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## **Gravitation: a project for secondary school students using history of Physics and museum instruments.**

*Friday, 8 September 2023 12:00 (20 minutes)*

Starting from the ideas developed in the Asiago TEachers'Network on Astrophysics (ATENA), a teaching-learning sequence has been organized to introduce the topic of gravitation to 16 years old students in a Liceo Scientifico. A major role was played by the instruments belonging to the collection of the School Physics Laboratory some of which are historical instruments. Examples are the Cavendish apparatus and the Foucault pendulum. The teaching-learning sequence can be divided into three parts. The first one started with an Object Based Learning activity and then developed in the study of different historical models for planetary motion from the Ptolemaic to the Keplerian system. The central part consisted in classroom lessons with explanatory exercises

about forces, energy and the dynamics of planets and satellites in the solar system. Interactive simulations complemented the lessons and the work on instruments.

In the third part, students worked in groups with the aim of producing either a video or a presentation about the history of an instrument or of an experiment related to gravitation. The conclusion was the organization of a visit to the School Museum offered to several guests in which students described some of the instruments and their role in the construction of knowledge about the Universe.

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