

**PARAGON CONVENT SCHOOL**

**SECTOR : 24 B, CHANDIGARH**

**LESSON - 17**

**STARS AND THE SOLAR SYSTEM**

**Summary:**

- All the objects in the universe such as stars, planets, comets, asteroids etc are called celestial bodies.
- A galaxy is a huge collection of stars and other celestial bodies.
- Stars are luminous objects that produce large amount of heat and light. The source of energy of the stars is conversion of hydrogen gas into helium and other chemical substances.
- Constellations are groups of stars that resemble the shape of an object or a person.
- The Pole star can be located with the help of Ursa Major constellation.
- Our Solar System has our star the Sun orbited by eight planets.
- Asteroids are small and large celestial bodies that orbit the Earth between Jupiter and Mars.
- Moon is a natural satellite of the earth and it completes a revolution around the Earth in one month.
- Artificial satellites are human-made machines launched in space to revolve around the Earth or any other celestial body.

**Multiple Choice Questions (Page No. 253)**

1. (d)      2. (c)      3. (a)      4. (c)

**Multiple Choice Questions (Page No. 256)**

1. (b)      2. (c)      3. (b)      4. (b)

### **Multiple Choice Questions (Page No. 259)**

1. (b)      2. (a)      3. (b)      4. (d)

### **SECTION A**

#### **Oral Questions**

Q1.- Name any four heavenly bodies found in the universe.

Ans.- The Stars, the planets, the Sun and the asteroids, meteors, meteorites, comets

Q2.- Name two planets which rotate from the east to the west.

Ans.- Uranus and Venus

Q3.- What are asteroids?

Ans.- Asteroids are small, irregular heavenly bodies of rocks and metals which revolve around the sun in the gap between the orbits of Mars and Jupiter.

#### **Science Quiz**

Q1.- How many stars are there in each galaxy?

Ans.-  $10^{11}$  stars

Q2.- What is comet?

Ans.- A comet is a small body of ice and dust that moves around the Sun in an elliptical orbit.

Q3.- Name two dwarf planets.

Ans.- Eris and Ceres

### **WORKSHEET**

#### **Tick (✓) the correct options**

1. (a)      2. (b)      3. (b)      4. (b)      5. (a)

**Circle the odd ones. Give reasons for your choice**

1. Moon                      Meteorite                      Aryabhata                      Comet                      Asteroid

Ans.- Aryabhata → It is an artificial satellite, whereas others are heavenly bodies.

2. Jupiter                      Earth                      Uranus                      Saturn                      Neptune

Ans.- Earth → Only Earth has life on it, whereas others do not have.

3. Ursa Major                      Ursa Minor                      Pole Star                      Orion                      Leo

Ans.- Pole Star → It is a single star, whereas others are constellation.

**Fill in the blanks**

1. Sirius                      2. Hunter                      3. Halley's                      4. meteorite

**SECTION B**

**Multiple Choice Questions**

1. (a)                      2. (c)                      3. (c)

**Very Short Answer Questions**

Q1.- What is the temperature of the moon's surface at : a) daytime b) night time?

Ans.- (a) 123 °C                      (b) - 233 °C

Q2.- What do you mean by a light year?

Ans.- Light year is the distance travelled by the light in a year.

1 light year =  $9.46 \times 10^{12}$  km

Light year is a unit of distance not the unit of time.

Q3.- Name the largest planet in our solar system.

Ans.- Jupiter

Q4.- Why can we never see the backside of the moon from the Earth?

Ans.- We can never see the backside of the moon from the Earth because the moon

rotates about its axis in about the same time that it takes to orbit the Earth. This results in the same face of the moon turned towards the earth at all times.

### **Short Answer Type - I Questions**

Q1.- Why does the Sun appear to be larger and brighter than other stars?

Ans.- The Sun appears to be larger and brighter than other stars because it is much nearer / closer to the Earth than any other star.

Q2.- Which planet is called red planet and why?

Ans.- Mars is called the red planet because it is red in colour. The red colour comes from iron oxide (rust) in its soil.

Q3.- Why does the Pole Star appear stationary?

Ans.- The Pole Star appears stationary as seen from the Earth because it lies directly above the north pole close to the axis of rotation of the Earth.

Q4.- What is constellation? Name any two constellation.

Ans.- The stars which appear in the form of closed groups and form recognisable shapes and patterns are known as constellations. Ursa Major and Orion are two important constellations.

### **Short Answer Type-II Questions**

Q1.- Write any three points about Ursa Minor constellation.

Ans.- (i) Ursa Minor is also known as 'Little Dipper' or 'Little Bear' during the summer season. It is clearly seen in the northern part of the sky in July.

(ii) There are seven prominent stars in this constellation which form the shape of a dipper.

(iii) At the end of the tail of Ursa Minor is the Pole Star.

(iv) The stars in Ursa Minor are closer and less brighter than in Ursa Major.

Q2.- Why does the life exist on the Earth? Write three conditions.

Ans.- The Earth is the only planet in the solar system on which life is known to exist. Special environmental conditions required for existence of life on earth are-

(i) Earth is at the right distance from the Sun.

(ii) It has the right temperature range.

(iii) Presence of water

(iv) A suitable atmosphere

(v) A blanket of ozone

Q3.- Write any three differences between meteors and meteorites.

Ans.-

<u>Meteor</u>	<u>Meteorite</u>
1. Meteors burn completely before they reach the surface of the Earth.	1. Meteorites do not burn completely on entering the Earth's atmosphere and land on the Earth's surface.
2. The size of this heavenly body is very small as compared to the size of meteorites.	2. The size of this heavenly body is big.
3. They do not cause any damage.	3. They can create large craters and cause a lot of damage on the Earth's surface.
4. Scientific studies yet not possible.	4. They help the scientists to know about the nature of matter in outer space.

Q4.- The Sun always rises and sets on time. The planets always revolve around the Sun without being tired.

A) Discuss any two important features of planets.

B) What do you learn from these heavenly bodies?

Ans.- (a) (i) Planets are solid heavenly bodies which revolve around the Sun in closed elliptical orbits.

(ii) A planet has no light of its own. It shines because it reflects the light of the Sun.

(iii) Different planets have different sizes.

(iv) Some planets have one or more natural satellites.

(b) We learn to be disciplined, punctual and focused in life like these heavenly bodies. They teach us to be energetic and spread the warmth and light all around us.

### **Long Answer Questions**

Q1.- What is meant by the following phases of the moon

A) New moon      b) crescent      c) first quarter      d) gibbous moon      e) full moon

Ans.- (a) New moon : When the moon is in between the Earth and the Sun, then the side of the moon, lit by the Sun is away from the Earth and the side of the moon which is towards the Earth is dark. This is called a new moon. New moon night is called 'Amavasya' in India. You cannot see the moon at all on new moon night, it is very dark having no moonlight at all.

(b) Crescent moon : The phase of moon when a small portion of moon is lit by the Sun is called a crescent moon.

(c) First quarter moon : After 7 days of new moon, the sunlit portion of the moon facing the earth becomes bigger. So, we are able to see half of the moon. It is called first quarter moon

(d) Gibbous moon : When we see more than half of the moon, it is called the gibbous moon (at 10th day of new moon).

(e) Full moon : After 14 days or after two weeks time of new moon night, we are able to see the sunlit side of the moon, i.e., the full part of moon facing towards the Earth. It is also called as 'Purnima' in India. The full moon night is very bright because the moonlight is maximum on that night.

Q2.- a) What are artificial satellites? Give three differences between planets and satellites.

b) Give three uses of artificial satellites.

Ans.- (a) An artificial satellite is a human-made object that has been placed into the orbit around the Earth or some other planets to perform specific functions. They are launched from the earth. Eg., Aryabhata, Kalpana-1, etc.

<u>Planet</u>	<u>Satellites</u>
1. Planets are natural body.	1. Satellites are both natural and artificial, i.e., human- made objects.
2. Planets revolve around the Sun.	2. Satellites revolve around the planets.
3. Size of the planets is large as compared to the size of satellites	3. Size of the satellites is very small as compared to the planets.

(b) Uses of artificial satellites are as follows -

(i) In weather forecasting

(ii) For transmitting radio and television signals

(iii) For collecting information about other planets and about the outer space

(iv) For navigation

(v) For remote sensing to locate minerals, underground water or land mapping