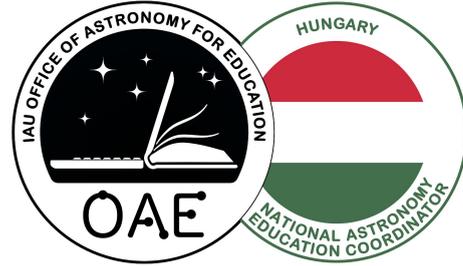


# Astronomy Education in Hungary



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This overview is part of the project "Astronomy Education Worldwide" of the International Astronomical Union's Office of Astronomy for Education.

More information: <https://astro4edu.org/worldwide>

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**Structure of education:** Compulsory schooling in Hungary lasts from 6 to 16 years of age. Children start school at the age of 6 and are supposed to attend school until the age of 16, two years earlier than coming of age, that is to say turning 18. The majority of children go to state schools, there are few private schools – some of them offer alternative educational methods –, and an increasing number of ecclesiastic schools (mostly Roman Catholic, Calvinistic, evangelical, and Jewish religions). Before starting school, children are required to attend nursery school (kindergarten).

The official language of instruction is Hungarian, but a number of ethnic and national minorities (e.g. German, Romanian, Slovene, Serb and Croatian) have minority educational institutions with their own languages as first or second language of instruction at primary and secondary level of teaching.

Elementary School: All pupils start at elementary school (1st to 8th form) and after 4th form they can decide whether to stay or transfer to an eight-form grammar school. This possibility is offered again after 6th form as a transfer to a six-form grammar school, and many talented and academically advanced children take this opportunity.

Subjects taught in elementary schools include literature, grammar, mathematics, music, art, Physical education, environmental studies (from 1st to 5th grade), biology (from 6th grade), geography (from 6th grade), history (from 5th grade), history of art, physics (from 6th grade), chemistry (from 7th grade), one or two foreign languages (usually English, German or French).

Secondary School: Secondary education is also offered by grammar schools, where the focus is purely academic and the aim is to prepare pupils for continuing their studies at college or university. Students are required to take a school-leaving exam (matriculation) at the end of 12th form. Matriculation consists of exams on five subjects: written exam in mathematics, verbal and written exams in Hungarian literature and grammar, a foreign language, history, and written and/or verbal exam in a subject of the student's choice. These exams also serve as an entry exam to universities and colleges. In vocational schools pupils are taught practical skills needed to perform a particular job, like carpentry, gardening, etc. These schools give a trade certificate but pupils are not prepared for the school-leaving exam (matriculation) that is required to enter higher education. If someone would like to learn a trade and enrol into higher education afterwards, the best choice for them is the secondary vocational school offering tuition in both practical and academic skills, finished by matriculation.

Higher Education: At present, higher or tertiary education in Hungary is based on the Bologna system, which is in force in most European countries, making studying abroad much easier. Students who complete their first 3 or 4 years of study earn a Bachelor's degree and can continue their studies to earn a Master's degree, which takes 1 or 2 years. This division is not applicable in Hungary if you study to be a lawyer, medical doctor, vet, dentist, pharmacist, or an architect. The highest level is the doctoral degree (PhD), which means another 3-4 years of study. Students are supposed to pass at least one intermediate level foreign language exam as part of their studies in order to be awarded their

degrees. The most significant university towns in the country are Budapest, Szeged, Debrecen, Pécs, Miskolc and Győr.

**Education facilities:** Hungarian schools have typical class sizes of about 30 pupils. All Hungarian schools have access to running water and internet connections but the number of available computers is usually insufficient for a whole class. School buildings are generally moderately maintained. Elementary and secondary schools are usually well equipped with facilities necessary for teaching except smaller elementary schools in the countryside. The most important problem of the teaching system in Hungary is the low salary of the teachers which results in shortage of teachers especially in disciplines of mathematics, physics and chemistry.

There is no organised transport to school because the public transport is satisfactory throughout the country.

**Governance and organisation:** Public (state) schools are run by local district and city councils. The Curriculum is set by the central government and is the responsibility of the Ministry of Human Resources. The curriculum was reformed quite recently.

**Teacher Training:** Primary school teachers graduate from pedagogical faculties of a university. Teachers of physics in secondary schools study for a degree teacher of physics plus another discipline (usually mathematics or chemistry). Teacher training for those already working is typically done occasionally.

**Astronomy in the curriculum:** There are no specialised school courses in astronomy. Instead, astronomy content can be found in Geography (7th grade of the elementary school, position and motion of the Earth in the Solar System), and Physics (last year in secondary school, elements of astrophysics and cosmology). The big problem here is that most teachers are not sufficiently prepared to teach astronomy, although they attended a semester course on general astronomy at the university and took an exam (years or decades ago). Nevertheless, astronomy related problems are usually included among the problems to solve in physics matriculation.

**Astronomy education outside the classroom:** Dissemination of astronomy is practically based on activity of professional astronomers (about 20–25 scientists from among cca. 100 astronomers working in research institutes and universities in large cities in Hungary) as well as dozens of amateur astronomers distributed throughout the country. Here the keyword is enthusiasm of the educators. Various forms of education: public oral lectures, telescopic observations and demonstrations of celestial bodies at public places and professional public observatories, sky shows in permanent and mobile planetaria, media appearances. There are several public observatories in the country, a few of them are open on a regular basis. Maintainers are usually educational institutions, associations, foundations or municipalities. Many well-equipped private observatories also welcome visitors occasionally.

Dissemination of astronomical knowledge is mainly organised and supervised by the Hungarian Astronomical Association (HAA). The HAA publishes a yearbook and the monthly periodical Meteor full of useful articles and other information on various fields of astronomy. The news portal (<http://www.csillagaszat.hu>) reporting on new results on astronomy, is exemplary.

The National Astronomy Student Competition for primary and secondary school students is announced separately each year. Three rounds take place on the Internet, then an oral final is organised for the best teams. Hungary was the host of the XIIIth International Olympiad on Astronomy or Astrophysics in 2019.

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For specific information about astronomy education in Hungary or on this document please contact the Office of Astronomy for Education ([oe@astro4edu.org](mailto:oe@astro4edu.org)).