Teaching mysteries with science incorporated
Internal Newsletter

JANUARY 2016

Dear Partners,
the TEMI Congress is now fast approaching!
It will take place in Leiden, The Netherlands on April 15-17, 2016. About 200 people are expected, among them TEMI trained teachers from across Europe and Israel, policy-makers, STEM innovators.
This event will be an opportunity to explore further the TEMI methodology through hands-on workshops, shows and dynamic poster presentations. The Congress aims at enhancing the experience of teaching the TEMI way and provide many opportunities to share best practice across countries. The event is by invitation only. We are looking forward to spend 3 days with you and all the stakeholders who contributed to the success of TEMI!

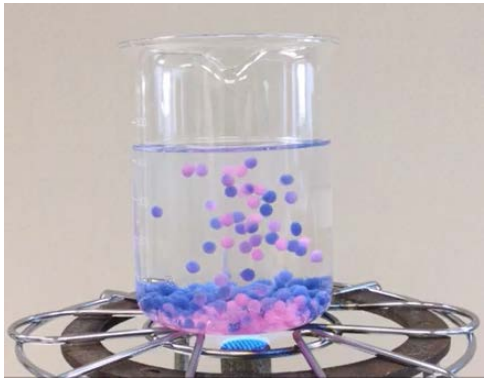
Best regards

Peter McOwan and Dorothee Loziak

WHAT'S COOKING?

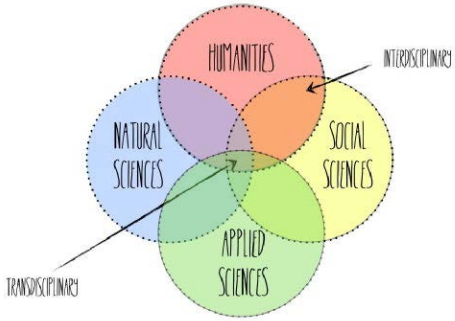
Temify your lesson

TEMI Ireland planning a National TEMI Conference at the start of June as a finale to the project and to bring teachers from all 6 cohorts together to share and exchange ideas. The team has found useful overlap between the TEMI approach and ideas and resources developed for the Tempus SALiS project (2010-2012), the Science Magic Shows they do in schools, and the annual Chemistry Demonstration Workshop (CDW, held in June). Many of the demonstrations used in the CDW can be adapted into TEMI lessons and in the CDW the Limerick team encourages teachers to use the



Amazing bubbles

In Bremen teachers worked on an activity called "the chameleon bubbles", alginate bubbles filled with an acid-base-indicator. By changing the pH-environment around them, the bubbles change their color. Recently, Johanna Dittmar and Christian Zowada (a MEd student at the University of Bremen) developed new amazing bubble experiments by filling the bubbles with a vitamin B solution to make them fluorescent under UV light. Other bubbles were filled with a thermo ink that clearly visualises thermal conduction. Report on the bubble experiments will be published soon in



Not only science teachers

In January the Dutch team of TEMI started the teacher trainings for cohort 4 in collaboration with Groningen University in the Netherlands. As many as 24 teachers from the north of the country attended this successful and very interesting first training day. This time, not only science teachers attended, but also teachers who teach Arts, History, Economics, Dutch and English Literature and Geology. All teachers were challenged to apply the TEMI methodology to their specific subjects and to change their way of thinking about traditional teaching. At the end of the day, all

demonstrations in a TEMI approach and thus 'temify' their lessons. TEMI project members are very welcome to attend the CDW, and for more details contact Sarah Hayes.

the Journals Chemistry in Action and Science in School. Videos of some experiments will be available soon on the TEMI YouTube channel.

teachers developed a mystery lesson in groups. Even teachers who at first did not expect that the TEMI methodology could be easily applied to their subject, were able to develop very interesting and multidisciplinaire mystery lessons!

A warm welcome to TEMI in Southern Italy

TEMI Italy started a 2 day long cohort in Lecce, Southern Italy, where Marina, Sara and Marco were friendly welcomed by Apulian teachers. Similarly to the Salerno cohort, the first two workshops focused on mechanics and optics. The first afternoon the team worked with the mysteries "A flower hidden by the cold" (pressure and gas laws) and "The magic pendulum",

The comeback of the lovemeter

TEMI was very well represented at the annual teachers' meeting, in the framework of the National Center for Chemistry Teachers, which was held on December 8th at the Weizmann Institute of Science. 4 sessions out of 16 were devoted to TEMI mysteries. Three groups of teachers demonstrated the mystery and shared experiences from the implementation in their classes. The

TEMI follow-up in Austria

On December 3rd 2015, the University of Vienna team invited all participants of the TEMI-workshops to a final meeting in Vienna for exchanging experiences and talking about further actions. Some of the teachers are interested in continuing the collaboration regarding TEMI and enquiry-based learning. A follow-up project will start in spring 2016. In January, TEMI Austria

(harmonic motion). During the second afternoon teachers were invited to work autonomously to become familiar with the concept of gradual release of responsibility. A fun activity about light and its properties with the mystery “The curved light” and the vision of colours with “Guess the colour” and “The strange green laser” concluded the workshop. The next sessions in Salerno and in Lecce will take place in February and teachers will work on electromagnetic mysteries.

presented mysteries were: "How to make silver and gold out of copper?" - an adaptation of CUNI's mystery wrapped with a real story about the alchemist Nicolas Flamel who lived in Paris, 1330-1418; "The Volcano" and "Harry Potter, the potion and ball Snitch'mmshk Hkooiditz'" developed by Israeli TEMI teachers; TEMI highlights and the comeback of the now famous “Love meter”.

finished cohort 6 in Vienna (started in October 2015) and cohort 7 in Carinthia (started in November 2015). The organiser of the workshop in Carinthia asked us to offer a half-day refreshing-workshop in Klagenfurt, where the teachers can plan enquiry-based learning units on a specific topic.

The importance of pre-service teachers

In December and January, TEMI Czech Republic focused on the future teachers of chemistry and during the lessons the Charles University team showed them a few TEMI lessons. The students later adjusted the materials for their own use in their teaching practice and their pupils liked them very much. Existing results of the project were presented at a meeting of representatives of pedagogical and science faculties from all of the Czech Republic which prepare future science teachers. Professional development of teachers was also discussed at these meetings and the participants liked the TEMI methodology and thought of it as one of the ways this could be achieved and evaluated.

Preparing the grand finale in Norway

TEMI Norway is busy preparing a big science conference at the University College of Southeast Norway (the new name of the University College of Vestfold and Buskerud), to mark the end of the TEMI-project in Norway. Several national well known speakers and scientists are invited, and 400 teachers are expected to join the conference. The event will take place on April 6, 2016, and will be one of the big focuses over the next months. Several workshops were held in December and January, addressed to teachers from the municipalities of Tønsberg, Stokke, Andebu and Larvik. Larvik participated in the TEMI, and is now a part of the national effort to increase skills in science & mathematics.

TEMI App tester

The *TEMI App – Teaching Science Mysteries* has been developed with contributions from all partners, following a template previous designed and commonly agreed. Each mystery begins with a video presenting the mystery and then several hints following the 5E model. The idea is to guide the user through the mystery understanding the underground concepts and supporting an enquiry based learning. The Science Mysteries, some of them also available in the TEMI Book of Mysteries, appear on the TEMI App on a different interactive format. The App can be used for autonomous or differentiated learning in and out of the classroom and is one more additional resource when solving a science mystery. TEMI App is now available for final testing before release at Apple App Store and Google Play.

The Book of Mystery is ready

Thanks to the effort of all TEMI members the Book of Mysteries is finally ready to be printed and distributed to teachers and stakeholders. The Book of Mysteries together with Teaching the TEMI way are two important publications that will allow the dissemination to the TEMI methodology with practical examples, tips for teachers and well designed lesson plans. The two publications are being uploaded to the major European repositories for educational material and Sterrenlab strongly advise to send a copy of both to the main national stakeholders. The books will also be distributed during the April congress to all participants. Partners that want to produce a translated version of the book should get in contact with Sterrenlab and Queen Mary University to coordinate the translation and formatting with the graphic designer.

DIY TEMI lesson

TEMI UK had expected teachers attending the TEMI training sessions would use the materials directly in their own classrooms. However, a frequent response has been to develop their own, based on the current topics they are teaching. The team from Sheffield Hallam University is finding that this helps them to really understand the issues involved, however, not all strands of the TEMI approach are covered. On the second day of training the trainers are frequently surprised and delighted at the imagination and skill shown by the delegates. They find totally new ways of approaching ideas and are keen to develop ideas. This also gives TEMI UK a very solid base on which to work and concrete ideas to apply ideas of showmanship and GRR, for example. The teachers have been keen to help each other and make useful suggestions to each other. As trainers the team is still surprised at how much we learn in the sessions too!