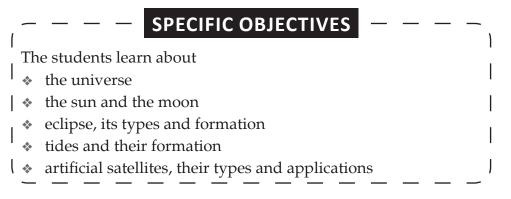
# The Universe



## 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 – Aryabhatta, 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?