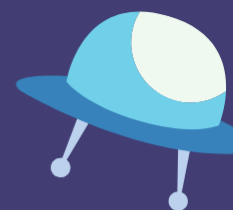




BNV COLLEGE OF TEACHER EDUCATION



PHYSICAL SCIENCE ASSOCIATION

SCIENTIA



ANNUAL REPORT 2024-2025



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CHAPTER 1

INTRODUCTION

A subject association in an educational institution is an organization dedicated to a particular subject and focuses on activities and initiatives related to a specific academic subject. The association aims to create a deeper interest and understanding of the specific academic subject among students and faculty member. It serves as a platform for learning skill development and collaboration outside the regular classroom setting. The major activities administered by the subject association includes workshops and seminars, field visits, competitions, publications, celebration of the subject days, etc.

As a part of the Bachelor of Education (B. Ed.) Curriculum of the University of Kerala, 2019, the Department of Physical Science of the **BNV College of Teacher Education** have the **Physical Science Association** named "**Scientia**". *Scientia* focuses on fostering deep interest in physics and chemistry and related branches of science among the student teachers. The Physical Science Association serves as an integral part of teacher education, fostering a deeper understanding and appreciation of the principles of physics and chemistry among student teachers. The association's activities are clearly aligned to the objectives of teacher training emphasizing the development of scientific temperament by participating in various activities such as workshops, competitions, field trips, etc., student teachers gain valuable insights into how to make physical science more engaging and accessible for learners. This report outlines the initiatives and programs conducted by *Scientia* in the year 2024-25, showcasing how these activities have contributed to the professional growth of the student teachers and their preparedness to be effective science educators.

CHAPTER 2

SCIENTIA 2024 - 2025

Scientia 2024 - 25 is a vibrant forum dedicated for the holistic development of student teachers specializing in Physics and Chemistry. The primary goal is to equip the future educators with the spirit of inspiring the younger generation of students to make the learning both engaging and effective. The focus areas ensure a balanced approach to both subject mastery and pedagogical effectiveness.

One of the major focus areas of *Scientia 2024 - 25* was promoting critical thinking through a spirit of inquiry and logical reasoning among its members. A significant emphasis is placed on effective teaching methodologies. The association equips student teachers with innovative strategies to make science learning engaging and impactful. Training including the use of interactive teaching aids, technology-based tools, activity-based learning, etc.

Connecting sites with real-life application was also an area of focus for the association's efforts. Activities were designed to highlight how physical science principles are applied in everyday life and contribute to technological advancements. Field visit to research centres were organized to provide student teachers with practical insights and inspire them to convey the relevance of science to their students. The functioning of *Scientia* is guided by a structured framework that emphasizes creativity, collaboration and innovation. It is managed by the committee comprising a faculty member of the Physical Science Department and student teacher representatives. There are five executive members who plan and organize activities aligned with the objectives of the organization. There is total 14 members for overall coordinating and functioning of the association. The executive members of *Scientia* are listed below.

EXECUTIVE MEMBERS

SCIENTIA 2024 – 25



Anakha R S
President



Thejas Krishna P V
Vice-President



Athira S S
Secretary



Naveen P
Treasurer



Dr. Sunikumari P M
Co-ordinator

OTHER MEMBERS

1. Athira SS
2. Bhagya Willy Brod
3. Devi Krishna A S
4. Fathima Ciyana M
5. Krishnapriya H R
6. Mayoory A K
7. Namitha Devi V N
8. Sumi V T
9. Varsha R

CHAPTER 3

INAUGURATION

The inauguration of the Physical Science Subject Association, *Scientia*, for the academic year 2024–2025 was held with great enthusiasm at BNV College of Teacher Education on 29th November 2024 as a part of the College Union Inauguration Ceremony. The ceremony was graced by Dr. Meera Kumari G, Academic Director of BNVCTE, who officially inaugurated the association.

In her inaugural address, Dr. Meera Kumari G emphasized the transformative role of science in education and the need to nurture scientific temper among future educators. She highlighted the significance of curiosity-driven learning and the importance of hands-on, inquiry-based teaching practices in Physical Science classrooms. Her words served as a motivating call for budding teachers to innovate and think beyond textbooks.



Inauguration of *Scientia* by Dr. Meera Kumari G Academic Director, BNVCTE

CHAPTER 4

MAJOR ACTIVITIES & EVENTS

The *Scientia 2024 - 25* organizes a wide variety of activities to enrich the academic, practical and professional competencies of student teachers. It focuses on enhancing subject knowledge, promoting scientific temper and developing innovative teaching strategies that are essential for effective science education.

One of the core activities of *Scientia* is organizing thrice-in-a-week morning assemblies which are scheduled on Monday, Tuesday and Thursdays of every week. The Assembly have three programs such as News Reading, Introducing a Scientist and Presenting Thought for the Day. The programs will be anchored by the Moderator. The duties of these activities were circulated among the association members as designed by the President. Along with this there will be Bulletin Board presentation assigned to each 13 group members every week. The Bulletin Board should be relevant to recent scientific events or day celebration, or any sort of occurrence which are significant in the realm of science.

1. Class Assembly

Scientia 2024 - 25 organizes Class Assemblies in every Monday, Tuesday and Thursday of the weeks, to foster scientific enthusiasm, promote critical thinking and enhanced communication and organizational skill of student teachers. This activity is designed to integrate scientific thoughts, encouraging participants to view science not just as a subject but as a vital part of daily lives and future teaching practices.

General Program Framework

i. Welcome and Introduction

The Assembly commences by the Welcome and Introduction by the Moderator who set the tone of the session by formulating the agenda of the assembly. The audience are given the glimpse of program highlights including an insightful thought of the day, updates on recent scientific advancements, and an inspiring story of a renowned scientist, setting an enthusiastic tone for the rest of the session. The moderator also writes the details of programs and presenters of it in the blackboard well in advance.

Throughout the assembly, each of the presenters are invited by the moderator and end note of the class assembly is also done by the moderator.

ii. News Reading

The News Reading segment of class assembly covered wide range of updates of various domains, ensuring that the students stayed informed about Regional, National, International, Sports and Science Events. The segment begins with Regional News where local events and achievements in the area of Thiruvananthapuram and generally in the state of Kerala. The National news focused on significant development developments in the entire India including advancements in science exploration, Government missions and impactful current affairs. The International news segment covered global science and international events. Many a day, this segment was highlighted with events in Gaza, the US elections, various catastrophes in and around the world, etc. The Sports News brought exciting updates from Cricket, Paris Games, and T20 events, etc. The Science News section covered latest developments, Nobel Prizes, breakthrough discoveries, etc.

iii. Thought of the Day

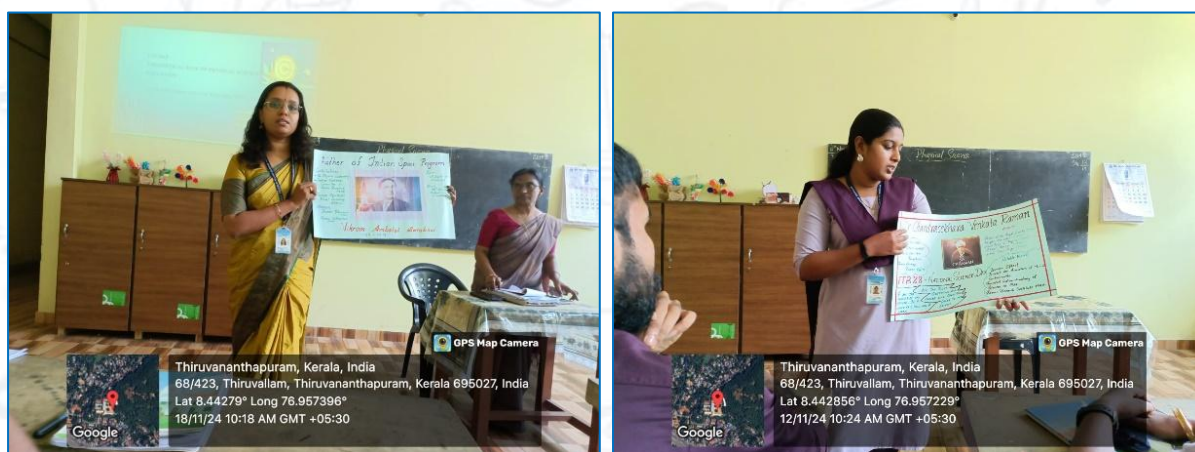
Thought of the Day is presented as an inspiring Quote or Thought by an eminent figure. The thought is explained briefly, emphasizing its relevance in our daily life as well as the professional life. Majority of the thoughts presented were to instil a sense of curiosity, righteousness, learning and innovation for the student teachers. This set the tone of the assembly urging everyone to approach life and science with a sense of wonder and inquiry.

iv. Introducing a Scientist

The student teacher introduces a renowned Scientist focusing on their key contributions to science, inspirational aspects of their life and work and relevance of their discovery in today's world. The presenter mostly shares the story of their life making us think of the struggles they have crossed to achieve what they have newly brought to the world. Throughout the Assembly we had got glimpses of many eminent scientists such as John Dalton, Marie Curie, APJ Abdul Kalam, Stephen Hawking, Vikram Sarabhai, CV Raman, Galileo Galilei, and many more.

2. Bulletin Board Display

Scientia 2024 – 25 organizes weekly Bulletin Board Display in the Physical Science classroom based on the recent events or historical happenings of the week. The display highlights diverse topics from the realm of physical, biological and natural sciences, blending education with creativity to engage viewers effectively. First it was a presentation on Moon Day by Tejas Krishna PV on the occasion of the International Mood Day on 22nd July 2024. Later it was done by Sumi VT on the Remembrance of Dr APJ Abdul Kalam followed by the discovery of Positron, National Mole Day, World Ozone Day, Nobel Prize is in Physics and Chemistry for 2024, World Radiography Day, etc among many other events.



Presentation of Bulletin Boards by Ms. Namitha Devi V N and Ms. Mayoory AK

BULLETIN BOARD

WORLD RADIOGRAPHY DAY

(A Global Healthcare Awareness Event)

RADIOGRAPHERS: SEEING THE UNSEEN

These highlights radiographers' important role in diagnosing medical conditions and their role in helping patients.

on Why Radiography is Important

Why radiography is important

help detect injuries

conditions can be

used through radiography

its complications

helps reduce the need

explaining. Sometimes

radiography images help

to plan other treatments

moreover

Mark the arrival of discovery of X-rays in 1895

HISTORY

2007 November 8
World Radiography Day
International Society
of Radiographers and Radiologists (ISRR)

2012
First World event held by European Society of Radiology (ESR), International Society of Radiology (ISR), and American Radiology (AR)

PURPOSE

To raise public awareness of radiographic image therapy

Father of Indian Space Program


Contributions:

- * The Physical Laboratory
- * Indian National Committee for Space Research (ISRO)
- * Thumba Equatorial Rocket Launching Station.

Honours:

Padma Bhushan (1966)

Padma Vibhushan (1972)



Born: 12th August 1919
Ahmedabad

Died: 30th December 1971
Hatycon Castle
Trivandrum

Eagle

London Model Eagle (LME) is the space craft that carried the Indian lunar lander of Apollo 16

3 Men on the Moon

- Neil Armstrong
- Buzz Aldrin
- Michael Collins

55th Anniversary

On 16th June 1969, the 55th anniversary of the Apollo 11 mission landing

Fun Facts

- The Saturn V rocket, which carried Apollo 11, was the first full-scale rocket to be built in the US.
- The Saturn V rocket was the largest rocket ever built and could carry a payload of up to 140,000 kg.
- The Saturn V rocket was the only rocket to be built in the US.
- The Saturn V rocket was the only rocket to be built in the US.

Does the Moon Orbit Earth?

The Moon takes about 29.5 days to complete a revolution, but it takes 29.5 days to complete a revolution.


What is the Moon?

The Moon is Earth's only natural satellite. It is a spherical body that orbits Earth.

Moon missions from India

- Chandrayaan-1 (2008)
- Chandrayaan-2 (2019)
- Chandrayaan-3 (2023)

DR. APTJ ABDUL KALAM'S Contributions to Science



INSPIRATIONAL QUOTE

If you fail, never give up, because FAIL means FIRST ATTEMPT IN LEARNING

Missile Man of India (15.10.1931-27.07.2015)

Development of Satellite Launch Vehicle (SLV) and Augmented Satellite Launch Vehicle (ASLV) at ISRO which were crucial in putting India's satellites into orbit.

Development of Key Indian Missiles:

- RITVI - India's first surface-to-surface Missile
- SHRI - A long-range ballistic Missile
- KASH - A surface-to-air missile system

A key figure in 1998 Pokhran Nuclear Test

established India as a nuclear power

Establishment of scientific institutions such as Indian Institute of Space Science & Technology (IIST)

WINGS OF FIRE

A book that motivates youth to pursue dreams, develop passion for science and become responsible citizens.

NOBEL PRIZE WINNERS -


CHEMISTRY

- DAVID BAKER
- JOHN H. HUMPHREY

PHYSICS

- JOHN J. HOPKINS
- GOFFREY H. GIBSON

Sir CV RAMAN



NATIONAL SCIENCE DAY

ASK THE RIGHT QUESTIONS AND NATURE WILL OPEN THE DOORS TO HER SECRETS.

Raman Effect

Research on A Instruments.

Founded Indian Sciences in 1931

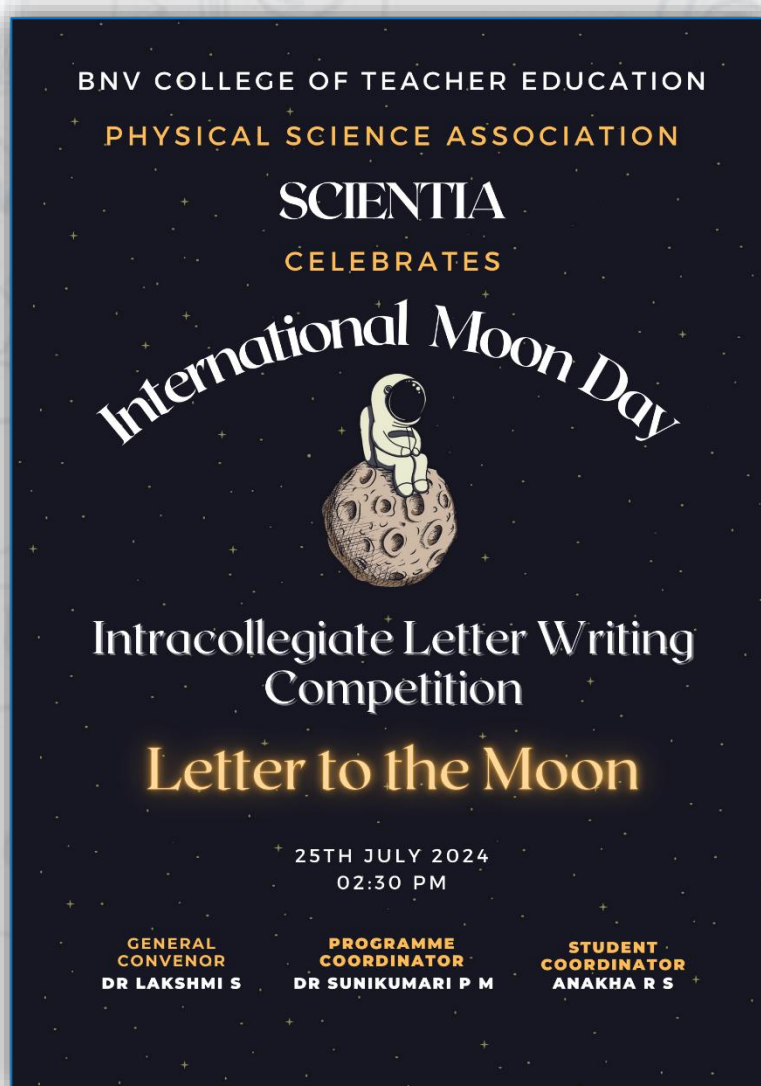
Raman Research

3. Celebration of International Moon Day

International Moon Day is celebrated annually on July 20th to commemorate the anniversary of first human landing on the Moon during NASA's Apollo 11 mission in 1969. The United Nations declared this day in December 2021, recognizing its significance in promoting the peaceful exploration and sustainable utilization of Moon.

The International Moon Day was celebrated by the Physical Science Association *Scientia* by organizing a competition event. *Scientia* organized an Intra Collegiate Letter Writing Competition "Letter to the Moon" on 25th July 2024 at 2:30 PM. The event aimed to honour the historic Apollo 11 mission and thereby fostering creativity, encourage an appreciation for space science among students.

The competition invited participants from various optional subjects such as Malayalam, English, Social Science, Mathematics and Commerce. The participants had to put down a letter to express their thoughts and aspirations addressed to Moon. A total of 17 students participated. Letters ranged from poetic tributes to Moon's beauty to the futuristic visions of Lunar explorations expressed in both English and Malayalam.





Letter writing competition on International Moon Day

A panel of judges evaluated the letters based on creativity, scientific relevance and emotional depth. The students who attained first, second and third positions in both Malayalam and English languages were announced. The celebration successfully kindled enthusiasm for science exploration and space exploration and brought a creative test to understanding lunar science.

4. Field Visit to Priyadarshini Planetarium

A field trip to the Kerala State Science and Technology Museum and Priyadarshini Planetarium, Thiruvananthapuram, was organized for the first year B. Ed. Physical Science students of BNV College of Teacher Education, Thiruvallam on 08th January 2025 as a part of the B. Ed. Curriculum of the University of Kerala. The visit aimed to enrich students' understanding of space science and demonstrate effective science teaching methodologies through interactive and immersive experiences.

The visit was head by Dr. Sunikumari PM, the Assistant Professor (Physical Science) who headed the group of 13 students. The day began with a tour of the planetarium gallery, which featured intriguing science exhibits such as Newton's colour disc, mirrors, the bodyless head, the nail chair, and the endless well. These exhibits helped students visually grasp scientific concepts in an engaging way.

The highlight of the trip was the planetarium show at 10:30 AM, which vividly explained meteors, asteroids, comets, and dwarf planets. The show's narration and visual effects made complex space phenomena accessible and exciting, enhancing the students' conceptual clarity. Following this, the group attended a 3D theatre show. Although it

included visual effects, it was less engaging than expected. However, the subsequent visit to the Science on a Sphere exhibit was enlightening. It showcased 3D visualizations of climate change, ocean currents, and renewable energy topics, offering a valuable perspective on environmental issues. The final segment was a Virtual Reality (VR) experience, allowing students to explore the solar system in an immersive environment. This hands-on activity deepened their understanding of planetary characteristics and space exploration.



Field Visit of Scientia team at Priyadarshini Planetarium

The visit was an inspiring blend of education and experience. It not only deepened the students' understanding of astronomy but also showcased innovative ways to teach science. The trip emphasized the significance of experiential learning and technological integration in education.

5. Intra-collegiate Quiz Competition

The Physical Science Association *Scientia* of BNV College of Teacher Education, organized “SciSprint”, an intra-collegiate quiz competition, as part of the National Science Day Celebration on February 28, 2025. The theme for this year’s celebration was “Empowering Indian Youth for Global Leadership in Science and Innovation for Viksit Bharat”. The event aimed to promote scientific temper and encourage enthusiasm for science among teacher trainees.

The program commenced at 1:30 PM in the ET Lab and was coordinated by Dr. Suni Kumari P M and student coordination was handled by the active members of *Scientia*. The quiz competition witnessed vibrant participation from students across the college,

showcasing their knowledge in various domains of science, fostering healthy competition, and creating an engaging academic atmosphere.



Intra-collegiate Quiz Competition on National Science Day

6. Inter-collegiate Scientific Cartoon Competition

As part of the National Science Day celebrations held on February 28, 2025, the Physical Science Association *Scientia* of BNV College of Teacher Education, Thiruvallam, organized an Intercollegiate Scientific Cartoon Competition for B. Ed. students.

The competition was conducted under the theme “Science and Innovation for Viksit Bharat”, aligning with the national focus of empowering Indian youth in the field of science. The event aimed to foster scientific creativity, critical thinking, and visual storytelling skills among teacher trainees.

Participants were invited to submit hand-drawn cartoons that conveyed scientific concepts or innovations in a humorous, insightful, or thought-provoking manner. Each cartoon was evaluated on the basis of creativity, scientific relevance, clarity of dialogue, and overall presentation. Winners were awarded with e-certificates as a mark of appreciation for their talent and effort. The competition served as a vibrant platform for aspiring educators to creatively express their understanding of science and its role in national development, while also fostering intercollegiate engagement and camaraderie.

7. Workshops on Improvisation

The Physical Science Association *Scientia* of BNV College of Teacher Education, Thiruvallam, organized a Workshop on Improvisation titled “Let’s Build” on April 2, 2025, at 1:30 PM for B.Ed. Physical Science students. The session was led by renowned science pedagogue and national award-winning teacher Shri. K Suresh Kumar, who also serves as the State Coordinator for Teacher Training in Kerala. The workshop was coordinated by Dr. Sunikumari P M, Vice Principal of BNVCTE. The workshop aimed to introduce teacher trainees to the importance and techniques of improvisation in science education, especially for resource-limited classrooms.

During the session, Shri Suresh Kumar emphasized the qualities of an effective science teacher—curiosity, adaptability, and innovation. He demonstrated several hands-on experiments using low-cost, everyday materials to explain complex scientific concepts. Highlights included burning ice using calcium carbide to produce acetylene gas, wave motion demonstrated with a rainbow spring toy, and concepts of center of mass and gravity using stacked ice cream balls. A hair massager replaced a tuning fork to demonstrate sound frequency, and magnetic and electrical principles were shown using improvised tools. These demonstrations inspired the participants to think creatively and resourcefully in their future classrooms.



Workshop on Improvisation led by Shri. K Suresh Kumar

CHAPTER 5

STUDENT PARTICIPATION & ACHIEVEMENTS

1. **Varsha R** secured Third Prize in Intra-Collegiate Slogan Writing Competition held by Social Science Association Heritage as a part of 78th Independence Day Celebration.



2. **Krishnapriya H R** got provisionally selected to the Table Tennis (Women) Team of University of Kerala.



3. **Namitha Devi V N** and **Sumi V T** secured Second prize in the University Level Quiz Competition conducted by Energy management Centre, Govt. of Kerala.



4. **Mayoory A K** and **Thejas Krishna P V** secured First prize in the Intra-Collegiate Quiz Competition conducted by Social Science Association Heritage as a part of 76th Republic Day Celebration.



5. **Varsha R** secured Third Prize in Inter-Collegiate Troll Making Competition held by Sree Narayana Training College, Nedunganda as a part of National Science Day Celebration.



6. **Varsha R** secured Second Prize in Photo Caption Writing Contest held by KUCTE, Nedumangad as a part of National Science Day Celebration.



7. **Bhagya Willy Brod** secured Third Prize in Inter-Collegiate Photography Competition held by Metca Institute of Teacher Education as a part of International Women's Day Celebration.



- ★
8. **Namitha Devi V N** ★ secured Second Prize in Science Photography Contest conducted by Iqbal Training College as a part of National Science Day Celebration.



9. **Varsha R** secured Third Prize in Science Photography Contest conducted by Iqbal Training College as a part of National Science Day Celebration.



10. The Physical Science team comprising **Bhagya Willy Brod, Mayoory A K and Varsha R** ★ secured Second Prize in Drawing Competition held by Mathematics Association, Ganitha of BNVCTE as a part of the International Pi Day Celebrations. ★

- ★
11. **Devi Krishna A S** secured Third Prize in Inter-Collegiate Poster Making Competition conducted by Women's Club "Gharaana" as a part of International Women's Day Celebrations.



12. **Bhagya Willy Brod** secured First Prize in Inter-Collegiate Photography Competition held by the Mathematics Association "Mathematica" of PTM College of Teacher Education as a part of the International Pi Day Celebrations.



CHAPTER 6

PUBLICATIONS & CREATIVE CONTRIBUTIONS

The Physical Science Association *Scientia* of BNV College of Teacher Education, Thiruvallam, proudly released its handwritten magazine titled “**COSMOS**” as part of the Inter-Departmental Hand-written Magazine Competition. The magazine serves as a platform for B.Ed. Physical Science students to express their scientific ideas, creativity, and artistic talents through hand-drawn illustrations, articles, puzzles, and thought-provoking content related to science and innovation.

“COSMOS” reflects the spirit of exploration and curiosity among future science educators, aiming to bridge creativity with scientific understanding. The handwritten format of the magazine underscores the association's commitment to originality, effort, and hands-on engagement in learning. The handwritten copy of “COSMOS” was handed over to the Principal of BNVCTE, Dr. Lakshmi S on 21st March 2025 for the evaluation and judgement.



Dr. Sunikumari PM submitting the Handwritten Magazine “COSMOS” to Principal, Dr. Lakshmi S

CHAPTER 7

REFLECTION & CONCLUSION

The 2024–25 academic year marked a period of growth and achievement for *Scientia*, BNV College's Physical Science Association. Through workshops, competitions, field visits, and daily assemblies, the association fostered scientific curiosity, pedagogical innovation, and teamwork among student teachers. Key highlights included the "Letter to the Moon" competition, National Science Day quiz, a planetarium field trip, and an improvisation workshop by Shri. K Suresh Kumar. Members excelled in inter-collegiate events, showcasing their skills in quizzes, photography, and poster-making, while the handwritten magazine COSMOS blended creativity with science.

Scientia successfully deepened subject knowledge, enhanced teaching strategies, and inspired future educators. The dedication of faculty and students ensured a year of impactful learning. Moving forward, the association aims to integrate more technology and expand its initiatives, reinforcing its commitment to excellence in science education.

