Astronomy Education in

Mali

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: The education system in Mali is divided into two main sectors: National Education and Higher Education. There are no schools for specific ethnicities. There are private denominational schools. Public education is secular and free.
National Education includes basic or fundamental education, general secondary education, technical and vocational education, normal education and finally literacy and denominational education.
Basic or fundamental education includes nursery schools (kindergartens), the first cycle (6 years) compulsory, the second cycle (3 years) compulsory and schools for the blind and deaf-mutes.The entrance age to the public undergraduate is 6 or 7 years old.
Basic education is essentially public. But private education has grown significantly in recent years. Almost all Franco-Arab schools and medersas are private.Teaching is done in French for the official programs (compulsory) and in Arabic for religious subjects in the medersas. In all these schools English is introduced in the second cycle. However, there are private schools that introduce English from the first cycle.
General secondary, technical and vocational education includes classical and technical highschools (3 years) and technical and vocational schools (2, 3, or 4 years). It is largely dominated by the private sector, receiving the pupils (and the subsidy) from the State and carrying out the official programs.
Normal education includes teacher training institutes, IFM (4 years or Bacc + 2 years).

Education facilities: The schools are relatively well built for an average of 60 students per class. They don't have an internet connection. They are generally served by running water or by a drilling system. School transport is almost non-existent. The dilapidation of buildings is very marked in the public sector despite efforts to renovate classrooms.

Governance and organisation: The government through the Ministry of Higher Education And Scientific Research and the Ministry of National Education defines the programs of compulsory education. All schools are run but the central government.

Teacher Training: The IFM train all teachers of the fundamental cycle for the official program in French and Arabic. Entrance to the IFM is by competitive examination after obtaining the DEF (4-year cycle) or the baccalaureate (2-year cycle). The DEF is the diploma that certifies compulsory basic education (9-year cycle). There are training schools for pre-school supervisors and teachers of denominational subjects.
In general secondary, technical, vocational and normal, teachers are trained at the level of the higher normal school(ENSUP) for all classical subjects (for a 2-year cycle) and by other schools or the faculty for specialist subjects (there is no pedagogical training). Entrance to ENSUP is by competitive

examination after obtaining a license in a faculty. At the higher level there is no teacher training school. Recruitment is done on the basis of a doctorate or, if necessary, a research master's degree.

Astronomy in the curriculum: Astronomy is not included in school curricula as a subject. It fits into geography, geology and physics lessons.
In the 4th fundamental year, children study orientation (the 4 cardinal points), the Earth in space (shape and movements, day and night) and the notion of climate (including the seasons). In the 5th fundamental year, the notion of atmospheric pressure is approached.
In the second basic cycle in the 7th year class, geography is covered: the Earth in space–shape and dimensions; orientation–location of a point on the surface of the earth; the movements of the earth and their geographical consequences; the atmosphere–definition and constitution; climate elements and zones.
In the 8th fundamental year, the constitution of the Earth and the notion of tectonics are approached in geology and in physics the notion of the weight of a body are encountered. In mathematics the notions of trigonometry are first introduced.
In the 9th year fundamental class, the following topics are covered in physics: the weight of a body; the principle of reciprocal actions; the change in the weight of a body–the relationship between weight and mass.
In high school in the 10th year class (seconde) in geography students encounter: the earth, situation, form, constitution; movements and consequences; climate, atmosphere and climate elements. In optics-rectilinear propagation of light with its applications: shadow, penumbra, concept of eclipses; reflection of light with applications: plane mirrors; spherical mirrors; prisms; lenses.
In the 11th year (first) in geology students study topics such as plate tectonics, stratigraphy and paleontology. In physics students encounter the notions of kinematics, dynamics, gravitation; spectra and stellar temperature.
In the 12th year (terminal) physics students study periodic movements, Newton's laws, gravitation's law, Kepler's laws, absorption/emission spectra, temperature of stars, properties of light and optical systems.
At the university, astronomy is an optional subject in the first year of the faculty of science and technology. It is dispersed in several different subjects.

Astronomy education outside the classroom: Activities for the popularization of astronomy are carried out by the Association for the Popularization of Observational Sciences and Scientific Culture (APSOCS–Popusciences). There is no planetarium or observatory in Mali.

The International Astronomical Union's National Astronomy Education Coordinator (NAEC) Team for Mali: Abdoulkarim Aliou (Chair and Contact Person).

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