



Design and Technology Medium Term Planning

Year 4



Key Concept Overview

Key Concepts	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design 	<p>-I am beginning to design products using pictures and words based on a design criteria.</p> <p>-I use pictures, words and models to convey what I want to design.</p>	<p>-I use simple drawings and labels to record my ideas.</p> <p>-I design products that have a clear purpose based on my own design criteria.</p>	<p>-I can research similar products to develop my own design ideas.</p> <p>-I am able to develop a design through discussion and annotated sketches to add detail to my design.</p>	<p>-I generate and develop ideas using exploding diagrams and prototypes.</p> <p>-I use different ways to creatively record and present my designs to show they are fit for purpose.</p>	<p>-I can generate and develop ideas using pattern pieces and computer aided design.</p>	<p>-I generate and develop ideas using a variety of design techniques.</p> <p>-I justify my plans in a convincing way.</p> <p>-I use research and develop design criteria to design innovative functional and appealing products aimed at a specific group.</p>
Make 	<p>-I can choose appropriate resources and tools to make a product.</p> <p>-I can use a range of materials to make a product, including construction materials, textiles and ingredients.</p>	<p>-I can select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing.)</p> <p>-I use a range of materials to make a product, including construction materials, textiles and ingredients and explain why the materials have been selected.</p>	<p>-I can choose a material for both its suitability and its appearance and explain why it has been selected.</p> <p>-I can think ahead about the order of my work, select tools needed for a given task and give reasons for my choices.</p>	<p>-I can choose and use appropriate tools from a wider range to perform practical tasks.</p> <p>-I can choose suitable materials from a wider range and explain its suitability.</p>	<p>-I use a range of appropriate tools competently.</p> <p>-I can join and combine a range of materials competently.</p>	<p>-I select and use specialist tools and equipment to perform practical tasks accurately.</p> <p>-I can select from and use a wider range of materials and components according to their functional qualities and aesthetic qualities.</p>
Evaluate 	<p>-I am beginning to explore and evaluate a range of existing products by evaluating the product against the purpose</p> <p>-I can evaluate my designs and products by saying how well they do the job they were designed for.</p>	<p>-I can explore and evaluate a range of existing products by looking at function and materials.</p> <p>-I can evaluate my ideas and products against set design criteria.</p>	<p>-I can investigate and analyse an existing product by identifying whether it is fit for purpose and how easy it is to use.</p> <p>-I can prove that my design meets some set criteria and evaluate how well it works.</p>	<p>-I can explain why certain materials were used to make existing products.</p> <p>-I can evaluate and suggest improvements for my design.</p>	<p>-I can evaluate appearance and function against original criteria.</p> <p>-I am able to justify decisions made during the design process.</p>	<p>-I can critically evaluate the quality of the design, manufacture and fitness for purpose by comparing existing products</p> <p>-I can evaluate my ideas and products against my own design criteria and consider the views of others to improve my work.</p>
Technical Knowledge 	<p>-I can explore and use simple mechanisms in my products.</p>	<p>-I can build structures, exploring how they can be made stronger, stiffer and more stable.</p>	<p>-I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures.</p>	<p>-I am able to understand and use mechanical systems in my products.</p>	<p>-I can understand and use electrical systems in my products.</p>	<p>-I am able to control and model using an ICT control programme.</p>
Cooking and nutrition 	<p>I can tell you where my food comes from.</p>	<p>I can use a range of ingredients to prepare a healthy dish.</p>	<p>-I can make healthy eating choices from an understanding of a balanced diet.</p> <p>-I can use a range of ingredients to prepare a healthy dish, explain why the ingredients were chosen and the effects on the body.</p> <p>-I can use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading or kneading.</p>	<p>-I can explore a range of cooking techniques to produce a healthy balanced dish.</p> <p>-I can measure out ingredients accurately and use ratios to scale up or down a recipe.</p> <p>-I understand seasonality and know when and how a variety of ingredients are grown, reared, caught and processed.</p> <p>-I understand the importance of correct storage and handling of ingredients.</p>		

DT Whole School Overview

	Autumn		Spring		Summer	
Year 1	Textiles puppets	Food & Nutrition Fruit and Vegetables.	Mechanisms Moving storybook		Structures windmills	Mechanisms Wheels and axels
Year 2	Mechanisms Fairground wheels	Structures Victorian houses	Textiles Easter pouches		Mechanisms Moving monster	Food and nutrition Healthy wraps
Year 3	Mechanical systems Pneumatic toys		Food and nutrition Eating seasonally– vegetable tart		Textiles Cushions	Structures Constructing a castle
Year 4	Electrical systems torches	Textiles Book sleeve	Structures pavilions	Mechanical systems Slingshot chariot	Food and nutrition Adapting a recipe– biscuits *enterprise opportunity	
Year 5	Food and nutrition What could be healthier?	Electrical systems Electronic Christmas cards	Digital world Monitoring device		Structures Bridges	Mechanical systems Making a pop-up book.
Year 6	Structures playground	Mechanical systems Automata toys	Digital world Navigating the world		Food Come dine with me	Electrical systems Steady hand game

Autumn

Year 4

Electrical systems: Torches

Electrical systems: Torches - Kapow Primary

Prior Learning	Can I make an electrical system?				
Vocabulary	Battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire				
End Point	By the end of the unit the children will have designed, made and evaluated their own torches.				
Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
Evaluate 	Similarity and difference Significance	Lesson 1 Lesson 2	OO: To be able to explain why certain materials were used to make existing products. LO: I can evaluate torches.	As part of their knowledge recap, children will explore the difference between 'electrical' and 'electronic' and revisit how to create a simple circuit Lesson 1 KS2: Y4: Design and Technology: Electrical Products - Kapow Primary Lesson 2 KS2: Y4: Design and Technology: Evaluating Torches - Kapow Primary	
Design 	Responsibility Written and oral expression	Lesson 3	OO: To be able to generate and develop ideas using exploding diagrams and prototypes. LO: I can design a torch.	Recap prior learning Lesson 3 KS2: Y4: Design and Technology: Electrical Torch Design - Kapow Primary Children design their torches. Include an exploding diagram of ideas.	
Make 	Responsibility Cause and consequence	Lesson 4	OO: I can choose suitable materials from a wider range and explain its suitability. LO: I can make a torch	Recap prior learning Lesson 4 KS2: Y4: Design and Technology: Torch Assembly - Kapow Primary Children to make their torches according to their designs. Take photographs for evidence.	

Key Concept	Second order concept	Lesson sequence	Learning Objectives	Suggested teaching sequence	Resources
<p>Evaluate</p> 	Written and oral expression	Lesson 5	<p>OO: I can explain why certain materials were used to make existing products and I can evaluate and suggest improvements for my design.</p> <p>LO: I can evaluate my torch and suggest improvements.</p>	Children to evaluate their torch and to say how they can improve their design.	Evaluation to go in DT book

End of unit assessment quiz: [D&T KS2 Assessment Resources. Electrical systems: Torches \(kapowprimary.com\)](https://www.kapowprimary.com/resources/dt-ks2-assessment-resources-electrical-systems-torches/)

Autumn

Year 4

Textiles: World War 2 book sleeve

[Textiles: Fastenings - Kapow Primary](#)

Prior Learning	Do I know different ways to attach fabrics?				
Vocabulary	Aesthetic • Assemble • Book sleeve • Design criteria • Evaluation • Fabric • Fastening • Mock-up • Net • Running-stitch • Stencil • Target audience • Target customer • Template				
End Point	By the end of the unit, children will have designed, made and evaluated simple cushions.				
Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
Evaluate 	Similarity and difference	Lesson 1	OO: To be able to explain why certain materials were used to make existing products. LO: I identify and evaluate different fastenings.	Recap prior learning. Lesson 1 KS2, Y4, DT: Lesson 1: Evaluating fastenings- Kapow Primary Children explore different fastenings around them and consider their advantages and disadvantages.	Fastenings: buttons, ties, press studs.
Design 	Significance Similarity and difference	Lesson 2	OO: I use different ways to creatively record and present my designs to show they are fit for purpose. LO: I can design a book sleeve.	Link learning to WW2: Clothes were rationed and women and children took up sewing during the blackouts and would repurpose fabrics: The women's sewing circles that helped Britain win World War Two Express Yourself Comment Express.co.uk Lesson 2 KS2, Y4, DT: Lesson 2: Designing my book sleeve- Kapow Primary Children devise their own design criteria, select a style of book sleeve and draw their design on paper.	

Key Concept	Second order concept	Lesson sequence	Learning Objectives	Suggested teaching sequence	Resources
Design 	Responsibility Cause and consequence Written and oral expression	Lesson 3	OO: to be able to generate and develop ideas using exploding diagrams and prototypes. LO: I can make a prototype book sleeve from paper.	Lesson 3 KS2, Y4, DT: Paper mock-up and preparing fabric- Kapow Primary Children ensure their design will work, pupils create a paper mock-up before using this as a template to cut out their fabric.	Printed resources Paper for templates Selection of fabrics.
Make 	Responsibility	Lesson 4	OO: To be able to choose and use appropriate tools from a wider range to perform practical tasks and to choose suitable materials from a wider range and explain its suitability. LO: I can choose appropriate tools, fabrics and fastenings to make my book sleeve.	Lesson 4: KS2, Y4, DT: Paper mock-up and preparing fabric- Kapow Primary Children to attach their fastenings and decorate their book sleeve in accordance with their designs. Take photographs for evidence.	Thread Needles Fabric glue Fastenings— buttons, ties, press studs.
Evaluate 	Written and oral expression Similarity and difference	Lesson 5	OO: I can evaluate and suggest improvements for my design. LO: I can evaluate my book sleeve.	Children to evaluate their book sleeve and suggest improvements. Evaluation to be written in DT books.	

End of unit assessment quiz: [Assessment Resources KS2 D&T: Textiles: Fastenings \(kapowprimary.com\)](https://www.kapowprimary.com/assessment-resources/ks2-dt-textiles-fastenings)

Spring

Year 4

Mechanical systems: Making a Roman 'slingshot' chariot.

[Mechanical systems: Making a slingshot car - Kapow Primary](#)

Prior Learning					
Do I know how wheels and axels work?					
Vocabulary					
Aesthetic, air resistance, chassis, design, design criteria, function, graphics, kinetic energy, mechanism, net, structure, chariot					
End point					
Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
<p>Evaluate Make Technical knowledge</p>   	<p>Significance Similarity and difference Written and oral expression</p>	<p>Lesson 1</p>	<p>OO: To be able to explain why certain materials were used to make existing products. LO: I can evaluate existing products. -OO: To be able to choose suitable materials from a wider range and explain its suitability. To be able to understand and use mechanical systems in my products. LO: To build a chariot chassis.</p>	<p>Recap prior learning. Adapt this project to create a Roman chariot model. Children to research slingshot launch mechanisms. Lesson 1: KS2, Y4, Lesson 1: Chassis and launch mechanism - Kapow Primary Using a range of materials, children follow instructions to make the chassis of their chariot and the slingshot launch mechanism, learning that their slingshot chariot work by storing kinetic energy in the elastic band before it launches.</p>	<p>Presentation: Slingshot cars , pre-made demonstration chariot, 4mm wooden dowel or rod (30cm recommended), wheels (38-40cm recommended) with central holes, although some children may find the 50mm wheels less fiddly to assemble., drinking straws (two per pupil), paperclips (one per pupil), lollipop sticks (nine per pupil) elastic bands (one per pupil), masking tape, glue guns.</p>
<p>Design</p> 	<p>Written and oral expression Cause and consequence responsibility</p>	<p>Lesson 2</p>	<p>OO: To be able to use different ways to creatively record and present my designs to show they are fit for purpose. LO: I can design a Roman chariot with a slingshot mechanism.</p>	<p>Lesson 2: KS2, Y4, Lesson 2: Designing the car body- Kapow Primary Understanding that the shape of a chariot body can either increase or decrease the speed it travels, children design chariot bodies to cover their chassis from Lesson 1 .</p>	<p>Printed resources.</p>

Key Concept	Second order concept	Lesson sequence	Learning Objectives	Suggested teaching sequence	Resources
<p>Make</p> <p>Technical Knowledge</p>  	<p>Responsibility</p> <p>Cause and consequence</p>	Lesson 3	<p>OO: To be able to choose suitable materials from a wider range and explain its suitability.</p> <p>OO: To be able to understand and use mechanical systems in my products.</p> <p>LO: I can make a moving Roman chariot with a slingshot mechanism based on my design.</p>	<p>Lesson 3: KS2, Y4, Lesson 3: Making the car body- Kapow Primary</p> <p>Children will make the nets for their chariot bodies based on their designs, adding the graphics and tabs that will attach to the chassis.</p> <p>Take photographs for evidence.</p>	<p>Children's completed Activity: chariot body design templates from 'Lesson 2, card (two A4 pages or one A3 page per child, drawing and colouring pencils, coloured card, for decoration/graphics, scissors, a few pre-cut tab strips for children who have forgotten to add tabs to their nets or accidentally cut them off, glue gun, glue sticks.</p>
<p>Evaluate</p> 	Written and oral expression	Lesson 4	I can evaluate and suggest improvements for my design.	Children to evaluate their finished chariots and suggest improvements for their designs.	In DT books.

End of unit assessment quiz: [D&T Assessment materials. KS2 Mechanical systems: Slingshot car \(kapowprimary.com\)](#)

Spring

Year 4

Structures: Pavilions

[Structure: Pavilions - Kapow Primary](#)

Prior Learning Do I know how to make structures strong?					
Vocabulary Pavilions, aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme					
End point By the end if the unit, the children will have explored existing pavilions then designed, made and evaluated their own pavilion models.					
Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
Evaluate Design  	Significance Similarity and difference Cause and consequence	Lesson 1	OO: To be able to explain why certain materials were used to make existing products. LO: I can discuss existing pavilions and how they make have been made. OO: To generate and develop ideas using exploding diagrams and prototypes. LO: I can explore what shape make a pavilion structure strong by making a prototype.	Recap prior learning. Lesson 1 KS2, Y4, DT, Lesson 1: Exploring frame structures - Kapow Primary Following the videos, children to discuss the purpose and how they might have been constructed.	Gum drops or plasticine, lots of toothpicks. Videos on the Lesson link.
Design 	Responsibility	Lesson 2	OO: To use different ways to creatively record and present my designs to show they are fit for purpose. LO: I can design a pavilion frame structure.	Lesson 2: KS2, Y4, DT, Lesson 2: Designing a pavilion - Kapow Primary Using their knowledge from the previous lesson, children design their pavilion.	
Make 	Responsibility Cause and consequence	Lesson 3 and lesson 4	OO: To be able to choose suitable materials from a wider range and explain its suitability. LO: I can build a pavilion frame structure.	Lesson 3: KS2, Y4, DT, Lesson 3: Pavilion frame - Kapow Primary Lesson 4 KS2, Y4, DT, Lesson 4: Pavilion cladding - Kapow Primary Using their designs and a range of materials, children build a strong frame structure for their pavilion. They will decorate their structures using paper or similar materials to clad. Take photographs for evidence	matchsticks, lolly sticks, toothpicks, straws, card, pipe cleaners, card triangles, children's baseboards from 'Lesson 2, glueguns, Tape, paper.

Key Concept	Second order concept	Lesson sequence	Learning Objectives	Suggested teaching sequence	Resources
<p>Evaluate</p> 	<p>Written and oral expression</p> <p>Similarity and difference</p>	<p>Lesson 5</p>	<p>OO: To be able to evaluate and suggest improvements for my design.</p> <p>LO: I can evaluate my pavilion structure.</p>	<p>Children will evaluate their pavilion structures and suggest ways they could improve them. Children to write their evaluation in their DT books. (Children may present their ideas with the rest of the class to practise their presentation skills.)</p>	<p>DT books.</p>

End of unit assessment quiz: [Assessment Resources KS2 D&T: Structures: Pavilions \(kapowprimary.com\)](https://www.kapowprimary.com/resources/assessment-resources/ks2-dt-structures-pavilions/)

Summer

Year 4

Cooking and nutrition: Adapting a recipe

[Food: Adapting a recipe - Kapow Primary](#)

Prior Learning	Do I know which foods are healthy? Do I know how to follow a recipe?				
Vocabulary	Adapt, budget, cooling rack, creaming, equipment, evaluation, flavour, ingredients, method, net, packaging, prototype, quantity, recipe, rubbing sieving, target audience, unit of measurement, utilities				
End point	By the end of the unit, the children will be able to make and adapt their own biscuits recipe. They will be able to evaluate and pitch their ideas to an audience.				
Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
Cooking and Nutrition Evaluate  	Similarity and difference significance	Lesson 1	OO: To be able to explain why certain materials were used to make existing products. LO: I can research and evaluate biscuits to and say why the ingredients are used. OO: I can use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading or kneading. LO: I can follow a basic recipe.	Lesson 1: KS2, Y4, DT, Food, Lesson 1: Following a recipe - Kapow Primary After sampling and evaluating a range of biscuits, children bake a simple biscuit recipe.	Ingredients Baking equipment Oven
	Responsibility Similarity and difference	Lesson 2	OO: To be able to explain why the ingredients were chosen and the effects on the body. LO: I can make and test a prototype biscuit.	Lesson 2: KS2, Y4, DT, Food, Lesson 2: Testing ingredients - Kapow Primary Children work in groups to make the biscuit recipe from Lesson 1, adding different ingredients to their dough to discover which tastes best when baked. This will inform their final design ideas.	Ingredients, baking equipment, oven
Design Cooking and nutrition  	Enterprise opportunity: Lesson 3: KS2, Y4, DT, Food, Lesson 3: Final design and budget - Kapow Primary OO: To use different ways to creatively record and present my designs to show they are fit for purpose. LO: I can design a product to a specific budget. Written and oral expression. Working to a budget which includes imaginary costs, children work collaboratively to design and work out the costings of their product (biscuit ingredients, packaging and other costs) that they would 'sell.'				

Key Concept	Second order concept	Lesson Sequence	Learning Objectives	Suggested teaching sequence	Resources
<p>Cooking and Nutrition</p> 	<p>Responsibility Cause and consequence</p>	<p>Lesson 4</p>	<p>OO: I can use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading or kneading.</p> <p>LO: I can make biscuits that meet a design brief.</p>	<p>Lesson 4 KS2, Y4, DT, Food, Lesson 4: Biscuit bake off - Kapow Primary</p> <p>It's the 'Bake Off' - after making a batch of their final adapted biscuit design and packaging, a panel of judges taste and review each group's creations</p>	<p>Ingredients Cooking equipment Oven</p>
<p>End of unit assessment quiz: Assessment Resources and Quiz D&T KS2: Food: Adapting a recipe (kapowprimary.com)</p>					