

## SPECIFIC OBJECTIVES

The students learn about

- ❖ the universe
- ❖ the sun and the moon
- ❖ eclipse, its types and formation
- ❖ tides and their formation
- ❖ artificial satellites, their types and applications

## TEACHING AIDS

Pictures/animation on the solar system, surface of the moon, the sun, eight planets of the solar system; solar and lunar eclipses (total and partial); formation of tides; artificial satellites – Aryabhata, weather satellites, scientific research, communication, military, navigation and earth observing satellites (as given in chapter).

## LESSON PLAN

- ❖ The teacher will start the chapter by giving a brief idea of universe and will ask some questions on heavenly bodies based on previous knowledge of students.
- ❖ Now, teacher will define universe that it is a wide-open space which holds all the heavenly bodies including our solar system.
- ❖ With the help of teaching aids, teacher will discuss the features of the sun and explain that it is a star, much bigger than the earth and lies at the centre of solar system. Teacher will also discuss why it is a hot ball of burning gases.
- ❖ Then, teacher will explain the features of moon's surface, why it shines and why life is not possible on it.
- ❖ With the help of teaching aids, teacher will define shadow formation.
- ❖ Now, teacher will explain the eclipse, the types of eclipses and their formation.
- ❖ Then, teacher will define tides and explain why and how they occur.
- ❖ Now, to check the understanding about the topic, teacher will ask students to solve 'Checkpoint 1'.
- ❖ Teacher will define the satellite in brief and discuss about artificial satellites, their types and their various applications.
- ❖ Teacher will also talk about people who went into space.

- ❖ Now, teacher will ask students to solve 'Checkpoint 2'.
- ❖ At last, teacher will make students revise the new terms given in 'Science Vocabulary' and sum up the lesson by going through the points given in 'Wrapping it up'.
- ❖ Now, teacher will help students to solve the questions given in 'Exercises'.

### BOOST UP

- ❖ Teacher should encourage students to carry out activities given in the chapter.
- ❖ Teacher should discuss the information given in the 'Knowledge Desk' at various places in the chapter.
- ❖ Teacher should help students to find the answers of questions given in 'Think Zone' and encourage to do activities or projects given in 'Beyond the Text'.
- ❖ Teacher should also discuss the facts given in 'Interesting Information' section.
- ❖ Teacher should explain the terms 'astronomy' and 'astronomer' and encourage students to explore the names of some great astronomers and their contribution to the astronomy.
- ❖ Teacher should discuss about the great Indian astronomers, mathematicians and their contribution.
- ❖ Students should be encouraged to explore the names of satellites other than those given in the chapter.
- ❖ Teacher should update students with the latest discoveries in the field of space programmes.

### EXPECTED LEARNING OUTCOMES

The students know about

- ❖ the universe and the sun
- ❖ the special features of the moon.
- ❖ the formation of eclipses and their types.
- ❖ the formation of tides and their types.
- ❖ various types of artificial satellites and their applications.

### EVALUATIVE QUESTIONS

The teacher may ask the following questions for evaluating the understanding of students.

1. What do you mean by universe?
2. What are the craters of the moon?
3. Why does the moon shine?
4. Name the nearest star to the earth.
5. Name the largest planet of the solar system.
6. When does total solar eclipse occur?
7. Where do artificial satellites orbit?