



EXPERIMENTAL ACTIVITIES



CATALONIA, SPAIN

CENTRE DIDÀCTIC DE CIÈNCIES EXPERIMENTALS

Official aspects

Technical aspects

PRIMARY SCHOOL

Natural sciences in primary school are timetabled for 3 hours per week. There is no obligation to undertake experimental work. However, if it is undertaken it must be within the timetable of three hours per week. Teachers can obtain advice in the Pedagogical Resource Centres (CRP in Catalan). There is a CRP for each territorial area. Teachers who undertake activities have advice available if required and training courses. In the case of working for projects, this will be within the timetable.

Between 25 and 30 students per classroom according to the organisation of the centre. All students do the same, but more reduced groups are formed with auxiliary teachers according to the needs. There are no laboratory technicians. It is not obligatory but schools that favour experimental work have a coordinator, responsible for maintenance. Practical work in the laboratory is undertaken in small groups.

Technical aspects

SECONDARY COMPULSORY SCHOOL

Official aspects

Classes use the laboratory in small groups, one hour per week. In the first and third year it is biology and geology. In the second and fourth year physics and chemistry. Each year is 3 hours per week. There is the possibility of doing one hour per week of experimental work, but there is no obligation imposed to undertake a determined number of practical activities. The centre can offer options to widen the experimental work in the form of blocks of 30 hours per year. Teachers who undertake activities have advice available if required and training courses.

There is a maximum of 35 students per classroom, normally there are around 30. The centres have physics, chemistry and natural sciences laboratories (biology and geology). All centres also have a new technology for science classroom with computers and EXAO programs. There are no laboratory technicians. The experimental work is organized by the teacher. Normally it is undertaken in groups of three or four students. The Department of Education provides equipment and products for experimental work. Material can also be requested for loan in the resources centres and in the Centre of Documentation and Experimentation in Science and Technology (CDECT). There are no practical laboratory work exams.

Technical aspects

UPPER SECONDARY SCHOOL

Official aspects

The centres are the same that those for lower secondary education. There are two routes for higher secondary school science and technology: In the first route mathematics and physics are compulsory. In the second biology and chemistry are compulsory. Students must choose two more science subjects. Each subject has three hours per week. There is no planned timetable for experimental work. Each centre can offer an optional practical work subject of two hours per week.

There are around 20 students per classroom in science subjects. The centres have physics, chemistry and natural sciences laboratories (biology and geology). All centres also have a new technology for science classroom with computers and EXAO programs. There is no obligation imposed to undertake a determined number of practical activities although practical work is recommended. In fact there is no time to do it. There are no laboratory technicians. The Department of Education provides equipment and products. Material can also be requested for loan in the resources centres and in the Centre of Documentation and Experimentation in Science and Technology (CDECT). There are no practical laboratory work exams.

Questions our STA would like to discuss about practical work

1. How can we improve our communication and exchange about experimental practical work experiences and projects in secondary school among teachers and associations from different European countries?
2. How could we improve conditions of doing practical work in schools, particularly in those countries where educational administrations are not very much sensitive to this important aspect of the science education?
3. How can we contextualize the practical work in schools: practical work related with science applications and technology and society rather than formal practical work related with concepts?
4. How could we get to introduce more open (investigative) practical work in schools and to improve teacher training in this aspect?
5. How is the best manner to assess practical work and how could we introduce the assessment of practical work in our internal and external examinations?