



IAU Office of Astronomy for Education Center Italy

*Activities and projects
2022*

[#astronomyforabetterworld](https://twitter.com/astronomyforabetterworld)



The IAU Office of Astronomy for Education Center Italy

The IAU Office of Astronomy for Education Center Italy (I-OAE) is a joint project of a consortium of Italian partners led and represented by Istituto Nazionale di Astrofisica (INAF, National Institute for Astrophysics), the International Astronomical Union (IAU) and the IAU Office of Astronomy for Education.

The Italian consortium is constituted by: INAF, the Italian Astronomical Society (SAIt) and the University of Rome Tor Vergata (ToV).

I-OAE HQ are hosted by the INAF - Rome Astronomical Observatory, in Monte Porzio Catone. Personnel is selected on a voluntary basis according to their interests and competence, in agreement with the Institutes they work for.

Research structures involved so far:

Milan

INAF - Astronomical Observatory of Brera

Padua

INAF - Astronomical Observatory of Padua

Bologna

INAF - Astrophysics and Space Science Observatory of Bologna

INAF - Institute of Radio Astronomy

Florence

INAF - Astronomical Observatory of Arcetri

Italian Astronomical Society Headquarters

Rome

INAF - Astronomical Observatory of Rome, Monte Porzio Catone, I-OAE Headquarters

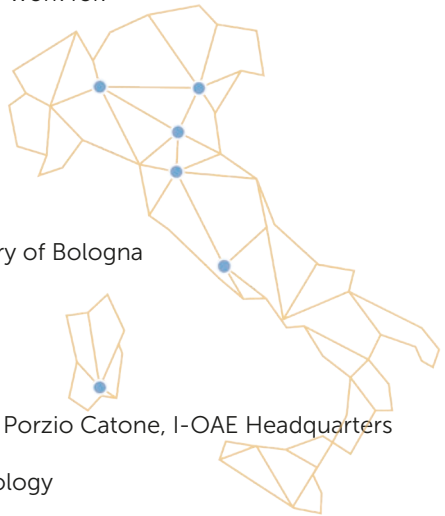
INAF Headquarters, Rome

INAF - Institute for Space Astrophysics and Planetology

University of Rome Tor Vergata

Cagliari

INAF - Cagliari Astronomical Observatory





The International Astronomical Union

The International Astronomical Union (IAU) is the international astronomical organisation that brings together more than 12 000 active professional astronomers from more than 100 countries worldwide. Founded in 1919, the IAU is the world's largest professional body for astronomers.

Its mission is to promote and safeguard astronomy in all its aspects, including research, communication, education and development, through international cooperation.

The IAU also serves as the internationally recognised authority for assigning designations to celestial bodies and the surface features on them.



About the IAU
<https://www.iau.org/administration/about/>



The Office of Astronomy for Education

The IAU established its Office of Astronomy for Education (OAE) in December 2019.

OAE is at the forefront of efforts by the IAU to leverage astronomy for education, specifically in the areas of science, technology, engineering and mathematics.

The OAE's mission is to support and coordinate astronomy education by astronomy researchers and educators, aimed at primary or secondary schools worldwide.

The IAU Office of Astronomy for Education headquarters are hosted at Haus der Astronomie (HdA), managed by the Max Planck Institute for Astronomy. HdA's hosting of the OAE was made possible through the support of the German Klaus Tschira Foundation and Carl Zeiss Foundation.

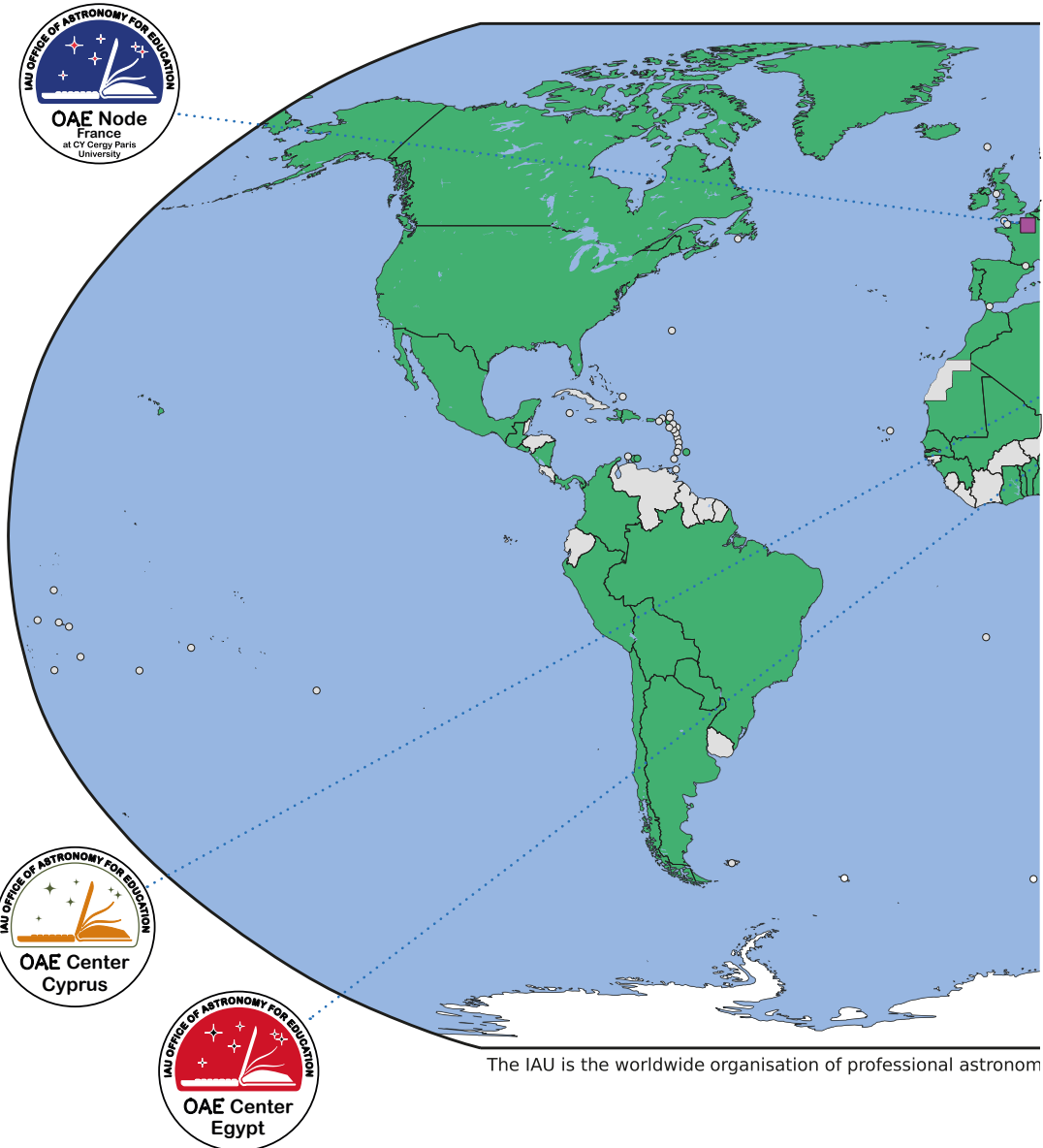


You can follow the activities of the IAU OAE at its website
<http://astro4edu.org>
or on Twitter and Facebook under @astro4edu

NAECs, Centers Nodes map

The OAE main office in Heidelberg, its branch offices in China, Cyprus, Egypt, India, Italy, Korea and Nepal as well as a network of National Astronomy Education Coordinators (NAECs) in 99 countries, support the compilation and translation of excellent astronomy education resources, help educators, astronomers and other stakeholders to get started in contributing to astronomy education, and support the creation of reliable and accessible education resources.

● Has NAEC team

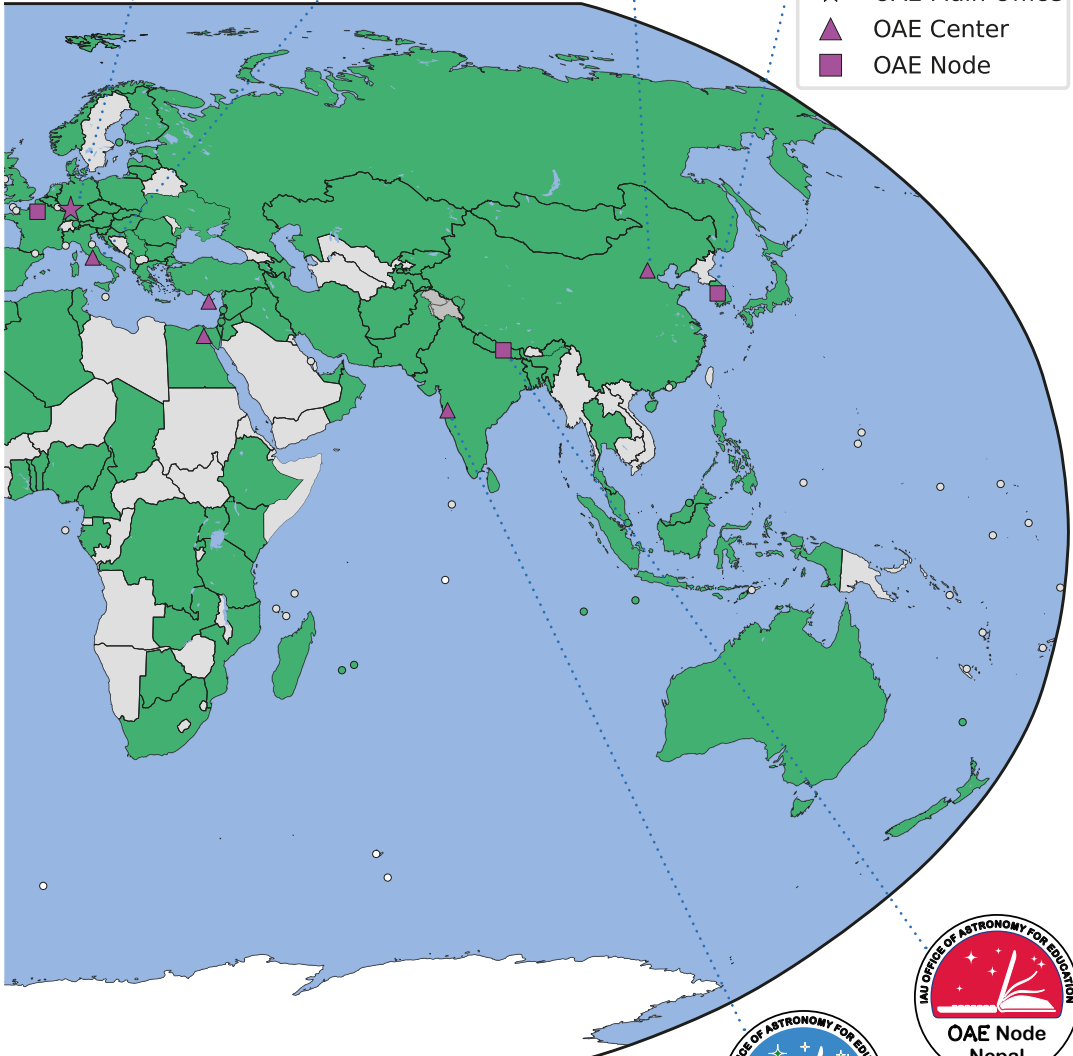


The IAU is the worldwide organisation of professional astronom



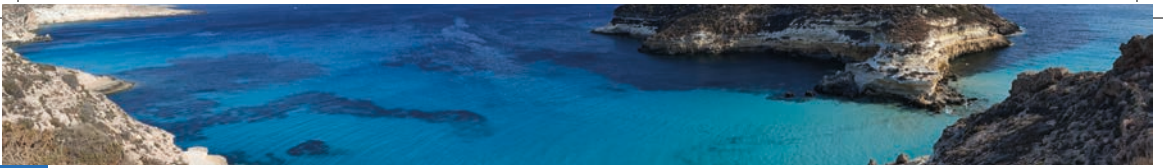
● No NAEC team

- ★ OAE Main Office
- ▲ OAE Center
- OAE Node



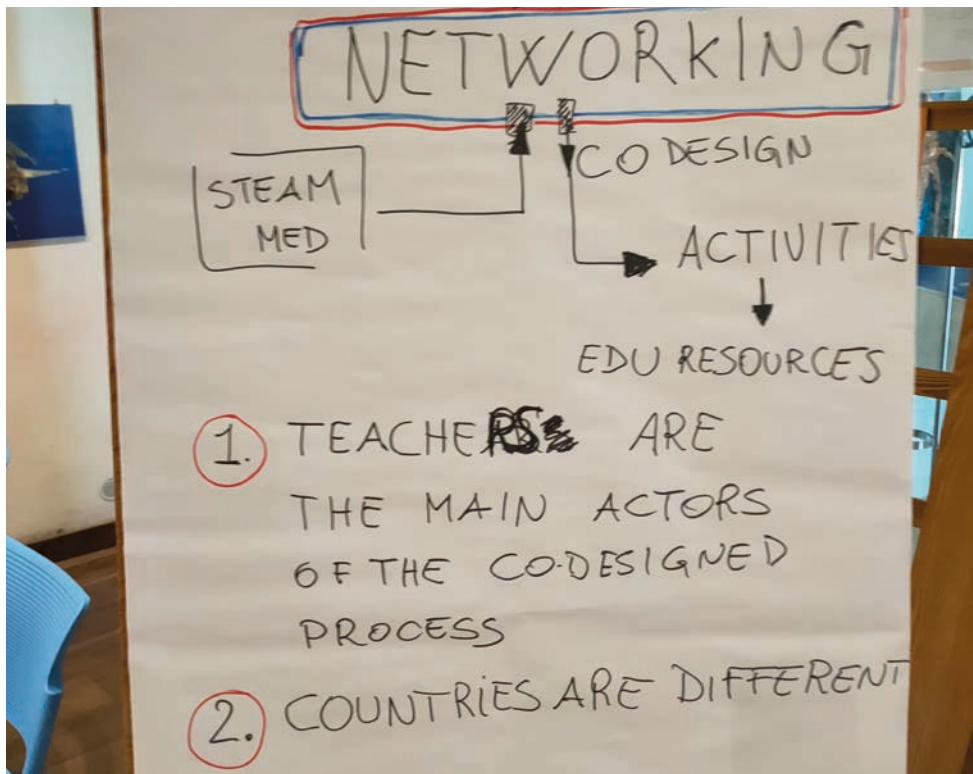
onomers regardless of borders. See <http://astro4edu.org/maps/>





The MIRTO/STEAM-Med Project

The STEAM-Med Project and its first phase MIRTO aim at creating a collaborative environment on a permanent basis, which includes all the countries of the Mediterranean area. They required the creation of a network of NAECs and National Outreach Coordinators (NOCs) in the area and a number of online round-tables to make acquaintances and get used to one another.



"The most important part of this project is the process itself, because what we really want is to stimulate the Med community, nurture it and generate space where people from the Med Area can work together in Astronomy Education."

Sara Ricciardi OAE Italy Deputy, INAF

STEAM-Med is managed with a co-design, peer-to-peer method. The participating NAECs chose to carry out common activities about LIGHT, starting from existing ones, already tested in their own countries. We coordinated three rounds of codesign. In each round, two NAEC representatives (from two different countries) worked together. After each round, the couples were mixed up together and the discussion started again.

STEAM-MEDCO-DESIGN SCHOOL LAMPEDUSA - 4-8 July 2022

An in-presence workshop was held in Lampedusa (Sicily, Italy) from July 3 to 9 2022. A total of 23 National representatives attended the workshop, while 14 Mediterranean countries shared the whole process: Cyprus, Croatia, Egypt, France, Italy, Lebanon, Morocco, Palestine, Portugal, Syria, Slovenia, Spain, Tunisia and Turkey, Montenegro, and Greece. Some of the representatives could not attend the workshop because of personal or professional reasons, but we wish to underline that Palestine's representative could not attend it because of the overwhelming difficulty of obtaining a visa.

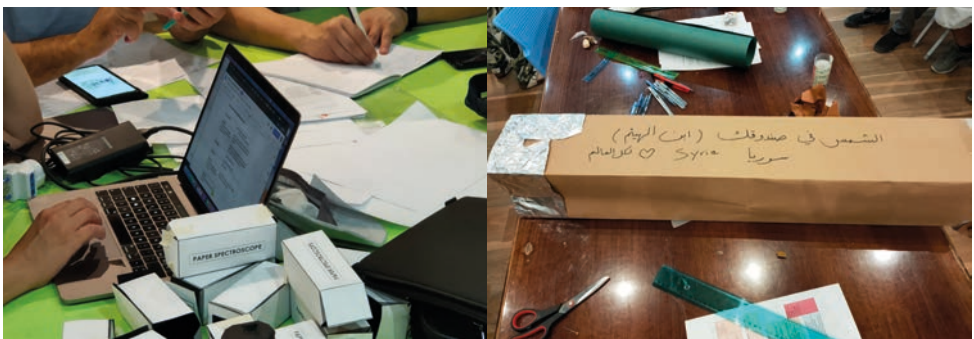


"Lampedusa is the southernmost Italian island. This is where migrants from Africa land: it is a highly symbolic place, where people can meet and build together in a peaceful, quiet and beautiful environment. We really had fun together."

Stefano Sandrelli, OAE Italy Manager, INAF

The challenges of this project are quite obvious because the geography of the Mediterranean does not correspond to the same language, cultural heritage or religion; different countries may also have political differences or people may come from different educational backgrounds with diverse values and opinions.

The final activities will be published in all the languages of the participating countries during 2023.





Officina degli errori

The pilot project "Officina degli Errori" was adopted by I-OAE as a Kickstarter for future communities of practice, co-design experience with teachers, and STEAM learning at school. In 2022, it was carried out in 5 schools (4 in the Emilia Romagna Region and one school in Napoli). Teachers had the chance to have five workshops facilitated by experts, who set up a tinkering environment in their classes. The project was completed last June, and we are now working to allow schools in Italy to adopt this program more autonomously.

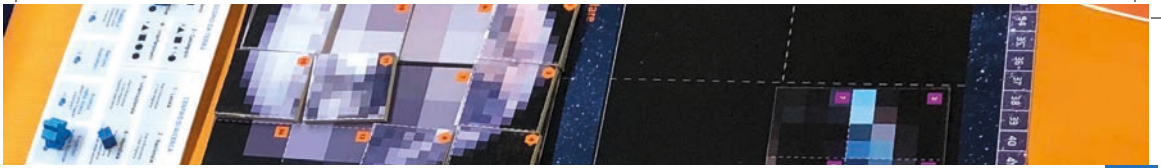


"Teachers needed to own the design and the implementation of the project to own their teaching: the co-design approach was the strongest method we could adopt."

Sara Ricciardi, OAE Deputy

We are also designing activities in other Italian cities to understand and adjust tinkering as an intense investigation moment in formal contexts. We are working with a group of teachers in the periphery of Rome, where we hosted a hands-on professional development course in November. We will carry on this activity with pupils from February to June 2023.





PIXEL

Game-based learning (GBL) is the discipline that studies how games can be placed in an educational context and, in general, as tools for improving our knowledge of disciplines, as well as of methods and other soft- and life skills. INAF has been experimenting with GBL for several years. In 2020 we started a co-design process together with game scientists of the Game Science Research Center (GSRC), which led to the creation of a board game, named PIXEL, Picture (of) the Universe.

“PIXEL simulates the world of scientific research in Astrophysics and emphasizes the importance of studying celestial objects at increasingly higher resolutions.”

Stefania Varano, I-OAE officer

In January 2022, as part of the collaboration with I-OAE and Game Science Research Center, INAF started to design a curriculum aiming at using the board game PIXEL to train students in game-based learning techniques and to evaluate the effectiveness of games as an innovative teaching/learning tool in improving the participants' mindset about science and its processes. We involved a team of psychologists.





The 4rd Shaw-IAU workshop on Astronomy for Education

The 4th Shaw-IAU Workshop on Astronomy for Education was held online from November 15 to 17, 2022 under the title: Leveraging the potential of astronomy in formal education. Organized by OAE and supported by IAU and Shaw Prize Foundation, it was a joint effort among the Centers of Italy, China, India, Cyprus, and Egypt, and the Nodes of France, Republic of Korea, and Nepal.

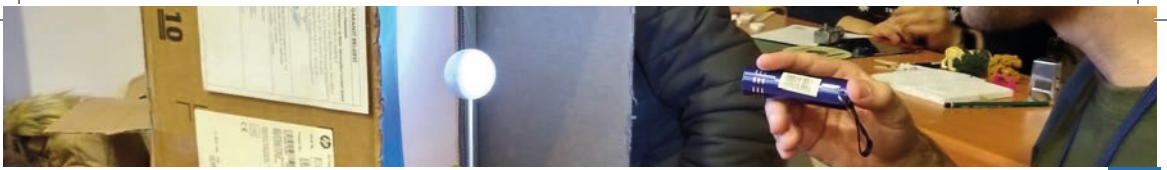


The annual Shaw Prize-IAU Workshops on Astronomy education that OAE organizes are funded by the Shaw Prize Foundation.

The workshop was divided into 9 sessions, each devoted to an important topic in astronomy education. Each session consisted of 4-5 pre-recorded talks, 5-10 posters, and a live round table moderated by the session chairperson. Talks were delivered either in English or in the speakers' mother tongue and captioned (in English) in advance, while the round tables were transcribed live. Every session was repeated at two different times, according to the very different time zones of workshop participants.

4TH SHAW-IAU WORKSHOP ON ASTRONOMY FOR EDUCATION

THE 4TH SHAW-IAU WORKSHOP ON ASTRONOMY FOR EDUCATION WAS HELD FROM THE 15TH OF NOVEMBER 2022 TO THE 17TH OF NOVEMBER 2022 (UTC TIME)



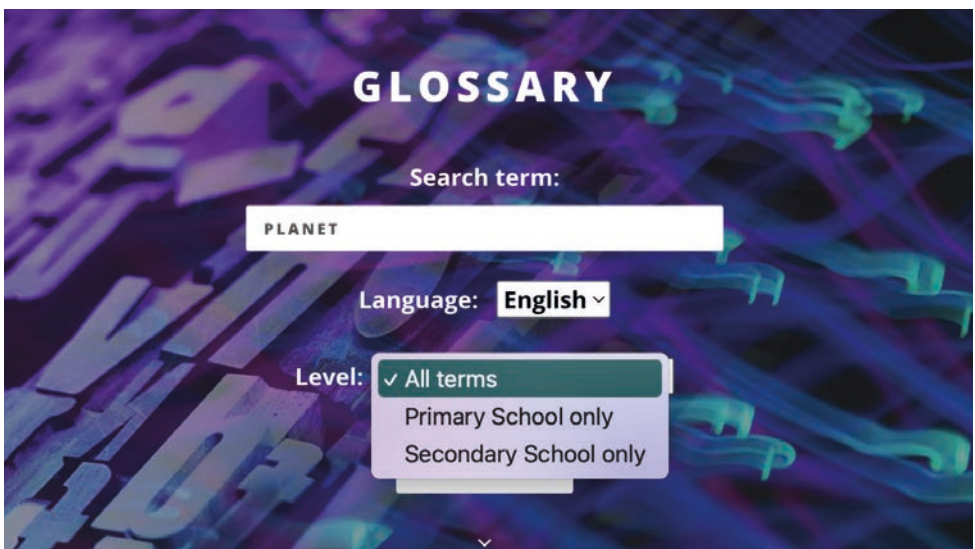
Teacher-training pilot program

The Teacher-training pilot program was launched by OAE and the I-OAE under the coordination of Anna Sippel and Tshamisio Makwela. The contest began in April 2022, and winners were announced at the end of June. The TTP initially aimed to assign 10 projects with a grant of 2000 euros each. Thanks to additional funding of 10000 euros from I-OAE and a revision of the candidate winners' needs, OAE succeeded in approving 21 projects.



The glossary

The OAE Multilingual Astronomical Glossary is a project of OAE in collaboration with the IAU Office of Astronomy Outreach (OAO). The astronomical terms and definitions were chosen, written, and reviewed by a collective effort from the OAE, Centers, Nodes, the OAE National Astronomy Education Coordinators (NAECs), and other volunteers. All glossary terms and their definitions are released under a Creative Commons CC BY-4.0 license and should be credited to "IAU OAE".



astroEDU

astroEDU is an open-access platform for educators worldwide to discover, review, distribute, improve and remix peer-reviewed education activities.

astroEDU is the best place to find science activities, particularly those with an astronomical, Earth or space science theme.



“With astroEDU we wanted to present astronomy education activities at their best. Peer review allows expert scientists and educators to give each author the benefit of their experience to improve education activities. The final result is high-quality content, presented in an attractive fashion.”
Edward Gomez, Education Director, Las Cumbres Observatory

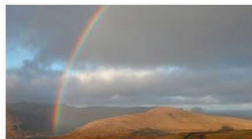
To guarantee the quality of the scientific content, educational implementation, and credibility, astroEDU activities undergo a double review by an astronomer and an educator.

astroEDU is a project of the International Astronomical Union within the framework of the IAU Office of Astronomy for Education..

FEATURED ACTIVITIES

Reading the Rainbow

DATE: 2020-09-10
 BY: C. Renee James, Sam Houston State University; SCOTT T. Miller, Sam Houston State University



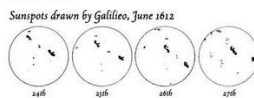
Rainbows are beautiful. By learning about how they work you can learn new things about what is shining the light.

THEME: AGE: 14+



Is the Sun rotating? Follow the sunspots!

DATE: 2023-04-30
 BY: Prithika Sridhar, GaneshaPrasanna, Parth Das Baidya, Karthikashrithi, Oshwin Srinivas, Stanford Solar Center



Sunspots drawn by Galileo, June 1612

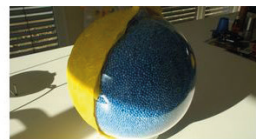
The Earth rotates on its axis, giving us night and day – but what about other celestial objects like the Sun?

THEME: AGE: 12 - 19



One Million Earths inside our Sun

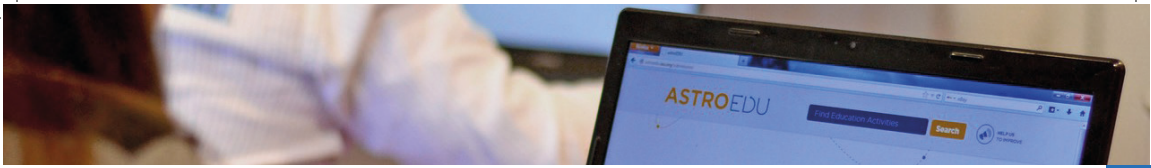
DATE: 2021-09-20
 BY: Roland Pflanz, Texas Star Astronomy



Students will learn how to build a model of the Sun, which can fit nearly 1 million little Earth balls.

THEME: AGE: 4+





astroEDU ITA

astroEDU ITA is the Italian version of the platform, managed by the Italian National Institute for Astrophysics in the framework of the I-OAE.

In astroEDU, Italian-speaking teachers, educators, and researchers can find the best peer-reviewed education activities connected to astronomy, Earth, or space science and can collaborate by submitting or reviewing.



“The astroEDU challenge, in Italy and all over the world, is to use a fascinating and multidisciplinary topic such as Astronomy to engage students and young generation to study and love science.”

Livia Giacomini, AstroEDU Director, INAF

One of the main goals of astroEDU is to promote the use of excellent activities worldwide. To pursue this objective, different national versions of the online platform are built with independent editorial boards and submission is accepted in different languages.

ASTROEDU UNIVERSITY & HIGH SCHOOL trova le attività. **Cerca**

Misurare la velocità media di una cometa

Misuriamo la velocità media della cometa C/2019 Y4 nella prima parte della notte del 2 aprile 2020.
Analizzeremo le osservazioni effettuate
Stefano Sandrelli, INAF; Giulia Lafrate, INAF; Riccardo Bevilacqua, INAF; Giulia Pantiri, INAF

Goals

- Osservare, descrivere, analizzare qualitativamente il movimento di un corpo
- Osservare, descrivere, analizzare quantitativamente il movimento di un corpo
- Essere consapevole della rappresentazione di un fenomeno
- Essere consapevole del significato di "misura" e di "errore" associato alla misura
- Essere consapevole del significato di "stima" di una grandezza
- Essere consapevole della potenzialità delle tecnologie per rappresentare il movimento di un corpo
- Incoraggiare il pensiero critico-creativo

KEYWORDS
velocità media, distanza, errore, misura, transito, tempo, spostamento, scuole secondarie

ETA
14 - 19

LEVEL
Secondary

DURATA
1h30

GROUP
Group

SUPERVISED
No

COST PER STUDENT
Free

LOCATION
Coppaner Laboratory

CORE SKILLS



Dubai

On March 16, 2022, Let's light up the skies of the world took place in the Italian Pavilion of the 2020 EXPO in Dubai.

The event, organized by OAE Center Italy and INAF, was constituted by two different moments: a hands-on laboratory for the pupils of local schools, and a roundtable on the topic Astronomy for Teaching: from theory to practice, which took place both in person and in live streaming.



"Our Office of Astronomy for Education places astronomy, namely the relationship between ourselves and the Universe, at the service of the children's learning process."

Stefano Sandrelli, OAE Italy Manager, INAF

In the teaching lab, called Let's light up the skies of the world, about twenty girls from the GEMS Al Khaleej International School, an international school based in Dubai, lit up the stars with LEDs and paper circuits, inventing their own constellations and connecting them to the legends and myths of different cultures of the world.





In the second part of the morning, a roundtable took place with Markus Poessel, Responsible for the IAU-OAE Office, Stefano Sandrelli and Sara Ricciardi of the OAE Center Italy, Hamid Al-Naimiy and Ilias Fernini of SAASST (Sharjah Academy for Astronomy, Space Sciences & Technology) and Pedro Russo of Leiden University/Ciência Viva. The roundtable was available online, too – through the Expo social platforms.





Castellaro Lagusello Astronomy Festival

From June 10 to 12 2022, the second edition of the Astronomy Festival was held in Castellaro Lagusello (Mantova, Italy). The title of the Festival was “Attractive Universe” and all the activities had “gravity” as a common thread.

All the activities took place outdoors: the hands-on workshops were developed by the PhD students from the University of Padova, during the graduate course Designing innovative public engagement activities, and they were led during the festival by high-school students, trained by the Ph.D. students themselves and astronomers.



“The inhabitants of Castellaro Lagusello have taken part in the event by opening their courtyards and private villas to host the activities during the festival.”

Anita Zanella, I-OAE member

Telescope observations of the Sun, the night sky, and the sunrise from a natural park with an archeological site (accompanied by live music and the storytelling of an archeologist) were performed. The festival has been visited by about 4000 people from the main cities of Northern Italy, as well as from neighboring towns. The scenic and graphic design of the Festival was made by a professional architect and scenographer.





Under the same sky: an exhibition in Rome

I-OAE supported the exhibition Under the same sky within the Punti di Vista (Viewpoints) festival at “Palazzo delle Esposizioni”, a very important exhibition venue in Rome. The exhibition, scheduled from January 21 to 23 2022, was extended until February 27, because of the interest shown by the public. It included various stations of the IAU Inspiring Stars exhibition.

The interaction of the children and the public with the stations has been studied to start the design of inclusive educational activities based on the exhibition.

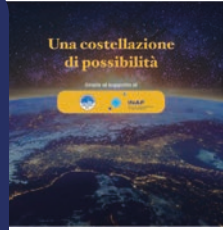


“Astronomy allows us to think about the past, present, future, who we are, why we are here, so philosophical questions are also playing a big part in the self- and diversity awareness process.”
Stefania Varano, I-OAE officer

The design is currently ongoing to create inclusive educational workshops and activities within the INAF exhibition Time Machines in 2023/2024 and and the second edition of the Punti di Vista festival, which was programmed to overlap with the exhibition and to take advantage of INAF and I-OAE collaboration.



SPREAD THE NEWS





*Images from the
OAE
astrophotography
contest 2022*

Image title: Milky Way over Avenue of Baobabs
Author: Amirreza Kamkar
Country: Germany
credits: Amirreza Kamkar/IAU OAE

Winner in the 2022 IAU OAE Astrophotography Contest, category Still images of celestial patterns. This image, taken from the Avenue of Baobabs, Morondava, Madagascar, in July 2017, shows the majestic band of the Milky Way, our home galaxy, together with a rich collection of constellations and asterisms: Crux, Centaurus, Scorpius, Sagittarius and the Teapot asterism.

Brochure compiled & edited by I-OAE
Graphic designer: Laura Barbalini (INAF)
NAECs' map provided by Niall Deacon (OAE HQ)
Acknowledgments: Gwen Sanderson and Markus Pössel (OAE HQ)
for their kind revision and comments.

“Teaching astronomy takes both solid knowledge of the subject itself as well as educational skills, such as knowing appropriate methods and techniques for teaching.”

Markus Poessel, OAE HQ Head

“We are not wrong if we say this is something really worth doing since it brings about change in society and can do it so significantly.”

*Juan Ángel Vaquerizo,
NAEC team - Spain, Centro de Astrobiología*

“Evaluation is a continuous process that critically examines a program; it can improve program design and implementation, assess its achievements and improve upon its effectiveness. It helps teachers and learners to improve teaching and learning processes. Evaluation helps us to make evidence-based decisions.”

Silvia Casu, I-OAE

Office of Astronomy for Education Center Italy members:
Stefano Sandrelli (Head), Sara Ricciardi (Deputy), Livia Giacomini (Officer), Stefania Varano (Officer), Giuliana Giobbi, Gianluigi Filippelli, Elisa Di Carlo, Rosa Valiante, Giuseppe Bono, Dario Del Moro (until April), Caterina Boccato, Silvia Casu, Francesca Cresta (June-November), Francesco D’Alessio (from March), Mayssa El Yazidi, Riccardo Leoni, Claudia Mignone, Gloria Tirabassi (June-November), Alessandra Zanazzi, Anita Zanella