Select from and use a range of materials and fabrics according to their characteristics to create a product.
- Evaluate their ideas and products against their design criteria.
- A healthy lifestyle consists of a balanced lifestyle and exercise. Children will consider different food types when creating their own 'healthy plate' and reflect upon changes they can make to their own diet. Children will identify where some food comes from and how they are made. Children will then have the opportunity to design and make their own smoothie using different fruits.

Skills:

- Describe why they chose to use a specific resource or tool
- Explain why they joined things together in a certain way (materials/components).
- Explain what went well and what they would want to improve if they did it again.
- Explore how two pieces of materials can be joined securely together using a stitch.
- Use mechanisms, such as levers, sliders, wheels and axles, in your products.
- Say where food comes from and prepare different simple healthy dishes.

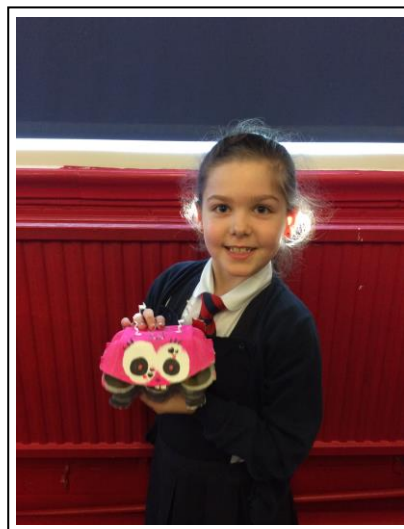
Vocabulary

Anchor words	Goldilocks words	Step on words
test	product	axel
users	diagram	lever
peel	evaluate	research
make	instructions	running stitch
design	model	assemble
wheels	farmed	mechanisms
dishes	ingredients	diet
hygiene	balanced	portions

Design and Technology

Progression of conceptual knowledge, skills & vocabulary

Year 3



Year 3 –

Projects: Photo Frames – Autumn 2; Moving Monsters – Spring 1

Make a healthy sandwich – Summer 1

Knowledge:

- Children will learn how to use research to design an innovative and an appealing photo frame.
- They will use a wide range of tools and equipment's to make their photo frame.
- Children will use their prior knowledge to ensure that their photo frame is stable and stiff.
- Children will learn how to evaluate products and suggest improvements that could be made.
- Children will learn that mechanical systems can be used to move something. Mechanical systems also have an effect on the speed, direction and force of a movement.
- Children will learn about pneumatics and how the air pressure affects a product to inflate and deflate when creating a moving monster.
- Children will understand the importance of strengthening and reinforcing a particular structure.
- Children will learn how to follow a set of instructions to prepare food in a safe and hygienic manner.

Skills:

- Create a step-by-step plan that meets a range of requirements, showing what equipment and tools children will need.
- Use a range of tools and equipment accurately and safely.
- Evaluate products and suggest ways they could change their design to make it even better.
- Strengthen, stiffen or reinforce a particular structure.
- Use mechanical systems (e.g. gears, pulleys, levers and linkages, pneumatics)

Vocabulary

Anchor words	Goldilocks words	Step on words
product	durable	structure
evaluate	pneumatics	innovative
design	air pressure	mechanical
stable	research	complex
improve	stiff	strengthen
speed	safety	function
instructions	healthy	appealing
healthy	varied	processed

Design and Technology

Progression of conceptual knowledge, skills & vocabulary

Year 4



Year 4

Projects: Purses – Autumn 2; Lighthouse – Summer 2;

Savoury dishes – Spring 2

Knowledge:

- Children will learn how to use a range of tools and equipment, such as modelling tools and sewing needles accurately and safely.
- Children will be designing an appealing and functional product aimed at a particular individual. They will use existing design to create their design criteria.
- The children will explore and practise a range of stitches; running, backstitch and overcast.
- They will use these stitches to create a strong, durable money container and then evaluate this against their design criteria, suggesting improvements that can be made.
- Through our World Kitchen topic, children will learn what constitutes a healthy, varied meal and will create a labelled diagram to show their own diet and a healthy diet.
- Children will learn how to peel, cut and grate vegetables by using appropriate tools in a safe and hygienic manner.
- Children will work in groups to cook two savoury dishes after they have researched their chosen recipes. They will learn how to use a hob under adult supervision.
- They will evaluate their two dishes after tasting it and suggest which they preferred.
- Children will learn that an electrical system uses bulbs, batteries, wires and switches to create a circuit.
- They will learn how to create a circuit and use this knowledge to make a lighthouse light up.

Skills:

- Produce a plan to improve a product, explaining what is good and what needs to be improved from the original design
- Describe how to use a range of tools and equipment to be both hygienic and safe
- Evaluate their product and explain how they can improve their original design, thinking of both appearance and the way it works
- Understand and use electrical systems in their products (e.g. series circuits, incorporating switches, bulbs, buzzers and motors)
- Cook a variety of healthy savoury dishes, using a range of cooking techniques

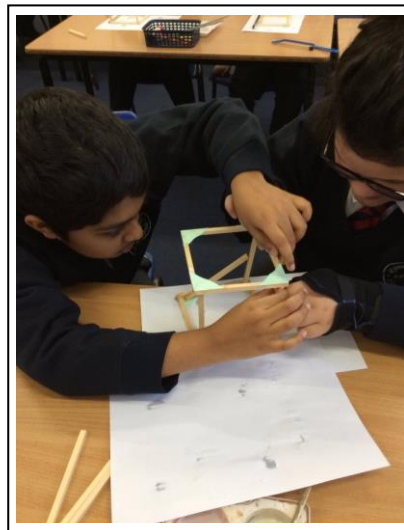
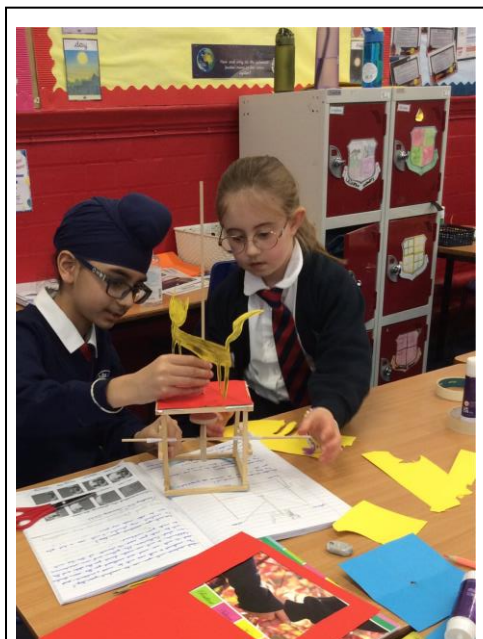
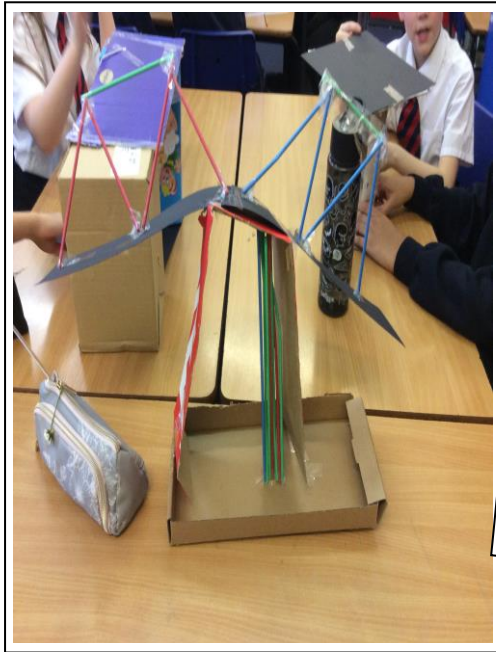
Vocabulary

Anchor words	Goldilocks words	Step on words
thread	purpose	varied
strong	overcast	electrical
label	components	strengthen
safety	seam	stiffen
design	innovative	reinforce
product	structure	circuit
evaluate	savoury	repertoire
healthy	nutritious	vegetarian

Design and Technology

Progression of conceptual knowledge, skills & vocabulary

Year 5



Year 5 – Design and Technology throughout the school year

Projects: Bridge – Autumn 2; Moving Toys – Spring 2;

Tacos/Burritos – Summer 2

Knowledge:

Children will learn:

- Through creating a moving toy, children will learn how mechanical systems such as cams, pulleys and gears create movement.
- Children will learn to produce a detailed plan, with step-by-step instructions, cross-sectional diagrams and prototypes. They will learn how to suggest alternative plans, considering the positive aspects and drawbacks of each.
- Children will learn how to evaluate the appearance and function of a product (own and pre-existing) against the original criteria, saying whether it is fit for purpose.
- Children will learn how to suggest improvements that could be made, considering materials and methods that have been used.
- Children will learn how to use a range of tools and equipment, such as saws and wooden dowel, expertly.
- Children will learn how to consider the aesthetic qualities and functionality of their work when making. They will learn how to use construction materials, such as wood, appropriately.
- Through creating a Mexican meal, children will learn how to cut, mix, mould and will begin to use hobs to heat food with appropriate supervision.

Skills:

- Come up with a range of ideas, select one based on evidence, then produce a detailed step-by-step plan with precise measurements.
- Use a range of tools and equipment and explain what they need to do for Health & Safety reasons
- Evaluate appearance and function of their product against the original criteria
- Strengthen, stiffen or reinforce a more complex structure based on information they know
- Explain why they have chosen to use a particular mechanical system (e.g. gears, pulleys, cams, levers and linkages) or electrical system (e.g. series circuits incorporating switches, bulbs, buzzers and motors) in their product (using computing to programme, monitor or control the product if appropriate)
- Cook a variety of healthy savoury dishes, using only locally sourced ingredients.
- They will know where and how a variety of ingredients are grown, reared, caught and processed.
- They will use some of these ingredients to create their tacos and burritos.

Vocabulary

Anchor words	Goldilocks words	Step on words
joins	strengthen	integration
evaluate	assemble	rigidity
glue	reinforce	slider
net	mechanism	suspension
corners	cam	aesthetics
combine	dimensions	proportions
measure	techniques	season
texture	locally sourced	garnish

Design and Technology

Progression of conceptual knowledge, skills & vocabulary

Year 6



Year 6 – Design and Technology throughout the school year

Projects: Fairground Ride – Autumn 1; Slippers – Spring 1;

Burgers – Summer 2

Knowledge:

Children will learn:

- Through creating a Viking banquet, children will learn how to select food sources based on whether they can be locally sourced. They will take into consideration the most appropriate growing conditions for the vegetables and fruits they are using; how animals are reared to produce meat and dairy products; and the processes that foodstuffs such as milk go through to become other dairy products such as cheese or yoghurt.
- They will learn different methods of cutting and chopping and use hobs/oven to heat food with appropriate supervision.
- They will be making vegetable/vegan burgers using a broad range of ingredients.
- The children will generate, develop, model and communicate their idea of a ride through discussion, annotated sketches, cross-sectional and exploded diagrams.
- Through cross-curricular links to computing, children will use programming and computer aided design to design a fairground ride.
- They will understand and use [electrical systems](#) [for example, series circuits incorporating switches, bulbs, buzzers and motors] in their fairground ride.
- The children will design a slipper and use a range of materials and components to join their slipper together using different types of stitching.
- Children will test their creation, make prototypes to be used in their finalised product and evaluate what they have produced ensuring that the designs they have created match their intended product.
- Children will learn how to make improvements, altering materials and methods accordingly.

Skills:

- Convincingly justify their plan to someone else (e.g. why they have selected specific materials or market research evidence).
- Use tools and materials precisely, changing the way they are working if necessary.
- Come up with a way to test and evaluate their final product (e.g. creating a set of questions i.e. Does it meet the design criteria?).
- Explain how they have strengthened, stiffened or reinforced a complex structure.
- Evaluate and improve how their mechanical systems or electrical systems work (using computing to programme, monitor or control the product if appropriate).
- Apply the principles of a healthy and varied diet to prepare and cook a variety of predominantly savoury dishes, using a range of cooking techniques and taking seasonality into account along with where and how ingredients are grown, reared, caught and processed.

Vocabulary

Anchor words	Goldilocks words	Step on words
elastic	precise	components
feedback	exploded diagram	techniques
questionnaire	rotate	structure
natural	annotate	prototypes
packaging	aesthetics	series circuit
recycling	nutrition	axis
knead	processed	substitute
ingredients	seasonality	characteristics