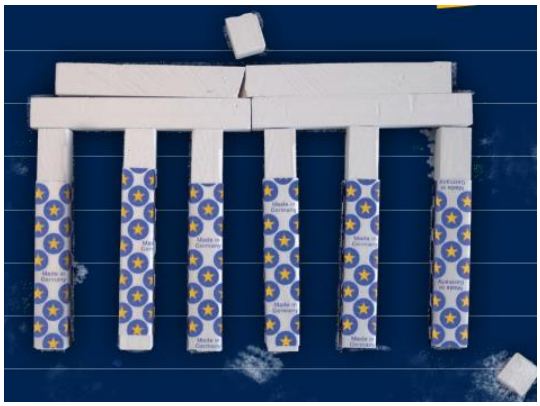


Berlin 2008 – 23 au 26 Octobre 2008

SCIENCE ON STAGE
BERLIN 2008
THE EUROPEAN SCIENCE TEACHING FESTIVAL
23RD–26TH OCTOBER 2008, URANIA BERLIN

Berlin 2008 – 23 au 26 Octobre 2008

SonS Berlin a eu lieu du 23 au 28 octobre 2008 dans le centre scientifique de la ville de Berlin.

A ce festival ont participé de la Belgique : Marc Debusschere (président de SonS Belgium), Lieselotte Dendooven (KHS St. Lieven, Aalst), Isabelle Querton-Parloir (European School Brussel 1, membre SonS Belgium), Patrick Walravens (membre NSC SonS, Belgium, ZAVO), Henri Eisendrath (membre NSC SonS-Belgium, VUB) …

Les participants actifs, au nombre de 161, venaient de 21 pays.

Tout le festival s'est construit autour de six thèmes :
1. Les sciences à l'école Maternelle et primaire
2. Un enseignement interdisciplinaire des sciences
3. Des expériences pour motiver et pour construite le savoir
4. L'auto perception et évaluation du processus d'apprentissage
5. Est-ce que les initiatives hors curriculum peuvent ils être bénéfiques ?
6. L'enseignement du futur : un acteur solo ou un modérateur ?

Ces 6 thèmes ont été présentés sous trois formes : une grande bourse d'expériences, des groupes de discussion ou 'workshops' et des présentations sur scène.

A la foire les participants ont pu découvrir plus de 110 expériences ou kits d'expériences. Initialement il était aussi prévu que les workshops seraient introduits par 3 à 4 présentations mais vu le manque de temps ces présentations n'ont, dans la plupart des cas pas eu lieu. Finalement 22 groupes ont pu présenter leur travail pédagogique sur une scène devant un public plus large.

Les organisateurs de ce festival méritent certainement des félicitations. Seul point négatif était le manque de place pour la foire des expériences.

Il est évident que la présence des Allemands avec leurs 87 contributions était dominante, mais avec son apport la Belgique peut être comptée parmi les 7 pays (sur 21) les plus actifs. Bravo à Science on Stage Belgium.

Dans la suite de ce rapport vous trouverez d'abord les contributions de la Belgique avec un lien vers une présentation plus détaillée. Mais comme un des buts essentiels de Science on Stage Belgium est de diffuser des bonnes idées didactiques et d'expériences nous tenons aussi à présenter dans ce rapport les contributions de collègues étrangers qui nous ont semblé intéressantes.

Chaque présentation est suivie de quelques commentaires récoltés parmi les participants, de l'adresse e-mail de l'auteur et si possible d'un lien électronique vers un document plus explicite et éventuellement de quelques commentaires récoltés pour les participants.

Contributions Belges à la bourse d'expériences

1. Watt ... en wat meer ! Watt … and some more !

Lieselotte Dendooven
Katholieke Hogeschool St. Lieven - Aalst

Ce projet a comme but de rendre les sciences physiques plus attractives pour de jeunes de 15 à 18 ans et se présente sous la forme de boites pédagogiques ou d'ensembles d'expériences interactives à faire par les élèves.
Dans les expériences les élèves sont confrontés avec des aspects fondamentaux de la physique. Avec les boites pédagogiques on essaye de développer chez les élèves des compétences scientifiques telles que les rédactions d'un rapport, concevoir une recherche, tirer de bonnes conclusions, formuler des hypothèses etc.
Parmi les thèmes de recherche on trouve une recherche sur les rayons UV, la comparaison et le calcul de la vitesse de chute d'aimants dans différents tubes en cuivre.
D'une façon plus général les sujets abordés concernent : la lumière (LED there be light), la communication (du tamtam au téléphone mobile), le magnétisme et l'énergie (la maison passive).
Ce projet a été financé par le gouvernement Flamand.

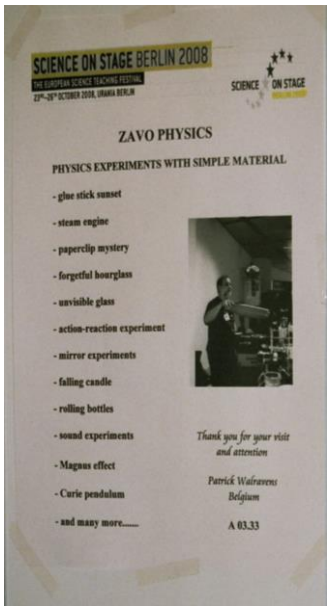
Commentaires
Du au manque de place le projet n'a malheureusement pas pu être mis suffisamment en valeur. Par son interactivité et les sujets abordés, le projet a un intérêt certain.

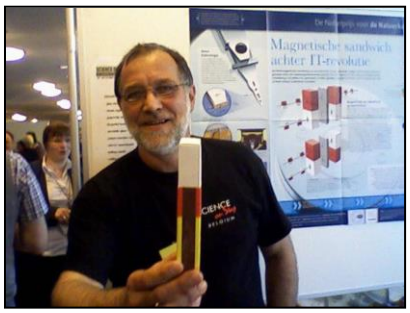
Email Lieselot Dendooven : Lieselot.Dendooven@kahosh.be

2. Des expérience de physique construites avec du matériel simple

Patric Walravens
ZAVO

Mr. Walravens a développé au cours de sa carrière d'enseignant de physique plus de 900 expériences dont il en a présenté une vingtaine au festival de Berlin. Ces expériences ont été montées avec du matériel simple et bon marché et donc à la portée de tous. A Berlin il a fait des démonstrations dans le domaine du magnétisme, électrostatique, loi de Pascal.





Commentaire
Il est remarquable de voir combien avec du matériel simple on peut motiver et faire réfléchir des élèves sur des problèmes fondamentaux de la physique. Le stand bien placé, a connu un grand succès.

Email Patrick Walravens : pat-walravens@hotmail.com
http://www.nvon.nl/files/oud/nvox/nvox2007/recensies/recensies10.pdf

3. *Why pips don't sprout in an apple - Pourquoi les pépins ne germent-t-ils pas dans la pomme ?*

Isabelle Querton-Parloir
European School Brussel 1

Dans les plantes certaines hormones aident les fruits et légumes à grandir. Les expériences présentées démontrent que la chair d'un fruit contient une substance spéciale qui empêche les pépins de germer. L'acide abscisique (ABA) est une hormone 'inhibitive'. Cette hormone bloque la compétitivité entre la plante mère et les semences (pépin).

Commentaires
Les expériences présentées mettent le phénomène clairement en évidence et c'est même spectaculaire. Pour certains participants cela pourrait même être présenté aux élèves des dernières années du primaire.

Email Isabelle Querton-Parloir : iquerton@yahoo.fr
Lien : *Why pips don*

Présentation d'un des participants Belge à la table ronde 'L'auto perception dans l'enseignement des sciences'

4. *Misconceptions*

Marc Debusschere
DPB Gent

La création de fausses conceptions en physique ou les renforcement de celles-ci sont souvent dus à la didactique elle-même, didactique dans laquelle nous ne laissions pas assez de place à la réflexion et à l'expérimentation par les élèves eux-mêmes. Dans sa contribution Marc Debusschere présente plusieurs méthodes didactiques pour construire à travers la discussion et l'expérimentation un savoir sans fausses conceptions.

Commentaires
Dans cette contribution l'auteur attire l'attention sur un problème trop souvent négligé. Il apporte quelques approches de solution qui méritent certainement notre attention.

Email Marc Debusschere : marc.debusschere@skynet.be

Lien : Texte Berlin misconceptions
http://users.skynet.be/sofysica

Il est certain que les contributions Belges ne sont pas restées inaperçues. Chacun des participants a aussi participé activement aux tables rondes dont certains continuent leurs travaux après ce festival. C'est le cas de la table ronde 'Multidisciplinary teaching' et ces sous-groupes dont Henri Eisendrath a fait et continue à faire partie.

Nous avons tenu à vous transmettre les abstracts tel que les auteurs les ont présentés en Anglais dans le catalogue du festival suivi de leur adresse e-mail et si possible d'un lien avec un document ou un site http.

Mais un des buts principaux de SonS Belgium est de récolter et de diffuser des idées que les participants Belges ont pu trouver chez leurs collègues d'autres pays.

L'équipe Belge

M. Debuschere, J. Van den Bosshe, I. Querton, A. Vermeyen, H. Eisendrath, L. Dendoven, P. Walravens

Vous trouverez ci-dessus une série de contributions auxquelles on ne pouvait rester indifférent. Pour chacune nous avons inclus dans ce rapport le texte en anglais repris de la documentation disponible à Berlin, une adresse de contact et un lien qui permet d'avoir un aperçu plus détaillé de la contribution.

A la bourse des expériences

Sous le thème *'**Fair - Science in kindergarten and primary school**'*

5. Discovering space with children – Fascinating astronomy for the youngest
Tatjana Knaus-Trick, Nicole Backer
Kindertagesstätte des Studentenwerks, Heidelberg, Germany

Looking at the starry sky is an intriguing experience even for the youngest children. In the kindergarten of the Studentenwerk Heidelberg the enquiring three to six year old learn about the universe through play. Using self-made models of the planetary system we simulate the configuration and motions of our solar system and discover the origin of the phases of the moon. We generate lunar crater landscapes and use self-made star charts as a first orientation guide to the night sky. The independent investigation of astronomy by the children is important to us. The children explore phenomena in nature through simple experiments. We foster the children to open their eyes for their environment, in order to discover, for example, the phases of the moon, the path of the moon across the sky, or the shadows cast by the sun. Learning through play is our main focus of our work. This project was initiated by the "Zentrum für frühe naturwissenschaftliche Förderung" of the University of Education, supported by the foundation Klaus-Tschira-Stiftung.

Email : Tatjana Knaus-Trick : Tatjana.Knaus-Trick@t-online.de
Nicole Backer : nini19811@gmx.de

6. If colors become a health problem – colored T-shirt with colors of plants
Hannelore Kuhnen, Silvia Kunter,
Gymnasium der Stadt Rahden, Germany

Starting point of this project is a newspaper article which reported on a call-back campaign of children's clothing which contained harmful colors. Based on this article the pupils researched which colours played and play a role in history and modern times and which colors could be tried out by them to solve this problem. Depending on age group and content the various components can be differentiated (e.g.: Where are the pigments located in the cell? Which

criteria have to be considered when isolating the colors? etc.). The whole project is intercurricular as the subjects are covered e.g.:
Biology - microscopy; cell structure; location of the pigments in the cell; differentiation of the family of colors; chromatography; etc.
Chemistry - planning of experiments; isolating the pigments and colors; improvement of the isolating methods especially the influence of the solvent temperature surface area; methods of dying and preserving.
Physics - How doe we see colors? What are colors? Additive and subtractive mixing of colors.
History - development of dying techniques from history to present i.e. How did our ancestors dye? Did colors have a certain meaning in certain times?
Art - The meaning of colors nowadays; from the sketch to the self designed T-shirt. Regardless of the age group the making of the T-shirts, the finished product and the creation of their own colors turned out to be pupil motivating.

Email Hannelore Kuhnen : hannelore.kuehnen@online.de

7. Science as a transitional subject in kindergarden und primary school

Elisabeth Schuster, Mario Spies
Katholischer Kindergarten Landkern, Germany

Sciences have become a primary subject matter in many kindergartens and primary school. They are suitable in order to connect and to improve learning processes to link different institutions with each other and therefore to ease the transition from kindergarten to primary school for the children.
In the fair stand we will show how the cooperation is organized and what activities there are between the kindergarten and the primary school Landkern.
During the 2nd presentation in the workshop (see chapter B.1.3) experiments are carried out with the focus on observation documentation and connectivity.

E-mail Elisabeth Schuster : mario@spieshome.de
http://www.wissen-schaffen.de/images/stories/grundschulen/science-on-stage-2008-landkerner-modell-langfassung.pdf

Sous le thème ***'Fair - Interdisciplinary teaching'***

8. Out in space

Johanne Patry
Marguerite-Bourgeoys School Board and Collége Bourget, Vaudreuil-Dorion, Canada

Out in Space addresses science and technology learning using simulated space missions and role play. Pupils ages 10 to 17 put together scenarios applying experiments related to astronomy, planetology, chemistry or in this case 'moonology'.
In the mission presented here students (13-14 and 15-17 years old) are immersed in a problem solving situation where they have to find a suitable moon in our solar system similar to terraform

since there is no more room on our own planet to grow food. The pre-mission is prepared in the classroom. Students are assigned roles from flight director to astronomer to pilot. Afterwards they put together their exploration scenario to select the proper moon based on the different characteristics needed to support life and terraform one of four selected moons. In teams they design and construct prototypes of measuring instruments needed (e.g.: seismograph barometer etc.). The mission itself lasts three hours for the roundtrip. The six-students crew of the in-house spaceship simulator are sent to each one of the four moons where they measure with their instruments chosen parameters. The last part of the mission in class the pupils decide and justify which of the moons is the most suitable to terraform and how they plan to do it. From such a project students builds stronger relationships and are more open to science learning. For this project Dr. Johanne Patry received the Prime Minister of Canada Award for teaching excellence in math science and technology.

Email Johanna Patry : patryjo@videotron.ca
Lien : SNN11

9. Smoking prevention project

Klaus P. Schröcker, Josefine Jaritz, Wolfgang Mann
HTL Bregenz, Austria/ BG/BRG Carnerigasse Graz, Austria
Kantonsschule Wettingen, Aarau, Switzerland

The School Smoking Prevention Project by its basic idea is originated in Science on Stage 2 at Grenoble. It is a cross-curricular and cross-border initiative to develop and perform smoking prevention activities by 14 to 18 years old students featuring a very useful device: the so-called Smoking Prevention Lab. This low-priced measurement device helps to visualize and impressively explain the effects of smoking on pulse, blood flow and blood pressure as well as on the temperature of fingers without having to smoke. The co-operative development of the Smoking Prevention Lab by 18-year-old students of the HTL Bregenz (school of engineering), the Kantonsschule Wettingen (grammar school) and apprentices of the Julius Blum GmbH as well as the cooperative development of applications by 14-18 years old students of the BG/BRG Carnerigasse (grammar school) and the HTL Bregenz with the help of SUPRO (addiction prophylaxis workshop) is also part of the project.
Outcomes that other teachers can implement in their classes:

1) Materials forms of organization and the Smoking Prevention Lab for smoking prevention activities performed by 14 to 18 years old students.
2) Educational projects, topics for final exam or special-focus papers and lab exercises on the Smoking Prevention Lab within the future Smoking Prevention Project.
3) Make a pulse sensor yourself with your 10 to 14-year-old pupils to promote science and technology professions.

Email Schröcker Klaus : k.schroecker@gmail.com

10. Nanotechnology and school

Walter Stein and students

St. Michael-Gymnasium, Bad Münstereifel, Germany

The title "Nanotechnology and School" includes four projects:
1) Nanoreseachers at St. Michael-Gymnasium
2) Production and proof of carbon nanotubes with methods that can be applied at schools
3) Graphene - The thinnest layer of the world!
4) Photonic crystals - Small spheres really great!

The first project explains in what ways young people who are interested in and talented for science and technology can be furthered intensively by research work for the contest "Jugend forscht" (Regional Youth Research Competition). The three presented projects are exemplary works from the field of nanotechnology. Here the students at the age of 16 years demonstrate their experiments.
They produce single-wall-nanotubes out of carbon and a field-effect-transistor out of graphene an one-atom-thick planar sheet of carbon atoms. They create low cost and colourful photonic crystals out of latex spheres.

Lien : Nanotechnology and School.pdf
http://www.jufo.stmg.de

Sous le thème ***'Fair - Hands on-experiments to boost motivation and cognition ?'***

11. Latexmotor

Ludwig Eidenberger, Harald Gollner, Florian Altendorfer, Christoph Eidenberger
Gymnasium Rohrbach, Austria

Conversion and conservation of energy in experiments with the material latex.

Exp. 1 Elevator (thermal energy > potential energy).
A latex glove holds a lever with a weight on the other side and keeps it in balance. A spotlight heats the latex glove which reacts with contraction thus the glove lifts the weight.

Exp. 2 Latexmotor (thermal energy > kinetic energy).
A hula hoop with condom-spokes is heated with a spotlight on one side. The condom-spokes contract and the centre of mass shifts. Thus the wheel starts turning and due to the cooling-down of the spokes on the other it side a continuous energy conversion is possible.

Exp. 3 Refrigerating machine I (inversion of the latexmotor, kinetic energy > thermal energy). This experiment shows that the latexmotor is a reversible process. If the hula hoop runs in guide rolls (powered by an electric motor) and the axis is in an excentric

position the condom-spokes are warm on the expanded side and cold on the other side. This effect can be visualized by a thermographic camera.

Exp. 4 Refrigerating machine II (refrigerator-principle, kinetic energy > thermal energy).
A latex loop runs over two rolls. One of them is powered the other is slowed down. Thus the latex loop is permanently expanded (warm) on one side and on the other side permanently relaxed (cold). Theoretic background : when expanding the latex the work is partially converted in thermal energy. If the expanded latex is heated the process reverses : the latex absorbs the heat and contracts.

Email :latexmotor@hotmail.com
Lien : Abstract latexmotor.pdf; Latexmotor.pdf
http://latexmotor.brgrohrbach.at

12. Model experiments – experiments in DVD

János Márki-Zay
Vásárhelyi Cseresnyés Kollégium, Hódmez, Hungary

Experiments with paper : Changing the properties of paper by deformation. Making a paper spring. Consequences of twisting a paper reel. Experiments with paper strips. Márki-Zay-type straw model. Approximately 50 different experiments and modelling experiments can be shown using electrically charged straws (including a DVD). Colorful illustrations of magnetism are given on a colour TV (supported by a DVD). Illustrating longitudinal waves with a magnetic pendulum. Further developments on Bragg-Nye-type bubble model. Modelling diffusion along the edge of particles. Foam and glue models of amorphous material fracturing (viscous fingers).

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http://freemail.hu/oriaslevel/download.php?id=33ab81aa38871fc53b2fae987c6e57fe

13. Metals in motion

Franz Steiger
KSL, Sempach, Switzerland

Metals in motion (DVD) by Gabrijala Pejic and Franz Steiger. Burning, popping, exploding, shining, pulsing, floating, colored, twanging around, growing liquid ... metals on stage.
In a project during one week a class of five girls and sixteen boys (14 - 19 years old) made short videos of chemical experiments. They cut the films and underplayed the product with own and foreign music. The result were five films from four to eight minutes. The product shows the fascination of chemistry.
Chemistry is fun! It's a film for amusement and relaxing. The direction of the film was by Gabrijela Pejic and Franz Steiger 2008.

Email Franz Steiger : franz1.steiger@edulu.ch
http://www.chemie-cd.ch.vu

14. Simple experiments in various levels of teaching physics

Zdenek Drozd
Charles University, Prague, Czech Republic

In this project a simple method is described how hands on experiments may be performed in various levels of teaching physics (from primary school to university education) and how to achieve new findings obtained by the analysis and evaluation of these experiments. The hands on experiments represent a very effective way how to make physics more attractive for students. The simple experiments are usually used in primary education and in the secondary schools. In this project it is proposed how to use them also in university level of physics education. The design of various aids and simple apparatus is described. It is based on the commonplace tools and objects. Practical examples are shown how this topic which is often considered to be marginal and only expository in the physics education may be presented in a very interesting way and in active participation of students. The procedure is proposed in which the students in discussions with the teacher and among each other, in homework and particularly by suitably directed independent work during classes discover new findings, introduce necessary physical units etc. Moreover intersubject relations between physics and other teaching subjects are developed. The proposed methodology results in a deeper understanding of the topic and the students learn the active creative approach to problem solving issues. The tips for the tuition specified in this project were tested by author directly in teaching procedure.

Email Zdenek Drodz : zdenek.drozd@mff.cuni.cz

15. Chemistry is fun – action-oriented, open chemistry

Gregor Von Borstel
Alexander-von-Humboldt-Gymnasium Bornheim, Germany

Creative experiments with medical - technical equipment by Gregor von Borstel, Andreas Bohm et. al.

"Tell me and I'll forget.
Show me and I'll remember.
Let me do it myself and I'll understand" (Confucius)

Our goal is to increasingly enable students not only to follow the way of scientific insight but to walk on it autonomously. Therefore it is necessary for them to successively learn to plan and optimize experiments.
Air and Combustion, the lime circulation or the principle of "Le Chatelier" serve as an example for proving that chemistry can be planned and carried out in such a way that it does not only impart issues and methods, but is, according to the pupils, also fun.
The main methods of teaching will be the "Egg-Race" method. To enable even beginners to do this most risk less we have developed sets for a technique of experimentation which allows break-proof handling on a small scale.
For this purpose we employ a number of medical technical devices (so called "ChemZ")
These devices have the following advantages over conventional glass devices:
They offer higher safety standards as there is no risk of breakage of glass.

They are easier to handle.
They are cost-efficient.
Equipment and literature for free regarding the subject and experiments with gadgets used for medical treatment shall help to create a lively image of the ideas.
You will find further information and a lot of materials below www.lncu.de

Email Gregor Von Borstel : gregorvonborstel@lncu.de
http://ne.lo-net2.de/gregor.vonborstel/download/FB/FB_skript.pdf,
www.lncu.de.

16. Under pressure

Monteiro Carreiró, Luís Miguel
Secundária de Nelas, Ervedal da Beira, Portugal

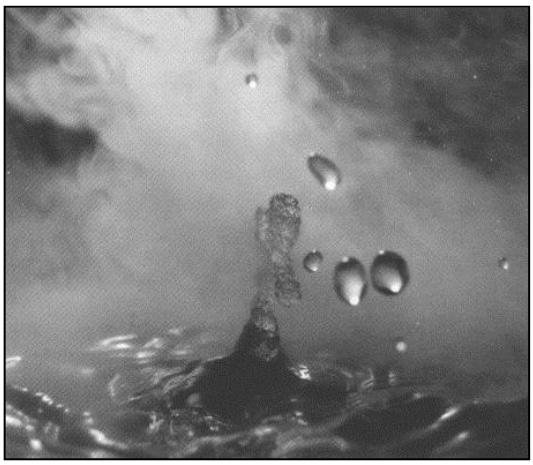
It is sometimes difficult to implement experimental work at schools due to the high cost of certain equipment or tools and the lack of readily available materials. In some circumstances these problems may be overcome by means of low-cost educational equipment made from materials which can be easily found at school and in our everyday life. As a consequence it is our intention to present some activities related mainly to the concept of "Pressure" which are educational applications of the syllabus contents taught both in the elementary and secondary education. The approach which was used involved the construction of some easily conceived devices which can be developed in regular classes or even in the science club.

Email Monteiro Carreiro, Luis Miguel : ciencias@esec-nelas.rcts.pt

17. Ultrasound in liquids

Franz-Josef Natschläger and students
Kollegium Aliosanum und Private Pädagogische Hochschule der Diözese Linz, Austria

We use an inexpensive ultrasonic fogmaker for a series of experiments to make physics come alive. Our generator works at a frequency of 1.6 MHz and utilizes electrical oscillation frequencies via ceramic disc's high frequencies to create water droplets in the form of a cool white fog on the surface of water. (A Ultrasonic Humidifier is a household appliance that increases humidity in a single room or in the entire home). Adding a few drops of eucalyptus-oil to the water will produce an effect used in ultrasonic inhalers. They are used for medication and prophylaxis in case of respiratory tract and lung diseases.



If you put the generator deeper in water it still stirs up without producing fog.
We demonstrate the following effects:
Welding under water,
Ultra fine emulsions of water and oil,
Generation of fog by cavitation,
Coagulation of flour in water.
Measuring the velocity of sound in liquids with stationary ultrasound waves
Visibility of ultrasound current-patterns through aluminium-powder.

Email Franz-Josef Natschlager : naf@eduhi.at
http://www.kollegiumaloisianum.at/fileadmin/Inhaltsdateien/Aloisianum/Do

18. Holography 4 schools

Pedro Pombo, Filipe Nogueira, Vítor Lopes
University of Aveiro, Physics Department, Portugal

This work presents 3D theory based on hands-on strategies for school science. Experiments with low cost materials for classroom activities will be constructed to explore topics related with visual perception such as image formation parallax and 3D projection. Some image processing techniques such as pin-hole photography, stereoscopy and holography will be analyzed. This work will be focused on holography theory and some holographic techniques. It involves 3 modules about holography and presents different holographic techniques for schools. 1st module presents an introduction to holography based on hand-drawn holograms and it is dedicated to young students and to science teachers. 2nd module presents laser optics holography based on reflection, transmission and rainbow holograms and it is dedicated to high school students and to physics teachers. 3rd module presents hologram visualization setups based on laser light, white light and large format holograms. Participants will construct several types of holograms: reflection holograms, transmission holograms, color holograms and simple hand drawn holograms. Optical holograms will be compared with hand drawn holograms. Hologram visualization will be performed involving white light and laser light reconstruction and some spectral color effects will be analyzed. Finally, educational potentials will be discussed and related to optics topics included in typical physics curricula.

Email Pedro Pombo : ppombo@ua.pt

Sous le thème ***'Fair - Are non-formal education initiatives always beneficial ?'***

19. Production of natural gas in lower Saxony – students explore high-tech in their region

Friedrich Knispel, Wilhelm Wilhelmi, Melanie Hinrichs, Kristina Meier
Gymnasium Sulingen, Germany

Gymnasium Sulingen and ExxonMobil Production have been checking possibilities of cooperation. The project framework can be applied to all co-operations between school and companies. The phases of the project development can be used as a general guideline: checking the basic conditions, especially the partners' means and resources; adaptation of subject-matters;

realization of project with students; feedback by presentation of results. The platform for our cooperation is offered by the
"Seminarfach" in year 12. First, the organizational framework is set. Both partner organizations have named contact persons with ample expertise so that organizational problems could be quickly resolved. Double-staffing (two teachers) has proven to be very useful. In a business placement the responsible teachers acquire the necessary expertise and talk about organizational details with company members. The whole student group visits the company, one third of the students does research with the help of a company mentor, one fifth works at the company for their project papers. The results are presented in written form (paper), as a digital presentation and on a poster. The cooperation has had positive effects on different areas of GS. With the help of the partner company contacts to universities have been improved so that students can be better informed about engineering study courses. One student has chosen such a course, several others are thinking about choosing one after their final exams.

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Sous le thème *'**Fair - Solo entertainer or moderator ? The science teacher of the future**'*

20. O fortune velut luna statu variabilis !
An alchemistic spectacle about gold, power and the fickleness of fortune

Michael Lenski
Ulrich von-Hutten-Gymnasium, Berlin, Germany

The story - based on historical facts - consists of imaginary episodes revolving around the life of the famous imposter Domenico Emanuele Caetano Count Ruggiero who claimed to be able to make gold by the power of alchemy.

1. Caetano Count Ruggiero an Italian visitor of exalted rank arrives at Duke Max Emanuel II of Bavaria's court at Nymphenburg Palace pretending to be a master of alchemy. Max II. desperately needs money for the extension of his Baroque palace.
2. Caetano meets at a state fair in Munich a bunch of quacks who are also trying their hand at demonstrating their tricks. He drums up these sidekicks and some equipment so that he can establish himself as an alchemist at court and live a pleasant life at the duke's cost.
3. Count Ruggiero teaches Max Emanuel the art and conception of alchemy while his sidekicks are allegedly producing "gold". Max Emanuel gets enthusiastic and invests more money in the imposter.
4. Alchemists throwing a party at Nymphenburg Palace: Once again the bunch of quacks make their appearance

at the duke to impress him with a variety of "transmutations of matter". But they are pushing their luck and the duke gets angry. He warns them that he is only interested in gold. Caetano has to summon up all his trickery to put the duke off one more time and coax him into investing even more money in his swindle. However finally he is trapped: Caetano ends up at the gallows in Prussia.

Email Michael Lenski : michaellenski@gmx.net
Lien : O.Fortuna translation
http://www.uvh-online.de/content/front_content.php?idcat=88&client=2&lang=2

Sous le thème ***'Round tables/Workshops – "Hands on" experiments to boost motivation and cognition ?'***

21. Best of the giants ! – Novel and simple hands on experiments on polymers by pupils
Jutta Brückmann, Elisabeth Arndt, Dorothea Freitag, Michael Gerhards
KÖLNER MODELL connected with the Institutes of Chemistry of Cologne University, Germany

Plastics are an essential part of every day life. Therefore they need to be treated in modem naturalistic chemistry classes and - for better motivation of the pupils - as experiments done by themselves called "hands-on experiments". We would like to recommend this workshop for chemistry teachers of any kind of secondary school. The event is executed by the team "Experiments on polymers" working according to the KÖLNER MODELL which is an amalgamation of chemistry teachers, chemistry lecturers of Cologne University and the chemical industry. During nearly ten years our research group has compiled and applied in lessons more than fifty very simple pupil experiments on polymers (synthesis properties and applications, recycling, analysis). Our experiments replace standardized experiments on polymers which used uncommon sometimes even hazardous substances. Furthermore our experiment instructions take care of an easy access to chemicals used considering officially permitted pupil experiments safety standards. The experiments can be used in a sensible didactical manner with all age groups due to the sufficient competent explanations to every experiment. During the workshop a selection of those experiments can be conducted by participants themselves. The script containing experiment instructions and background workshop participants will receive free of charge.

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Livre : "Kunststoffe im Unterricht"

22. What happens next ?
David Featonby
Institute of Physics, UK

The workshop offers a series of simple experiments/demonstrations are begun and students are asked to decide and explain what will happen next. Several of the experiments are unusual in that they have discrepant outcomes. This strategy which can be adapted to ALL ages (from 4 years to

18 years and beyond) and abilities has led to increased motivation and involvement of students. Teachers comment that it helps identify misunderstandings. Students can work individually or in groups and can subsequently make their own presentations. Materials used are such that the demonstrations can also be taken home and parents involved with the work/fun. Participants will have access to details of 60 or more experiments which could be used throughout the year and it is envisaged that more will be added as more teachers become involved.

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http://www.scienceinschool.org/2007/issue7/whathappens/

Sous le thème ***'On stage activities – Science in kindergarten and primary school'***

23. Hocus pocus

Markus Hoffmann and students
Gymnasium Bad Nenndorf, Germany

At markets and fairs in the middle ages magicians were a big highlight and amazed the audience with seemingly unfathomable experiments. Today most of these phenomena can be explained and demonstrated with scientific methods. A day of projects with regards to the Siemens media collection "Water - humanity's project" inspired pupils to develop a theatre play to demonstrate the difference of knowledge in the middle ages compared with today.
Some of the children play the magicians of the middle ages and another group acts as present day scientists. On one half of the stage the magicians show their magic and on the other half the little scientists demonstrate and explain the same experiments using today's state of knowledge.
To combine scientific experiments with historical aspects and stagecraft encourages the scholarly interest in science. The playful handling of the topic appeals to kindergarten kids as well as pupils at secondary level.
Especially the interdisciplinary aspects of this project are of interest. The concept combines elements of science, art, media, history and descriptive play. Pupils experiment with scientific phenomena and are significantly responsible for their success.

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Sous le thème ***'On stage activities – Interdisciplinary teaching'***

24. Cellular dances

Richard Spencer
Bede Sixth Form Billingham, Stockton Riverside College, Billingham, United Kingdom

The aim of this project is to inspire science teachers to invent their own dances to enhance student under standing of complicated biological, chemical or physical processes.

Simple dances can be used to bring complicated topics to life and to help students learn about cellular processes which they might otherwise find difficult, dry or hard to remember. In this on-stage performance you will experience three of Richard Spencer's innovative dances - the "Mitosis Mamba", "Meiosis in A Minute" and the "DNA Boogie".
The dances are more than a fusion of art and science - they are also a blend of fun and serious biology!

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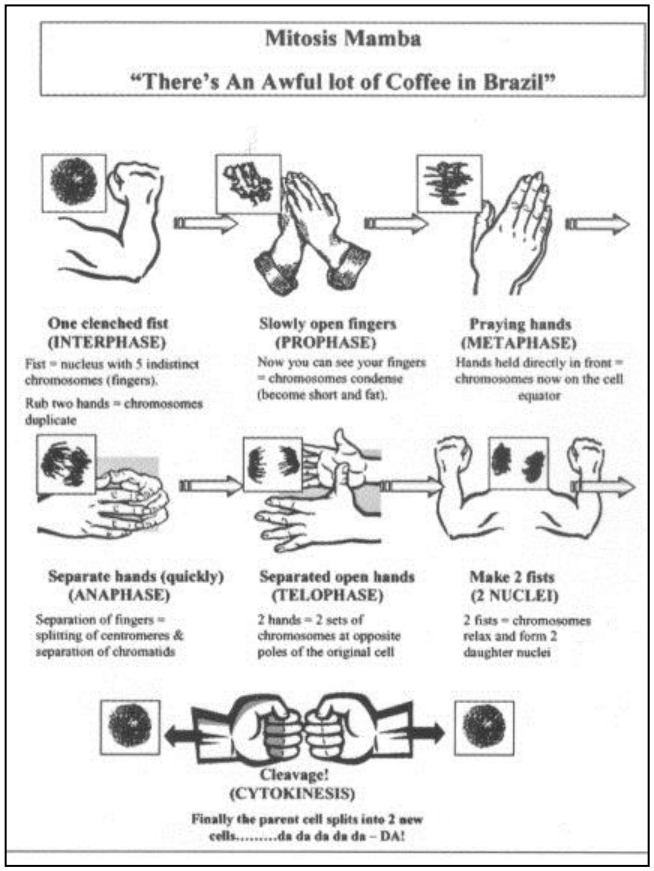

La foire aux expériences et les présentations sur scène (= on stage) furent pour la plupart des participants une source riche d'idées pour son enseignement des sciences.
Le succès de ce festival ne se limite pas à cela. Les groupes de travail sur les mêmes thèmes ont donné au festival une dynamique intéressante et à

l'enseignement des sciences des perspectives nouvelles. Il est évident que la durée du festival ne permettait pas à ces groupes de produire des conclusions et résultats utiles pour chacun de nous et il est donc à espérer que les travaux de ces groupes pourront se poursuivre dans l'année 2009 et 2010. Aux animateurs à réunir sous une forme ou une autre les participants afin qu'ils puissent ensemble concrétiser les idées nouvelles.

Comme tout congrès ce festival a aussi eu ces évènements sociaux (visites culturelles et un banquet) qui ont permis aux participants de faire mieux connaissance et de poursuivre éventuellement des discussions scientifiques.

Un festival fort réussi dans cette ville fantastique qu'est Berlin.

Faisons tout pour que Science on Stage connaisse encore un bel avenir.

Henri B. Eisendrath