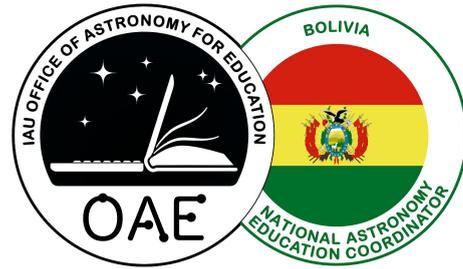


Astronomy Education in Bolivia



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: Every formal school in Bolivia enters in a classification of public, private or agreement school. Following names as official in education ministry of Bolivia. First is the subsystem of regular education that considers: community initial education, not schooled from 1 to 3 years (not compulsory) and schooled from 4 to 5 years; consequently it is the vocational community primary from 6 to 11 years; ending with productive community high school from 12 to 17 years old. This is considered as humanistic technical studies or medium technician. In addition to this subsystem, there is a subsystem of alternative and special education and the subsystem of higher education for professional training. Most schools are taught in Spanish language, moreover English and Traditional language (Aymara, Quechua, Guarani) are subjects part of curricula. Most schools are non-religious. People are almost 11.35 Million in Bolivia, from which 35% are children.

In 2018 95.364 children and 62,401 adolescents were considered out-of-school.

The proportion of young people who completed the compulsory schooling period doubled during the last report of UNESCO – SITEAL period 2005-2014 the ratio is 59.2% of people aged 25 to 35.

Education facilities: Bolivian schools have typical class sizes under 30 pupil, normally a classroom for all subjects in primary school and dedicated classroom for sciences, music and computer sciences in high school. Furthermore, an amount of schools in rural area have designated classroom for all subjects. Normally private schools present more facilities. Since 2017, the Ministry of Education has been equipping the Physics, Biology, Chemistry and Geography laboratories on public schools. In the latter it equipped with equatorial telescopes, models of the solar system, and globes. In total, 700 schools were benefited.

Governance and organisation: Normally Bolivian schools are run by local districts by the Education departmental direction, directly dependent of ministry of education. Moreover the management of private schools depend on National Association of Private Schools (andecop) framework. The last reformation of curricula and educational procedures in front on Bolivian education system is the "Avelino Siñani" law, that was established on 2010 and suffered changes on products and class planning for public educators regularly. Therefore, each year a Ministerial Resolution (RM) is presented for educators and institutions that details changes, requirements and products for the educational year implementation.

Teacher Training: Primary school teachers mostly study on universities and normal institutes for education. Secondary physics teachers either study for a joint degree in physics and education at a university, or study for bachelor education qualification on physics and mathematics education degree. For the last 10 years, the scope and planning of curricula for these studies was based on "Avelino Siñani" law and education system established by the last government on role. Through the

NOC – IAU office, initial trainings were given and manuals were helped to develop work with Astronomical equipment provided by Ministry of Education. However, these trainings have yet to be strengthened and practical workshops provided.

Astronomy in the curriculum: Astronomy is no official subject inside official curricula of compulsory schooling in Bolivia. Specific topics for Solar System, Universe and Star evolution can be found on social sciences and natural sciences during primary school. Once students include scientific method on curricula for high school this topic can be found as part of Physics with topics of astronomy of time, gravitation, dynamics and keplerian movement which is on consideration of school teachers' development of class. During the last years of studies, most demanding schools for exact sciences can reach for the basics of calculus and applied physics. Moreover, other schools also develop a low level of general sciences curricula before university.

Astronomy education outside the classroom: A considerable amount of schools, minor of 20 are considered for developing outside Astronomy clubs and groups, expending formal time on dedicated Astronomy. Mode of working for these are: diverse classes, cinematic debates, observation with instrumentation and sciences olympiads preparation. Most of these schools consider a dedicated teacher in charge of these activities, normally related with a physics subject. A big group of professors who were trained independently, develop observational astronomical activities dedicating extra hours from their curricula in order to motivate students. Some are even from rural regions. Furthermore, astronomy groups, university student's initiatives, cultural centers and astronomy activists, develop consecutive reunions and classes where a student can be included. This last option is considerable useful for Amateur astronomy and initiation for school students. In the last period of time, due to pandemic context, notarial increase of online diffusion activities were made during 2020.

The International Astronomical Union's National Astronomy Education Coordinator (NAEC)

Team for Bolivia: Gabriel Andres Jaimes Illanes (Chair), Paola Daniela Ochoa Paniagua (Contact)

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