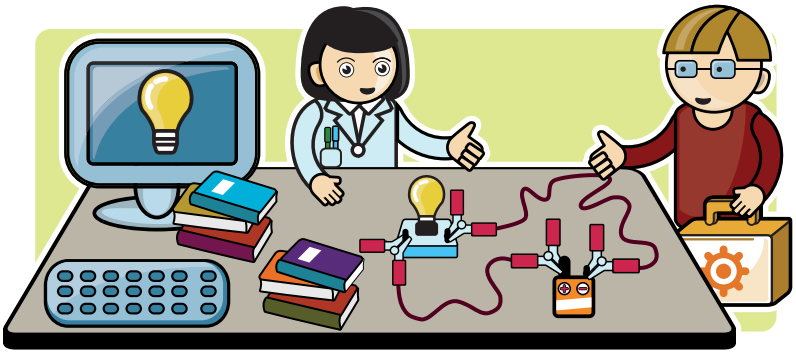
Supporting the production of resources



What does this consist in?

Supporting teachers in classes and in teacher training are all opportunities which produce at the end of the day different resources for teachers. This often requires a team effort combining different skills (scientists, specific course tool designer, trainers, experienced practitioners…). It also requires careful proofreading and validation by the different players involved in science training in schools.

There are two types of production:

- **books that offer scientific activities for the classroom:**
  Often organised around a central theme and arranged according to an interdisciplinary approach, this type of book requires a solid scientific background and therefore the support of a scientist, laboratory or research institute can be highly valuable.
- **equipment kits:**
  The opinion of a scientist concerning equipment kits generally available in science resource centres can be very valuable. While the scientific tutor can provide an opinion on the experiments offered, it is equally essential that he verifies the precision of the associated protocols and eventually adapts these if necessary with additional scientific information for the teacher.
- **books on scientific culture more specifically designed for teachers:**
  The scientific tutor can also take part in the writing of science books or scientific files for primary school teachers.

- **websites or ICT media (CD, DVD):**
  More and more research institutions are providing teachers with resources via their websites. These initiatives should however comply with school curricula and make sure that the documents provided can be used inside the classroom.

Testimony

To design a pedagogical guide on climate change, we set up three "concentric circles" made up of authors, teacher-testers and a group of experts in the field. Each circle was also pluridisplinary and included scientists, specific course designer, teachers and trainers.

The first six months of the project enabled the authors to produce an initial pedagogical framework and submit it to, on the one hand, the teacher-testers and, on the other, the scientific and pedagogical experts. Once this structure was validated and finalised in the form of a workable "turnkey" pedagogical module, it was tested in about 20 classes.

The tests and their analyses took five months and enabled us to take into account the difficulties linked to the organisation of classes (timing, equipment, prerequisites...) and the experience of the teachers (certain being highly experienced while others were beginners). The final pedagogical module is the product of very rich exchanges between teachers, trainers, specific course designers and scientists.

David Wilgenbus,
Co-author of the project *"Le climat, ma planète...et moi!"*

A few characteristics and guidelines for effective practices

- The production of resources is the result of a collective work by people with a wide variety of skills in science, pedagogy, educational tools / design of courses...
- Resources are tested in advance in order to take into account observations based on practical experience.
- Class documents are completed by scientific and pedagogical backgrounds so that the teacher can appropriate the scientific notions involved and use the resources without difficulty.

EMNantes equipment kits

Equipment kits developed with the help of teachers are disseminated by scientific tutors.

These kits contain all the equipment required to set up a science session on a given theme. A guide book is also provided (it describes all the experiments and proposes how to progress in general).

The kit and guide book therefore provide **a base for setting up scientific activities** which enables the teacher to rapidly become operational by making sure he is freed of material constraints so that he can concentrate on the content and actual teaching of the session.

The teacher is free to choose the pedagogical approach.

Ludovic Klein, EMNantes Engineering School

Pitfalls to avoid, hurdles to overcome

- Producing a resource alone, especially when one is a scientist. There is a great risk of introducing too many understatements or not targeting the audience concerned – pupil or teacher.
- Introducing too many notions that would not be understood by the pupils using an inquiry-based approach.
- Providing a document or equipment… whose use is too restrictive. It is important to systematically provide the teacher with the possibility of adapting the resource in question to the level of the class or the project.
- Not providing the teacher with enough time to familiarise himself with the tool before using it.