

CERN-Teacher Cooperation

Rolf Landua

CERN
DSU-ED

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)

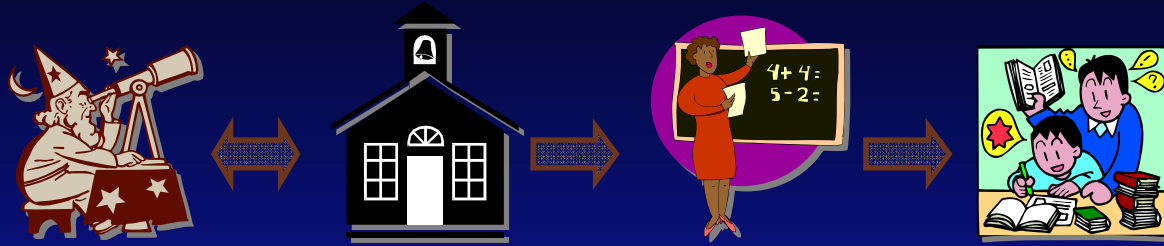
Provision of teaching resources (via web)

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

Science On Stage 2005, 2007

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

OLD



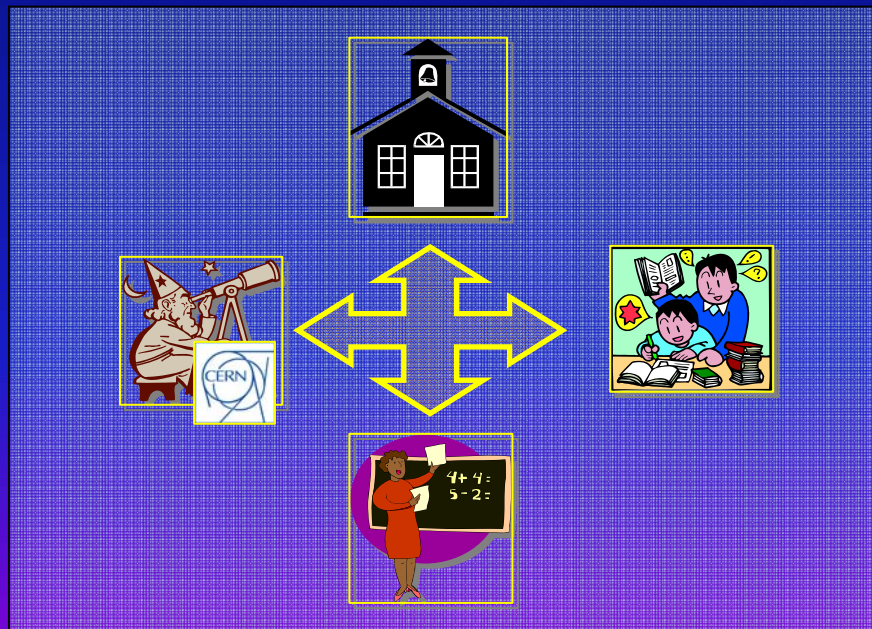
Research
h

Universi
ty

School
Teacher

Student
s

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)

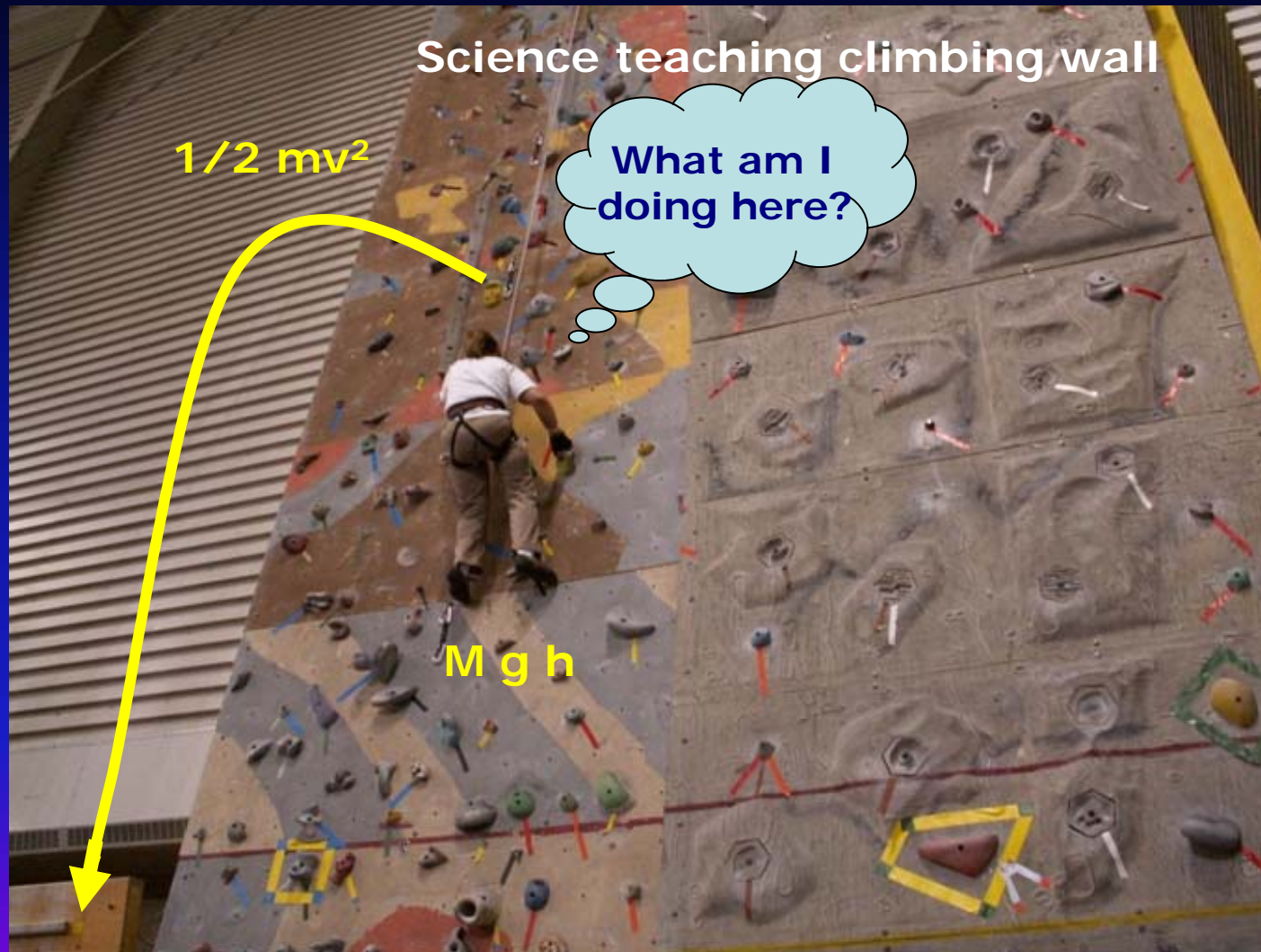
2: INSTIL A FEELING OF MYSTERY AND DISCOVERY POTENTIAL

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

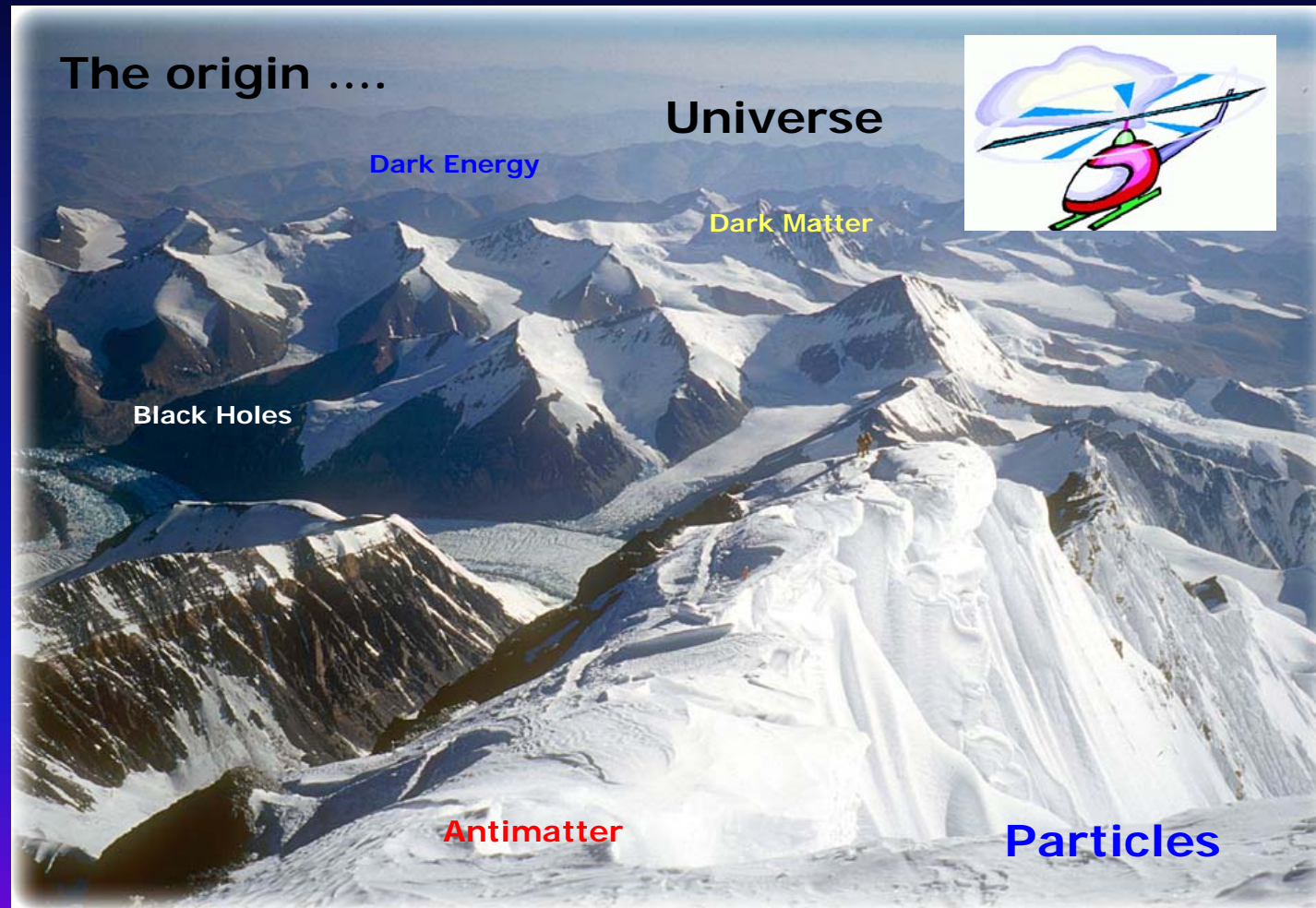
How researchers view science



How school students view science



Take students on a sight-seeing tour ...



Goal: Link modern physics to school curriculum

- Creation of teaching materials (presentations, **lesson plans**, 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, Sweden, UK ...]

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'

e.g. scientist from this country at CERN

National coordinator

e.g. teacher, administrator in this country

National agencies, foundations

provide 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 !