

VIRTUAL LABS

INSIDE

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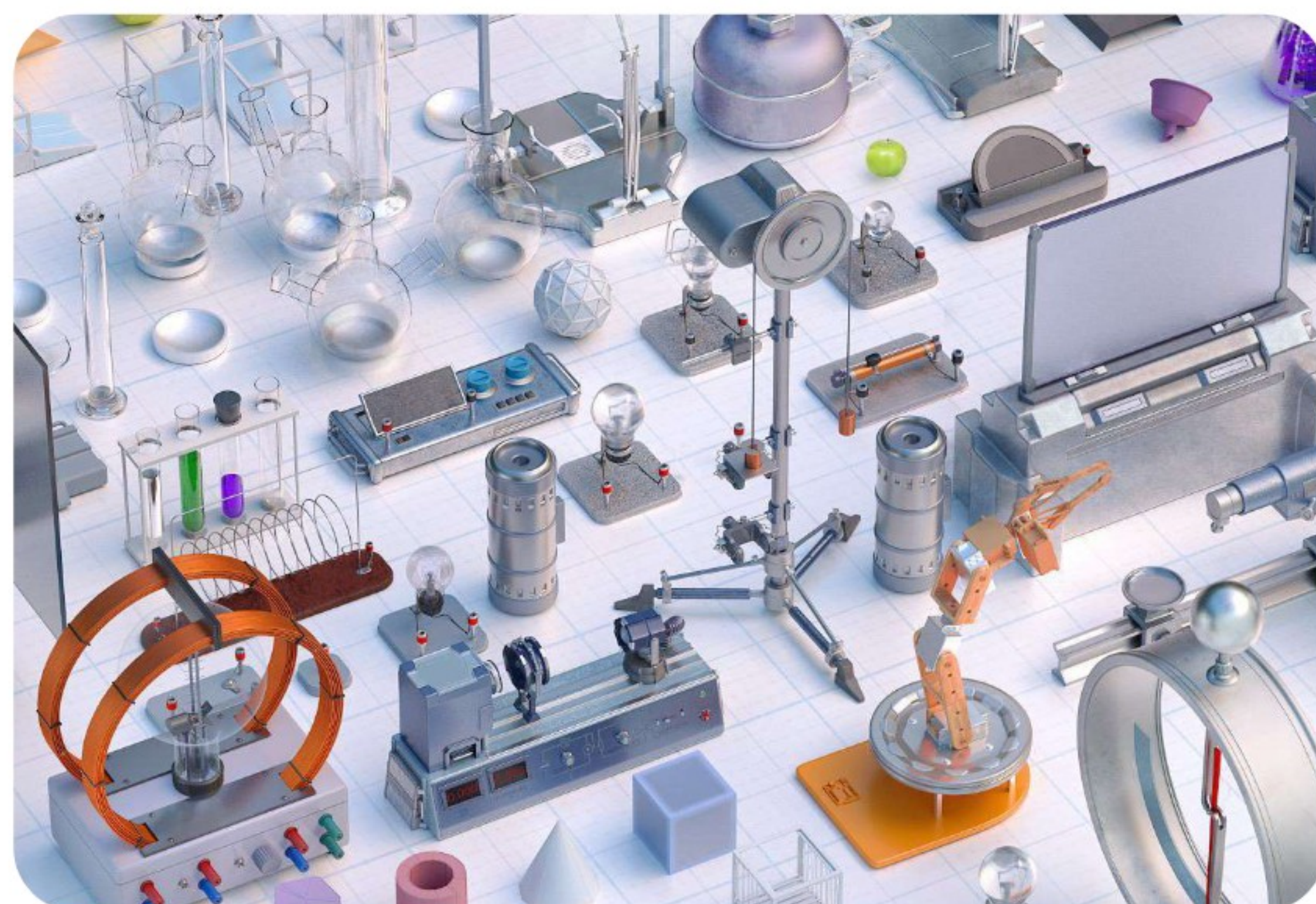
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VIRTUAL
LABS™

vr-labs@answer-42.ru | +7 903 554 3444 | vr-labs.ru

EDUCATE CULTIVATE INNOVATE



What are virtual labs?

Virtual labs are interactive online simulations of experiments that allow students to improve knowledge and skills in school subjects, study the properties of familiar objects and phenomena, create their own items and logical tasks and turn the digital space into a place of virtual duels and tournaments.

Target audience:

- educational authorities
- educational institutions
- middle and high school students
- their parents

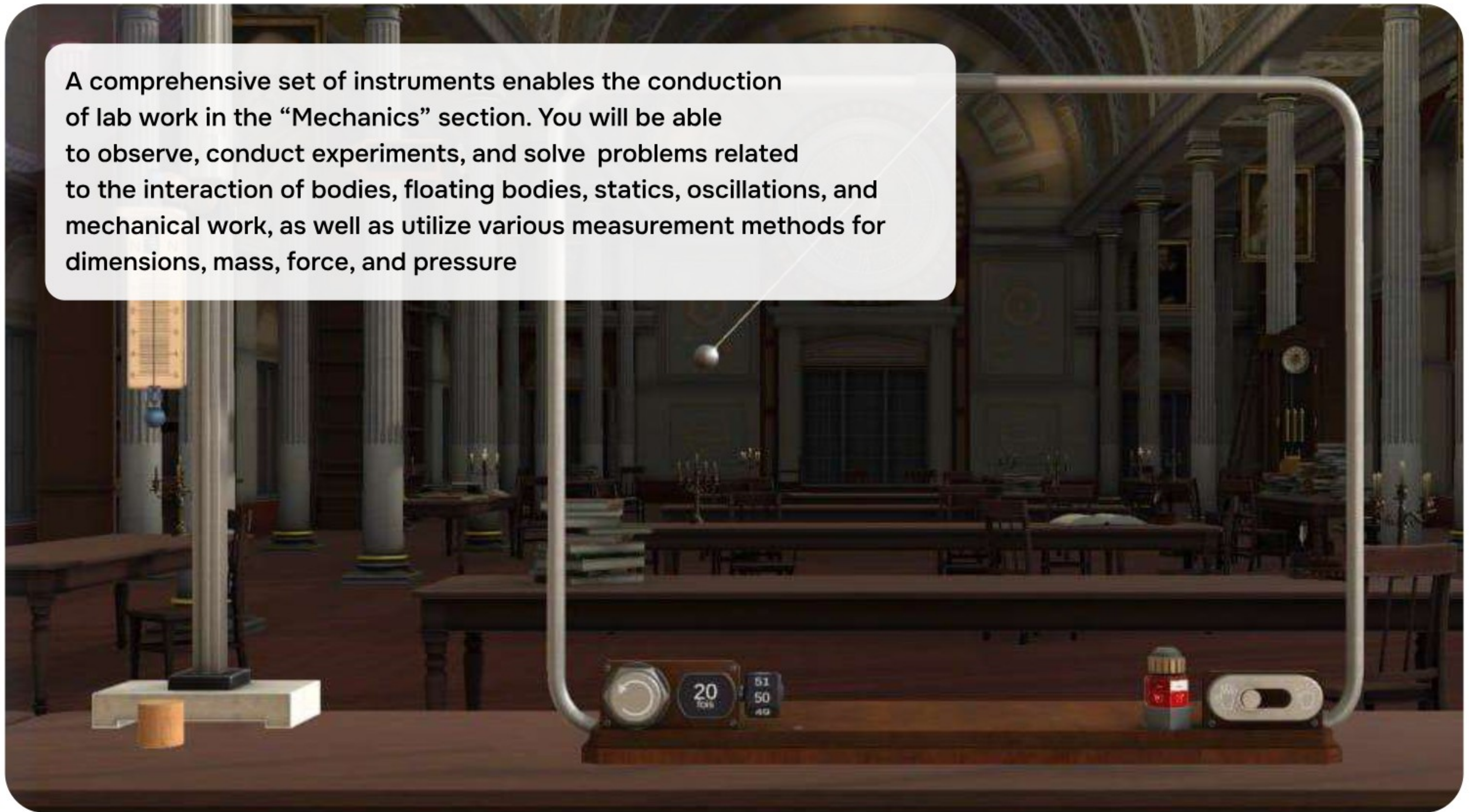
Virtual Labs create opportunities to meet the challenges of digital learning and transformation:

- Expand the range of the modern teachers' technological competencies through the use of new interactive visual techniques in combination with a large number of laboratory equipment and tools not previously used in traditional virtual labs.
- Increase the level of digital competence of students and teachers.
- Develop and improve the digital educational environment by ensuring the implementation of STEM teaching methods in practice.
- Completely cover the needs of teachers in four areas of modern education necessary to train modern engineering professionals – physics, chemistry, professional education (2D drawing, 3D modelling, circuit engineering, robot design and programming) and Olympiads for students.

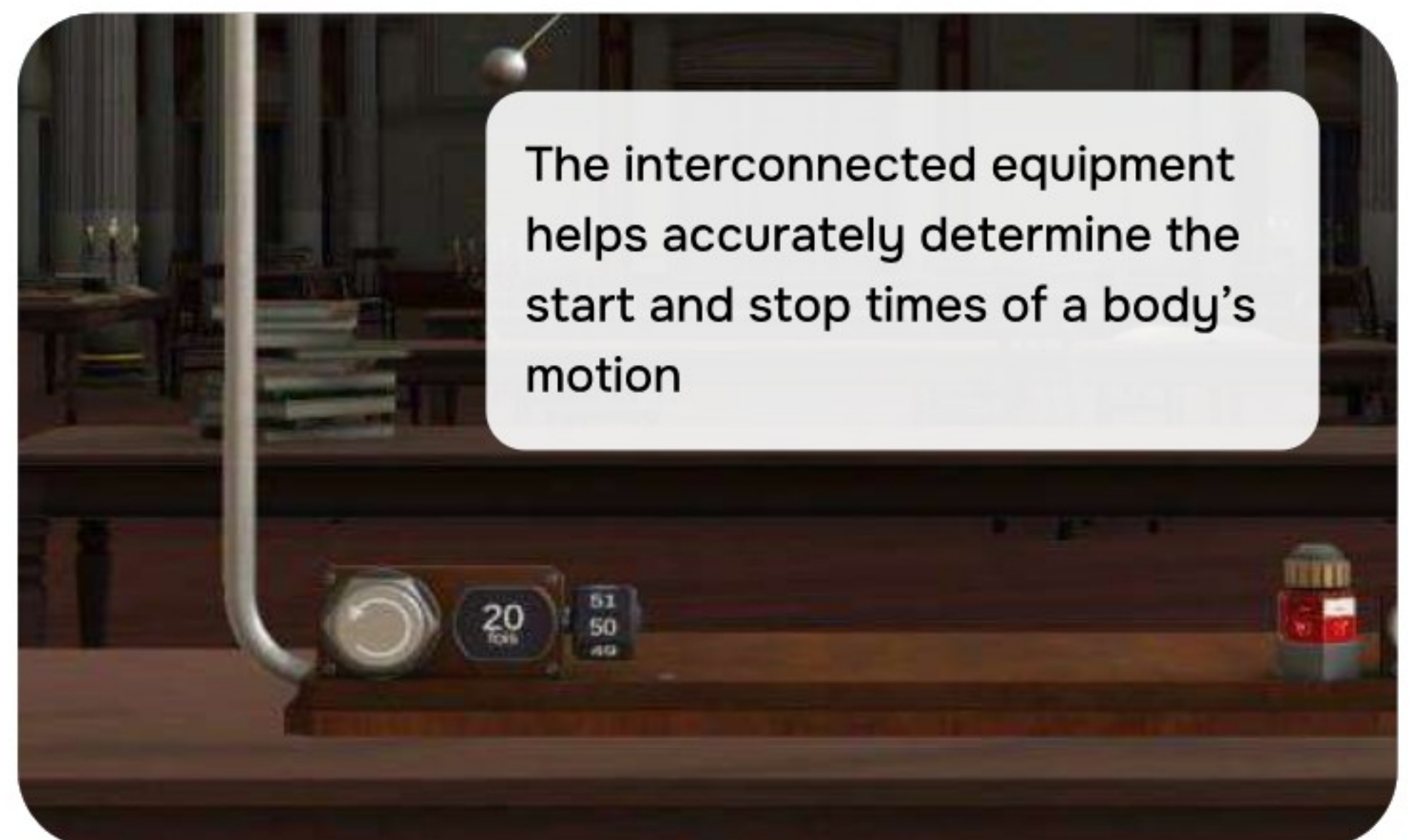
VIRTUAL LABORATORIES / PHYSICS

MECHANICS

A comprehensive set of instruments enables the conduction of lab work in the “Mechanics” section. You will be able to observe, conduct experiments, and solve problems related to the interaction of bodies, floating bodies, statics, oscillations, and mechanical work, as well as utilize various measurement methods for dimensions, mass, force, and pressure



The interconnected equipment helps accurately determine the start and stop times of a body’s motion



The mathematical model analyzes various types of body motion, including oscillatory movements



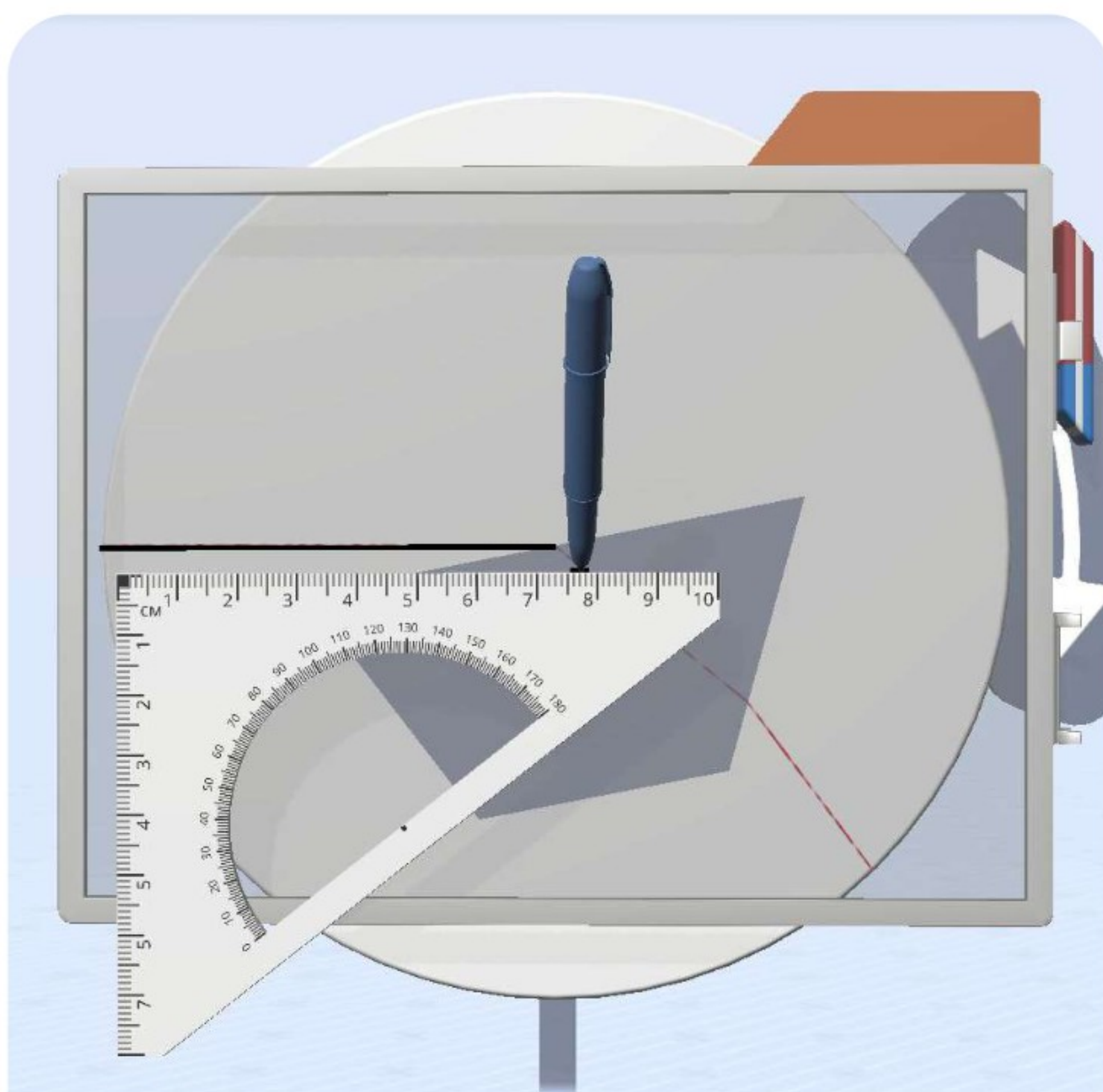
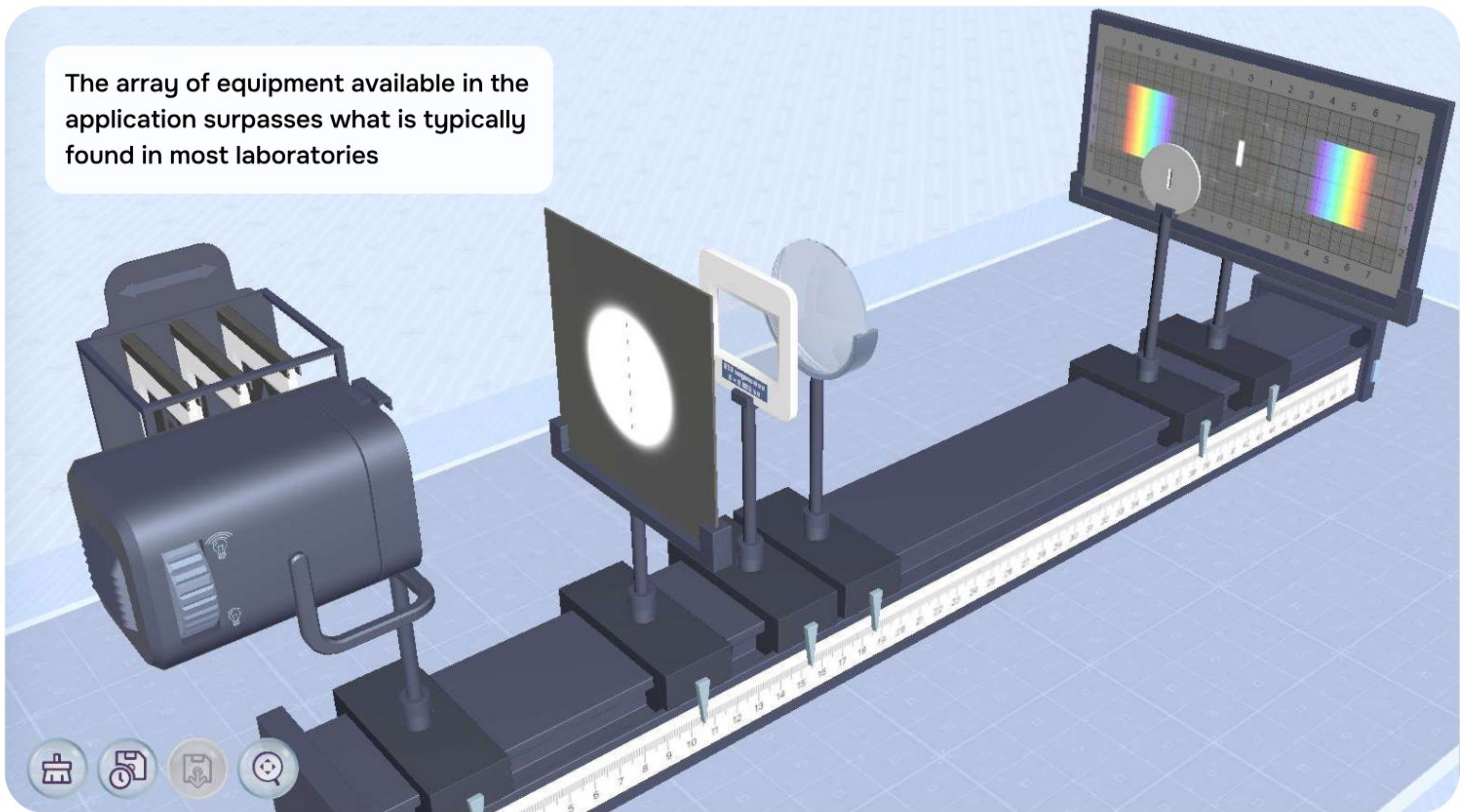
The “Mechanics” Virtual Laboratory is the perfect interactive resource for those who want to understand the principles of mechanics.

The range of available materials significantly exceeds the inventory of an average school or university laboratory.

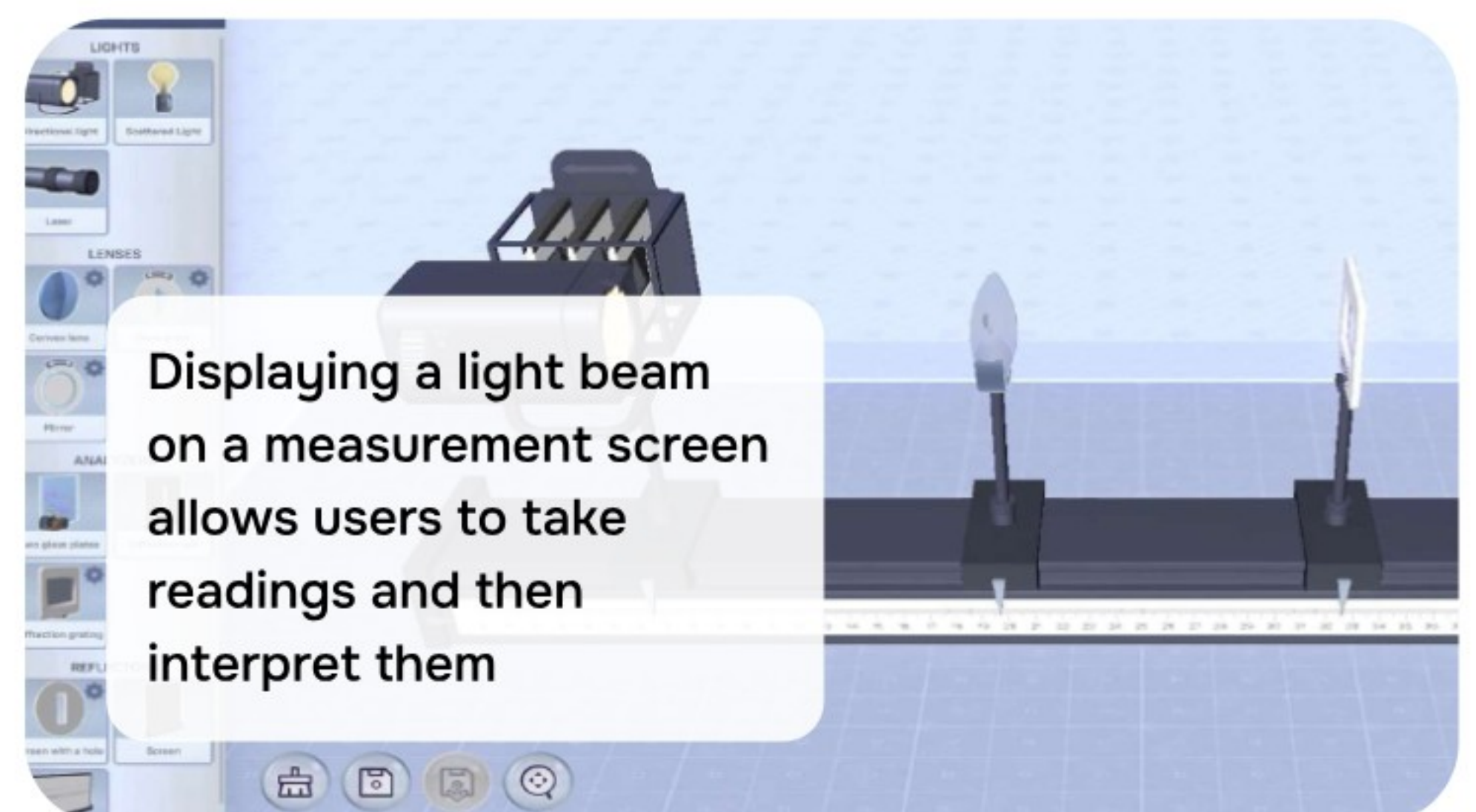
With its user-friendly and multifunctional interface, the laboratory provides users with an engaging educational experience that also incorporates enjoyable, game-like elements

OPTICS

The array of equipment available in the application surpasses what is typically found in most laboratories



The tablet and protractor system enables the study of light ray trajectories through complex prism shapes, which can be intricately customised to meet the user's needs

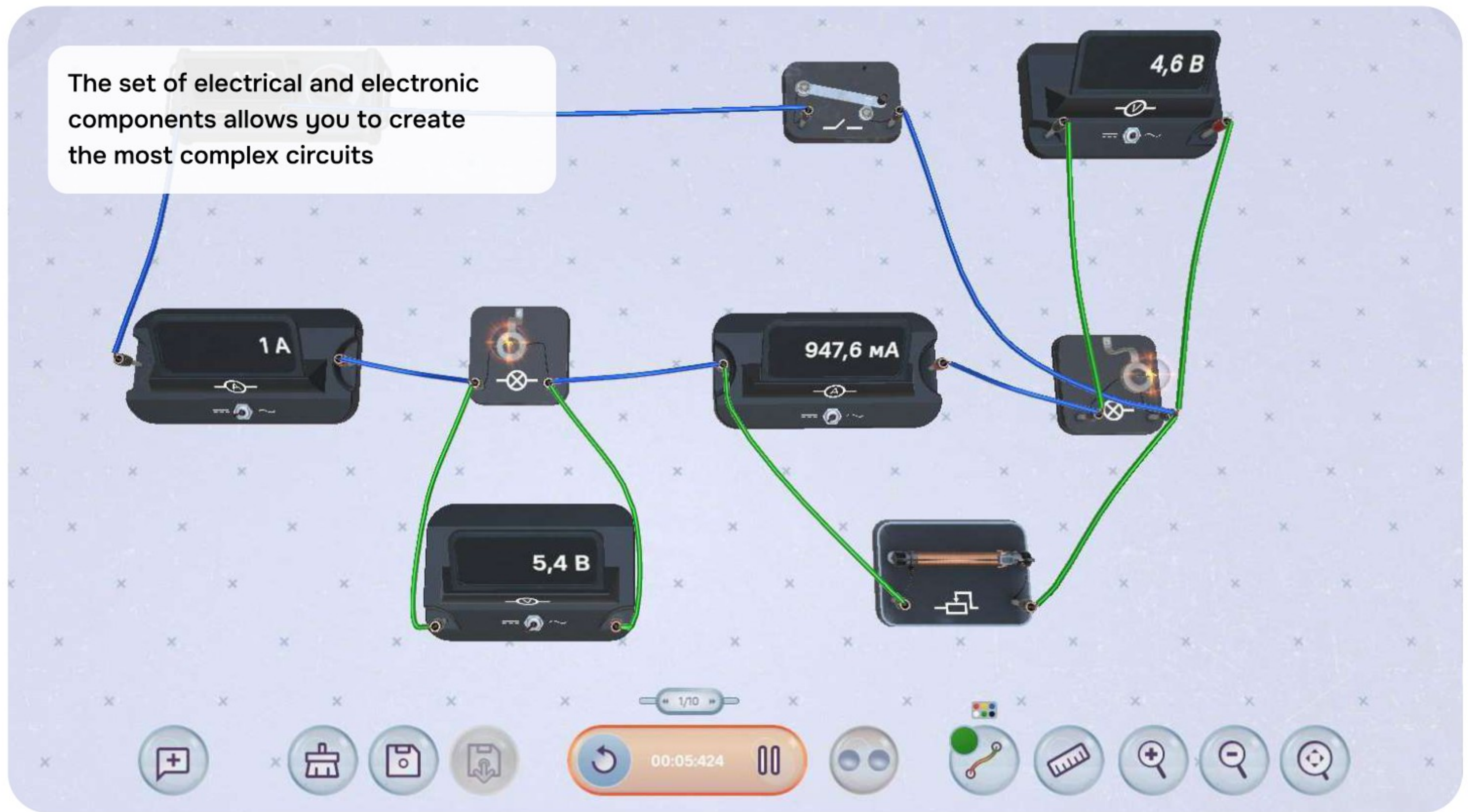


Displaying a light beam on a measurement screen allows users to take readings and then interpret them

The "Optics" Virtual Laboratory accurately calculates and simulates the propagation of light in various media. You can place instruments on an optical bench, adjust their properties, and observe how the behavior of the light beam changes depending on the alterations made to the setup. A set of screens and various light sources will assist in this process.

In addition to prisms, mirrors with customizable shapes are also present. The results of experiments with mirrors differ, providing ample room for exploration and research

ELECTROMAGNETIC FIELD. FARADAY



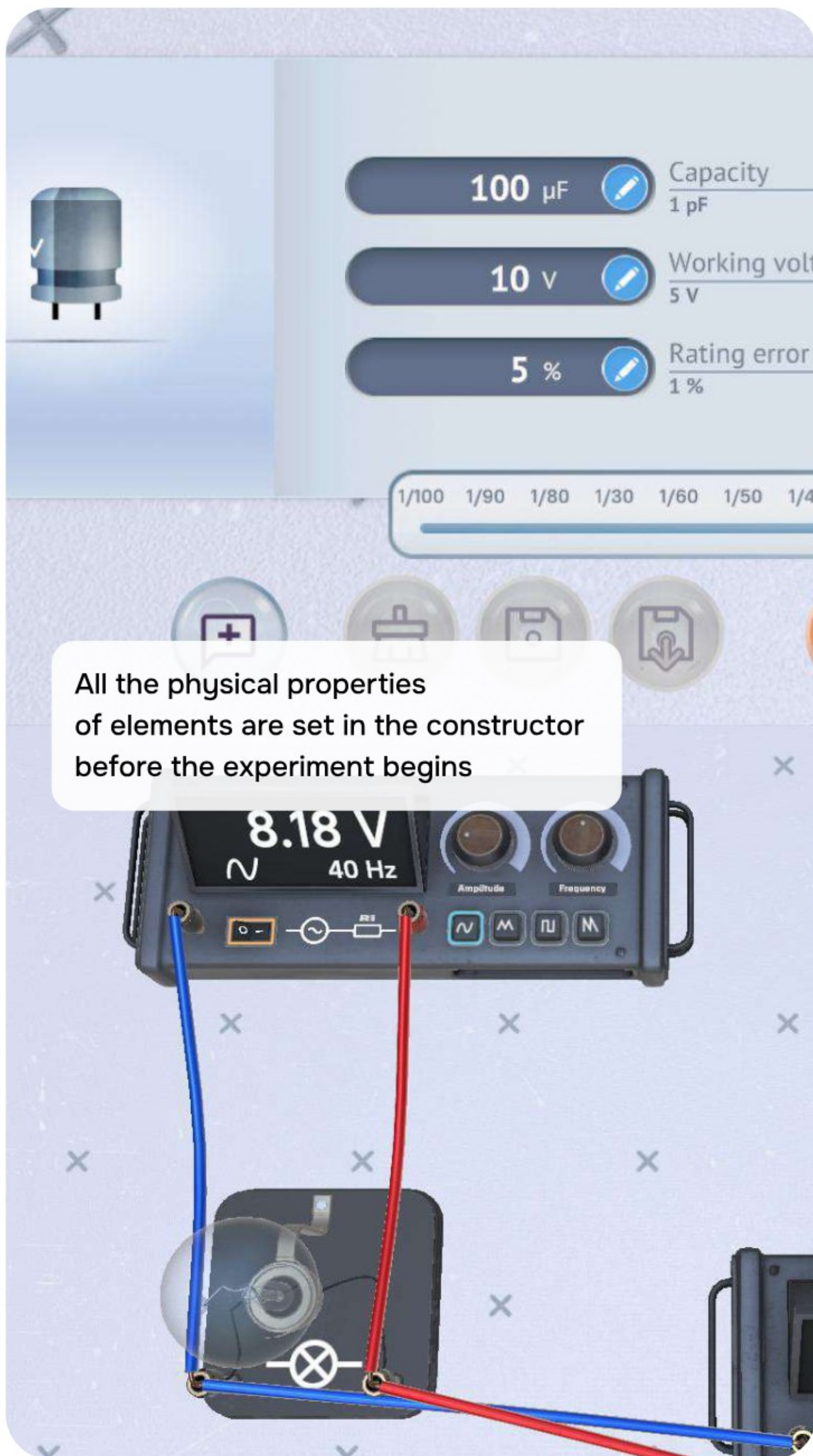
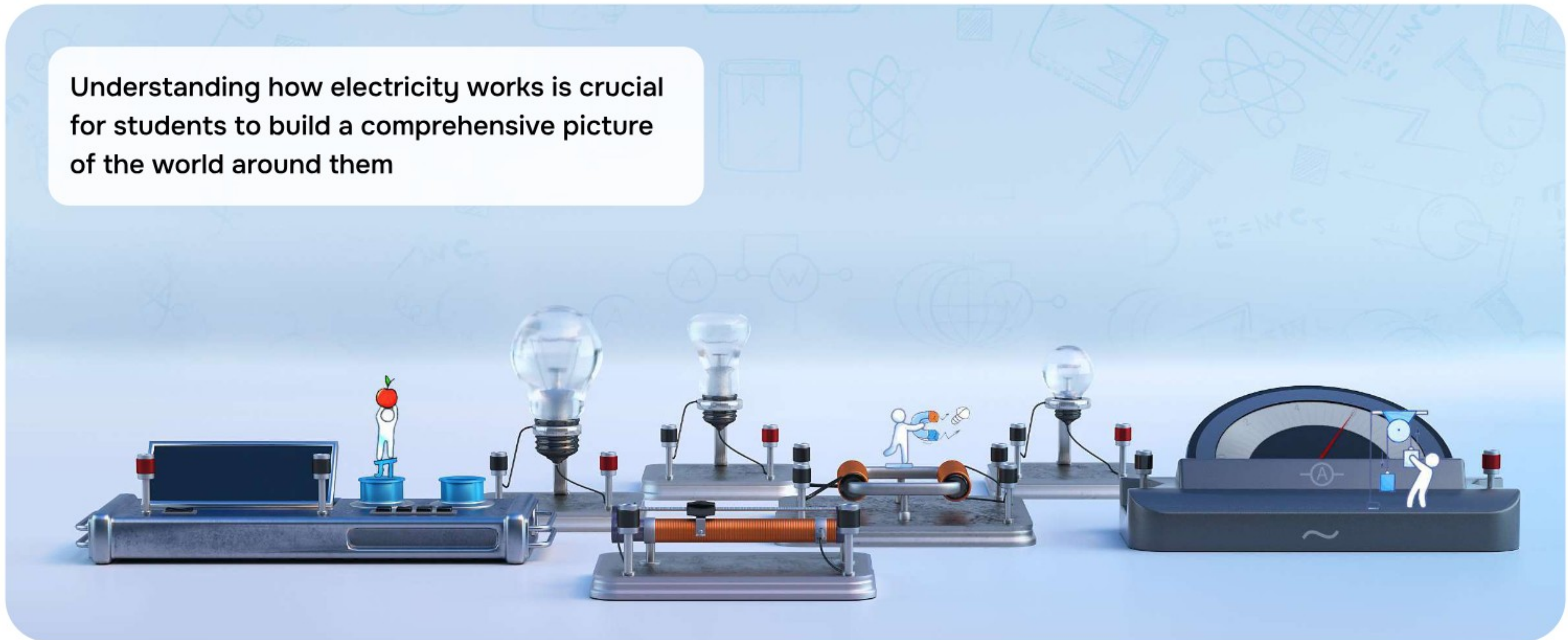
The Electromagnetic Field and Faraday Virtual Laboratory immerses you in the topics of electrostatics and electrodynamics, which are studied as part of the school curriculum.

Adjust the characteristics of some passive and active consumers to construct the electrical circuit you need, without being limited by the supplies in the laboratory classroom

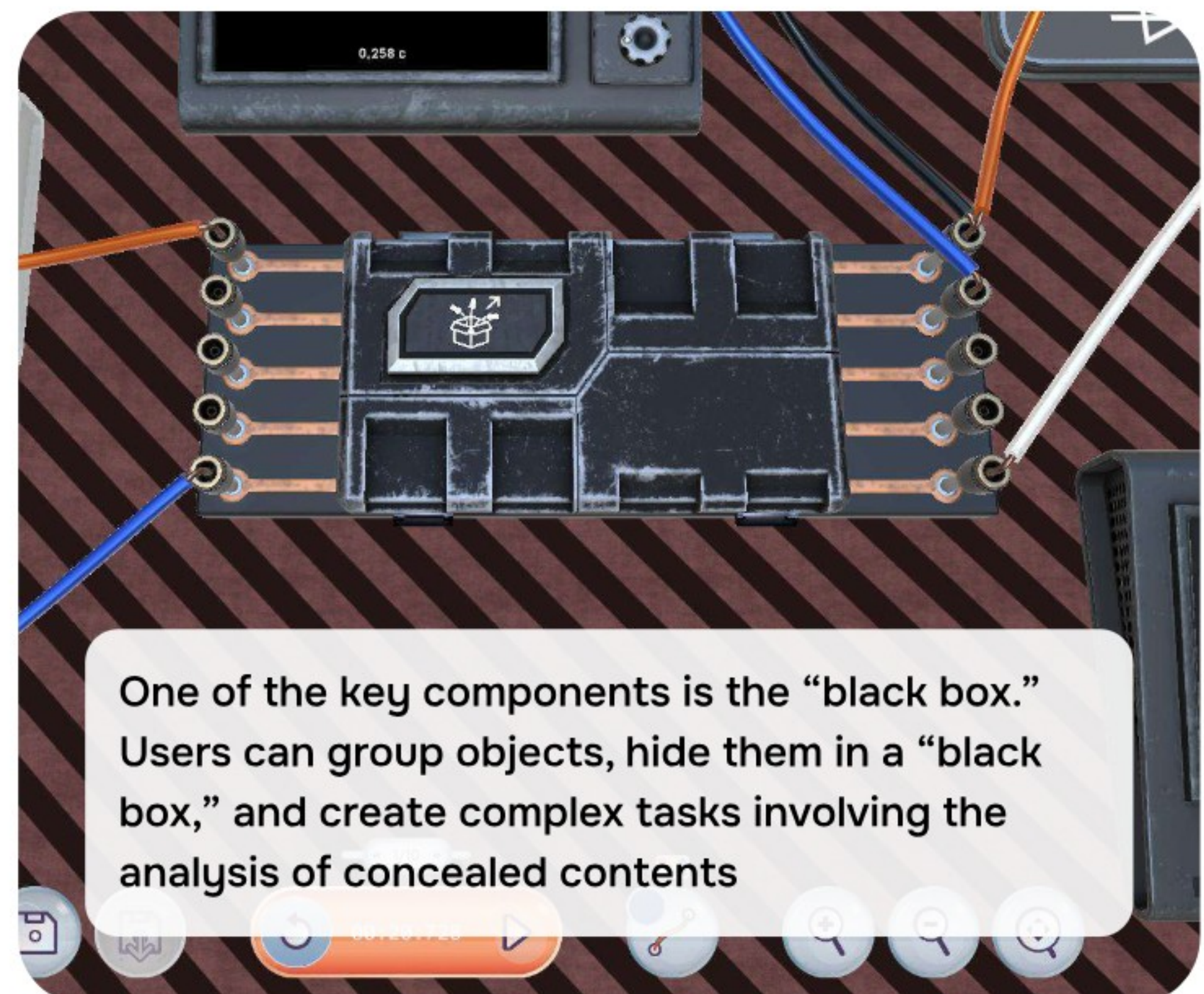
VIRTUAL LABORATORIES / PHYSICS

ELECTRODYNAMICS

Understanding how electricity works is crucial for students to build a comprehensive picture of the world around them



All the physical properties of elements are set in the constructor before the experiment begins



One of the key components is the “black box.” Users can group objects, hide them in a “black box,” and create complex tasks involving the analysis of concealed contents

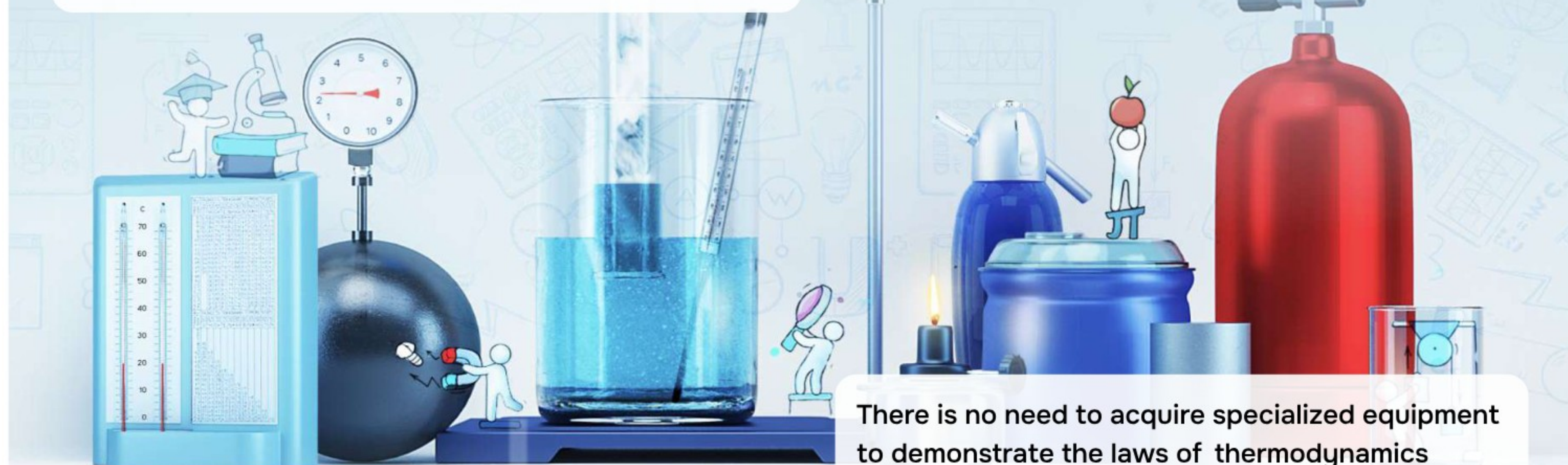
Oftentimes, you might not have a voltmeter, ammeter, a bundle of wires with a power supply, and an incandescent light bulb readily available.

The Electrodynamics Virtual Laboratory always has the necessary tools at hand, allowing users to dive into their studies on the go.

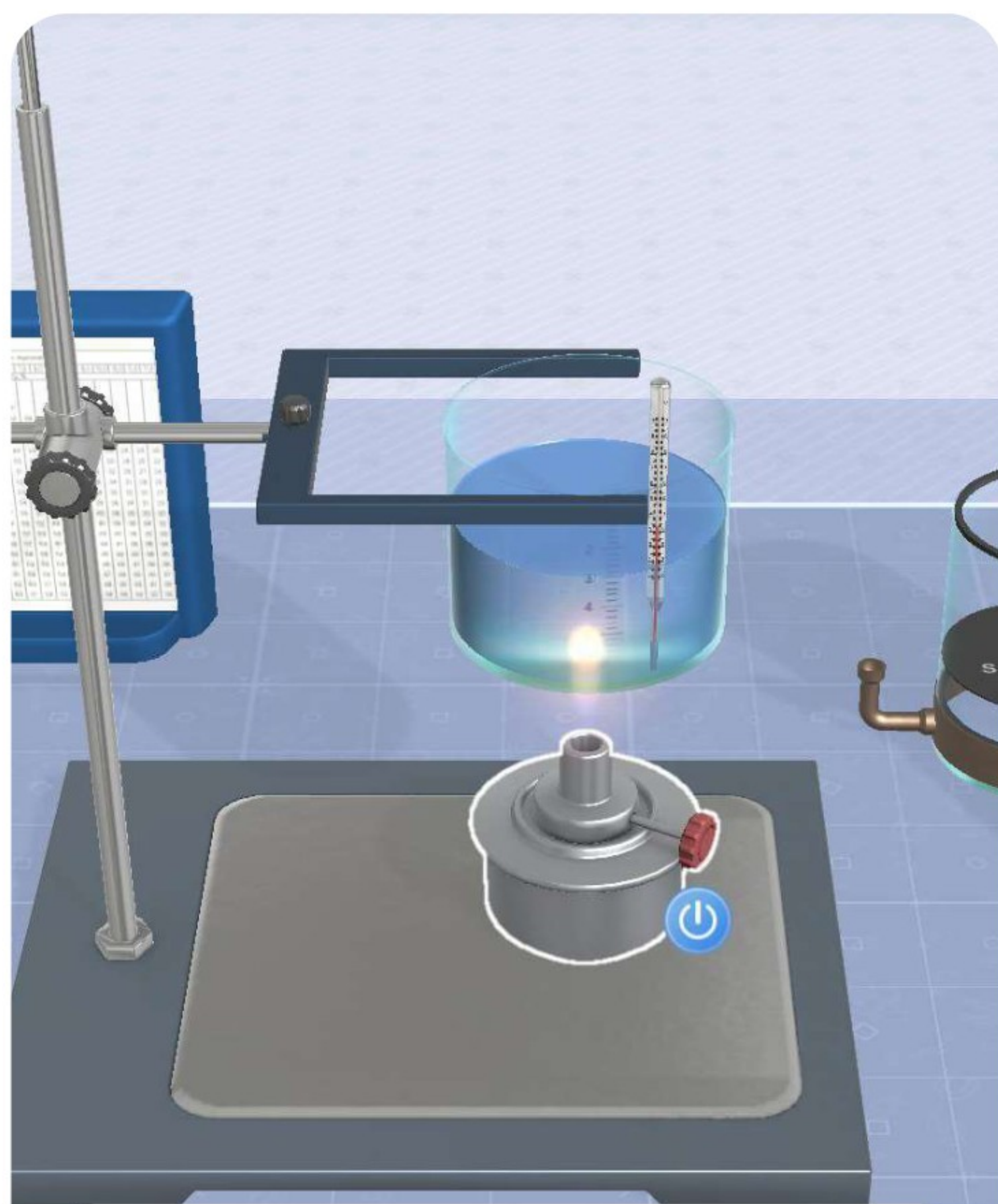
All the settings for the physical properties of elements are set in the constructor before the experiment begins, while adjustable properties are modified interactively during the process using handles, buttons, and other control elements

MOLECULAR PHYSICS AND THERMODYNAMICS

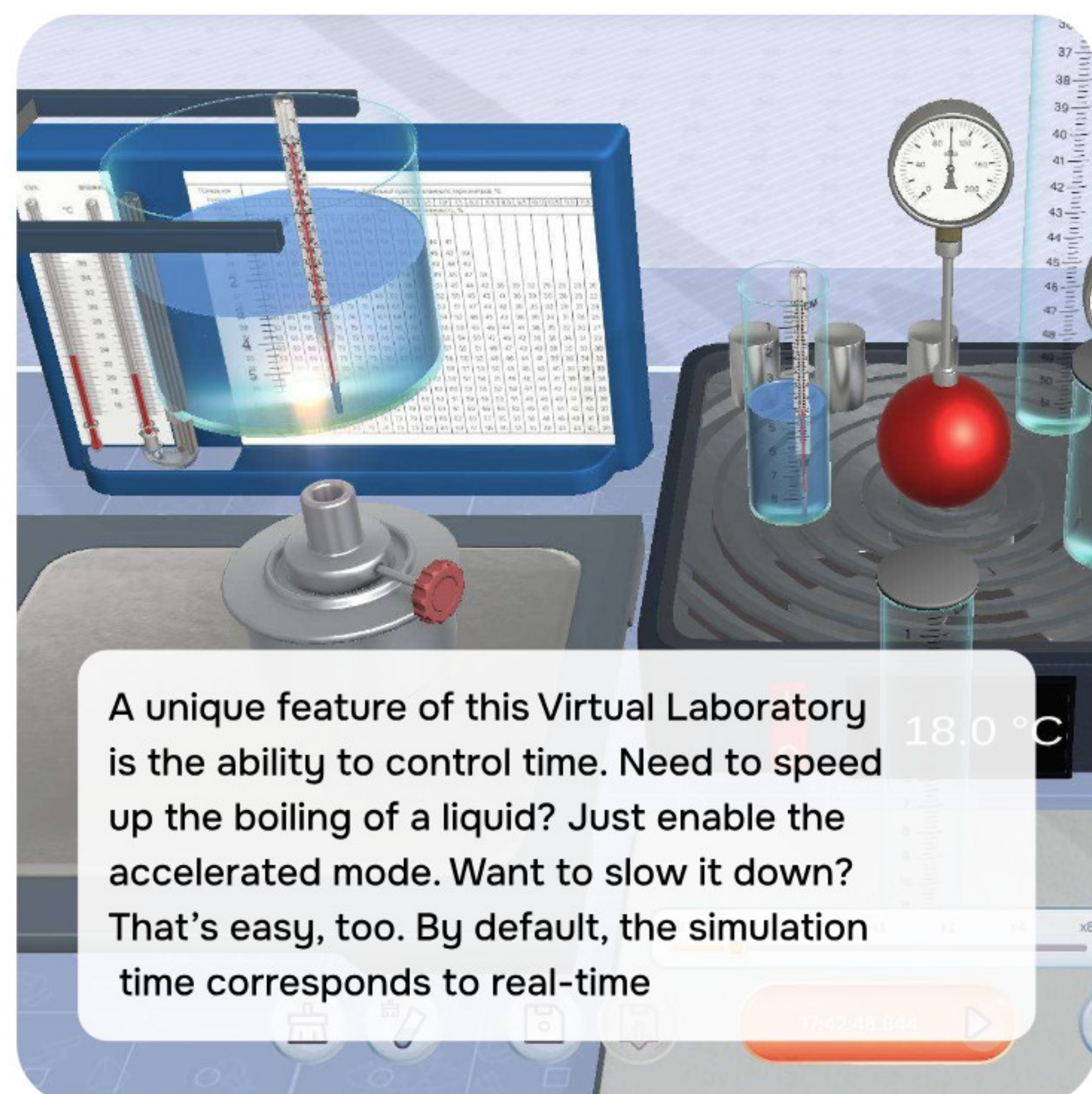
In the “Molecular Physics and Thermodynamics” Virtual Laboratory, students gain a unique experience, just as they would in real-life conditions



There is no need to acquire specialized equipment to demonstrate the laws of thermodynamics to students. Everything necessary is included in this Virtual Laboratory



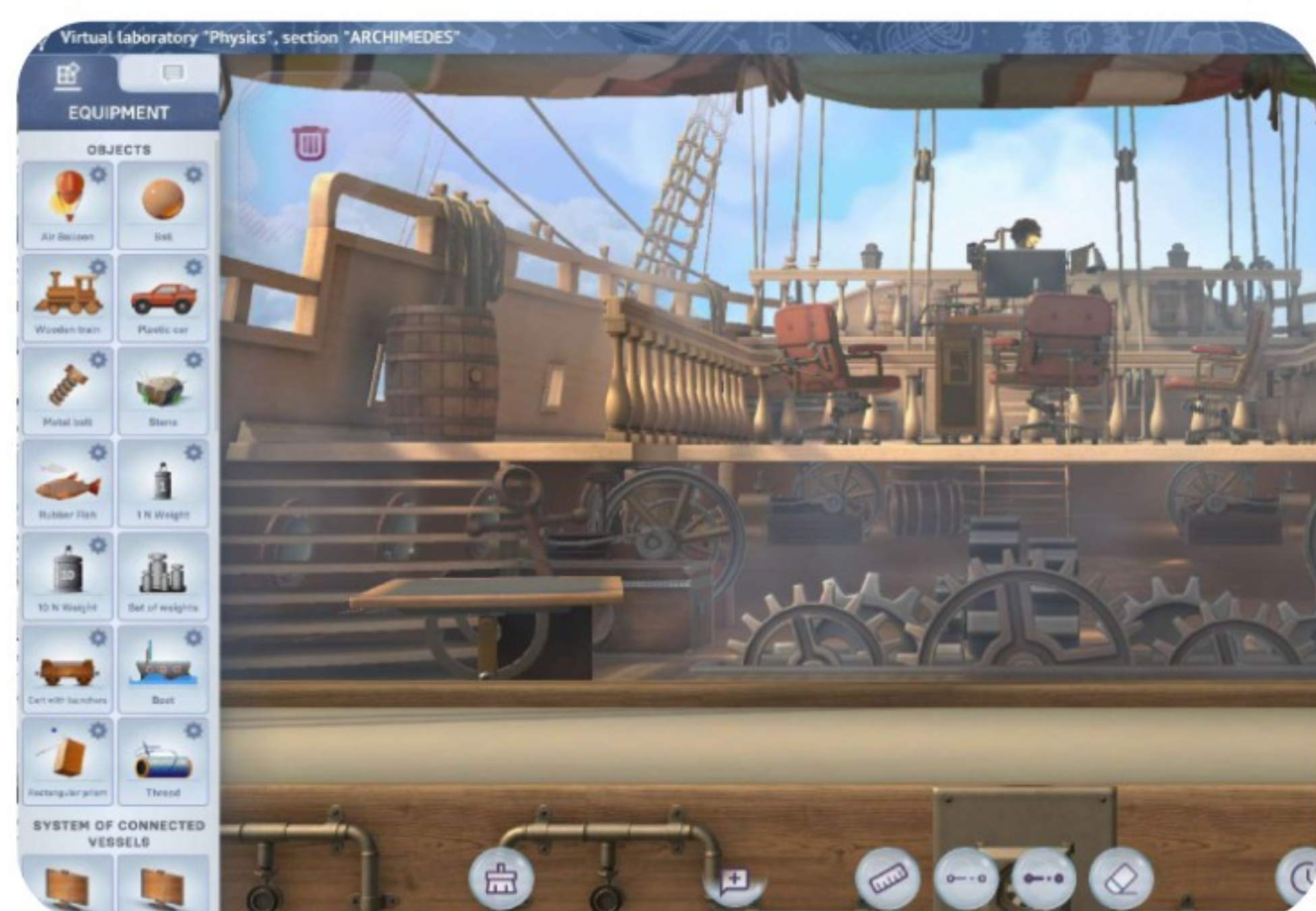
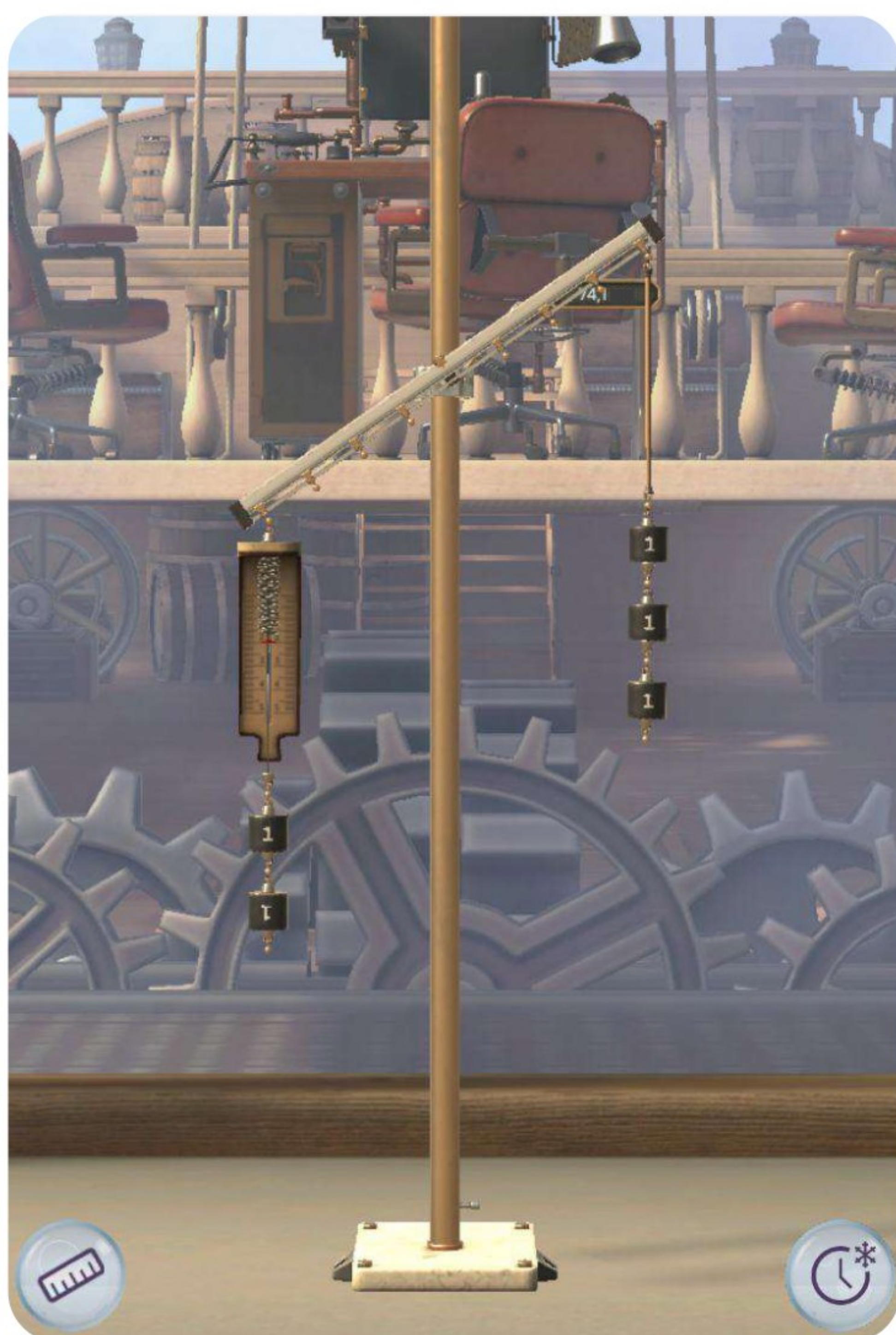
Pressure, humidity, and temperature all obey the real laws of physics. For more detailed settings, you can adjust certain parameters, such as speeding up or slowing down the simulation



A unique feature of this Virtual Laboratory is the ability to control time. Need to speed up the boiling of a liquid? Just enable the accelerated mode. Want to slow it down? That's easy, too. By default, the simulation time corresponds to real-time

A high-quality immersion in the experiment structure is achieved through interactive interactions with objects, maximum control over the experiment, and the ability to interpret the results, which are consistent with those in corresponding real-life experiments. All of this can be found in the “Molecular Physics and Thermodynamics” Virtual Laboratory

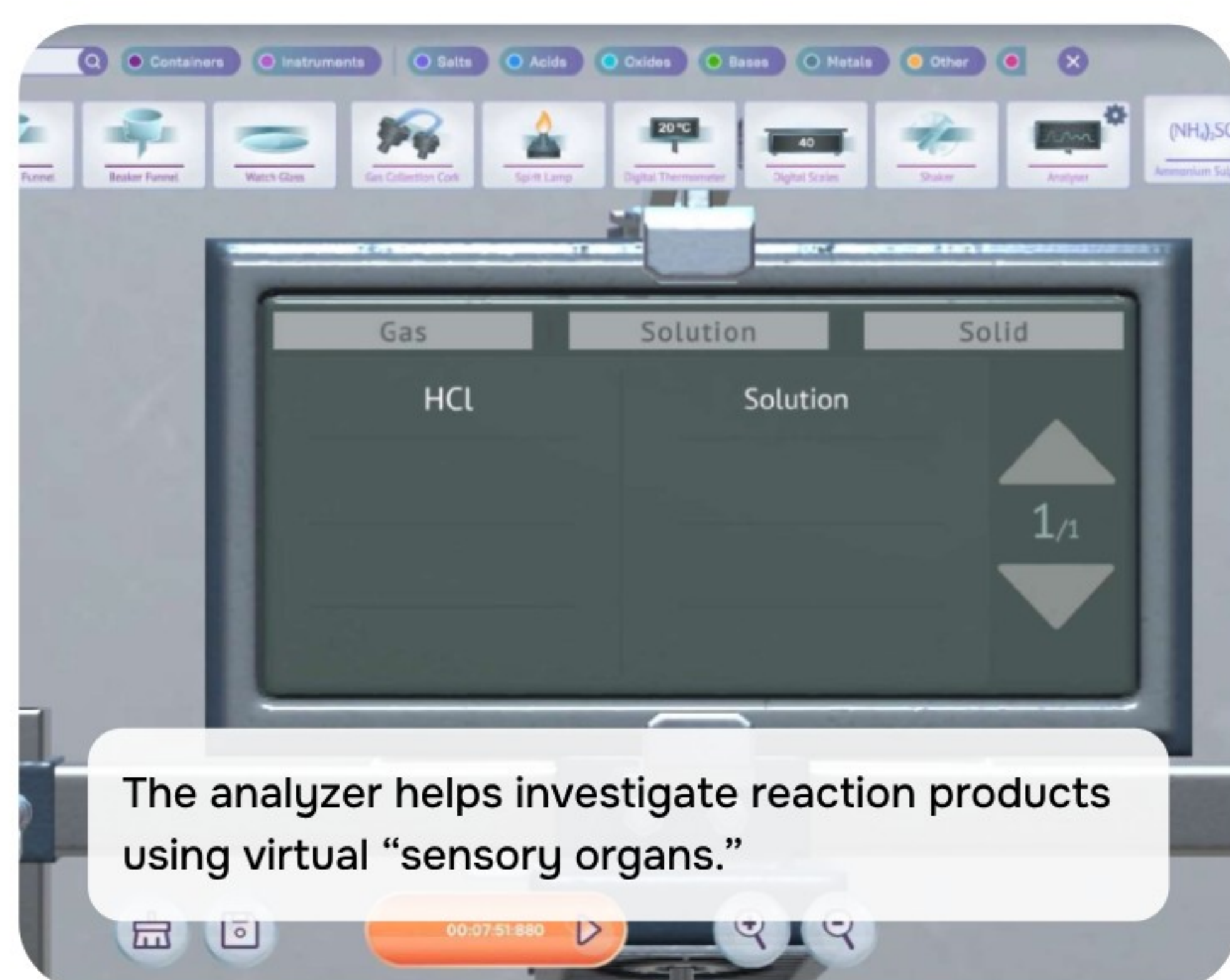
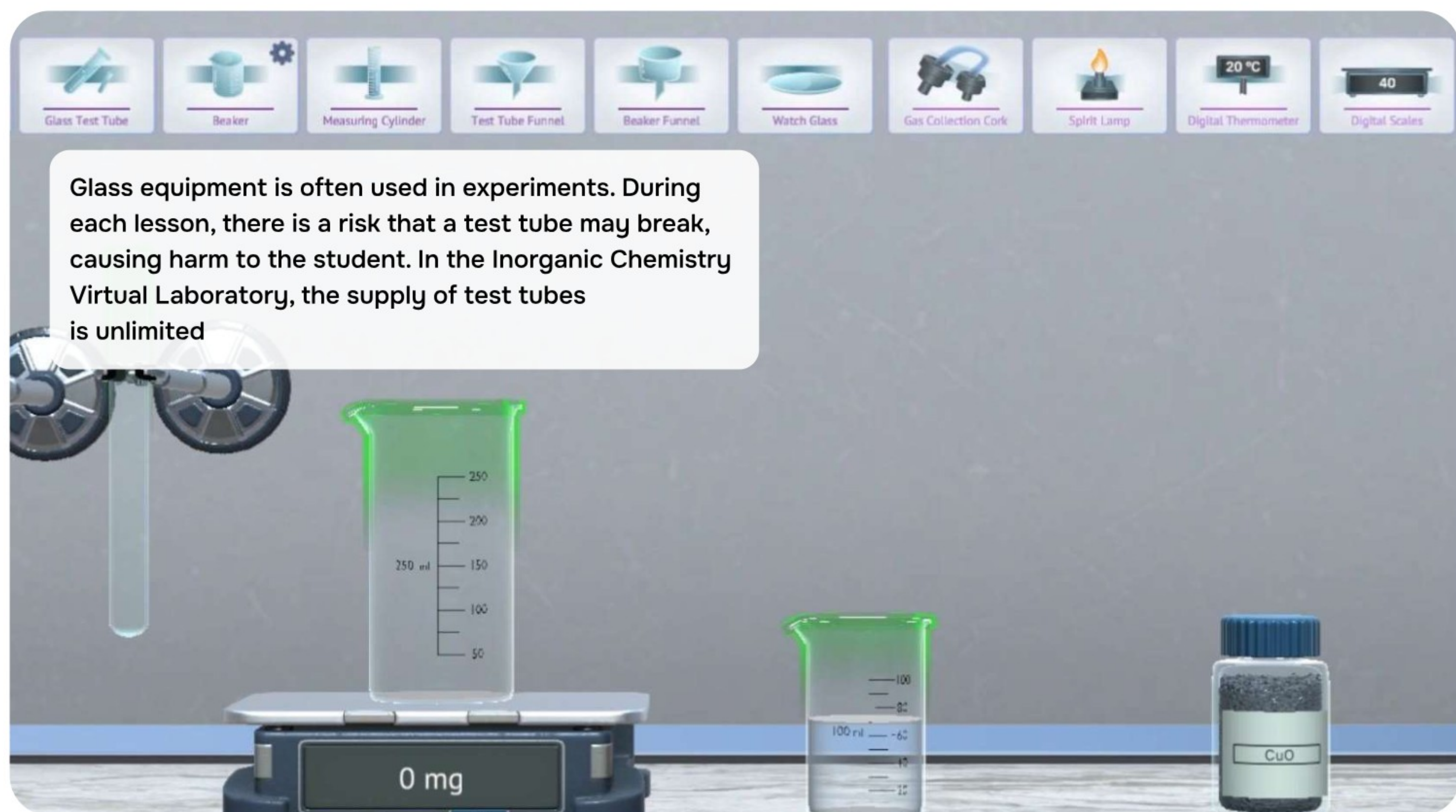
ARCHIMEDES



The application allows you to conduct all laboratory work according to the basic physics syllabus for the 7th grade. You can observe, conduct experiments, and solve problems on the interaction of bodies, fluid pressure, floating bodies and aerostatics, determining work, and studying various methods of measuring dimensions, mass, force, and pressure

VIRTUAL LABORATORIES / CHEMISTRY

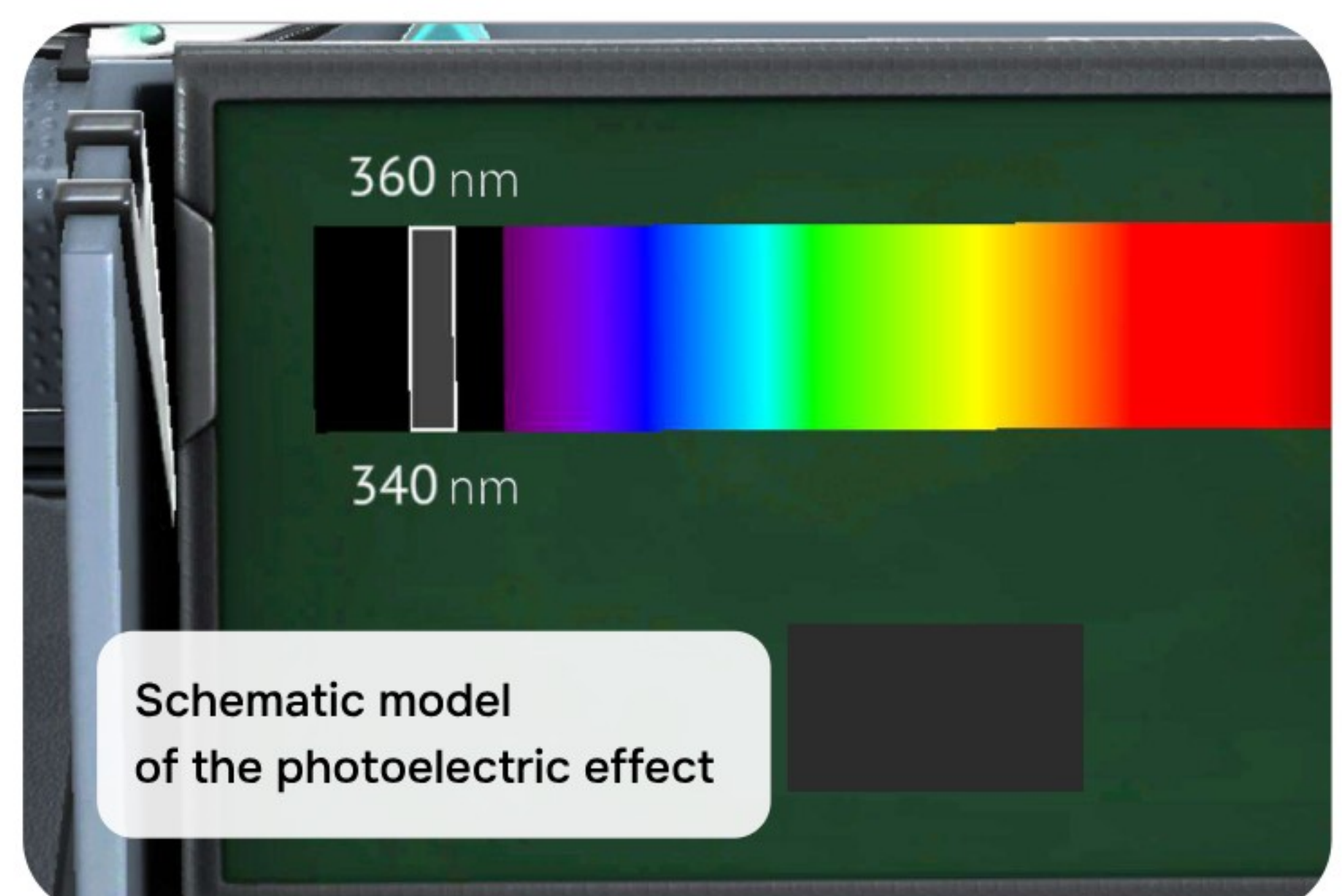
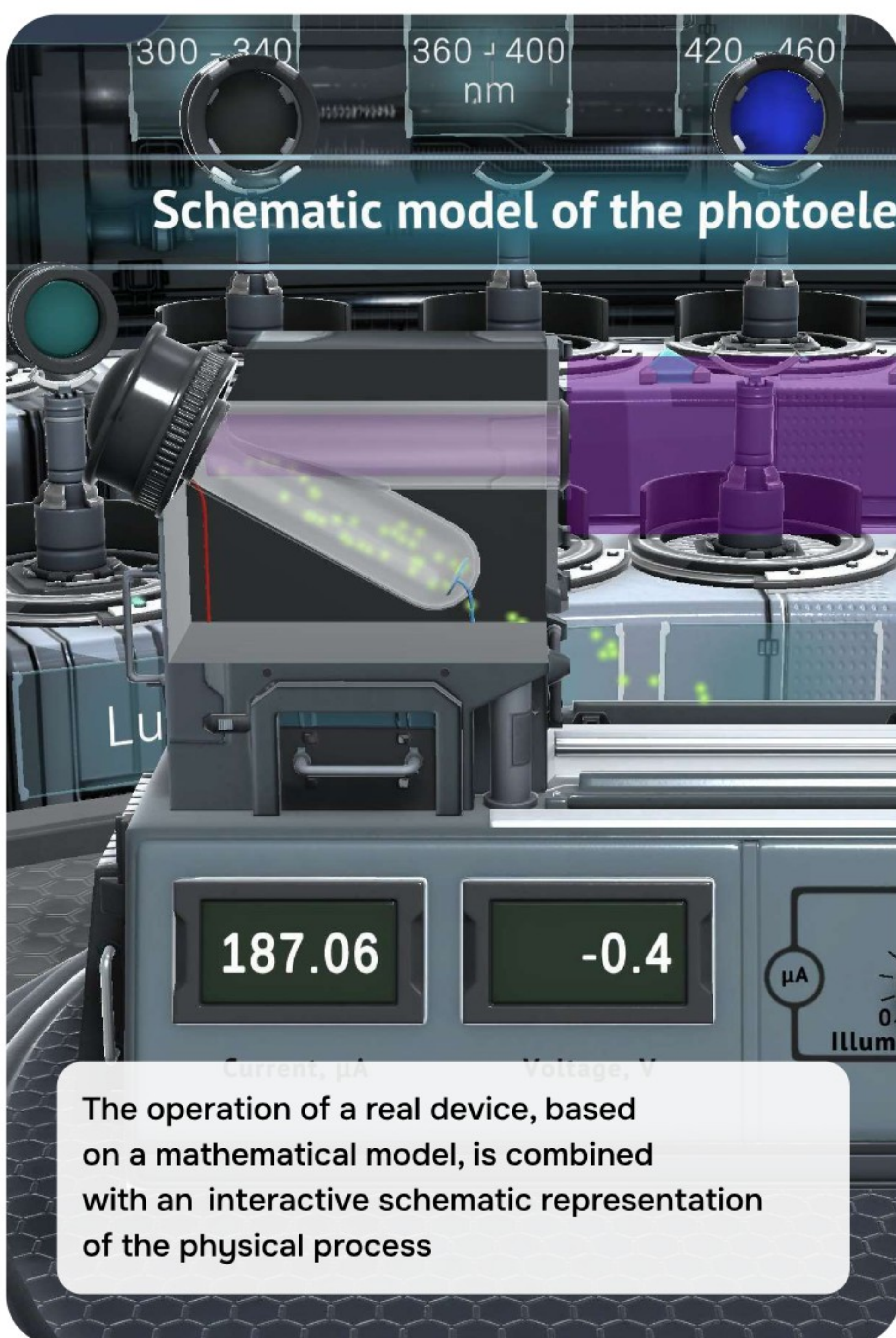
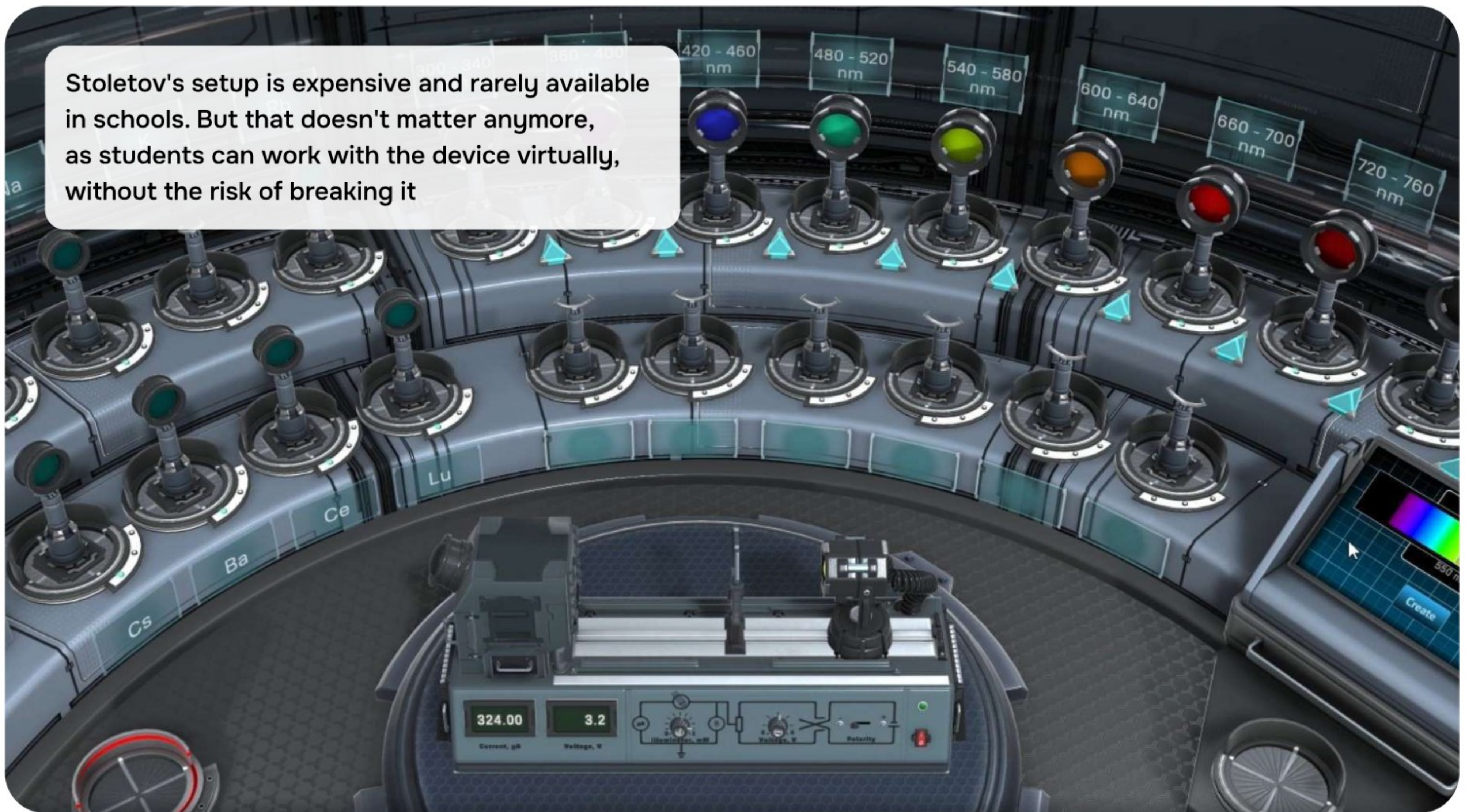
INORGANIC CHEMISTRY



The Virtual Laboratory allows you to dive into the school curriculum of the inorganic chemistry course. Using several dozen reagents, you can perform experiments included in the 8th and 9th grade programs.

Work with reagents as you would in a real classroom. A wide selection of instruments will assist you

STUDY OF PHOTOELECTRIC EFFECT LAWS

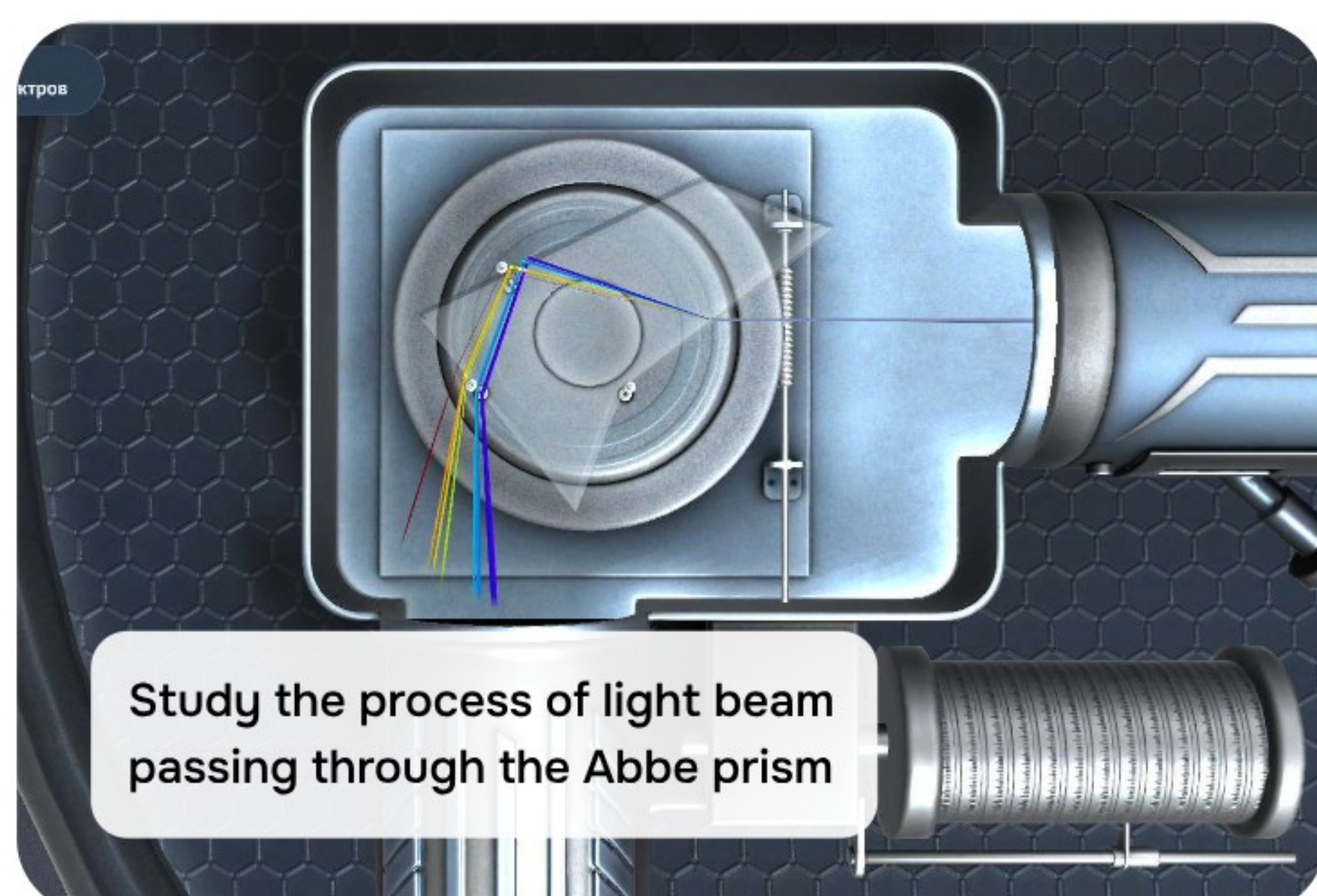
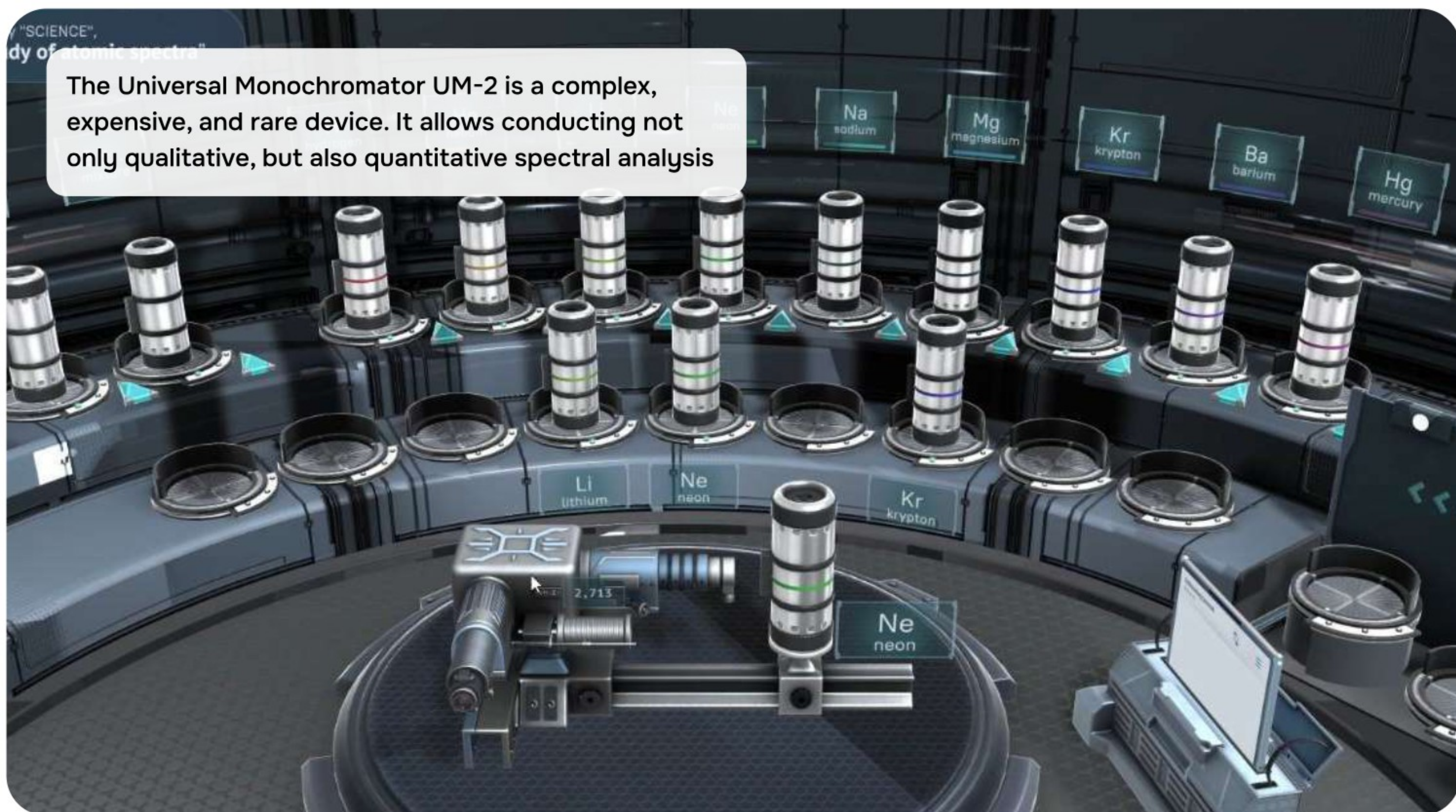


The Virtual Laboratory introduces the student to the laws of the photoelectric effect, allows preparation for solving 2-3 tasks in the Unified State Exam (EGE) and provides expanded opportunities for studying the phenomenon, which are impossible to obtain in real laboratory conditions.

The comprehensive simulator system includes sets of various cathodes and a large number of light filters. Fine-tuning of the device will allow tracking the photoelectric effect boundary and gaining knowledge necessary for a complete understanding of the nature of the photoelectric effect

VIRTUAL LABORATORIES / SCIENCE

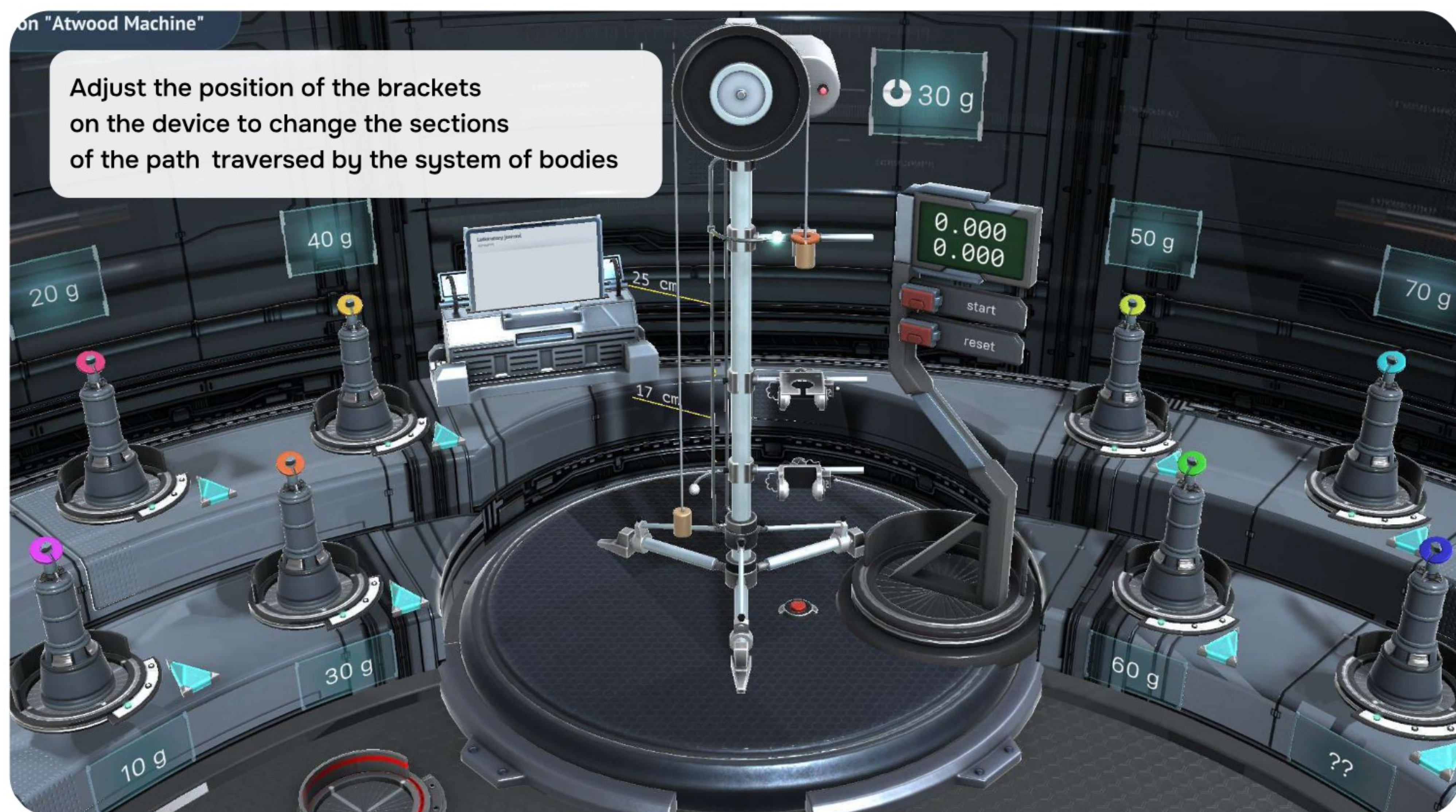
STUDY OF ATOMIC SPECTRA



The virtual laboratory allows studying the spectral analysis. Students will be able to practically dissect the process of solving 2-3 tasks from the Unified State Exam and understand the principles of working with atomic spectra of substances.

The set of available materials significantly exceeds the stock of an average school or university laboratory. Unlike real laboratory conditions, the stand allows creating mixtures of substances and generating random objects for study with unknown content

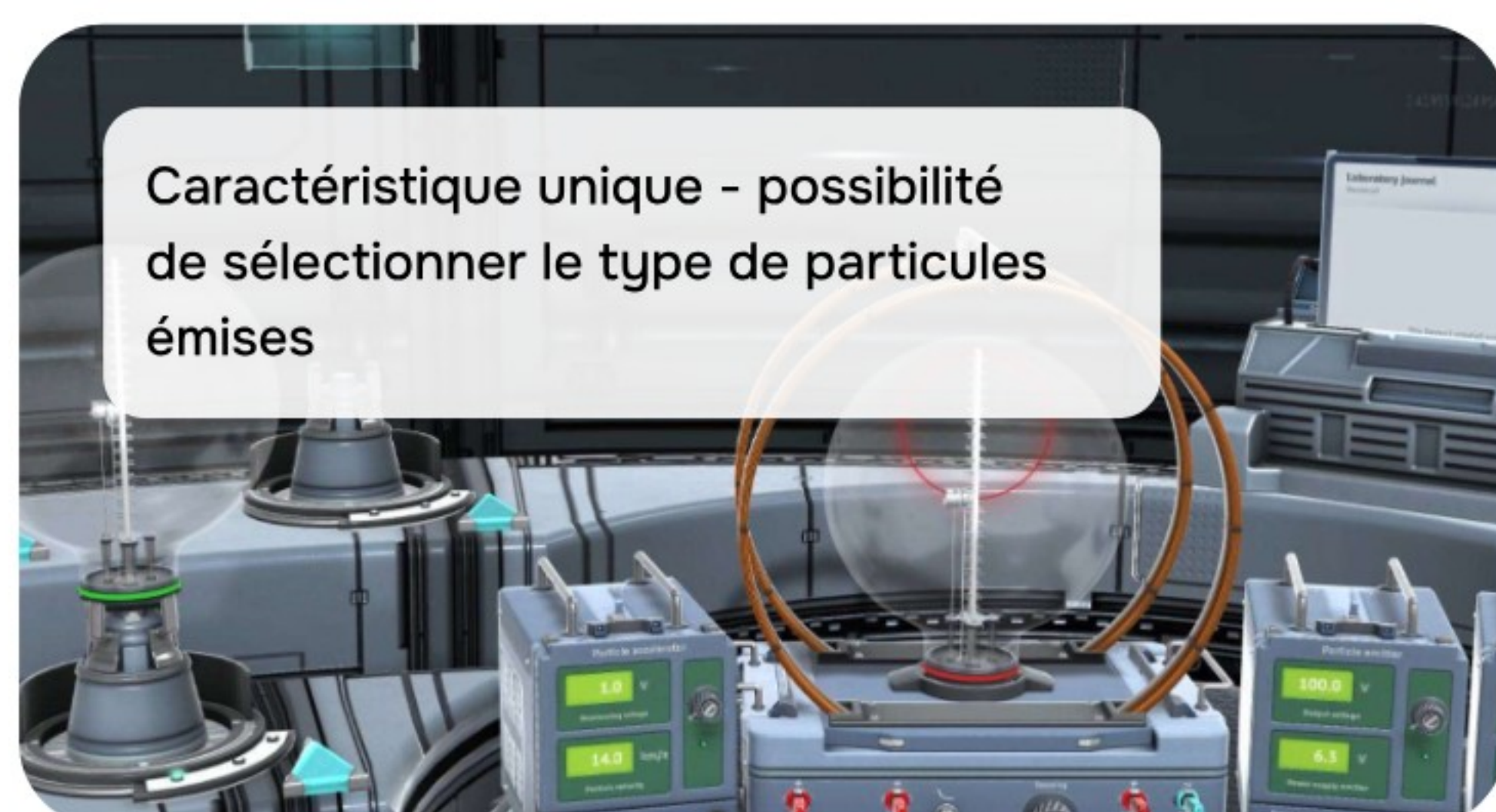
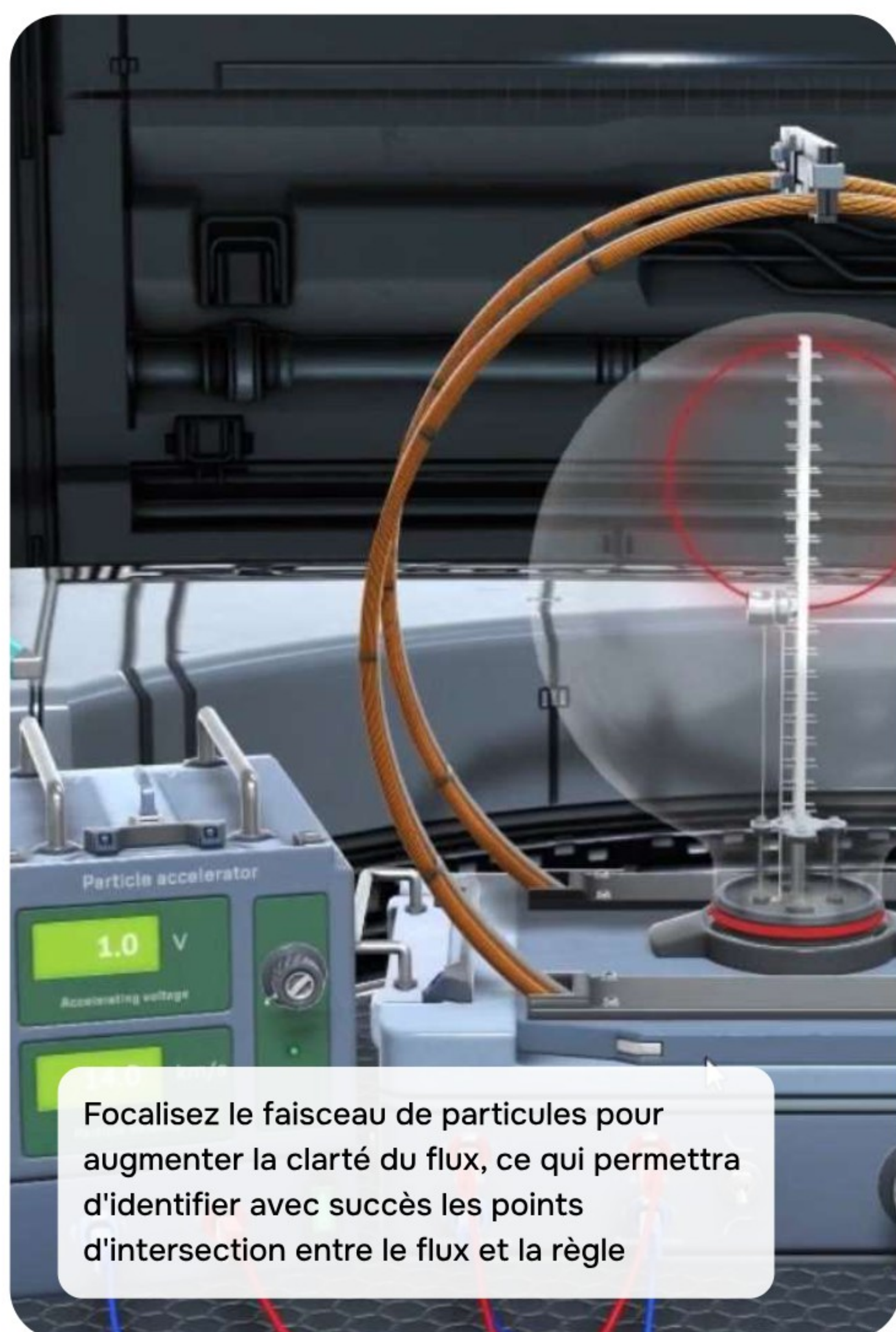
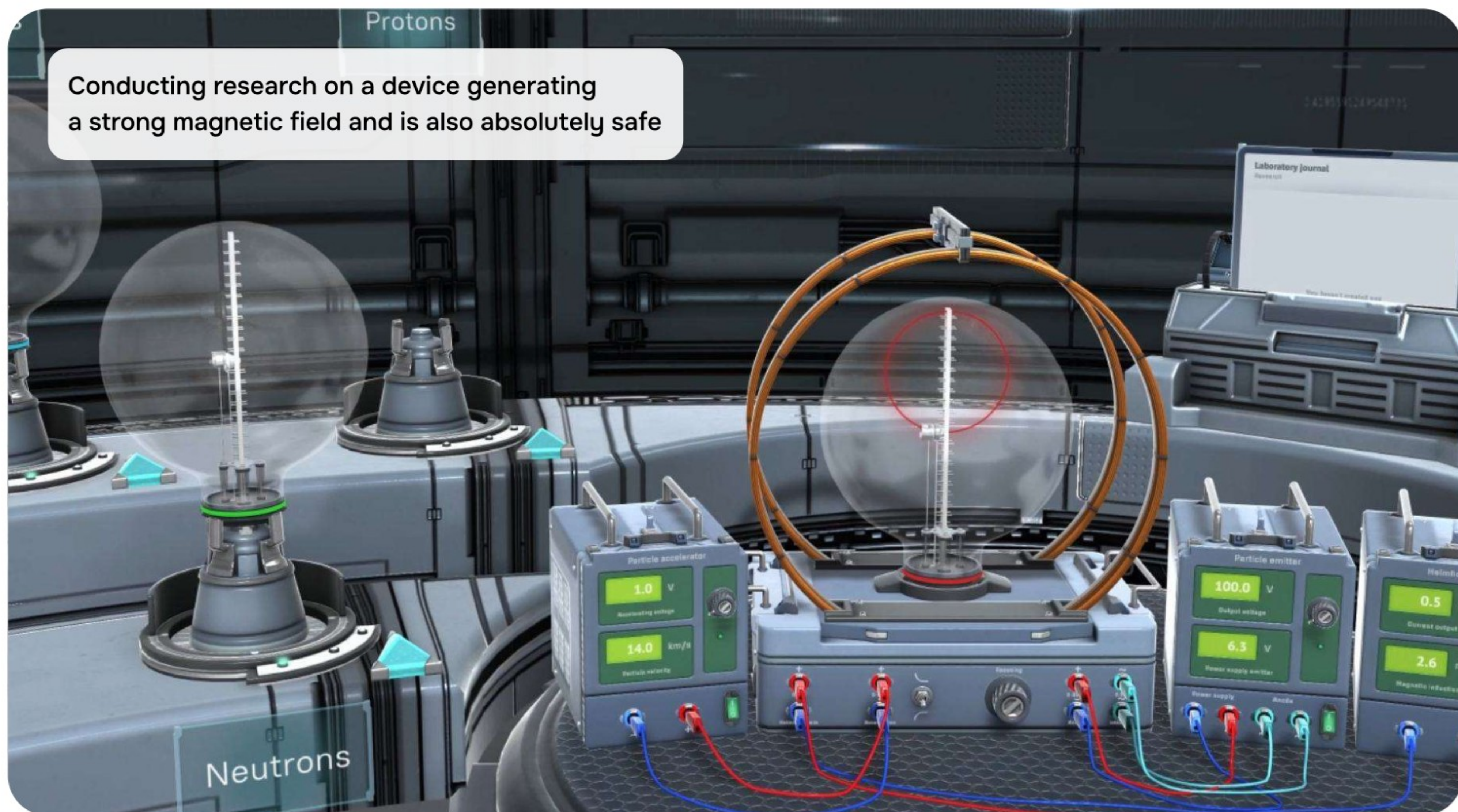
ATWOOD'S MACHINE



The virtual laboratory allows you to investigate the uniformly accelerated motion of a system of bodies, consisting of two weights connected by a thread, and a stationary block. Atwood's machine, the device on the stand, is an expensive and rare installation. Usually, the study of such movement in schools is purely theoretical.

The application allows you to conduct a series of experiments. Options that are provided in the app are not found in real laboratories. For example, there is an expanded set of overloads for installation

STUDY OF CHARGED PARTICLE MOTION IN A MAGNETIC FIELD



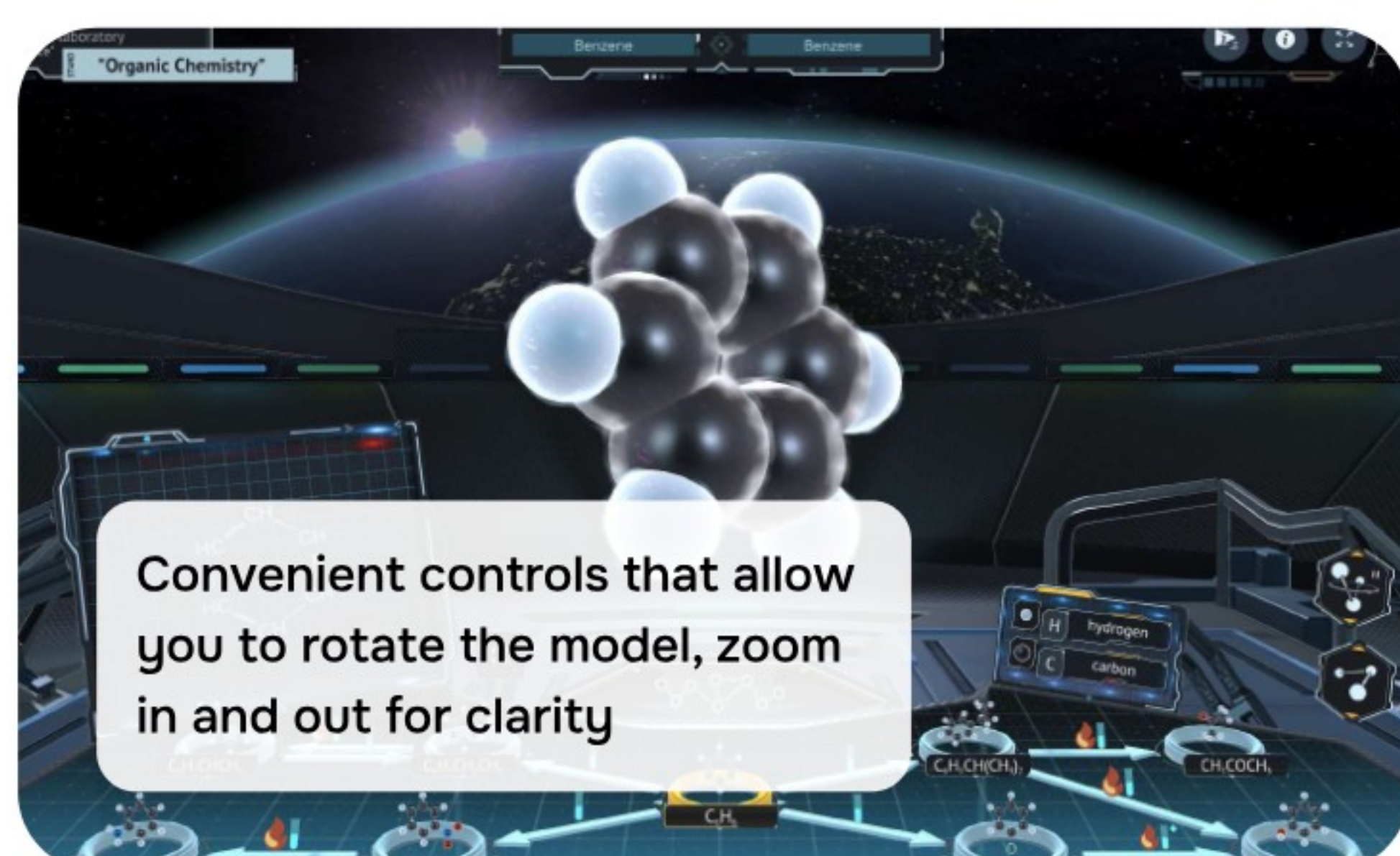
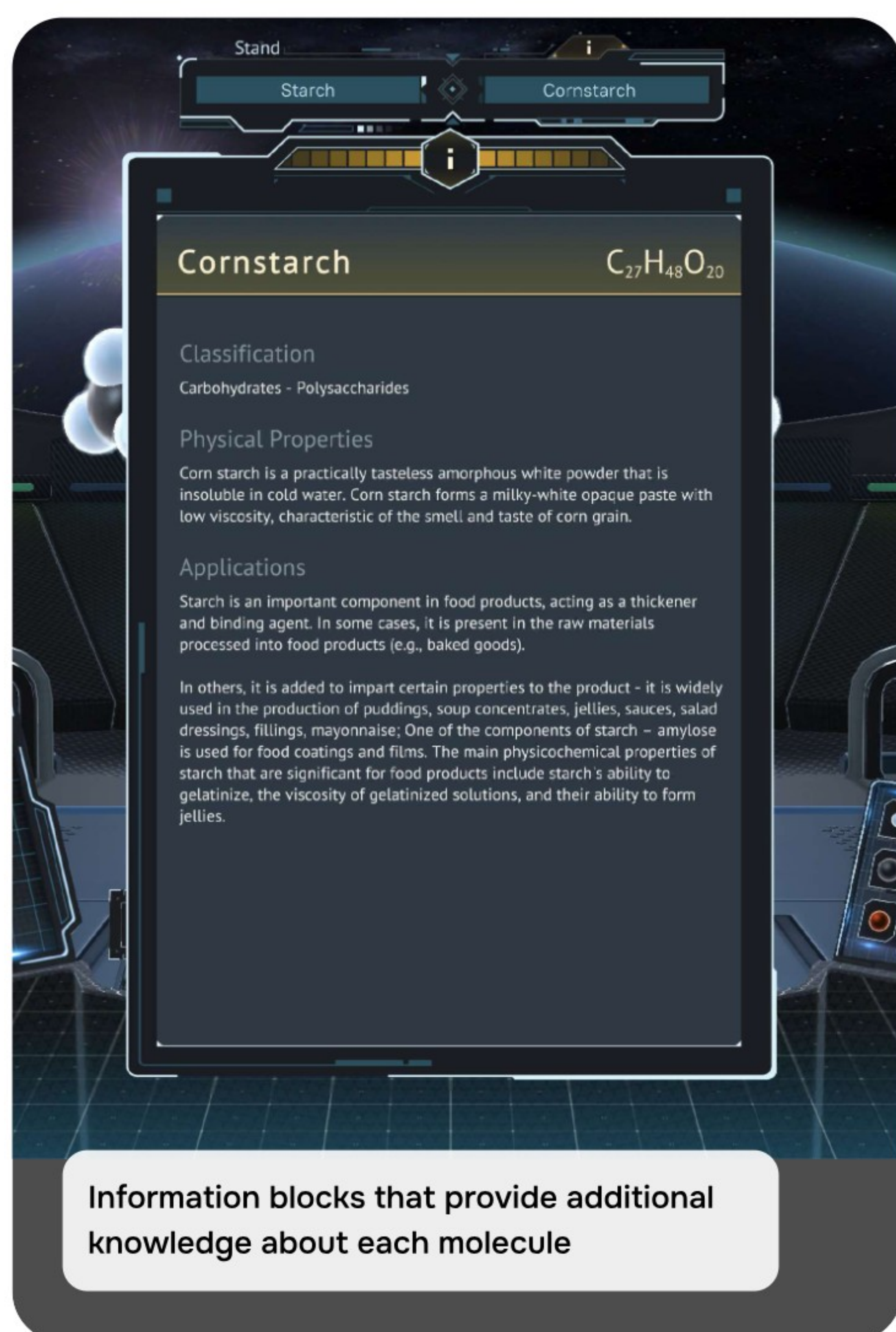
Ce laboratoire virtuel vous permet d'étudier le mouvement des particules chargées dans un champ magnétique. Le principal avantage de l'application est le calcul mathématiquement correct des paramètres de mouvement non seulement des électrons, comme c'est le cas dans les dispositifs réels, mais aussi des particules neutres et chargées positivement. En outre, nous avons ajouté de nouvelles fonctionnalités qui manquaient dans les prototypes réels. En voici quelques-unes

Among them:

- ↳ Possibilité de régler les paramètres de vitesse et de densité de flux ;
- ↳ possibilité de modifier le type de particules émises

VIRTUAL LABORATORIES / CHEMISTRY

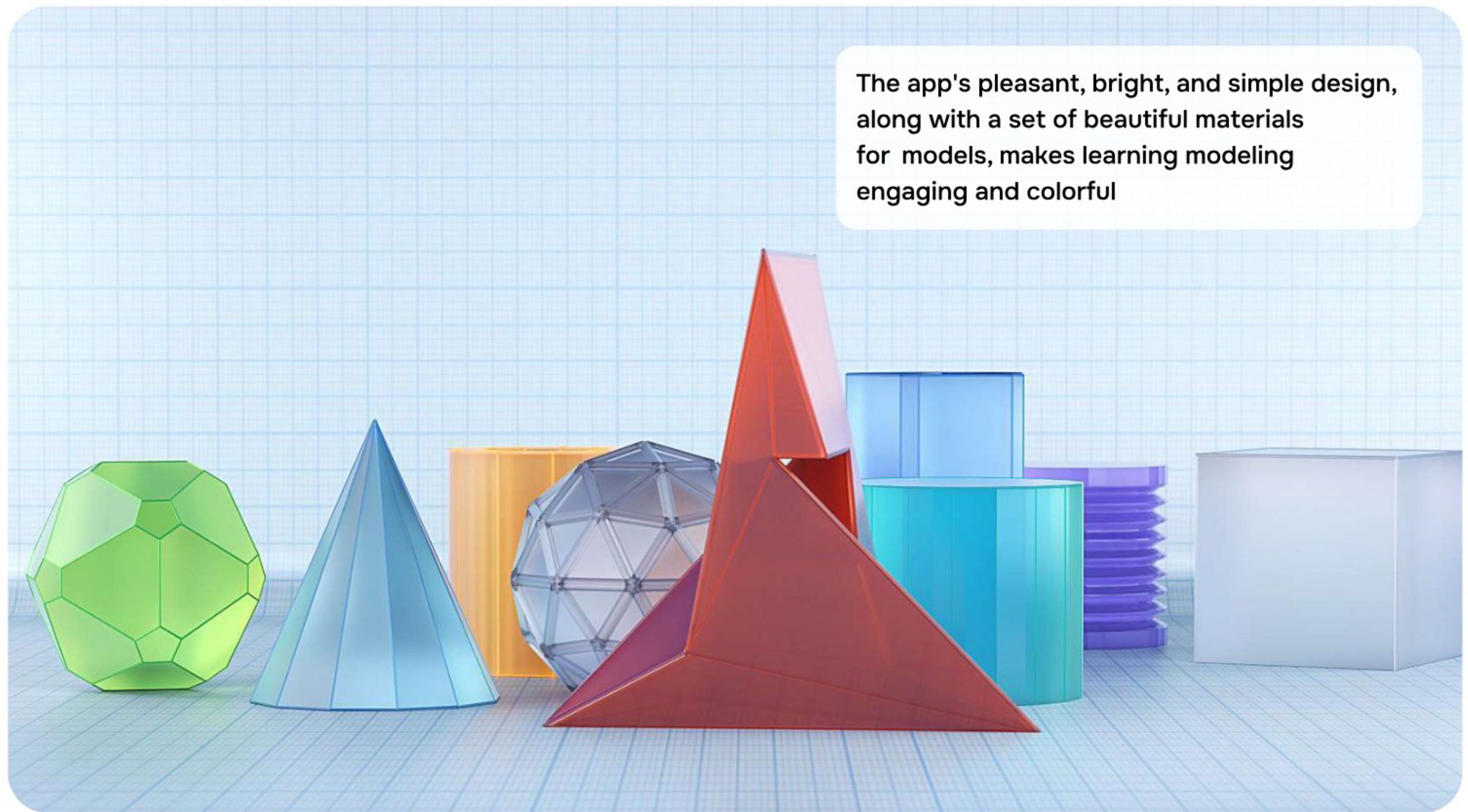
ORGANIC CHEMISTRY



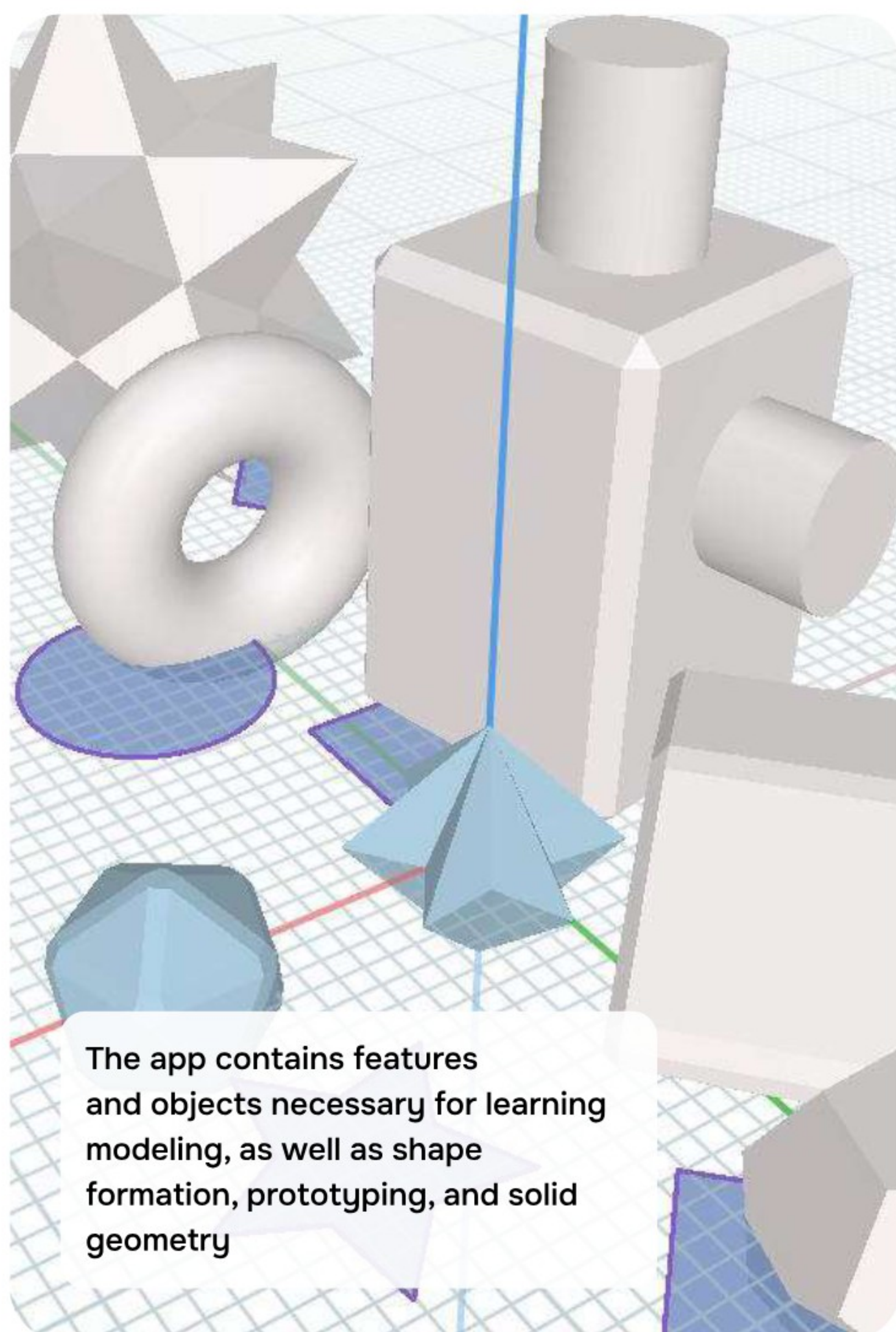
The Virtual Laboratory "Organic Chemistry" is an opportunity to explore a big set of chemical compounds that include carbon atoms. The study is carried out thanks to the visualization of molecules and their systematization.

Information is absorbed more effectively when the student has the opportunity to visualize formulas. The ability to rotate the molecule and zoom in the camera allows you to examine all the connections and constituent parts of the entities being studied

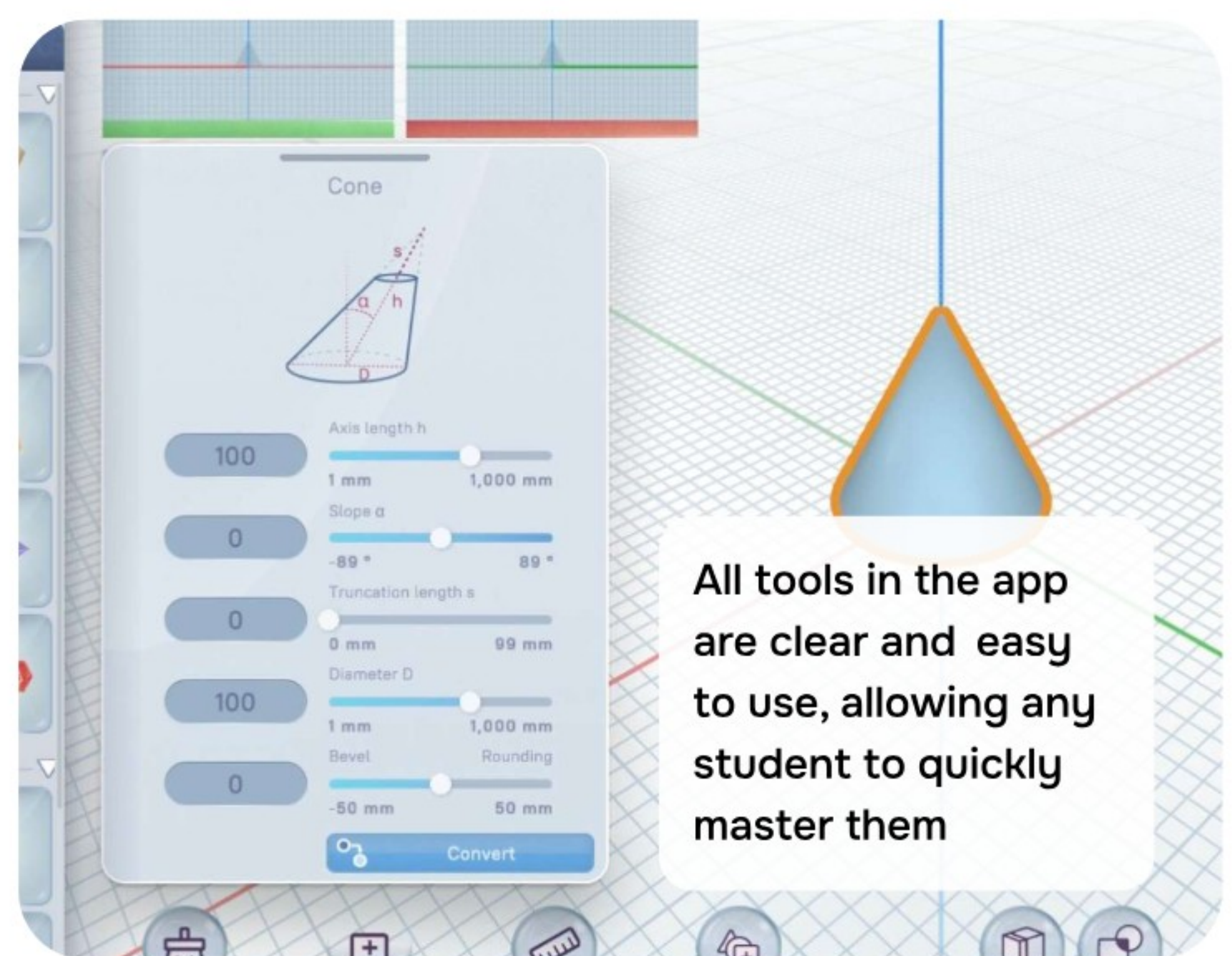
POWERHEDRON



The app's pleasant, bright, and simple design, along with a set of beautiful materials for models, makes learning modeling engaging and colorful



The app contains features and objects necessary for learning modeling, as well as shape formation, prototyping, and solid geometry



All tools in the app are clear and easy to use, allowing any student to quickly master them

The application covers a wide range of different mechanics and approaches to creating three-dimensional figures, such as Boolean and kinematic operations, splines, shells, and others, allowing users to acquire fundamental modeling skills