

Science on Stage Festival 2013

Slubice/Frankfurt (Oder)

25-28 April 2013

Tina Michetti

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350 teachers from 25 European countries and Canada

Belgian delegation :

Arlette Dambremez

Patrick Claes

Philippe Delsate

Govaert Katrijn

Govaert Marc

Mileen Malbrain

Michetti Tina

Moreau Francis



The Oder at sunset !



The dorms



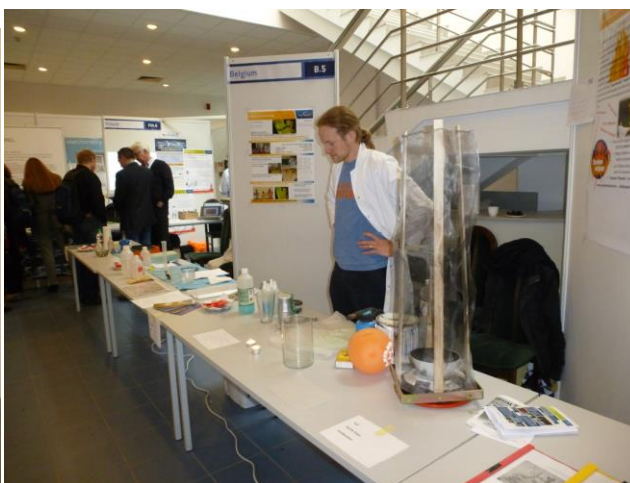
The Belgian team ...without Patrick



The whole Belgian team



Philippe, Francis, Tina, Patrick, Arlette, Mileen, Marc, Katrijn and Jo





My stand

Inquiry-based learning

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Subject area: Chemistry
Age of the students: 12 to 14
Content involved: Chemical elements, compounds, alloys, brass, mass, volume, density
You'll treat a coin containing copper (parts 1, 2 or 5 cents euro) with zinc and then form an alloy, brass.

Apparatus and chemicals

Coins of 1, 2 and 5 Euro Cents
100 mL beaker (2)
Hot plate
Tweezers
Gas burner

Sodium Chloride
Vinegar
Powdered Zinc
Sodium Hydroxyde (4M)
Distilled water

Procedure

How to make Silver Coins

How to make the Silver Coins turn Gold

Chemical Equations:

$$\text{Zn(s)} + 2\text{H}_2\text{O(l)} + 2\text{NaOH(aq)} \longrightarrow \text{Na}_2[\text{Zn(OH)}_4]\text{(aq)} + \text{H}_2\text{(g)}$$

$$\text{Zn(OH)}_2^{2-}\text{(aq)} + 2\text{e}^- \longrightarrow \text{Zn(s)} + 4\text{OH}^-\text{(aq)}$$

$$x\text{Zn(s)} + y\text{Cu(s)} \longrightarrow \text{Zn}_x\text{Cu}_y\text{(s)}$$

Notes: A "copper" coin is dipped into a solution of zincate in contact with zinc. This chemical reaction plates the copper in the coin with zinc. This is called **galvanization**. The coin appears silver in colour. Heating the coin fuses the zinc and copper to form an alloy called brass. The coin appears gold!

Additional text: This little experiment of chemistry will do wonders in a few minutes! The effect is spectacular. This is a fun demonstration for younger children.

Inquiry-based learning

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Subject area: Chemistry
Age of the students: 12 to 14
Content involved: Chemical bonding, non-Newtonian fluids, polymers
Two clear liquids are combined and stirred. Within seconds, a gelatinous blob forms, and coalesces on the stirring stick. After a few minutes, the entire liquid has turned to ... SLIME!

Apparatus and chemicals

Tétraborate de sodium décahydraté $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$
1 beaker - 250 mL
1 beaker - 20 mL
Glass stirrer
Magnetic stirrer / hot plate

Polyvinylalcool, PVA
Food coloring
Distilled water

Procedure

Put 100 mL of PVA solution in the 250 mL beaker, add a few drops of food coloring
A solution of polyvinyl alcohol (PVA) can be made into a slime by adding borax solution, which creates crosslinks between polymer chains.
Put 10 mL of borax solution in the 20 mL beaker

Pour the Borax solution into the PVA solution and stir well. Watch the slime form!

Chemical Structure: A diagram showing the cross-linking of PVA chains with borax to form a polymer network.

Slime is a non-Newtonian fluid
easily made from polyvinyl alcohol and borax, that flows under low stresses but breaks under higher stresses and pressures.

This POLYMER is unique
because it has qualities of both a solid and a liquid:
Like a solid you can hold it in your hands and pick it up.
Like a liquid does it can take the shape of his containers.

Additional text: Making SLIME is one of the coolest chemical reactions for kids! It's gassy, super sticky, really colorful and kids love it!

My posters



VIP visit !



Social events



Philippe on stage !



Katrijn and Marc

First of all , I thank the Belgian Steering Committee for selecting me to be part of that unforgettable adventure !

The Science on Stage festival has given to me the opportunity :

- to present 2 practices for Chemistry education and share them with colleagues from different countries. These practices are « **Become an Alchemist** » and « **Slime** »

- to meet highly-motivated teachers or educational experts and to enter into a relationship and friendship with them. I could identify exceptional teaching projects and outstanding educators in each country. Indeed that international event ensured high-quality participation and a superior level of projects represented.
- to discover different activities that raise my awareness of best practice in science teaching
- to exchange other practices, teaching projects, ideas, links

I do not only appreciated the exchange of inspiring ideas, but also the possibility to gain and maintain contacts made on that international basis.

The science teaching fair was the most popular aspect of the event and I really appreciated the time spent to discuss experiences and effective teaching methods with teachers from other countries.

All the 350 teachers (from Europe and Canada) presented very interesting ideas and resources and it is not possible to tell something about all of them ! But I turned my attention to some of them :

1/ Density with sugar solutions – Sweden – S6

Margareta Hynge, Science Education Developer
AlbaNova University Center, Stockholm

Adolf Fredriks musikklasser

margareta.hynge@vetenskapenshus.se



Margareta told me that , thanks to this lab, students learn how to determine density of a liquid and then challenge themselves to take these miscible solutions and find a way to combine them so that they remain as separate layers.

This activity contains different levels of difficulty and can be used for several ages of student.

I'm sure that the young students will enjoy it very much !

2/Innovative materials in physics class- Slovenia – SLO1

Luka Bole, Jaka Banko, Dalibar Sola

The National Education Institute

luka.bole@gmail.com



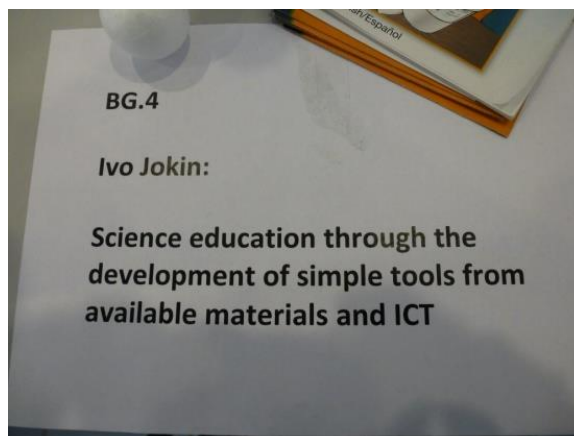
Luka, Jaka and Dalibar demonstrated how to produce lenses with coloured gel wax. This practice can be used as a motivational tool in physics classes.

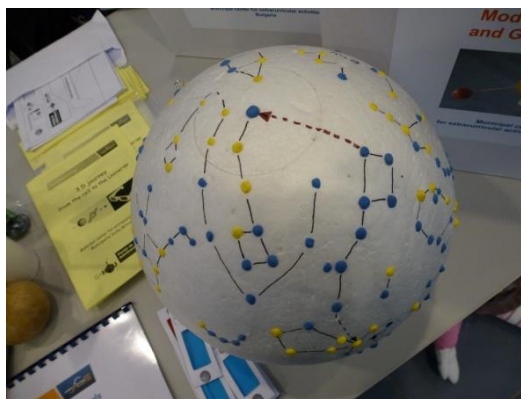
3/ Science education through the development of simple tools from available materials and ICT.

Ivo Jokin – Bulgaria – BG 4

Municipal center for extracurricular activities – Baykal village

ivo_jokin@abv.bg





Ivo conducts extracurricular activities with students. He makes great parts of the visual aids and materials together with the pupils from available and waste materials.

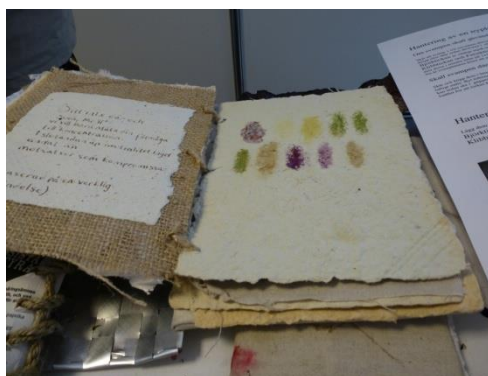
4/ Poetry in Chemistry

Anders Erixon

Strandskolan Tyresö – Sweden – S5

Anders.erixon@utb.tyreso.se





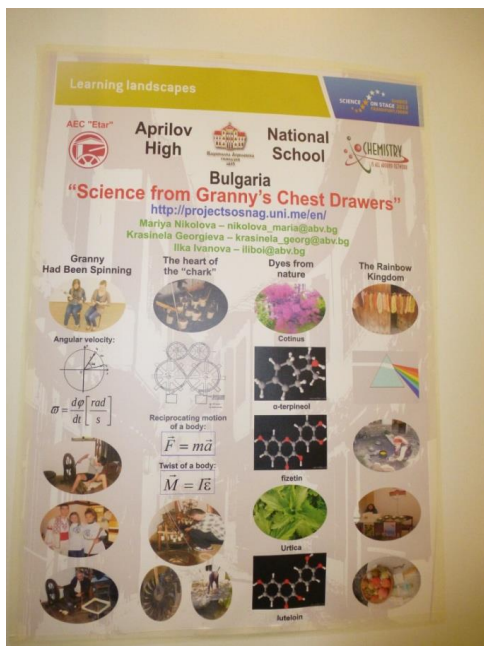
Anders and his students wrote their own chemistry book on handmade paper with handmade ink. Paper is made from recycled papers or polyporus (mushrooms) and ink made from mushrooms, berries and chemicals.

5/ Science from Granny's Chest Drawers

Tsvetelina Nikolova – Krasinela Georgieva

Aprilov National High School – Gabrovo – Bulgaria - BG 8

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The dyeing is made with natural dyes extracted from traditional Bulgarian flowers and herbs.

The chemical process used in the production of dyeing was presented in a very attractive way

Science on Stage festival 2015

The General Assembly of Science on Stage Europe elected London, U.K. as the next host for the upcoming Science on Stage Festival in 2015!

The Festival will be held at the People's Palace, Queen Mary University of London from 17-20 June 2015.

