How to support teachers by Internet : the case of the *La main à la pâte* Website

David Wilgenbus, *La main à la pâte*, France

Third International Conference on Science in Basic Education
Monterrey, Nuevo León, México, March 16 – 18, 2005

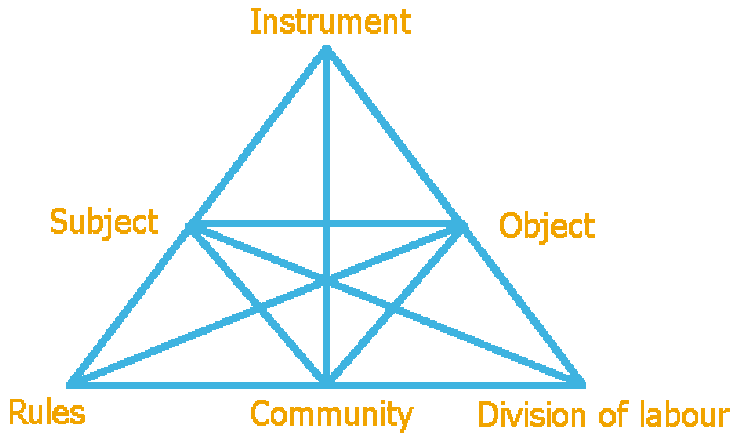
Outlines

- Professional development and virtual communities
- General presentation of the *La main à la pâte* Websites
- Are we in a phase of generalization ?
- How teachers use it ?
  - appropriation of resources
  - Participation to exchanges trough the Website
  - Internet as a support for innovation in pedagogy
- Presentation of the new *La main à la pâte* Website

Professional development and virtual communities

- Research in educational sciences (Charlier 1998, Day 1999, Lieberman 2001…):
  - Learning the job of teaching goes through the interaction between peers
  - Teacher training tends to focus on the contents only and not on the context where teachers are evolving

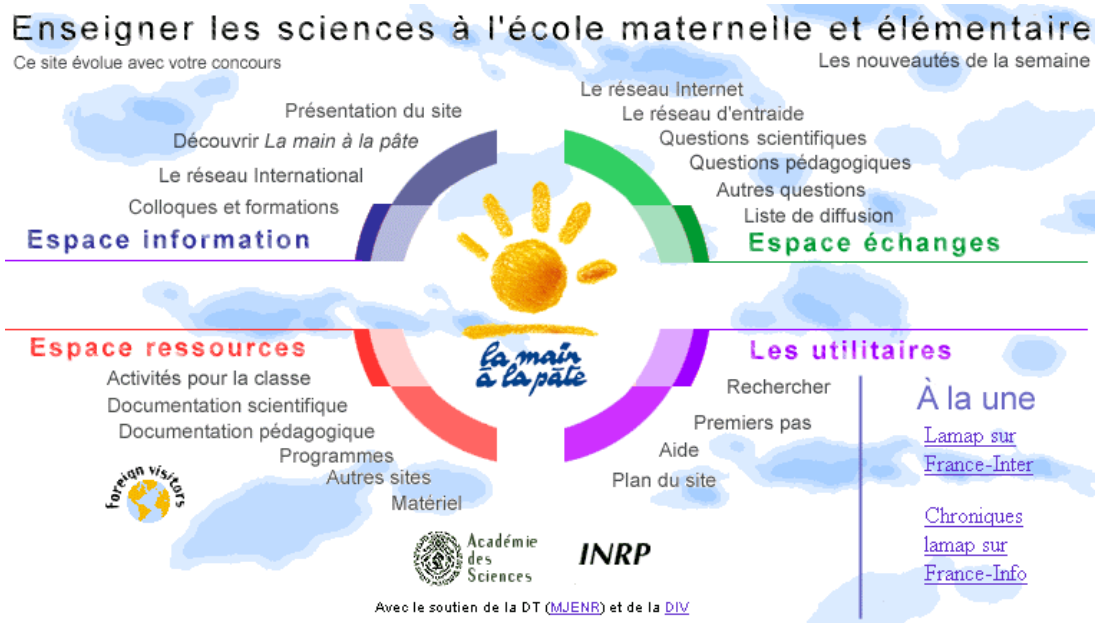
- Theory of activity (Engeström 1994)



- Sociology (Drot-Delange 2001, Audran 2002)
  - For the teacher, importance of the community
    - To break isolation
    - To involve more
    - To be better informed
    - To be better prepared for important changes in practices
  - Heterogeneity helps the debate : gathering teachers, scientists, trainers...

General presentation of the *La main à la pâte* Website

- Creation date : 1998
  - Lack of cooperation in schools
- Responsibility of :
  - Académie des sciences
  - Institut National de Recherche Pédagogique
- 4 full-time people



http://www.inrp.fr/lamap

- Locally produced resources to teachers
- Scientific and pedagogic hotline: consultants
- Linking teachers - trainers – scientists
- Everything is free

From a local to an international network

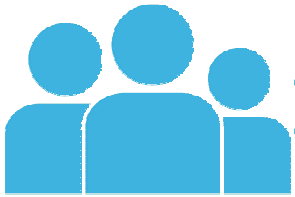
- + 11 local websites representing a district
- Best European teacher-training website 2001
- Mirror sites
- International Website (Mapmonde):
  - For teachers (France, Colombia, Brazil, Senegal, Morocco, Quebec, Egypt, Serbia, Chile)
  - Free resources
  - Creating a community around the teaching of science at primary school

http://www.mapmonde.org

Networking conditions

- Same approach of a subject
- Horizontal and collective management of the network
- Respect of local specificities
- Valorize website contributors
- Provide Internet tools which allow to work together, to gather resources and network users.
- Build a network « culture » (meetings, common project, friendly relations, exchange reciprocity…)

Extending the work in classes



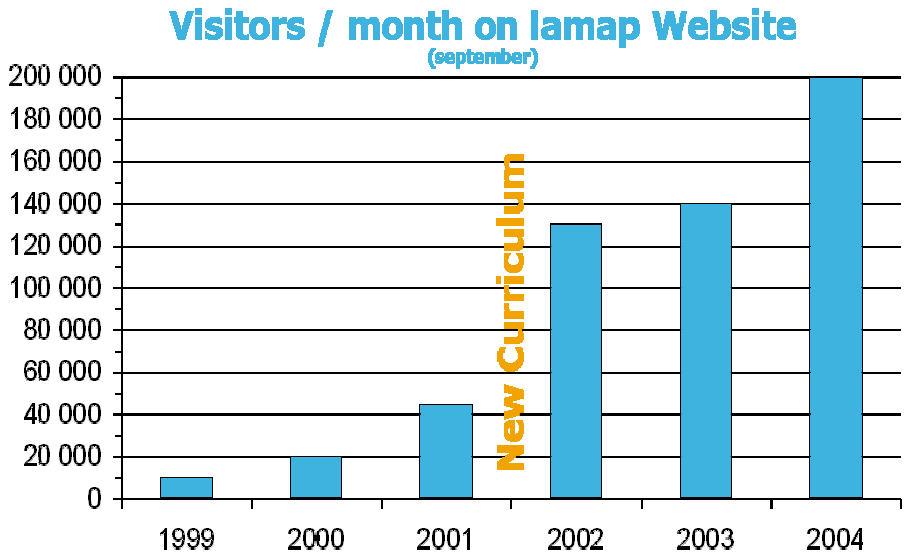
In the schools

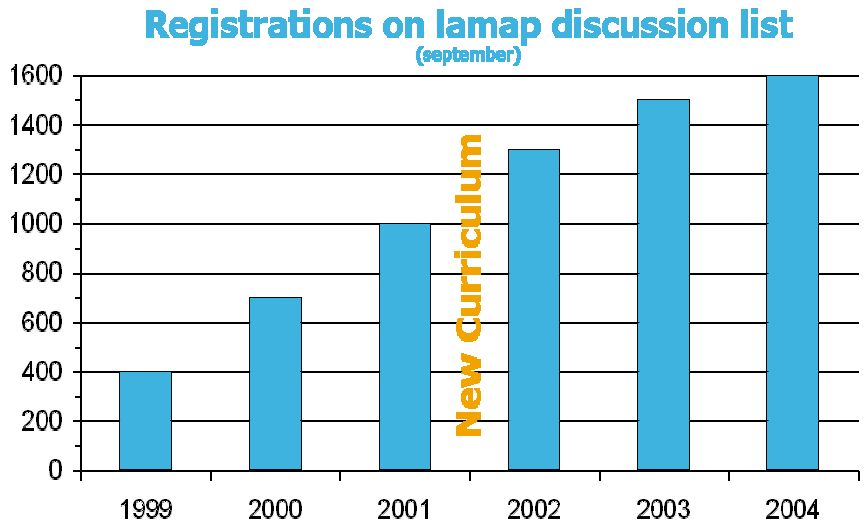
On Internet

Traffic: from innovation to generalization

- 200 000 visitors / month
- Increase of visibility after reform
- 1600 registered people to the discussion list
  (> 100 messages / month)
- Scenario :

1. Innovation movement
   ⇨ pioneers
2. Institutionalization
   ⇨ ordinary teachers



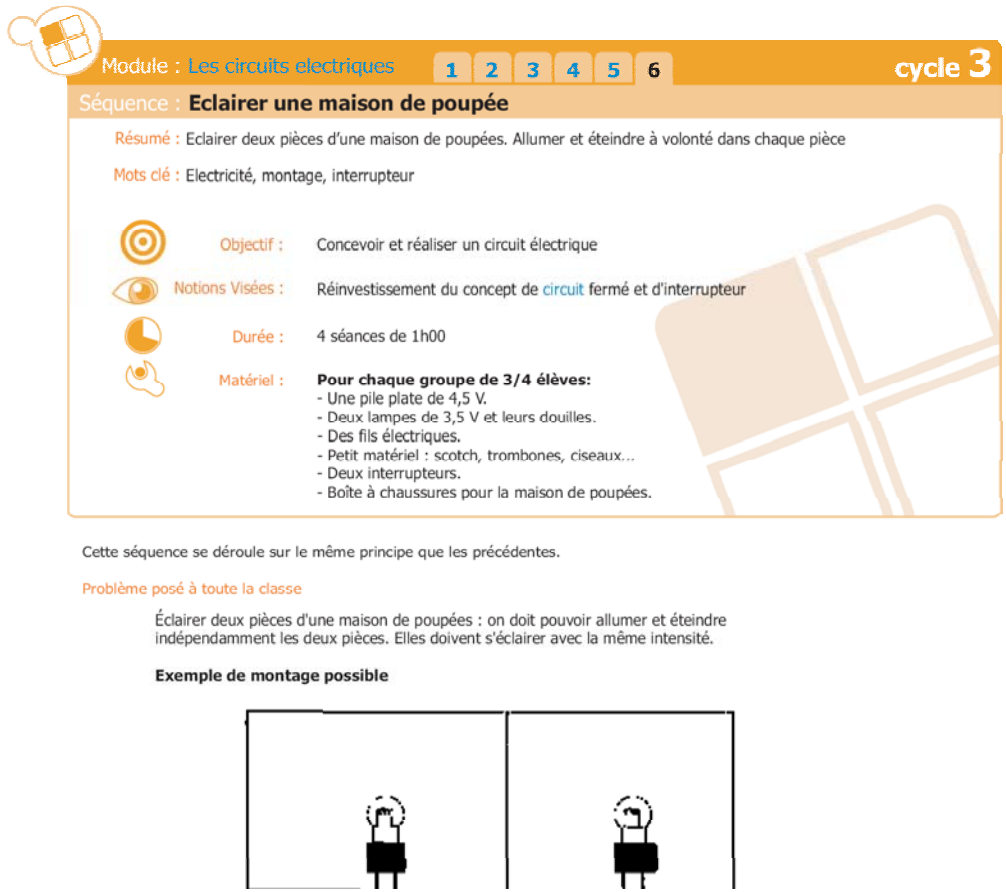


Resources

- Hundreds of scientific and pedagogical documents
- > 250 class protocols
(mainly produced by teachers)

- Progressive appropriation
(Coquidé 2001, Wilgenbus 2003)
  1. Direct application, without adaptation
  2. General scheme, with adaptation to the context
  3. Didactic clues

autonomy



Module : Les circuits electriques 1 2 3 4 5 6 cycle 3

Séquence : **Eclairer une maison de poupée**

Résumé : Eclairer deux pièces d'une maison de poupées. Allumer et éteindre à volonté dans chaque pièce

Mots clé : Electricité, montage, interrupteur

Objectif : Concevoir et réaliser un circuit électrique

Notions Visées : Réinvestissement du concept de circuit fermé et d'interrupteur

Durée : 4 séances de 1h00

Matériel : **Pour chaque groupe de 3/4 élèves:**
- Une pile plate de 4,5 V.
- Deux lampes de 3,5 V et leurs douilles.
- Des fils électriques.
- Petit matériel : scotch, trombones, ciseaux...
- Deux interrupteurs.
- Boîte à chaussures pour la maison de poupées.

Cette séquence se déroule sur le même principe que les précédentes.

Problème posé à toute la classe

Éclairer deux pièces d'une maison de poupées : on doit pouvoir allumer et éteindre indépendamment les deux pièces. Elles doivent s'éclairer avec la même intensité.

Exemple de montage possible

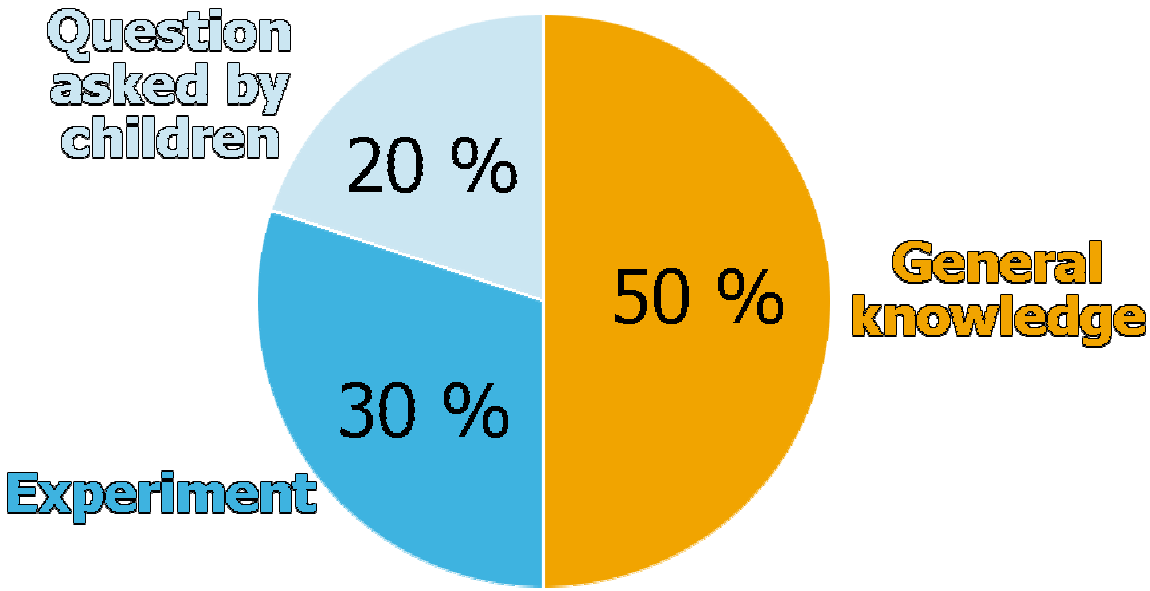
- *"The two point of view about the teacher training are to train teacher to use resources, **as an applicator** or to train teachers to use resources **as bases for teacher's creativity** taking into account a more personal context."*
(Larcher and Saltiel 2001)

Scientific and pedagogical consultants

- 200 consultants
  - 100 scientists
  - 100 trainers
- On a voluntary basis
- 200 questions / week
- moderated by 2 scientists and 2 trainers
- How does it works ?

1. Teacher ask a question
2. Good questions (~ 10 % : primary school, not already asked….) are sent to consultants
3. Good answers (~ 90 % : correct, accessible) are sent to teachers
4. Question and answers are archived on the website (> 2000)

Online encyclopedia ?



- Examples of scientific questions
  - General knowledge : ***What is an electron ?***
  - Experiment : ***We fabricated hot balloons with a ten liter plastic bag, we heat the air inside but it didn't want to get up, why ?***
  - Children : ***Why is the sea blue ?***

- Example of pedagogical questions
  - ***How can a 5 year old child acquire the notion of velocity ?***
  - ***Do I have to correct the notebooks of my students ?***

Discussion list

- Principles:
  - A place of reflections, exchanges, proposals for every aspect of science teaching in primary school
  - Subscription is free
  - Subscribers are teachers, trainers, scientists, and all concerned persons interested in developing scientific learning at school.

- Statistics:
  - Opening of the discussion list : 02/01/1998
  - Number of subscribers : 1600
  - Number of messages exchanged every month : 100
  - A monthly newsletter
  - Two moderators

- Activity: 40% (other disciplinary discussion lists : ~ 10 %)
- Examples of questions
  - ***How can I work on the sundial with young students ?***
  - ***Are there other classes interested in exchanging on regional building construction ?***

An example of Internet-based collaborative project : measuring the Earth's radius with Eratosthenes

- Beginning with shadows, angles & parallels
- Connect schools at different latitudes (> 10 countries)
- Determine Earth's radius, dispersion of data
- Integrate Math, Astronomy, Measure, Geography, History, Writing
- Publication of a book + CDROM (2002) : for teachers & parents

Other projects : European discoveries (science history & scientific activities) …

Adresse www.inrp.fr/lamap

Espace Perso | s'inscrire

Identifiant ********** OK

pourquoi s'inscrire ? | mot de passe oublié

Recherche recherche avancée

dans tout le site

TROUVER

- La main à la pâte
- Activités pour la classe
- Documentation
- Echanges
- Projets
- Activités collaboratives
- Près de chez vous
- Actualités

la main à la pâte

Enseigner les sciences à l'école maternelle et élémentaire

dernière mise à jour le 25 janv. 2005

Le site *La main à la pâte* est destiné à aider enseignants, formateurs, scientifiques et institutionnels à mettre en place un enseignement des sciences de qualité à l'école primaire. Vous y trouverez des activités de classe, des documents scientifiques ou pédagogiques, des outils d'échange et de travail collaboratif, et bien d'autres choses encore... en savoir plus >>

Académie des sciences

INRP

Avec le soutien de la DT (MJENR), de la délégation interministérielle à la ville (DIV) et de l'Ecole normale supérieure, Paris (ENS).

Documents du jour

L'activité du jour

Les circuits électriques en cycle 2

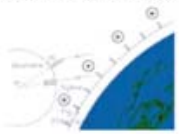
Après avoir compris comment allumer une ampoule, les élèves s'intéressent à l'interrupteur et à la notion de conducteur - isolant (notion qui est maintenant au programme du cycle 3) et recherchent les causes d'une panne.

Plus >>

Le projet du jour

Eratosthène

Mesurer le tour de la Terre en collaborant avec d'autres classes



Plus >>

Dernières questions

23 janvier 2005
Pourquoi y a-t-il des feuilles sur les arbres et pas des épines?

23 janvier 2005
Pourquoi l'eau ne tombe-t-elle pas en bas de la Terre ?

19 janvier 2005
Comment traiter des énergies renouvelables ?

Plus >>

Dernières listes

Voir les archives de la liste réseau-lamap

Plus >>

Vous recherchez :

Une activité pour la classe

Acoustique
Astronomie et espace
Biologie
Biologie humaine
Ecologie
Electricité
Energie
Evolution du vivant
Géologie
Magnétisme
Matière et matériaux
Mécanique
Mesures
Optique
Technologies
Plus >>

Une documentation

Scientifique :
Acoustique
Astronomie et espace
Biologie
Biologie humaine
Ecologie
Electricité
Plus >>

Pédagogique :
Les 10 principes
Le rôle du maître
Plus >>

Des échanges

Des questions aux consultants
Des listes de discussion

A la Une

janvier 2005

20/01/05
Chronique : *La main à la pâte* en Chine

10/01/05
Sur les pas d'Eratosthène : inscrivez-vous !

Appendix

- David Wilgenbus, *La main à la pâte*, France

- Third International Conference on Science in Basic Education
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Discussion list exchanges

- Message 1 :

Hello,
I am a teacher in grade 5 and we just started to study objects animated by the wind. Here are some of them : a windmill, the kind of mills you can find in funfairs, weathercocks, preferably " solid " ; kites that would be attached to big sticks in order to float, non-stuffed scarecrows… You can also use your imagination.
Pupils also found for me plans in revision books, like Hatier, Hachette…
Good luck for your " planting "
Agnès

- Message 2 :

Hello,
I would advise you to go have a quick look on the website from the Paul Bert school in SENS.
A complete work on " air, wind " has been carried out by these colleagues (NB : an article in the excellent magazine Moniteur92 (consulting address below) about the website)
Cordially
Michel
Le journal des nouvelles technologies à l'école
http://www.crdp.ac-versailles.fr/cddp92/monit92/default.htm

Questions to scientists

- Question

  Within the framework of manipulations about water, we made steam by heating water with 6-year olds.
  During the elaboration of the account, the children were willing to write: "the steam escapes and disappears in the air". The last remark bothers me in the way that after holding a glass over the steam, the children saw that there was condensation… What else can we say but " the steam disappears in the air " ?

- Jean Basdevant, researcher at the Ecole Polytechnique answers the question by e-mail within 48 hours...

  Hello,
  The children are always right. The steam disappears effectively; that is to say we don't see it any longer, it no longer "appears". The steam is a gaz composed with water that mixes to the air and that we don't see (like we don't see perfume we can smell in the air, though it has a color in the bottle). Water, thus mixed with air, can reappear as tiny drops, like in clouds or condensing over a glass, if the conditions help, for example if it is cold.
  Have a look at your kettle. The "steam" that comes out of it is visible. It condenses in droplets of water at its contact with the air around that is colder when it is dense, but then it gets diluted and… it disappears.
  It can also reappear by condensation on the windows or on the ceiling. Carry out the experiment to leave your glass near the steam for a long time. After some time, the steam will not condense on it any longer, because it will have heated up.
  I think there is confusion between " steam " that come out from steam-machines that you can see because it is condensed water, and real water steam that is water in a gaseous state like butane.

Questions to trainers

- Question
  What experiments can I carry out about salt marshes with 3 to 5 year olds ?

- Answer from Elisabeth Plé , trainer at the IUFM from Reims, center of Troyes, by e-mail within 48 hours...
  You can make yourself a small salt marsh by putting sea water (since you live in La Rochelle) to evaporate. You will then look for ideal conditions for the evaporation to work. Of course, in kindergarten, it is not possible to consider a separation of factors, but you can try to find a solution to " spread out " water under the sun, like in a salt marsh. For example, you can put the water under the sun in plates or iron biscuit box tops. The operation takes a long time.
  You can also try to find with the children other ways to heat water. For them, the sun takes the water away , " drinks it " ; the representation of the sun as a source of heat is not immediate. It is an obstacle to know about when you want to carry out this type of work. When you get over it, you can heat the sea water in a sauce pan and get the white powder that appears, miraculously for the children.
  It is also interesting to " make " sea water and to get back the salt you put in it. You work on the (visible) disappearance of the salt by adding water, and then the reappearance by evaporation (in the saucepan).
  The progression. If the children from your class in La Rochelle are not very familiar with salt marshes, it might as well be interesting to carry out researches in class, to become a salt producer, and then to go visit the salt marsh. The children will then ask questions to a specialist with " producer questions ". They have a better view of the small-scale and industrial making process.

Inquiry based science in the World