

ARETE

Call for Pilot 2 Teachers

Primary school (Geometry and
Geography)



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1 OVERVIEW OF THE CALL

European Schoolnet is recruiting **up to 160 primary school teachers (pupils of 4th and 5th grade as of September 2021) to participate in piloting of interactive augmented reality (AR) solutions for geometry (up to 80 teachers from the group) and geography (up to 80 teachers in total) provided by CleverBooks (ARETE Pilot 2). The following countries will be prioritised (up to 20 teachers per country):**

Table 1. Pilot 2 country coverage and language of materials to be tested

No	Country*	Language
1	Croatia	Croatian
2	Greece	Greek
3	Italy	Italian
4	Poland	Polish
5	Portugal	Portuguese
6	Romania	English
7	Serbia	Serbian
8	Spain	Spanish

**Pilot teachers may be recruited from additional European Union and H2020 associated countries (outside the main group listed in Table 1). The language of materials for participants from outside this group will be English.*

2 THE RESPONSIBILITIES OF SELECTED ARETE PILOT 2 TEACHERS

Teachers participating in ARETE Pilot 2, will be requested to:

- Carry out administrative duties necessary for the pilot’s implementation (including the distribution and collection of appropriate consent forms and information sheets for children participating in the pilot, and overseeing the implementation of anonymous identification codes, under the guidance of the ARETE team).
- Participate in the pilot study (either in the control or intervention group). Teachers are required **to apply in pairs**, and group allocations will only be decided after the completion of the pre-test evaluations.
- If appointed to the intervention group, be prepared to implement the CleverBooks applications (either Geography or Geometry) and educational materials with the students in your class during the 2021-2022 school year.
- To administer TIMMS 2015 tests (12 selected items for 4th grade geography and geometry) to their participating students - both in the CLB-AR intervention and Pilot control group. These pseudonymised paper-based tests should be administered three times over the course of the pilot: at the beginning and at the

end of the pilot as well as after sufficient time has passed after the intervention (retention test) to ascertain an initial baseline and to measure intervention impact. The teachers will be required to collect and send both digital and paper versions of the tests to the pilot coordinators.

- Fill in the qualitative online surveys (one at the beginning and one at the end of the pilots) covering pedagogical aspects, e.g., on student motivation and classroom engagement, barriers and facilitators for AR use, and experiences with AR-enhanced teaching and learning.
- Help researchers by grading open ended questions in their own languages that appear in the student evaluation tests. In return, they will be provided with a brief evaluation report containing research results specific to their classroom.
- At the end of the pilot, the teachers allocated to the intervention group will be required to share a brief paper survey with their students, aiming to measure the students' interest/enjoyment, perceived competence and value/usefulness of the piloting activities.

Note: A control group design will be employed to measure the effectiveness of the pilots' intervention. This means that, in each team of two teachers per school, there will be: [1] one teacher in the intervention group, who will implement the free of charge CleverBooks applications (either Geography or Geometry) and educational materials during the 2021-2022 school year and undergo evaluation with their students, and [2] one teacher in the control group, which will only have access to the CleverBooks application and educational materials at the end of the pilot, but still carry out all evaluation activities during the 2021-2022 school year. Control and intervention groups will only be decided after the first round of evaluation instruments has been applied, so there will be no way of knowing, at the selection stage, which teacher belongs to which group.

3 ARETE PILOT 2 TEACHER SELECTION CRITERIA

- **Be actively involved in teaching geometry (mathematics) or geography topics in primary education (with students in grade 4 or 5 of primary school as of September 2021).**
- **Good knowledge of English (understanding, writing, reading and listening):** teachers should feel comfortable to communicate in English in order to successfully carry out pilot instructions.
- **Interest and/or experience in the use of technology in education:** teachers will be required to demonstrate their interest and/or experience in the use of technology in education. Previous experience in collaborative local/national/international projects is desirable, but not a must for pilot teachers.
- **Good digital skills:** teachers should feel comfortable with using mobile applications in their teaching.
- **Good Internet connection** at school and at home both in terms of stability and available bandwidth as well as frequent access to technical infrastructure (i.e., tablets, mobile phones) since teachers need to be able to regularly connect online for their work. Good Internet connection is important for multi-user functionality of both Pilot 2 applications – geography and geometry (they can work offline too but without an option for simultaneous multi-user interactions).
- **Access to devices:** pilot teachers and their students will have access to Android or iOS tablets/iPads/smartphones.

- Selected Pilot 2 teachers will be engaged in the project between September 2021 and June 2022.

4 STUDENTS' PROFILE

All the teachers participating in ARETE Pilot 2 research activities should be teachers of students of a particular profile.

Inclusion Criteria:

- Primary school students, in grade 4 or 5 as of September 2021.
- Teachers and pupils in their class must have access to Android or iOS tablets/iPads/smartphones for implementing piloting activities.

Exclusion Criteria:

- Significant visual impairment e.g. on the blind register

5 BENEFITS FOR THE TEACHERS PARTICIPATING IN ARETE PILOT 2

- **Access for themselves and their class (up to 30 students per class) to cutting edge educational products: an app and a workbook for teaching geometry and an app, a workbook and a map of the world for teaching geography in primary school** (the CleverBooks Augmented reality toolkit). These materials will be provided during the 2021-2022 school year for teachers in the intervention group, and after the end of the pilot (after June 2022) for teachers in the control group.
- **Unique insight into classroom progress following the pilot's implementation:** At the end of the pilot, each teacher will receive a brief evaluation report containing research results specific to each participating classroom.
- **Access to training materials for implementing augmented reality in the classroom:** Every teacher's participation in ARETE Pilot 2 will contribute to developing new technologies and digital tools for education. Pupils will learn STEM concepts, improve digital skills using an ICT solution/mobile app. All necessary materials and software will be provided free of charge.
- **Certificate of participation:** All the teachers participating in ARETE Pilot 2 will be awarded with a certificate of participation at the end of the pilot.

6 TIMELINE

Indicative dates	Process / Milestone	Indicative tasks for teacher coordinators
until September* 2021 <i>* Participants will be confirmed on an ongoing basis</i>	Pilot teacher recruitment	Recruitment of up to 160 teachers to participate in ARETE Pilot 2 and signing the Memorandum of Understanding

Indicative dates	Process / Milestone	Indicative tasks for teacher coordinators
September 2021 [date tbc]	Pilot teacher meeting – Phase I	Participation in min. 1 online or face-to-face training to discuss the implementation of piloting activities
September-October – 2021 [date tbc]	Pre-test evaluations	Pre-test evaluation for: teachers and students
October 2021 – April 2022	Pilot implementation and post-test evaluation	Participation in piloting activities: intervention group teachers administer CLB-AR apps (geography or geometry) with their students; control group teachers continue as normal in class (without CLB-AR apps) Post-test evaluation: for teachers and students
May-June 2022	Retention test	Retention test: students
February 2022 – April 2022 [date tbc]	Pilot teacher meeting – Phase II	Participation in min. 1 online or face-to-face meeting to discuss the progress on pilot implementation and next steps

Legend:

Recruitment
Pilot teachers' meetings
Piloting activities (Pilot 1)

7 ABOUT ARETE PILOT 2 – CLEVERBOOKS (GEOMETRY, GEOGRAPHY)

ARETE Pilot 2 focuses on learning geometry and geography through visualization and interaction. The aim of this pilot is to test the efficiency of Augmented Reality application for STEM education as a tool that helps to improve pupils' test-score by up to 33% and increase retention rate by up to 100% while developing 21st century skills and focusing on personalized learning through kinetic, audio and visual educational approaches. A pre-test post-test control group design will be employed to measure the effectiveness of the pilots' intervention.

CleverBooks is an app that can be launched on a tablet or mobile phone through a collection of flash cards/printouts. With the *CleverBooks* app, students are expected to develop critical thinking, creativity, visualisation skills and improve cognitive development by viewing geometric 2D and 3D shapes from all angles; listening to voiceover for all the shapes and interactions made by kids; seeing sides of 3D shapes unfold into 2D shapes; and more.

8 ABOUT ARETE PROJECT

ARETE is a European Commission-funded project that aims to support existing European interactive AR technologies' effort to enhance current technologies and develop new highly usable technologies

and contents. Particularly, ARETE will revolutionise and push AR through **three unique and comprehensive pilot studies (Pilot 1: English literacy skills, Pilot 2: STEM and Pilot 3: Positive Behaviour Intervention) to validate the technology in real life settings**. To bring together the basic principles of AR in education with the technological concept, ARETE aims to establish a sustainable competitive ecosystem of European technology and solution providers for AR interactive technologies, through a targeted community engagement process within the education field, which will be deployed, demonstrated and evaluated via the pilot studies around Europe.

This call is for teachers to participate in ARETE Pilot 2 - STEM, coordinated by European Schoolnet with main contributions from CleverBooks, Julius-Maximilians-Universität Würzburg and University College Dublin.

9 WHAT WILL HAPPEN IF YOU DECIDE TO TAKE PART IN THIS RESEARCH STUDY?

If selected, you will be one of over 170 teachers (8 teacher coordinators + 170 pilot teachers), participating in this pilot from across Europe. You will receive free products and free software for participating in the project. For the research purposes there will be standardized assessment conducted to collect the data from teachers and students at a class level (no personal information will be collected) after the use of STEM-based products with Augmented Reality. This data will be compared with the similar assessment conducted in a control group who did not use Augmented Reality solutions for learning STEM. The goal of this research is to understand whether Augmented Reality supports STEM education at the primary school level and helps to keep interest in STEM subjects longer as well as retain the information long term. In this case, the efficiency of Augmented Reality as a new tool will be tested.

10 HOW TO APPLY?

- Teachers are invited to team up with another teacher from their school and apply for the call through the following link <https://www.surveymonkey.com/r/ARETE-Open-Call-for-Teachers-Pilot2>.
All applications should be submitted in English. Participants will be confirmed on an ongoing basis, until places are filled.
- The selected teachers will be officially informed by a confirmation email sent by European Schoolnet.

Important:

- The final selection of teachers will be validated by the Ministries of Education in the corresponding countries. EUN will not enter any detailed discussions or exchanges with any applicant as to why their application was not successful.
- Selected teachers will be responsible for getting any permissions from the school necessary for their involvement in the ARETE Pilot and the completion of the tasks outlined above.
- To carry out the activities between September 2021 and June 2022, the selected teachers will be requested to sign the Memorandum of Understanding with EUN, which will include 1) the description of tasks and benefits for pilot teachers and students; 2) the description and purpose of the research being carried out within ARETE Pilot 2; 3) data management provisions.

Any questions?

Please contact Giuseppe Mossuti at giuseppe.mossuti@eun.org.