



CERN Italian Teacher Programmes

Inspiring the next generation of Italian scientists

Mick Storr

Head CERN Teacher Programmes
and
Visits Service



CERN Strategic Missions

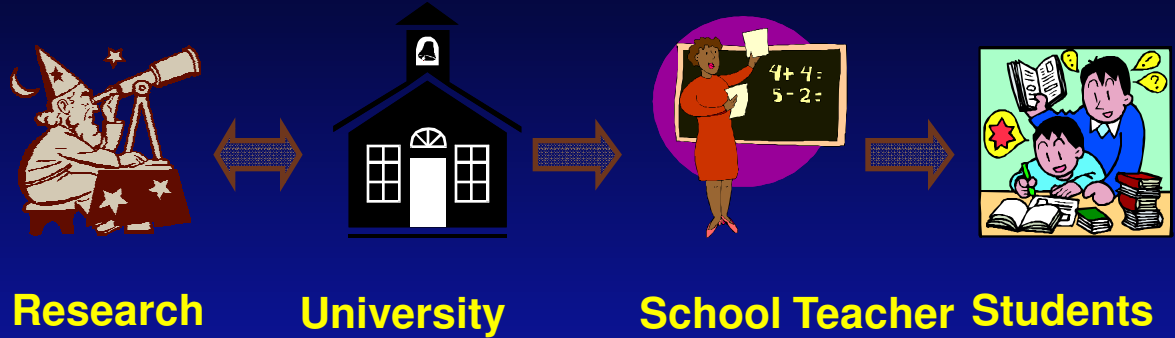
- Fundamental research
 - Where do we come from ?
 - What are we made of ?
 - Where are we going ?
- Education - Training the scientists of tomorrow
 - Inspiring young people to study science
- Technology Transfer
 - Sharing knowledge and skills
- International Collaboration
 - Working together with a common objective



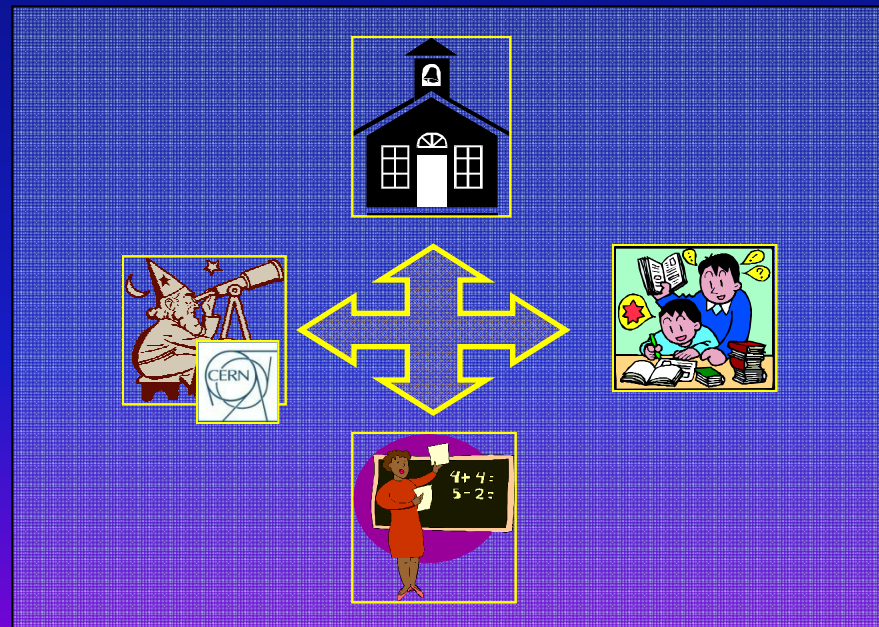
Objective of Teacher Programmes

To bring modern research closer to schools

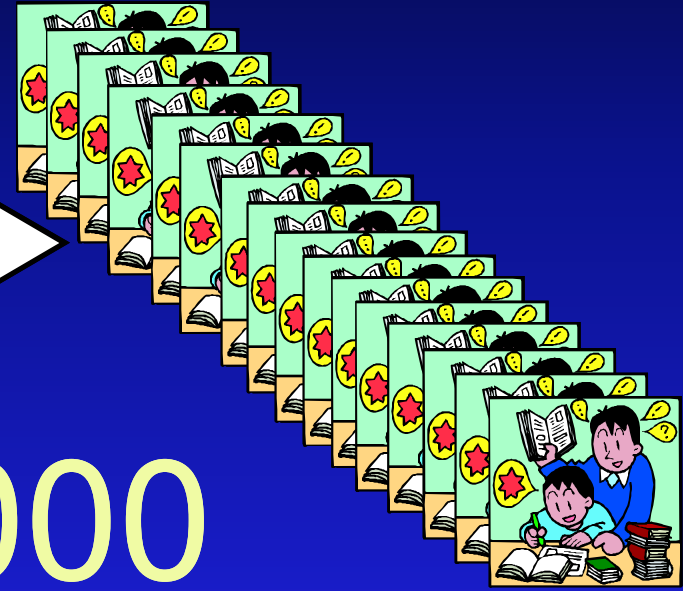
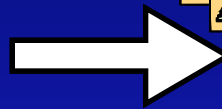
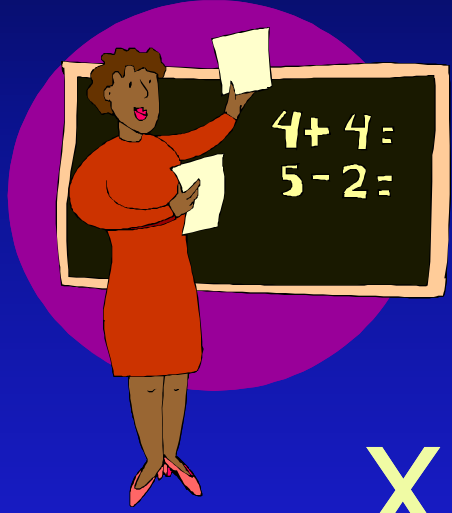
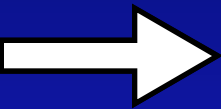
OLD



NEW



Looking for multiplicative factors



X 1000

School Teacher

School Students



What are we trying to achieve with the help of physics teachers ?

1: RAISE AND MAINTAIN THE INTEREST OF STUDENTS IN MODERN SCIENCE

Motivate them to continue scientific education at school
Help them to better understand the physical world

Improve scientific literacy

2: INSTIL A FEELING OF MYSTERY AND DISCOVERY POTENTIAL

Motivate students to take up physics at universities

Prepare the future generation of physicists

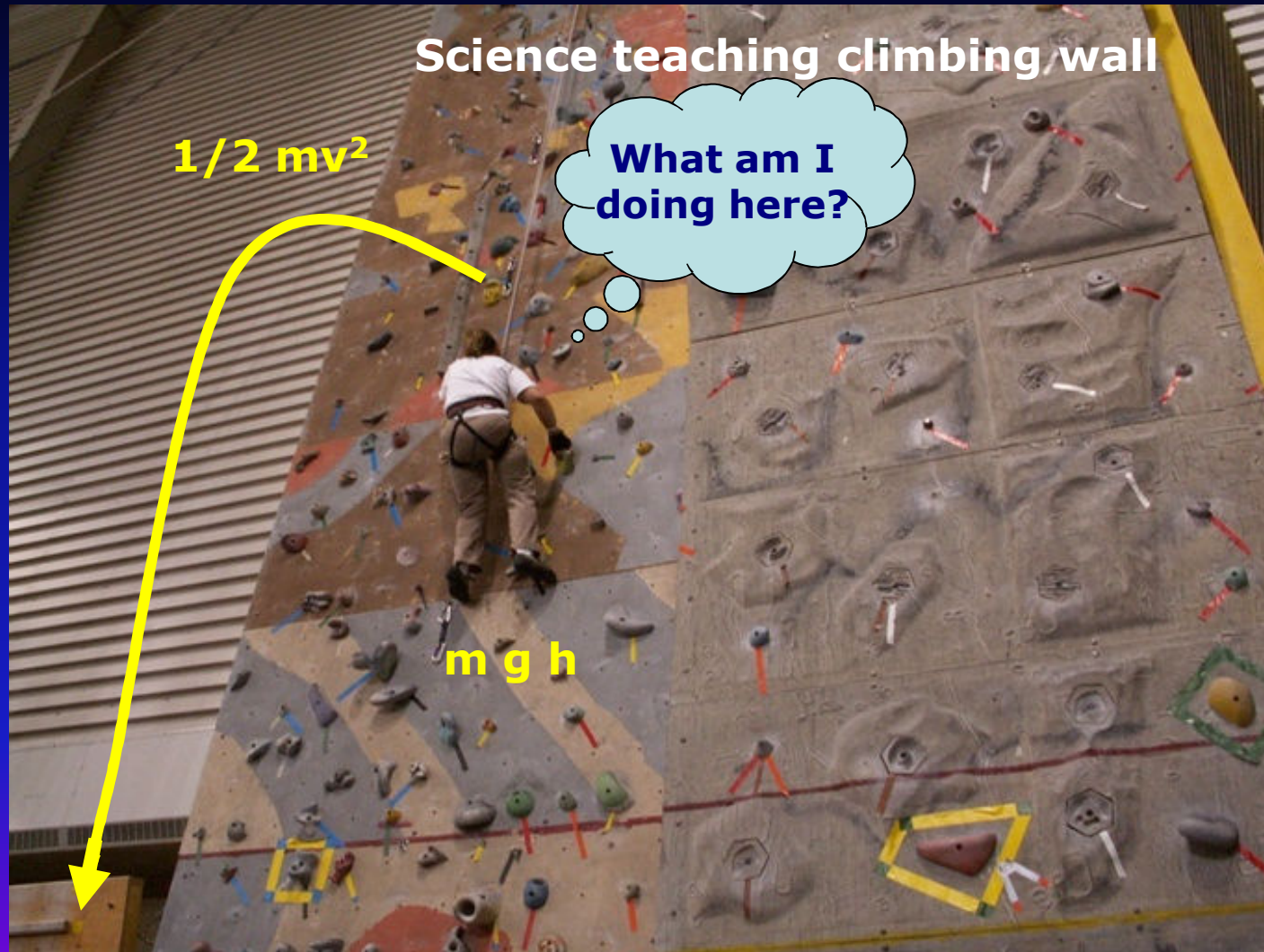
SCIENCE IS ALIVE !



How researchers view science

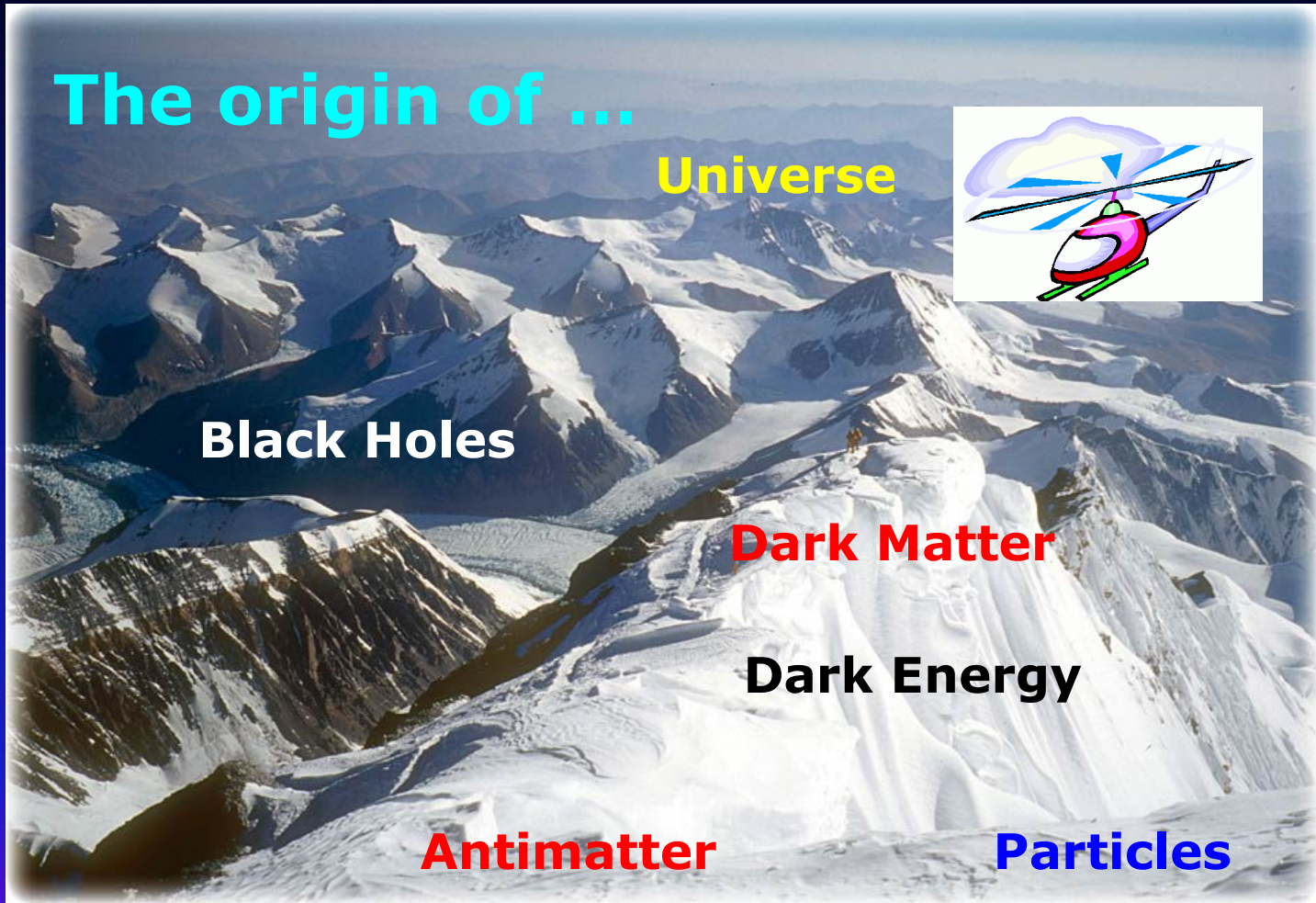


How school students view science





Take students on a sight-seeing tour ...



Link modern physics to school curriculum



Residential Teacher Programmes

Basic content

- Lectures
 - Introductions to CERN, Particle Physics, Cosmology, the LHC Experiments, Particle Accelerators, Medical Applications of Particle Physics, and the GRID
- Visits to experimental facilities
- Hands-on activities
- Working group activities
- Opportunities to meet working research physicists in a variety of informal settings.

All lectures are recorded, web archived and made publicly available



3 - week Summer School



30-40 participants, mainly from member states - held in English

Fully funded by CERN (travel, accommodation, food, lectures)

Lectures: Particle physics, cosmology, accelerators, detectors

Seminars: Antimatter, medical applications, ...

Working Groups: Bubble chambers, teacher lab, stories, ...

Guided Tours: LHC experiments, Antimatter factory

Social events - networking - Alumni contacts

28 June - 18 July 2009



3-day weekend programme

≤ 50 participants (mainly member states)

In English

Partially funded by CERN (accommodation)

Lectures on:

particle physics and cosmology

accelerators and detectors

antimatter, medical applications

Guided tours:

LHC experiments

Antimatter Factory

14 - 17 May 2009



1-Week Programmes

30 - 50 participants (from same country or language group)

In the language of the participants

No course fee, but external funding for travel, accommodation, subsistence

Goal: 20+ programmes per year

In collaboration with teachers and scientists from member states

Funding: teacher education funds, ministries, local authorities, foundations

Inaugural session Italian Teacher Programme



NTP Programme Organisation

Collaboration

CERN education group + for each country:

CERN National Oganiser scientist from the country resident at CERN

National coordinator(s) e.g. teacher, administrator resident in the country

National agencies, foundations to assist with funding



Outcome

- Newly inspired, motivated and confident teachers
- Inspire and motivate students
- Communicate with their colleagues
- Communicate with the general public
- Act as ambassadors for science, physics, particle physics, CERN

**Excellent examples among
the Italian teachers who
have attended our
programmes**



Arthur C. Clarke

Author of 2001 : A Space Odyssey

- “When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong.” •
- “The only way of discovering the limits of the possible is to venture a little way past them into the impossible.”
- “Any sufficiently advanced technology is indistinguishable from magic.”

Our goal, with the help of teachers, is to bring a little of the magic of CERN into the classroom



Thank You

- The sponsors
 - Ass. Lalimonaia
- Italian Physicists (in Italy and at CERN)
 - Lecturers, guides, demonstrators
- CERN Italian Teacher Programme Organisers
 - Prof. Lorenzo Foa
 - Elena Volterrani
- CERN colleagues
- Italian teachers
 - Interest, enthusiasm, energy, and dedication to students

Congratulations

CERN is proud of its educational collaboration with Italy

I am very proud to be a member of the Italian team

GRAZIE MILLE !

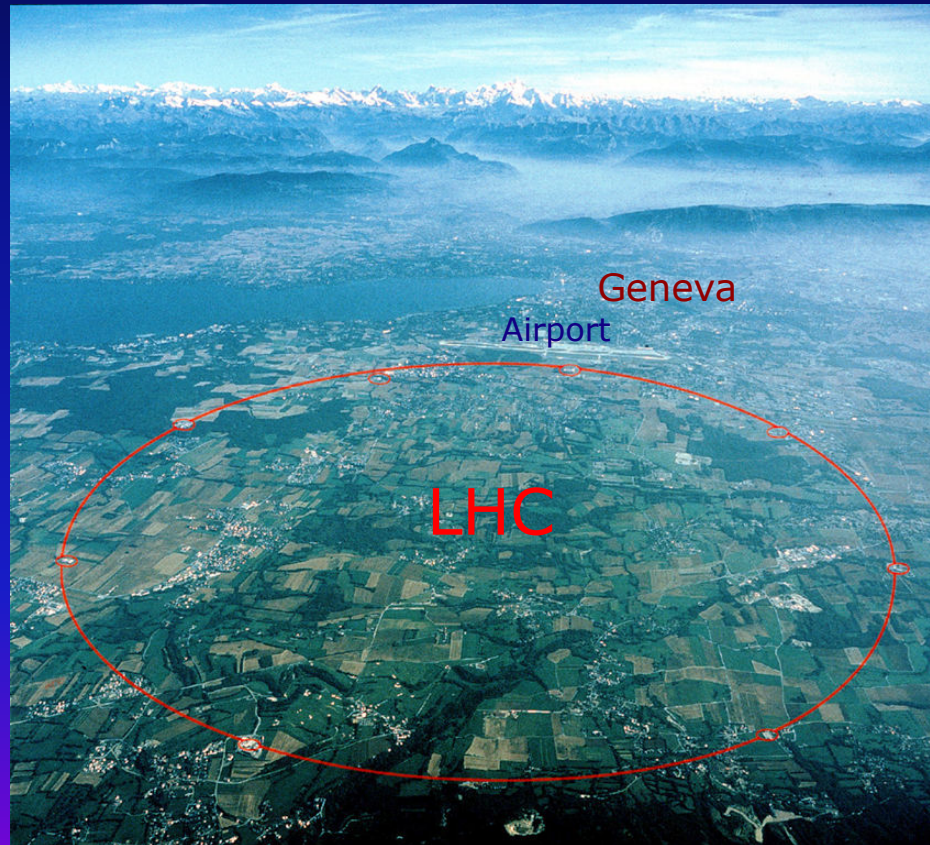


What is CERN ?

CERN is the largest science laboratory in the world

CERN has built the largest particle accelerator in history - the LHC

The LHC will produce particles that existed only shortly after the Big Bang





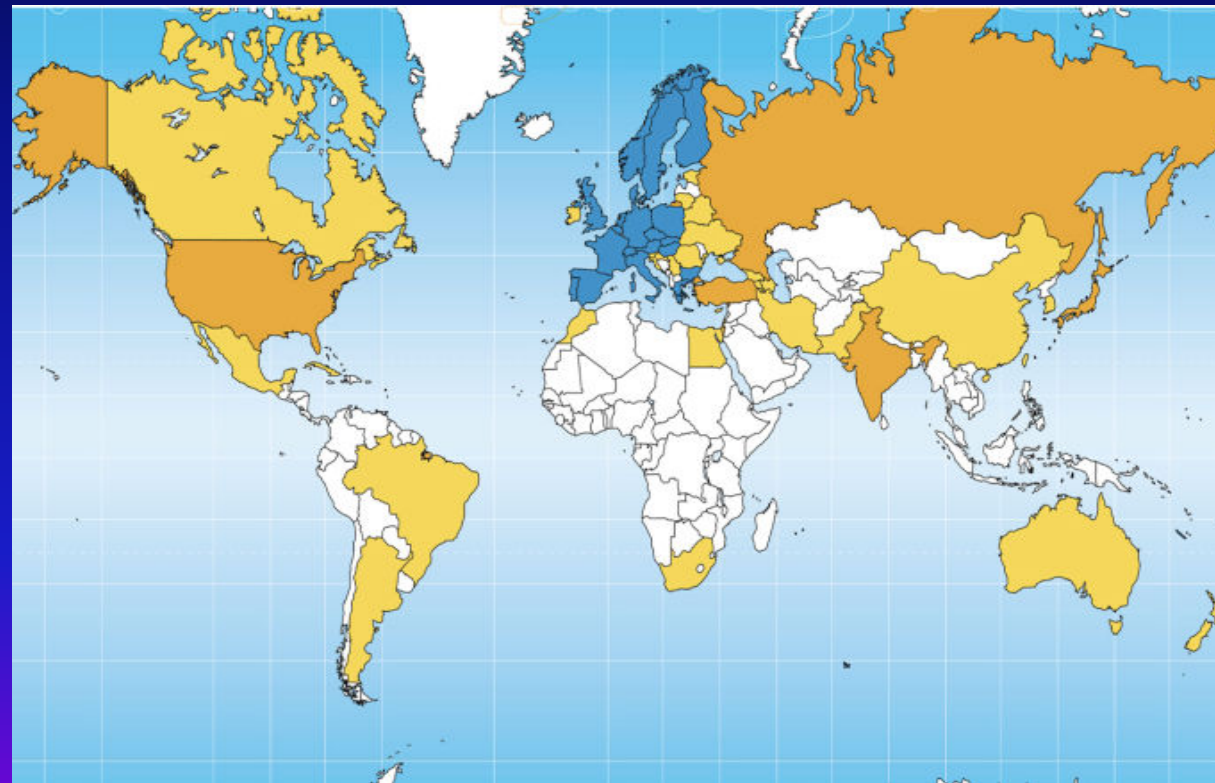
Who works at CERN ?

Scientists from 108 countries

2400 CERN Staff
+ 350 fellows + associates

7150 Visiting physicists

70 % from member states
25 % from observer states
5 % from other states



CERN ex-Director General Robert Aymar

One of CERN's strategic missions is to help train tomorrow's scientists

CERN provides support for schools, students, teachers, and educators





CERN has a broad range of communication activities

400-600 media visits per year (TV, newspapers, radio)

Visitor programme (60,000 visit request - 25,000 accepted - 50 % schools)

Permanent and temporary exhibitions (Microcosm and 'Globe')

Open day (2008: 50,000+ visitors)

Public webpages

Live webcasts



The Education Group

CERN teacher courses

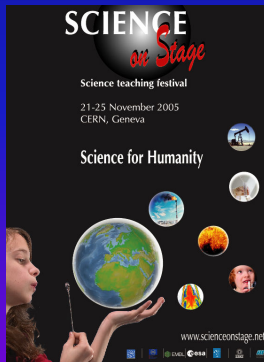
Creation and provision of teaching resources

Video-“Chats” :

virtual meetings between CERN scientists and school classes

Web-Lectures (teacher courses, colloquia, seminars, etc)

Science In School Journal



Science On Stage Festival