

# CERN-Teacher Cooperation

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# CERN has a broad range of communication and education activities

## **Communication Group**

Press office (~400-600 visits of journalists/year)

Public webpages

CERN public visits (mainly schools)

Exhibitions, public lectures, events ("Globe", Microcosm, Open Day)

Live webcasts

## **Education Group**

**CERN teacher programmes (HST, 1-week programmes)**

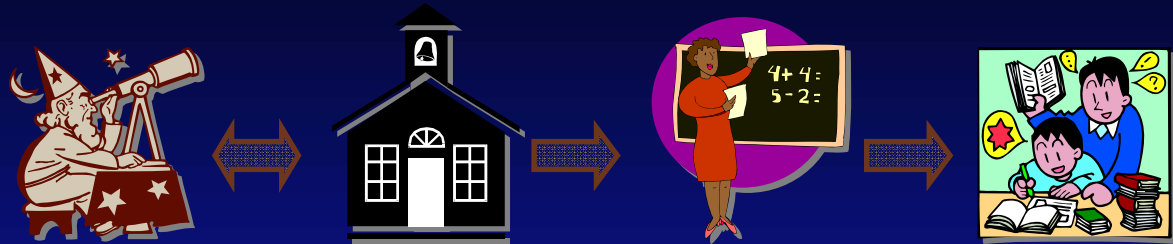
**Provision of teaching resources (via web)**

Archived webcasts (academic training, colloquia, seminars, etc)

Science On Stage 2005, 2007

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

OLD



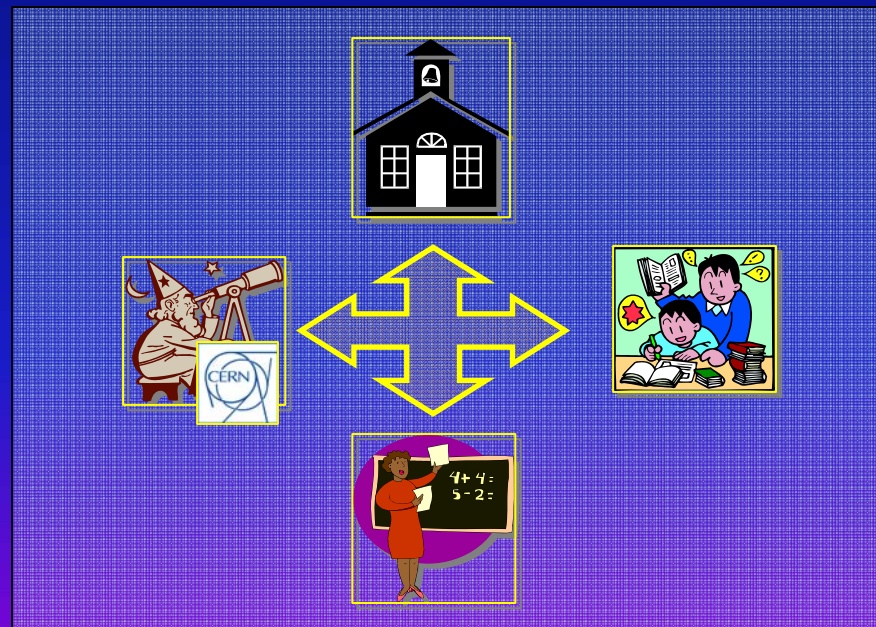
Research

University

School  
Teacher

Students

NEW



# What are we trying to achieve - With the help of physics teachers ?

## 1: RAISE INTEREST OF STUDENTS IN MODERN SCIENCE -

Motivate them to **continue scientific education at school**  
Help them to better understand the physical world  
*(Scientific literacy)*

## 2: INSTIL A FEELING OF MYSTERY AND DISCOVERY POTENTIAL

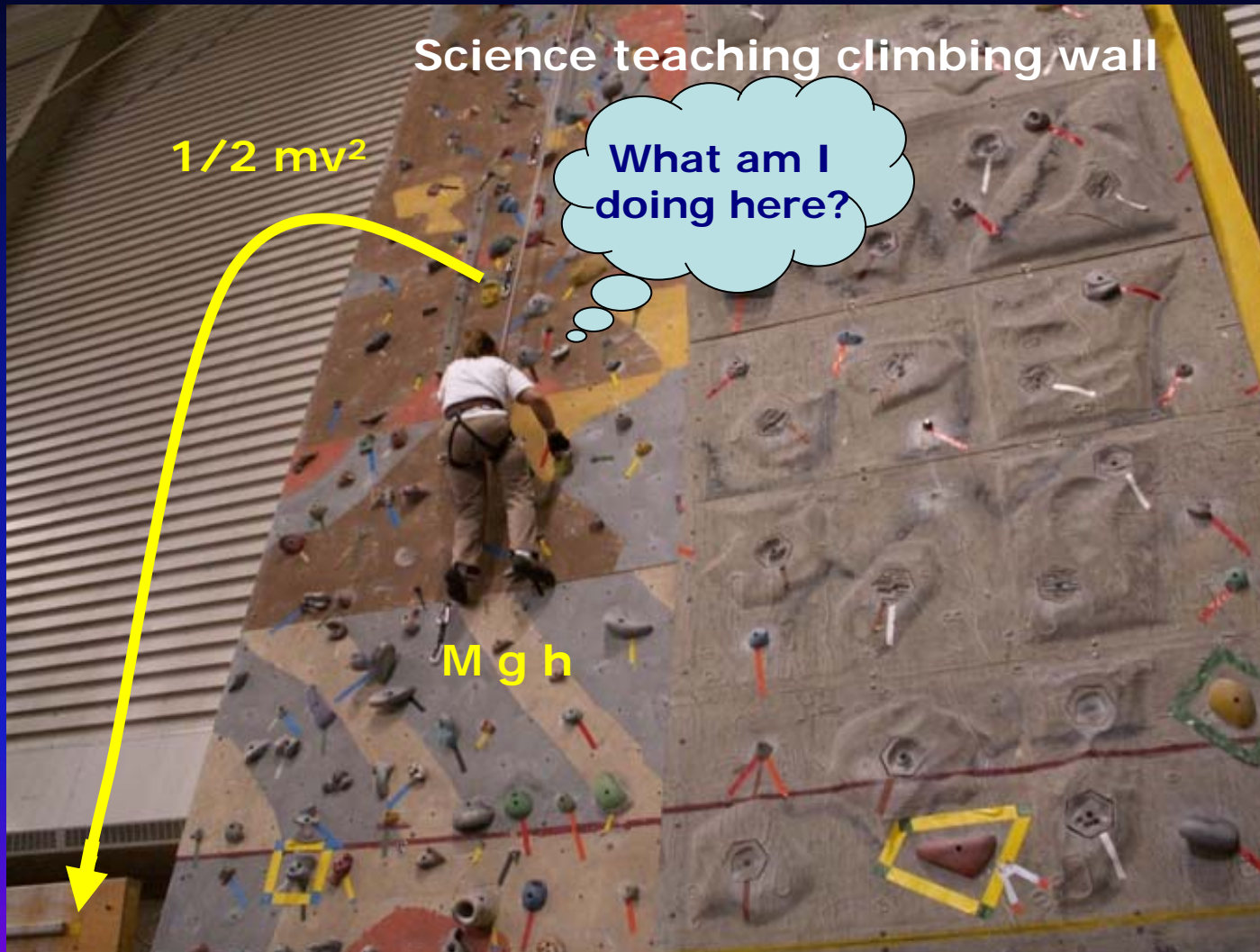
Motivate them to take up physics at universities  
*(Future generation of researchers)*

# How researchers view science





# How school students view science



# Take students on a sight-seeing tour ...



# Goal: Link modern physics to school curriculum

- Creation of teaching materials (presentations, **teacher sheets**, photos, **animations**)
- educational web-site giving easy access to educational resources
- for **teachers**, students, and scientists
- useful for public understanding of modern physics (> 1900)

Topic	<12 yr	13-16	>16 yr	University
Mechanics	Playful learning			
Electro-magnetism				
Optics				
Thermo-dynamics				



# Existing CERN Teacher Programmes

## High School Teachers Programme "HST" [ 3 weeks ]

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, spin-offs, ...

Workshops: Bubble chambers, teacher lab, stories, ...

Guided Tours: LHC experiments, AD, SM18, ...

Social events - networking - HST Alumni

## Physics Teachers Programme "PhT" [ 3 days ]

40-50 participants, mainly from Europe - held in English

**Partially funded** by CERN (accommodation, food, lectures)

Lectures + (few) seminars: Particle physics, cosmology, accelerators; antimatter, neutrinos

Guided Tours: LHC experiments, AD, SM18, ...

# **New** CERN Teacher Programmes

**1 week courses (all year) -**

**Language-** and curriculum oriented

5 ... 10 schools per year

20-30 participants, from same Member State or language group

Lectures given in language of member state

Lecture programme funded by CERN

Travel, accommodation, food **funded externally** (ministry, foundations)

**2006: Several pilot schools**

[e.g. Finland, Hungary, Germany, Spain, Greece, Norway, Italy ...]

# CERN Teacher Programmes

## Time table

	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

## Organisation

CERN education group + for each country:

CERN 'patron'

National coordinator

National agencies

e.g. scientist from this country at CERN  
(Finland: Riitta)

Source of external funding



# CERN Teacher Programmes

## Support activities

Teacher in residence

2-3 months grants  
Joint development of  
educational tools

Teachers lab

Demo experiments on  
particle physics  
(for classroom use)

Web-Site

Clear structure  
Creation of **suitable** material  
Feedback !