CLASS 8

CHAPTER-17 STARS AND THE SOLAR SYSTEM

ANSWERS OF THE ASSIGNMENT UPLOADED ON April 6

I.MULTIPLE CHOICE QUESTIONS

1. (b) west to east

(a)

2. (a)
3. (c) light and heat

II. State whether the following statements are 'True' or 'False'.

a) False
b) True
c) True
d) True

III. Fill up:

a) Constellation
b) Nearer
c) West
d) 150 million km
e) 3×10^8 m/s

IV.VERY SHORT ANSWER QUESTIONS

1. Alpha Centauri is a star which is nearest to our solar system.
2. Pole star appears to be fixed as seen from the Earth's surface.

3. All the natural objects visible in the sky, outside Earth's atmosphere are called celestial objects. For example- Stars, planets, moon etc.
4. No, stars not only emit light during night but emit light during day time also. It is not visible during day time because of bright sunlight.
5. All other stars appear small compared to the Sun because it is further away from us than Sun.
6. The distance travelled by light in one year is called a light year.
7. A group of stars that appear to form a recognizable pattern in the sky is called a constellation. Examples: Ursa Major (Great bear), Orion, Leo major, Cassiopeia (any two).
8. Pole star does not appear to move because it is nearly situated on Earth's rotational axis over the North Pole.
9. We see the changes after 10 years because star is 10 light years away
   (Since, 1 light year= distance travelled by light in one year).

CONTINUATION…….

(Read, Learn and write down the notes in any available copy or sheet. Draw the constellations with pencil only)

Main Objective: The summary is about Constellations, different types of constellations, arrangement of stars in different constellation and their significance. It also tells about Solar system.

Constellations

(a) Great Bear *(b) Orion* *(c) Cassiopeia* *(d) Leo Major*

1. **URSA MAJOR**
    - One of the most famous constellations seen during summer time, in the early part of the night is Ursa Major.
    - It is also known as the Big Dipper, the Great Bear or the Saptarshi.
        - There are seven prominent stars in this constellation.
        - It appears like a big ladle or a question mark. There are three stars in the handle of the ladle and four in its bowl.
        - The shape of the constellation always remains same.
        - The constellation appears to move in the sky from east to west.

Fig.17.1

LOCATING THE POLE STAR

- Pole star can be traced using the constellation Ursa Major.

How to trace Pole star?(Activity 17.7) (NCERT)

- Look at the two stars at the end of Ursa major(Fig 17.2)
- Imagine a straight line passing through these stars (as shown below)
- Extend this imaginary line towards the north direction.
- This line will lead to a star which is not too bright called Pole star.

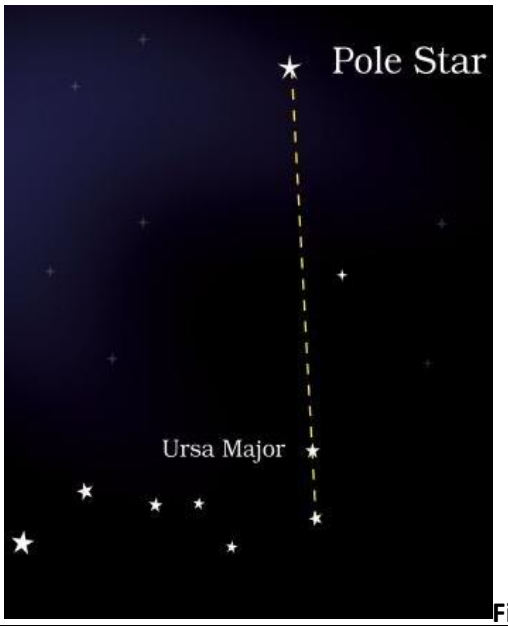

Fig.17.2

Activity 17.8(NCERT) shows that all other stars appear to move around Pole star. For this try to observe Ursa Major 3-4times at an interval of 2 to 3 hours during a summer night. Also locate Pole star each time.

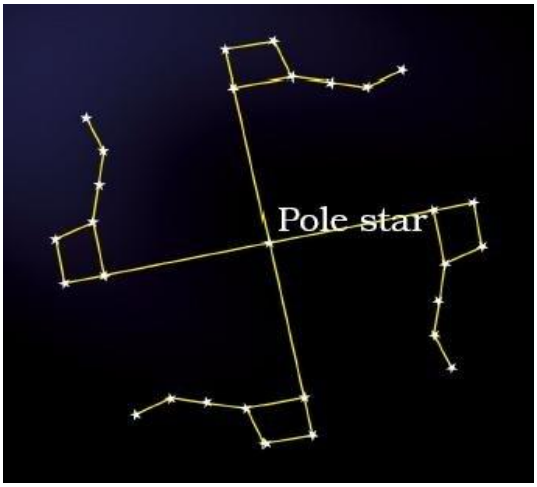

Fig.17.3

Fig. 17.2 shows that Constellation Ursa Major moves around the Pole star.

Note: *Pole star is not visible from the Southern hemisphere.

*** Some northern constellation like Ursa Major is not visible from the Southern hemisphere.**

2. ORION

- It is another well-known constellation that can be seen **during winter** in the **late evenings**.

- Orion is also called the **Hunter**.
- It is one of the **most magnificent** constellations in the sky.
- It also has **seven or eight bright stars**. The three middle stars represent the belt of the hunter. The four bright stars appear to be arranged in the form of a quadrilateral.

Fig17.4

SIRIUS :

- The **brightest star** in the sky which is located close to Orion.

How to locate Sirius?

- To locate Sirius, imagine a straight line passing through the three middle stars of Orion.
- Look along the line towards the east.
- This line will lead to a very bright star which is Sirius.

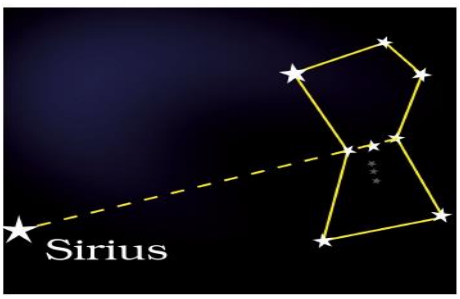

Fig 17.5:locating SIRIUS

3. CASSIOPEIA

- It is another prominent constellation in the **northern sky** which is visible **during winter in the early part of the night**.
- It looks like a distorted letter **W or M**


Fig.17.6

THE SOLAR SYSTEM

- The sun and all other planets and celestial bodies that revolve around it are together called a **solar system.**
- It consists of large number of bodies such as **planets, comets, asteroids and meteors**.
- All celestial objects keep revolving around the Sun due to the **gravitational attraction** between them.

OUR SOLAR SYSTEM

- Our solar system has 8 planets and an asteroid belt.
- The eight planets in their order of distance from the Sun are: **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune**

The Sun

- The sun is the nearest star to earth which is continuously emitting heat and light.

- It is the main source of heat and light energy for all planets in our solar system.

The Planets

PLANETS	STARS
• Planets are celestial bodies that do not emit their own heat or light.	• Stars are celestial bodies that emit their own heat and light.
• Planets do not twinkle	• Stars twinkle
• The planets keep changing their positions with respect to the stars.	• The stars do not change their position at all.

- Planets revolve around the Sun in fixed paths called **orbits**
- The time taken by a planet to complete one revolution is called **its period of revolution**.
- The period of revolution **increases** as the distance of the planet **increases** from the sun. Therefore, Planets nearer to the sun revolve faster as compared to the planets away from the sun.

  A planet also spins on its own axis which is called a rotation.
- The time taken by a planet to complete one rotation is called **its period of rotation.**

- Any celestial body revolving around another celestial body is called its **satellite.**

ASSIGNMENT 2

Answer the following:

1. Name the brightest star in the sky.
2. Name the constellation which looks like a distorted letter W or M.

3. Define the following terms:
    (i) Orbit
    (ii) Period of revolution
4. Why do you think Planets nearer to the sun revolve faster as compared to the planets away from the sun?
5. Differentiate between Stars and Planets.
6. Write a short on constellation Ursa Major.

7. Draw sketches to show the relative positions of prominent stars in
   (a) Ursa Major and
   (b) Orion Constellation **(In a black sheet of paper using silver coloured pen and keep it safe for submission when school reopens)**

Note:Answers will be uploaded with 3-4 days.