

Mirror Images

Investigating how coated glass can be used to create mirrors



INTRODUCTION

The Egyptians made mirrors from sheets of polished metal. The Romans made glass mirrors with a metal layer. In 1835 silvered-glass mirrors were created which could be produced on a large scale and were affordable. In this activity, children will explore how light is reflected from different surfaces and consider what makes a good reflective surface. They will then create their own mirrors from sheets of glass and investigate how different coloured backgrounds affect the properties of a glass mirror.

Children would benefit from a prior understanding of light sources and how light is reflected.

LEARNING INTENTIONS



- ✓ To understand how & why we see clear images of objects in a mirror
- ✓ To understand the properties of glass that make it suitable for making mirrors

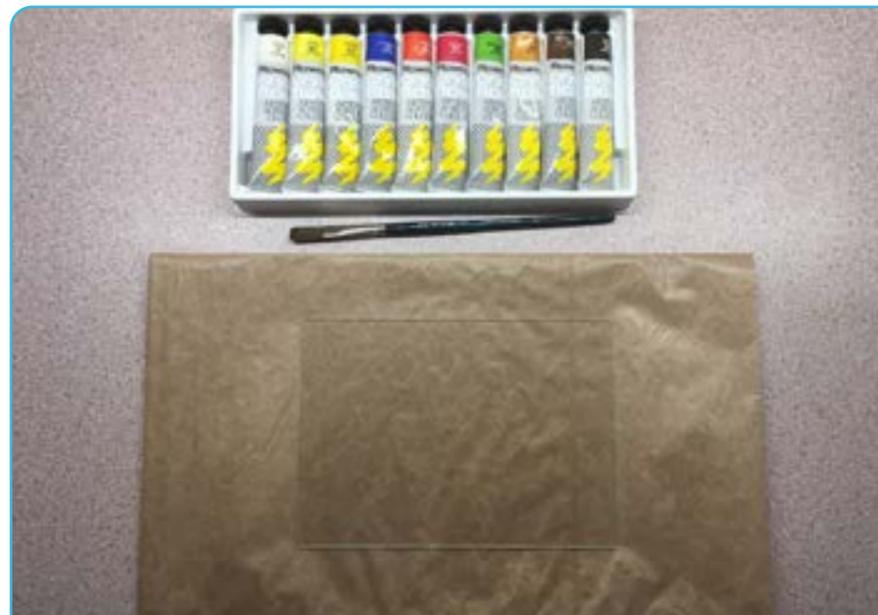
KEY QUESTIONS

1. What do you notice about the surfaces that create a clear image?
2. Why do think that glass is used to make mirrors?
3. How clear is the image in your homemade mirror?
4. Can you see colours in the image on your homemade mirror?
5. Which background colours produce the best mirror images?

KEY VOCABULARY



Light	Reflect/ reflection
Light source	Properties: rough, smooth, shiny, transparent, translucent, opaque, reflective
Light rays	
Mirror	
Surface	
Object	
Image	



RESOURCES (PER GROUP)



- Clip/picture frames are an ideal source – cover all edges with masking tape
- Acrylic paints – silver, black, white and primary colours
- Paint brushes
- Paper towels
- A variety of objects with shiny surfaces – e.g. small mirrors, aluminium foil, spoons, coloured glass bottles, empty picture frames, coloured paper or card to put in the frames

WHAT TO DO: Today we are going to be physicists

Before the session, clean the glass panes with warm soapy water and dry.

1. Ask children to look at a mirror and discuss the way it is formed from a sheet of glass, one side with a silvery coating. Pose a question to investigate: Does the coating need to be silver?
2. Lay the glass on a paper towel.
3. Children should paint one side of the glass with a generous coat of silver acrylic paint (or another

- colour, to compare these) and leave to dry (about 30 minutes).
4. While the paint is drying, provide the children with objects with shiny surfaces, including glass. Ask them to look at any images of themselves in these surfaces. Look at the picture frames with and without coloured paper behind the glass. Look at smooth and crumpled foil. Discuss the properties of the surfaces that produce a clear image (reflection)

and those that do not. Encourage children to give reasons for their observations.

5. When the paint is dry, ask the children to turn their glass pane over so that the unpainted side is facing them and to examine their reflection closely, noting which colours (if any) are visible in their image. Encourage the children to compare the effect of the different coloured backgrounds on the homemade mirrors.

EXTENSION / FOLLOW UP ACTIVITIES

Challenge the children to create multiple images using 2 mirrors. You could prompt them to start by placing the mirrors at right angles and placing an object in between them. Can they move the mirrors to create more reflections?

- Use 2 mirrors to create a simple periscope
- Use 3 mirrors to create a simple kaleidoscope
- Investigate reflections in curved mirrors

ADDITIONAL RESOURCES (IF REQUIRED):

- 2 or 3 mirrors per group
- An object to view in the mirrors e.g. a Lego minifigure

ANTICIPATED ACTIVITY TIME: 1 – 1.5 HOURS, including time for paint to dry