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# Introduction

## ABOUT THE SERIES

*Developing Literacy Skills Through Design & Technology* is a series of books aimed at developing key literacy skills through a range of DT projects, for Key Stage 1 and 2.

It offers a structured approach, providing detailed lessons plans to teach specific literacy and DT skills. A unique feature of the series is the provision of differentiated activities aimed at reducing teacher preparation time. Suggestions for follow-up activities for both literacy and DT ensure maximum use of this resource.

## ABOUT THIS BOOK

This book is for teachers of children at Key Stage 2. It aims to:

- ◆ Develop children's literacy and DT skills through a series of stimulating and engaging projects, with supportive and challenging differentiated activities
- ◆ Support teachers by providing practical teaching approaches, based on whole class, group, paired and individual teaching
- ◆ Encourage the development and planning of creative ideas, as well as building on key skills of evaluation and communication

## CHAPTER CONTENT

### **Literacy objectives**

These outline the aims for the literacy activities suggested in the teaching unit

### **DT objectives**

These outline the aims of the DT objectives covered in the teaching unit

### **Resources**

This lists the resources needed to teach the unit

### **Starting point: Whole class**

This provides ideas and some key questions with which to get the unit started

### **Using the photocopiable text**

This explains how to use the texts provided within the unit

### **Group activities**

This explains how to use the differentiated sheets once the children have split into group work

### **Plenary session**

This suggests whole class activities to aid the discussion of learning outcomes and future work

### **Follow-up ideas for literacy**

This suggests further literacy activities related to the teaching unit, to be taught in separate lessons

### **Follow up ideas for DT**

This contains suggestions for further DT activities which could be taught separately

# Useful Websites

- ◆ [www.curriculum.qcda.gov.uk/](http://www.curriculum.qcda.gov.uk/)  
The National Curriculum programmes of study and attainment targets for key stages 1 - 4
- ◆ [www.data.org.uk](http://www.data.org.uk)  
The Design and Technology Association which represents those involved in design and technology education
- ◆ [www.ngflnorthumberland.co.uk](http://www.ngflnorthumberland.co.uk)  
Free online resources and curriculum materials for teachers
- ◆ [www.nuffieldfoundation.org/teachers](http://www.nuffieldfoundation.org/teachers)  
Useful educational links for primary design and technology
- ◆ [www.nationalschoolpartnership.com](http://www.nationalschoolpartnership.com)  
◆ A website providing educational and teacher resources
- ◆ [www.techitoutuk.com](http://www.techitoutuk.com)  
Links, materials and design and technology projects
- ◆ [www.mechanical-toys.com](http://www.mechanical-toys.com)  
Website detailing the history of mechanical toys, how to make them and how the mechanisms work
- ◆ [www.cabaret.co.uk](http://www.cabaret.co.uk)  
Museum of automata, with numerous models to make and inspire
- ◆ [www.robertsabuda.com](http://www.robertsabuda.com)  
Ideas and templates for pop-up books
- ◆ [www.footwearhistory.com](http://www.footwearhistory.com)  
Website detailing the history of shoe design and construction
- ◆ [www.mechanicalmonkey.co.uk](http://www.mechanicalmonkey.co.uk)  
Source of different mechanisms and kits
- ◆ [www.bakerross.co.uk](http://www.bakerross.co.uk)  
General all-purpose class kits for all areas of the curriculum
- ◆ [www.tts-group.co.uk](http://www.tts-group.co.uk)  
Class resource kits for design and technology projects
- ◆ [www.spartacus.schoolnet.co.uk](http://www.spartacus.schoolnet.co.uk)  
A website providing free access to a wide range of design and technology materials, resources and software for students to use as they engage in design and technology activities as part of the UK National Curriculum.
- ◆ [www.teachable.net](http://www.teachable.net)  
Teacher-developed resources that are adaptable and easy to use

# Photograph Frames

## ◆ Aim

To design and make a well-built decorative photograph frame that stands up strongly

## ◆ Time Allocation

5 x 60 minute sessions

## ◆ Literacy objectives

- ◆ To use numbered points to write a clear, stepped plan of work
- ◆ To put capital letters at the start of sentences and full stops at the end
- ◆ To use commas to separate items in a list

## ◆ DT Objectives

- ◆ To use information gained from investigating familiar items to develop a 'new' product
- ◆ To make a product for someone else, taking into account their preferences and needs
- ◆ To understand how to make a strong structure

## ◆ Resources

- ◆ Photograph Frames Worksheets. These can be collated in to a workbook with a front cover, designed by the children
- ◆ Collection of photograph frames (compiled by teacher and children), plus other items demonstrating strong structural qualities
- ◆ Thick, strong cardboard, thin cardboard, rulers, pencils, sharp scissors, strong glue, sellotape, paper fasteners, materials for decoration (e.g. pasta shapes, pieces of fabric, sequins and jewels)

## ◆ Starting point: Whole class

Have a collection of photograph frames and some other objects (e.g. music stand, book stand, art easel) to illustrate the point of strong structures. By observation, try to get the children to recognise how the triangle is a good model for creating a strong structure, because of its wide base. Focus on the photograph frames and discuss their various design points (it helps to have some that are of a better design than others). Which one do you like best and why? How does each one stand up strongly? In what way is the photograph inside kept secure? Is the frame of a practical size? Is the frame more decorative

or practical? To whom do you see each frame belonging? What are the differences in how each frame is constructed and joined together? From these starter questions, explain to the children how the frames' corners are secure, how it is that the photographs fit securely etc. Choose one frame and model on the board how to draw a diagram of it, and label it with its different component parts.

## ◆ Group activities

Ask the children to work in pairs and each completes an Activity Sheet, using the photograph frames from the class's collection. For each frame chosen, they need to draw the frame and label it, accompanied by a short written explanation.

## ◆ Using the Activity sheets

**Activity sheets 1:** This is aimed at children who need support in producing a simple annotated design sketch and benefit from a writing framework.

**Activity sheets 2:** This is aimed at children who need some initial support in producing simple annotated design sketches and can write a short explanation independently.

**Activity sheets 3:** This is aimed at children who can confidently and independently produce annotated design sketches and written explanations.

## ◆ Developing their designs

Introduce the children to their task of designing and making a photograph frame to give to a family member for a specific occasion, with a photograph of themselves inside. They must apply their own observed knowledge of strong structural design to their own work, yet link this to create an attractive product. Be clear on their three design specifications – their frame must be functional, it must look attractive, and it must stand up securely on its own.

# Photograph Frames

## ◆ **Constructing their Photograph Frames**

Prior to construction, ask the children to complete their own Design Worksheet. You may feel that the class will benefit from observing an example demonstration of how to make a frame before they embark on their own projects, to impress upon them the need for accurate measuring, careful and secure joining techniques etc (see Teachers' Notes).

Throughout the process of designing and construction, the taking of digital photographs provides evidence of work that can be used at a later stage for display, record keeping, annotation etc.

## ◆ **Plenary session**

After a short initial session where the children start work on their individual projects, allow a time for sharing their experiences with their peers. In groups, get the children to show their Design ideas and what they have done up to that point. Encourage the children to talk about any difficulties they may have had and explain how they overcame these. Members

of the group may be able to put forward suggestions to make the process smoother.

Remember to remind the children of the work done in previous tasks, and points they wanted to remember in order to help them improve in their work.

## ◆ **Plenary session**

Self evaluation: ask the children to now think about their own photograph frames and to complete the Evaluation Worksheet.

Group evaluation: as a whole class, lead the class towards thinking about how they could build on their knowledge from this project to improve their DT skills. Discuss the following - What parts did they find easy? What was hardest and why? Was there anything they did better in this project than in others? What could have been done better and how? What did they enjoy the most about this project? The whole class can then agree on a short statement to help towards improving their work in the next task.

## ◆ **Follow-up ideas for Literacy**

- ◆ Write about activities undertaken, using photographs or diagrams to accompany each stage
- ◆ Fictional writing. Present the class with some old framed photographs 'found' in an attic. After brainstorming ideas ask the children to write a story about one of the characters
- ◆ Use a collection of photographs to build up banks of adjectives on a theme, e.g. people, landscapes

## ◆ **Follow-up ideas for DT**

- ◆ Create 2D nets to turn into 3D form, to design a packaging box with lid for the photograph frame
- ◆ Develop frame building techniques to use wood strip instead of cardboard
- ◆ Challenge the children to work in groups to build a book stand that will hold a book of a certain weight

# ◆ Photograph Frames ◆

- ◆ With your partner, choose 1 photograph frame to investigate.
- ◆ In the box below draw a clear and neat diagram of the photograph frame. Label it, using some/all of the words below:

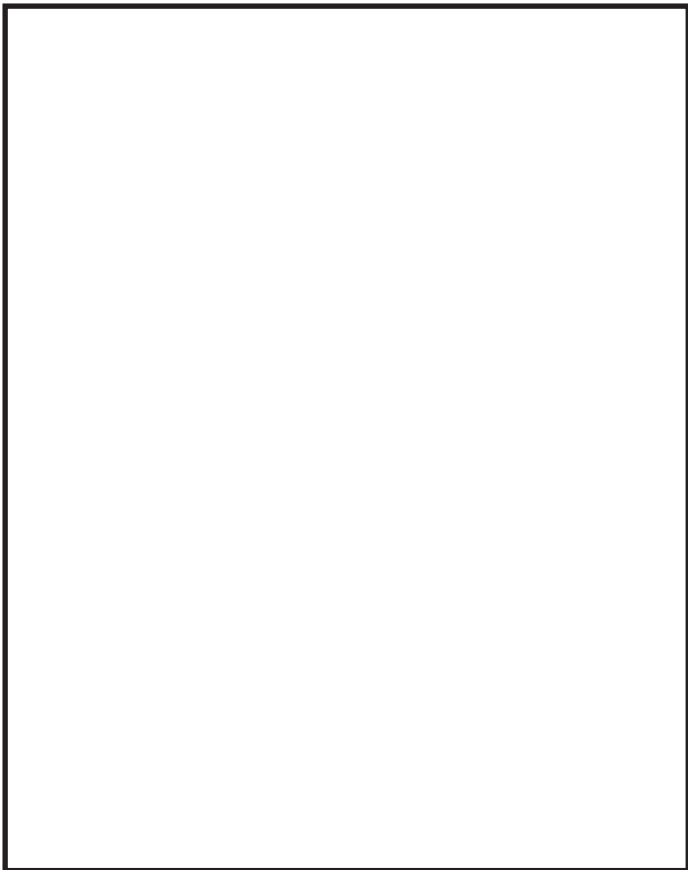
Right-angle corner joint

Frame, made of .....

Backing board

Protective photo cover

Stand



- ◆ Now read the sentences below, putting a circle around the word of your choice.

The photograph frame chosen is plain/decorative in appearance. It is small/medium/large in size. The frame appears to be of weak/strong construction. The stand at the back appears to be of weak/strong construction and I think it will/will not stand up well.

# ◆ Photograph Frames ◆

◆ With your partner, choose 2 photograph frames to investigate. For each one draw a labelled diagram and then complete each short explanation.

<p>This photograph frame is ..... in appearance. It is ..... in size. The frame appears to be of ..... construction. The stand at the back appears to be of ..... construction. I think it ..... stand up well.</p>	<p>This photograph frame is ..... in appearance. It is ..... in size. The frame appears to be of ..... construction. The stand at the back appears to be of ..... construction. I think it ..... stand up well.</p>