

SCIENCE AND CHILDREN

How can their curiosity and taste for scientific adventure be stimulated?

Many observers fear a shortage of scientists in the near future. This issue concerns developed, emerging, and developing countries alike. The training of young people to work in research is a vital issue – as much for the development of democracy as for our economic future.

“There are three main reasons for this lack of interest – science (in the way that it is taught these days) is boring, is considered dangerous, and people believe they will never earn much by working in it,” said the distinguished French physicist and academic Yves Quéré back in 2004.

Following worldwide agreement with Quéré’s analysis of the problem, it has become standard opinion that it is vital to begin teaching science as early as primary school if educators wish to instigate a lifelong interest in science.

Inspired by Leon Lederman’s Hands-on Schools in Chicago, and in collaboration with George Charpak (Nobel Prize Winner in Physics), and astrophysicist Pierre Léna, Yves Quéré created *La Main à la Pâte*, a program within the French *Académie des Sciences* with a mission to reintroduce a passion for science in students.

On September 11, the eminent scientist, scholar, and speaker Yves Quéré comes to the Austin International School to talk about the challenges of science education in elementary schools within an international context.

Some questions to be answered include:

Which learning environment is optimal?

In what mindset are children most receptive to science?

What can we learn from science teaching in other countries?

YVES QUERE

Biography

Following engineering studies at *l'Ecole des Mines de Paris* (1954), Yves Quéré pursued scientific research, specializing in solid state physics, which he practiced both in fundamental and applied sciences. He then studied, amongst many topics, the properties of “crystalline defects” in metals, the effects of radiation in solids, and the interaction of particles with material, firstly at the *Commissariat de l'Énergie Atomique* (CEA), and then at the prestigious *l'Ecole Polytechnique* from 1987 onwards.

Appointed Professor at *l'Ecole Polytechnique*, Quéré was elected president of the physics department and of the Senate of Professors. As the director of teaching, he greatly contributed to the introduction of biology in the General School Curriculum in France. He has taught in numerous schools of engineering internationally, including in the USA, Latin America, China, and Russia.

He joined the French *Académie des Sciences* in 1980, later serving eight years as their International Relations Delegate. This in turn led to his being elected co-chair of the Interacademy Panel (IAP), a group of 100 science academies from around the world. Through this position, he was able to enhance the international collaboration between the science academies and have “Statements” adopted for submission to the United Nations and governments, on topics relating to science teaching, ethics, teaching of evolution, biological weapons, and health of women and children.

Since 1996, the team of George Charpak, Pierre Léna, and Yves Quéré, under the French *Académie des Sciences*, has collaborated with schools in France and abroad to reintroduce the teaching of science by emphasizing experimentation and investigation.

The project, inspired by the American experiment Hands-on Schools by Leon Lederman and now known as *La Main à la Pâte*, has proved its success in France and is currently being implemented around the world.

Within this context, Yves Quéré is visiting Austin International School. He will conduct a complete training for teachers for the only three accredited French-American schools in Texas as well as an exclusive conference for both academics and lay people alike. The conference is on September 11th at 5.30 p.m. by invitation only. The training will take place on September 14th all day.

LA MAIN A LA PATE

Introducing science to primary schools

What is *La Main à la Pâte*?

From its inception in 1996, the *La Main à la Pâte* program promotes inquiry-based science education. The general idea is to cause children to participate in the discovery of natural objects and phenomena, to bring them into direct physical contact with the latter through observation and experimentation, to stimulate their imagination, to broaden their minds, and to improve their command of the language.

In a typical scenario, the teacher acts as a facilitator amongst the children, sparking a desire to question, observe, manipulate, measure, reason, and experiment. Simple experiments are carried out by the children in small groups; the group, in principal, must provide the solution. The children are invited to express their thoughts in short statements on the little adventure they have just experienced together, being thereby also obliged to enrich their vocabulary, refine their logic, and enhance their syntax. Personal engagement by the child appeals simultaneously to the senses and the intellect, tending to encourage an enjoyment of science and bring it to life for the student.

Educational Tools

The French *Académie des Sciences* has undertaken to provide French schools with an Internet network that links them up with one another and also links them to the world of research. The site has three sections: information, resources, exchanges.

There are three related networks:

- The *La Main à la Pâte* site: a national and regional site that displays locally-produced resources and general information.
- The network of scientific consultants: a group of approximately 120 high-level scientists and engineers that have agreed to answer, within 48 hours and in simple words, science questions raised by teachers or students.
- The network of training officers/teaching specialists: questions on teaching and education are dealt with here. Both American Hands-On texts and French texts have been translated and used by teachers via the website.

LA MAIN A LA PATE

INTRODUCING SCIENCE TO PRIMARY SCHOOL (continued)

Its success

The project in its current format has inspired many adaptations abroad. “Many people have made the same observations as we have,” remarked Yves Quéré in 2007. “Through the IAP, where I was co-chairman [until last year], the Academies of Sciences from some 15 countries have become very involved with this method, in both the major industrialised countries and in emerging countries, such as China, Brazil and Malaysia, as well as in countries such as Senegal, Morocco, etc.”

To further confirm the international interest, both the Interacademy Panel (IAP) and the International Council for Science (ICSU) have made this one of their priority tasks.

Such recognition is a true testament to the high caliber of Yves Quéré’s vision, passion, and generosity toward creating future scientific minds.

References and Further Resources

Yves Quéré: www.yves-quere.fr

La Main à la Pâte: www.lamap.fr

InterAcademy Panel: www.interacademies.net

Académie des Sciences: www.academie-sciences.fr/

UNESCO: portal.unesco.org/en/ev.php-

[URL_ID=23544&URL_DO=DO_TOPIC&URL_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=23544&URL_DO=DO_TOPIC&URL_SECTION=201.html)

Austin International School

Vision

Our world has become global. As our children grow, they will not only be citizens of their own country, but of the world. As citizens of this new "global country," they will need new skills. They will face daily challenges that we as parents may not have experienced — understanding, communicating, and working among other cultures to learn from and succeed through increasingly international relationships. Both the children of families native to Austin and those who have made Central Texas their home can learn to become global citizens of the world.

At Austin International School we educate our students with these new challenges in mind, developing the leaders of tomorrow who will know how to take advantage of all the opportunities created by globalisation.

After such a strong education, AIS students will be prepared to bloom into adulthood with strong qualities such as intellectual curiosity, critical thinking, and a constant quest for excellence.

Mission

Austin International School provides a highly academic international education built from the French curriculum harmonized with the American one and taught in three languages. This traditional and solid foundation helps students acquire critical academic and social skills while becoming proficient in three languages and will lead them in the future to either the International Baccalaureate (IB) or the French Baccalaureate diplomas.

AIS today

Our school is a non-profit organization, composed of approximately 150 students from 20 different nationalities, speaking 16 different languages. At AIS everyone is welcome and diversity is encouraged.

Our big news for 2009: we have just been fully accredited by the French Ministry of Education, which is the recognition of all our efforts over the past 8 years to provide a traditional and solid foundation to our children, combined with a forward thinking outlook. Only 3 schools in Texas and 37 in all in the USA have achieved this highly sought-after recognition.

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