

## Online resources for teachers

Following the path of *La main à la pâte* ([www.inrp.fr/lamap](http://www.inrp.fr/lamap)) for primary schools, the *Académie des sciences* is developing a website, with resources and exchanges concerning the project (<http://science-techno-college.net>).

Online resources include:

- Classroom activities, freely available;
- Documents to enrich scientific knowledge and pedagogy;
- Collaborative workspaces for teachers to promote interdisciplinary work, production and sharing of resources;
- Access to a network of scientific and pedagogic consultants;
- Discussion forums.



Interactive cooperative tools

## International activities

An international collaboration is emerging between several countries of the European Union (Sweden, United Kingdom...).

## Current partners (2007)

- French Ministry of education;
- *Académie des technologies*;
- *École normale supérieure* (Paris);
- *Fondation des Treilles*;
- French Ministry for higher education and research.

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*Beyond La main à la pâte...*



## Integrated science and technology teaching (grades 6-7)

Integrated science & technology teaching is an innovative program in France, started in 2006 in junior high schools. The objective is to offer a global approach in science classes to promote enquiry-based learning. With a single teacher, integrated science and technology projects aim at developing student curiosity and aspiration for experimental science and technology. During their investigations, pupils argue, reason, while acquiring valuable skills and advanced knowledge. This approach helps smoothing the transition from primary to secondary school and builds interdisciplinary links with other subjects such as language and mathematics.



conception: www.lezard-graphique.net



INSTITUT DE FRANCE  
Académie des sciences



## In practice

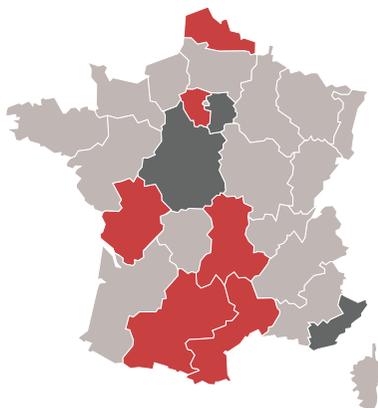
- ☉ Three groups (less than 20 pupils) are formed from two classes;
- ☉ A single teacher for each group, for sessions of 3.5 to 4.5 hours per week;
- ☉ Integrated teaching material in harmony with the national curriculum of three subjects - biology-geology, physics-chemistry, technology - traditionally taught separately in France;
- ☉ Constant coordination between teachers is organised;
- ☉ Support for the project brings together national and regional heads of educational departments, members of the *Académie des sciences* and of the *Académie des technologies*, University academics as well as engineers.

## Who and where?

- ☉ Secondary schools which registered their interest were chosen from several parts of France in 2006;
- ☉ In 2007, the scheme has been extended: a hundred teachers are officially experimenting the proposed program, and all resources are shared for other teachers to get ideas and freely join.



 involved since 2006  
 involved from 2007



Academic year 2006/2007: 7 regions, 19 secondary schools

Academic year 2007/2008: 10 regions, 29 secondary schools

## What do we do?

Progressive guidelines and teaching materials are available to teachers to help them engage enquiry-based pedagogy on solid scientific grounds.

### What is the world made of?

*Matter and materials (grade 6)*

A guide, offering learning units for a full academic year, available online since July 2007.

- ☉ What do we call matter around us?
- ☉ What is matter?
- ☉ Does matter change?
- ☉ How humans use matter for their benefit?

### « Entrées en matières »

*Matter and materials (grade 6)*

Resource book elaborated by professional scientists, coordinated by Etienne Guyon and Béatrice Salviat (Extracts available online from October 2007, publication at the end of 2008).

### How does the world work?

*Energy and Energies (grade 7)*

A guide, offering learning units for a trimester, available online since April 2007.

- ☉ What is making things change and move?
- ☉ What is needed to live?
- ☉ Where does energy come from?
- ☉ Which interaction with the environment?

*Beyond La main à la pâte...* is an experimental program since 2006. It was launched by the French *Académie des sciences* with the support of the *Académie des technologies*, the French Ministry of education and many partners of the scientific and industrial community.

This initiative follows the successful project of *La main à la pâte*, started in 1996 in primary schools by Georges Charpak (Nobel laureate in Physics), Pierre Léna and Yves Quéré, members of the *Académie des sciences*.

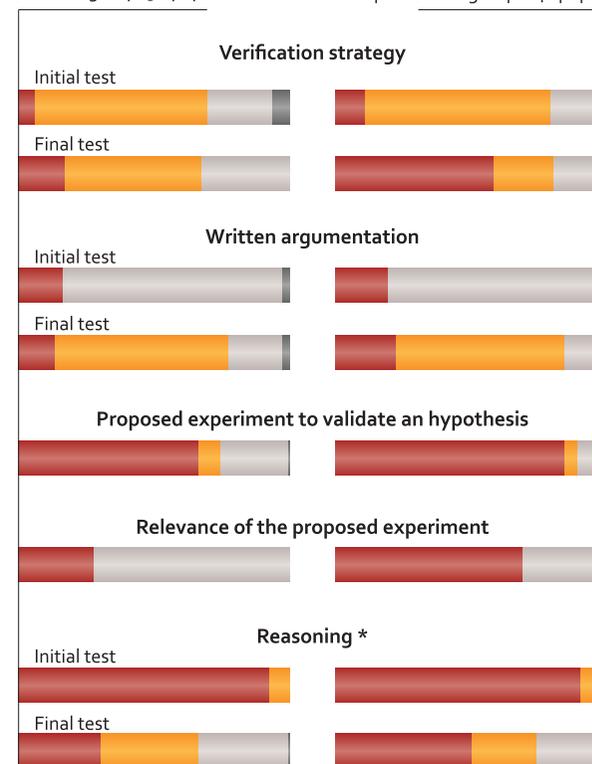
## Can we evaluate the impact of the project?

In 2006-2007, teams engaged in the integrated teaching project have assessed the project and compared their results with those of a traditional dissociated teaching of disciplines.

### Pupils evaluation in the region of Poitiers

Witness group: 90 pupils

Experimental group: 141 pupils



\* Initial reasoning test of elementary level at the beginning of the year. Final test of higher level at the end of the year.

 assimilated     partially assimilated     non-assimilated     no answer

Source: F. Dujardin, J.-P. Fabien, P. Potier, IPR