

## Principles and goals

The *La main à la pâte* Foundation has **five main goals**:

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- **Produce and disseminate pedagogical and scientific resources**
- **Contribute to the training of teachers and trainers**
- **Develop an international cooperation network dedicated to science education**
- **Support equal opportunities**
- **Involve scientists and businesses in the development of science education**

These objectives are derived from *La main à la pâte*'s ten principles, encouraging a simple method of education focussing on pupils' active behaviour, the writing of individual and/or common documents, and the involvement of families and scientists.

## The 10 principles of *La main à la pâte*

1. Children observe an object or phenomenon in the real, tangible world and experiment with it.
2. During their investigations, children use argumentation and reasoning, gathering and discussing their ideas and results, and building their knowledge, as manual activity on its own is insufficient.
3. The activities that the teacher proposes to pupils are organised in sequences within teaching modules. They are related to official programmes and offer pupils a great deal of independence.
4. A minimum of two hours a week is devoted to the same theme over several weeks. The continuity of activities and teaching methods is ensured throughout the school programme.
5. Each pupil keeps an experiment book, written and updated in his/her own words.
6. The main objective is a pupils' gradual adoption of scientific concepts and techniques, along with the strengthening of their oral and written skills.
7. Families and/or neighbourhoods take part in the work done in class.
8. Local scientific partners, such as universities and engineering schools, support class work by making their skills available.
9. Local teachers' colleges make their pedagogical and didactic experience available to teachers.
10. Teachers can access the teaching modules, ideas for activities, and answers to various questions from the website ([www.fondation-lamap.org](http://www.fondation-lamap.org)). They can also exchange ideas with colleagues, trainers and scientists (collaborative work).

## The pedagogy

Science is not a popular field in primary or junior high school. Grades are low; very few pupils are interested in science, and even fewer admit that they want to study or work in science. In an effort to change pupils' prevailing negative view of science studies, *La main à la pâte* promotes a new type of science education based on the active adoption of knowledge, through reasoning, guided investigation and experimentation. The teacher helps pupils make discoveries, and uses a little top-down rhetorical teaching as possible. This requires good skills in both science and teaching, which *La main à la pâte* tries to improve by offering specific professional development sessions and pluridisciplinary thematic projects.

## The language

Science teaches pupils to use the right word and the right wording. Oral language is necessary for debate, communication, and socialisation. Overall, pupils learn critical thinking and argumentation. Written language, on the other hand, enables the crystallisation of ideas, the production of summaries, and the recording of results and conclusions.

## The citizenship education

*La main à la pâte* proposes activities in which scientists, families, local authorities, businesses and associations can take part. In turn, this can strengthen the local social network, particularly in disadvantaged areas. Furthermore, the thematic projects of *La main à la pâte* advertise health education, sustainable development education, and natural hazard prevention. Consequently, educated children will grow into better citizens.

## The scientists involvement

*La main à la pâte* brings together the scientific and teaching communities. Scientists review and develop teaching resources, and support teachers during science lessons ([ASTEP](#)). They also act as a useful network of experts and consultants answering the questions asked by teachers, trainers, or pupils on our website. Some of the scientists also dedicate part of their time to teachers' professional development: This is a feature of the "Graines de Sciences" ("Seeds of Science") autumn professional development session, and the very heart of the [Houses for Science](#) network.