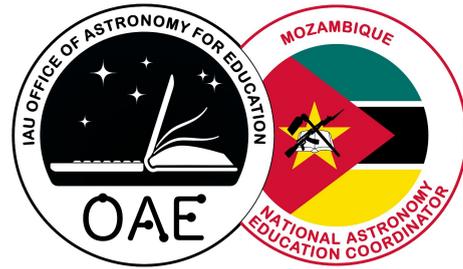


Astronomy Education in Mozambique



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 after some years of the nursery (kindergarten) for some of them. There then follows seven years of primary education which are compulsory and almost free of charge in the public system. Secondary school is divided into two groups, from grade 8 to 10, where the pupils study all subjects offered by the national education system for the first three grades. And, grade 11 and 12, where students can choose to study natural sciences or social sciences, with some variations of subjects according to the "section" they choose. In grade 3, 5 and 7 of primary school and grade 10 and 12 for secondary schools, students take National Level qualifications in some subjects. After grade 12, students apply for admission examinations to the University. Basically, they are evaluated in two main subjects for the course they want to pursue. In the country, we have public and private (independent) teaching institutions using mainly Portuguese as the main language. Most of these teaching institutions are non-religious.

Education facilities: Mozambican schools have typical class sizes of about 50 pupils. Most Mozambican schools have no access to running water and internet connections, but, maybe due to the pandemic situation (COVID-19), it will change. The government is working on these issues in order to allow virtual lessons and prevent the spread of contamination by the coronavirus in the schools.

Governance and organisation: Public (state) schools are run by local district and city councils. The Curriculum is set by the central government (represented by the Ministry of Education and Human Development) in Maputo. The curriculum was last reformed in 2004 for primary education.

Teacher Training: In general, the teachers for Primary and Secondary Schools are trained by Centres created and managed by the government. These centres, with nodes in all 11 provinces in the country, strongly take into consideration the psychopedagogic methods which represent one of the main requirements for teaching in primary and secondary schools. To keep the teachers updated, the government promotes some training initiatives when there are some international fundings.

Astronomy in the curriculum: There are no specialised school courses in astronomy. Instead, astronomy-related contents can be found in the primary education (grades 3, 4 and 7) in the course of Natural Sciences, and secondary education in grades 10 to 12 in the course of Physics. In grade 3 the sun is presented as the main source of the light for us and in grade 4 the main topic is the human eye (the "primary telescope"). In grade 7 the most important topic related to astronomy is the sun and seasons of the year. In grade 10 the main topics are the gravitation and artificial satellites of the earth, but in this grade, the following are also discussed: kinetic molecular theory, the Doppler effect, properties of electromagnetic waves, optical equipment and magnetic spectrum. In grade 11, the

projectile launching, conservation of linear momentum, mechanical energy, collisions, magnetism and the terrestrial magnetism are presented. In grade 12, the following topics are discussed: The electromagnetic radiation and its spectrum, black body radiation, optical spectra and nuclear reactions. It is worth to say that in many cases, these contents are mainly discussed without any explicit linkage between them and astronomy, although we know that they have so much importance in astronomy. In the last years of secondary education, students are mainly introduced to the concepts of luminosity, flux, emissivity, parameters used in Astrophysics. In addition to these concepts, they are exposed to an introduction to quantum mechanics, where they learn about the nature of light, the electromagnetic spectrum, Planck's law, black body, Wien's law, Bohr's hydrogen theory, and hydrogen spectrum. They also learn optical concepts such as refraction, reflection, dispersion, and optical components.

Astronomy education outside the classroom: The Astrophysics and Space Science Group at the University Eduardo Mondlane runs several educational activities in public places.

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