

EUNAWE — European Universe Awareness
Building on the International Year of Astronomy: Making
young children aware of the Universe



- **Project name** EUNAWE — European Universe Awareness: Making young children aware of the Universe
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- **Abstract** Thinking about the Universe and space fascinates children. European Universe Awareness (EUNAWE) is a programme that uses the beauty and grandeur of the Universe to encourage young children, particularly those from an underprivileged background, to have an interest in science and technology. With a focus on the wonder and excitement of astronomy and space sciences, EUNAWE broadens children's minds, awakens their curiosity in science and stimulates internationalism and tolerance. Although UNAWE, the international project, was only founded four years ago, it is already active in 40 countries and comprises a global network of almost 500 astronomers, teachers and other educators.

EUNAWE is a three-year project in six countries — Germany, Italy, the Netherlands, Northern Ireland, South Africa and Spain. The project includes organising teacher training courses and developing hands-on material for children. In the long term EUNAWE aims to help produce the next generation of European and South African engineers and scientists and contribute to the integration of underprivileged communities.

The EUNAWE goals are to:

1. Train and empower primary school teachers to include space topics in the classroom.
2. Develop and translate hands-on material over the partner countries.
3. Provide a network for the exchange of expertise and material between educators of very young children in EU member states, Associated Countries and International Cooperation Partner Countries
4. Help stimulate the production of the next generation of European engineers and scientists, particularly girls.
5. Contribute to the integration of underprivileged communities in participating countries.
6. Strengthen collaboration between Europe and South Africa over mutually beneficial scientific, technological, educational and social topics.
7. Lay the groundwork for expansion during FP8 to all EU member states and additional countries in Africa and Asia.

- **Work programme, methodology, milestones.** The tasks that will be carried out to accomplish EUNAWWE are the following.

	Tasks	Associated Work Packages
T1	Train and empower primary school teachers in each partner country to provide inspiring lessons to young children, involving the Universe and space.	WP5
T2	Develop, translate and disseminate hands-on and inquiry-based educational resources in each of the partner countries, emphasising European and South African science and technology.	WP7, WP8
T3	Provide a network for the exchange of expertise and material between educators of young children in EU member states, Associated Countries and International Cooperation Partner Countries.	WP2, WP3, WP4
T4	Expose substantial numbers of young children in the 6 participating countries to awareness of the Universe, emphasizing astronomy and space sciences for developing perspective and an appreciation of the rational method.	WP5
T5	Foster interaction and exchange of best practice between professional scientists and primary level educators.	WP5, WP6, WP7
T6	Develop indicators and evaluation instruments for the programme and evaluate EUNAWWE.	WP9

These tasks have been divided into several work packages and relevant milestones have been specified to ensure that the goals are achieved and the tasks are fulfilled in a timely fashion.

- **Partnerships and collaborations.** The following are UNAWWE partner organisations not included in the EUNAWWE Consortium.

COUNTRY	INSTITUTE(S)
Belgium	Institut d'Astronomie et d'Astrophysique, Université Libre de Bruxelles Koninklijke Sterrenwacht van België Brussels Planetarium
Brazil	Luis Cruls Clube de Astronomia, North Fluminense State University, Campos de Goytacazes. ISCA Faculdades - Instituto Superior de Ciências Aplicadas, Cruz do Padre
Chile	European Southern Observatory (ESO). Universidad Metropolitana de Ciencias de la Educación
China	Beijing Planetarium
Colombia	Science Museum Maloka, Bogota Planetarium, Local astronomy clubs
Egypt	Planetarium of the Library of Alexandria
Guatemala	Universidad de San Carlos de Guatemala, Universidad Rafael Landivar Liceo Javier
Iceland	Stjörnuskoðun, Amateur Astronomical Society
India	Tamil Nadu Science Forum (Tamil Nadu), Vigyan Prasar (Indian Government science popularization), Pratham (Mumbai & other cities), AID India (Chennai)
Indonesia	Institut Teknologi Bandung, Bosscha Observatory
Ireland	Blackrock Castle Observatory, Irish Astronomical Society

Kenya	UNAWA Kenya and Cosmos Education
Malta	University of Malta
Mozambique	Eduardo Mondlane University
Portugal	Nuclio, Astronomy education organisation
Romania	Bucharest Astronomy Club
Sri Lanka	Sri Lanka Astronomical Association
Tanzania	Sokoine University of Agriculture, Morogoro
Tunisia	Science City in Tunis, Children's and Youth Clubs (government informal education programme)
Turkey	Astronomical Society of Turkey
Uruguay	Departamento de Astronomia, Instituto de Fisica, Montevideo
United States	Moulton School, Des Moines (Iowa), Riverside Country Library System (California)
Venezuela	Centro de Investigaciones de Astronomia, Merida, UNESCO Associated Schools Network (ASPNet)

- **Expected results** The outcome of EUNAWA will have an impact in several areas.
 1. **Impact on Society:** EUNAWA will spread awareness of astronomy and space to a broad segment of society. By training teachers EUNAWA will reach a large number of children and the age group of the children is such that parents and families will necessarily also be exposed to the programme.
 2. **Form a recruitment base for the next generation of scientists and engineers:** EUNAWA educational resources emphasise learning methods that have demonstrably engaged young children in science on the long term. Furthermore, the EUNAWA approach is tailored to encourage girls to take up science, through role models and gender-balanced representations of scientific professions.
 3. **Value added for European Astronomy and Space expenditure:** European astronomy and space achievements will feature prominently in EUNAWA educational resources. In addition to increasing general awareness of European science and technology, EUNAWA will provide schools and teachers with opportunities to learn more about the European astronomy and space programmes by e.g. visiting scientific facilities or following the news.
 4. **Legacy for science education:** EUNAWA will develop innovative teaching methods for a new group of children. Targeting very young children, a group that has been neglected in previous astronomy and space outreach programmes guarantees that it will be an extremely visible programme and that it will have maximum impact both on intermediate and long timescales. The evaluation of the programme will serve as reference for further development of science education at the primary school level.
 5. **Potential for long-term continuation:** Active efforts will be made to seek continued support and expand the programme in EU member states, Associated Countries and International Cooperation Partner Countries. This will guarantee that the future impact of EUNAWA will extend beyond the present partner countries and have an impact throughout the wider UNAWA network of more than 40 countries.

Conclusions: In the last 5 years UNAWE developed from an idea into a programme that is active in more than 40 countries, with a network of more than 500 experts. UNAWE was a cornerstone project of the UN-ratified International Year of Astronomy and is now an official activity of the International Astronomical Union and a component of the IAU Decadal Strategic Plan “Astronomy for the Developing World”¹. EUNAWE builds on the UNAWE accomplishments to (i) enable a full UNAWE programmes to be carried out in 6 countries and (ii) lay the groundwork for the further expansion of UNAWE within the EU and within Africa.

¹ http://iau.org/static/education/strategicplan_091001.pdf