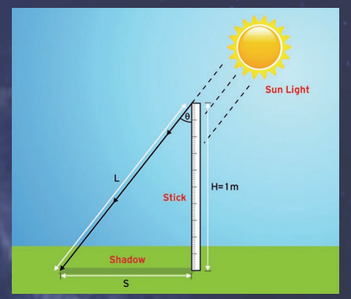
THE ERATOSTHENES EXPERIMENT



Have you ever wondered how did we first find out how big our planet is? By about 500 BC the ancient Greeks knew for a fact that the Earth is round and not flat and yet, they had no idea about its size. It was about 2260 years ago, in 240 BC, when Eratosthenes of Cyrene (276 BC – 195/194BC), a Greek polymath and chief librarian at the Library of Alexandria became the first person in the world to measure the circumference of the Earth! The great scholar observed that at noon on the summer solstice, which occurs about June 21 every year, the sun was directly overhead of a well in Syene, without casting any shadows, while in Alexandria, the shadow cast by a stick at the same time made an angle of about 7.2 degrees. Using this keen observation and the recorded distance between the two cities, Eratosthenes was able to deduce the earth's circumference within 15% of today's measured values. This milestone discovery is not only one of the most beautiful and insightful experiments in the history of Science, but also one exemplary inquiry based activity that can help introduce students to the scientific way of thinking.

In this framework, on the 22nd of March, 2021 at 11.45 AM (GMT+2) students from Greece and South Africa join forces to revive the Eratosthenes experiment in an event that bridges the wisdom of the past with the school of tomorrow. In this live event, students will guide us step by step to Eratosthenes's measurement using both simple materials and ICT tools and will collaborate to determine the circumference of the Earth using simple geometrical arguments. The event will be flanked with observation of the Sun by means of solar telescopes from both hemispheres. The event is organized in the framework of the international educational activity: "Eratosthenes Experiment", organized by Ellinogermaniki Agogi, under the auspices of the Greek Ministry of Education and Religious Affairs with reference number 167302/Δ2.

Organized by

ELLINOGERMANIKI AGOGI

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
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Eratosthenes experiment: a 2250 year old inquiry based activity

Students Measure the Size of the Earth

Program of the event

March 22, 2021, 11:45 – 13:45

https://www.youtube.com/user/ellinogermaniki
http://eratosthenes.ea.gr/

YouTube LIVESTREAM

Program

11:45 – 12:00

Introduction: The Eratosthenes Experiment in the Classroom

Dr Sofoklis Sotiriou, Director, RnD Department Ellinogermaniki Agogi
Prof. Matie Hoffman, Boyden Observatory
Emmanuel Chaniotakis, Ellinogermaniki Agogi School Observatory

12:00 – 13:10

Students from Greece and South Africa measure the size of the Earth

High School students from Greece and South Africa, Ellinogermaniki Agogi, Boyden Observatory

13:10 – 13:45

Solar observation from Boyden and Ellinogermaniki Agogi Observatories

Prof. Matie Hoffman, Boyden Observatory
Emmanuel Chaniotakis, Dr. Sofoklis Sotiriou, Panagiotis Tsoumakis, Georgios Athanasopoulos, Ellinogermaniki Agogi School Observatory

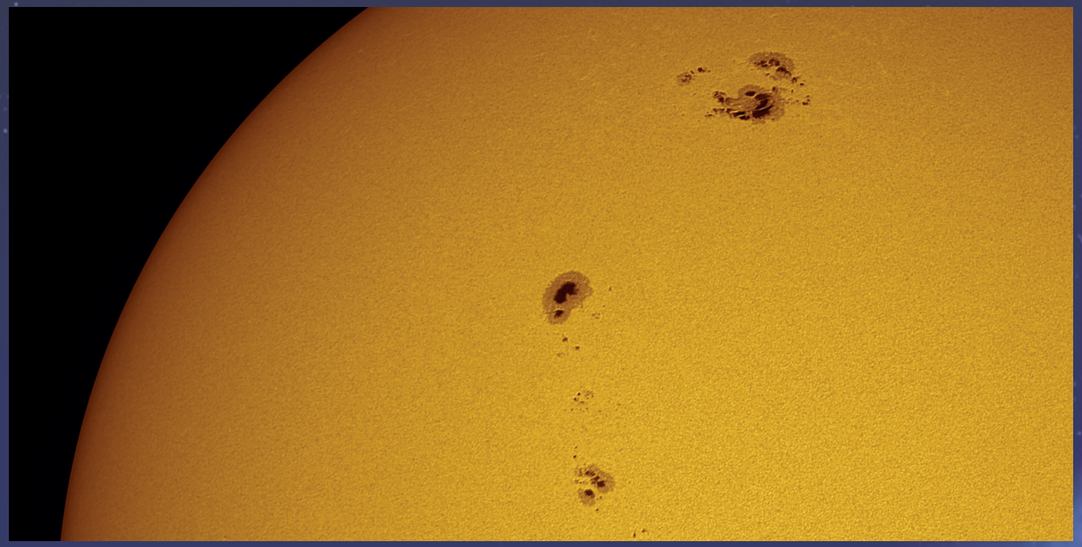
13:45

End of the event

Observations will be carried out weather permitting

UNIVERSITY OF THE FREE STATE

The University of the Free State (UFS) was established in 1904. It is located in central South Africa. The UFS is responsible for two historical observatories, namely, the Boyden Observatory, situated 26 kilometres east of the city of Bloemfontein and the Lamont Hussey Observatory, which is in the centre of Bloemfontein. The latter has been converted into a planetarium, the Naval Hill Planetarium. The two observatories are robust educational resources and are also important for the preservation and display of South African astronomical heritage. In addition, Boyden Observatory hosts several optical telescopes used for research.

ELLINOGERMANIKI AGOGI SCHOOL OBSERVATORY

The School Observatory of Ellinogermaniki Agogi (www.ea.gr/astronomy) was installed in 2007 and houses a 16″,f/10, 40cm MEADE LX200R Schmidt-Cassegrain robotic telescope as well as two solar telescopes and smaller telescopes. Its unique location within the premises of a school offers to teachers and students the opportunity to actively engage with scientific research in observational astronomy. Throughout its years of operation EA school observatory has been very active in the organization of education and outreach activities for students, teachers and general public at national and international level and in astronomical and educational research.