Ark of Inquiry

newsletter 1/2017 issued by the Ark of Inquiry project consortium

Welcome, dear Subscriber!

This is the ninth official newsletter of the Ark of Inquiry project. We are thankful for your interest in the project. In the newsletter, you will find information about the latest news and upcoming events.

As you may already know, Ark of Inquiry is a teacher training project which aims to train at least 1100 pre- and in-service teachers in inquiry learning and raise their awareness of Responsible Research and Innovation (RRI). The trainings have already started and are still ongoing in several partner countries. All interested teachers and educators are more than welcome to participate in the trainings. You will be able to learn more about inquiry learning, RRI, the Ark of Inquiry portal and find out how to support pupils in their inquiry activities. If you are interested in finding the nearest training session, contact us via **arkofinquiry@gmail.com** and we will put you in touch with the local coordinator!

In this issue, you can read about recent and upcoming project-related events in Hungary, Greece, Belgium, Cyprus, the Netherlands and Finland. As always, we will also introduce some of the inquiry activities that can be found in the Ark of Inquiry portal. In this issue we focus on those that allow us to venture outside as part of our studies. You will learn what has happened in the past couple of months and find out which events are worth looking forward to in the upcoming months.

We welcome input from all teachers who have participated in the Ark of Inquiry teacher trainings or other project-related events to share their impressions directly with us. Contact us via **arkofinquiry@gmail.com** to submit your story!

On behalf of the Ark of Inquiry team, we wish you a wonderful spring. We hope to see you at our trainings!

Upcoming events

On 29 June – 2 July 2017 in Debrecen, Hungary, HRTA participates in the Science on Stage conference.

Under the motto "Inventing the Future of Science Education", the next Science on Stage festival, the largest European educational fair for STEM teachers, will take place from 29 June to 2 July 2017 in the Kölcsey Convention Centre in Debrecen, Hungary. At the festival around 450 primary school teachers and STEM teachers from 30 countries will come together to exchange innovative teaching concepts. They will present their most leading-edge ideas from teachers to teachers in the form of a fair, workshops and performances. The festival, hosted every two years in a different country, is the culmination of national events in the participating countries. Following the festival, the ideas are cascaded throughout the participating countries and participants have the opportunity to work together and develop their teaching skills. **www.sons2017.eu**

More upcoming events on our website!

About the project:

Project Title:
Ark of Inquiry: Inquiry Awards for Youth over Europe (FP7, No. 612251)
Funding Scheme:
EU-FP7-SCIENCE-IN-SOCIETY-2013-1 (CSA-SA)
Duration:
4 years (March 2014-Feb 2018)

Consortium: 13 partners coordinated by Tartu Ülikool (University of Tartu), Estonia: Ellinogermaniki Agogi Scholi Panagea Savva AE, Greece; Turun Yliopisto (University of Turku), Finland; Panepistemio Kyprou (University of Cyprus), Cyprus; UNESCO Regional Bureau for Science and Culture in Europe, Venice, Italy; Hogeschool van Arnhem en Nijmegen (HAN University), The Netherlands; Bundesministerium für Bildung (Ministry of Education), Austria; Humboldt-Universität zu Berlin (Humbolt University), Germany; Bahcesehir Egitim Kurumları Anonim Şirketi (BEKAS), Turkey; Ecole de l'ADN (DNA Learning Centre), France; University Colleges Leuven-Limburg (previously KHLim), Belgium; Kutató Tanárok Országos Szövetsége (Hungarian Research Teachers' Association), Hungary; SA Teaduskeskus AHHAA (AHHAA Science Centre), Estonia

European Union's Seventh Framework Programme

Where to find Ark of Inquiry? Visit our website!

www.arkofinquiry.eu

Upcoming events

Preparations for the project's final conference are underway, tentatively planned to be held in November 2017 in Paris, France, at UNESCO Headquarters.

It will be a moment to bring together teachers, scientists and policy-makers, to further develop cognitive learning in science and foresee further advancement in science education in Europe. The conference will inform national stakeholders on the final output of the Ark of Inquiry project and on the evidence of its utility according to the experimentation and the collected narratives from several schools and teachers. More information about the final conference will be available in upcoming newsletters.

Of special note is the planned Ark of Inquiry Summer School on 9–14 July 2017, organised by EA.

This one-week opportunity will allow science teachers and other professionals to have an in-depth look at the inquiry cycle, learn how to adapt inquiry activities to their classrooms, and, through site visits, understand how to connect the classroom and the real world for their pupils. The **Ark of Inquiry Summer School 2017** will be held at **Golden Coast Hotel & Bungalows** near the historic location of Marathon, at the outskirts of Athens. More information on the summer school can be found at **http://ark.ea.gr/**.

The Ark of Inquiry project aims to raise youth awareness to Responsible Research and Innovation (RRI) and to build a society skilled in RRI and related scientific communication. It will provide young European citizens (7 to 18 year olds) with a pool of activities to improve their inquiry skills, increase their awareness and understanding of conducting 'real' science, and prepare them to participate in different roles in the European research and innovation process.

To this aim the project will:

a) develop a framework for identifying inquiry activities that promote pupils' awareness of RRI;

b) collect existing inquiry activities and environments from various national and international projects;

c) make activities available across Europe through the Ark of Inquiry platform (implement the inquiry activities on a large-scale across a European school network such as the UNESCO Associated Schools Programme Network (ASPnet) so to bring together learners, and supporters (teachers, science and teacher education students, and staff of universities and science centres). During the project it is expected that at least 20 000 students will participate in the Ark of Inquiry.

d) train at least 1,000 teachers to support pupils' inquiry activities in a manner that attracts pupils' interest and motivation towards RRI.

Where to find Ark of Inquiry? Visit our website!

News from the field

Ark of Inquiry teacher trainings in Belgium

In the past months more than 100 teachers participated in the Ark of Inquiry teacher trainings organised by the University Colleges Leuven Limburg (UCLL). The teachers learned about the principles of IBSE methodology, the ideas of Responsible Research and Innovation and the possibilities Ark of Inquiry offers them for working with those principles in their classrooms.

The trainings were organised in various locations in Flanders: UCLL campus Diepenbeek, University of Antwerp, Cosmodrome Genk. This was possible thanks to the long-term collaboration between UCLL and the mentioned institutions.

UCLL also organises the Quantum SpinOff trajectory 2016–2017 in the Ark of Inquiry portal: pupils and their teachers come in contact with the real world of quantum physics and nanotechnology and their high-tech applications. This way, the Ark of Inquiry ideas reach not only teachers and their pupils but also scientists and even some entrepreneurs. The trajectory provides inquiry activities for the pupils but, at the same time, serves as teacher training for the guiding teachers.

UCLL teacher students were involved as well in the organisation of some of these activities, thus becoming 'Ark of Inquiry ambassadors'.

In the coming months more activities in the classroom as well as the last phase of the teacher trainings will take place: more teachers and pupils will have the opportunity to come in contact with the project, and others will come back to tell us about their experience with the Ark of Inquiry methodology in their classrooms.

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Responsible Research and Innovation (RRI) Event in Cyprus

The University of Nicosia, the Cyprus University of Technology and the University of Cyprus co-organised an event called "Implementing Responsible Research and Innovation (RRI) in the Science Classroom at All Educational Levels". The event was organised within the European projects Engage, PARRISE and Ark of Inquiry. It was held on Saturday, 11 March 2017 at the University of Nicosia.

The event introduced the concept of RRI and offered to the participants an opportunity to be informed about different ways to include RRI aspects in science classes. Zacharias Zacharia gave a plenary talk on how RRI is addressed in the context of the Ark of Inquiry project, and a teacher who participated in the project's teacher training courses and implemented inquiry and RRI activities with his pupils shared his reflections on the teaching and learning experiences.

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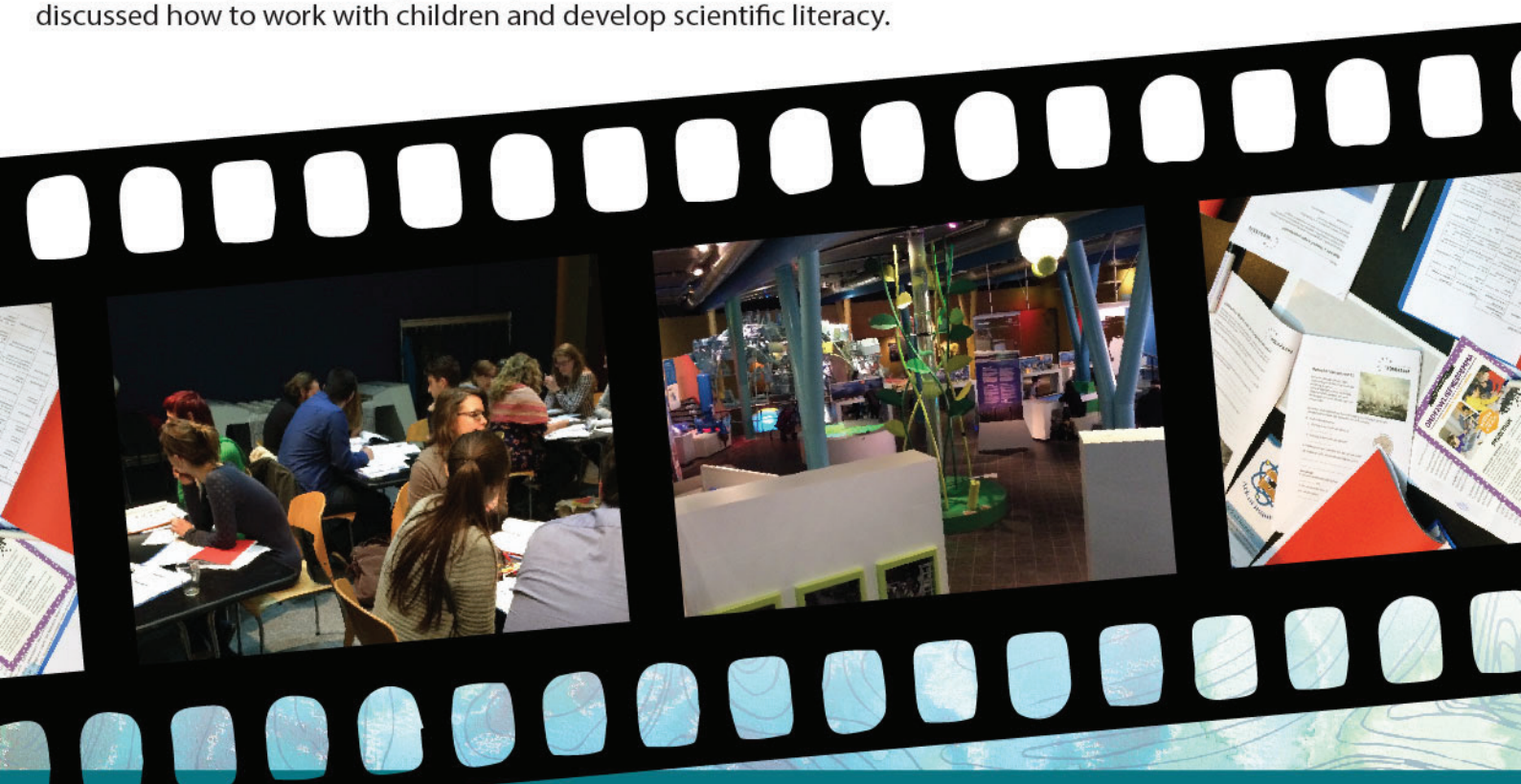
Engaging science centres and museums in the Netherlands

On 22 March more than 20 educational staff members of Dutch science centres and museums met for a workshop in the **Watermuseum** in Arnhem.

In the workshop they discussed the use of evaluation tools provided by Ark of Inquiry for their own activities. The participants brought their own activities and had a lively discussion with the phases of inquiry and the framework for evaluation in mind. Many participants discovered new possibilities to improve and deepen their activities on inquiry learning.

The second part of the workshop was dedicated to scientific literacy and the concept of RRI (Responsible Research and Innovation). The whole group 'experienced' a new part of the exhibition in the Watermuseum and afterwards discussed how to work with children and develop scientific literacy.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Teacher trainings in Turkey

A total of 4 teacher training sessions have been conducted in Turkey in order to provide information about the issues related to the Ark of Inquiry project, Inquiry Based Science Education (IBSE), Responsible Research and Innovation (RRI), the Ark of Inquiry portal and inquiry activities.

All of the teacher training sessions were held at the **Bornova Bahcesehir College in Izmir**. The college was selected because of its modern science laboratory, conference hall, computer laboratories and Information and Communication Technology (ICT) based classrooms. In April of 2016, 50 Science teachers attended the first training session, which had as its purpose providing teachers with information about the Ark of Inquiry project and about IBSE-RRI issues. The training included hands-on activities in order to explain to teachers how to use the IBSE-RRI method in their classrooms. The same training session was repeated for 51 science teachers at the same college with BEKAS staff in October of 2016. The third teacher training session was conducted with the participation of 20 science teachers in December of 2016. In this session, the Ark of Inquiry portal and its activities were introduced to teachers in a computer classroom. The same training sessions were later repeated for 80 science teachers. Altogether, 100 science teachers have participated in the Ark of Inquiry project teacher training sessions.

Before organizing the teacher training sessions, official permission from the Izmir Educational Directorate was obtained for teachers to attend the training sessions in an official capacity.

A Turkish language booklet was prepared for the use of the participating teachers. After each training course was completed, a certificate was awarded to all teachers who participated.

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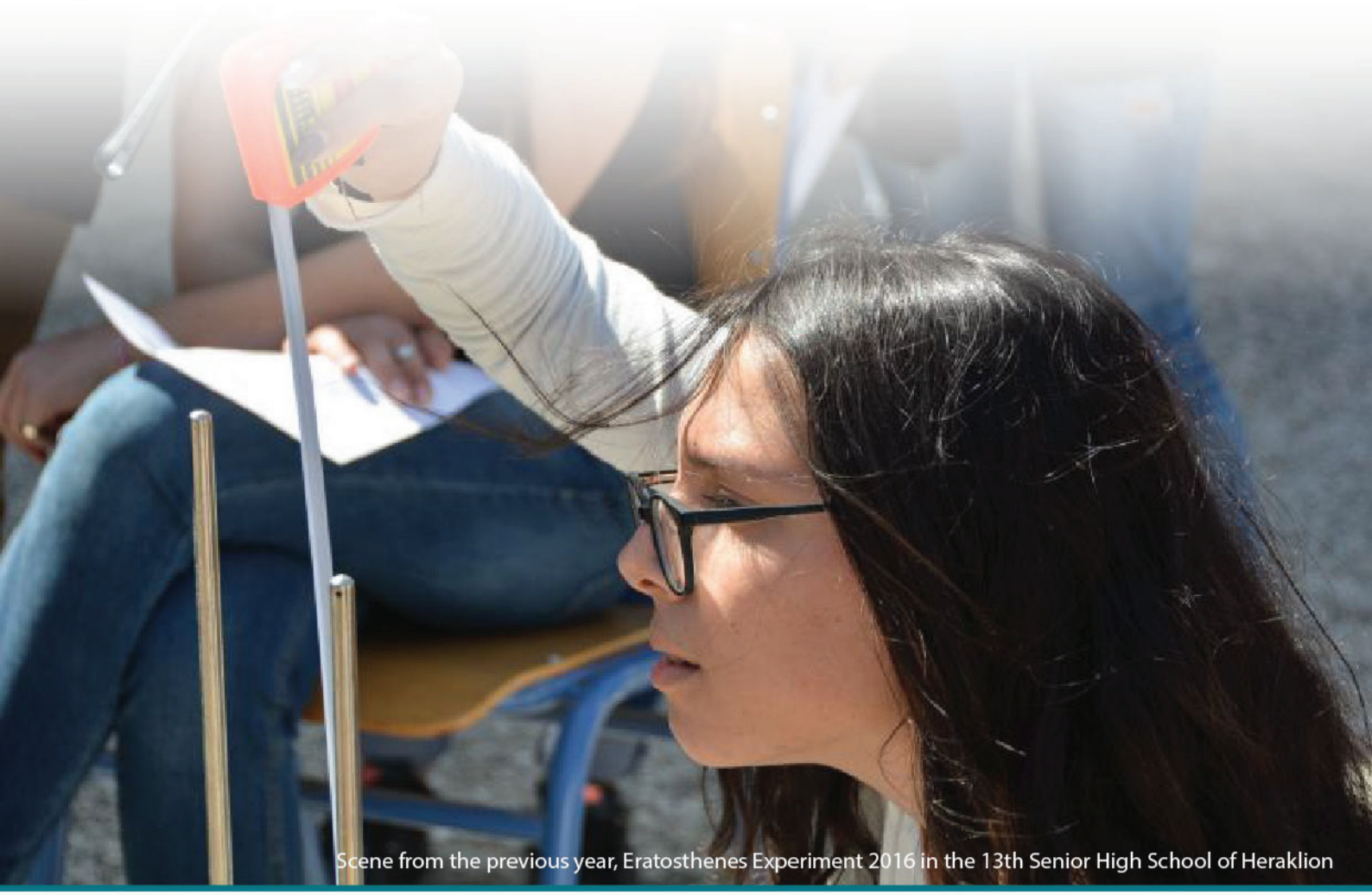
Ark of Inquiry promoted the global Eratosthenes experiment

Following the previous year's great success with more than 1100 schools from around the world involved in the activity, one of the project partners, Ellinogermaniki Agogi, took part in the **Eratosthenes Experiment**, which took place on 21 March, a day after the spring equinox.

Ark of Inquiry schools and teachers were encouraged to participate in this fascinating international event. Teachers could log in to the **Ark of Inquiry portal** and search for the activity. They could then register on the website with their school's longitude and latitude. Once registered, they were put in touch with a school from the same longitude by the organising team. Together with the partner school, pupils recorded and submitted data, collaborated and calculated the circumference of the Earth.

The activity starts again on 22 September 2017 for the next Eratosthenes Experiment event. Registration opens in mid-August 2017. Visit the activity at **http://arkportal.ut.ee/#/inq_act/1547** (to open the link, log in to **arkportal.eu** beforehand).



Scene from the previous year, Eratosthenes Experiment 2016 in the 13th Senior High School of Heraklion

Preliminary results of the project were presented in Hämeenlinna, Finland

On 5–7 April 2017 at the Conference **"ICT in (Science) Education"** in Hämeenlinna, Finland, UTU presented preliminary results from Study card 6 in WP5 on pupils' interest regarding inquiry activities. More information at **http://itk.fi/2017/**

Share your experiences with the Ark of Inquiry portal!

Click here to give feedback!

Inquiry activities: outdoor activities

As many of you may have noticed, the Ark of Inquiry portal is now available to everyone at **arkportal.eu**. The portal features an ever-growing collection of inquiry activities in different languages and domains. In our previous newsletters, we have brought to you a selection of inquiry activities with a strong RRI focus, those suggested by our pilot teachers or those that help to engage all learners with inquiry-based science. In the previous issue, we presented to you activities that support teaching and learning about sustainability. In this issue, we have decided to focus on activities that allow us to venture outside as part of our studies.

Seed spinners: Exploring air resistance

In this activity we investigate how plants can use wind and air to spread their seeds. Do you know what types of seeds are the best at flying? This activity explores air resistance by investigating how different seed spinners move away from the parent plant by constructing a seed spinner.

In the first inquiry activity pupils test how long a seed stays in the air, either by letting it drop from a certain height and timing how long it takes until it reaches the ground or by blowing at different types of seeds and seeing how far they move.

The second inquiry involves a challenge where children are given different materials and are invited to design their own seed spinners.

Discovering what animals live in or around the school

Let's go on an animal safari! In this activity we will go exploring and investigate the different animals that live near our school. During their exploration, pupils are to notice different types of so-called minibeasts (invertebrates) and to record their observations in the worksheet provided. Afterwards they are asked to focus on one minibeast and to prepare a poster about it. Different forms of recording, such as drawings, photographs or notes can be used.

Both activities include instructions for the teacher and are part of a larger set of activities that can be found at **http://bit.ly/PSN6_8**. The materials were initially published in the Pri-Sci-Net project. Authors: Jenny Byrne and Willeke Rietdijk, University of Southampton, © 2013 University of Southampton

Ants

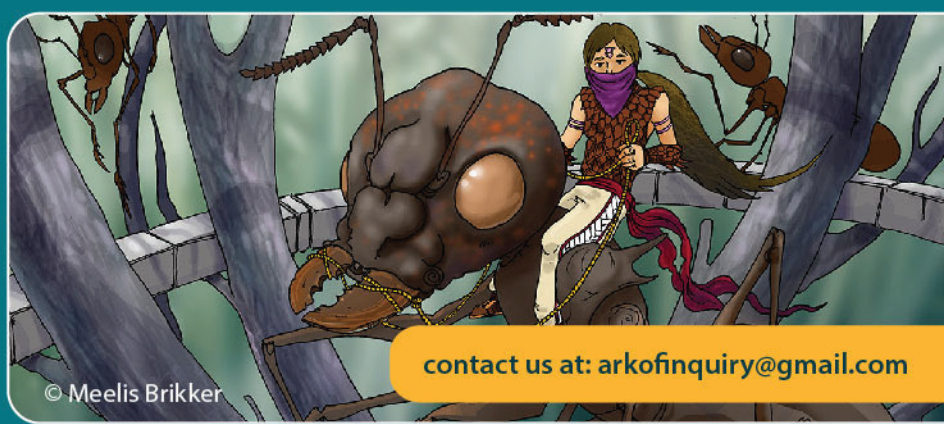
What do we know about ants? In this activity we can observe real ants in the schoolyard and try to find answers to questions we might have about their life. The children create a class poster about ants and their characteristics or make individual drawings. For questions that have not been answered by observation, pupils are given the opportunity to discuss how to answer them and to conduct experiments regarding, for example, what ants eat. Finally, the children compare their predictions with their actual observations.

The activity can be found at **https://sisu.ut.ee/sites/default/files/ark/files/3-ants.pdf**. The materials were initially published in the Pri-Sci-Net project. Authors: Marianna Kalaitsidaki & Valia Mazonaki, University of Crete, Greece

In the next newsletter:

- Find out more about the Ark of Inquiry platform and activities inhabiting it;
- see what was done in Ark of Inquiry during the summer months;
- and find out what events are worth looking forward to in autumn.

Dear Subscriber, we wish you all the best and hope to see you again soon!



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