

## Symmetry and Patterns

### SPECIFIC OBJECTIVES

The students will

- understand the designs made artificially in their surroundings.
- know the natural patterns occurring on the surfaces of leaves, insects, birds and animals.
- learn about symmetry, line of symmetry and reflection.
- learn about solids.
- be able to sketch a 3-D figure on a dotted paper and recognise the views of solids at different angles.
- know about tiling.
- extend the knowledge of geometrical and number patterns.
- learn how to make different images using 7-piece tangram.

### CONTENTS EXPLAINED INSIDE THE CHAPTER

- Symmetry (pages 129–131)
- 3-D Solids (pages 131–134)
- Tessellation or Tiling (page 134)
- Geometrical Patterns (pages 135–136)
- Number Patterns (pages 136–139)

### TEACHING AIDS

A tracing paper, an isometric dot paper, a square grid paper, a plain paper, a cardboard, ink, a thread, a pair of scissors, sketch pens, a pencil, market, etc., some cardboard boxes

### TEACHING STRATEGY

- First, the teacher should discuss the designs made on walls, floors, gates, windows, curtains, cloths, buildings, temples, mosques, tombs, etc. Next, she should mention those figures which can be divided into two halves equally. Ask them to do the 'Let Us Recall' exercise.
- Involve the students in performing the activities based on symmetry and reflection. For text and exercise, she should go to pages 129–131.
- Further, the teacher should talk to them about 3-dimensional solids. She should also explain

them the net of solid by opening an empty cardboard box or carton. She should also encourage them to sketch solids on isometric dot paper. She should motivate them to recognise the views of solids from different directions. For text and exercise, she should go to pages 131–134.

- Thereafter, the teacher should discuss about tiling or tessellation. To reinforce the concept, she should provide them with square grid paper and ask them to make a tiling pattern using sketch pens of different colours. She should also motivate them to create some geometrical patterns on a plain sheet of paper. Finally, she should go to pages 134–136 for text and exercise.
- Now, the teacher should extend their knowledge about number patterns involving all the four basic operations. For text and exercise, she should go to pages 136–139.
- Next, she should encourage them to solve the puzzles.
- Finally, the teacher should involve them in completing the Maths Lab Activity.

## EXPECTED LEARNING OUTCOMES

Students are able to

- recognise the symmetric figures.
- obtain the reflection of a shape or figure along a mirror line.
- find out the line of symmetry in a figure or shape.
- understand a 3-D solid and its net.
- sketch a cube/cuboid on an isometric dot paper.
- identify the side/front/top views of solids.
- understand the tiling and geometrical patterns.
- extend the given number patterns by observing the rules followed by them.
- create multiple images using Chinese Puzzle Tangram.