



INDIAN SCHOOL AL WADI AL KABIR



CLASS: VIII	DEPARTMENT: SCIENCE 2026 - 2027	DATE: 08/10/2026
WORKSHEET NO: 8 WITH ANSWERS	TOPIC: KEEPING TIME WITH THE SKIES	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. OBJECTIVE-TYPE QUESTIONS:

1. Rashmi observed the Moon for several weeks and noticed that its bright portion gradually decreased after the Full Moon and disappeared at the New Moon. What is this period called?
(a) Waxing period
(b) Waning period
(c) Full Moon period
(d) New Moon period
2. A student learns that the Indian National Calendar follows the annual cycle of the seasons and is designed to keep the calendar aligned with the Earth's seasonal cycle. Based on this, the Indian National Calendar tracks the:
(a) Phases of the Moon
(b) Sidereal year
(c) Lunar cycles only
(d) Solar year (tropical year)
3. A student learns that the time between two successive spring equinoxes is called the tropical year, while the time taken for the same stars to rise again at sunset is called the sidereal year. Which year is commonly used by astronomers to track Earth's position in its orbit around the Sun?
(a) Tropical year
(b) Lunar year

- (c) Sidereal year
- (d) Calendar year

For question numbers 8-10, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below -

- (A) Both A and R are true, and R is the correct explanation of the assertion.**
- (B) Both A and R are true, but R is not the correct explanation of the assertion.**
- (C) A is true but R is false.**
- (D) A is false but R is true.**

4. **Assertion (A):** India has developed and launched different satellites and space missions for studying Earth, the Moon, the Sun, Mars, and other celestial objects.

Reason (R): Different missions are designed for different purposes, such as Earth mapping, observing celestial objects, and exploring other planets.

5. **Assertion (A):** The Indian National Calendar is a solar calendar, and its year begins on 22 March in a normal year.

Reason (R): The Indian National Calendar was recommended by the Calendar Reform Committee, chaired by Meghnad Saha, and adopted in 1956.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. What is the difference between the waxing and waning phases of the Moon? [WB-SAQ.3]

[Hint: In waxing phases, the illuminated portion of the Moon increases each day from new Moon to full Moon. In waning phases, the illuminated portion decreases from full Moon to new Moon.]

2. a) Name the two periods of the Moon's phase cycle and their Indian names.

[Hint: Waxing period (Shukla Paksha) and Waning period (Krishna Paksha).]

- b) What are the crescent and gibbous phases of the Moon?

[Hint: When more than half of the Moon's illuminated portion is visible, it is called the gibbous phase.

When less than half of the illuminated portion is visible, it is called the crescent phase.]

3. What is the role of artificial satellites in our daily life? [WB-SAQ.5]

[Hint: Artificial satellites help in communication, weather forecasting, navigation, television broadcasting, and disaster management. They play an important role in modern life and scientific research.]

III. SHORT ANSWER TYPE QUESTIONS (3M):

1. What is a tropical year? Explain the significance of the spring equinox in defining a tropical year.

[Hint: A tropical year is the time between two successive spring equinoxes. The spring equinox is the day when day and night are almost equal in length and marks the beginning of spring in the Northern Hemisphere. The Gregorian calendar is based on the tropical year.]

2. How can one locate the Moon in the sky based on its phase?

[Hint: The Moon can be located in the sky based on its phase. A Full Moon rises around sunset and is nearly opposite the Sun. A waxing Moon is easiest to see around sunset, while a waning Moon is easiest to see around sunrise. The Moon rises about 50 minutes later each day as it moves forward in its orbit around Earth.]

3. a) How do Uttarayan and Dakshinayan help us track the Sun's apparent movement in the sky?

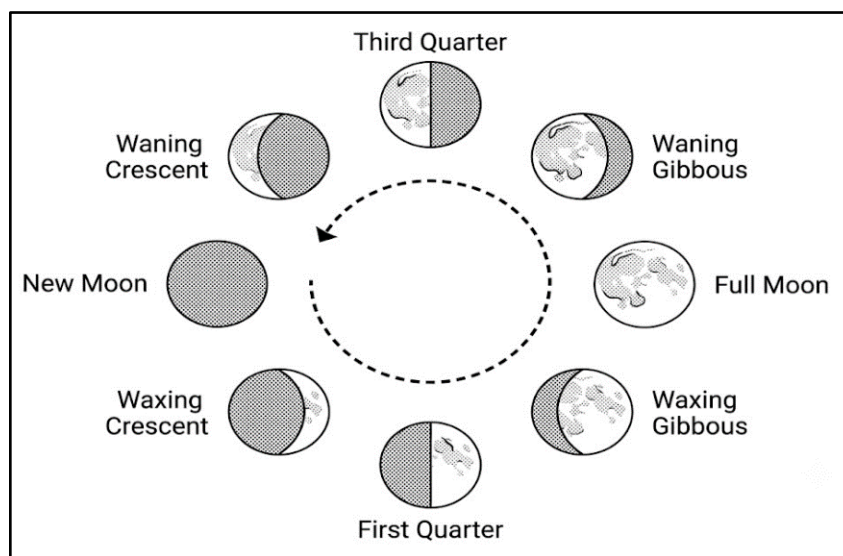
[Hint: They describe the apparent northward (Uttarayan) and southward (Dakshinayan) movement of the Sun, helping track solstices and seasons.]

- b) What does the term 'sidereal year' mean, and how is it different from a tropical year?

[WB-LAQ.7]

[Hint: A sidereal year is the time taken by Earth to complete one orbit around the Sun relative to distant stars. A tropical year is based on seasons and equinoxes. The tropical year is slightly shorter than the sidereal year.]

4. Draw and label the different phases of the Moon as observed from Earth.



IV. LONG ANSWER TYPE QUESTIONS (5M):

1. Describe the major Indian satellites and space missions mentioned below and explain their main purposes.

[Hint: India has developed several satellites and space missions for different purposes. The Cartosat series provides high-quality images of Earth that are useful for mapping, city planning, and disaster management. Bhuvan is a mapping platform that uses Cartosat images to study terrain, soil, and land use. AstroSat is used for the scientific observation of stars and other celestial objects. Chandrayaan-1, 2 and 3 are missions to explore the Moon, while Aditya-L1 is designed to study the Sun. Mangalyaan was India's mission to Mars. AzaadiSat, InspireSat-1, and Jugnu are examples of small satellites built or launched with the participation of Indian students.]

2. How are Indian festivals connected to astronomical phenomena? Explain with examples of festivals based on lunar, solar, and luni-solar calendars.

[Hint: Many Indian festivals are based on Moon phases or the Sun's position. Lunar calendar festivals (e.g., Eid-ul-Fitr) depend on Moon phases and the shift in the Gregorian calendar. Luni-solar calendar festivals (e.g., Diwali) adjust lunar months with intercalary months to match the solar year. Solar sidereal festivals (e.g., Makar Sankranti) depend on the Sun's position, occurring on nearly the same date annually. Astronomical calculations (like Rashtriya Panchang) help predict exact dates.]

V. CASE STUDY- BASED QUESTIONS/PASSAGE-BASED QUESTIONS:

For thousands of years, people in India observed the sky and noticed regular patterns without modern instruments. By studying the Sun's movement, they estimated that a year is about 365 days and developed calendars. The Sun rises slightly north of East in summer and south of East in winter. Its apparent movement from December to June is called Uttarayan, while its movement from June to December is called Dakshinayan. These cycles are linked to the changing seasons.

1. How did ancient people develop calendars?

[Hint: By carefully observing repeated patterns in the sky and natural events.]

2. Where does the Sun rise in summer and winter?

[Hint: It rises slightly north of East in summer and south of East in winter.]

3. What are Uttarayan and Dakshinayan?

[Hint: Uttarayan is the Sun's apparent northward movement, while Dakshinayan is its apparent southward movement.]

ANSWERS FOR OBJECTIVE TYPE QUESTIONS [1 to 5] –

1. (b) Waning period
2. (d) Solar year (tropical year)
3. (c) Sidereal year
4. (A) Both A and R are true, and R is the correct explanation of the assertion.
5. (B) Both A and R are true, but R is not the correct explanation of the assertion.

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