

Learning Teaching Plan(LTP) - Science

TOPIC	Stars, Planets and Constellations
DURATION	75 mins

CURRICULAR GOALS	CG-2 Explores the physical world in scientific and mathematical terms CG-12 Develops abilities and sensibilities in Visual and Performing Arts and expresses their emotions through art in meaningful and joyful ways.
COMPETENCIES AS PER NCF/NIPUN BHARAT	C-2.5 Observes and identifies celestial objects (stars, planets, natural and artificial satellites, constellations, and comets) in the night sky. C-12.2 Explores and plays with own voice, body, spaces, and a variety of objects to create music, role play, dance, and movement
SDG(Sustainable Development Goals)	SDG4 : Quality education

Strategies As Per NEP	Art Integration
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Technology aids	Video - LTP_IA_Jyothis shastra and astronomy
Learning Aids	LTP_Match the Q and A.pdf
Assessment (As, For, Of)	AOL - Game-based Assessment (Chain Reaction)
Cross-Cutting Themes	Indian Knowledge System, Technology aids, Inclusion

Previous Knowledge Required	Basic knowledge of the solar system
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Specific Learning Outcomes

Students will be able to

1. demonstrate the characteristics of stars, planets and constellations [Fulfils C 2.5 & C 12.2]
2. Match the answers to the questions related to characteristics of celestial bodies

[The following assets are used to explain the concept. To know more about these asset types, please refer to the Graphic Organiser (GO) provided at the end of this document.]

Methodology (Asset types)	Description of task	Teacher tasks	Student tasks	Time (Mins)
Suggested Activity(SA) SA_Celestial Conversation	Warm-up questions: 1)What are the celestial bodies you see in the night sky? 2)We cannot see the Sun at night, even though it is a Star. Why? Role Play Students will take on roles as different celestial objects and present their characteristics in a creative and engaging way. The role play will be presented in class, followed by an assessment. It can also be put up as a campus program in assembly.	a) In the first 5 minutes, ask the warm-up questions. For Role Play- b) Form groups of 3 students. b) Assign one celestial body to each group. c) Take the printout of the basic script provided. d) Distribute the respective dialogues to the assigned role groups. e) Instruct the groups to collaborate such that 1 student is the actor, the other two to help in adding more points to dialogues and creating props, placards, etc. Find the sample: Refer to Note SA1.1	a) Collaborate within their group b)Prepare for the dialogues c)Make props or placards as per their creativity d)Rehearse amongst themselves e) Do the final demonstration	Preparation - 30 mins Delivery - 25 mins
Questions to assess(QA) QA_Characteristics of celestial bodies	The activity 'Chain Reaction' will be conducted in the class. There is a List of Mismatched Questions and Answers. Find the list in the	Take a printout of the given list of Mismatched Questions and Answers. Cut out along the dotted line, and distribute 1 pair to each	a)Students take turns to read out the question from their slip. b)student who has the correct answer will give the answer	20

	document: LTP_QA_LA_Beyond Earth	student. Conduct the game-based quiz - facilitate the smooth flow of the game.	and read the question given on his/her slip, and thus the game continues till each strip is used	
Interesting Aside (IA) IA_Jyothish Shastra	The ancient Indians knew the position and movement patterns of celestial bodies. Based on their movement, they designed the Hindu Calendar (Panchanga). They could also make predictions on various aspects of human life and our world—this is known as Vedic Jyothish Shastra, which is modern-day astrology.	Show the video IA_Jyothish shastra and astronomy Question: Find out from your parents your birth star, that is, the star that was on the horizon at the time of your birth.	Watch the video Find answer to the question.	

Note SA1.1

Script for the role play

A Celestial Conversation

Objective

Students will take on roles as different celestial objects (e.g., the Sun, Moon, planets, asteroids, constellations etc.) and present their characteristics in a creative and engaging way.

How to Conduct the Role-Play

Step 1: Assign Roles

- Each student picks or is assigned a celestial object.
- Provide them with basic facts or let them research.

Step 2: Prepare a Short Script

- Each student writes a short monologue (2-3 sentences) introducing their celestial object.
- Encourage creativity! They can act out spinning, orbiting, or shining.

Step 3: Present to the Class

- Students take turns introducing themselves as their celestial object.
- Encourage interaction:
 - "I am the Moon. I orbit Earth!"
 - "Hello, Moon! I am the Sun, and I give you light."

Sample Script

The universe was vast and silent, yet among the twinkling lights, celestial objects often whispered to one another. Tonight was no different.

Scene: A Cosmic Gathering

(The celestial bodies gather in space, twinkling and orbiting as they chat about what they used to think and what they know now.)

Earth: Hello, everyone! It's so great to see you all. I was just thinking about how much I've learned over the years.

Sun: Oh? Do tell, Earth!

Earth: Well, I used to think I was the only planet with life, sitting at just the right distance from the Sun and I am the center of everything, but now I know that I actually orbit *you*, Sun! and also, that you are also a star, a big one. And which can be seen during the day only!!!

Sun: That's right! And I may seem big to you, but compared to other bigger stars, I'm just a medium-sized one. I cannot be seen at night like other stars because I am on the other side of Earth at night!!!

Moon: Super!! *I'm always with Earth, pulling Earth's tides and keeping her company. We make a great team!* And I reflect sunlight, which is why I shine at night. Also, I used to think I was the only moon out there, but now I know that other planets have moons too! Jupiter has 92 moons—so many siblings!

Mercury: Hey there! I'm the smallest planet, barely bigger than the Moon! I stay super close to the Sun, but guess what? Even though I'm closest to the Sun, I'm not the hottest!"

Venus: "That's right! I hold the title of the hottest planet. My thick atmosphere is composed of carbon dioxide, a Greenhouse gas. It traps the heat of the sun and doesn't let it go at night, too! And I shine so brightly that I'm the third brightest object in Earth's sky after the Sun and Moon!"

Mercury: Oh.... ok! So this is the reason. I don't have an atmosphere at all. I am too hot during the day and coldest at night. But I am visible in the mornings and evenings as I am so close to the moon

Polaris: I am called the Pole Star! I used to wonder, why people used to spot me to find their way on Earth!

But, now I know that I am close to earth's axis of rotation so I am always visible in the northern sky.

Ursa Major: I used to think I was just a cool pattern in the sky, but now I know I help people to find the Polestar! Two of my stars Dubhe and Merak are known as "pointers" because a line drawn through them points towards the North Star (Polaris).

Ursa Minor: My group of stars is called Little Bear! I used to think I was smaller and less important, but I hold the Polaris, which helps travellers navigate!

Orion: Speaking of navigation, sailors have used me for centuries to find their way across the oceans! I may be a hunter in myths, but I'm a guide in reality! I am one of the few constellations that can be seen from almost every part of the world, and I am easily recognisable by my 3 bright stars called 'Orion's belt'.

Halley's Comet: "Well, I might not be a planet or a star, I am a ball of ice, dust and gases. I show up every 76 years to put on a spectacular light show!"

Moon: Wow!!! When can we see you?

Halley's Comet: I'll be back to visit Earth in 2061!

Earth: So glad! I can't wait! Ok, Sun who is the next nearest star do we have?

Proxima Centauri: I am Proxima Centauri.... I used to think I was close to you all, but even though I'm the closest star to the Sun, I'm still more than 40 trillion kilometers away!

Asteroids: Hello! everyone! I am Ceres, the largest Asteroid, found between the orbits of Mars and Jupiter. We used to think we were just boring space rocks, but scientists now believe some of us might have building blocks of life on us!

Sun: That's why science is important—it turns what we think into what we know!

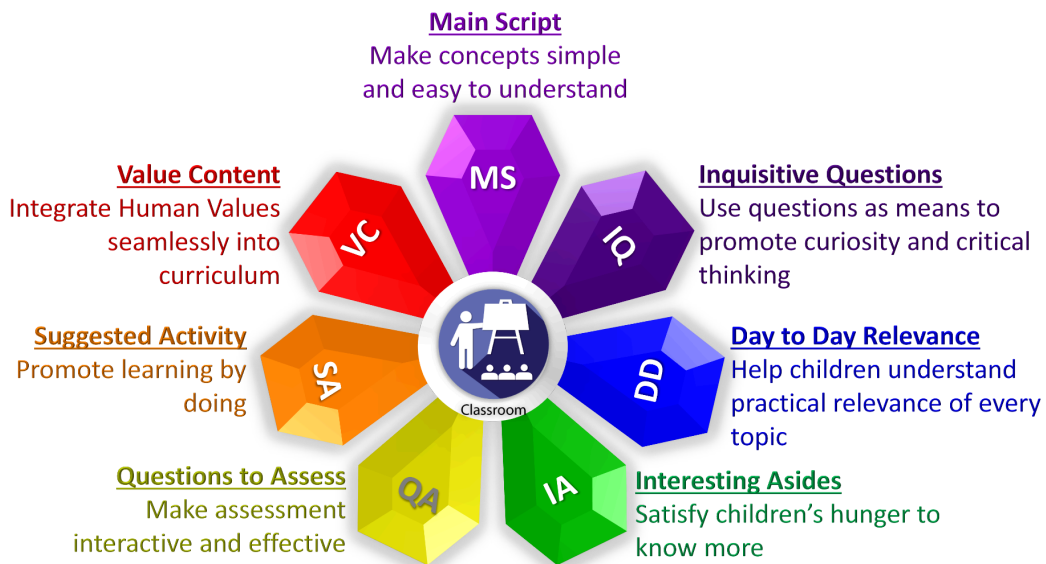
Moon: And we're all part of an incredible, ever-changing universe!

Earth: Yes! Let's keep exploring, learning, and shining together!

All: To the universe and beyond!

(The celestial bodies twinkle and continue their cosmic dance as the scene fades to darkness.)

7 Assets [Components] of SSSVV



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