12 Beyond Earth

A. Multiple Choice Questions.

1. Nubra is a beautiful region in which of the following states?
   a. Himachal Pradesh b. Uttarakhand c. Jammu and Kashmir d. Sikkim

2. The weather in Nubra is often described as:
   a. Humid and cloudy b. Rainy and stormy
   c. Dry and arid a d. Cold and snowy

3. Which organization is responsible for defining the internationally agreed set of constellation boundaries?
   a. NASA b. ESA c. IAU d. WMO

4. Which star is known as Rohini in Indian astronomy?
   a. Betelgeuse b. Sirius c. Aldebaran d. Polaris

5. Which constellation does the star Betelgeuse belong to?
   a. Taurus b. Orion c. Canis Major d. Ursa Major

6. Which celestial body is about 100 times bigger than Earth in diameter but appears small due to its vast distance?
   a Moon b. Mars c. Sun d. Jupiter

7. What are smaller celestial bodies like Pluto called, according to the International Astronomical Union (IAU)?
   a. Asteroids b. Comets c. Minor planets d. Dwarf planets

8. Which of the following organizations often organize sky-watching events?
   a. Museums and Planetariums b. Higher Education Institutions only
   c. Amateur Astronomy Clubs only d. All of the above

9. Approximately how long does it take the Moon to revolve around the Earth?
   a. 7 days b. 14 days c. 21 days d. 27 days

10. What is the Sanskrit name for a comet?
    a. Nakshatra b. Graha c. Dhumaketu d. Surya

B. Fill in the Blanks.

Venus	Smaller	Moons	Spherical	North
Craters	Constellations	Stars	Saptarishi	Light

1. _____ have been named after animals or mythical people.
2. The Pole Star appears stationary in the _____ direction.

www.onepointlearning.com

3. Big Dipper is known as _____.
4. _____ pollution makes it difficult to see stars in big cities.
5. Earth and Mars are _____ in size and have solid surfaces with rocks on them.
6. _____ is the brightest object in the sky after the Sun and the Moon.
7. _____ are natural satellites of planets.
8. The Moon's surface shows circular bowl-like structures called _____.
9. The Sun and the planets are nearly _____ in shape.
10. A galaxy has millions to billions of _____.

C. State true or false.

1. Stars shine with their own light. ☐
2. Some groups of stars appear to form patterns which are not like shapes of familiar things. ☐
3. There are 88 officially recognized constellations, as defined by the IAU. ☐
4. The Little Dipper helps locate the North direction in the Southern Hemisphere. ☐
5. The Sun is a planet. ☐
6. The distance of the Sun from the Earth is about 150 million km. ☐
7. The four outermost planets are mostly made of rocks. ☐
8. Jupiter, Saturn, Uranus and Neptune have a large number of moons. ☐
9. There are 9 planets in our Solar System. ☐
10. Planets do not twinkle like stars. ☐

D. Answer the following questions.

1. What is a constellation?
Ans. _____
_____

2. What is the Big Dipper?
Ans. _____
_____

3. What is light pollution and how does it affect stargazing?
Ans. _____
_____

4. What was India's Chandrayaan mission?
Ans. _____
_____

www.onepointlearning.com

5. What is an asteroid?
Ans. _____
_____

6. Name the eight planets in order of their distance from the Sun.
Ans. _____
_____

7. What are comets?
Ans. _____
_____

8. What is the Milky Way Galaxy?
Ans. _____
_____

9. What are exoplanets?
Ans. _____
_____

10. Is there life on other planets?
Ans. _____
_____

E. Answer the following questions in details.

1. Why is the Pole star not visible from the southern hemisphere of the Earth?
Ans. _____
_____

2. Why can't we see stars during the daytime?
Ans. _____
_____

3. Why was the Sun considered a deity in many ancient civilizations?
Ans. _____
_____

4. Why is Venus hotter than other planets?
Ans. _____
_____

5. Why do lunar craters remain visible for a very long time?
Ans. _____
_____

6. Why does the Sun look bigger than other stars?
Ans. _____
_____

www.onepointlearning.com

7. Why were comets feared in ancient times?
Ans. _____
_____

8. Why is the Earth called a unique planet?
Ans. _____
_____

9. Why is Moon not considered a planet?
Ans. _____
_____

10. Why is our galaxy called Milky Way?
Ans. _____
_____

F. Match the Following.

Column A	Column B	Ans.
1. Orion	i. Morning or Evening Star	a. ____
2. Pole Star	ii. appears every 76 years	b. ____
3. Venus	iii. A hunter constellation	c. ____
4. Mars	iv. Blue Planet	d. ____
5. Halley	v. Red Planet	e. ____
6. Earth	vi. known as Dhruva tara	f. ____

G. Give One-Word Answers.

1. Name the device that used to find direction. :- _____
2. The brightest star in the night sky. :- _____
3. The Indian term for a group of stars. :- _____
4. The closest star to Earth. :- _____
5. Name the star which nearest to Earth after the Sun. :- _____
6. A celestial body that orbits the Sun. :- _____
7. A tool used to observe faint stars which are not visible to the naked eye :- _____
8. A natural satellite of Earth. :- _____
9. 'National Space Day' is celebrated on which day. :- _____
10. Name the first country in the world to achieve a landing near the little explored Moon's south pole. :- _____

www.onepointlearning.com

H. Give answer in words.

1. Name two constellations.

   _____

2. Name the other names of Pole Star.

   _____

3. Name two apps that help us identify stars and constellations and predict their visibility.

   _____

4. Write some natural phenomena are influenced by the Sun.

   _____

5. Name the four inner planets nearest to the Sun.

   _____

6. Name the four outermost planets around the Sun.

   _____

I. Difference between following. (At least two points)

1. Revolution and Rotation

Revolution	Rotation

2. Planet and Star

Planet	Star

www.onepointlearning.com

3. Asteroids and Comets

Asteroids	Comets

J. Answer the following questions in details.

1. Explain how constellations were used for navigation in ancient times.
Ans. _____
_____
_____
_____

2. Describe the significance of the Orion constellation.
Ans. _____
_____
_____
_____

3. Explain the factors that affect the visibility of stars.
Ans. _____
_____
_____
_____

4. Describe the steps involved in identifying a star or a constellation.
Ans. _____
_____
_____
_____

5. What is Pluto and why is it no longer called a planet?
Ans. _____
_____
_____
_____

www.onepointlearning.com

G. Solve the puzzle.

ACROSS

2. _____ System is part of the Milky Way Galaxy.

5. Huge balls of burning gases

7. A group of stars called Pleiades in the Taurus constellation.

10.It includes all of space, and all the matter and energy that space contains.

11. A large objects made of dust and ice that orbit the Sun.

13. An ancient name of mars.

DOWN

1. A large, nearly spherical object that revolves around the Sun.

3. An ancient name is Prithvi.

4. A star called Betelgeuse in the Orion constellation.

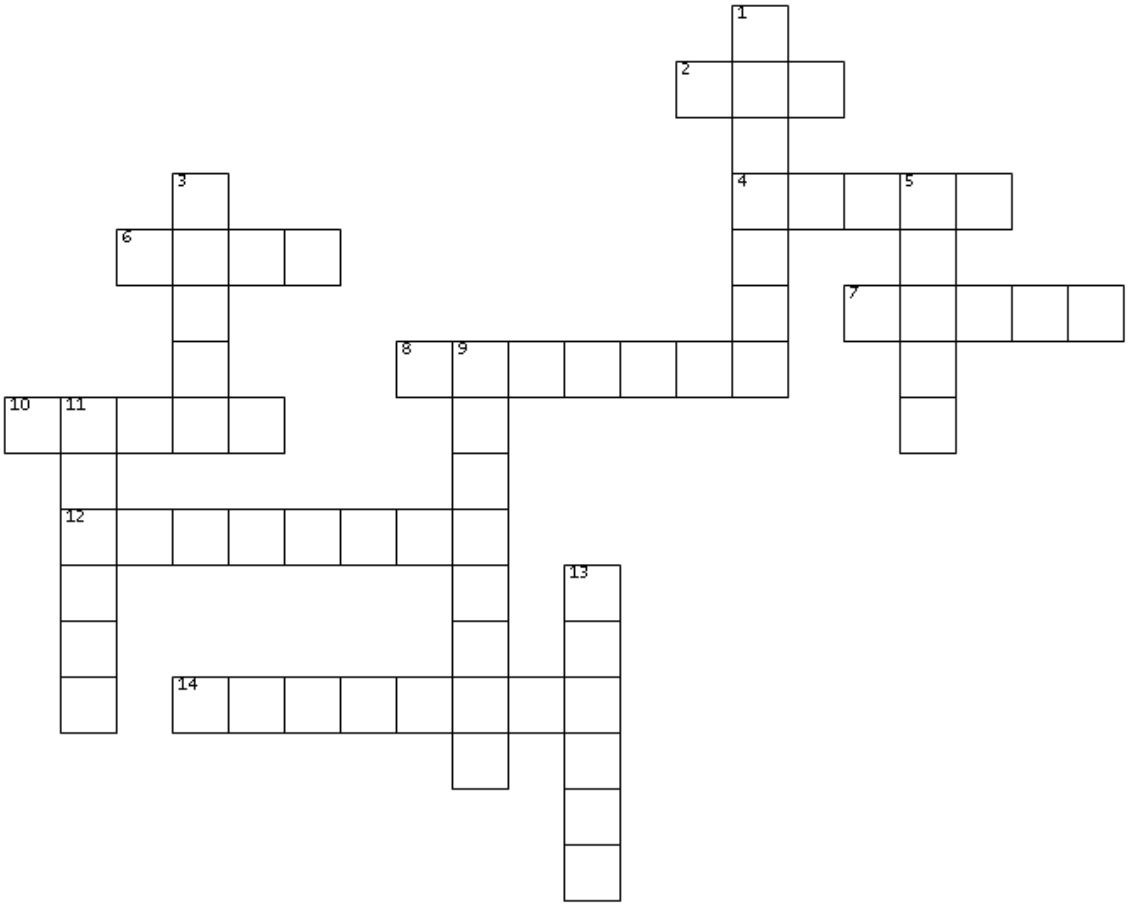
6. Battling a bull

8. A small and rocky objects pass very close to the Earth.

9. Star with a tail

12. A star worshipped as Surya in India.

13. It is about 3,84,000 km away from the Earth.



arning.com

Answer

A.

1. Jammu and Kashmir
2. Dry and arid
3. IAU
4. Aldebaran
5. Orion
6. Jupiter
7. Dwarf planets
8. All of the above
9. 27 days
10. Dhumaketu

B.

1. Constellations
2. North
3. Saptarishi
4. Light
5. Smaller
6. Venus
7. Moons
8. Craters
9. Spherical
10. Stars

C.

1. True
2. False
3. True
4. False
5. False
6. True
7. False
8. True
9. False
10. True

D.

1. A constellation is a group of stars that appear to form a pattern in the night sky.
2. The Big Dipper is a prominent asterism in the constellation Ursa Major.
3. Light pollution is excessive artificial light that hinders our ability to see stars at night. It scatters and obscures starlight, making it difficult to observe celestial objects.
4. India's Chandrayaan mission was a series of lunar exploration missions launched by the Indian Space Research Organisation (ISRO).
5. Asteroids are small, rocky objects that orbit the Sun, mostly found in the asteroid belt between Mars and Jupiter.
6. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
7. Comets are celestial objects composed of ice, dust, and rock that orbit the Sun in highly elliptical orbits.
8. The Milky Way Galaxy is a spiral galaxy that contains our solar system.
9. Exoplanets are planets that orbit stars other than our Sun.
10. Currently, there is no definitive scientific evidence of life on other planets.

E.

1. The Pole Star is aligned with the Earth's axis of rotation, making it appear stationary in the northern sky. Observers in the southern hemisphere cannot see the North Pole and therefore cannot see the Pole Star.
2. During the daytime, sunlight overwhelms the faint light of stars, making them invisible to the naked eye.
3. The Sun was considered a deity in many ancient civilizations because it was the source of life and energy, controlling the cycle of day and night, seasons, and weather patterns.
4. Venus has a thick, greenhouse gas-rich atmosphere that traps heat from the Sun, causing it to be much hotter than other planets.
5. Lunar craters are formed by the impact of meteoroids and are not eroded by wind or water, as there is no atmosphere or liquid water on the Moon.
6. The Sun appears larger than other stars because it is much closer to Earth than any other star.
7. Comets were feared in ancient times because their unpredictable appearances were often associated with disasters and calamities.
8. Earth is unique because it has liquid water, a suitable atmosphere for life, a stable climate, and a protective magnetic field.

www.onepointlearning.com

9. The Moon is not considered a planet because it orbits the Earth and is not a self-sufficient celestial body.
10. Our galaxy is called the Milky Way because it appears as a faint band of light stretching across the night sky, resembling spilled milk.

F.

1. iii 2. vi 3. i 4. v 5. ii 6. iv

G.

1. Compass
2. Sirius
3. Nakshatra
4. Sun
5. Proxima Centauri
6. Planet
7. Telescope
8. Moon
9. August 23rd
10. India

H.

1. Two constellations: Orion, Ursa Major
2. Other names of Pole Star: Polaris, Dhruva Tara
3. Two apps: Sky Map, Stellarium
4. Natural phenomena influenced by the Sun: Seasons, tides, day and night cycle, photosynthesis
5. Four inner planets: Mercury, Venus, Earth, Mars
6. Four outer planets: Jupiter, Saturn, Uranus, Neptune

I.

1. "Rotation" refers to an object's spinning motion about its own axis.
   "Revolution" refers the object's orbital motion around another object.
   For example, Earth rotates on its own axis, producing the 24-hour day.
   Earth revolves about the Sun, producing the 365-day year.

2. Stars are made of helium and hydrogen, while planets are made of solids, liquids, gases, or a combination of the three.
   Stars produce their own light through nuclear fusion reactions, while planets reflect light from an external source, usually the Sun.
   Planets orbit around the Sun, while stars do not.

3. Asteroids are made of rock and metal, while comets are made of ice, dust, and rock.
   Asteroids formed closer to the sun, where it was too warm for ices to remain solid. Comets formed farther from the sun, where ices could stay solid.

J.

1. Ancient civilizations used constellations for navigation by recognizing patterns in the night sky and tracking the movement of celestial bodies. They could determine direction, time, and seasonal changes, aiding in travel, agriculture, and religious practices.
2. The Orion constellation is significant for its prominent stars, including Betelgeuse and Rigel, and its association with various myths and cultures. It is also used by astronomers to locate celestial objects and calibrate telescopes.
3. The visibility of stars is affected by factors such as light pollution, atmospheric conditions, and the observer's location. Light pollution reduces the contrast between stars and the night sky, making it difficult to see fainter objects. Atmospheric conditions like haze, fog, or clouds can scatter starlight, reducing visibility.
4. To identify a star or constellation, one can use star charts, planetarium apps, or a telescope. Start by locating a familiar constellation, then use it as a reference point to find other stars and patterns. Consider the time of year and the direction you are facing to identify visible constellations.

www.onepointlearning.com

5. Pluto was reclassified as a dwarf planet in 2006 because it does not meet the criteria for a planet, which include having a nearly circular orbit, clearing its orbital path of other debris, and having sufficient mass to achieve a spherical shape. Pluto's orbit is highly elliptical, and it shares its orbital path with other Kuiper Belt objects.

K.