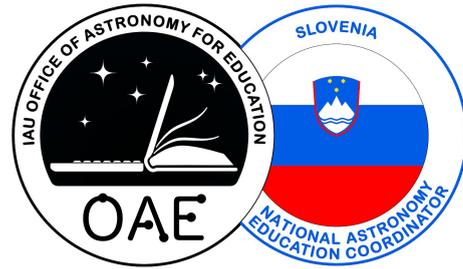


Astronomy Education in Slovenia



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>

Structure of education: Preschool education is aimed at children aged eleven months to six years or until children start compulsory primary education. It is not compulsory. Primary and lower secondary education is organised in a single-structure nine-year basic school attended by students aged 6 to 15 years. It is provided by public and private schools (less than 1 % of students attend private basic schools), as well as educational institutions for SEN children, and adult education organisations. After nine years of compulsory basic education students may continue to two-to five-year non-compulsory upper secondary education. The general matura is a national examination at the end of upper secondary general education. The general matura also grants access to higher education to adults who have either dropped out of education or their prior education does not allow them to enrol in higher education programmes. The general matura is an external examination at the national level that students take at the end of the gimnazija programme. Students take exams in five subjects. Three subjects (Slovenian (Italian/Hungarian) language, mathematics, and a foreign language) are compulsory, while students choose two additional subjects from an approved list (astronomy not included). The successful completion of the general matura examination grants candidates the right to enter the academic and professional study programmes at bachelor's level, integrated master's programmes, and short-cycle higher vocational study programmes. Students who have successfully completed a technical upper-secondary education programme take a vocational matura. Passing the vocational matura examination gives students the right to enrol in professional higher education study programmes or short-cycle higher vocational study programmes. The language of instruction is Slovenian; the Italian and Hungarian national communities and their members in ethnically mixed areas have the right to education in their respective language. The Constitution also protects the status and gives special rights to members of the Roma community who live in Slovenia. The children of migrants have the right to compulsory basic education under the same conditions as other citizens of the Republic of Slovenia.

Education facilities: Slovenian schools are generally well-equipped with modern didactic devices that enable an interactive learning experience, which is important for more abstract subjects and practical work (physics, chemistry, biology, astronomy). About 90% of elementary and high schools are equipped with telescopes and other astronomical equipment. By law, the maximum number of students in elementary schools is 28 per class.

Governance and organisation: In the Republic of Slovenia, the education system is organised mainly as a public service rendered by public and private institutions and private providers holding a concession who implement officially recognised or accredited programmes. By law, public schools are secular and the school space is autonomous. Education staff at public education institutions enjoy professional autonomy over their teaching practice. Public upper secondary schools, short-cycle

higher vocational colleges, higher education institutions, educational institutions for SEN children and residence halls for upper secondary and tertiary students, as well as supporting professional institutes in education are founded and financed by the state. Public kindergartens, basic schools, residence halls for basic school students, music schools and adult education organisations are funded by municipalities.

Teacher Training: Slovenian professional astronomers organised under the Society of mathematicians, physicists and astronomers of Slovenia (DMFA Slovenije) are paying a lot of attention to the education of teachers and mentors in schools (through workshops), we have prepared a wide range of materials for children, students and teachers for learning and teaching astronomy (available on www.portalvvesolje.si, in Spika, Presek etc.).

Astronomy in the curriculum: For first time astronomy became a part of the formal high school curriculum in the 1960s. In 1999 a 3-year curriculum of astronomy (as elective course) for elementary schools was accepted by the Ministry of Education. During the International Year of Astronomy 2009 a new curriculum for a high school astronomy (elective) course was prepared and is now formally accepted in grammar schools. Children encounter elementary concepts of astronomy (sun, moon, motion of sun -shadow, moon phases) at age between 7 and 8. More information about the Solar system appears at age 11 as a part of geography.

Astronomy education outside the classroom: Slovenian astronomers, despite being a small community, have long since recognised the value of astronomy in promoting science at all levels, from elementary schools to university programs. There is an over a century long tradition in popularization of astronomy in Slovenian national press, magazines, scientific magazines, magazines for science in schools and other media. Since 1993 a monthly astronomical magazine Spika, has been in press and dedicates a large part of its content to astronomy education. Children's first non-formal contact is often at age 4 or 5 because in Slovenia we have a special magazine Ciciban for preschool children, that is very popular and it has a special section about astronomy. In 2009 the DMFA introduced The National Olympiad on Astronomy for elementary and high school students. Today, about 40 % of all schools in Slovenia are involved in this competition. Since 2013 our students have also competed in the International Olympiad on Astronomy and Astrophysics and other international astronomical competitions where they have achieved excellent results (e.g. Aleksej Jurca was the absolute winner of the international Olympiad on Astronomy and Astrophysics 2017). We are working to create a programme which would incorporate more girls into sciences, with an emphasis on astronomy. Furthermore, We especially value that the participation in international competitions has given us the possibility of establishing relations and sharing different approaches in astronomy education with astronomers from 50 different countries.

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