

# PILOT 2

## Teachers' Guide & Activity Plans

by CleverBooks



**ARETE**

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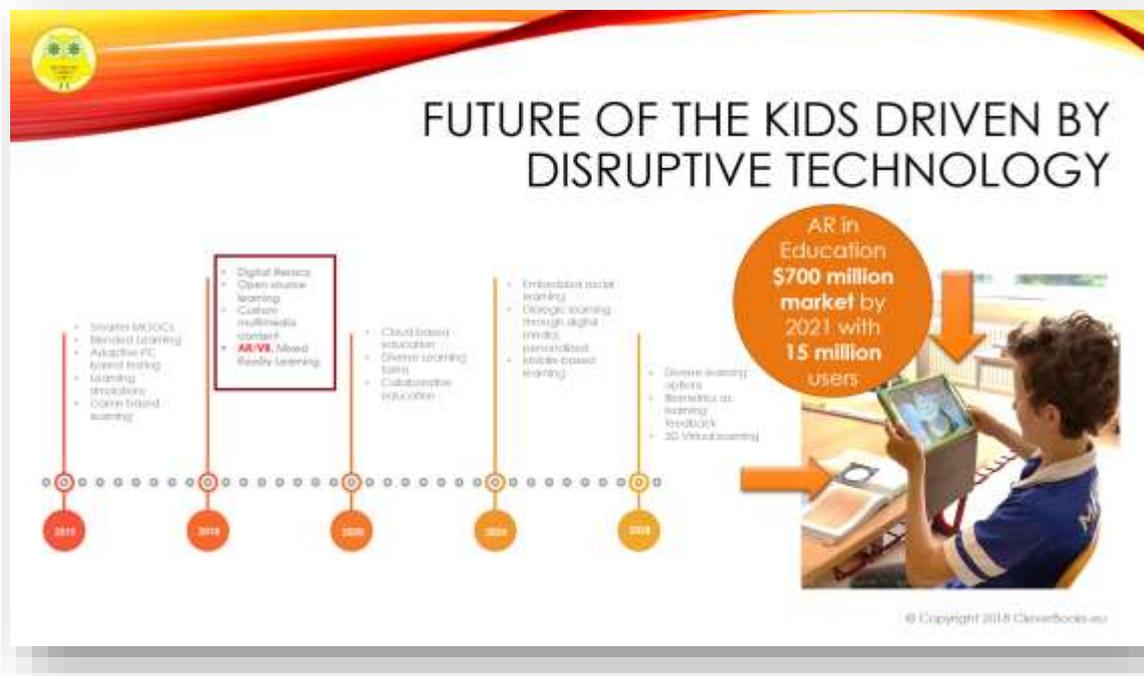
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## The significance of Augmented Reality- based learning: Bridging the technology gap in Education

*"If we do not change the way we teach, thirty years from now we will be in trouble."  
Jack Ma*

The World Economic Forum presented the top skills that will be required for the jobs of the future in the next 10 years: problem-solving, critical thinking and creativity. Those skills will differentiate humans from machines in the digitized era. The skills that today's *children* need to develop to prepare for the future workforce.

According to the multiple research and current technological trends, Augmented Reality (AR) is one of the top 5 EdTech that will become significant and change the educational landscape in the next decade.



### Top 5 benefits of using Augmented Reality in education:

- Visual perception of material and more independent learning using the key modalities: seeing, hearing and doing.
- Ability to teach and do experiments that otherwise would not be possible in real life.
- Easy onboarding and does not require technical competence.
- Helps students develop necessary skills required from the 21st-century workforce.
- Increased students' participation in the class lessons through a fun, interactive and engaging learning environment.

**AR SUPPORTS STUDENTS' INDIVIDUAL LEARNING STYLES**  
engages them both inside and outside the classroom

Improves test-score by **up to 33%** and increases retention rate by **up to 100%**

**THE DIFFERENT STYLE OF LEARNING**

**LEARNING STYLES**

- VERBAL** (Language): The child prefers using words to learn through reading and writing and tests into playing.
- AURAL** (Auditory): The child prefers using sound and music and learns by listening and hearing to learn.
- VISUAL** (Visual): The child prefers using pictures, maps and learn by observing and learning to learn.
- PHYSICAL** (Kinesthetic): The child prefers using the body, hands and feet to learn through touch to learn.
- LOGICAL** (Logical): The child prefers using numbers, logic and sequences patterns to learn.
- SOCIAL** (Social): The child prefers to learn within a group and to usually a good communication.
- SOLITARY** (Solitary): The child prefers to learn and work alone and these independent play.

**INTEGRATED Learning Strategies**  
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Augmented Reality makes a difference the education because it is a proven fact that Augmented Reality engages them both inside and outside the classroom, improves test-score by up to 33% and increases retention rate by up to 100%. It supports all learning styles: verbal, physical, logical, aural, visual, social and solitary. Teachers are looking to use Augmented Reality as per research conducted in 2017.

School budgets may restrict school trips, or, for example, a teacher can't bring real animals in his classroom, or a spaceship. Augmented Reality technology can step in and support learning. Augmented Reality is easy to adopt and a teacher doesn't need to be techie to use it in his classroom. Augmented Reality apps are plug and play solutions and normally even do not require any internet connection. Majority of solutions based on Augmented Reality are easy to use and can be a great visual aid for any classroom even with one device.

**Goldman Sachs** has conducted a research in 2016 projecting a high potential of application of Augmented Reality in Education and **Google for Education** is currently doing a lot of work in the sector that can add a new dimension to the curriculum.

STEM and Augmented Reality go along together is an extremely great combination. They provide all necessary resources for kids to learn in groups and on their own, for teachers to excite, innovate and motivate to go back to the learning material right in the classroom. The great part with Augmented Reality is that outside the classroom any kid can come back to the material he would like to repeat for himself

without asking teacher for help (saves time for teacher and encourages kids to learn on their own and also those kids who are afraid to ask for help).



The future workforce is right now at kids' desks at school. Why not investing in the now and help them to get the skills businesses need for the future jobs? It is much more expensive and time consuming to teach employees when they join the company. Digital skills and STEM knowledge are must today. They form the important basis of the 21st century skills.



## Selection of Research Study and Articles on the topic “AR in Education”

- Article: 5 Skills AR Can Grow in Future Entrepreneurs – [LINK](#).
- An article in STEM Magazine "[Why STEM education needs AR](#)"
- Article “The benefits of augmented reality in education and learning process “– [LINK](#).
- Augmented and Virtual Reality Reaching Full Bloom Read the article <https://www.k20connect.net/single-post/2018/09/06/Augmented-and-Virtual-Reality-Reaching-Full-Bloom>
- Augmenting your classroom Reality in STEM learning <http://ace-ed.org/> Page 20-21
- **100 Voices of AR and VR in Education** <https://www.virtualiteach.com/single-post/2018/11/28/100-Voices-of-ARVR-in-Education>

**Additional resources to give you some extra information and ideas from other educators:**

Interested in news about Technology in Education? Follow CleverBooks [BLOG](#)

Watch useful videos about AR-based technology in education? Visit our [Youtube](#) channel.

	<b>Simon Lewis: Will Sexy and Shiny AR Be The Future In Irish</b> Clever Books		<b>Melanie Maas: Developing 21st Century Competencies of</b> Clever Books
	<b>Martin Bailey: AR is a technology that adds another</b> Clever Books		<b>Monica Burns: Is AR just "flashy and fun" or "does it have</b> Clever Books
	<b>Giuliana Guazzaroni: Virtual and Augmented Reality in</b> Clever Books		<b>Vicki Davis: Innovate like a turtle with Augmented reality!</b> Clever Books
	<b>Jaime Donally: Is AR just a hype, a trend that will soon go</b> Clever Books		<b>Matthew Bell: AR is a powerful visualization tool, doesn't need</b> Clever Books

## ARETE Geography mobile app contents

- ✓ 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
- ✓ Sound (voiceover of different modes)
- ✓ Magnetic fields
- ✓ Relationships in an ecosystem
- ✓ Geographical skills and fieldwork
- ✓ Dinosaurs

## Teaching Ideas

### Explore the World

Product: CleverBooks World Map with Augmented Reality

Mobile App: ARETE Geography on CleverBooks apps store

### What to do?

Category	What to do?
Continents	Ask to check how many continents are there? Where are they located?
Climate	Check and compare the climate in different parts of the worlds.
Animals	Find out and write down the animals on different continents. Are there any similar living on other continents?
Plants	Find out and write down the plans on different continents. Drwa the plans in the nature / copy book.
Heritage	Explore heritage. Write down the names.
Political	Check the names of the countries located on different continents.



### Project “Meet a Continent”

Product: CleverBooks World Map with Augmented Reality

Mobile App: ARETE Geography on CleverBooks apps store

#### What to Do?

Divide the class into 7 teams and ask teams to prepare information brief about a specific continent. Additionally every student in a team can be responsible for one of the categories: plants, heritage, animals, weather, political. This team activity develops collaboration, critical thinking, information search and public presentation using Augmented Reality on t-shirts.

#### Learn new words

Product: CleverBooks Geography Map with Augmented Reality or Jigsaw Puzzle

Mobile App: ARETE Geography on CleverBooks apps store

#### What to Do?



This activity is very useful for students for who English is not a native language. The activity helps to create connection between visual objects and learn new words (using English app voiceover) in the topic of animals, plants, countries, continents and some places of interest.

#### Interactive Wall

Product: CleverBooks Geography Map with Augmented Reality

Mobile App: ARETE Geography on CleverBooks apps store

#### What to Do?

Put the map on a wall in a classroom and refer to it during specific activities in Geography. If your school provides mobile devices, kids are curious to do this activity on their own. Also, you may create a search game: where does elephant live? Where can we find a baobab? On which continent Ireland is located? And so on.

### [Tell the Story of your Trip](#)

Product: CleverBooks Geography Map with Augmented Reality

Mobile App: ARETE Geography on CleverBooks apps store

### **What to Do?**

Engage kids in public speaking, creating story of their last trip using visuals from CleverBooks products.

[Watch the video:](#)

## ARETE Geometry mobile app contents

- ✓ Basics of geometric 2D & 3D shapes, its properties and decomposition
- ✓ Function
- ✓ Maths (multiplication, division, subtraction, addition) in the single or multiplayer activity
- ✓ Voiceover for all the shapes and interactions made by kids
- ✓ Compare and identify objects in the environment with geometric shapes using Augmented Reality
- ✓ Addition and subtraction
- ✓ Multiplication and division

## Teaching Ideas

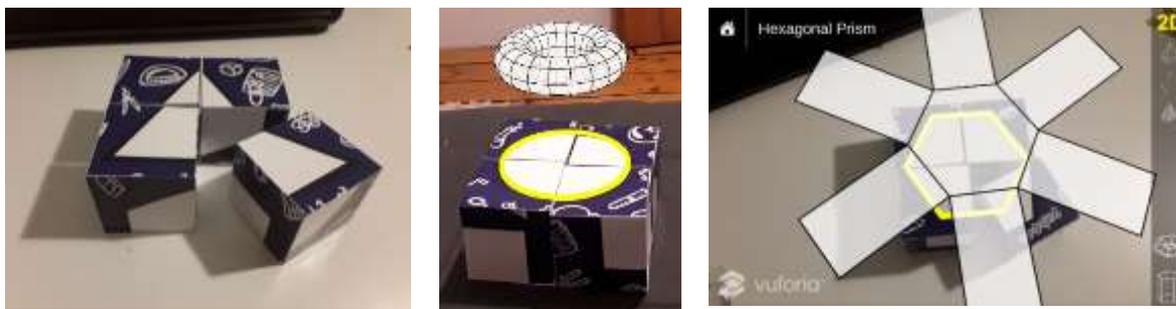
### Building Block Team Work

Product: CleverBooks Geometry Building Blocks with Augmented Reality

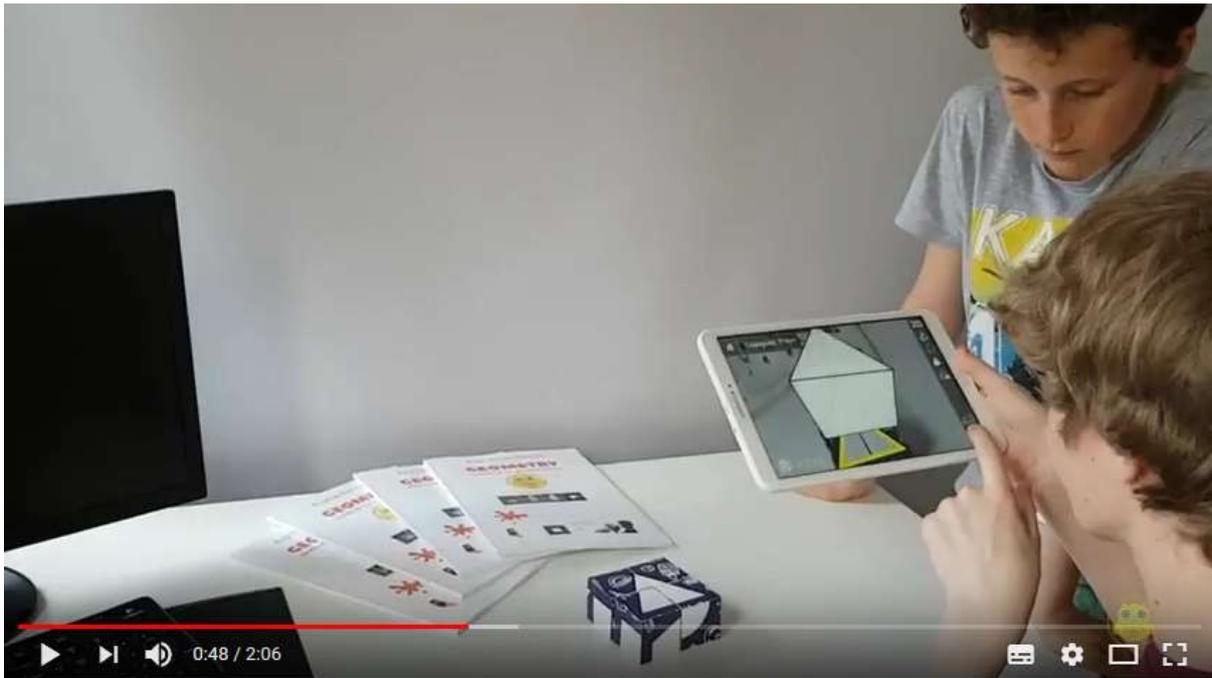
Mobile App: ARETE Geometry on CleverBooks apps store

### What to Do?

This activity involves motoric skills development and critical thinking. Under teacher's supervision teams of students need to cut and glue together building blocks. The next step is to form Augmented Reality powered pictures in the correct shapes and explore Geometric shapes in 3D, using manipulation in pre-designed scenario.



[Watch the video:](#)



### Geometry Workbook Activities

Product: CleverBooks Geometry Workbook with Augmented Reality

Mobile App: ARETE Geometry on CleverBooks apps store

### What to Do?

Geometry workbook offers a wide range of activities based on the mobile application, augmented pre-designed scenarios and marked pictures that are powered with Augmented Reality.

[Watch the video:](#)



### Geometry with Augmented Reality

Product: CleverBooks Geometry App with Augmented Reality (use of building blocks or workbooks)

Mobile App: ARETE Geometry on CleverBooks apps store

#### **What to Do?**

Check out the full review of the mobile application. The app helps to explain abstract objects and gives a guidance on how to create 3 D shapes based on 2D shapes. There is an interactive test as a part of the app.

[Watch the video:](#)