



This project has received funding from the European Union's H2020 Research and Innovation Action programme under Grant Agreement No. 856533

Pilot 2:

Geography App

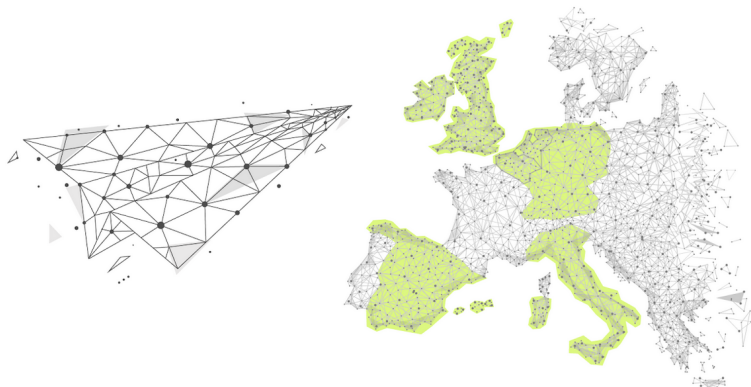
User Training Guide



For an Augmented Reality

Enhanced Teaching

Experience



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Pilot 2 Information. What is Pilot 2 about?

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. 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.

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 workbooks and a map. With the *CleverBooks* app, students are expected to develop critical thinking, creativity, visualisation skills and improve cognitive development by viewing plants, animals, heritage, seasons of the year, waterworld and more; listening to voiceover for all the 3D objects and interactions.

Technical Requirements

Geography app runs almost on any device with Android 4.1 or iOS 7.

To visualize 3D models, it is recommended to use a mobile device (smartphone or tablet) with a camera pointing outward.

The user experience has been more satisfying on the devices with a larger size screen.

Also, please make sure your phone is running the latest operating system software.

Processor (CPU) Manufacturer	Any
Processor Count	2
Processor (CPU) Speed	1.2 GHz
Recommended Minimum Display Resolution	1280×800
RAM Size	1 GB (2GB recommended)
FREE Memory Storage Capacity (Hard Disk size)	0.5 - 1 GB
Operating System	Android 4.1.x+, iOS 9+
Connectivity Type	Wi-Fi to download app and for multi-user feature
Camera	Any (HD recommended)
Front Webcam Resolution	Not required


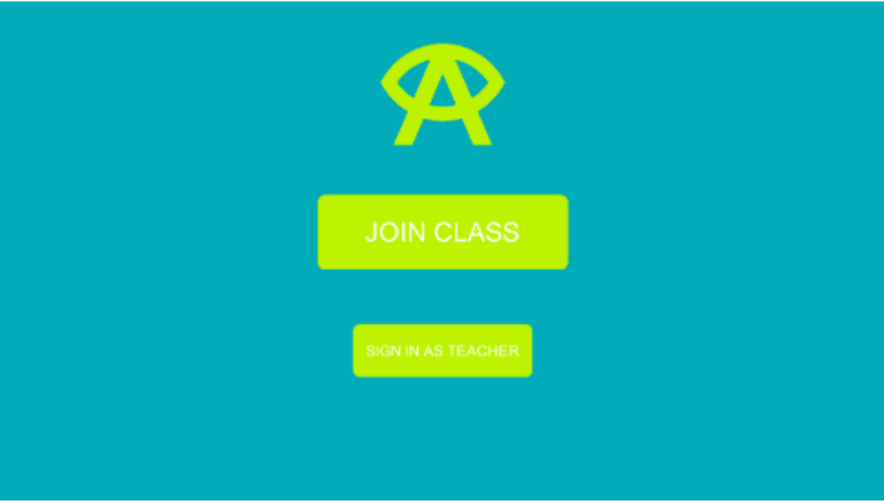
Stable internet connection is required for multi-user exercises. The app can also be used offline for Augmented Reality content overview and interaction however multi-user features (content review, game playing with other users/devices) will not be available.


How to Access the mobile app?

For an Android Device	For an Apple Device
https://play.google.com/store/apps/details?id=eu.cleverbooks.arete.geography	https://apps.apple.com/us/app/arete-geography/id1571512497
<p data-bbox="432 546 552 580">App icon</p> 	<p data-bbox="1034 546 1153 580">App icon</p> 
	

Getting Started

Checklist for Teacher

Action	Completed
Download and install **ARETE GEOGRAPHY** app	
Check internet connection (required for updates of the software and multi-user features)	
<p>Enter code “9AOVH9” to get access to app contents</p>  <p>Select the role: teacher or student:</p> 	
Go through this user training to understand the features and functionality	
<p>Make a plan</p> <ul style="list-style-type: none"> Identify a topic. What topic/unit/project will you focus on and what resources you have available? 	

<ul style="list-style-type: none">• Identify your practice. How will you have students practice with the information they are learning?• Identify the work. What do you want students to submit to show they're learning your content?	
<p>Select the option: individual work between a user and an app or multi-user work</p>	
<p>For mutiuser please follow the steps. Detailed description of each step is further in this document.</p>  <p>The screenshot displays the ARETE Geometry app interface. At the top, there is a logo consisting of a stylized 'A' inside a circle, with the text 'ARETE Geometry' below it. To the right of the logo is a small blue square icon with a white symbol and a black arrow pointing upwards. Below the logo are four rounded rectangular buttons: 'ФИГУРЫ' (Figures) in blue, 'ТЕСТЫ' (Tests) in yellow, 'ИГРА С ФИГУРАМИ' (Game with Figures) in yellow, and 'МАТЕМАТИЧЕСКАЯ ИГРА' (Mathematical Game) in blue. At the bottom of the screenshot, there is a dark blue background with the text 'Teacher' and a 'Sign Out' button in yellow. Below this are two more buttons: 'BEGIN CLASS' and 'HIDE CLASS PANEL', both in yellow.</p>	

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The image displays three sequential screenshots of a 'Geometry Lesson' interface. Each screenshot has a teal background and includes the text 'Geometry Lesson' and 'class join code qn0m' in the top right corner.

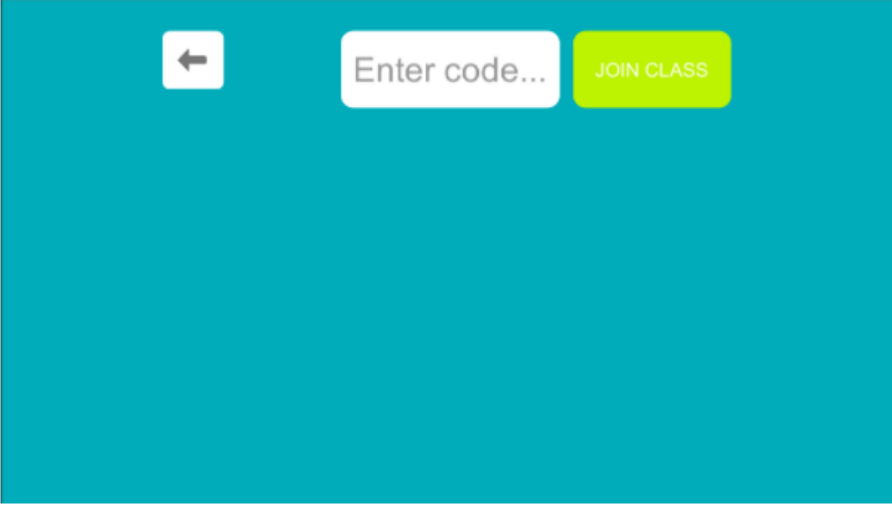
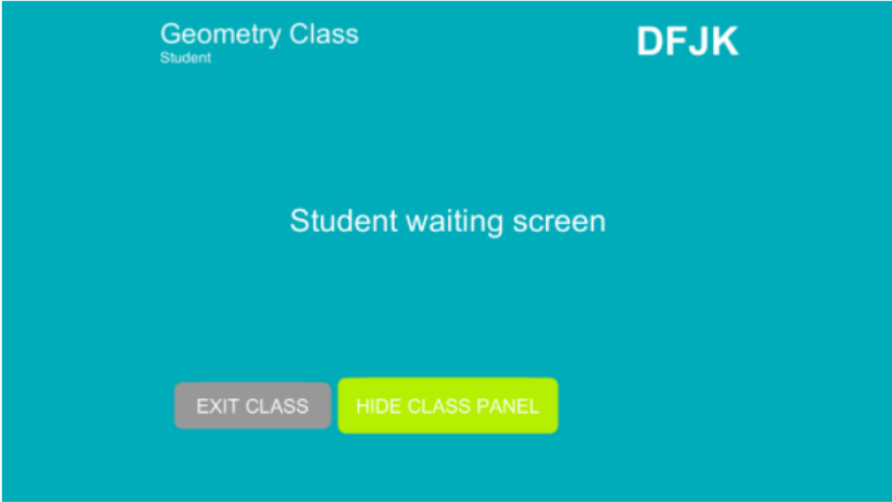
- Top Screenshot:** Shows 'Connected: 0' and a 'Test "Geometry Test"' title. It features three buttons: 'ASSIGN TO CLASS' (orange), 'START' (grey), and 'CANCEL' (grey).
- Middle Screenshot:** Shows 'Connected: 0' and a 'Broadcasting' toggle switch (currently off). Below the toggle are two buttons: 'END CLASS' (yellow) and 'HIDE CLASS PANEL' (yellow). Text below the toggle explains: 'Class is in progress. Students can connect with class join code. If you want students to see content that you see turn Broadcasting ON. You can close and open this panel any time to turn broadcasting on/off or end class.'
- Bottom Screenshot:** Shows 'Connected: 1' and the 'Test "Geometry Test"' title. It features a table with the following data:

Name	Result	State	Time
nik	1	In progress	1 min

 Below the table is an 'END TEST' button.



Checklist for Student


Action	Completed
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<p>Download and install **ARETE GEOGRAPHY** app</p>	
<p>Enter classroom code provided by your teacher</p> 	
<p>Follow the instructions of your teacher.</p> 	

App Menu









	<p>Use drop down to select the language</p>
	<p>Use this menu button to select different continents. The shapes will be automatically shown in Augmented Reality depending on the marker/picture to face your camera on. In the workbook these pages are highlighted as AR. Map of the world has all the continents apart from Antarctica. Antarctica marker can be found in the workbook. The markers look like these:</p>

	
<p>GAMES</p>	<p>This is a multi user game designed for simultaneous players in groups. Please check how to use multi user mode.</p>
<p>WORLD MAP</p>	<p>This is the button to use with World map and launch extra functionality that is not available with Geography workbook: Earth mode, hidden “easter eggs”, age of discovery and other.</p>









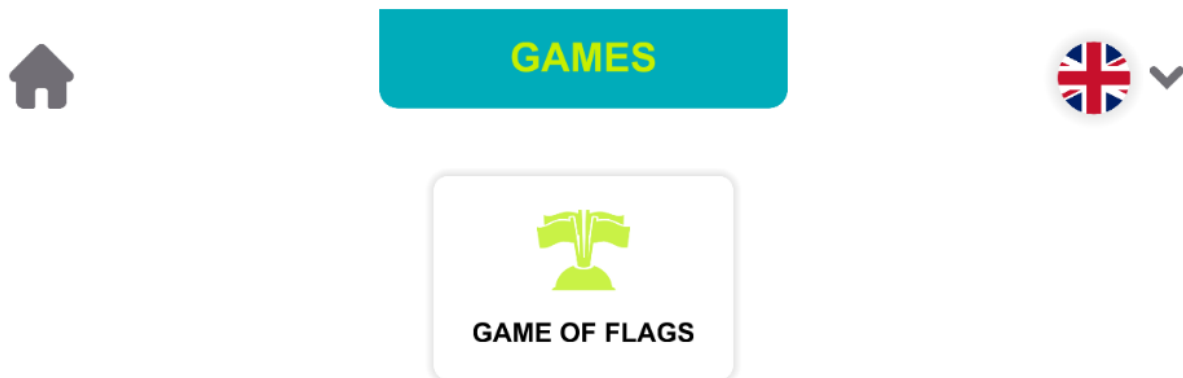
CONTINENTS



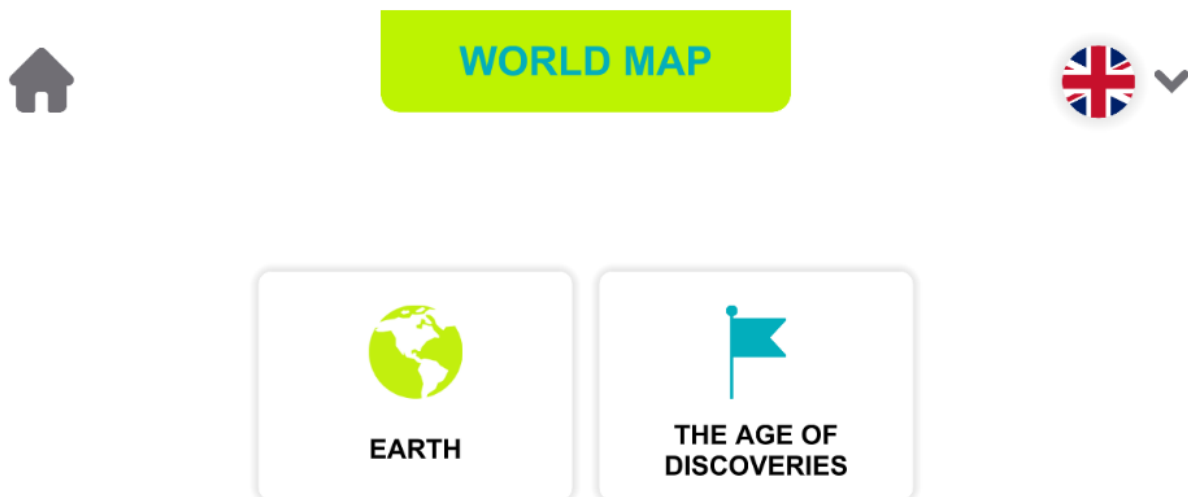
 ANIMALS	 WATER ANIMAL	 PLANTS
<p>TESTS</p>	<p>TESTS</p>	<p>TESTS</p>
 WEATHER	 HERITAGE	 POLITICAL
<p>TESTS</p>	<p>TESTS</p>	<p>TESTS</p>

There is a sub-menu for each continent split by topics. There is a multiple choice interactive test allocated to each section for knowledge check.



 <p>ANIMALS</p> <p>TESTS</p>	<p>This is the button to see and interact with fauna on each selected continent.</p>
 <p>WATER ANIMAL</p> <p>TESTS</p>	<p>This is the button to see and interact with water animals on each selected continent.</p>
 <p>PLANTS</p> <p>TESTS</p>	<p>This is the button to see and interact with flora on each selected continent.</p>
 <p>WEATHER</p> <p>TESTS</p>	<p>This is the button to see, change and interact with weather conditions simulated for each selected continent.</p>
 <p>HERITAGE</p> <p>TESTS</p>	<p>This is the button to see and interact with heritage and monuments on each selected continent.</p>
 <p>POLITICAL</p> <p>TESTS</p>	<p>This is the button to see and interact with political maps (countries, capitals, information and flags) on each selected continent.</p>



This screen shows a multi user simultaneous gamified test within Augmented Reality. The game of flags is available for teacher's broadcasting, splitting students in teams and checking their knowledge of political maps in a gamified way.



The world map button supports extra modes with Augmented Reality: Earth and The Age of Discoveries. These options are hidden “easter eggs” on the map of the world which you need to find with your students following the sparkling stars.

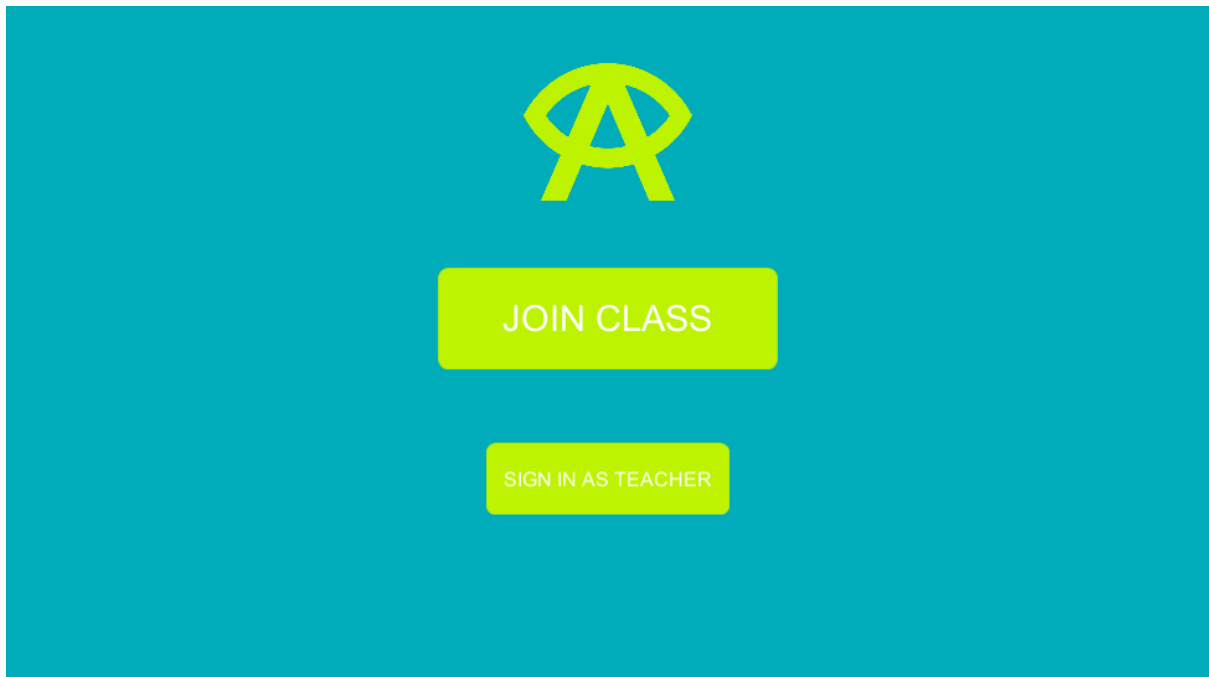
 <p>The image shows a square button with a white background and a thin grey border. Inside the button, there is a green globe icon representing Earth. Below the globe, the word "EARTH" is written in a bold, black, sans-serif font.</p>	<p>This is the button to see and interact with planet Earth, learn about spheres, tectonic plates, magnetic fields, time zones and other.</p>
 <p>The image shows a square button with a white background and a thin grey border. Inside the button, there is a blue flag icon on a white pole. Below the flag, the words "THE AGE OF DISCOVERIES" are written in a bold, black, sans-serif font.</p>	<p>This is the button to observe age of discoveries.</p>

Detailed Multi User Functionality Description

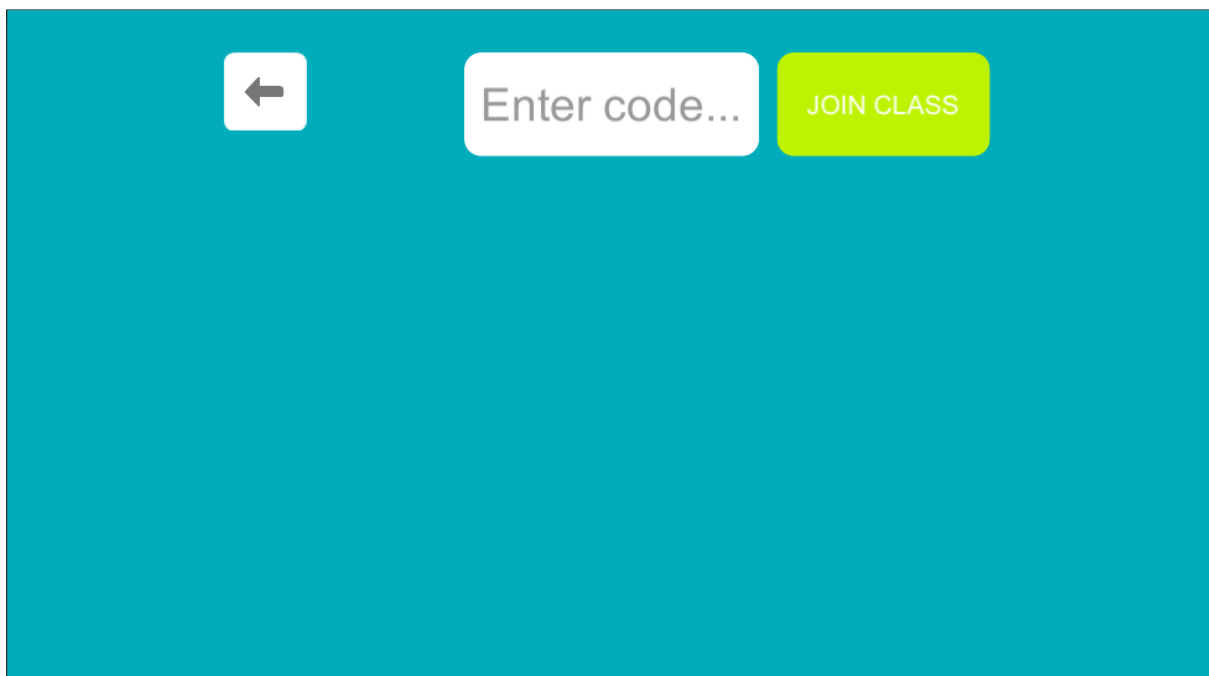
For further work of the ARETE app you need to enter a password provided. After you enter the password, it is stored on your mobile device for 30 days from the first login.



After logging in, you will see the next window that prompts you to select your role: student or teacher. Students can connect to a lesson that a teacher creates. Teachers can create lessons and tests.

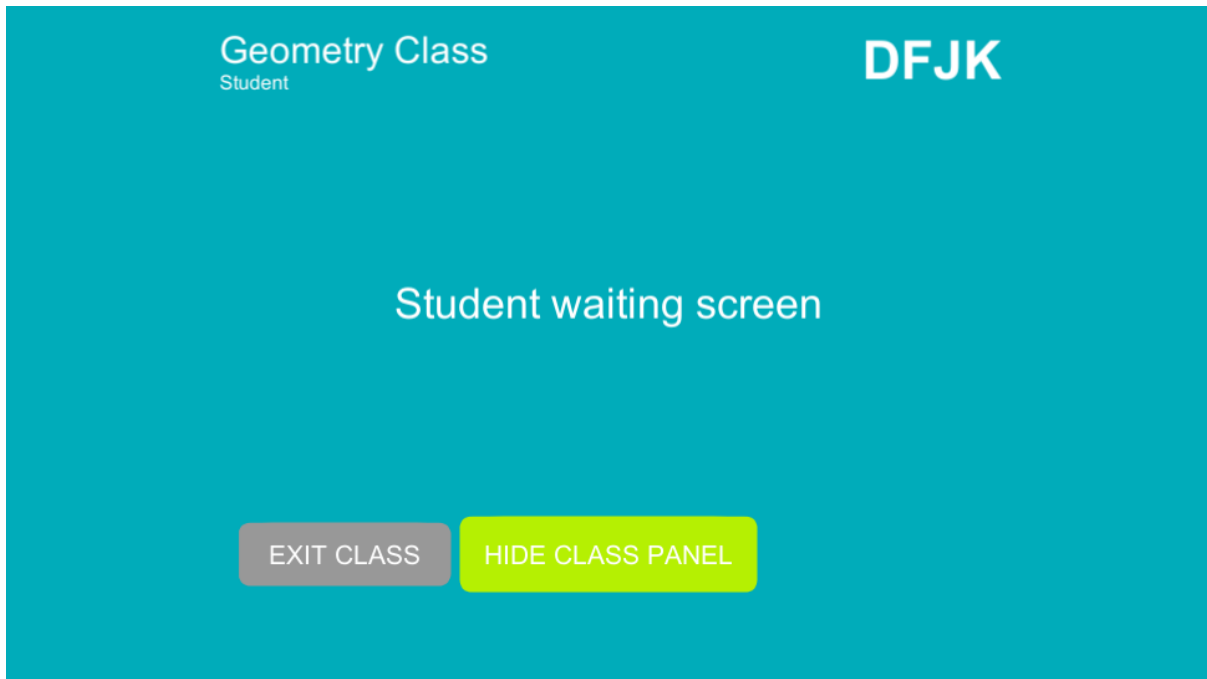


Student's window requests to enter lesson code that a teacher provides and a student needs to click "JOIN CLASS" to enter this lesson. To return to the main screen, you need to use an arrow in the left top corner.



After connecting to the lesson, you enter a waiting screen. Once teacher starts a broadcast, the student enters the lesson automatically. Students have an option to "EXIT CLASS". "HIDE CLASS PANEL" button allows to close this info screen if students are already in the

live lesson settings, hide this panel while the teacher is selecting a content for the lesson is not possible.

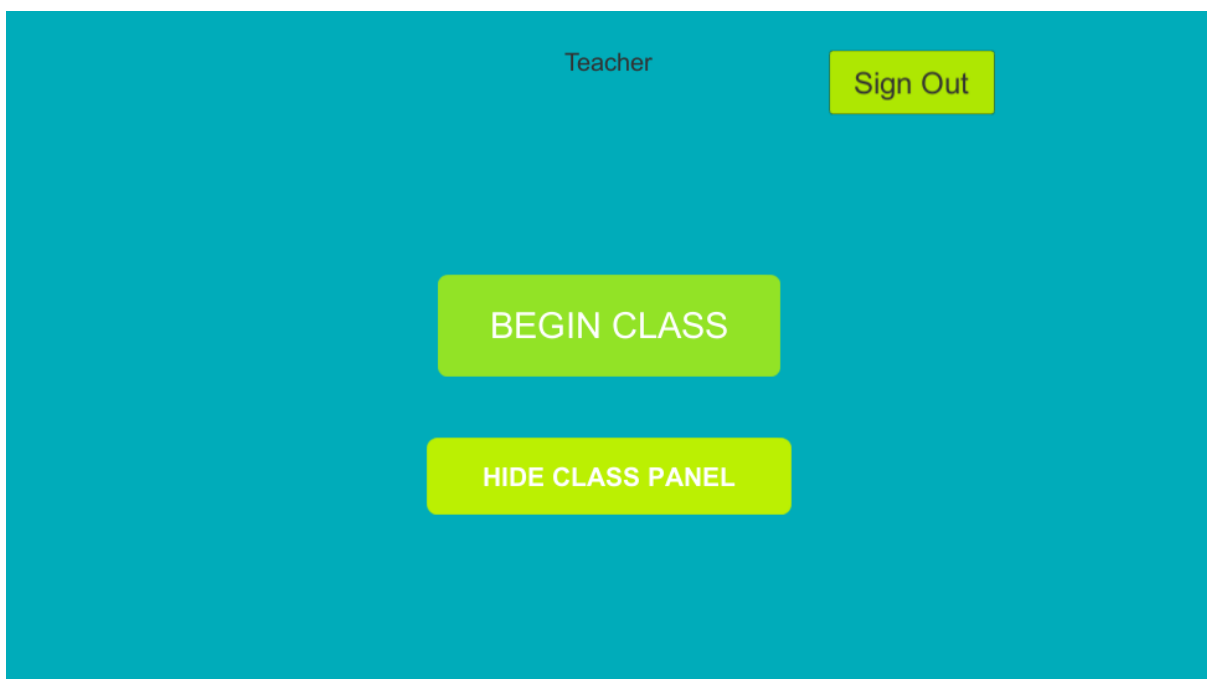


After connecting as a teacher, you have the following options:

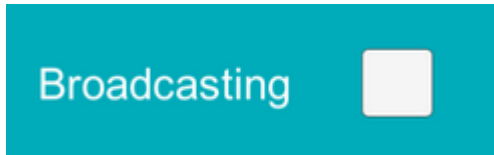
“**Sing out**” : brings you back to the starting screen

“**Begin class**” : starts new live lesson session for students

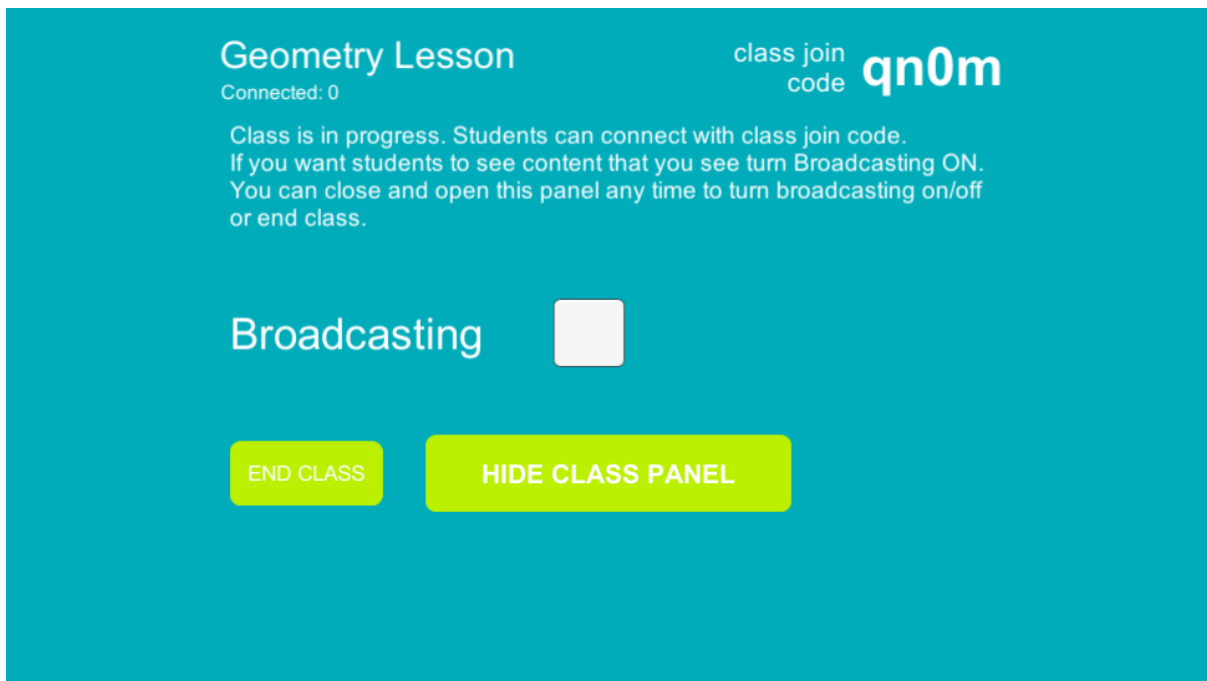
“**Hide class panel**” : hides the teacher panel and allows to see what students can see.



After creating a lesson session, you can see this lesson code in the left top corner. For the students to connect to this lesson, as a teacher, you need to provide this code. Broadcasting supports live session enablement to all students who enters the code. If you do not tick this box:



You can use the teacher interface of the app without broadcasting any lesson. To create lesson contents, please press “Hide class panel” and you can select contents for your students to see and/or interact. “End class” button will finish the live session.



After hiding broadcasting panel, you can reopen it by clicking on the ARETE logo



in the top right corner and select the relevant lesson.

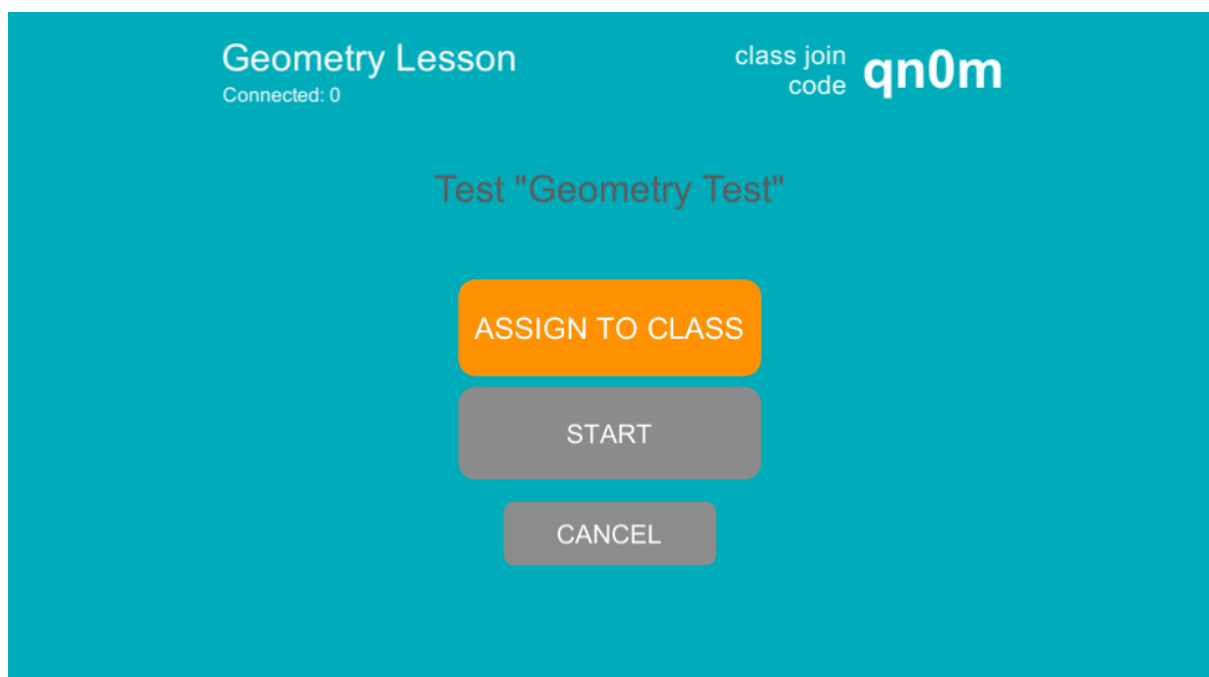


Once you start a lesson, it will automatically open on your device and on the devices of your students once they enter the lesson code.

To assign an activity to your live lesson, please select the type of activity and then click “Assign to class”.

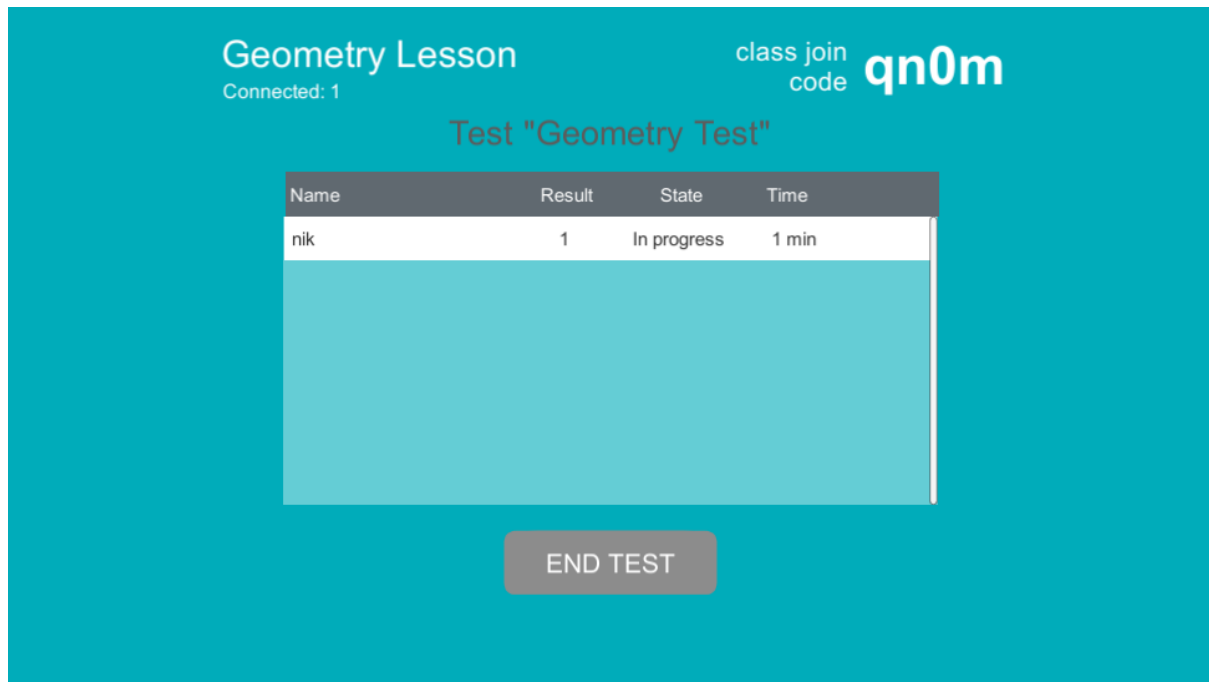
“Start” allows a teacher to go through the test on his own.

“Cancel” returns to the previous screen.



Teacher Dashboard

The progress and the results of the tests can be observed in a special teacher panel. You can see teams, students, progress, time for completion of an activity and results. You can also see who has finished the assigned activity and who is still working on it.



App contents overview (visuals+video)

- Geography: world's political map with flags and facts (countries, capitals)
- Weather, seasons, and climate in different countries
- Understanding of planet Earth, its shape, and day & night cycles
- Understand and apply the principles of a healthy diet (feed the animal activity)
- Plants: understand where food comes from
- Weather & plant: Understand seasonality, and know where and how a variety of ingredients are grown
- Earth's ecosystem & structure
- World Heritage
- Animals, insects & mini- beasts: All living things and their habitats
- Water world & underwater animals
- Continents and differences between them
- Dinosaurs

Printable material description

For the ARETE app you have a Geography kit available. This kit has Geography Workbooks with extra activities and maps of the world.

How to use a map of the world?

You should receive a map of the world poster (A1 size) that is empowered by Augmented Reality through ARETE Geography app.



To see the contents in Augmented Reality, use the ARETE Geography app and face the camera of your mobile device on the printed map:



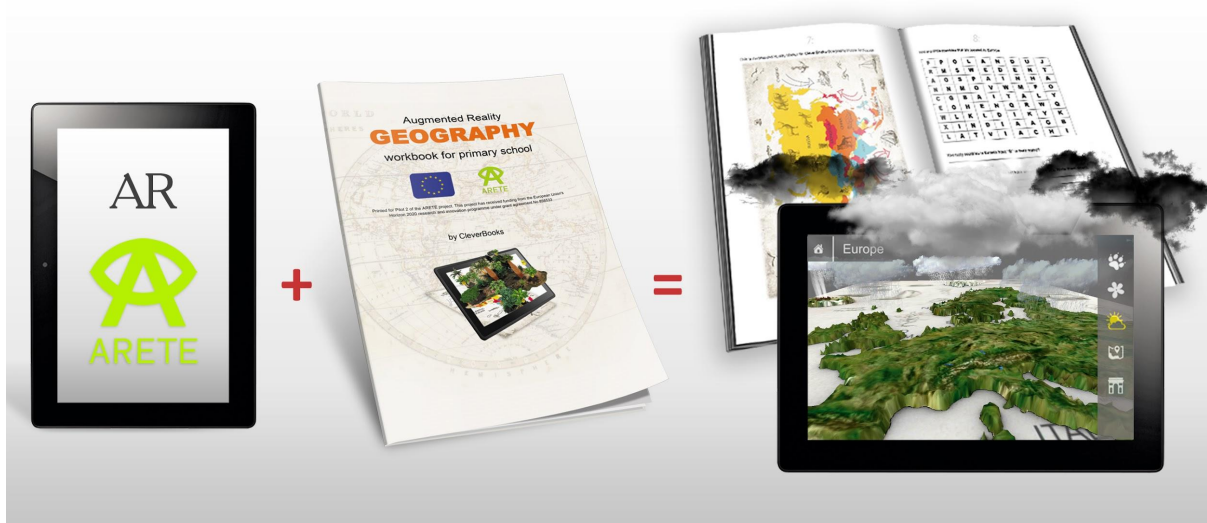
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On the map of the world you can find the continents: North America, South America, Africa, Europe, Eurasia, Oceania and several hidden “easter eggs” for additional content launch.

How to use the Geography Workbook?

In the Geography Workbook you can find the continents: North America, South America, Africa, Europe, Eurasia, Oceania, Antarctica.

The markers/continents are highlighted in the workbook and you need to launch the ARETE Geography app and face the camera of your mobile device on the selected picture to experience AR.



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Additional resources: lesson plans, etc.

Link to suggested lesson activities: <https://www.cleverbooks.eu/activityplans/>



By CleverBooks

By Badria Husain Taamari,
Teacher, Blended learning, Syria

By Christine Danhoff,
Technology Integration Specialist,
Genoa Area Local Schools, USA

By Kimberly Mattina & Matthew Tatur,
Kim is a Technology Teacher, and
Matthew is a 7th Gr Social Studies
Teacher, Galloway Township Middle
School, USA

Free resources on Augmented Reality training:

<p>Technology for Your Classroom Overview of technology and tools available for an educator. Practical use of Augmented Reality for education.</p> <p>Watch Promo ENROLL NOW</p>	<p>Technology for Your Classroom Overview of technology and tools available for an educator. Practical use of Augmented Reality for education. Online course on Teachable: https://arcertification.teachable.com/p/technology-in-classroom</p>
<p>Augmented Reality in Education Basics. Certification Course Augmented Reality Emerging Technologies in Education Certification Course</p> <p>Watch Promo Enroll in Course for \$60.27</p>	<p>Augmented Reality in Education Basics. Certification Course Augmented Reality Emerging Technologies in Education Certification Course Online course on Teachable: https://arcertification.teachable.com/p/augmented-reality-in-education-basics-certification-course</p>

FAQ and Support

- **What devices are supported?**

Geometry app runs almost on any device with Android 4.1 or iOS 7.

Geography app is much more complex and additionally requires at least 1.5GB of RAM. It runs on Android 4.1 or above with 1.5GB RAM or iOS 7 or above with 1.5GB RAM

To visualize 3D models, it is recommended to use a mobile device (smartphone or tablet) with a camera pointing outward.

The user experience has been more satisfying on the devices with a larger size screen.

Also, please make sure your phone is running the latest software.

- **What operating systems are supported?**

Android and iOS

- **Is the GDPR compliant to use an app?**

Please, refer to

<https://www.areteproject.eu/t4media/Pilot%20%20ARETE%20Privacy%20Policy%20for%20apps%20stores.pdf>

- **How is my privacy protected?**

Please, refer to

<https://www.areteproject.eu/t4media/Pilot%20%20ARETE%20Privacy%20Policy%20for%20apps%20stores.pdf>

- **What languages are supported?**

The application is available in English, Greek, Italian, Polish, Portuguese, Croatian, Serbian, Spanish.

- **CleverBooks Apps work offline? We do not have an internet connection/We have a poor internet connection at school.**

Yes, you need an internet connection only to install applications and then can use it without the network access. Stable internet connection is required for multi-user exercises. The app can also be used offline for Augmented Reality content overview and interaction however multi-user features (content review, game playing with other users/devices) will not be available.

- **What are the tangible materials required?**

To use the Geometry app for Pilot 2 you need to have a Geography kit at your hand provided by EUN.

Support contacts:

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Maria Delmiche maria.delmiche@eun.org