



Supporting and promoting science education internationally

The ICASE Newsletter

March 2010

Newsletter of the International Council of Associations for Science Education.

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1. ICASE News

ICASE journal online

See www.icaseonline.net/sei Contributions are now welcome from all science educators. Although there is no deadline and accepted articles will be up loaded when appropriate, the next issue is scheduled for June 2010. Subject to funding being available, this issue (specifically for participants at the 3rd ICASE World Conference in Tartu, Estonia - see below) will be made available in a print as well as an online version.

World Conference 2010, June 28-July 2, 2010

Conference registration is now open. The earlybird fee (until 15 April, 2010) is 350 Euros (*with a reduction for persons from ICASE member organisations attending the General Assembly as official delegates - 320 Euros**). Details of hotel prices and booking is also available on the website (www.worldste2010.ut.ee) and participants are urged to make their selection. You will note that prices are very favourable by European standards. The main conference hotels are London, Antonius and Dorpat. Limited dormitory accommodation is also available for those wanting even cheaper accommodation. Please note – all listed hotels are within walking distance of the University (the main conference venue).

Special note to the Chairman/President of Science Teacher Associations. Is your organisation planning to be represented at the World Conference ? If so, may I specifically invite your association to run a 2 hour symposium within the conference, based on presented papers by members of your association. This is a unique opportunity for you to promote the activities of your association as well as enabling ICASE to fulfil its given mandate of enhancing communication and the sharing of innovations and developments among Science Teacher Associations worldwide. For further information and queries please contact the ICASE President on jack@ut.ee

** This reduced fee is also applicable for each member of groups (minimum 5) registering at the same time (but registration may be affected individually) and notifying the conference secretariat by e-mail of the group leader (group contact person).*

** the reduced fee is also offered to delegates from ICASE member organisations in less developed countries (as defined by UNESCO) whether coming as a group, or individually.*

ICASE General Assembly, June 28 2010 (Tartu, Estonia)

ICASE is pleased to announce to all current and future member organisations that its General Assembly will be held immediately prior to the World Conference. All science teacher associations worldwide are urged to participate. The ICASE Executive Committee also announces that all member organisations are eligible to raise matters of interest for the General Assembly. Please contact the ICASE President on matter you would like to raise – jack@ut.ee

The General Assembly is where the ICASE Executive Committee report to its Governing Body (the member organisations) on its activities since the last General Assembly (2007) and seeks approval from the governing body for future directions. The General Assembly is crucial for the operation of ICASE, and hence the link between ICASE (as the international coordinating body) and its member organisations. It is thus of great importance that all member organisations identify **their representative** to the ICASE General Assembly, if ICASE is to continue meaningfully in line with the wishes and expectations of the Governing Body.

ICASE is all too aware that many member organisations, especially those in developing countries, have little financial support and are unable to support the travel of its representative to the General Assembly. ICASE will do its best to ensure minimal accommodation costs for such delegates, as well as try to facilitate their involvement in the World conference and to provide a meaningful experience. Alas, ICASE does not have a funding source, other than member subscriptions, and is extremely poorly placed to subsidise airfares. Also ICASE finds it almost impossible to secure sponsorship, as it has no recourse to international financial sources (and national sources are, of course, important for the financial well being of ICASE member organisations). Hence sponsorship for delegates to the ICASE General Assembly really needs to come via the member organisations, seeking help from national sources that become available.

If as a last resort, member organisations are not able to support their delegate to the ICASE General Assembly, ICASE permits written submissions on issues of concerns (which if submitted at least 1 month before the 28 June will feature in the General Assembly) and also ICASE permits proxy votes on all voting matters raised by the ICASE Executive Committee or by member organisations. For more details on making submissions and ensuring proxy voting, please contact the ICASE President, Jack Holbrook, on jack@ut.ee.

The main publicity and information source regarding the conference is the website and this will be updated regularly. The website is www.worldste2010.ut.ee However this newsletter will continue to inform and I am pleased to add new e-mail contacts on request (contact jack@ut.ee).

This Newsletter

Are you aware of others who do not receive this newsletter? This monthly newsletter is international and is available to all science educators who would like to receive it. I especially appeal to readers in North America as the current circulation in the USA/Canada is much lower than in other regions of the world.

2. Science Activities

These following activities are from a collection built up by ICASE through its former primary science newsletter (STEP) and other sources. They are put forward to bring attention to small activities which can be carried out in the science classroom with minimal equipment.

A) STEP ACTIVITY

Lifting with air

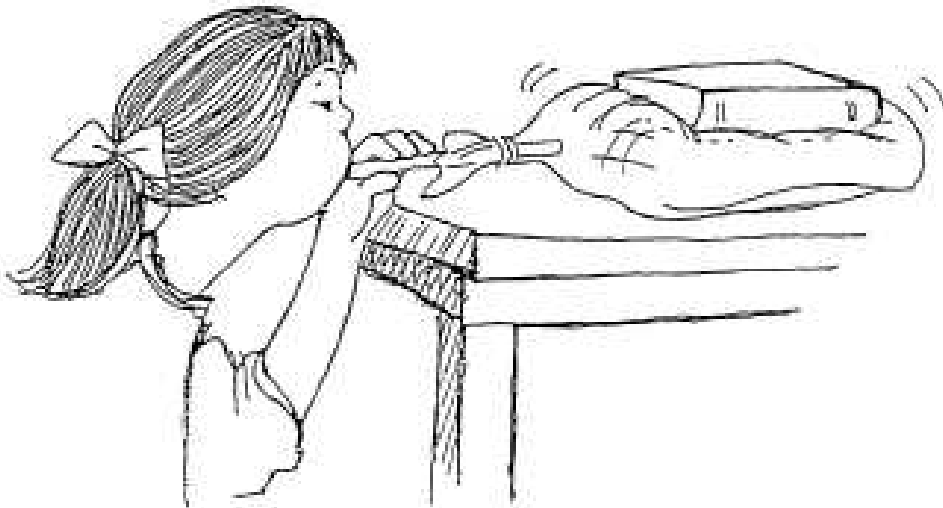
Challenge: How can you lift things using air?

What you need

- plastic bag
- book or object to lift
- straw
- sticky tape

What to do

Tape the open end of the plastic bag around the end of a straw. Blow air through the straw. What happens to the plastic bag? Squeeze the air out of the bag. Now place the plastic bag flat on a table. Put a book or some other object on the bag. Blow air through the straw. What happens to the book? What happens when you stop blowing?



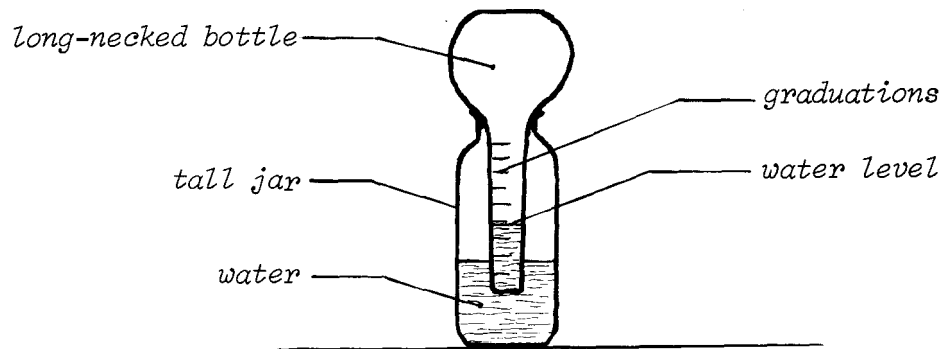
More to do

- Try lifting books with the same mass but different surface areas. What happens?
- Does the same amount of air lift a heavy load as far as a light load? Investigate this question.
- Try using different types of bags - paper bags, different types of plastic bags, even balloons! Which type lifts loads best? Can you explain why?

B) ADDITIONAL SCIENCE ACTIVITY

THE BOTTLE BAROMETER

- Materials:
1. A bottle with a long narrow neck.
 2. A cylindrical tall jar & thermometer.



Procedure:

1. Find a bottle with a long narrow neck and a jar that can support the wider part of the bottle when inverted in the jar.
2. Draw horizontal even graduations on the bottle neck with a marker and assign numbers to the graduations (hold bottle upside down).
3. Fill the jar half full with water.
4. Pour some water in the bottle and invert it quickly into the slanted held jar, so that the water level in the bottle neck will be slightly higher than that in the jar.
5. Position the bottle barometer in a place where the temperature does not fluctuate, and read off the water level in the neck. Do this twice a day and compare readings.

Questions:

1. What should the water level in the bottle neck do if the atmospheric pressure increases? If it decreases?
2. Why does the barometer have to be put in a place where the temperature does not fluctuate?
3. At what point do these bottles function as a barometer?

Explanation:

When the atmospheric pressure increases, the water level in the jar is pushed down and thus pushed up in the bottle neck. When the pressure decreases, the water level in the jar goes up and thus the water level in the bottle neck goes down.

This simple barometer will only work when the surrounding temperature stays constant. When the surrounding temperature increases, the bottle and the air inside it warms up and expands, pushing and exerting pressure against the water resulting in a lower reading of the water level. A cooler surrounding temperature has the opposite reaction as a result

Over a longer period of time, the water of the jar will evaporate and water has to be added to bring the water level back up to its original level. Otherwise it ceases to function. Otherwise it ceases to function.

C) USING EXPERIMENTAL IDEAS IN SCIENCE TEACHING

This newsletter contains two experimental ideas. It is hoped that these are of interest. But how to use these experiments in teaching ? Teachers need to be free to include experimentation as they feel best, but given below is ICASE thinking in putting forward the experiments in this newsletter. Teachers and science educators are welcome to comment.

1. Who does the experiment ?

Clearly these experiments can be undertaken as a teacher demonstration. However, the intention is that the students are involved, either working individually, or more likely, in small groups. The apparatus is kept as simple as possible and can often be brought from home, or made by the students themselves.

Why is student involvement preferred ? We note the old Confucius saying – I hear and I forget; I see and I remember; I do and I understand. The belief is that the more students are engaged, the more they learn. Teacher demonstrations, or large group experiments, limit student involvement and are thus not preferred.

2. Should instructions be given to students ?

The sections ‘*What to do*’ and/or ‘*Procedure*’ clearly spell out how to undertake the experiment. But it is not intended that the experiment must be used in this way. By following instructions, a ‘*cookbook*,’ or ‘*follow a recipe*’ situation is created. This highlights the **doing**, but **probably not** the understanding. Where instructions are provided, the student learning can be expected to be the explanation that follows. And the teacher is then focusing on students’ explanatory skills. The questions have been added to the first experiment to encourage moves away from a ‘cookbook’ or ‘do-and-forget’ approach and towards a more exploratory approach. In the second experiment the questions seek understanding which can lead to modifications of the experiments for more novel effects. It will a pity if the teacher is the person who answers these questions. In fact it would be interesting to learn of situations where the students, themselves, are both asking and then answering the questions.

3. Inquiry learning

Can the experiments be used in an inquiry approach, whereby the students **raise questions** and **suggest the purpose and procedure themselves** ? This is very much an ICASE recommended approach. It means students put forward the investigatory question, plus the procedure to follow. It promotes science as the seeking of explanations to questions put forward rather than to a ‘wondering why’ approach, although perhaps this is appropriate for the younger students.

So what would be the investigatory questions for these experiments ?

This is a challenge left for you to consider.

3. Further Ideas for Greater Relevance of Science Teaching for the Enhancement of Scientific Literacy

Jack Holbrook, ICASE President

In the previous newsletter the questions posed were -

Do subject competencies exist and if so what importance do we need to attach to them ?

What is the advantage of promoting capabilities over learning outcomes?

Many sources can be found which suggest that subject competencies exist. As soon as an ability is related to specific content it is usually identified as a subject competency. Thus the ability to search the internet and solicit information on Boyle's law, or on the Periodic table etc. are classified as subject competencies. But is it really subject-related for competencies to be expressed in this way? After all, the key competency is to be able to use the internet to seek information – what the information is about is irrelevant to the development of this 'seeking' capability.

However what about making a decision on whether nuclear fuel should be promoted as a major fuel for the 21st century? Here the capability is about decision making and may include skills and techniques of argumentation, presentation and transference of conceptual understanding. But in this case, background knowledge and conceptual understanding, geared to nuclear fuel, play a key role. And if knowledge and skills acquisition are considered separately from competencies, there is still the aspect of transference of knowledge and skills to a new situation, related to the concept of nuclear, which is considered a competency. Thus, it is suggested that, even if knowledge and skills acquisition are separated from competencies i.e. learning is composed of knowledge, separate from skills separate from competencies, there is still room for competencies to be regarded as scientific, rather than basic or generic.

Subject competencies are thus generic competencies within a scientific frame of reference. The frame may be a specific content - properties of light, electricity circuits, properties of hydrogen, electrolysis of electrolytes, or can be related to themes – environmental pollution, energy transfer and health. Issues involving transference of knowledge and skills to new situations specifically lend themselves to the development of competencies, whether the issue is scientific i.e. the best way to purify water, or more socio-scientific, involving factors beyond those scientific such as the most appropriate location for an aluminium factory, or should the use of plastic bags be banned?

As suggested in an earlier article, science education is an integral part of the general education provision. The generic transformation of competencies from one context to another suggests that a competency-based curriculum can cross subject boundaries and students can be provided with the opportunity to gain competencies, such as related to life skills, via different subjects. Thus teaching approaches that lend themselves to the promotion of such competencies also become generic, whether they are group work, involving student cooperation or collaboration, argumentation abilities leading to decision making, or inquiry learning leading to problem solving. All lend themselves to meaningful teaching given the need to promote associated competencies.

So what about very specific scientific competencies? One such example, perhaps, is that integral to the key competency of writing (symbolically) - the writing of chemical equations. Of course, if equation writing is memorised, it is a knowledge acquisition and no competency is inferred. Also if it is concerned with the skill of utilising an algorithm, again no competency is involved (unless

it is argued that utilising an appropriate algorithm is considered as application of an ability). And if no competency is being gained, why include equation writing in teaching, particularly so if the curriculum is competency-based? Acquiring knowledge and/or a skill serves no particular purpose in itself. In fact, the idea of writing chemical equations, as a basic component of chemistry, without the competency being clearly identified, is paramount to learning rubbish. Equation writing, in terms of knowledge and skills, is irrelevant as so many students tend to point out. It is simply giving a poor image of what is chemistry and can easily lead to students saying the subject of chemistry is irrelevant and boring. Claims can be made for the writing of chemical equations having value in the sense of competencies, but what is the competency? – applying knowledge and skills to a new situation !!! Maybe, but such behaviour is fraught with danger as anyone who has tried to complete the following equation $\text{CuSO}_4 + \text{KI} = \dots$ can testify. [Here, like other forms of communication, not everything abides by man-made rules. To write an equation, experimental evidence is required, either derived firsthand, or as an acceptance of the work of others]. This implies that any competency related to the writing of equations is dependent on prior knowledge and experimental evidence. So what is the capability that is being promoted? Similar arguments apply to scientific pathways, or the derivations of laws based on formulae.

Perhaps it is appropriate to abandon the concept of subject competencies and accept that competencies are generic and it is only the knowledge and skills which provide the frame of reference that identifies the subject. In this way, content is relegated to a supportive role and in science subjects is no longer the panacea for science learning. And if specific knowledge and skills no longer have a dominant role, the learning frame of references can be triggered by relevance, especially student relevance, or relevant social issues. Now the content no longer needs to be specific, systematic and building of scientific-oriented patterns, or leading to so called, basic scientific theories or laws. And with the development of abilities or capabilities, as a major thrust, the learning is specified in terms of key competencies or sub-components, having generic roots. The science as content need no longer be a must for science and technology careers. Instead the promotion of key competencies through science teaching can be for all careers just like all other subjects. And if science is taken to be the learning domain, rather than chemistry, physics or biology, greater links to technology and societal issues, the hallmarks of modern society, are promoted and socio-scientific can become a major curriculum thrust.

Please note - I have not suggested the removal of the gaining of knowledge and skills. But I am suggesting that knowledge and skills acquisition are not the same as competencies and to gain competencies is more important than acquiring knowledge and skills by themselves. This is not apparent if learning is stipulated by means of learning outcomes. How far can learning outcomes be utilised to relate to capabilities such as the transference of knowledge and skills to a new situation, or to socio-scientific decision making where the product is not so important as the reasoning involved in arriving at the decision and perhaps the persuasive ability, where the decision is reached by consensus? Competencies relate to both process and product and thus permits assessment during learning as well as being a summative entity.

So what now is the concept of scientific literacy? Is it timely to suggest that scientific literacy has relatively little to do with science content (this is merely the context for learning) and it is far more related to capabilities, or if you prefer meta-cognitive abilities? And with scientific literacy being the expressed target for many curricula, do we now have a way of tackling the problem of too much content in the science curriculum by stressing the acquisition of meaningful capabilities?

This raises the questions - what are meaningful capabilities? And what is scientific literacy?

4. SAFE SCI Be Protected

Article provided by Dr. Ken Roy – Director of Environmental Health & Safety, Glastonbury (CT), an authorized OSHA instructor and science safety consultant. Email: Royk@glastonburyus.org

PORTABLE EXTINGUISHERS: Safety on Fire!

The 2003 edition of the International Fire Code was developed to be fully compatible with all appropriate International Codes or I-Codes published by the International Code Council or ICC. The fire code was originally developed to protect public health, safety and welfare. Included in the 2003 IFC edition under section 906 are Portable Fire Extinguishers. The code states that even with quick-response sprinklers, fire extinguishers shall be required only in special-hazard areas. Included in those listed areas are academic science laboratories. The point is made that, even with a sprinkler system, areas housing hazardous flammables should still have portable fire extinguishers. Every school science laboratory has them, or they should. Equally important is the need to know when, what type and how to use them. If the employer has the expectation that designated employees, such as science teachers, will use fire extinguishers, the standard operating procedures in the department's safety plan needs to include annual fire extinguisher training.

I. FIRE EXTINGUISHER SPECIFICATIONS!

The IFC has specific specifications relative to fire extinguisher location and storage.

Section 906.5, titled *Conspicuous location*, notes that extinguishers must be placed in a conspicuous location where they are readily accessible and immediately available for use. Readily accessible means they are not to be obstructed and need to be in view. The erection of signs is required, especially in places where visual obstruction cannot be avoided.

Section 906.7, titled *Hangers and brackets*, states that those extinguishers not housed in cabinets must be installed on hangers or brackets which are securely anchored to the mounting surface, based on the manufacturer's instructions. In the case of cabinet used in school science labs, they are not to be locked.

Section 906.9, titled *Height above floor*, prescribes distances above the floor based on the weight of the extinguisher. For example, an extinguisher, 18 kg or less, needs to be installed so that the top of the extinguisher is not more than 1.524 m above the floor. Those extinguishers with gross weight exceeding 18 kg are to be installed with the top not more than 1.067 m above the floor. The clearance between the floor and the bottom of the installed hand-held extinguisher shall not be less than 0.102 m.

II. SHOULD I STAY OR SHOULD I GO? – USE OF EXTINGUISHERS!

Before an employee decides to fight a fire, consideration needs to be given to the following items: size of the fire, route of escape, level of heat, amount of smoke and fumes. Remember that buildings can be replaced, employees can not. If you are unsure, leave it and let the fire department extinguish the fire.

III. SOUND THE ALARM!

If the fire is very small, chances are it can be handled in a few moments. In any other situation, some one needs to start evacuating the science laboratory or classroom, and calling the fire department for back up. The point is to know the standard operating procedure for your facility. Also, how can the office be contacted? Is there a fire alarm system in the area?

IV. KNOW YOUR ABC's!

Use of an inappropriate type of extinguisher can make a fire worst in some instances. There are four basic classes of fires and extinguishers for science laboratories:

Type A: (Think Ashes!) This is for ordinary combustibles such as wood, paper, plastics, etc.

Type B: (Think Barrels!) This is for flammable liquids such as oils, greases, oil-based paints, some plastics, etc.

Type C: (Think Current!) This is for electrical equipment such as wires, circuit breaker panels, appliances, computers, etc.

Type D: This is for combustible metals such as magnesium, potassium, sodium and lithium.

The combination of ABC fire extinguishers are a good choice for science laboratories. They can be used to extinguish the first three types of fires noted. Again, use judgement. A type A water based extinguisher used on an electrical fire could severely shock the user! Know your ABC's! If combustible metals are used, a type D extinguisher is required. Type D extinguisher powders are also available when using small quantities of combustible metals.

V. PASS IT ON PLEASE!

An easy way to remember the plan of attack in fighting a fire is the acronym PASS.

P: Pull the pin on the extinguisher.

A: Aim the extinguisher low at the base of the flame. A distance of approximately 2-3 m is preferable.

S: Squeeze the trigger. Remember the extinguisher will provide approximately between 5-25 seconds of action, depending on its size.

S: Sweep from side-to-side. Remember to try to push back the fire in an organized pattern.

VI. JUST WHEN YOU THINK IT IS OVER!

Make sure the fire is out. A smoldering fire can burst into flames. Also, it is critical to replace the fire extinguisher as soon as possible. It can happen again! Local fire departments are dedicated to helping make places safe from fires. They can be of invaluable assistance in training employees and writing standard operating procedures.

Science teachers should check with their local fire departments to determine if they are operating under an adopted International Fire Code. In science laboratories where flammables are used – fire protection, including access to portable fire extinguishers and teacher training are critical in saving both teacher and student lives!

INTERNET REFERENCE:

International Fire Code:

<http://www2.rigov.org/pdf/inspections/2003InternationalCodes/2003InternationalFireCode.pdf>

5. Let Children Shine through A4L – taken from the UP NISMED newsletter Vol. 18 No. 4

NISMED, in cooperation with the Bureau of Elementary Education of the Department of Education (DepED), organized and conducted a national seminar-workshop on the theme: Assessment for Learning (A4L) on October 28- 30, 2009. Dubbed “Let Children Shine,” the objectives of the seminar-workshop were the following: (1) Update teachers, administrators, educators, and researchers on innovative, creative, and productive assessment practices which sharpen children’s scientific and mathematical thinking skills and dispositions; (2) Enable participants to draw significant implications in improving the curriculum, teaching, and learning from findings in the classroom, district, division, regional, national, and international assessment tests; (3) Familiarize participants with assessment approaches that determine and promote scientific and mathematical literacy, and; (4) Create networking opportunities for various elementary school science and mathematics teacher organizations.

The seminar-workshop was opened by UP Diliman Chancellor Sergio S. Cao and keynoted by Dr. Robin Groves, Curtin University, Australia and an ICASE Executive Committee Member; Dr. Milagros D. Ibe, Professor Emerita of the UP College of Education; Prof. Corazon S. Salumbides, a retired Fil-Am Chemistry and English teacher who is in the country under the Balik-Scientist Program of the Department of Science and Technology; Dr. Marilyn U. Balagtas, a professor at the Philippine Normal University; the two deputy directors of NISMED, Dr. Marlene B. Ferido and Dr. Soledad A. Ulep, as well as the director Dr. Merle C. Tan, delivered plenary lectures. During the parallel sessions, speakers shared their research findings/experiences on pupil assessment. Parallel workshops for Science and Mathematics were conducted. The science participants were provided opportunities to construct and develop items intended to assess cognitive skills. On the other hand, the mathematics participants experienced answering assessment items and giving feedback on the answers provided by the pupils as well as sharing their ideas and experiences on how these items may be used to assess pupil learning. Two booklets on assessment, one for elementary school science and the other for elementary school mathematics, that provided models of assessment items and tasks in science and mathematics, were distributed to each participant during the parallel workshops. The closing program on October 30, 2009 was graced by Dr. Yolanda Quijano, Director of the Bureau of Elementary Education of DepED, who issued the challenge to participants to improve pupils’ achievement through better assessment practices.

Due to the success of the national seminar-workshop, a similar international activity is being planned for secondary school science and mathematics in October 2010.



Dr. Robin Groves of Curtin University, Australia delivers the keynote address.

6. Calendar of Events

National Science Teachers Association (NSTA), Philadelphia, USA

The next NSTA National Conference will be held in Philadelphia, PA from March 19-21, 2010.

Please consult the NSTA website for more details – www.NSTA.org

An international day will be held on the 18th March on Global Conversations in Science Education Conference Philadelphia, Pennsylvania THEME: “Assessing Student Understanding of Science: Perspectives and Solutions” This special day is dedicated to science education from an international perspective. **It will be a ticketed event (M-2), open to all registered attendees of the NSTA National Conference on Science Education (at no additional cost).** Tickets were made available from last November. Conference registration and hotel information is now available on the NSTA website at <http://www.nsta.org/conferences/2010phi/>

Activities begin on Wednesday, March 17, with a President’s International Reception for all international visitors and invited guests. On Thursday, the day commences with a welcome ceremony, including a NSTA conference orientation, followed by a plenary talk by Dr. Rodger W. Bybee, Chair of the PISA 2006 Science Expert Group. Dr. Bybee will speak about global assessments and comparisons. There will also be concurrent sessions related to the theme focusing on formative, summative, and global assessments. A full complement of papers will also be presented in a poster session, along with a luncheon plenary speaker, Dr. Robin Millar, Chair of the Departmental Research Committee at the University of York, UK. Dr. Millar will speak about problems related to assessing what students really know. The day will conclude with a panel discussion with Dr. Bybee and Dr. Millar. For more information, please visit the website at <http://www.nsta.org/portals/international/intlsciedday.aspx>.

20th International Symposium on Chemistry and Science Education “Contemporary Science Education – Implications from Science Education Research about Orientations, Strategies and Assessment” will be held May 27-29, 2010 at the University of Bremen

(Building of the Department of Chemistry and Biology, Leobener Str. NW2, 28359 Bremen, Germany).

This Symposium continues a long tradition stretching back to 1981. In the past, symposia repeatedly raised the question of how science education research can help to improve chemistry and science teaching and learning. But the question of how to promote successful science learning automatically implies a further question: Which are the objectives to be reached? Is science teaching primarily aimed at learning the content and theories of science? The 2010 symposium simultaneously maintains and further develops the topics of the past symposia from 2002-2008, in which we discussed the orientations and methodology of science education research, questions of teacher education and successful science learning. In one way or another, all symposia touched upon the question of valuable orientations in chemistry and science education.

Main questions will include:

- How and where do we see the balance between the learning of science facts and theories vs. more general education objectives derived from educational theory?
- What conclusions must we draw when more deeply reconsidering the essential elements of the scientific literacy debate, activity theory and the German concept of "*Allgemeinbildung*"?
- Which answers can be obtained from general and science education research when considering different approaches towards science teaching?
- Which issues and strategies obtained from science education research can be seen as valuable tools to apply to chemistry and science teaching?

- What is state-of-the-art in context-based and/or STS-oriented science curriculum development and what do we know about the effects of these respective approaches?
- What do we know from research about attitudes, motivation and PCK of practicing teachers concerning different approaches towards chemistry and science teaching?
- Which research-based strategies do we have for implementing changes and for teacher education towards modern approaches to chemistry and science teaching?

The conference language will be English and the conference will be chaired by Prof. Dr. Ingo Eilks, Institute for Science Education (IDN), Didactics of Chemistry, University of Bremen ingo.eilks@uni-dortmund.de

Prof. Dr. Bernd Ralle, Department of Chemistry, Didactics of Chemistry I, Dortmund University of Technology, bernd.ralle@uni-dortmund.de

Further information

The final program with abstracts, information on travelling and accommodation will be published on the web at <http://www.chemie.uni-bremen.de/eilks/symp2010/index.html> by January 2010.

Conference fees and registration

There is no conference fee. Costs for travelling, accommodation and social events are covered by the participants. All information and the registration form will be published on the web accompanying the final program in January 2010.

The XIV IOSTE International Symposium on Socio-cultural and human values in science and technology education will be held June, 13th to 18th, 2010 in Bled, Slovenia and hosted by the University of Ljubljana, Slovenia. Details on submitting papers and other information please see the conference website - <http://www.ioste14.org>. For additional information, contact Dr. Slavko Dolinšek, Director of the Institute for Innovation and Development, University of Ljubljana, Slovenia E-mail: dolinsek.slavko@fs.uni-lj.si

ICASE World Conference, 28th June – 2nd July, 2010, Tartu, Estonia

The 3rd ICASE World Science and Technology Education Conference will be held at the University of Tartu. All science educators, including science teachers, are cordially invited to participate. Conference theme - **Innovation in science and technology education: research, policy, practice**. [See website for more details on programme, registration and accommodation - www.icas2010.org] Following the conference, tours are being arranged to St.Petersburg, Russia; Riga, Latvia, and Vilnius, Lithuania.

Associated with this conference will be the ICASE General Assembly to which all ICASE member organisations are kindly asked to send a representative. The ICASE General Assembly will be held on the 28th June and this important meeting will plan the work and direction for ICASE over the coming 3 years. For further details on the General Assembly please contact the ICASE President - jack @ut.ee

10th ECRICE and 4th DidSci conference, Krakow, Poland, July 4 – 9, 2010

The organizing committee cordially invites you to attend and participate in the 10th European Conference on Research in Chemistry Education (ECRICE) and 4th International Conference Research in Didactics of the Sciences (DidSci). Based on a long tradition, ECRICE is organized under the auspices of EuCheMS (formerly FECS), in relation to the activity of the Division of Chemical Education. This meeting follows successful conferences held in Istanbul (2008), Budapest (2006), Ljubljana (2004), Aveiro (2001) etc. This Conference is an opportunity to exchange experiences on research in chemical education (ECRICE) and research & practice in

natural science education (DisSci) carried out at every education level from primary school to graduate studies. The aim of the conference is to familiarize participants with the most recent achievements in the various scientific centres. The programme will feature a wide variety of plenary, invited and contributed lectures, as well as poster sessions. For more details please see the website - <http://ecrice2010.ap.krakow.pl/>

Abstracts of oral contributions and posters will be peer reviewed. The language of ECRICE will be English, whereas the language of the DidSci component of the conference will be English, Polish, Czech, and Slovak. For more information contact: Iwona Maciejowska ECRICE 2010 secretary at e-mail address: ecrice2010@ap.krakow.pl or Małgorzata Nodzyska DIDSCI 2010 secretary at e-mail address: didsci2010@ap.krakow.pl

21st International Conference on Chemical Education (ICCE), Taiwan, August 8-13 2010.
The theme of the 21st ICCE is Chemistry Education and Sustainability in the Global Age. The deadline for proposals is March 31, 2010. For further details contact :
<http://icce2010.gise.ntnu.edu.tw>

GeoSciEd VI: Geoscience Education - Developing the World, Johannesburg, South Africa, August 29 - September 3, 2010 **Abstract Submission Deadline: 31 March 2010**

Abstracts are now being accepted for the sixth IGEO conference “Geoscience Education – Developing the World” in Johannesburg, South Africa on August 29 to September 3, 2010. Oral, poster, and workshop presentations on all aspects of geoscience education are welcome. Presentations from the broader science education research community with relevance to geoscience education are also encouraged.

The International Geosciences Education Organisation (IGEO), an affiliate to the IUGS (International Union of Geological Sciences), is dedicated to developing the field of geoscience education and to promoting strong earth and environmental science education throughout the world. The IGEO conference, held every four years, is a forum for geoscience educators at all levels (preK-adult) and disciplines (earth, atmosphere, ocean, space) in both informal and formal contexts to collaborate and discuss best practices in teaching and learning, geoscience education research, and curriculum and technology development.

GeoSciEd VI will feature an array of outstanding field trips that showcase South Africa’s world-famous geoscience sites, including Tswaing Meteorite Crater, the Cradle of Humankind, the Witwatersrand Goldfield, the South African Large Telescope, Simangaliso Wetland Park, and Kruger National Park.

For more information and to submit an abstract, please see the conference website at <http://web.wits.ac.za/NewsRoom/Conferences/GeoSciEd>

Participants are encouraged to secure accommodation and register as soon as possible. Registration (ZAR 5000 early bird) includes all sessions; mid-conference field trip; daily lunch, supper and teas; transport to venues from hotels, and evening social events.

Enquiries can be sent to: Dr. Ian McKay (witsgeoutreach@gmail.com) or Prof Gillian Drennan (Gillian.Drennan@wits.ac.za)

The IVLA2010 conference will be held in Cyprus September 23- October 3, 2010

A Warm Welcome to IVLA 2010

Welcome to the website of the 42nd Annual Conference of the International Visual Literacy Association (IVLA). IVLA 2010 will be hosted by the University of Cyprus in Cyprus from September 29th to October 3rd, 2010. The conference venue will be the **Atlantica-Miramare** hotel in **Limassol**, Cyprus.

IVLA is an international, eclectic and non-profit organization of researchers, educators, designers, media specialists, and artists working toward a fuller understanding of the way we derive meaning from what we see and the way we interact with our visual environment. We invite you with pleasure to participate in the conference and celebrate with us the legacy of IVLA and its welcoming circle of friends and community of exceptional professionals.

IVLA 2010 will take place in Cyprus for the first time. Cyprus is the third- largest island in the Mediterranean and is a country of cultural richness and diversity, since it lies at the crossroads of three continents where East meets West. It is known for its welcoming sun, the inviting beaches and the breathtaking mountain trails located in Troodos Mountains. The island is also famous for its exceptional Mediterranean cuisine and its long tradition in wine making. Cyprus' long history has brought innumerable findings over the years resulting in a variety of priceless collection of artifacts displayed in various archaeological museums and spectacular monuments, hosting among others, the prehistoric Choirokoitia settlement, Roman villas, tombs and theaters, and churches constructed and painted during the Byzantine years. Limassol, the host city for IVLA 2010, is the second largest city in Cyprus after Nicosia - the capital of Cyprus. Limassol is a famous tourist destination throughout the year and is the biggest port in the Mediterranean transit trade. Limassol is well-known for its long cultural tradition, and a wide spectrum of activities and a number of museums and archaeological sites are available to the interested visitor.

We are excited to be hosting IVLA 2010 and we do look forward to meeting you all in Limassol for a productive and fruitful conference. We will do our best to enjoy your stay in the island!

Deadline for Proposal Submission: May 30th, 2010.

For more information please contact us at:

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<http://www.valanides.org/ivla>

Fax: +357-22894487 (c/o Nicos Valanides)

Address: Nicos Valanides, Department of Education, University of Cyprus, P.O.Box 20537, CY-1678, Nicosia, CYPRUS, Tel: +357-22892937 (office)/ +357-99-442388 (mobile)

The 23rd Asian Association for Biology Education will be held in Singapore, from 18-20 Oct, 2010, at the National Institute of Education, Singapore. The theme of the conference is: **Biology Education for Social and Sustainable Development**. The 3-day conference will have 6 plenary speakers, oral and poster presentations, country reports, a workshop on Problem Based Learning in Biology, and mid-and post-conference tours.

The conference is jointly organized by, the National Institute of Education, the Asian Association for Biology Education, Singapore Institute of Biology, and Science Teachers Association for Singapore.

The website for the conference is <http://www.nsse.nie.edu.sg/aabe2010/>

7. ICASE Executive Committee 2008-2011

Based on the ICASE constitution, the ICASE Management committee as well as Regional Representatives are elected by member organisations. These elected members, in turn, nominate chairs of relevant standing committees. Together these persons form the ICASE Executive Committee and are the persons who make decisions on behalf of the ICASE Governing Body. The ICASE Governing Body is the **ICASE member organisations**.

The Executive Committee (the decision making body working under the Governing Body)

President

Prof Jack Holbrook

E-mail jack@ut.ee

Past President

Dr Janchai Yingprayoon

E-mail janchai@loxinfor.co.th

Secretary

Prof Miia Rannikmae

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Treasurer

Peter Russo

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Regional Representative for Africa

Dr Ben Akpan

Executive Director of STAN, Nigeria

E-mail: ben.akpan@stanonline.ng

(Member Organisation – Science Teachers Association of Nigeria)

Regional Representative for Asia

Dr Azian Abdullah

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(Member Organisation – RECSAM)

Regional Representative for Australia/Pacific

Dr Beverley Cooper

E-mail: bcooper@waikato.ac.nz

(Member Organisation – NZASE, New Zealand)

Regional Representative for Europe

Dr Declan Kennedy

E-mail: d.kennedy@ucc.ie

(Member Organisation – Irish Science Teachers Association (ISTA))

Regional Representative for Latin America

Gabriela Inigo

E-mail: gabrela_inigo@hotmail.com

(Member Organisation – Albert Einstein Club, Mar del Plata, Argentina)

Regional Representative for North America

Prof Norman Lederman

E-mail: ledermann@iit.edu

(Member Organisation - Council of Elementary Science International - CESI)

Chairs of Standing Committees

Safety in Science Education

Dr Ken Roy

E-mail: Royk@glastonburyus.org

World Conferences

Dr Robin Groves

E-mail grovesr@ozemail.com.au

Pre-secondary and Informal Science Education

Ian Milne

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