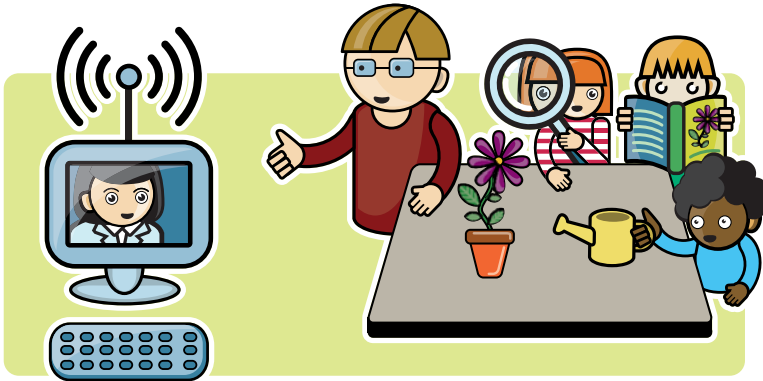


# Supporting teachers from a distance



## What does this consist in?

Teacher support from a distance consists in contacts between a scientist and a teacher via Internet (email, mailing list, forum...). The scientist answers questions from teachers.

This exchange can take place directly, but also can be facilitated by a portal dedicated to this type of exchange and the presence of a moderator who helps with the drafting of questions and answers.

## A few characteristics of Teacher support from a distance

- It concerns **the teacher** and not the children.
- It is essentially based on occasional needs, which enables the scientific tutor to manage his time more easily. However, he must be able to react quickly in order to maintain a two-way exchange with the teacher.
- It also includes participation in forums and mailing lists for the science teacher.



### A sample question

In experiments with water, we have produced steam by boiling it. This is a simple experiment, but it is always fascinating for 6-year olds.

When writing up their reports, the pupils express what they have seen in words and illustrate the steps of the experiment. At one point, they wanted to write “the steam escapes and disappears in the air”. This remark bothers me because after holding a glass over the steam the children observed the condensation...

#### What could they say instead of “the steam disappears in the air”?

- **Answer by Jean-Louis Basdevant:**  
The children are still right. The steam indeed “disappears” in that it is no longer visible; it no longer “appears”. Water vapour is water in a gaseous state that mixes with the air and cannot be seen (just like we cannot see the perfume we smell in the air, but we can see its colour in the perfume bottle). When water is mixed with air it can reappear as droplets, like the clouds, or be condensed on a glass, if the conditions are right, for example if it is cold enough. [...]
- **Answer by Martin Shanahan:**  
I think you can suggest the concept of “concentration” or “dilution”- the steam is “dispersed” in the air and therefore “rare”. [...]
- **Answer by Jean-Louis Basdevant:**  
I agree with M.E.R Shanahan. “Appearance” is also an important concept in physics. “Disappear” does not mean “cease to exist”.
- **Réponse by Jean Matricon:**  
I suggest: the steam escapes in the air, where it is invisible, like a sugar lump in a glass of water that dissolves until we cannot see it. The use of the verb “disappear” is however “correct”: disappear = no longer seen, visible (Dictionary)

## A few guidelines for effective Teacher support

All scientific tutors must have the following characteristics:

- proven competence in a specific field;
- motivation and desire to help teachers with difficulties on a volunteer basis;
- availability to answer the teacher promptly so that he can use the answer in class without delaying scheduled activities.

In order to obtain maximum efficiency, it is necessary to create file archives of these exchanges on a website so that an electronic library is built up which is accessible for all. This is the case of the website *La main à la pâte*, among others.

## Pitfalls to avoid, hurdles to overcome

- Answers must be very clear in order to preserve a good level of mutual comprehension during exchanges. Particular attention should be paid to the formulation of questions, the vocabulary used (paraphrasing instead of using jargon), the description of the experiment (avoiding omissions or approximations) and the interpretation of the question's meaning. In any event, the scientist must ask, if need be, for more details before providing a hasty answer.
- The same goes for representations made by the person asking the questions that can prevent comprehension of the answer. The scientific tutor should not hesitate to provide more ample explanations and provide sufficient details about anything in his own answer that seems to him obvious.
- Authoritative arguments and mathematical equations are prohibited. The same goes for any value judgements concerning the relevance of a question.
- To satisfy the teacher's curiosity, answers to questions that do not concern class activities can be provided, while avoiding systematically the development of any subjects that would not be meaningful for the pupils.