GROUP 1

WHICH ARE THE MAIN PROBLEMS IN TEACHING SCIENCE/PHYSICS/PARTICLE PHYSICS

Generally speaking:

- Lack of time within the classroom periods
- Lack of time in teachers timetable experimental work's preparation
- Lack of laboratory assistants (except in France)
- Lack of economical resources for equipment (depends very much on the country)
- The "divorce" between Math and Physics in pupils knowledge
- in terms of teaching methods, there are not approached differences between science/physics and applied physicsPedagogical problems as a result of teachers basic/inservice training education deficiencies
- The existing gap between the physics taught in most schools and the recent scientific and tecnological developments students can see everyday in www and media.
- Bad image of physics (difficult, boring, much mathematics…) among the students

Specifically related with Particle Physics teaching:

- It does not exist in most of the syllabuses/curricula
- If existing, it is approached only in the last chapter, though there is no time to teach it
- Lack of teachers training in this area
- The project work in this area must incorporate magnetism, electromagnetism, etc.
- Lack of equipment, very sophisticated equipment, expensive equipment
- Some syllabuses (depends on the country) are more centered in electricity, Newtonian mechanics rather than modern physics which can be very boribg for XXI century youngsters.

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WHAT PROBLEMS DO WE FACE TEACHING SCIENCE, PHYSICS, PARTICLE PHYSICS ?

1. Children are interested in scientific toys, as t.v., computer, motorbikes, but not interested in how they work.
2. There is no enough time in timetable for Science and Physics. They start learning Science and Physics too late.
3. There is a difference between the common language and the scientific one and teachers are not prepaired enough to link the ways of expression.
4. There is a problem with children using maths in Physics, especially in

the upper classes.

5. Children and adults are afraid of Physics.
6. Very few things of Particle Physics are taught in many countries.

Best regards
Spring Lambs Team

Report from the Autumn Babies

What problems do we face as:

1. **…teachers of Science**

- Time allocated to instruction is being more and more restricted
- The mathematical background of students is weak
- Maths phobia
- Lack of confidence and/or willingness to approach difficult topics
- Paucity of resources and/or funding
- Varied ability to deal with abstraction of ideas
- Focus on grades rather than on learning

2. **… teachers of Physics**

- Pressure for teaching practical (applications of) physics, rather than theoretical concepts
- Lack of practical skills among students coming into courses
- Not a "valued" subject by many professions

3. **… teachers of particle physics**

- isolation from other topics
- only a small section of many curricula.

What problems do We face in teaching physics?

- Not sexy enough (poor image)

- Perceived as too difficult

- difficult to integrate "hands-on", issues are finding adequate time, money and technical resources

- national curriculums reducing time for science and math in some nations

- poor math skills

- not enough qualified teachers

- relevance of material taught in physics curriculum to students lives