



# Designing a Hospital Diorama

## Learning Objectives:

- To consider the design of a hospital bed and how it can be designed to aid the patient;
- To build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users;
- To use and apply knowledge from Maths, especially constructing nets of 3D shapes.

## Science and D/T Skills:

- Observing and making an accurate observational drawing
- Applying understanding of how to strengthen, stiffen and reinforce more complex structures;
- Selecting from and using a wider range of tools and equipment to perform practical tasks, (for example, cutting, shaping, joining and finishing), accurately.

## Resources:

- Drawing paper (2 sheets per child) and pencils
- The Elizabeth Garrett Anderson PowerPoint
- Cardboard box, card, glue, images, scissors, the included activity sheets

## WHAT YOU SHOULD KNOW BEFORE YOU START

Elizabeth Garrett Anderson was born in 1836, just before Queen Victoria came to the throne. Her father earned enough money to send her to a good school and, inspired by Elizabeth Blackwell (the first American woman doctor) she decided she wanted to become a doctor too.

However, in those days, it was an entirely male profession. She enrolled to study to be a nurse as no doctor's course would accept her and tried to study alongside the men, but they complained about her presence and she was banned from their lessons. The men felt that women simply weren't cut out to be doctors and shouldn't be at the dissections!

She eventually learned French and went to study in Paris where she was permitted to study to be doctor. However, when she came back, the British Medical Register refused to recognise her qualification.

In 1872, Elizabeth founded the New Hospital for Women in London. Elizabeth's sister, Agnes Garrett, another pioneering woman, set up the first interior design business run by women, with her cousin Rhoda Garrett. Together, they designed aspects of the hospital. A hospital founded and designed for women, by women.

By 1876, her story had made a difference and women were allowed to train as doctors.

## INTRODUCTION – designing a hospital

Watch:

<https://www.youtube.com/watch?v=f4DYVjS0wUk>

Re-watch the section from 3.24 where Maddie Moate talks about the hospital beds in the room.

Ask:

- Does it look the same as hospitals today?
- What is the same? What is different?
- Why might women like to be treated in this hospital? (female doctors)

Tell the children:

Elizabeth didn't just get qualified to be a doctor; she started her own hospital. Imagine all the things you would need to set up a hospital. Elizabeth enlisted her sister and her cousin to help her - female cousins! These two women were designers and they helped design the hospital to be a functional place to tend to the sick and a nice environment in which to recuperate. We are going to consider all the objects which need to be designed well to help sick people.

Show *Slide 2* from the PowerPoint.

Ask:

- What is different about this bed?
- What gadgets and gizmos might it have? Why are they useful?
- How many of these gadgets would work without electricity? (Elizabeth's hospital had no electricity.)
- How could this bed be re-designed to still be functional without using electricity?
- How could we make it look more homely and less clinical without compromising the safety of the patient?

## BUILDING A DIORAMA OF A HOSPITAL WARD

### Introduction

Looking at the images of hospital wards at the time of Elizabeth Garret Anderson, discuss what you can see, e.g. size, layout, furnishing, equipment, people, their dress etc.

Introduce the term Diorama, which means a small 3D model. Asking children to look up the meaning of the word is interesting as historically it was a small model in a box with a peep hole and is often used to describe mini film sets for animation and the models made by theatrical set designers.

**Main Activities – These can be done over several lessons.**

### Developing the skills

- Children to make sketches of the hospital ward with labels.

This sketch will be the plan for the building of the diorama.

Explore different ways of making pictures stand up – perhaps investigate pop-up books for ideas on how to achieve this. There are countless books and YouTube videos on card engineering and I have attached some examples here. (see attached document **Simple examples of Pop-up Structures**).

Look at nets of 3-D shapes and investigate how this can be used to make a bed or a chest of drawers etc.

## Final build

The building of the diorama is best done in a box and can be done individually or as a small group using anything from a shoe box to a packing case. Photocopier paper boxes are good.

- Cut out the front of the box;
- The model begins with wall decoration as you might in a dolls' house;
- Then build the furniture. This can be done by applying mathematical knowledge and making cuboids from nets, or it can be achieved by simple flat drawings which stand up;
- Figures may be drawn or cut out from photographs and stuck on card, and again, stood up. These can be fixed or movable using bars from the side of the box like an old fashioned children's theatre.



## REVIEW

**ALL:** Children can make simpler pop-up structures and apply them to the build with assistance.

**MOST:** Children can make simpler pop-up structures and apply them to the build unaided.

**SOME:** Children can make more complex structures and explore moving parts. Can use nets of 3-D shapes to build some of the structures.

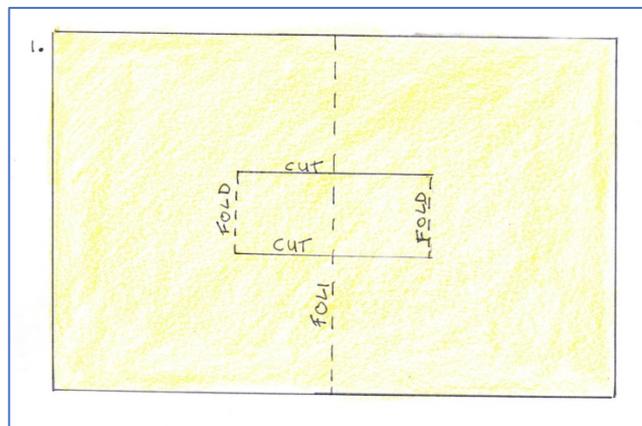
## SIMPLE EXAMPLES OF POP-UP STRUCTURES

1. Perhaps the simplest is a figure or object cut out from a photograph or drawn, stuck onto card, with a flap at the bottom to fold and stick down. This is even stronger if you put it on double thickness card with a flap front and back.

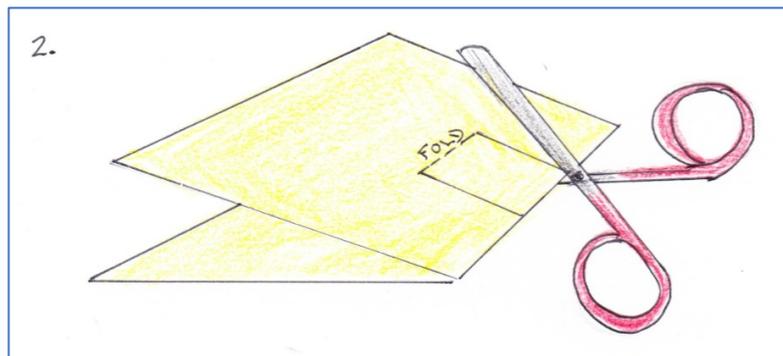


2. A mechanism often used in pop-up books and diorama is a reverse folded bracket.

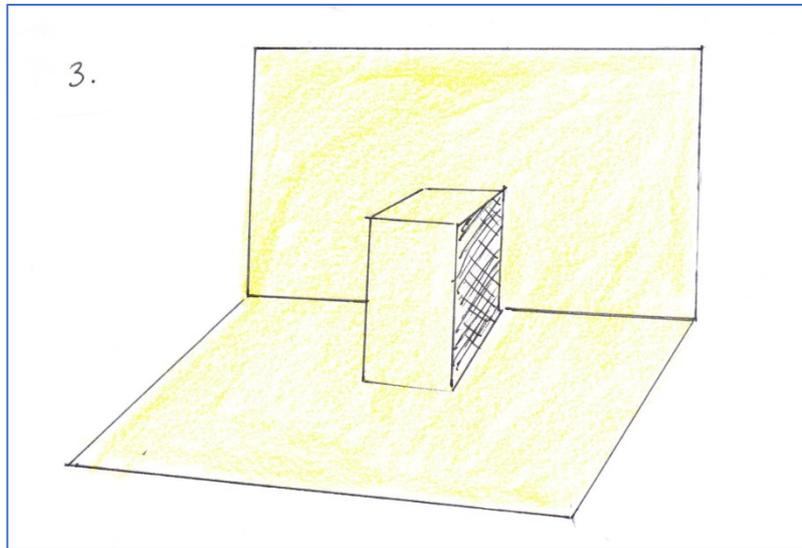
This begins with folding a piece of card in half and marking 2 cut lines.



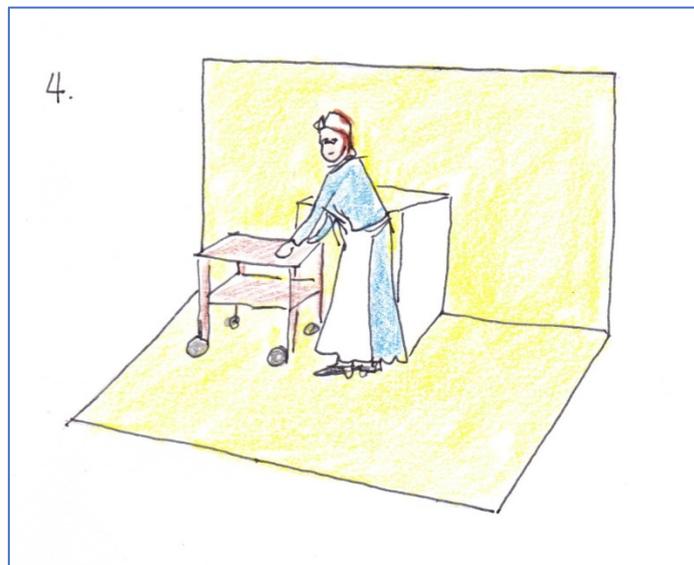
Then cut the 2 slots.



Fold the small fold line backwards and forwards several times to make a really crisp fold, then fold it the opposite way to the main fold.



Cut out a drawing or photograph of a figure or object and stick it to the front of the reverse folded bracket.



You can explore making several reverse folds in one piece of card, each a different size so that some object project further forward than others.

