1. Objects that make up the universe such as the sun, stars, planets, moon etc are known as **heavenly bodies**.

2. The heavenly bodies that twinkle are called **stars**. These heavenly bodies have their own light.

3. The sun is the closest star to the earth. All heavenly bodies get light from the sun. We cannot see other stars during day due to the bright light of the sun.

4. The heavenly bodies that do not twinkle are called **planets**.

5. Planets do not have their own light. They get their light from the stars.

6. Planets revolve around a star and also rotate around themselves simultaneously.

7. The sun and the planets, their satellites, dwarf planets and asteroids that revolve around the sun are together called the solar system.

8. The planets that revolve around the sun are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

9. The path along which a planet revolves around the sun is known as the **orbit** of that planet.

10. Earth is one of the eight planets. The Earth’s motion around the sun is called its revolution. Earth is the only planet to have life on it.

11. There are some smaller heavenly bodies present in the solar system. These are as follows:
   a. **Satellites**: The heavenly bodies that revolve around a planet are called satellites. Satellites get their light from the sun. The moon revolves around the earth. Thus, it is a satellite of the earth. Like earth, many other planets in the solar system have their own satellites.
   b. **Dwarf planets**: The smaller heavenly bodies that revolve around the sun are called dwarf planets. Dwarf planets have their own orbit along which they revolve independently around the sun. Example: Pluto
   c. **Asteroids**: The small heavenly bodies present in between the planets Mars and Jupiter are called asteroids. Asteroids also revolve around the sun.

12. All other heavenly bodies in the solar system are much smaller as compared to the sun. The moon is the heavenly body situated closest to the earth. Therefore it appears to be big, although it is much smaller than the sun.

13. The force of attraction or a pull exerted by all the heavenly bodies on one another is called **gravity**.

14. The sun exerts a gravitational pull on all the planets. On the other hand, the planets tend to move away from the sun. Under the combined effect of these two forces, planets keep revolving around the sun at a fixed distance in a fixed orbit. The satellites too revolve around the planet due to such forces existing between them.

15. **Earth’s Gravity**: The gravitational pull exerted by the earth is the reason for all things on earth to remain on it. Hence, anything thrown upwards with a greater force, finally falls down to the ground.
16. The emptiness between and beyond the stars and planets is called space or outer space.

17. **Rocket/ Space launch technology**: In order to send an object from earth into space, it must be given power to overcome the force of gravity. Rocket technology or space launch technology is used for this purpose.

18. **Rockets**: Rockets are used to send a spacecraft into space. Large quantity of fuel is burnt in rockets. This produces lot of energy which is used to push the rocket against the earth’s gravity with a great speed. Few countries of the world have developed space technology and sent spacecrafts into space. India is one of the leading nations in space launch technology.

19. **Astronauts**: The scientists who travel in the spacecraft are called astronauts. Rakesh Sharma was the first Indian astronaut to travel into space in 1984. He spent eight days on a space station as a part of a joint mission of the ISRO and the Soviet Intercosmos.

20. **India’s Space Missions**: The Indian Space Research Organization (ISRO) launched unmanned spacecrafts to the moon and planet Mars. Chandrayaan - I was launched to the moon on 22nd October 2008. Mangalyaan was launched to Mars on 5th November 2013. On 24th September, 2014, Mangalyaan got established in an orbit around the planet Mars. The objective of these missions is a deeper study of the moon and Mars.

21. **Man-made satellites**: Man-made satellites are artificial satellites that are put into orbit around the earth. They can remain in space for many years. Man-made satellites are used for telecommunication. These satellites provide useful information for agriculture, environment, weather forecasting, map making and searching for water and minerals on the earth.

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**Summative Assessment**

**Q** Fill in the blanks

(orbit, asteroids, satellites, space, gravity)

1. The specific path along which a planet revolves around the sun is known as ____________________ of the planet.

2. ____________________ are the heavenly bodies that revolve around planets.

3. ____________________ are the small heavenly bodies present between the planet Mars and Jupiter.

4. The emptiness between and beyond the stars and planets is called ____________________.

**Q** Right ✓ or Wrong ✗? If Wrong, write the correct sentence

1. The heavenly bodies that do not twinkle are called stars. ✗

   Ans: ____________________

2. The moon has its own light. ✗

   Ans: ____________________
3. Dwarf planets have an orbit of their own.

Ans:

Q Odd one out

Ans:

2. Moon, Asteroids, Sun, Earth.

Ans:

Q How are we different?
1. Planets and Stars

<table>
<thead>
<tr>
<th>Planets</th>
<th>Stars</th>
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Q Name the following
1. Force of attraction exerted by heavenly bodies on one another.

Ans:

2. Technology used for the purpose of sending spacecraft into space.

Ans:

3. Scientists who travel in the spacecraft.

Ans:

Q Answer in one word
1. Who am I?

*(1) I have my own light. It is only from me that the planets get light and heat.

Ans:

*(2) I am the nearest star to the earth.

Ans:

*(3) I turn around myself and revolve around the sun.

Ans:

*(4) No other planet has a living world like mine.

Ans:

*(5) I turn around myself, around a planet and also around a star.

Ans:

*(6) You can see me from the earth but the lighted part of me that you see changes every day.

Ans:

(7) I am a well known dwarf planet.

Ans:
1. For what purpose are rockets used in space travel?
Ans: 

2. What information do man-made satellites provide?
Ans: 

**Give reasons**

1. We cannot see stars during daytime.
Ans: 

2. An object thrown upwards falls back to the ground.
Ans: 

**Oral Test**

1. Answer orally in one sentence.
   (1) What is space?
   (2) What do you mean by revolution of earth?

2. Name the following.
   (1) Largest heavenly body in solar system.
   (2) Closest heavenly body to earth.
   (3) Small heavenly bodies between Mars and Jupiter.
Apply your Knowledge

1. Try this *(Textbook pg. no. 1)*

**(1)** Observe the sky on two clear nights, keeping a gap of about a week between them. Base your observation on the following points:
- The brightness of the heavenly bodies
- Whether they twinkle
- Their colour and size
- Changes in their positions

Ans:

<table>
<thead>
<tr>
<th>Points</th>
<th>Observations</th>
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<tbody>
<tr>
<td>The brightness of the heavenly bodies.</td>
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<tr>
<td>Whether they twinkle?</td>
<td>Yes  No</td>
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<tr>
<td>Their colour and size.</td>
<td></td>
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<tr>
<td>Changes in their positions</td>
<td>Yes  No</td>
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</table>
(2) On both nights, draw a picture of the illuminated portion of the moon and note how it changes from day to day.

Ans: 

2. Can you tell? *(Textbook pg. no. 3)*

Look at the picture of the solar system and answer the following questions.

(1) Which planet is nearest to the sun?

Ans: 
Chapter 1: Our Earth and Our Solar System

(2) At what position is the earth from the sun?
Ans: 

(3) Which planet is placed between the earth and Mercury?
Ans: 

(4) Name the planets beyond the orbit of Mars in serial order.
Ans: 

(5) Which planet is furthest from the sun?
Ans: 

3. Intext question (Textbook pg. no. 3)
In which direction do these things fall?
(1) Leaves, flowers, fruits from a tree.
(2) Rocks that come loose from a hillside.
(3) Rain falling from the sky.
Ans: 

*4. In the picture below, correct the sequence of the planets from the sun.

Ans: 

*
5. What’s the solution?
One of the asteroids has fallen out of its place in the asteroid belt and is hurtling towards the sun. Our earth is in its way and there is all likelihood of a collision. What can be done to prevent this collision?
Ans:

6. Use your brain power!
(1) What will happen to our solar system if the sun were to suddenly disappear?
Ans:

(2) Suppose you want to give your address to a friend you have on the planet Mars. How will you write your address if you want them to understand exactly where you live?
Ans:
Activity/ Project

* 1. Make charts about space research and display them in an exhibition.

* 2. Find out which planets in the solar system have satellites.
   Ans:

<table>
<thead>
<tr>
<th>Planets</th>
<th>Number of Satellites</th>
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3. Find out more about the work of Kalpana Chawla and Sunita Williams, astronauts of Indian origin. (Textbook pg. no. 4)

4. Find out the eight planets of solar system from the following puzzle.

```
  t i k f x c w i v e n u s
  y l j r u a e s q a e o z
  e d j j u p i t e r r g y
  b g f n r o t e q t r e a
  x s h u a d e y c h l j w
  m a r s n t b r z f h m b
  c t y c u g o u h p v l k
  o u d j s q t c i t o d i
  k r l a e i x r u r p e c
  r n e p t u n e q e o g a
  f y i o t r k m v w b o x
```

Grades:
A - Excellent
B - Good
C - Fair

Teacher’s Remark:

Date: ____________________  Sign: ____________________