



'The Big Ideas' For Design Technology

Key Concepts

User

Pupils should have a clear idea who they are designing and making products for, considering their needs, wants and preferences. The intended users could be themselves or others, an imaginary or story-based character, a client, a consumer or a specific target group.

Purpose

Pupils should be able to clearly communicate the purpose of the products that they are designing and making. Each product should be designed to perform one or more defined tasks pupils' products should be evaluated through use.

Design decisions

Pupils need opportunities to make their own design decisions. This will allow them to demonstrate their creative, technical and practical expertise and draw on learning from other subjects.

Functionality

Pupil design and make products that work/ function effectively in order to fulfil the users needs, wants and purposes.

Innovation

When designing and making, pupils need some scope to be original with their thinking. Projects that encourage innovation lead to a range of design ideas and products being developed and are characterised by engaging open-ended starting points for learning

Authenticity

Pupils should design and make products that are believable, real and meaningful to themselves and others.

Nutrition

Pupils should learn about cooking and nutrition through real life scenarios in order to prepare them for later life. They should learn about where their food comes from, how to eat healthily as well as how to follow recipes to prepare a variety of meals

Design process progression

	KS1	LKS2	UKS2
Exploring (NC Link: Explore, evaluate, investigate & analyse a range of existing products)	<p>With support- understand a product brief and create a group list of design criteria.</p> <p>With the class teacher, deconstruct a product (where possible e-g a toy car, pop up puppet) To explore and discuss questions as a class.</p> <p>What is this product for and who would use it? What materials have been used to make the product? How are the materials joined together? How does it work- what makes it move?</p>	<p>In peer groups, deconstruct a product (where possible) and answer the following questions. What is this product for and who would use it? What impact with the product have on the user What materials have been used to make the product? Why are these good materials to use? What adhesives have been used to join the materials together? What mechanisms or electrical systems does the product have?</p> <p>For Example: how different pneumatic systems work to create a moving part or different ways to make a piece of paper stronger</p> <p>With the class teacher, create a list of design criteria.</p>	<p>Independently deconstruct a product (where possible) and make independent notes on this product under the following titles: User Purpose Materials Features Effectiveness.</p> <p>To explore how things work independently e.g. Taking apart mechanisms and seeing how they work.</p> <p>To research existing products and create their own design criteria.</p>
Designing	<p>Using the information from exploring and researching, generate an idea and make a simple sketch of the idea for the product that meets the given criteria. Talk about their idea and answer the following questions: What will their product do and who is it for? How will their product help/impact the user's life? What materials will they use to make their product? How will they join their materials?</p>	<p>Using the information from exploring and researching, generate an idea and make a detailed sketch or computer-aided design of the idea that meets the given criteria. Add annotations to their sketch/design with regard to the materials to be used, how these materials will be attached, specific design features and what tools they will use to make the product. Children to be given a word bank to choose from.</p>	<p>Using the information from exploring and researching, generate an idea and produce cross-sectional and exploded diagrams that meet the given criteria. Independently add annotations to their diagram with regard to the materials to be used, how the materials will be attached and specific design features. Refine work and techniques as work progresses, continually evaluating the product design. Make a prototype of the design.</p>
Creating	See progression of technical knowledge	See progression of technical knowledge	See progression of technical knowledge
Evaluating	<p>Evaluate their products against a simple design criteria. Did their product match their design? What was the best feature of their design? What could they do to improve their product further?</p>	<p>Identify the strengths and areas for development in their ideas and product. Consider the views of others to improve their work.</p>	<p>To investigate and analyse: How well has their product been designed and made? How well has their product met the needs of the user? How much has the product cost to make? How effective and sustainable are the materials used for the product? How effective was their methods of construction? How robust is the product? Consider the views of others, including intended users, to improve their work</p>

Technical knowledge progression

Structures						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
The Three Little Pigs <i>Simple structures</i> Creating a simple structure using junk modelling.	Baby Bears Chair <i>Freestanding structures</i> Creating a simple freestanding structure.	N/A	N/A	N/A	Tudor Houses <i>Frame structures</i> Creating and reinforcing a structure to strengthen it.	N/A

Mechanisms						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Transport <i>Wheels & Axles</i> Children will learn how to make a simple car using a wheel and axle.	Room on the broom <i>Sliders & levers</i> Children will learn about sliders and levers and choose a mechanism to make a pop-up puppet.	Mrs Armitage's car <i>Wheels & Axles</i> Children will learn how two different axels work and choose one for a purpose.	Moving Monsters <i>Pneumatics</i> Children will learn how to use a pneumatic system to make their toy move.	Celebration Cards <i>levers & linkages</i> Children will learn how linkages can be used to create new movements.	WWF Animals <i>Cams</i> Children will learn how different cams work and choose one to suit the movement of their chosen animal.	N/A

Textiles						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Crafting <i>Selecting materials for a purpose</i> Children will explore using different materials.	N/A	Puppeteers <i>Templates & joining</i> Children will learn how to make a paper pattern and how to join two pieces of material using a running stitch.	Making a bag <i>2D shape to 3D product</i> Children will learn how to use C.A.D create a pattern. Children will use a	N/A	N/A	WW1 Grab Bag <i>Combining Different Fabrics</i>

Electrical Systems						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
N/A	N/A	N/A	N/A	Making a torch <i>Simple circuits & Switches</i>	N/A	Making a game <i>Switches & Monitoring Sytems</i>

Food						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Fruit Kebabs <i>Healthy Foods</i></p> <p>Children will learn about fruits and vegetables and why they are good for us. They will learn how to wash them and to cut soft fruits.</p>	<p>A Healthy Picnic <i>Balanced diets</i></p> <p>Children will learn about the different food groups and which are better for us. They will choose a food from each food group. Children will learn how to make a sandwich</p>	<p>Making a rainbow pizza <i>Where our food comes from</i></p> <p>Children will learn where different foods come from. Children will learn how to make dough.. Children will learn how treat foods could be made healthier.</p>	<p>Soups <i>Seasonality</i></p> <p>Children will learn about seasonality and which vegetables are in season. Children will learn how to follow a recipe to make a soup using seasonal vegetables.</p>	<p><i>Varied Diets</i></p> <p>Children will learn about the food groups in more depth and learn what the different things do for our body.</p>	<p>Curry <i>Celebrating Culture</i></p> <p>Children will learn about different cultures and foods enjoyed by different cultures. They will learn about foods enjoyed in England and learn where they first came from. They will make a vegetable curry.</p>	N/A

Tool use: <i>See risk assessment for tool use</i>						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children will learn how to hold and use scissors safely.	Children will use scissors safely and learn how to make a hole in card, using a pencil.	Children will use plastic sewing needles to join materials together.	Children will learn how to cut thicker materials safely using scissors. Children will use sewing needles	Children will learn how to use batteries safely. Children will learn to use craft knives, ensuring metal rulers are used.	Children will learn how to use handsaws and bench hooks. Children will use glue guns.	Children will use sewing needles.

FOUNDATION STAGE

EYFS Autumn Term: Mechanisms	
Development Matters Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> • Develop their small motor skills so that they can use a range of tools competently, safely and confidently • Use a range of small tools, including scissors, paintbrushes and cutlery. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 	<p>To make a car for Kipper the dog.</p> <p><u>Big Ideas</u> texture, joining, planning</p> <p><u>New Learning and Vocabulary</u> Know the names of different types of transport- train, car, lorry, ferry, tram, motorbike, bicycle, scooter, bus, taxi, aeroplane Know that wheels need to turn in order for the car to move Know what an axle is and how it makes a wheel move round Know how to join an axle to the main body of car using a range of different materials.</p>

EYFS Spring Term: Structures	
Development Matters Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> • Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Choose the right resources to carry out their own plan. • Develop their own ideas and then decide which materials to use to express them • Share their creations, explaining the process they have used. • Create collaboratively, sharing ideas, resources and skills. 	<p>To make a new house for the three little pigs.</p> <p><u>Big Ideas</u> constructing, joining, balancing</p> <p><u>Revision</u> Using tools safely, planning, joining</p> <p><u>New Learning and Vocabulary</u> creating structures using a variety of materials to explore which materials make the best house</p> <p><u>OUTCOME- Making a House from Junk Modelling</u></p>

	<p>Know about the different parts of the house (door, windows, roof, chimney, porch)</p> <p>Know how to make a house from junk modelling</p> <p>Know about the different resources available for junk modelling</p> <p>Know to choose the strongest resources to make your house</p> <p>Know how to attach the different parts of the house using glue, sellotape, masking tape</p> <p>Know how to hold and use scissors correctly</p>
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EYFS summer Term: Food Technology	
Development Matters Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> • Use a range of small tools, including scissors, paintbrushes and cutlery. • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing 	<p>To make a fruit kebab.</p> <p><u>Big Ideas</u> health, exercise, healthy foods</p> <p><u>New Learning and Vocabulary</u> Key Vocabulary- Healthy, Unhealthy, Fat, Vegetable, sugar</p> <p>Know that healthy foods can help to give our bodies the vitamins and nutrients it needs</p> <p>Know that in order to be healthy our bodies needs a balanced diet</p> <p>Know that a balanced diets means eating lots of different food- some we need more of than others</p> <p>Know that some foods- fruits and vegetables- should be eaten 5 times a day</p> <p>Know the names of some foods that are healthy</p> <p>Know that other foods should only be eaten as a treat- sugary foods</p> <p>Know that surgery foods are not good for our teeth</p> <p>Know that different foods are from different food groups</p> <p>Know the following food groups- fruits, vegetables, dairy, fats, sugary food, carbohydrates and some food that are in them.</p>

YEAR ONE

Year 1 AutumnTerm: Structures	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> ▪ design purposeful, functional, appealing products for themselves and other users based on design criteria ▪ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ▪ select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> ▪ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ▪ build structures, exploring how they can be made stronger, stiffer and more stable 	<p><u>User Purpose</u> To make a house for a mouse that will keep it warm during hibernation.</p> <p><u>Functionality</u> Children will make a house that is an appropriate size for a mouse, that uses materials which could keep the mouse warm.</p> <p><u>Big Ideas</u> Building freestanding structures, joining materials</p> <p><u>Revision</u> using construction materials, using basic tools, following the research, design, make, evaluate process</p> <p><u>New Learning</u> -explore a range of free standing structures in the school and local environment - to generate designs based upon design criteria -to learn how to strengthen structures- what shapes would be strongest? - evaluate their structure by discussing how well it works in relation to the purpose, user and whether it means the original design criteria.</p> <p><u>Vocabulary</u></p>

<p>Big Questions</p> <ul style="list-style-type: none"> -What is a freestanding structure? -How will Baby Bear’s chair stand up -Can you make a chair for Baby Bear? -Can you reinforce your chair? (Can you make your chair stronger?) -Was your chair strong enough for Baby Bear? 	<p>structure, base, side, edge, surface, corner, frame, joining, attaching, strengthen</p>
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<p>Year 1 Spring Term : Mechanisms</p>	
<p>National Curriculum Objectives</p>	<p>Key Knowledge and vocabulary</p>
<p>Design</p> <ul style="list-style-type: none"> ▪ design purposeful, functional, appealing products for themselves and other users based on design criteria ▪ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] <p>Evaluate</p> <ul style="list-style-type: none"> ▪ explore and evaluate a range of existing products <p>Technical knowledge</p> <ul style="list-style-type: none"> ▪ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. <p><u>Cross Curricular links</u></p> <p>-History- Toys</p>	<p>User , Purpose To make a pop up puppet to retell the story “room on the broom”</p> <p>Functionality Children should make a toy with a simple slider that will enable the toy to pop up.</p> <p>Design Decisions Children will have free choice over what materials they use for the pop up character, they can choose to make whatever character they think would be appealing to other children.</p> <p>Authenticity Although children have some free choice over what and how they are going to make a puppet, the focus on a particular book will ensure that their product will be believable and meaningful.</p> <p>Big Ideas Mechanisms- sliders and levers joining, planning, problem solving</p> <p>Revision using tools safely, joining materials, materials (science)</p> <p><u>New Learning</u></p>

<p>- Science- Materials</p> <p><u>Big Questions</u></p> <p>-What are sliders and levers and how do they work?</p> <p>-Can you design a pop up puppet to retell the story of “Room on the Broom”?</p> <p>-What materials will you make your toy from and why?</p> <p>-Can you use your design to make a pop up puppet?</p> <p>-Did your puppet meet Millie's design criteria?</p>	<p>- to understand that different mechanisms produce different kinds of movements, to explore existing products</p> <p>-generate ideas based on simple design criteria, (drawing an annotated diagram)</p> <p>- exploring and using joining techniques</p> <p>- discussing what went well, how their product works in relation to the purpose and design criteria</p> <p><u>Vocab</u></p> <p>Mechanism, lever, slider, annotate, design, design criteria, polystyrene</p>
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<p>Year 1 Summer Term: Food</p>	
<p>National Curriculum Objectives</p>	<p>Key Knowledge and vocabulary</p>
<ul style="list-style-type: none"> ▪ use the basic principles of a healthy and varied diet to prepare dishes ▪ understand where food comes from. <p><u>Cross Curricular links</u></p> <p>-PSHE- Healthy Eating</p> <p>- Bucket list- to have a class picnic</p> <p><u>Big Questions</u></p> <p>-What are the main food groups?</p> <p>-Where does our food come from?</p> <p>-What foods are considered healthy and unhealthy?</p> <p>-Can you plan a healthy lunch?</p> <p>-Can you make a healthy lunch?</p>	<p><u>User Purpose & Nutrition</u></p> <p>To make themselves a healthy lunch for a class picnic.</p> <p><u>Big Ideas</u></p> <p>Healthy food, seasonality, preparation</p> <p><u>Revision</u></p> <p>naming fruits and vegetables</p> <p><u>New Learning</u></p> <p>-to be able to sort fruits and vegetables into two different piles</p> <p>- to be able to name the food groups and discuss which foods are better for us</p> <p>-to use utensils to prepare vegetables, using appropriate safety measures</p> <p>- Exploring the eatwell guide</p> <p><u>Vocabulary</u></p> <p>grain, dairy, utensils, equipment, slicing, cutting, spreading</p>

YEAR TWO

Year 2 Autumn Term: Food	
This core concept was explored before in year 1	
National Curriculum Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> ▪ use the basic principles of a healthy and varied diet to prepare dishes ▪ understand where food comes from. <p><u>Cross Curricular links</u></p> <p>-PSHE- Healthy Eating</p> <p><u>Big Questions</u></p> <p>-Where does our food come from?</p> <p>-How are our foods made?</p> <p>-What do we need to make a pizza?</p> <p>-Can you make a dough?</p> <p>-Can you make a rainbow pizza?</p>	<p><u>User , Purpose & Nutrition</u></p> <p>To make themselves a healthier pizza for lunch..</p> <p><u>Big Ideas</u></p> <p>Where food comes from, healthy foods</p> <p><u>Revision</u></p> <p>Healthy eating, where food comes from, hygiene</p> <p><u>New Learning</u></p> <p>To know how bread is made and understand that flour is made from wheat.</p> <p>To know how to use a recipe to plan a shopping list.</p> <p>To know how to follow a recipe to make food.</p> <p><u>Vocabulary</u></p> <p>Knead, dough, yeast prove, plan</p>
Year 2 Spring Term: Mechanisms	
This core concept was explored before in year 1	
National Curriculum Objectives	Key Knowledge and vocabulary
<p><u>Design</u></p> <ul style="list-style-type: none"> ▪ design purposeful, functional, appealing products for themselves and other users based on design criteria 	<p><u>User & Purpose</u></p> <p>To design and make a fast car for Mrs Armitage to win a race</p>

<ul style="list-style-type: none"> ▪ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] <p>Evaluate</p> <ul style="list-style-type: none"> ▪ explore and evaluate a range of existing products ▪ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ▪ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. <p>Big Questions</p> <ul style="list-style-type: none"> -What are wheels and axles? -Can you design a car for Mrs Armitage? -Can you make a car with working wheels and axles? -Which kind of axle made the fastest car? 	<p>Functionality</p> <p>Children will make a car with functioning wheels and axles. They will learn about different types of axles and explore which type of axle makes a faster car.</p> <p>Big Ideas</p> <p>Mechanisms: wheels & Axles</p> <p>Revision</p> <p>Mechanisms explored in Year 1- sliders and levers project joining, cutting, research, design, make, evaluate process</p> <p>New Learning</p> <p>How fixed axles work. how free axles work. How to draw an annotated sketch How to assemble a wheel & axle mechanism and attach it to a chassis. How to evaluate a product.</p> <p>Vocabulary</p> <p>mechanism, axle, wheel, annotate, fixed axle, free axle, chassis, axle holder, assembling</p>
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Year 2 summer Term: Textiles	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> ▪ design purposeful, functional, appealing products for themselves and other users based on design criteria ▪ generate, develop, model and communicate their ideas through talking, 	<p>User & Purpose Can you make a puppet of a Zog Character and use it to retell the story to year 1. In year 2 we read Julia Donaldson texts. We want to show year 1 children how exciting it is in year 2.</p> <p>Functionality</p>

drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Cross Curricular links

-Literacy- fairytales & storytelling

Big Questions

- How are puppets made? (look at existing products)**
- Can I make a pattern for a puppet?**
- What materials will you make your puppet from?**
- Can you use your design to make your puppet?**
- Did your puppet meet the design criteria?**

Children will make a working puppet that will fit on their hand.

Big Ideas

sewing, cutting material, joining fabrics.

Revision

Research, design, make, evaluate process.
materials (science & DT)

New Learning

- Looking at paper patterns and existing products and creating their own criteria for what makes a good puppet

- **Making paper prototypes**

- cutting fabric, sewing

Assessing if it is aesthetically pleasing and fit for purpose

Vocabulary

fabric, sew, thread, needles, aesthetic, criteria, stitch, running stitch, pattern, template.

YEAR THREE

Year 3 Autumn Term: Food

This core concept was explored before in years 1 and 2

National Curriculum Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <p>Cross Curricular links</p> <p>-PSHE- Healthy Eating</p> <p>Big Questions</p> <p>-What is a healthy and varied diet?</p> <p>-Why is soup such a good food to eat?</p> <p>-Which was your favourite soup?</p> <p>-How do we make soup?</p>	<p>Can I make a healthy, tasty soup that my family will enjoy?</p> <p><u>Project</u>- Making a vegetable soup</p> <p><u>Big Ideas</u> following a recipe, to understand how ingredients are grown</p> <p><u>Revision</u> preparing vegetables, healthy eating concepts</p> <p>New Learning measuring ingredients precisely, understanding how tomatoes and carrots are grown. To understand where their food comes from.</p> <p><u>Vocabulary</u> measure, grate, weigh, blend, simmer, boil</p>

Year 3 Spring Term: Mechanical Systems (pneumatics)	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through... exploded diagrams... <p>Make</p>	<p>Can I make a moving toy for a child in Foundation to play with?</p> <p><u>Project</u>- Making a moving toy</p> <p><u>Big Ideas</u> Pneumatics</p> <p><u>Revision</u> Mechanisms have been explored in years 1& 2 (sliders & levers, Wheels & axles)</p>

<ul style="list-style-type: none"> ▪ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ▪ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> ▪ investigate and analyse a range of existing products ▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical Knowledge</p> <ul style="list-style-type: none"> ▪ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] <p>Big Questions</p> <ul style="list-style-type: none"> -How can pneumatics make a toy move? -Can you design your own moving toy? -Can you make your design come to life? -Did your toy meet the design criteria? <p>Was your moving toy successful?</p>	<p>joining techniques, research, design, make, evaluate process</p> <p>New Learning</p> <ul style="list-style-type: none"> - exploring how pneumatics work (children could use a pneumatics system that uses a balloon that inflates to move/ open their toy or then could use a syringe system whereby pushing one syringe would force air through the system and push the other syringe out) - drawing an exploded diagram to show their design - using syringes and plastic tubing as a pneumatic system to create a toy <p>Vocabulary</p> <p>Pneumatics, air pressure, syringe, junction, exploded diagram, tubing, pressure, compression, inflate/deflate.</p>
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Year 3 summer Term: Textiles	
This core concept was explored before in year 2	
National Curriculum Objectives	Key Knowledge and vocabulary
Design	<p>Can I make a purse for a Roman soldier?</p> <p>Big Ideas</p> <p>2d shape to 3d product- making a purse using a 3D pattern</p>

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

- generate, develop, model and communicate their ideas through discussion ...pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

- select from and use a wider range of materials and components, including ... textiles.. according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products

- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Technical Knowledge

- apply their understanding of computing to program, monitor and control their products.

Big Questions

-How are materials joined and finished to make a puppet?

How are materials joined to make a bag?

-Can you design your own Roman coin purse?

-Can you follow your design to make a Roman coin purse?

-Was your Roman coin purse successful?

Revision

In year 2 the children made a puppet, the children have joined fabric in simple ways using glueing and stitching. They have used simple templates to mark out and they have evaluated their products.

New Learning

-Using a paper pattern

- Using CAD- wildthings to create a pattern (New)

-ensuring that their purse has a seam allowance

- Using their paper pattern to create their own purses

Vocabulary

applique, pattern/ template, seam, compartment, seam allowance, pattern

YEAR FOUR

Year 4 Autumn Term: Food

This core concept was explored before in years 1,2 and 3	
National Curriculum Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> ▪ understand and apply the principles of a healthy and varied diet ▪ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques ▪ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 	<p><u>Project</u> Making a cheese scone?</p> <p><u>Big Ideas</u> Balanced meals, nutrition, baking</p> <p><u>Revision</u> baking, preparing ingredients, weighing Children in Y1 & 2 have learnt about aspects of the eatwell guide- foods have been categorised as meat, grains, dairy, fruits and vegetables</p> <p><u>New Learning</u> proteins, carbohydrates (children have learnt about food groups previously but have learnt about meat/ grains/ dairy etc- This can be extended upon to learn about carbohydrates & Proteins. -How to weigh accurately</p> <p><u>Vocabulary</u> sift, weigh, form, carbohydrates, protein, dairy, vegetables, fruit , balanced</p>

Year 4 Spring Term: Mechanical Systems (Levers and Linkages)	
This core concept was explored before in year 3	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> ▪ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups 	<p><u>Project</u> Making a celebration card for _____ with moving parts.</p> <p><u>Big Ideas</u></p>

<ul style="list-style-type: none"> ▪ generate, develop, model and communicate their ideas through discussion, ... prototypes.. <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ▪ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> ▪ investigate and analyse a range of existing products ▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical Knowledge</p> <ul style="list-style-type: none"> ▪ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] <p>Big Questions</p> <ul style="list-style-type: none"> -What are levers and linkages? -Can you plan to use levers and linkages in your celebration card? -What steps will you follow to make your moving picture? -What went well with your project? 	<p>Levers and linkages</p> <p><u>Revision</u> Children in year 1 have made a toy using simple sliders & levers</p> <p><u>New Learning</u> Levers and linkages- What are they? How do they work? Children to explore how levers can be connected to create new movements (e.g to create an up and down movement rather than an arc or connected like scissors to create a forward movement) Children will explore different types of levers and linkages before choosing one that they like best and re-creating using card and split pins. Children will make a moving picture that uses links and levers.</p> <p><u>Vocabulary</u> mechanism, lever, linkage, pivot, bridge,, prototype.</p> <p>Movement types (linear, rotary, oscillating, reciprocating)</p>
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Year 4 summer Term: Simple Circuits and Switches	
National Curriculum Objectives	Key Knowledge and vocabulary
Design	<u>Project</u> Make a torch

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, ... exploded diagrams....

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components

Evaluate

- investigate and analyse a range of existing products
- understand how key events and individuals in design and technology have helped shape the world

Technical Knowledge

- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

Cross Curricular links

-Science- Electricity

Big Questions

-What are the features of a torch and how does it work?

How does a torch work?

-What materials will you use and what will it look like?

What will you use to make a torch?

-How will you design a torch with a switch?

-What steps are you going to follow to make your torch?

How do you make a torch?

-Did it work and what went well with your finished product?

Big Ideas

Making electrical circuits, making switches, designing and making outer casing

Revision

Links with electricity in Science

New Learning

-Use an exploded diagram to design their own torch

-Make a variety of switches

-Making prototypes

Vocabulary

series circuit, fault, connection, switch, battery, battery holder, bulb, wire, insulator, conductor, crocodile clip

YEAR FIVE

Year 5 Autumn Term: Structures	
This core concept was explored before in year 1	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none">▪ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups▪ generate, develop, model and communicate their ideas through discussion, ... cross-sectional ... <p>Make</p> <ul style="list-style-type: none">▪ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <p>Evaluate</p> <ul style="list-style-type: none">▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work▪ understand how key events and individuals in design and technology have helped shape the world <p>Technical Knowledge</p> <ul style="list-style-type: none">▪ apply their understanding of how to strengthen, stiffen and reinforce more complex structures <p><u>Cross Curricular links</u></p> <p>-Maths- 3D shapes & measuring.</p> <p><u>Big Questions</u></p>	<p><u>Purpose</u></p> <p>Making a tudor house to recreate the fire of London</p> <p><u>Authenticity</u></p> <p>Children will make a realistic model of a tudor house.</p> <p><u>Big Ideas</u></p> <p>Creating structures, 3D drawings, woodwork</p> <p><u>Revision</u></p> <p>3D shape, research, design, make, evaluate process</p> <p><u>New Learning</u></p> <p>Using saws and clamps, creating a frame structure, reinforcing joints, what can be used to reinforce the weak joints? How to use a link jointer to create a perfect right angle joint.</p> <p><u>Vocabulary</u></p> <p>structure, frame, construct, reinforce, joint</p>

<p>-What did Tudor houses look like and what were they made from? -Can I make and strengthen a cuboid structure? -How can I use a saw safely and accurately How can I use a saw safely? - How can I join and reinforce my structure? How can I make my house strong? -Can I construct and decorate my Tudor house? How can I decorate my Tudor house? -Was my Tudor house a success? Was my Tudor house good?</p>	
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Year 5 Spring Term: Mechanical Systems (pulleys and gears)	
This core concept was explored before in years 3 and 4	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <p>Evaluate</p>	<p>To make a mechanical animal for the WWF to raise awareness about endangered animals.</p> <p>Innovation</p> <p>Children will make their own design decisions about what animal they would like to create, what movement it should make and which CAM would be most appropriate to use to create that movement.</p> <p><u>Big Ideas</u></p> <p>Mechanisms, CAMs, using tools</p>

<ul style="list-style-type: none"> ▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical Knowledge</p> <ul style="list-style-type: none"> ▪ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] <p>Cross Curricular links</p> <p>SMSC- why is it important to raise awareness about endangered animals?</p> <p>Big Questions</p> <ul style="list-style-type: none"> -How might CAMs be used to create different movements? How do CAMs make things move? -What are your design criteria and how will you meet each one? What does your product need to have? -Can you make your mechanism to make your endangered animal move? -Can you adapt and improve your product? How could you make your product better? -Does your product meet your design criteria? 	<p><u>Revision</u></p> <p>Research, Design, make, evaluate process</p> <p>Mechanisms have been explored in years 1 (sliders), 2(wheels & axles) 3, pneumatics and 4 (levers).</p> <p><u>New Learning and Vocabulary</u></p> <p>To explore the different movements that each cam type can create and choose which would be most appropriate to use for their chosen animal e.g. pear cam to make blue whale slowly rise and fall through water/ snail cam to make black rhino head jerk up etc.</p> <p>-To draw their design using a cross section to show the inner mechanism</p> <p>CAM, snail cam, off centre cam, pear shaped cam, follower, axle, guide , crank, linear motion, rotary motion, mechanical system, components, off centre, cross section.</p>
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Year 5 summer Term: Food	
This core concept was explored before in years 1,2,3 and 4	
National Curriculum Objectives	Key Knowledge and vocabulary
<ul style="list-style-type: none"> ▪ understand and apply the principles of a healthy and varied diet ▪ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques ▪ understand seasonality, and know where and how a variety of ingredients 	<p><u>Project</u></p> <p>Making a curry using seasonal vegetables- celebrating culture and seasonality.</p> <p><u>Big Ideas</u></p>

are grown, reared, caught and processed.

Big Questions

-What is a curry?

-What vegetables are currently in season?

-What ingredients do I need for my curry?

-How do I prepare and cook my curry?

Healthy eating, celebrating cultures, following a recipe, seasonality

Revision

Following a recipe, what makes a healthy meal

New Learning and Vocabulary

What dishes are certain countries famous for? Children will explore the national dishes of different countries.

Why are some foods better and certain points of the year? Are there any foods that we can't get all year round? Children will learn about seasonality and which vegetables might be best to make their curry at this point of the year.

Culture, Seasonality, simmer, produce (noun), vegetarian, season, ripe, harvest.

YEAR SIX

Year 6 Autumn Term: Textiles

This core concept was explored before in years 1 and 5

National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> ▪ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ▪ generate, develop, model and communicate their ideas through discussion, .. prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <p>Evaluate</p> <ul style="list-style-type: none"> ▪ investigate and analyse a range of existing products ▪ understand how key events and individuals in design and technology have helped shape the world <p>Cross curricular links: Computing, History</p> <p>Big Questions</p> <ul style="list-style-type: none"> -How is a drawstring bag constructed? How is a drawstring bag made? -How do you make a drawstring bag? -What stitch will you use to join your material? What stitch will you use? -What makes a successful design? What makes a good bag? 	<p>Project</p> <p>-Make, do and mend - building from WWII topic. Making bags, purses, small wearable items.</p> <p>Big Ideas</p> <p>-Combining different fabrics</p> <p>Revision</p> <p>Sewing in year 2 (puppets) and 3 (purses)</p> <p>New Learning</p> <p>Children will learn to make paper patterns using “Wildthings” CAD, then alter and refine them once printed.</p> <p>Children will learn to select materials carefully based on looks, texture, thickness (also how easy a needle can pass through)</p> <p>Children will learn stitching techniques appropriate to the product they are creating. They will learn how to start and finish off their sewing to prevent the thread coming loose.</p> <p>Vocabulary</p> <p>wadding, reinforce, right side, wrong side, hem, template, pattern pieces, functionality, authentic</p> <p>Computer Aided Design (CAD)</p>

Year 6 Spring Term: Electrical Systems	
This core concept was explored before in year 4	
National Curriculum Objectives	Key Knowledge and vocabulary
<p>Design</p> <ul style="list-style-type: none"> ▪ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ▪ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> ▪ select from and use a wider range of materials and components <p>Evaluate</p> <ul style="list-style-type: none"> ▪ investigate and analyse a range of existing products ▪ understand how key events and individuals in design and technology have helped shape the world <p>Technical Knowledge</p> <ul style="list-style-type: none"> ▪ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ▪ apply their understanding of computing to program, monitor and control their products. <p><u>Cross Curricular links</u></p> <p>-Science- Electricity</p> <p><u>Big Questions</u></p> <p>-How does electricity work and how can a circuit be created?</p> <p>-How can electricity help make a game?</p> <p>How can you use tools safely and effectively?</p>	<p>Making an electronic game with an alarm to play with a friend.</p> <p><u>Revision</u></p> <p>Electricity topic in science & revisit of electrical systems (taught in Y4- making torches)</p> <p><u>New Learning and Vocabulary</u></p> <p>Children will learn how to add an alarm to an electronic game. They will explore how to create a circuit and then plan how this can be added into their game.</p> <p>The will learn how to complete a circuit and explore different materials to use in their game (e.g tin foil, wire)</p> <p><u>Conduct, electricity, alarm, buzzers, control, circuit, closer circuit, series circuit.</u></p>

-Did your design work?	
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Adaptations made in consideration of our cultural capital:

Food technology revisited yearly to ensure that the children have a good understanding of how to lead a healthy lifestyle and to set them up with the skills that they will need in the future to ensure that they can cook for themselves and create meals based on a healthy and varied diet. An extra “research” step was added to the design, make, evaluate process to ensure that learning was purposeful and linked to real life. Children have ample opportunity to revisit topics (Mechanisms, structures, textiles, food, electrical systems) so that they are familiar but then built up in complexity year by year.