



**National  
Research  
Foundation**

## **Report**

# **IAU General Assembly Astronomy2024 Legacy Project**

**Date of Report: 12<sup>th</sup> December 2025**

**Prepared by the National Organising Committee  
Outreach & Education Sub-committee**

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## #Astronomy2024 Legacy Project

### 1. Project overview

The #Astronomy2024 Legacy Project is a nationwide initiative designed to extend and deepen the impact of the 2024 International Astronomical Union General Assembly (IAU-GA), the first ever hosted on African soil. As part of this historic milestone, IAU-GA delegates from around the world visited schools throughout the Western Cape and across the African continent, inspiring thousands of learners through engaging astronomy talks, demonstrations, and hands-on science activities. These outreach efforts aimed to spark curiosity, broaden scientific awareness, and encourage a lasting interest in the universe among young people.

Building on this momentum, the Astronomy 2024 Legacy Project was established to continue empowering schools, particularly those in underserved communities, by providing access to meaningful and sustainable educational resources. Central to this initiative was the distribution of TV systems to selected schools and science centres across all nine provinces. Each system included a 40-inch TV screen, Raspberry Pi computer, keyboard, mouse, and webcam (originally used during IAU-GA poster sessions). These tools offer new opportunities for digital learning, enabling schools to display engaging content, access educational resources, and host interactive astronomy and STEM sessions that enrich classroom experiences.

To ensure meaningful and lasting impact, each delivery was supported by a cohort of Astronomy and STEM Ambassadors, recruited for the Legacy Ambassador Initiative, which consists of astronomy students, STEM undergraduates, and professional science communicators. Ambassadors assisted with installation, led interactive activities, and facilitated discussions on astronomy, STEM careers, and the relevance of science in society. A key long-term goal of the project is to establish a sustained programme of virtual engagement sessions, connecting schools, science centres, and STEM professionals from South Africa, Africa, and partner countries worldwide. These sessions will feature expert talks, demonstrations, and Q&A opportunities for learners. Additionally, schools will periodically participate in live-streamed national science events, ensuring continued exposure to engaging and relevant scientific content. While astronomy remains the central focus, the programme embraces a broad STEM scope to provide diverse learning opportunities.

Overall, the Astronomy 2024 Legacy Project seeks to inspire and support young people across South Africa by strengthening long-term engagement with astronomy and STEM, particularly in communities that have historically lacked access to scientific resources and opportunities.

## 2. Project goals

The project successfully achieved its core objectives to:

- Extend the legacy of the IAU-GA by increasing access to astronomy and STEM learning opportunities.
- Distribute 101 digital TV systems to schools and science centres nationwide to support classroom teaching.
- Deliver hands-on outreach and mentorship through the Legacy Ambassador Initiative.
- Establish sustainable engagement mechanisms through virtual learning sessions, online events, and continued collaboration with schools and science centres.

## 3. The Legacy Ambassador Initiative – Cascade outreach model

The Legacy Ambassador Initiative is grounded in the Cascade Outreach Model, an innovative framework developed to advance diversity, inclusivity, and representation in science engagement. Originally conceptualised by the late Professor Carolina Ödman-Govender, the model provides a structured and sustainable approach to outreach by empowering scientists, students, and communicators to become effective ambassadors within their communities. The Cascade Model recognises that meaningful science communication requires more than content knowledge; it demands relatable role models who reflect the diversity of the audiences they serve. Through this approach, ambassadors are trained not only to deliver engaging science activities but also to foster inspiration and connection among learners, particularly those from historically underrepresented groups in STEM. A key feature of the model is its “cascading” effect, similar to near-peer mentoring. Ambassadors receive training in communication, leadership, and community engagement, and then pass these skills on to others, creating a multiplier effect of capacity building. This ensures that knowledge, confidence, and outreach expertise are continuously shared and expanded across the network. By participating in this process, scientist-communicators strengthen both their professional and public engagement skills, gaining the tools needed to thrive in diverse roles while contributing to a broader culture of inclusive science communication.

Building on the outreach momentum from the IAU-GA, the 2024 Cascade Outreach Seed Grant project, and the 2023 National Science Week Cascade Outreach model, the Legacy Ambassador Initiative mobilised volunteers, including astronomy students, young professionals, and science communicators, to conduct STEM outreach across South Africa. Ambassadors received training in both technical setup (Raspberry Pi systems) and science communication. They:

- Led astronomy and STEM outreach and education activities in collaboration with schools and science centres.

- Served as relatable role models from diverse backgrounds.
- Installed and demonstrated the use of the TV systems in classrooms.
- Supported science centres with programmatic and outreach activities.
- Participated in further skill-building through mentorship by science centres.
- Acted as liaisons between science centres and the project team.
- Served as technical lead for the delivery, installation, and demonstration of equipment.

### 3.1 Ambassador profile

A total of 52 ambassadors registered for the project. Key demographic insights include:

- *Gender*: 26 males and 26 females, an equal gender split.
- *Language*: Collectively, ambassadors represented various official South African languages, enabling engagement with a diverse range of communities.
- *Geographical spread*: ambassadors hailed from towns and cities across all provinces.
- As indicated in Figure 1, occupational diversity is as follows:
  - The largest group comprised undergraduate and postgraduate students.
  - This was followed by individuals in the workforce across various sectors.
  - A smaller proportion were unemployed but actively engaged in STEM or community work.
- *STEM involvement*: Most ambassadors had previous or ongoing experience in STEM fields.

**Occupations of Ambassadors**

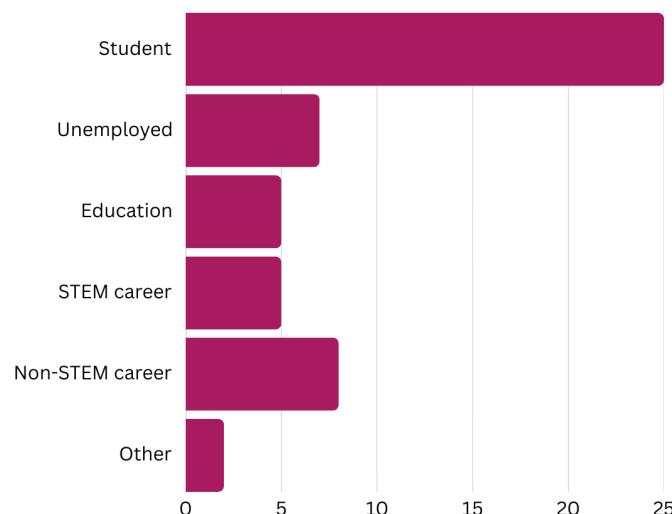


Figure 1: Occupations of all 52 registered ambassadors.

#### 4. TV system beneficiaries and distribution

Each beneficiary school received a 40-inch TV screen, a Raspberry Pi computer, a keyboard, a mouse, and a webcam that were previously used during the IAU-GA hybrid poster sessions. These systems were used to:

- Enhance teaching with visual and interactive content.
- Support outreach activities and science demonstrations.
- Facilitate virtual engagements with scientists and speakers.
- Connect classrooms nationwide to science events and live-streamed programmes.

##### 4.1 Schools and science centre recruitment

The primary beneficiaries of the TV systems were schools and science centres across all nine provinces of South Africa. Selection of recipients was conducted as follows:

- *Western Cape*: Schools were identified using the list provided by the Western Cape Education Department (WCED), with additional input from partner institutions, including SAAO, SARAO, and iThemba LABS.
- *Other provinces*: Science centres facilitated the identification and selection of schools within their regions, prioritising those with limited access to STEM resources. Recommendations were received from SAASTEC to ensure the inclusion of underserved townships and rural communities.
- *Allocation*: Final distribution was determined collaboratively by the outreach committee and partner science centres, based on community accessibility, engagement potential, and sustainability of the programme. The breakdown of the distribution by province is indicated in Table 1 below.

This approach ensured equitable distribution of resources and maximised the long-term impact of the Astronomy 2024 Legacy Programme across the country.

Table 1: National distribution summary

PROVINCE	TOWN	SCIENCE CENTRE/FACILITY/ PARTNER	NR OF SCHOOLS/TV SYSTEMS
NORTH WEST	Potchefstroom and Mafikeng	North West University Science Centre	6

KZN	Sibhayi and Newcastle, Harry Gwala District	Christoph Meyer and Arcelormittal Newcastle, KZN Department of Education (Harry Gwala District), SANSA	9
LIMPOPO	Phalabora, Polokwane, Malamulele	Phalabora Science Centre, University of Limpopo Science Centre and IThemba LABS, University of Limpopo Science Centre	10
GAUTENG	Pretoria and Soweto, Johannesburg South, Thembisa, Hammanskraal, Mamelodi	JNF Walter Sisulu Environmental Centre, Johannesburg City Parks and Zoo, UNISA, TART project, Moipone Academy	15
NORTHERN CAPE	Sutherland, Carnavon	SAAO and SARAO	9
FREE STATE	Kagisanong, Phelindaba, Phuthaditjhaba, Brandwa	Matsheliso Science Institute	4
EASTERN CAPE	Ntsizwa, Cabazi, Pamlaville, Ngqamakhwe, Kentane, Ngqeleni, Ezibeleni, Location, Willowvale, Mount Frere, Queenstown	Albertina Nontsikelelo Sisulu Science Centre	10
MPUMALANGA	Siyabuswa, Ermelo, Nelspruit, Malelane	Nkomazi Mathematics and Science Centre	5
WESTERN CAPE	Paarl, Mfuleni, Macassar Stellenbosch, Somerset West, Mitchell's Plain, Samora, Wynberg, Fish Hoek, Strand, Mossel Bay, Elsies River, Kraaifontein, Strand, Khayelitsha, Gugulethu	SAAO, SARAO, IThemba LABS	33
			101

#### 4.2 Role of science centres

Science centres played an essential role by:

- Providing training and mentorship to ambassadors.
- Supporting logistics, distribution, and community engagement.
- Selecting schools they could continue to work with, strengthening long-term impact.
- Acting as the primary point of contact for beneficiary schools.



Figure 2: Ring charts showing the relative distribution of screens per province (schools and science centres).

#### 5. Engagement and outreach activities



*Ambassadors presenting a screen to one of the schools in the Free State*



*One of our ambassadors engaging learners with a STEM presentation during the TV-distribution outreach in Hammanskraal, Gauteng.*



*One of our ambassadors leading an engaging astronomy session for learners during the TV-distribution outreach in KZN.*



*A moment captured in KZN: kids receiving a screen with their teachers*



*Image taken during the TV-distribution outreach event in Mamelodi, Gauteng.*



*An ambassador from SAAO giving a talk at one of the selected schools in Mpumalanga during the TV-distribution outreach.*



*A moment captured at the TV-distribution outreach in Tembisa, Gauteng*



*A moment captured in the Eastern Cape: teachers receiving a screen, with ambassadors who earlier delivered STEM presentations to motivate learners.*

Outreach activities were designed and executed by ambassadors and science centres and included:

- Educational talks - topics frequently covered included:
  - Astronomy's role in society and everyday life
  - The solar system, stars and galaxies
  - Space weather
  - Indigenous astronomy
  - Nuclear and particle physics (iThemba LABS partnership)
  - Chemistry and Biology (ambassador contributions)
- Interactive activities - these hands-on components supported learner engagement:
  - Telescope assembly and demonstrations
  - Astronomy quizzes
  - Stargazing where facilities allowed
  - STEM problem-solving challenges
  - Raspberry Pi demonstrations

- Role-modelling talks and career guidance - ambassadors shared their personal journeys, life experiences, and the key steps that shaped their academic and professional growth. These extended to a focus on
  - Careers in space science, astronomy and STEM pathways
  -

## 6. Outcomes

University pathways and subject choices: The Astronomy 2024 Legacy Programme achieved significant reach and impact across South Africa, engaging learners, educators, and science professionals through both in-person and virtual activities. Screen distribution and outreach activities took place between March and November 2025, reaching 84 schools and 16 science centres nationwide.

### 6.1 Learner and teacher engagement

- More than 3,863 learners were reached, spanning primary and secondary school levels, with a particular focus on Grades 10 - 12.
- Over 303 teachers, from primary and high school teachers.
- Some schools participated in follow-up sessions, enabling them to integrate astronomy and STEM activities into their classrooms effectively.
- Quintile levels:
  - Quintile 1: 15 schools
  - Quintile 2: 15 schools
  - Quintile 3: 38 schools
  - Quintile 4: 10 schools
  - Quintile 5: 7 schools

### 6.2 Science centres and networks

- A total of 16 science centres participated in the programme, with 9 centres also receiving TV systems to support ongoing outreach.
- The programme established a sustainable network of schools, science centres, STEM professionals, and Legacy Ambassadors to ensure long-term engagement. Key components of this network included:
  - Virtual STEM sessions featuring domain experts
  - Live-streamed national science events connecting learners across the country
  - Continued support and follow-up by partner science centres
  - Integration of TV systems into schools' regular teaching schedules

### 6.3 Geographic distribution

- The programme reached 25 districts, aligned with the District Development Model (See Figures 3, 4 & 5 below for reference)
- Working with local partners embedded in these communities ensured the programme was context-driven, responsive to local conditions, and maximised meaningful engagement in diverse environments.

 Eastern Cape	<ul style="list-style-type: none"><li>• Alfred Nzo<ul style="list-style-type: none"><li>◦ Ntsizwa</li><li>◦ Cabazi</li><li>◦ Pamlaville</li><li>◦ Mount Frere</li></ul></li><li>• Amathole<ul style="list-style-type: none"><li>◦ Ngqamakhwe</li><li>◦ Kentane</li></ul></li><li>• OR Tambo<ul style="list-style-type: none"><li>◦ Ngqeleni</li></ul></li><li>• Chris Hani<ul style="list-style-type: none"><li>◦ Ezibeleni</li><li>◦ Queenstown</li></ul></li></ul>
 Free State	<ul style="list-style-type: none"><li>• Mangaung Metropolitan<ul style="list-style-type: none"><li>◦ Kagisanong</li><li>◦ Phelindaba</li><li>◦ Phuthaditjhaba</li><li>◦ Brandwag</li></ul></li></ul>
 Gauteng	<ul style="list-style-type: none"><li>• Ekurhuleni<ul style="list-style-type: none"><li>◦ Thembisa</li></ul></li><li>• Tshwane<ul style="list-style-type: none"><li>◦ Hammanskraal</li><li>◦ Pretoria</li><li>◦ Mamelodi</li></ul></li><li>• City of Johannesburg<ul style="list-style-type: none"><li>◦ Randberg</li><li>◦ Lenasia</li><li>◦ Soweto</li></ul></li></ul>
 KwaZulu-Natal	<ul style="list-style-type: none"><li>• Harry Gwala<ul style="list-style-type: none"><li>◦ Ixopo</li><li>◦ Bulwer</li><li>◦ Umzimkhulu</li></ul></li><li>• Amajuba<ul style="list-style-type: none"><li>◦ Madadeni</li><li>◦ Mndozo Farm</li><li>◦ Verdriet Farm</li></ul></li></ul>
 Limpopo	<ul style="list-style-type: none"><li>• Mopani<ul style="list-style-type: none"><li>◦ Giyani</li><li>◦ Phalaborwa</li></ul></li><li>• Vhembe<ul style="list-style-type: none"><li>◦ Malamulele</li></ul></li><li>• Waterberg<ul style="list-style-type: none"><li>◦ Polokwane</li></ul></li></ul>
 Mpumalanga	<ul style="list-style-type: none"><li>• Nkangala<ul style="list-style-type: none"><li>◦ Siyabuswa</li></ul></li><li>• Gert Sibande<ul style="list-style-type: none"><li>◦ Ermelo</li></ul></li><li>• Bohlabela<ul style="list-style-type: none"><li>◦ Arconhoek</li></ul></li><li>• Ehlanzeni<ul style="list-style-type: none"><li>◦ Malelane</li><li>◦ Schoemansdal</li></ul></li></ul>



- Dr Kenneth Kaunda
  - Potchefstroom
- Ngaka Modiri Molema
  - Mahikeng



- Frances Baard
  - Galeshewe
- Pixley Ka Seme
  - Ubuntu
- Namaqua
  - Fraserburg
  - Williston



- City of Cape Town
  - Langa
  - Kraaifontein
  - Khayelitsha
  - Strand
  - Elsie's River
  - Fish Hoek
  - Wynberg
- Samora
- Mitchells Plain
- Somerset West
- Mfuleni
- Macassar
- Cape Winelands
  - Stellenbosch
  - Paarl
- Garden Route
  - Mossel Bay

*Figures 3, 4 & 5: Areas and districts where the schools and science centres which received screen systems are located*

## 7. Impact

### 7.1 Relatable role modelling

- Ambassadors were intentionally selected to serve as relatable role models. Selection criteria included:
  - Speaking the same language as learners and teachers
  - Being young enough to maintain relatability while providing guidance
  - Having lived experiences similar to the communities being engaged
  - Exposure to STEM studies, careers or vested interest
- This approach facilitated more personal and impactful interactions, fostering dialogue and engagement that resonated with learners.
- Direct interaction with learners impacted the ambassadors' dedication not only to personal development, but also to meaningful community contribution by reinforcing the importance of awareness and accessibility.

### 7.2 Capacity building

- Ambassadors gained professional development opportunities through job shadowing and science communication training at partner science centres, as well as the opportunity to connect with professionals from these science centres independently for self-development.

- These experiences strengthened their communication, public engagement, and leadership skills, enabling them to deliver effective outreach activities.

### 7.3 Strengthened partnerships

- Collaboration between science centres, young scientists, and ambassadors provided opportunities for networking, knowledge exchange, and partnership building.
- Direct engagement with schools provided science centres with valuable insight into their school communities on a more intimate level, allowing them to adapt their future approaches towards learners' needs.
- Similarly, teachers were put into contact with their local science centres for future support. Many teachers reported feeling their passion for science and for teaching science reinvigorated by the inspiration these engagements provided.
- These partnerships enhanced the programme's ability to deliver meaningful, sustained engagement with schools and communities across the country.

The combined focus on learner engagement, relatable role modelling, ambassador capacity building, and strong partnerships ensured that the Astronomy 2024 Legacy Programme achieved wide-reaching and lasting impact in STEM education and astronomy awareness.

### 7.4 Feedback

#### 7.4.1 Ambassador feedback:

“This experience had a significant impact on me. It strengthened my leadership, communication, and mentoring skills, expanded my knowledge of astronomy, and inspired me to actively share scientific knowledge with learners and my community. It also boosted my confidence in guiding others and promoting STEM education.”

- Keorapetse Matsheliso, Ambassador

“It had a really big impact in that I saw how important awareness is. Like I said I have never done something like this so to see how much impact it brought to them, showed me that outreach programmes are really important as certain learners are limited in information- i for one didn't know astronomy was a field until I got to varsity so it was humbling to see the interest the learners had and I myself also got to learn from them from the questions they had for me.”

- Reshoketswe Thobejane, Ambassador

“Seeing the learners’ curiosity, excitement, and eagerness to learn reminded me of the transformative power of exposure, how a single moment or conversation can shape a young person’s future direction.”

- Gordon Ramano, Ambassador

“This experience reminded me of the love I have and the pain that comes with seeing someone who has a right to knowledge but because of the background they are limited.”

- Mduduzi Ndebele, Ambassador

#### **7.4.2 Science centre feedback:**

“The schools have seen this as a long term partnership and motivation towards their learners for encouragement in furthering their education in science.”

- Obakeng Molwele, North West University Science Centre

“In our case as the science centre, the engagement played an important role in fostering our partnership with the school and learners”

- Sandile Rikhotso, University of Limpopo Science Centre

“This engagement provided the experience and knowledge that was farfetched to most, creating opportunities for role modelling to demonstrate careers for the future and that STEMI careers are possible and accessible to everyone irrespective of their backgrounds, as some of the ambassadors were from the same areas. [For me, it had a] significant impact both personally and professionally. It reinforced my passion for astronomy outreach and commitment to create meaningful opportunities for our learners by exposing them to what astronomy can offer.”

- Tebogo Habedi, ArcelorMittal Science Centre

#### **7.4.3 School feedback:**

“This engagement sparked in us the desire to explore the body of knowledge on space science in order to effectively assist learners in our schools, exposing them to future possible careers in astronomy and space sciences.”

- Sinethemba Mvumvu, Zinyosini Secondary School

“It is inspirational as it opened my eyes to a world which I can expose my learners to, so that they understand that there is a bright future ahead of them if they remain focused.”

- Ms PP Makhata, Vuyolwethu High School

“[We] learned new and creative ways to make content more accessible to learners.”

- C.E Jones, Promosa Secondary School

## 8. Challenges

The implementation of the Astronomy 2024 Legacy Programme faced several challenges:

- **Logistics:** Coordinating the delivery, setup, and training for TV systems across multiple provinces was complex, particularly given the large number of schools, science centres, and partner organisations involved. Due to the distance between certain schools, time management and ensuring sufficient length of engagement proved difficult in some provinces. The issue of security was also brought up in several schools, with regards to storing the systems outside of class hours.

“Most schools were very far apart so we had to chase time in all of them.” Mduduzi Ndebele, Ambassador

- **Team dynamics:** Managing a diverse group of ambassadors, science centre staff, and stakeholders required careful coordination to ensure effective collaboration.
- **Context-specific engagement:** Each province presented unique conditions and community contexts, making it difficult to simply replicate activities. Successful implementation required a high level of flexibility, adaptability, and locally informed planning to meet the specific needs of each school and community. Power outages and varying levels of access to quality internet connectivity was a minor but present issue in a few schools.

“[Challenges included] connectivity due to poor signal in our geographical orientation.” Sinethemba Mvumvu, Zinyosini Secondary School

“The screen is only taken to class when in use [so that] our classes are not burglarized.” Lungisa Bontsa, Hlangwini Secondary School

- **School commitment:** Though most schools showed great enthusiasm, some provided limited support to the ambassadors and science centres, and insufficient prior communication to learners and teachers.

“One challenge we experienced was encountering a school where there was limited support from senior-level management. This made it difficult to fully engage with learners and implement some of the planned activities, as the enthusiasm and cooperation from leadership are crucial for a successful outreach.” Keorapetse Matsheliso

- **Project visibility:** The lack of promotional materials (such as banners, or branded clothing for the ambassadors) lead to low visibility of the project as a unified and cohesive programme with lasting name memberability.

## 9. Additional engagement programmes with beneficiaries

### 9.1 First virtual engagement session

The first virtual engagement took place during National Science Week 2025. The engagement session was attended by schools that had received the TV systems, as well as representatives from partner science centres across the country. The session served as the official launch of the online outreach component of the project and provided an opportunity to introduce learners and teachers to upcoming programmes, guest speakers, and virtual STEM activities. The event also featured presentations and participation from astronomers, nuclear scientists, and space scientists from across Africa and BRICS countries. Their contributions enriched the session, as they engaged directly with learners and responded to a wide range of enthusiastic questions from participants.

During the same week, several ambassador teams were simultaneously conducting in-person outreach activities at schools and science centres in KwaZulu Natal, Mpumalanga, and Gauteng. These parallel engagements strengthened the project's blended-learning approach by combining both virtual and face-to-face interactions, ensuring that learners across multiple provinces were actively involved in astronomy and STEM learning.

This is the first of many that are still to be hosted as part of the programme.

**#ASTRONOMY2024 LEGACY PROJECT**  
**JOIN US FOR NATIONAL**  
**SCIENCE**  
**WEEK**

Join us this National Science Week 2025 for an exciting virtual session exploring how science, technology, and innovation (STI) are transforming lives. The session will be streamed to schools, science centres and the general public.

This is the first engagement which will include the schools that have received the tv systems donated from the IAU-GA 2024.

The programme includes an accessible introduction to astronomy, a focus on indigenous knowledge systems, storytelling, real-world case studies on the role of astronomy in development, and an interactive quiz. This event celebrates the power of STI in addressing everyday challenges and improving lives!

**Date: 06 August 2024**

**To sign up:**  
<https://wkf.ms/3GNg5HY>

## 9.2 Report on various engagements in the beneficiary sites

### 9.2.1 Free State engagements - Matsheliso Science Institute & partner schools



A series of outreach activities were conducted in the Free State as part of the province's Sustainability and Continuity Plan under the Astronomy 2024 Legacy Programme. The Matsheliso Science Institute (MSI), serving as the AfAS Free State Grassroots Hub for Astronomy, led multiple engagements aimed at strengthening astronomy awareness and supporting Natural and Physical Science learners across the province.

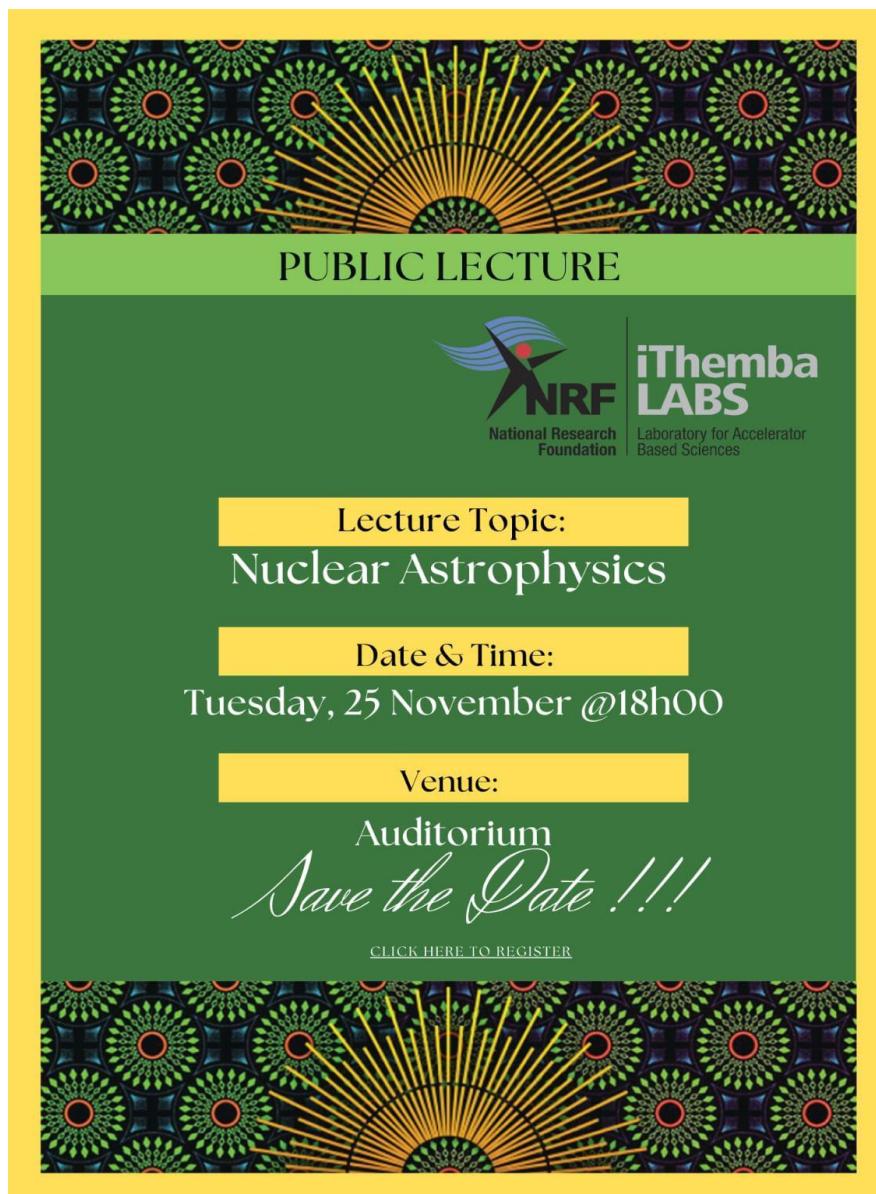
The "Planet Earth & Beyond" Learners' Workshops were delivered at several AfAS beneficiary schools, including Commtech Comprehensive School, Kgorathuto Secondary School in Botshabelo, and Atleheng Senior Secondary School in Bloemfontein. These sessions targeted Grade 8 - 11 Natural Science and Physical Science learners and included interactive presentations, hands-on activities, and astronomy-focused demonstrations aligned with curriculum levels.

Participation was strong, with learners and teachers joining both in person and virtually via Microsoft Teams. The workshops were highly interactive, with learners expressing curiosity, asking insightful questions, and engaging deeply with topics related to astronomy, Earth and space sciences, and South Africa's contributions to global space research.

These engagements collectively demonstrated the spirit of the Astronomy 2024 Legacy Ambassador Programme, empowering young people to explore the universe, cultivating scientific curiosity, and equipping educators to sustain astronomy engagement across the Free State.

### **9.2.2 Western Cape - iThemba LABS**

iThemba LABS also actively involved teachers in the programme through some of their initiatives, providing opportunities for educators to engage with hands-on activities, STEM demonstrations, and astronomy-focused learning experiences.





## COSMIC FURNACES AND THE ORIGIN OF THE ELEMENTS

Since the time of the cavemen, humans have gazed at the stars and tried to understand the universe as well as our place in it. **Dr. Christian Iliadis**, J. Ross Macdonald Distinguished Professor at the University of North Carolina will explain how stardust, the elements once contained in stars, is dispersed into space when stars die and explode. These elements were mixed with other matter and formed not only new stars, but new planets, such as Earth. Nineteen different elements are essential for human life; from the iron in our blood to the calcium in our bones, “We are all Made of Stardust.” The story of element synthesis involves the work of 12 Nobel laureates and will take us from astronomical objects (stars) to unimaginably small particles (atomic nuclei), from nuclear fusion to neutrinos, and to the weird world of quantum mechanics.







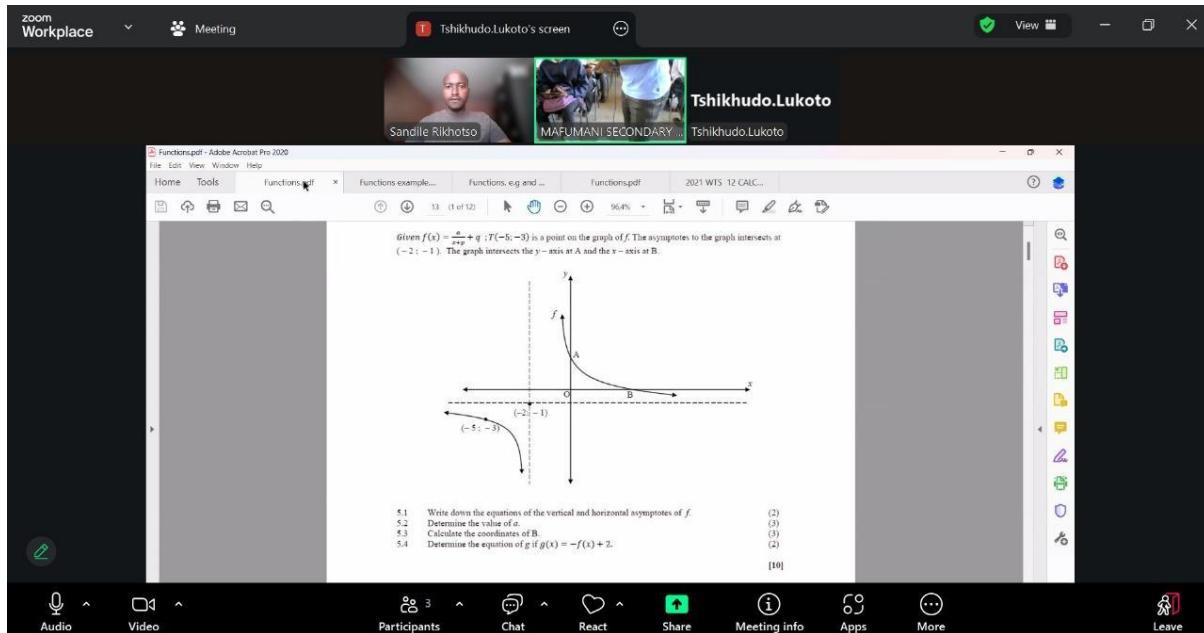
science, technology & innovation  
Department:  
Science, Technology and Innovation  
REPUBLIC OF SOUTH AFRICA

Date: 25 November 2025  
Time: 18h00-19h00  
Venue: Auditorium



National Research Foundation | iThemba LABS  
Laboratory for Accelerator Based Sciences

### 9.2.3 University of Limpopo Science Centre extra classes



The screenshot shows a Zoom meeting interface. At the top, it says "zoom Workplace" and "Meeting". There are two video feeds: one for "Sandile Rikhotso" and one for "Tshikhudo.Lukoto". Below the video feeds is a "Participants" list showing "MAFUMANI SECONDARY..." and "Tshikhudo.Lukoto". The main content area displays a Microsoft Word document titled "Functions.pdf". The document contains a graph of a rational function  $f(x) = \frac{a}{x-p} + q$  with a vertical asymptote at  $x = -5$  and a horizontal asymptote at  $y = 3$ . The graph intersects the  $y$ -axis at point A and the  $x$ -axis at point B. A point  $(-2, -1)$  is marked on the graph. The text in the document states: "Given  $f(x) = \frac{a}{x-p} + q$ ;  $T(-5; -3)$  is a point on the graph of  $f$ . The asymptotes to the graph intersects at  $(-2; -1)$ . The graph intersects the  $y$ -axis at A and the  $x$ -axis at B." Below the graph, there are four math problems labeled 5.1 through 5.4, each with a corresponding mark. The problems are: 5.1 Write down the equations of the vertical and horizontal asymptotes of  $f$ . (2) 5.2 Determine the value of  $a$ . (3) 5.3 Calculate the coordinates of B. (3) 5.4 Determine the equation of  $g$  if  $g(x) = -f(x) + 2$ . (2) The total mark is 10. At the bottom of the screen, there are standard Zoom controls for audio, video, participants, chat, react, share, meeting info, apps, more, and leave.

As part of the continued implementation of the Astronomy 2024 Legacy Programme, Mafumani Secondary School, a recipient of a TV system, hosted a Grade 12 Mathematics revision session. The session was facilitated by a lecturer from the University of Limpopo, providing learners with targeted support ahead of upcoming assessments.

This activity demonstrates how the distributed TV systems are being actively integrated into school-based learning, enabling access to expert-led instruction and enhancing curriculum support for senior learners. It reflects the programme's broader goal of strengthening STEM education and supporting long-term learner engagement across recipient schools.

## **10. Youth month celebration at SKAO Cape Town offices**

Some of our beneficiary schools participated in the SKAO Youth Month Celebration held at the SKAO offices in Cape Town. Grade 9 learners from Intshukumo Secondary School, St Andrew's Secondary School, and Monument Park High School had the opportunity to learn about the work undertaken at the SKAO, explore exciting career paths, and be inspired by talks from staff members representing a wide range of disciplines within the organisation.

## **11. IAU President Visit**

In September 2025, the President of the International Astronomical Union (IAU) visited Zisukhanyo Senior Secondary School in Samora to personally join the #Astronomy2024 Legacy Project team in delivering a digital learning screen to the school. During the visit, he engaged with learners, encouraged their interest in astronomy, and highlighted the importance of making STEM education accessible to students in all communities. This special visit showcased the project's hands-on approach and commitment to inspiring the next generation of scientists.



*IAU President Willy Benz posing with our team & Zisukhanyo Secondary school learners after handing over a screen.*

## **12. Budget considerations**

The total cost for the project was over R190 000.00 for operations.

## **13. Next steps - sustainability and continued engagement**

To ensure the long-term impact and continuity of the Astronomy 2024 Legacy Programme, several key initiatives have been identified:

- Formalising the ambassador cohort
  - Establish a formal cohort of Legacy Ambassadors to coordinate ongoing outreach activities.
  - Develop a comprehensive sustainability plan with the cohort to ensure continuity, particularly the independent continuation of programmes at schools and science centres.
- Expansion of beneficiaries and resources
  - Adopt additional schools and distribute more TV systems. Plans are underway to purchase over 30 new screens for the upcoming SAIP Conference hosted by UWC in 2026. These screens, originally used during poster sessions, will be distributed to schools post-conference.
  - This expansion will grow the ambassador and partner pool and strengthen engagement with the physics community, allowing for more targeted activities in physics education.
- Networking and capacity-building platforms
  - Host regular meetings and workshops to provide
  - Networking opportunities among ambassadors, science centres, and stakeholders
  - Capacity-building sessions in science communication, STEM knowledge exchange, and public engagement expertise
  - Platforms to engage with policy makers, supporting informed programme improvement and alignment with national science priorities
- Continued virtual engagement
  - Maintain regular virtual sessions with schools and science centres, leveraging networks to connect learners with prominent national and international scientists.
  - Expand online activities to include:
    - Teacher training workshops
    - Science centre capacity-building workshops
  - Collaboration with additional facilities, including NRF facilities

- Align virtual engagements with national and global science events to increase learner participation, exposure, and programme reach
- Ambassador development
  - Provide additional training for ambassadors in science communication skills, enhancing their ability to engage learners and communities effectively.
- Context-driven school support
  - Continue tailored interventions for adopted schools, informed by feedback from learners, ambassadors, and partner science centres.
  - Ensure engagement is community-specific and contextually relevant, increasing the sustainability and impact of activities.
- Enrichment and leadership opportunities for learners
  - Involve participating schools in broader astronomy activities, such as planned Astronomy Olympiads.
  - Establish science clubs within schools to enable learners to act as custodians of TV systems, manage activities, and maintain engagement under the guidance of science centres and ambassadors.
- Resource mobilisation
  - Raise additional funding to support the continued success and expansion of the programme, ensuring that schools, ambassadors, and partner institutions can sustain high-quality engagement activities over the long term.
- Expansion through AfAS networks across Africa
  - The Astronomy 2024 Legacy Programme aims to extend its impact beyond South Africa by leveraging the AfAS networks across the continent and participating BRICS countries. Initial expansion will focus on beneficiaries of the Cascade Outreach Programme seed grants, building on the momentum and lessons learned from these early initiatives.
  - Through these networks, the programme will:
    - Identify and engage additional schools and science centres in other African countries.
    - Share best practices, resources, and training developed in the South African programme.
    - Foster cross-border collaborations among ambassadors, scientists, and educators to strengthen STEM and astronomy outreach continent-wide.

- Encourage the creation of sustainable, locally led programmes that reflect the diverse cultural and educational contexts of participating countries.

This approach ensures that the legacy of Astronomy 2024 extends beyond national boundaries, promoting science engagement, capacity building, and inspiring young learners across Africa.

