



CERN-Teacher Cooperation

Mick Storr

CERN

Directorate Services Unit

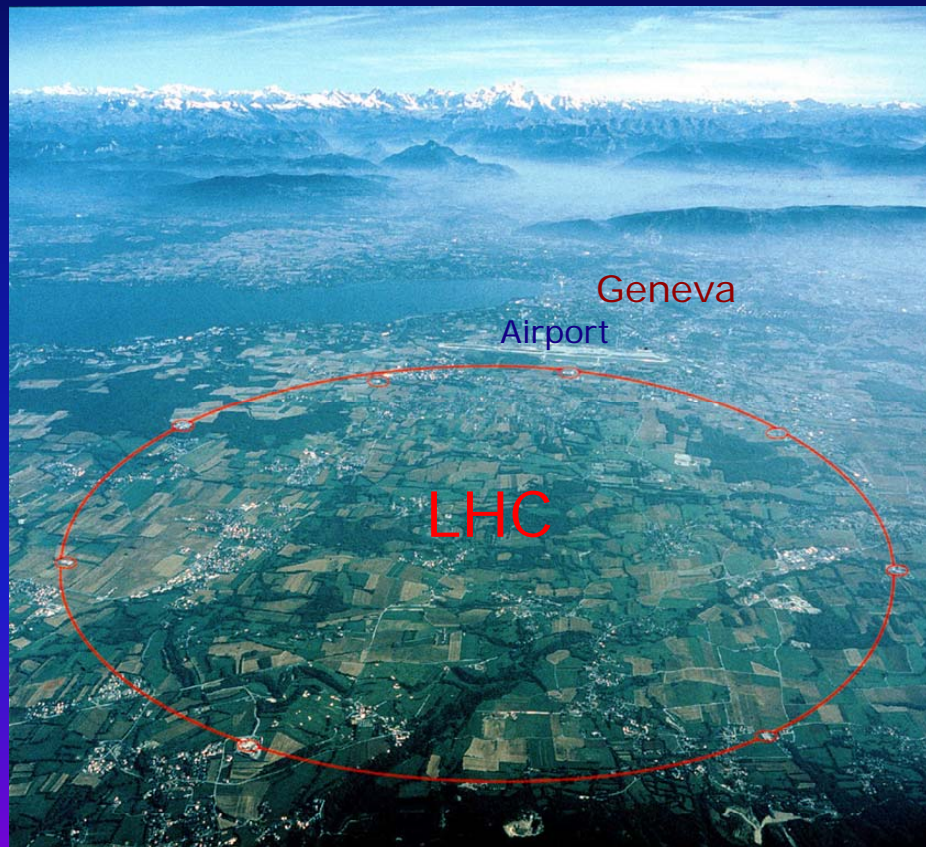
Education Group

Coordinator Teacher Support Programmes



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





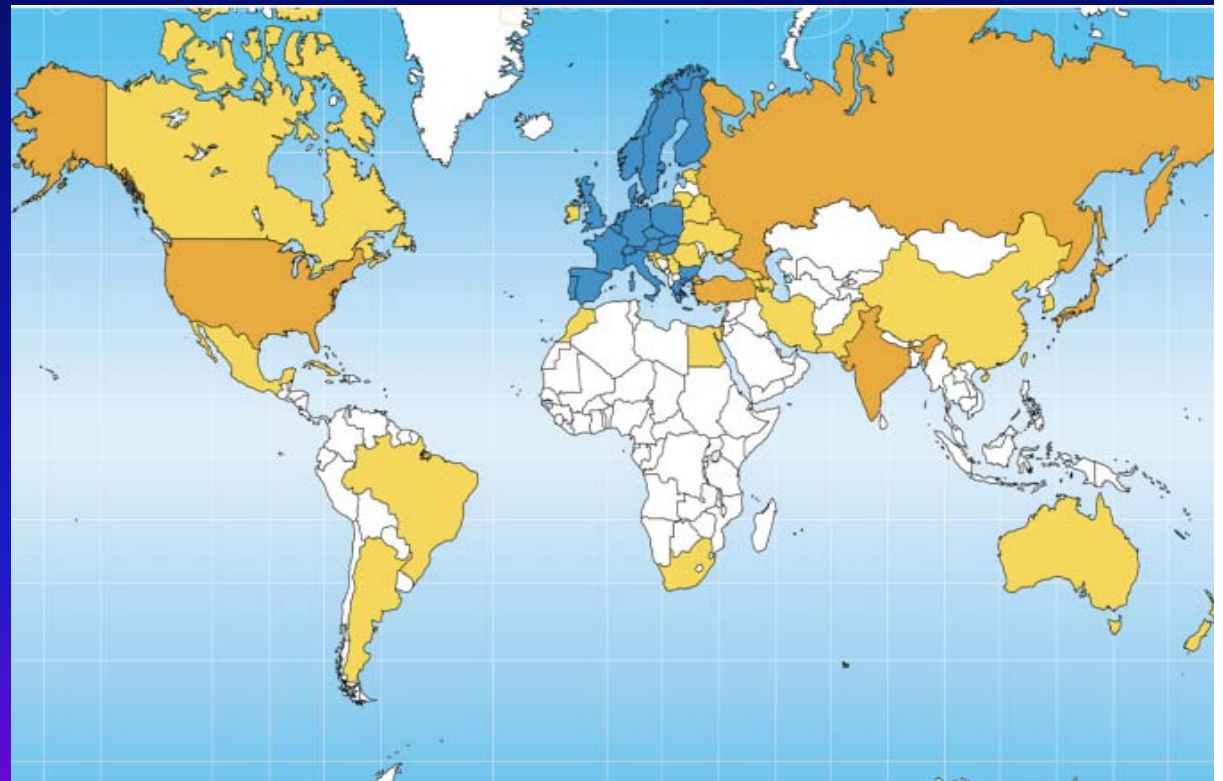
Who works at CERN ?

Scientists from 108 countries

2600 CERN Staff
+ 350 fellows + associates

7150 Visiting physicists

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



CERN 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 (2004: 30,000 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

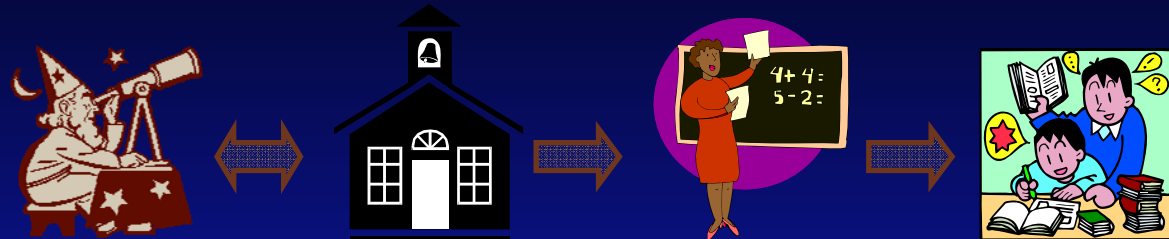


Science On Stage Festival



Role of CERN education group - Bring modern research closer to schools

OLD

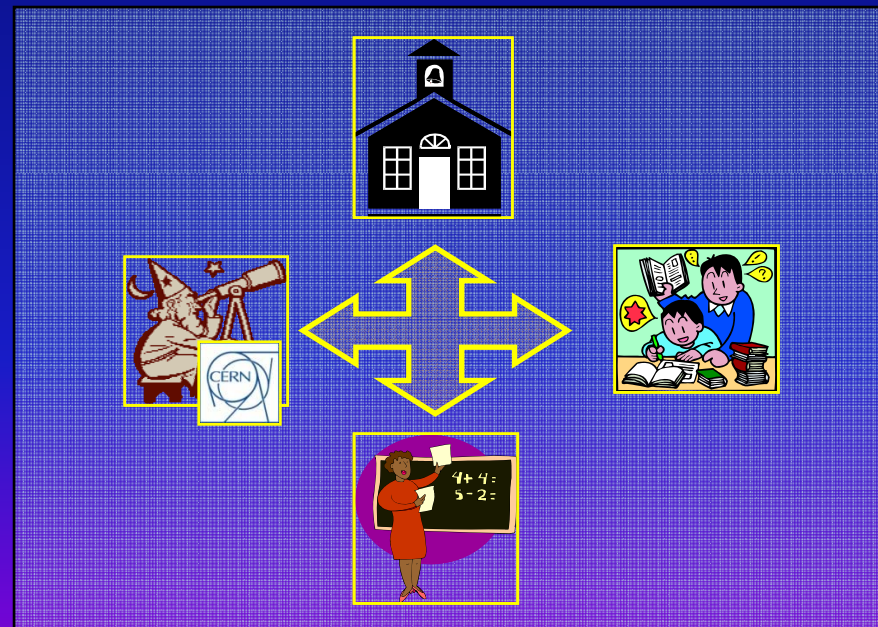


Research

University

School Teacher Students

NEW





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 !

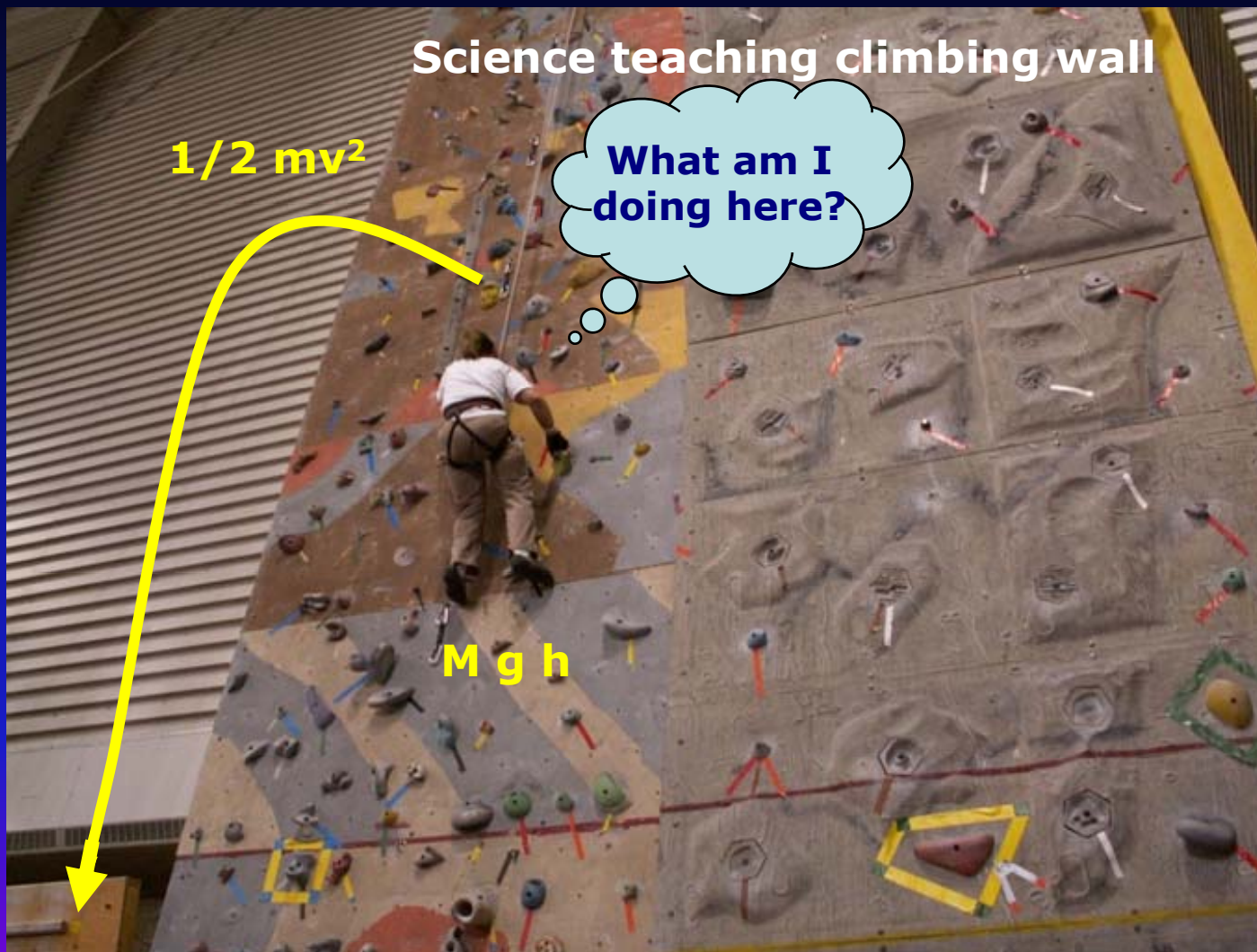


How researchers view science





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 Europe - 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

29 June - 19 July 2008



3-day weekend programme

≤ 50 participants (mainly Europe, large number from UK)

In **English**

Partially funded by CERN (no travel)

Lectures on:

particle physics and cosmology
accelerators and detectors
antimatter, medical applications

Guided tours:

LHC experiments
Antimatter Factory

13 - 16 March 2008



1-Week Programmes

20-40 participants (from same country or language group)

In **the language of the participants**

No course fee, but external funding for travel, accommodation

Goal: 10-15 programmes per year

In collaboration with teachers and scientists from member states

Funding: teacher education funds, ministries, foundations

2006: Pilot schools (Finland, Hungary, Sweden)



CERN 1-Week Teacher Programmes

Typical Timetable

	Sun	Mon	Tue	Wed	Thu	Fri
Morning	ARRIVAL	CERN Particle Physics Accelerators	CERN Particle Physics Detectors	Detectors Cosmology Lecture review	Cosmology Spin-offs Educational resources	Lecture review Programme review WG Reports
Afternoon	Welcome Introduction	Visit (AD) Teachers lab/WG	Lecture review Teachers lab/WG	Visit (LHC exp.) Geneva	Educational resources Teachers lab	DEPARTURE
Evening	Team building	Evening activity	Free evening	Dinner	Quiz	



CERN Teacher Programmes 2007

Participants from	Language	Number	Date
Europe (PhT)	English	45	15 - 18 / 3 / 2007
UK	English	45	10 - 13 / 4 / 2007
Finland	Finnish	14	11 - 15 / 4 / 2007
Poland	Polish	41	15 - 21 / 4 / 2007
Slovak Republic	Slovak	47	22 - 28 / 4 / 2007
Poland	Polish	40	20 - 26 / 5 / 2007
Germany (RPF, NRW)	German	40	3 - 9 / 6 / 2007
Finland (3)	Finnish	3 x 16	3 - 24 / 6 / 2007
Europe, US, LA (HST)	English	38	2 - 21 / 7 / 2007
Spain (Catalonia)	Spanish	40	22 - 28 / 7 / 2007
Hungary	Hungarian	40	13 - 18 / 8 / 2007
Germany (B, BW)	German	40	1 - 8 / 9 / 2007
Portugal	Portuguese	40	9 - 15 / 9 / 2007
Germany (BB, S, SA)	German	40	14 - 20 / 10 / 2007
France	French	30	31 / 10 - 2 / 11 / 2007
Poland	Polish	40	25 / 11 - 1 / 12 / 2007

~ 650 Teachers



NTP Programme Organisation

Collaboration

CERN education group + for each country:

CERN 'patron' e.g. 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 many teachers who have attended our programmes



Thank You

- CERN Education Group Colleagues
- CERN Collaborators
- Lecturers
- Sponsors
 - Financial
 - Schools
- YOU

Have a safe journey home

AU REVOIR

mick.storr@cern.ch