

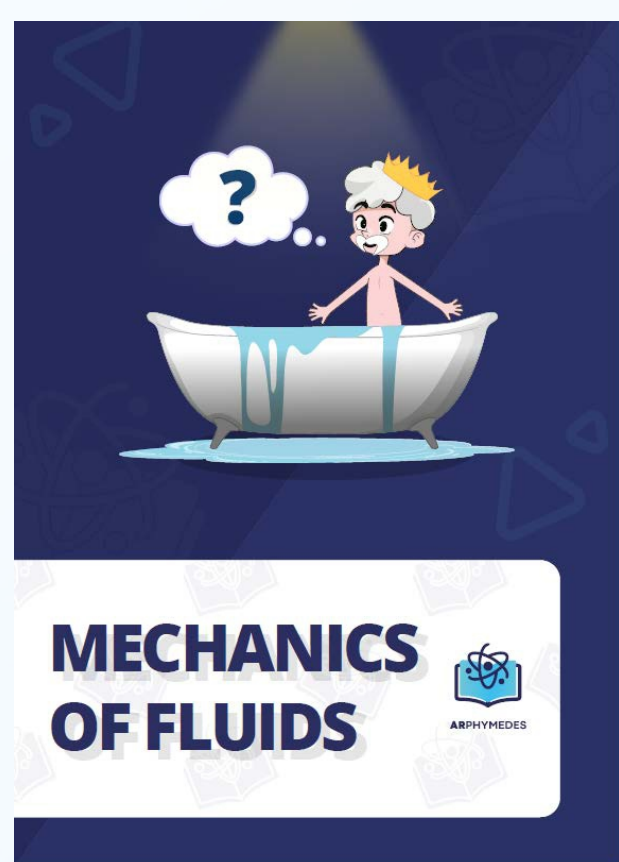
University of Ss. Cyril and Methodius in Trnava UCM (SK), Slovak University of Technology in Bratislava (SK)
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Vitale Tecnologie Comunicazione S.r.l. VITECO (IT), Gheorghe Asachi Technical University of Iasi TUIASI (RO)



ARPHYMEDES: AR PHYSICS MADE FOR STUDENTS

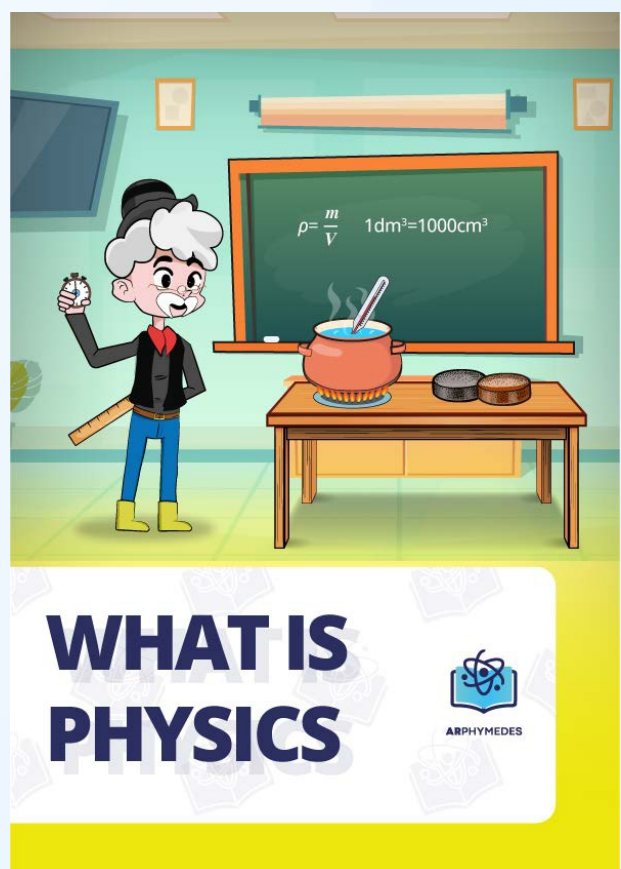
Dorin Dumitru LUCACHE, Cristian-Győző HABA

ARPHYMEDES „Gheorghe Asachi” Technical University of Iasi - Faculty of Electrical Engineering



For as long as physics has been thought at schools, it has been one of the least preferred subjects of students. Students generally have the perception that physics involves complex concepts, of which they do not understand the resulting insights, which makes solving problems a challenge. This sets the students on a path of failure, and avoidance of the subject. To avoid setting students on this path, it is necessary to make physics more accessible to students.

Augmented reality (AR), unlike any other technology, provides an authentic, immersive and interactive learning experience for students. It provides a unique opportunity to draw the attention of students, by enabling to conduct and unlimited repetition of experiments, making teachers less dependent on available resources and conditions in schools. The project is implemented by a consortium of 6 partners from Slovakia, Estonia, Slovenia, Italy, Greece and Romania.

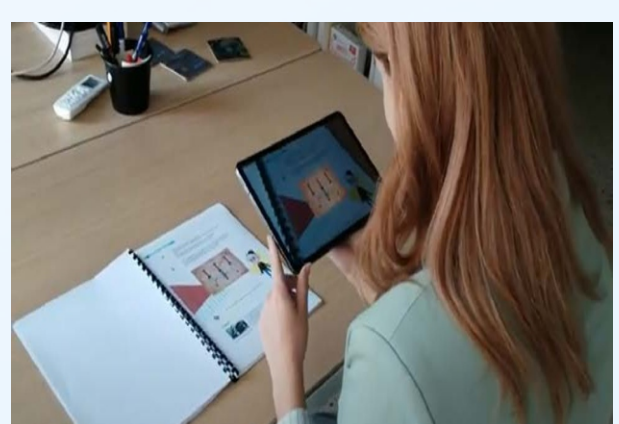


Student Books
The book will tell the story of important milestones in physics, take the student on an exploration of physics through time and significant events, with the opportunity to interactively test and experiment with what is presented. Through the history of invention we will show the ways and strategies of scientific discoveries and highlight the importance of questioning acquired knowledge. A clear and straightforward layout has been created, a

Student Books and AR

two-page structure designed and imagined specifically to accompany the reading of the content to the exploratory journey through AR.

Augmented reality
The Arphymedes project aims to germinate new educational tools that extrapolate the most authentic innovations provided by recent scientific and technological developments, making the approach to learning more immersive and interactive. The study of Physics may never be the same again, with the injection of augmented reality (AR) to the original and traditional book.



The main characteristics of the proposed educational tool are the following:

- Each chapter of the student book is dedicated to a part of physics (ex. Mechanics of fluids, Kinematics, Dynamics, Power and Energy)
- The content of each chapter is related to some

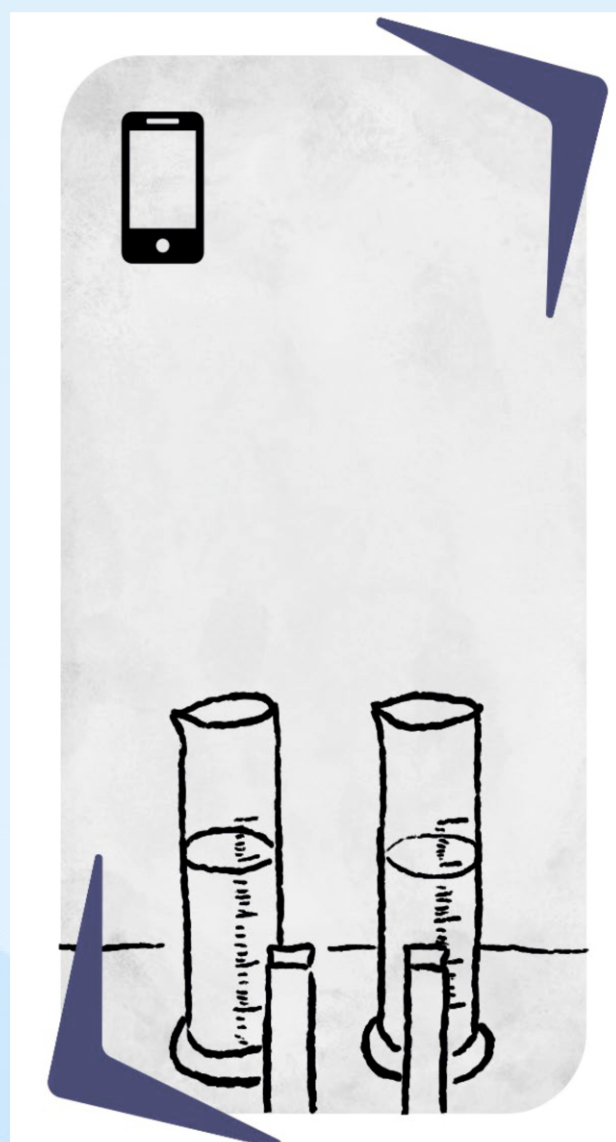
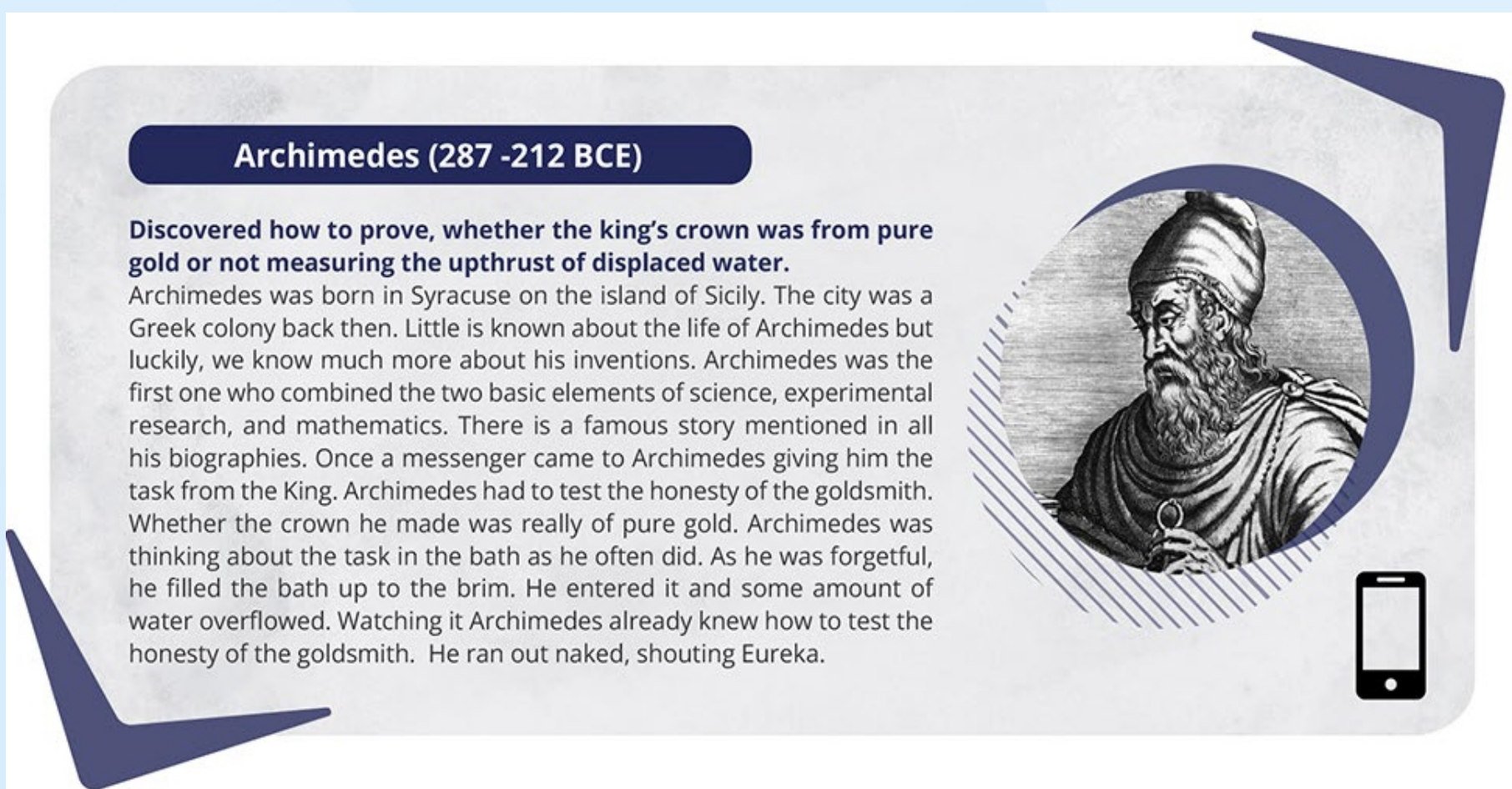
Characteristics of Educational Tools

- important physicists and their epochal experiments
- AR content can be triggered from the student book content and they can be in form of animations or videoclips demonstrating experiments that students can watch or can do on their own.
- The student book has reserved spaces where student can comment or can record their observations.



2D and 3D Animated Models

In each chapter, for each phenomenon or law of physics, examples from everyday life are given in the form of videos, 2D animations or 3D animated models. Some of the 3D animated models are created and can be accessed in the AR application and can simulate experiments with which students can interact similar as in a real experiment using a smartphone or a tablet.



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