Minutes National Meeting Poland 2009

According to the National Work Plan we organised the Second HIPST National Meeting on 11. September 2009 in Olsztyn (associated with the organisation of 16. Annual Meeting of Polish Association of Science Teachers.

More than twenty participants attended the second national meeting; the schedule of this meeting was as follows:

- Dr. Józefina Turło, Welcome, introduction.
- Lecture of Dr. Jacek Szubiakowski on: Development of concepts on shape of Earth.
- Presentation of Dr. Józefina Turło on*: Advancements in HIPST Project.*
- Presentation of Dr. Józefina Turło on: *Sun calendar of Nicolaus Copernicus.*
- Presentation of Magdalena Czerwińska on: *The contribution of Copernicus observations to the calendar reform.*
- Presentation of Justyna Chojnacka on: *Studies of Witelo on rectilinear propagation of light.*
- Presentation of Magdalena Sadowska on: *Optical microskope since the first to the contemporary ones.*
- Presentation of Janusz Kosicki on: *Glasses as a simple optical instruments.*
- Presentation of Dr. Krzysztof Rochowicz on: *Optical instruments – telescopes*.
- Summary, final discussion perform by Dr. Józefina Turło.

After introduction by Dr. Józefina Turło, the Director of Olsztyn Planetarium and Astronomical Astronomy – Dr. Jacek Szubiakowski has given the lecture on historical aspects of development of concepts on shape of Earth. He started from the ancient sophisticated concepts and finished in XVIII century. The details of this lecture ware described in the published article in Science Teaching, No. 31, pp. 8-12 (No. 6 in the list of publications).

Next, Dr. Józefina Turło has reported the state of art in the realization of HIPST Project. Firstly, She took over the last achievements of the particular groups working in HIPST.
Group 1 - Elaboration of materials and methodology of HIPST in secondary schools, prepared: report on "The place of HIPST in new Polish Core Curricula"; scenarios of lessons and their realisation in school; descriptions, presentations and publications on HIPST Case Studies.
Group 2 - Elaboration of teachers education and training programme with the HIPST elements made analysis of "The Philosophy of science" subject existing so far and its adaptation for pre-service science teacher training.
Group 3 - Elaboration of materials and practical realisation of exhibitions at museums designed and realised ashibition on the "FIAT LUX – from Witelo to optical tomography" in: Regional Museums in Toruń (29.04-15.09.2008), Gdańsk (20.10.2008-15.02.2009), Olsztyn (01.03.2009 – 01.09.2009) Legnica (18.09.2009-30.11.2009), where Witelo was born.

Group 4 - Designing of additional new replicas caused that reconstruction of the Copernicus Astrolabium, Galileo telescope and Witelo devices: for study of rectilinear propagation of light and for ploting conical curves (from our resources) were done.
Secondly, Dr. Józefina Turło mention the following:

- *Regional Seminar* for science teachers on HIPST and related problems was established. There were the following topics presented: *Witelo, the first Polish nature scientist from XIII c, Historical experiments in physics education, Invention of spectacles in Europe, Astonishment in the mathematics and science cognition, The bigraphy of Professor Aleksander Jabłoński, „Practical realisation of interactive exhibition on OPTICS – FIAT LUX" (including the optical historical experiments, eg. Witelo, Copernicus, Galileo, Goethe).*
- The first list of teaching materials was identified by the Torun Partner Group members and by the Questionnaire answers of science teachers. *Some were described*.
- To improve strategies for the development and implementation of selected materials from optics (related to eg. *Witelo, Copernicus, Galileo, Newton, Goethe experiments, historical microscopes and spectacles*) the teachers were working on scenarios, presentations, and evaluation of the inquiry-based lessons.
- Two groups (one in school and the second at the Institute of Physics) were performing *original Nicolaus Copernicus experiment on „Sun calendar" by using the sun reflection method*.

At this point Dr. Turło started to present the information on and the main results of the above Copernicus experiment. She underlined mostly that this important to the world calendar reform experiment of Copernicus can be done not only by the secondary, but also elementary school students. She made historical introduction on famous Copernicus observations and advised on their performance methodology.

Later on the Toruń HIPST Partner's collaborators: M. Czerwińska, J. Chojnacka, M. Sadowska, J. Kosicki and Dr. K. Rochowicz were presented their Case studies in detail. These presentations were described in the below publications and placed at WWW: http://hipst.fizyka.umk.pl.

Publications:

1. *Spectacles as a simple optical device, starting from the history,* J. Kosicki, Nauczanie Przedmiotów Przyrodniczych, 29, 2009. pp. 23-27.
2. *Europejski projekt FP7 History and Philosophy in Science Teaching (HIPST),* J. Turło, G. Karwasz, K. Służewski, A. Karbowski, K. Przegiętka, Nauczanie Przedmiotów Przyrodniczych, 30, 2009, pp. 41-48.
3. *The solar calendar of Nicolaus Copernicus, Part II,* A. Witkowska, Nauczanie Przedmiotów Przyrodniczych, 30, 2009. pp. 25-29.
4. T*he solar calendar of Nicolaus Copernicus, Part III,* M. Czerwińska, Nauczanie Przedmiotów Przyrodniczych, 30, 2009. pp. 30-40.
5.. *Development of ceoncepts on shape of Earth,* J. Szubiakowski, Nauczanie Przedmiotów Przyrodniczych, 31, 2009. pp. 8-12.
6. *Interactive education – exibition on optics „From Witelo to optical tomograph",* G. Karwasz, Nauczanie Przedmiotów Przyrodniczych, 31, 2009. pp. 20-25.
7. *Optical microskope since the first to the contemporary ones – HIPST lesson proposition"* M. Sadowska, Nauczanie Przedmiotów Przyrodniczych, 31, 2009. pp. 26-36.
8. *Optics lesson with the use of Witelo studies, J. Chojnacka,* Nauczanie Przedmiotów Przyrodniczych, 32, 2009. pp. 16-22.

9. *Telescope at school lesson – to be Galileo themselves*, K. Rochowicz, Nauczanie Przedmiotów Przyrodniczych, 32, 2009. pp. 23-28.