

**LEARNING and TEACHING POINTS**  
for  
**Chapter 24**  
**Transformations and Symmetry**

Frequently use the two questions about transformation and equivalence to promote useful discussion in work with shapes: (a) How are they the same? (b) How are they different?

With primary school children use only simple scales, such as 1:2, 1:5 or 1:10. You can also use simple scales with different measurement units such as 1 centimetre represents 1 metre, or 1 centimetre represents 10 metres.

What children need most of all for learning about shape and space is lots of practical experience of colouring shapes, cutting them out, folding them, turning them over, rotating them, looking at them in mirrors, fitting them together, making patterns, matching them, sorting them and classifying them. The approach here can be much less structured than in other aspects of the mathematics curriculum.

Use the colouring, cutting out, turning face down approach to explore the ideas of reflection and reflective symmetry – as well as folding shapes along potential mirror lines, and looking at shapes and their images in mirrors.

Use some of the numerous computer-based activities that are available to provide primary children with fascinating opportunities to explore transformations and symmetry.

Use the tracing paper approach to explore the ideas of rotation and rotational symmetry.

Primary school children can have experience of scaling in practical contexts by making scale drawings for a purpose. For example: they can scale material up or down on a photocopier for display; they can make a scale drawing of the classroom to redesign the layout of the furniture; they can make a scale drawing of the playground to solve a problem of where visitors park their cars.

An interesting project is to make a display of pictures cut from magazines that illustrate different aspects of symmetry.

Use geometrical designs from different cultural traditions, such as Islamic patterns, to provide a rich experience of transformations and symmetry.