



CERN Teacher Programmes

Inspiring the next generation of scientists

Mick Storr

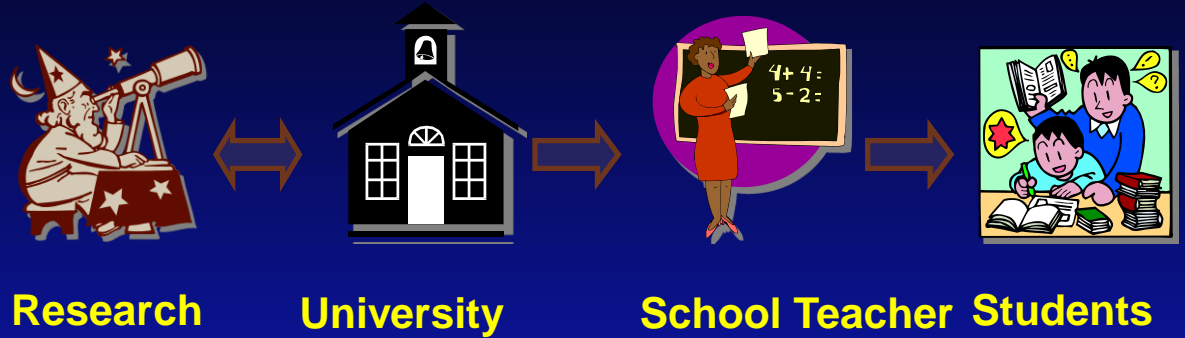
CERN, JINR Dubna, and
University of Birmingham



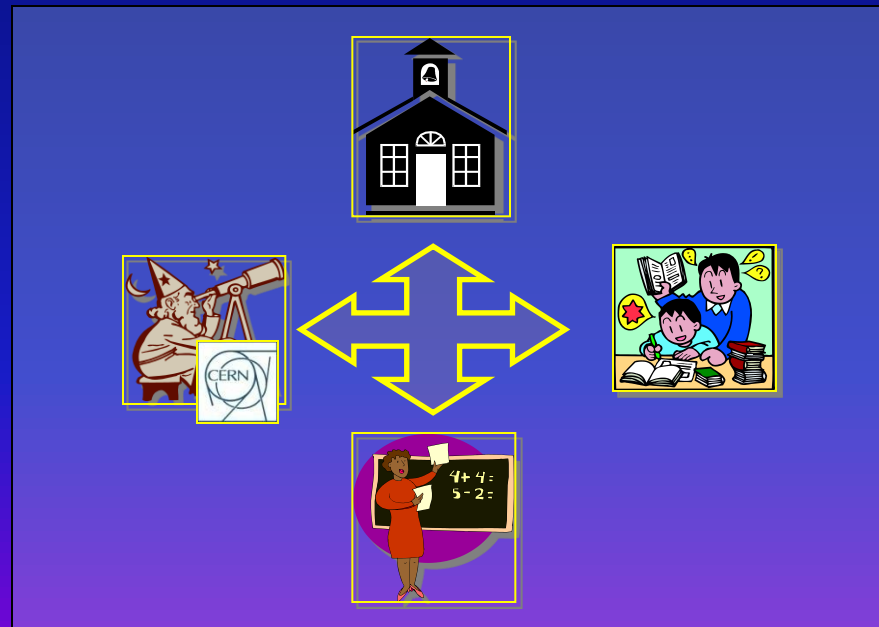
Objective of Teacher Programmes

To bring modern research closer to schools

OLD

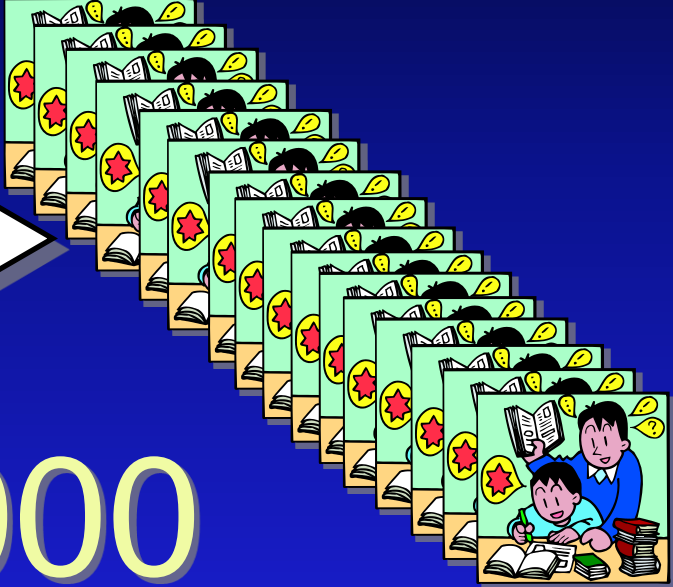
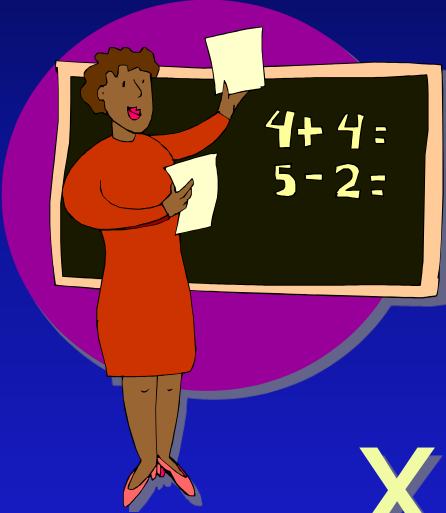
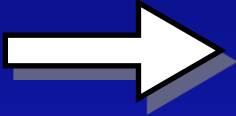


NEW





Looking for multiplicative factors



x 1000

School Teacher

School Students



Objectives of CERN Teacher Programmes

- Pass the message
 - Teachers are our partners and colleagues
- Recognise
 - Teachers hold the future in their hands
- Empower teachers
 - To update, expand and pass on their knowledge
- Facilitate
 - Learning
 - Networking
- Inspire and encourage
- Open and honest
- NOT TO tell teachers how to teach
- Learn from teachers

THANK



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 study science/engineering at universities

Prepare the future generation of scientists/engineers

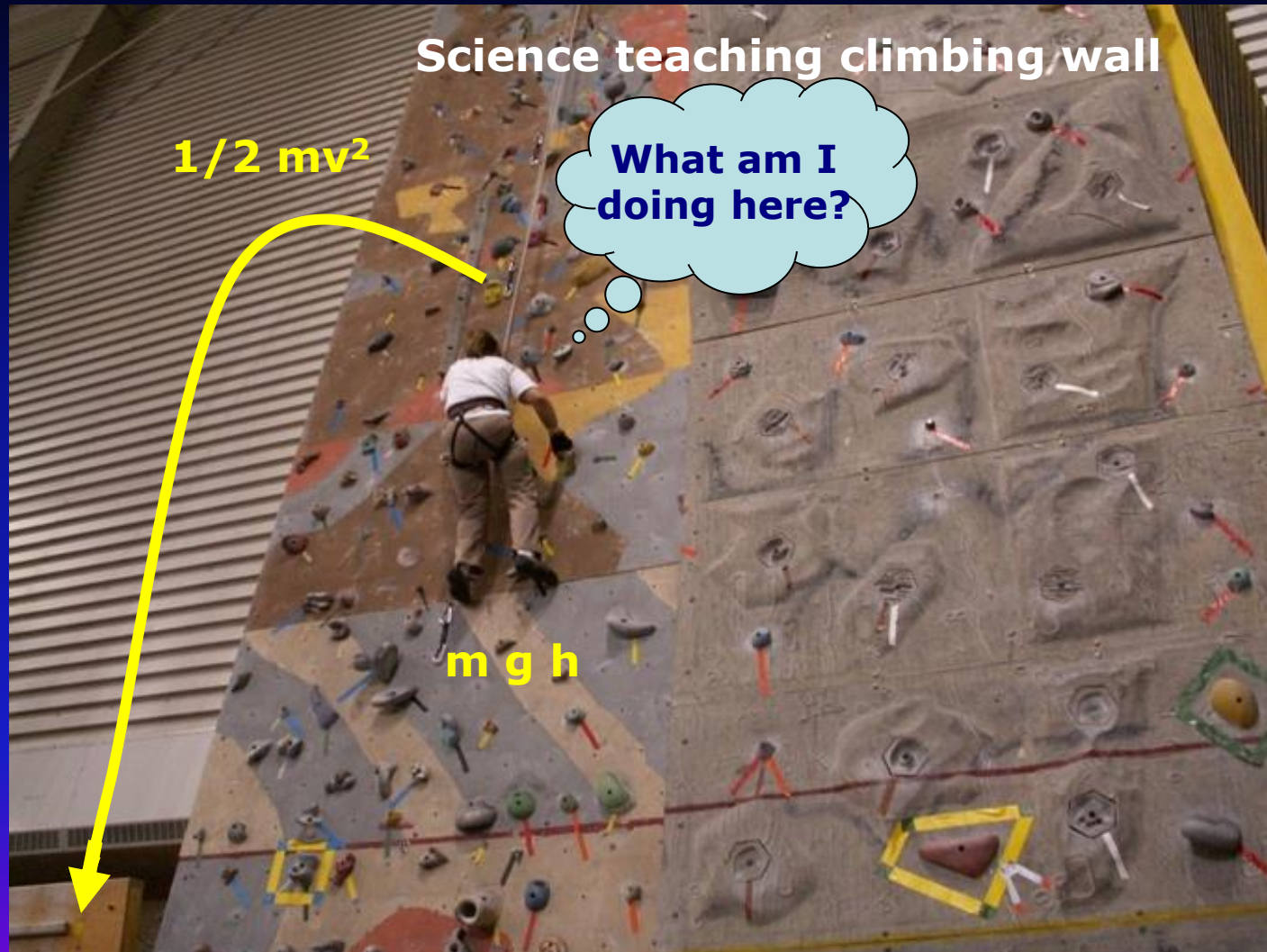
SCIENCE IS ALIVE !



How researchers view science

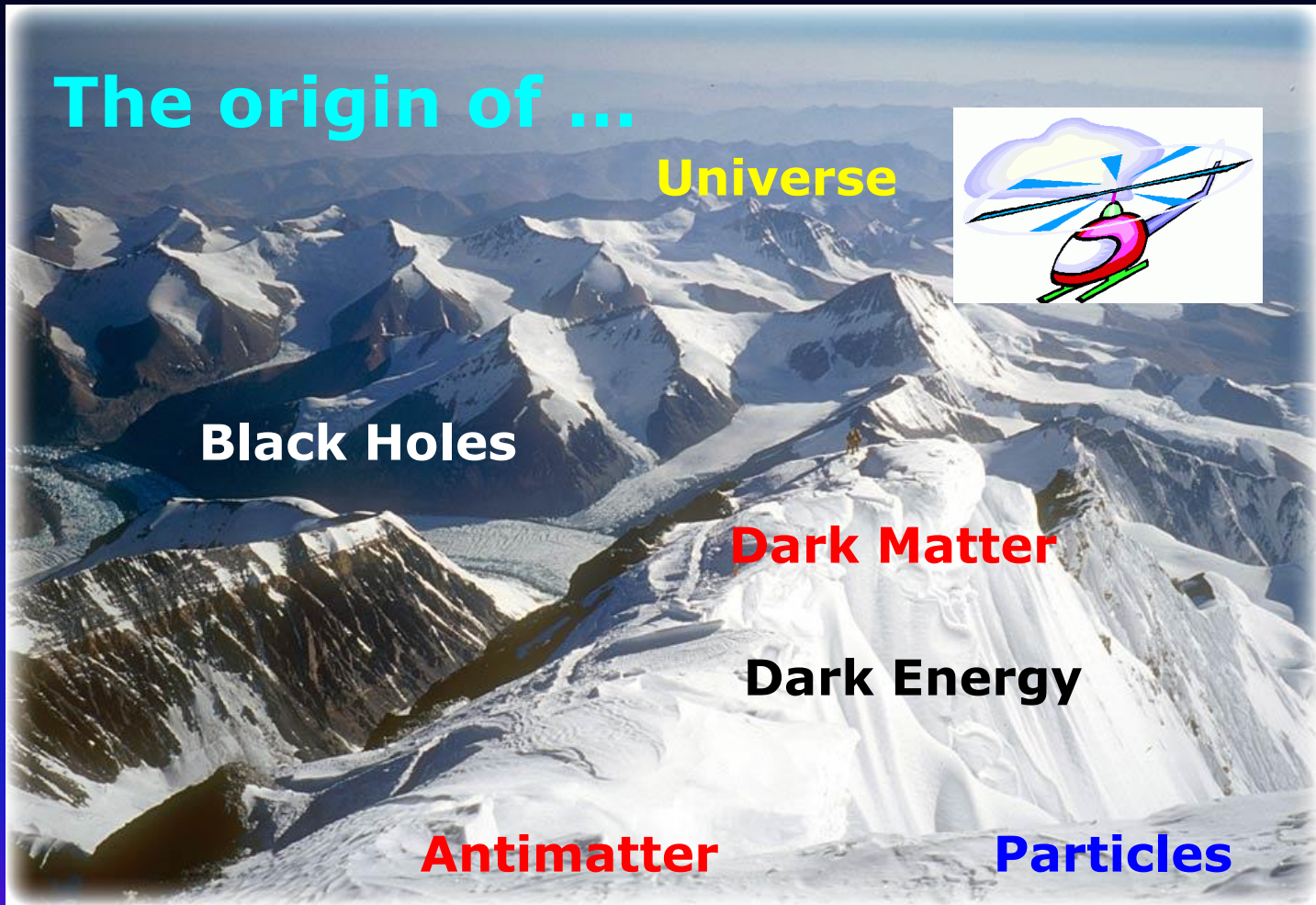


How school students view science





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 web archived and made publicly available

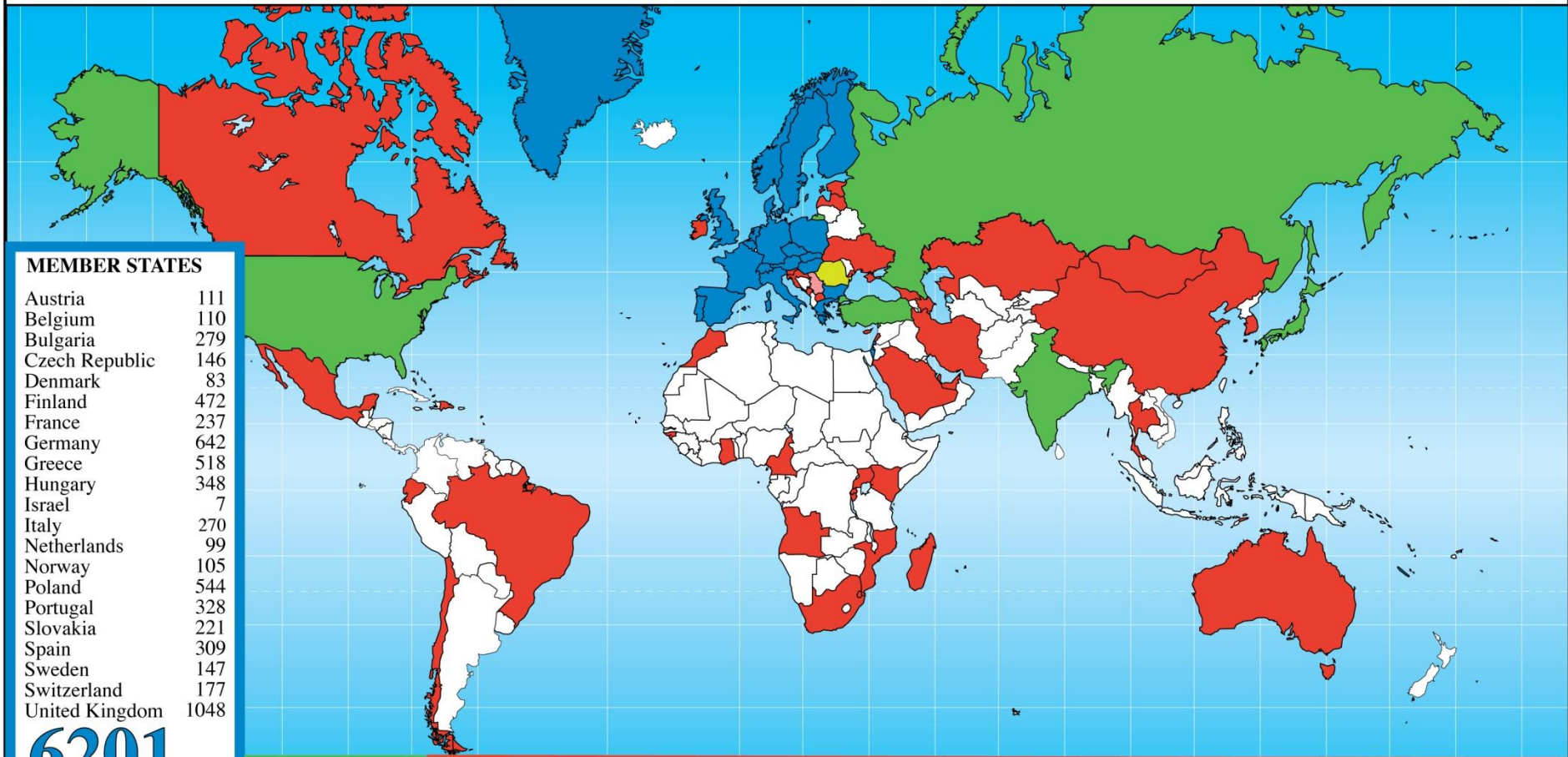


Outcome

- Newly inspired, motivated and confident teachers
- Inspire and motivate students
- Communicate with their colleagues
- Communicate with the general public
- Act as ambassadors for science/engineering, physics, particle physics, CERN
- Organise follow up activities
 - Visits, exhibitions, video conferences, projects
- Promote teacher programmes
- Help us to expand beyond the borders of CERN

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

Teacher Programme Participants 1998 - 2013 (Total: 7087)



MEMBER STATES

| | |
|----------------|------|
| Austria | 111 |
| Belgium | 110 |
| Bulgaria | 279 |
| Czech Republic | 146 |
| Denmark | 83 |
| Finland | 472 |
| France | 237 |
| Germany | 642 |
| Greece | 518 |
| Hungary | 348 |
| Israel | 7 |
| Italy | 270 |
| Netherlands | 99 |
| Norway | 105 |
| Poland | 544 |
| Portugal | 328 |
| Slovakia | 221 |
| Spain | 309 |
| Sweden | 147 |
| Switzerland | 177 |
| United Kingdom | 1048 |

6201

CANDIDATE FOR ACCESSION

| | |
|---------|----|
| Romania | 12 |
|---------|----|

ASSOCIATE MEMBER IN THE PRE-STAGE TO MEMBERSHIP

| | |
|--------|----|
| Serbia | 14 |
|--------|----|

OBSERVER STATES

| | |
|--------|-----|
| India | 2 |
| Japan | 5 |
| Russia | 193 |
| Turkey | 3 |
| USA | 65 |

268

OTHERS

| | | | | | | | | | |
|------------|-----|----------------|----|------------|----|--------------|----|--------------|----|
| Angola | 4 | China | 1 | Ireland | 5 | Morocco | 2 | Swaziland | 1 |
| Australia | 5 | Croatia | 1 | Kazakhstan | 3 | Mozambique | 17 | Thailand | 7 |
| Azerbaijan | 1 | Cyprus | 8 | Kenya | 4 | Qatar | 1 | T.F.Y.R.O.M. | 11 |
| Brazil | 114 | Dominican Rep. | 21 | Latvia | 1 | Rwanda | 17 | Timor-Leste | 7 |
| Burundi | 1 | Ecuador | 2 | Lebanon | 1 | Sao Tome | 4 | Uganda | 3 |
| Cameroon | 3 | Estonia | 46 | Madagascar | 2 | Saudi Arabia | 1 | Ukraine | 77 |
| Canada | 3 | Georgia | 74 | Malta | 36 | Singapore | 2 | U.A.E. | 1 |
| Cape Verde | 3 | Ghana | 6 | Mexico | 6 | Slovenia | 21 | | |
| Chile | 3 | Guinea Bissau | 1 | Mongolia | 1 | South Africa | 6 | | |
| | | Iran | 1 | Montenegro | 13 | South Korea | 44 | | |

592



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