



MEDIUM TERM PLANNING

Subject	Topic/Key Question	Year Group	Term	Time Allocation
Design and Technology	Photo Frames	3	Autumn 1	6 hours
End of lower key stage 2 objectives	<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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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> <p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p>			
Mechanical systems				
End of unit objectives	<p>I can explore moving parts in storybooks, suggesting how they work and what purpose they serve.</p> <ul style="list-style-type: none"> • I can explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean. • I can use a paper concertina to make an object pop out of a book. 			

		<ul style="list-style-type: none"> • I can arrange and stick paper between pages to create a pop-out. • I can use levers to create moving parts. • I can create moving wheel mechanisms to create different effects. • I can experiment with different fonts and graphic design features. • I can design pages of a storybook to include moving mechanisms and appropriate graphic features. • I can follow my designs to create a storybook with moving mechanisms. • I can evaluate how well my moving mechanisms work. • I can evaluate the overall effectiveness of my storybook.
Vocabulary	Design	Design, criteria, product, attractive, step by step, plan, order, equipment, tools, describe, labelled, sketch, realistic
	Make	Follow, plan, equipment, materials, select, appropriate, tools, techniques, product, accurate, measure, cut, holes, shape,
	Evaluate	Explain, how, improve, know, why, has been successful, has not been successful, changes, make designs better if ...
	Mechanisms	Mechanisms, make, product, components, choose, materials, suitability,

Lesson Sequence	Time Allocation	Key Question/WALT	Teaching Activities	Resources
-----------------	-----------------	-------------------	---------------------	-----------

<p>Technical knowledge</p> <p>Lesson 1</p>	<p>1 hours</p>	<p>To investigate free-standing structures and how they are made stable.</p>	<p>Show children the pictures of free-standing objects (e.g. mug tree, music stand, etc.) on the slides and ask children to answer the questions: What is the purpose of this object? Why does it need to be sturdy? What makes it strong and stable? Highlight the fact that lots of free-standing objects are made stable by having a wide base. • Show children a variety of photograph frames and ask them to identify how they stand up. What are each of the components for? How do you get the photo in the frame? Who or what do you think each of these photograph frames was designed for?</p> <p>Activity:</p> <p>In small groups, provide children with a range of different types of photograph frames to explore. Ask children to carry out some tests to see how stable each one is, how easy it is to get the photograph in and out, etc. For example, children could time how long it takes to get a photograph into each frame to see which is quickest/slowest or see how easy it is to knock the frame over. • When finished, children to discuss the results of their tests to see which frame they think is the best.</p> <p>Children to choose 2 photograph frames to explore in detail.</p> <p>Children to sketch and label the front and back views of the photograph frames on worksheet IB then answer the questions at the bottom of the sheet.</p> <p>Assessment Questions:</p> <p>Can children identify how everyday free-standing objects have been made stable?</p> <ul style="list-style-type: none"> • Can children identify the different components of a photograph frame? • Can children compare photograph frames and talk about their features? 	<p>Plan Bee</p> <p>Slides</p> <p>Variety of photograph frames</p> <p>Worksheet IA/IB/IC</p>
--	----------------	--	--	---

<p>Technical knowledge</p> <p>Lesson 2</p>	<p>1 hour</p>	<p>To find different ways of strengthening and joining paper and card.</p>	<p>How many different ways for strengthening paper can you think of? Ask children to discuss their ideas, then write a list of ideas on the slides. • Go through some of the ideas for ways of strengthening paper and card, e.g. rolling, folding, layering. • How would you make this structure using paper? How would you join the paper together? Go through the structures on the slides and invite children to share their ideas.</p> <p>Activity:</p> <p>Provide children with some paper, card, glue, scissors, sticky tape, paper clips, etc. Ask children to get into pairs and give each pair one of the Challenge Cards. Children to try to make the structure on their Challenge Card using the techniques discussed on the slides. • When finished, children to present their structure to the rest of the class, describing what techniques they used and which they found to be most/least useful.</p> <p>Assessment Questions:</p> <p>Can children describe ways of making strong and stable structures?</p> <ul style="list-style-type: none"> • Can children describe different techniques for strengthening and joining paper? • Can children experiment with different strengthening and joining techniques? 	<p>Slides Help Sheet Paper and card Glue, sticky tape, paper clips, etc.</p> <p>Challenge Cards (FSD? activity only)</p>
<p>Technical knowledge</p> <p>Lesson 3</p>	<p>1 hours</p>	<p>To investigate ways of making stable free-standing structures.</p>	<ul style="list-style-type: none"> • How many different techniques can you remember for strengthening and joining paper? Ask children to think, pair, share their ideas. • How could you use pipe cleaners to make a structure e.g. a chair? Do you think it would be stable? <p>Why? Why not? How could you strengthen the structure? Invite children to share their ideas. • Tell children that today they will be investigating</p>	<p>Slides Pipe cleaners Paper and card Glue, scissors, sticky tape, paper clips, etc.</p>

			<p>how to make a piece of card stand up. Think back to the photograph frames studied in lesson 1 – how were they made stable?</p> <p>Activity:</p> <p>Provide children with pipe cleaners, paper, card, glue, scissors, paper clips, sticky tape, etc. and ask them to investigate how to make a piece of card stand upright like a photograph frame. Challenge children to make structures that are of a high quality (i.e. look good as well as support the card well).</p> <p>Assessment Questions:</p> <p>Can children describe ways of making strong and stable structures?</p> <ul style="list-style-type: none"> • Can children select and use appropriate strengthening and joining techniques? • Can children evaluate different types of structures? 	Structure Shapes sheet (FSD? activity only)
<p>Design Lesson 4</p>	1 hours	To be able to design a photograph frame for a particular purpose.	<ul style="list-style-type: none"> • Tell children that over the next few lessons they will be designing, making and evaluating their own photograph frames. What kind of photo frame do you think you would like to make and who will it be for? Children to think, pair, share their ideas. • Go through the questions on the slides: How will you make your photo frame stable? How will you take the photos in and out? How will you decorate your photo frame? What order will you need to do things in? How will you make sure that your finished product is of a high quality? <p>Activity</p> <p>Children to plan and design their photograph frame on worksheet 4B. Encourage children to use exact measurements and give specific details about how they will construct their photograph frame.</p> <p>Assessment Questions:</p> <p>Can children apply what they have learnt about making stable structures in their design ideas?</p>	<p>Slides Worksheet 4A/4B A3 paper (FSD? activity only) Question Cards (FSD? activity only)</p>

			<ul style="list-style-type: none"> • Can children design a photograph frame that would be suitable for a particular purpose? • Can children describe how they will make their finished product of a high quality? 	
<p>Make Lesson 5</p>	1 hour	To be able to make a stable photograph frame from a design.	<p>Ask children to get out their designs from lesson 4 and give them a few minutes to read back through them so they remember what they need to do.</p> <ul style="list-style-type: none"> • Go through the questions on the slides: How will you make sure that your finished product looks like your design? How will you make sure that your photograph frames is both functional and decorative? What will you do if something in your plan goes wrong? <p>Activity</p> <p>Children to work independently to create their photograph frames according to their designs. Ensure children work with accuracy and precision and that their finished product is of a high quality.</p> <p>Assessment questions</p> <p>Can children follow a design to create a photograph frame?</p> <ul style="list-style-type: none"> • Can children create a strong and stable structure? • Can children suggest ways in which they could improve their finished product? 	<p>Slides Designs from lesson 4 Pipe cleaners Paper and card Glue, scissors, paper clips, sticky tape, etc.</p> <p>Items for decoration (e.g. paints, beads, glitter, etc)</p>
<p>Evaluate Lesson 6</p>	1 hour	To be able to evaluate a finished product.	<p>NB: Ask children to bring in a suitable photograph from home, or arrange to take photographs of the class to print off, before the lesson.</p> <ul style="list-style-type: none"> • Ask children to get out their finished photograph frames and put their photograph inside. Children to set their finished frames on their desk, then give children some time to walk around and look at the other finished frames. Which do you like best? Why? Which do you think are most creative? Invite children to share their ideas. • Explain that today they will be evaluating their finished product. Why is evaluation such 	<p>Slides Finished photograph frames Worksheet 6A/6B Worksheet 6C (FSD? activity only)</p>

		<p>an important part of the designing and making process? Children to think, pair, share their ideas. • Go through some of the questions on the slides. What was the best part about designing and making photograph frames? What is the most important thing you have learned? What do you think you would do differently if you were to make your photograph frame again?</p> <p>Activity</p> <p>Children to evaluate their finished photograph frame on worksheet 6B. When finished, ask children to go back to their original designs and annotate any changes that were made, or that they would make if they were to make their photo frame again</p> <p>Assessment Questions</p> <p>Can children evaluate their finished product?</p> <ul style="list-style-type: none">• Can children suggest ways in which they would change their design if they were to make their photograph frame again?• Can children assess how well their finished product meets the original design criteria?	
--	--	---	--