

Astronomy Education in Russia



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: Children begin formal schooling at aged 6.5 or 7 after 4 years of kindergarden. There then follows four years of primary education. Secondary school is compulsory for five years. In the final year of compulsory study students take Basic State Examinations in 4 subjects. Students can choose to remain in school for two more years where they can study for admission Highers (in the final year they have 5 Centralized state exams). In case of leaving school after 9 compulsory years, children continue their education in colleges, while simultaneously acquiring a profession. All years of education at public (state) schools are free of charge.

There are also private schools, the number of which is gradually growing. Schools are subordinate to education departments, which in turn are subordinate to regional ministries, and then to the Federal Ministry. Legally, public schools have different powers from autonomous with broad powers to state-owned, subordinate to higher organizations. The autonomy of schools is expressed in the freedom to develop and adopt educational programs, concluding contracts with external counter-agents, and so on.

The education is provided in the state (Russian) language, but in the national republics that are part of the Russian Federation, education is provided in national languages (for example, Tatar, Ukrainian, Buryat, etc., there are a lot of such languages). There are Orthodox or Muslim schools, but there are not so many of them.

Education facilities: Russian schools have typical class sizes under 30 pupils. Standard schools differ significantly. Nowadays schools are being built in the Russian Federation at the expense of Federal funds. They are large, with spacious premises, with excellent technical equipment, with high-speed Internet. However, there are still a lot of small schools in the country, especially in the villages. There is a National program for re-equipping schools in Russian Federation.

Governance and organisation: Education is conducted according to the Centralized Federal standards throughout the country, but the standard assumes variability in the school administrations and teachers choice of different curricula and different textbooks according the Federal standard. Currently, four astronomy textbooks of different authors recommended by the Ministry of education and many other methodology materials are available for schools in the Russian Federation. The textbooks are provided to students free of charge.

Teacher Training: All regions of the country have their own teacher training Institutes, pedagogical institutes, and educational development institutes, where teachers are regularly trained and retrained at the expense of regional budgets. At the same time, there are many paid advanced training courses, full-time and online, available to any teacher. Professional development can be carried out both on-the-job and out-the-job.

Astronomy in the curriculum: Starting from the 2017/2018 academic year, after a break of two decades, all schools and colleges in Russia have resumed studying astronomy in 10th or 11th years (at the school's discretion). You can study the course partly in the 10th and partly in the 11th grade. The training program is designed for 35 hours. Every student in the Russian Federation must get a grade in the certificate at the end of school or College for this separate subject. The course covers all major areas of astronomy, including elements of cosmogony and cosmology. In addition, fragments of elementary astronomy (for example, the structure of the Solar system, solar and lunar eclipses) are taught in primary and secondary schools: the course "The World around us" (4th year), the course "Physical geography" (1st year of secondary school), the law of gravity, "Physics" (5th year of secondary school), etc. Children know the composition of the Solar system from kindergarten. In the Russian Federation, since Soviet times, the national school astronomy Olympiad has never stopped functioning, which includes the following levels – school level. Municipal, regional, and national (All-Russian). The winners of the All-Russian Olympiad achieve a very high level of astronomical knowledge and traditionally become prize-winners and winners of international Olympiads.

Astronomy education outside the classroom: In many cities of the Russian Federation, there are centers for additional education, where you can attend various clubs and associations, including astronomical ones. There are many astronomical classes and clubs at the planetariums, schools, including telescope construction and astrophotography classes. Students have the opportunity to take part in the festivals of astronomy lovers – Astrofest (Moscow) and Sibastro (Siberia, Novosibirsk). Students of the Russian Federation can take part in the Asia-Pacific astronomical Olympiad, and more recently – in the Olympiad "URSA Minor" for 12–14 years old students, which is held on the basis of planetariums. Schoolchildren and students have the opportunity to visit planetariums. In some cities, such attendance is free for schoolchildren, at the expense of city funds or for little money. Astronomical observatories in the Russian Federation practice excursions for schoolchildren both paid (for little money) and free. In the centers of additional education, astronomical clubs work according to independently developed programs. Usually children attend such a club for several years. In the first years, they study constellations, the principles of orientation by stars, the study of the Solar system, then the basics of astrophysics. High school students are engaged in solving Olympiad tasks, preparing research papers for scientific conferences. The state fully or partially finances special astronomical sessions in summer specialized camps. Children who have already distinguished themselves at astronomical conferences or Olympiads come to such camps. The universities have youth aerospace schools and astronomy clubs. Such organizations operate either at the expense of educational institutions or on a commercial basis. Secondary and high school students usually attend them.

Currently, universities independently organize various (including international) conferences, Olympiads, festivals among schoolchildren and College students to attract talented students to study in certain specialties. Prize-winners at such events are granted benefits for admission to the university.

The International Astronomical Union's National Astronomy Education Coordinator (NAEC) Team for Russia: Pavel Skripnichenko, Ekaterina Tikhomirova, Sergey Yazev, Irina Feoktistova, Alexander Yartsev

For specific information about astronomy education in Russia or on this document please contact the Office of Astronomy for Education (oea@astro4edu.org).