



INSTITUT DE FRANCE  
Académie des sciences



# *La main à la pâte* Some strategies for quality

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## *La main à la pâte*

- A project of the **Académie des sciences**, with many partners over the years 1996-2009 in France ;
- A formal relation with (a centralized) **ministry of education** ;
- Management : AS/DEF + a **full time team** (~ 25 ETP) ;
- Focused on **Grades 1-5**, then 6-7 (middle school) since 2006 ;
- Goal (primary school) : 300.000 teachers ; Present ~ 40 % ;
- Pilot centers : 3.000 teachers + 50 middle schools ;
- European & **international action** : ~ 50 countries ;

***La main à la pâte can only propose, use conviction and evidence***

## Quality : our lines of development

1. Resources for teachers : new modules ;
2. Health education & science ;
3. Coaching teachers : ASTEP ;
4. In-service training, professional development : new tools ;
5. Science and handicapped children (special education) ;
6. Middle school : integrated science *In the wake of Lamap* ;
7. A strategic international Workshop (2010) ;
8. Europe : *Fibonacci* (2010-2012) follows *Pollen* (2006-2008) ;

## 1. Resources for teachers : modules

**Principle** : *providing a ready-to-wear set of attractive classroom sequences, (with book and Internet)*

- *connected with other fields of interest of teachers,*
- *with a solid scientific background,*
- *complying with the official curriculum,*
- *with a **contractual relation** between individual teachers and Lamap (a book & through Internet) ;*
- L'Europe des découvertes ;
- Les sciences en pays d'Islam (2009) ;
- Mesurer la Terre est un jeu d'enfant (Eratosthenes);
- **Le climat, ma planète... et moi ! (2008)**
- **Calendriers, miroirs du ciel et des cultures (2009) ;**

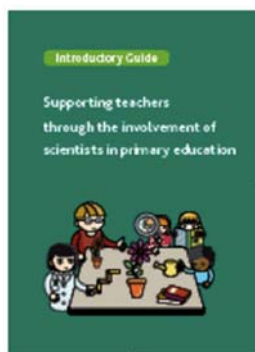
## 2. Health education & science

**Principle** : *connecting important issues of health education to an understanding of their rationals ; hence providing teachers a ready-to-wear set of classroom sequences,*

- *with a solid scientific background*
  - *with a contractual relation between individual teachers and Lamap (a book & through Internet) ;*
- 
- **Overexposure to the Sun** : Vivre avec le Soleil (2006) ;
  - **Obesity** : Manger, bouger pour ma santé (2008) ;
  - **Screen addiction** : Mon cerveau, un trésor à préserver (2010) ;

## 3. Coaching teachers : ASTEP

**Principle** : *organize nationwide the scientific/engineering community to coach and accompany teachers, locally or at a distance, with a **close connection to pedagogy** ;*



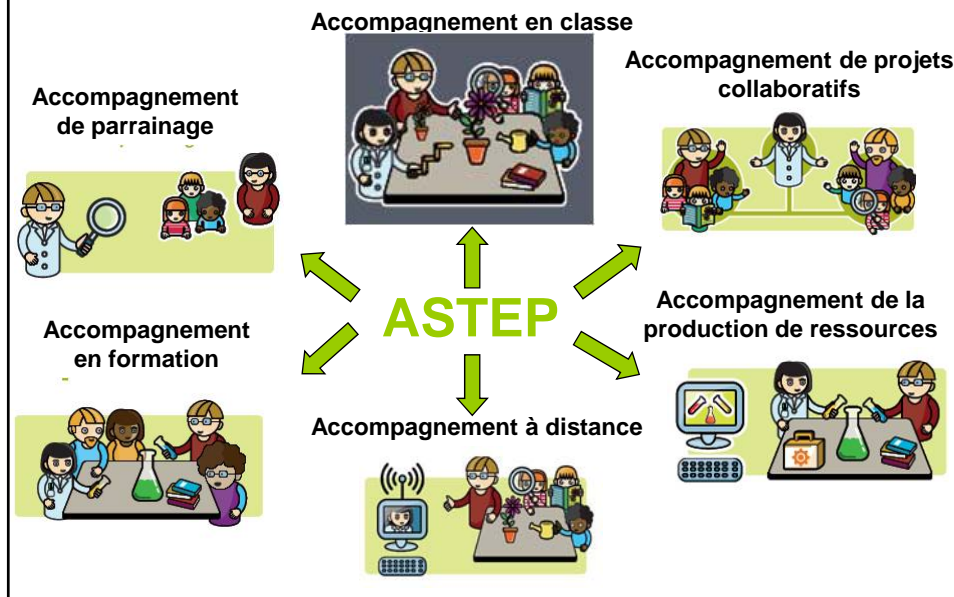
A charter



A network  
of local persons in charge

[www.astept.fr](http://www.astept.fr)

# A set of coaching suggestions



## 4. Professional development : new tools

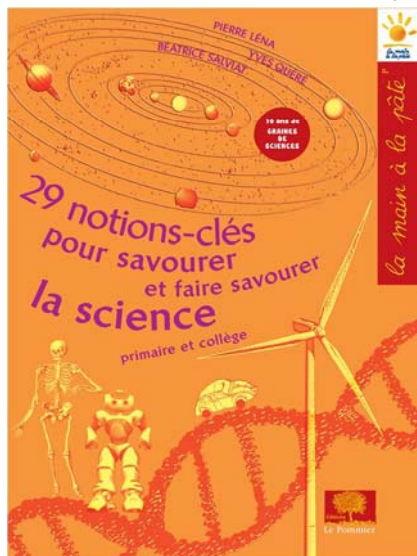
**Principle** : *considering PD as the key issue, but costly and large-scale, have a two-prongs strategy :*

- *self-training of teachers,*
- *tools for local trainers ;*
- A DVD with class « models » to be analyzed and discussed ; Spanish, English, Chinese versions available (2009), with an additional and critical analysis on line :  
[lamap.inrp.fr/DVDSciences/videoDVD.html](http://lamap.inrp.fr/DVDSciences/videoDVD.html)
- A set of « ready-to-wear » training sequences :  
[www.lamap.fr/?Page\\_Id=1117](http://www.lamap.fr/?Page_Id=1117)

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[www.lamap.fr/?Page\\_Id=1117](http://www.lamap.fr/?Page_Id=1117)

- Les bulles de savon
- L'élevage du « ténébrion meunier »
- Formation à la démarche d'investigation à partir d'activités d'analyse et de conception de séances en biologie (maternelle et C3)
- Formation à la démarche d'investigation à partir d'activités d'analyse et de conception de séances la mettant en œuvre en maternelle (MS/GS) (dominante biologique)
- Formation à la démarche d'investigation à partir d'activité d'analyse et de conception de séances en technologie (en maternelle)
- Formation à la démarche expérimentale à partir d'activité d'analyse de séance (en maternelle)
- Le rôle du maître dans le cadre de l'enseignement des sciences fondé sur l'investigation
- La mesure, entre mathématiques et sciences

## PD : enjoy science *per se*



*Light, matter, energy, universe,  
life, Man, environment,  
digital world*

A new book (2009)  
around «big ideas »  
for primary and middle school  
teachers and parents

## 5. Science in special education

Question : *how does IBSE applies to handicapped children ? Does it have special virtues for them ? If so, how could one adapt it ? ;*

- An experimental program carried in Toulouse (physical handicap) in a special school (2004-2007) ;
- Several special classes (CLIS, SEGPA) entering IBSE in various schools, with positive assessment ;
- An experimental DVD (in French, English, Chinese) realized in Toulouse's center ;
- International interest : Australia, China, Netherlands...
- A plan for a systematic research in France (09-10) ;

Why ?

## 6. Middle school (gr.6-7) : integrated science *In the wake of Lamap*

**Principle** : *after years of IBSE, all children deserve to continue in middle school,*

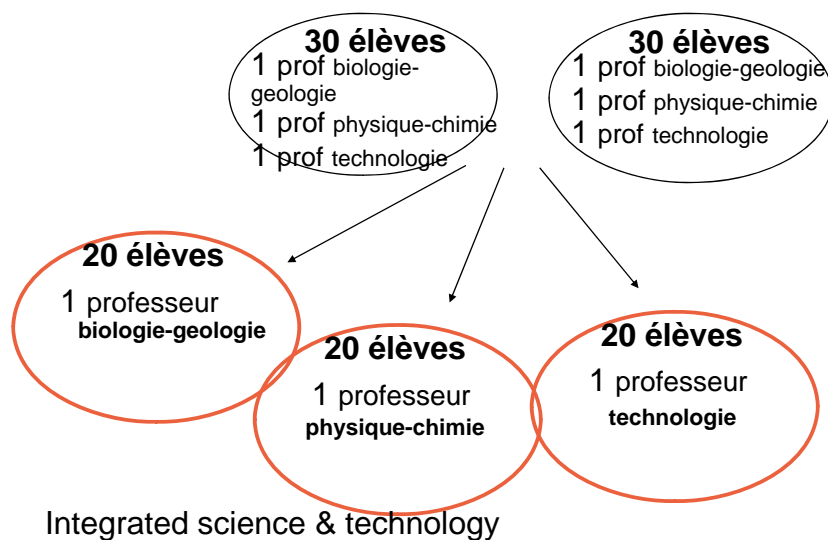
- *but let recognize the differences : disciplinary teachers, who know science ; student's age ; more compelling curriculum ; IBSE not unique.*
- *goal is to integrate disciplines into a science IBSE program*

- A new experimental program (2006) : 4 years ;
- A dedicated Lamap team: 3 FTE ;
- 20 -> 30 -> 40 -> 50 middle schools (~ 200 teachers) ;

## *Lamap* in middle school

- Same teacher for ~ 4 hours/week of science, year long ;
- Integrates : physics, chemistry, life and Earth science, technology ;
- The 3 teachers join for preparation, experiments, assesement ;
- Groups of 15 students per class ;
- Connecting science with French language and literature ;
- **GRADE 6 : Matter and materials ;**
- **GRADE 7 : Energy and energies ;**

## *Reorganizing classes....*



# A dedicated website

The screenshot shows the homepage of the website 'science & technologie au collège'. The header features the site's logo and navigation links. The main content area is divided into several sections:

- Entrées en matières, de nouvelles ressources pour la classe!**: A section announcing new resources for science classes, mentioning a book and a website.
- Une expérimentation d'enseignement intégré**: A section with a photo of students in a lab and text describing an integrated teaching experiment.
- Derniers messages du forum**: A list of recent forum posts with dates and titles.
- Dernières questions**: A list of recent questions from users.
- Partenaires**: A section listing partner organizations like 'Académie des sciences' and 'Académie des technologies'.
- Dernières infos**: A section with news items and dates.

<http://science-techno-college.net>

The image shows the cover of an official report. At the top right, it says 'Rapport n° 2009-1, mai 2009'. The central text reads:

Inspection générale de l'éducation nationale

**An official Report in 2009**

**L'enseignement intégré de science et technologie (EIST)**

note à  
Monsieur le Ministre  
de l'Éducation nationale

Robert Perrot, IGEN groupe Sciences et techniques  
Industrielles  
Gilbert Pletyk, IGEN groupe Sciences physiques et  
chimiques fondamentales et appliquées  
Dominique Rojat, IGEN, groupe Sciences de la vie et de la  
Terre

At the bottom left, there is a logo for 'la vie de la science' and a signature.



## 7. International cooperation

*Announcing an annual strategic Workshop  
from May 2010 onward*

**Principle** : *Sharing the resources and experience of the French Academy and Lamap needs to be reorganized around an exchange platform, to be held (yearly) in Paris during approx. 8-10 days.  
About 50 participants.*

## 8. Europe : *Fibonacci* (2010-2012) follows *Pollen* (2006-2008)

**Principle** : *develop a process of growth by dissemination*



*Curiosity....*



## To conclude

- Does curiosity play a key role in IBSE ?
- How to define curiosity ?
- Typology of behaviours ?
- Situations where curiosity lights up ?
- Evolution of curiosity with age (5 to 14)?
- ....

*A new research (with Raynald Belay)*

Desarrollo profesional para los maestros  
*InterAcademy Panel (IAP)*

Chair :Jorge Allende (Chile)

1. Santiago, Chile : **2009 International Conference**  
Publication (book +Internet) : Harlen, W. & Allende, J.
2. Summary for education authorities, inspector, trainers,  
community leaders, politicians, industry, etc.  
Book : Harlen, W. & IAP Working group,  
Trilingual (Spanish, English, French)

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