

HST 2003

Programme Overview



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- **Week 1:**
 - foundations building
- **Week 2:**
 - preparation of WG material, outlines of the projects
- **Week 3:**
 - discussions, finalisation of the projects, documentation, reports

Proposed Working Groups

- Accelerator Physics in the class-room
- Bubble chamber pictures in the class-room
- The Standard Model in the class-room
- “Ask a scientist”

Accelerators

- Main themes:
 - how do we produce particles?
 - how do we accelerate them?
 - develop connection with electromagnetism classes, classical and relativistic mechanics, superconductivity
- Material:
 - lectures from Oliver Brüning
 - hands-on activity from Darren and Phil
 - visits to magnet facilities?

Bubble chambers

- Main themes:
 - how do we detect (i.e. “see”) particles?
 - how do we tell one from the other?
 - develop connection with electromagnetism classes, conservation laws, classical and relativistic mechanics
- Material:
 - lectures from Gron, Sascha and Joram (SSL)
 - hands-on activity from Silvia (cloud chamber)
 - visits to CMS/Atlas/Delphi, etc
 - material from previous HST editions

Standard Model

- Main themes:
 - what do particles tell us about Nature?
 - what are the building blocks of nature, and how do they interact?
 - how do different phenomena in the Universe relate to each other (the very small vs the very large): develop connection with chemistry classes, conservation laws, Newtonian gravity, quantum mechanics, etc)
- Material:
 - lectures from L.Maiani and L. Di Lella (SSL), F.Krauss (QM), A.Wertenbach (SM), P.Dunne (Feynman Diagrams), J.P. vanderShaar (Astroparticles), A.Dar (cosmic rays)
 - material from previous HST editions

Ask a scientist

- Goal:
 - contribute to the development of an interactive Web site containing the answers given by scientists to questions from students and the general public
- Material:
 - large database of existing Questions and Answers
 - interaction with the scientists who answered the questions

Additional activities

- Could chamber construction and operation (for those who are not in the accelerator WG)
- Computing tutorials (Powerpoint, Word)
- Discussions

Discussions, possible topics:

- EU support to international school networking
- Curriculum development in different countries
- Evaluation of impact of HST on classroom activity provided by previous participants (interaction with “Alumni WG”)
- Formulation of proposals for changes/improvements/etc for a possible scaled-up HST (e.g.: double the participants, or double the frequency?) (cooperation with Alumni WG)

Plan the discussions for week 3, will decide on what and when on the Friday review session of the second week

Work organization

- WG leader:
 - Darren and Phil (Accelerators)
 - Gron and Sascha(?) (Detectors/Bubble chambers)
 - Peter Dunne (SM)
 - ?? (Ask a scientist)
- Possibility to form subgroups (e.g. SM/Cosmology)
- Work strategy:
 - collect material (HST web page, lectures, visits)
 - meet and brainstorm (something was not clear? what is is potential use for the classroom? ...)
 - design a story (logical sequence, material organization)
 - individual work, implementing the strategy
 - meet again and evaluate
 - loop again

Documentation

- HST web page (Webmaster: Vlado)
- Agenda system
- Proposal:
 - use HST web page as repository, post links to the Agenda system (but: what happens to links when the web page gets reassembled??)