Chapter –14

Symmetry

- A figure has line symmetry, if there is a line about which the figure may be folded so that the two parts of the figure will coincide.
- Regular polygons have equal sides and equal angles. They have multiple (i.e., more than one) lines of symmetry.
- Each regular polygon has as many lines of symmetry as it has sides.

Regular Polygon	Regular hexagon	Regular pentagon	Square	Equilateral triangle
Number of lines of symmetry	6	5	4	3

- Mirror reflection leads to symmetry, under which the left-right orientation have to be taken care of.
- Rotation turns an object about a fixed point. This fixed point is the centre of rotation. The angle by which the object rotates is the angle of rotation.
- A half-turn means rotation by 180^0 ; a quarter-turn means rotation by 90^0. Rotation may be clockwise or anticlockwise.
- If, after a rotation, an object looks exactly the same, we say that it has a rotational symmetry.
- In a complete turn (of 360^0), the number of times an object looks exactly the same is called the order of rotational symmetry. The order of symmetry of a square, for example, is 4 while, for an equilateral triangle, it is 3.
- Some shapes have only one line of symmetry, like the letter E; some have only rotational symmetry, like the letter S; and some have both symmetries like the letter H. The study of symmetry is important because of its frequent use in day-to-day life and more because of the beautiful designs it can provide us.