

A Case Study in a Special School: Storybooks

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Abstract

The class is in a large special school for pupils with a variety of learning difficulties. Although the main category of learning difficulty is severe (SLD), we also have pupils with moderate learning difficulties (MLD), profound and multiple learning difficulties (PMLD), challenging behaviour and autism. The pupils follow a broad and balanced curriculum based on the National Curriculum. Teaching approaches and expectations have been adapted as well as some equipment to suit the individual needs of the pupils.

This study is based on a project delivered by an enthusiastic teacher with a class of Year 5/6, mainly SLD but also one PMLD. There were nine pupils, the teacher, two nursery nurses and a classroom assistant. The sessions were taught for an hour on Thursday afternoons over a period of seven weeks.

Introduction

Children with learning difficulties should have access to a broad and balanced curriculum. This should include an adapted National Curriculum to allow realistic and meaningful learning experiences for these children in order to encourage success and a basis for future learning.

'Choose DMAs where success is guaranteed and pupils can be proud of what they have designed and made. Doing so can enhance pupil's confidence and self esteem.' (QCA, 2001)

The positive potential value of design and technology for pupils with special needs is widely recognised.

'The practical basis of design and technology makes it a subject which has

particular potential for children with learning difficulties in so-called more academic subjects.' (Ritchie, 1995)

'Design and technology provides practical learning experiences which make it accessible to all pupils.' (DATA, 1996)

The project

The project used units 1A and 4B (QCA Scheme of Work, 1998) as a foundation.

'The crucial aspect of all design and technology activities is that they provide access to all children. Where appropriate, teachers use material from earlier or later parts of the programme of study.' (DATA, 1997)

The assignment was to design and make individual pages with simple moving parts and to then join them all together to make a class book. Pupils and staff first looked at and discussed:

- a range of bought books with moving parts (see Figures 1 and 2)
- a collection of simple 2-D toys with moving parts
- pop-up, simple slider and lever mechanisms made by the teacher (see Figure 3).

Pupils were taught to make some pop-up, simple lever and pivot mechanisms including using a construction kit.

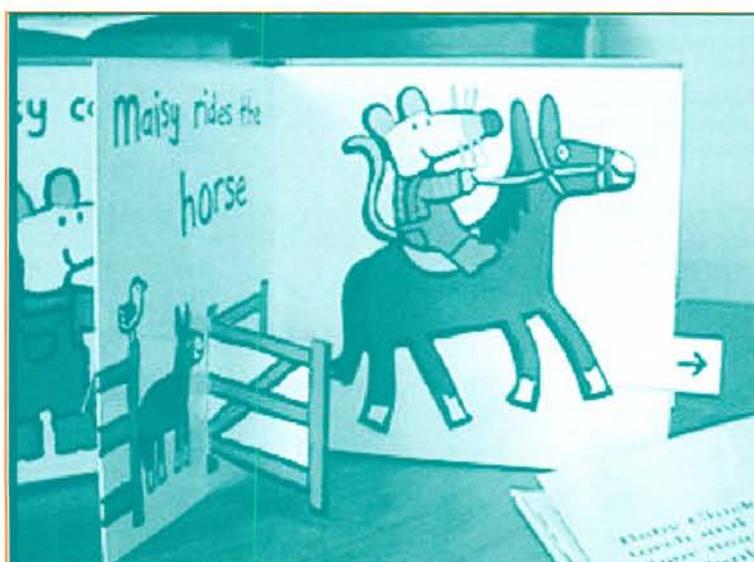
Pupils selected a subject for their page and, with help, made a type of movement to make it effective. Finally, after pupil trials on methods of joining, the book was joined together.

Planning

Objectives

- Pupils to learn through demonstration and investigation that simple levers and mechanisms can be used to create movement.
- Pupils to make simple slider and lever mechanisms.
- Pupils to learn how to use tools and equipment safely e.g. scissors, hole punch.
- Pupils (with help) to suggest and communicate an idea for a model and show what they want to happen.
- Pupils (with varying degrees of help) to make a model using appropriate techniques.
- Pupils to evaluate the model: how well it worked and did it do what it was supposed to do?

Figure 1: Maisy at the Farm.



- Staff to encourage a positive attitude to the tasks by constructive help and pupil's personal interest.

The project was planned to take place in the pupils' own class base. Sometimes the teaching approach would involve the whole class or small groups. Due to the volatile nature of some of the pupils, especially when using tools and equipment, it was planned for one-to-one direct, close adult supervision to occur. During the project, all the pupils would at some time need one-to-one adult help and opportunities would be planned to make this happen. This was not only for the usual health and safety reason, but also to give each pupil the opportunity to work constructively with minimum distraction and maximum encouragement. During the focused practical task session, the teacher would effectively demonstrate to the whole class the moving storybooks. The teacher and both nursery nurses had benefited from attending an in-school INSET session at the beginning of the year on simple mechanisms (led by the design and technology co-ordinator). This had given them confidence in their own knowledge, understanding and skills to constructively help their pupils.

'Need for staff to be adequately trained.'
(DATA, 1995)

'Staff professional development in school, relevant to this unit'

The teacher would initially read the stories and invite each pupil in turn to work the movement. Afterwards, all the pupils would have the opportunity to investigate the movements of the books and toys in pairs or individually with staff supervision. This practice was planned to help to reinforce the pupils' knowledge and understanding of the mechanisms.

Differentiation

For all pupils, differentiation by outcome in design and technology is expected and desirable. In this unit, the designs and mechanisms varied e.g. sliders and pop-ups. However, planned differentiation is extremely important when teaching a class of mixed ages, mixed abilities or a group with a range of learning difficulties.

Aspects of differentiation that were considered in planning this unit:

- reducing the effect of unacceptable individual behaviour in class and planning to minimise aggressive outbursts, e.g. *using the pupil's own choice and interest*
- careful formation of groups, pairs and seating arrangements



- level of staff intervention in offering, simple prompts, advice and help (*high standard of staff knowledge and understanding through training*)
- working with materials and equipment that are suitable for the individual e.g. *card rather than correx*
- level of choice e.g. *one student can only physically choose between two items*
- Using signing, symbols or photographs where appropriate, e.g. *to encourage technical vocabulary or choices and use on worksheets*
- Achievable outcomes with success e.g. *appropriate level of support given by adults*

Differentiation by outcome can be monitored by using the pupil outcomes/expectations written in the school Scheme of Work for this project.

*Top: Figure 2: Dougie Duck can't swim.
Below: Figure 3: Simple mechanisms.*



Figure 4: Tom can only make simple choices using visual clues.

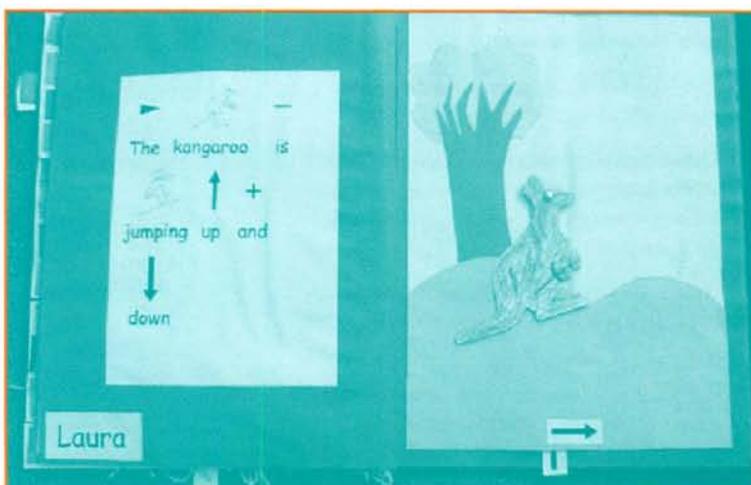
Cross curricular aspects

'Design and technology is valuable in enhancing and developing knowledge and understanding and skills in many other curriculum areas.' (DATA, 1997)

During this project the cross-curricular aspects encompassed some of the following:

- **English** Reinforcement of vocabulary by signs and symbols.
Using the Software 'Writing with Symbols 2000'.
To produce page text, tabs (Push/Pull) and worksheets.
- **Maths** Data collection: counting votes in 'joining pages together'.
Using shapes for design.
- **Science** Direct links to the previous unit on the Human Body.
Exploring the joints of the skeleton using plastic Meccano.

Figure 5: Using writing with symbols to enhance understanding.



- **Art** Choosing and applying colour, pattern, shapes and materials for the design of the page display.
- **ICT** Printing out Push/Pull tabs.

Using writing with Symbols 200 for page text (with adult help).

'The sum of the cross-curricular aspects does not make for a design and make assignment in itself. It must always be remembered that design and technology is a discrete subject in its own right. The Assignment should always have a purpose and end user in mind.' (DATA, 1996)

Teaching and learning

The teacher introduced simple mechanisms by recapping the previous science unit on the skeleton. The pupils worked with plastic Meccano to imitate the way in which joints worked. This helped to develop the necessary knowledge and understanding of levers prior to making their own product. Leading questions from staff encouraged the pupils to explain what might happen, which part might move and how it might move. The pupils were then asked to demonstrate how to make it move and to check their prediction.

The pupils were enthralled during the lesson where the teacher read and showed the moving books. This seemed to reinforce the magic of the moving book. The context for the use of levers and other mechanisms was demonstrated and seeing these books work began to make the assignment clearer in the children's minds. They explored and experimented in making them work. The books, as well as the toys, were available for the pupils to look at and use throughout the time of the assignment. This allowed the pupils to refer to models to help with their own design and make project.

'Encouraging children to investigate ready made products and to speculate on the sequence of events may help them to transfer this skill to their own work.' (DATA, 1996)

The appropriate vocabulary was always encouraged whether by voice, signing or symbol.

The focused practical task involved using and exploring a variety of materials and equipment. The staff's knowledge of working with these materials and equipment, and their knowledge of the pupils' skill level allowed for proper meaningful guidance to help the children progress. Staff awareness of potential risks that might occur with individuals meant that they could anticipate problems. During the making process, the pupils were encouraged to communicate what they were

doing and what they wanted to achieve. For example, Joanne wanted the man to lift his hat and say 'hello', so she chose a slider mechanism.

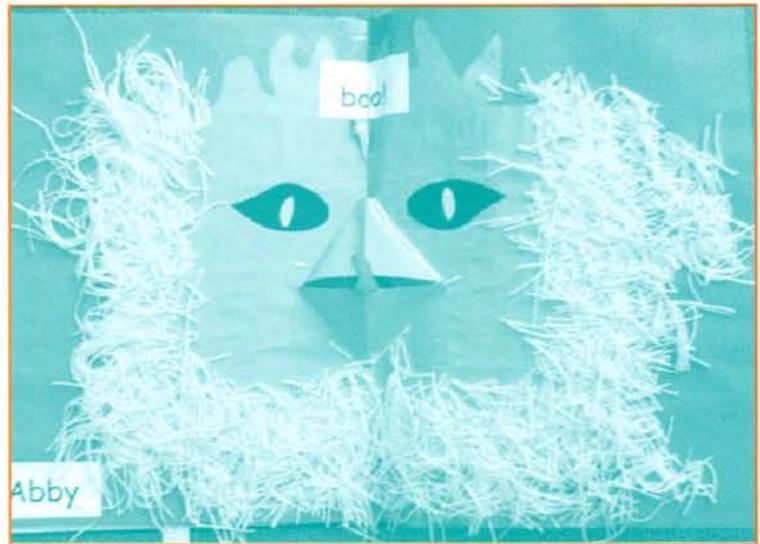
Each pupil had to decide on a design for their page and what movement they wanted to use. Most pupils had some ideas of what they wanted and, with careful staff guidance through the use of pupils' interests, choices and communication, all the pupils made a firm design.

The physical activity of making the pages was mainly done on a one-to-one basis with the teacher, nursery nurse or classroom assistant. Once the initial picture was established, the type of movement was discussed and the pupil needed to construct a picture outline. As only one child was capable of making a reasonable representative drawing, a template or help from an adult was needed. Their choices were very individual and most had definite ideas. Allowing for own choices helped to eliminate problems that might have arisen if the teacher had given a more prescriptive brief. Therefore, there was a wide range of differing projects. For example, Joanne wanted a man to lift his hat, Emlyn wanted a red rabbit and Antonia wanted a house with doors and windows that opened. Hence the idea of a specific storybook changed to a class book instead! Perhaps with another class, a specific story line could have been adopted or chosen. However, most of the pupils in this class have specific likes and dislikes and their individual choices helped to keep their interest level and reduce potentially disruptive behaviour. This in turn provided a good opportunity for the pupil to concentrate on the mechanism itself.

Pupils managed to communicate what they wanted their character to do on their page. This information was reinforced by the use of the computer programme *Writing with Symbols 2000* to illustrate the actions.

Their individuality also emerged in decorating their final design. The most creative and able pupil was satisfied with a sliding movement and simple crayon colouring (the hat man), whereas one of the least able wanted a very colourful 3-D collage effect – a wild hairy creature, popping out to say 'boo'.

When making the book itself, the teacher discussed ways of joining and the pupils experimented making simple books with different methods. This gave the pupils the opportunity to use classroom equipment such as a stapler and hole punch under close supervision. The class was then asked to discuss and choose which method they wanted to use for their book. The criteria involved:



- the easiest method of construction
- the strength of construction
- simplicity of use
- general aesthetic appeal.

Figure 6: Say Boo!

This provided the opportunity for a whole class discussion and simple voting system.

'... consider the needs and preferences of others as well as themselves, so helping to develop their social awareness.' (QCA, 2001)

Evaluation

When the book was completed, the pupils took it in turns to demonstrate their own page and 'show and tell' to the other class members. It is difficult, if not impossible, for some special school pupils to evaluate in a formal spoken or written method. However, they all appeared to appreciate that what they had made was similar in some ways to what they had looked at when at the beginning of

Figure 7: The Hat Man.

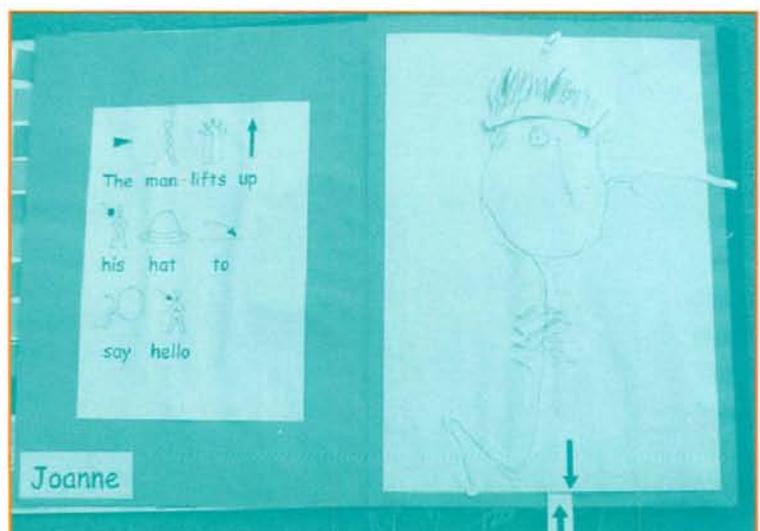




Figure 8: A range of methods of joining pages.

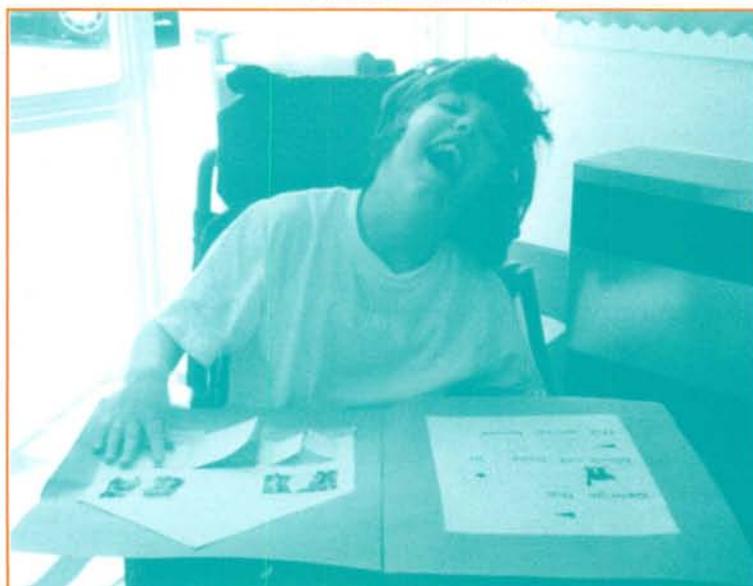
the unit. Their mechanisms worked in the way that they wanted e.g. the hat went up, the door opened.

'Control is about the various ways in which children ensure that the products they make do what they are supposed to do.' (DATA, 1996)

After each unit, teachers are asked to complete a simple record of both the pupils' achievement and of the teaching of the unit. This is a novel approach at school, but as the records build up, the co-ordinator will have a good overall view of successful and unsuccessful parts of units and of the level of pupil assessment. Selected weaknesses can then be addressed either to individuals or included in school INSET courses. Subsequent changes can then be made to the units in the Scheme of Work.

The teacher's record sheet stated that all of the students achieved the expected outcome in the school Scheme of Work.

Figure 9: A proud pupil with her finished page.



The teacher review sheet for the unit stated that in general terms, the unit was a success especially:

- the interest of the students in the unit
- the making of a good product.

There was a reference to the fact that the pupils had difficulty working out how and why some of the mechanisms worked. However, as there was only one complex linkage system used, it would appear that good choices had been made by either the pupils or pupils with staff guidance to make pages where the movements were not too difficult to understand. This aspect could be addressed by limiting the mechanisms initially to sliders and pop-ups before progressing to levers and linkages at a later stage.

Having trained and confident staff in the classroom allowed for quality adult and child time, in small groups or individually. Much of the work, by the nature of the child's learning difficulties and behaviour, had to be individual. This in turn offered maximum adult attention and minimum distractions for the pupil. It also allowed for greater involvement in the practical demonstration and use of the books and toys.

The research into different ways of joining the pages and the subsequent voting for the best system by the pupils, allowed for whole class involvement in the design and making of the final book.

Only one page had a complex mechanism. The others were mainly sliders or pop-up. Although it might have been ambitious to try to achieve linkages and levers mechanisms (QCA/DATA, Unit 4B) with this class, at least they had the opportunity to see, use and experiment with more complex and varied movements. The fact that most chose simple forms of movement may be because of their own expectations or perhaps they just liked (and understood) specific designs in the books they first saw.

The pupils certainly enjoyed the unit and were proud of the finished product they produced. It will now become an example for other classes when they do a similar unit.

All the pupils achieved their expected outcomes. Without being complacent, this is a positive sign that the unit is and can be a good springboard for future development both in pupil learning and staff teaching methods.