*Supporting and promoting science education internationally*

# The ICASE Newsletter July 2009

Newsletter of the International Council of Associations for Science Education.

**Contents of this issue (to go to any item, select, then click left mouse button)**



## 1. ICASE News

*ICASE is a Non-Governmental Organisation, set up by its member National STAs, Science Societies, Science Centres, etc to form an International Science Education Communication Network. Are you a member of a national/regional organisation which is a current member of ICASE ? It is possible for all organisations interested in international science and technology education to belong to the ICASE network. (Contact Miia Rannikmae, ICASE Secretary, for more information (miia@ut.ee).*

**ICASE African workshop**

The ICASE African regional conference was held in Abuja, Nigeria from the 24th to 29th May, 2009. Delegates came from a number of African countries including South African, Namibia, Sudan, Kenya, Sierra Leone, Cameroon, Uganda, Ghana, Ethiopia, as well as Nigeria.

The conference covered a range of sub-themes and considered the challenges to science and technology education in meeting the need for education for sustainable development. This is an important theme considering we are now into the fourth year of the decade for Education for Sustainable Development. The conference delegates came up with the following statement:

**We, the delegates of the ICASE African Regional Conference on "Meeting the Challenges to Sustainable Development in Africa through Science and Technology Education," held May 24-29 in Abuja, Nigeria,**

- *noting we are in the decade for Education for Sustainable Development which began in 2005 and this must be seen much more than just a slogan;*
- *stressing that Science and Technology Education is part of education and hence much more than simply the teaching of science and technology content;*

- *aware that changes take place as countries develop and tackle new problems and this necessitates changes in Science and Technology Education (STE);*
- *concerned that changes in STE are slow and need longer to effect than the typical term of office for elected politicians,*

Some of the Conference Participants

*Put forward the following statement on STE for the attention of all stakeholders –*

- STE is a matter of concern across African countries, requiring not only special but also effective, well resourced and professionally driven attention, to meet society needs for Education for Sustainable Development for the 21st century;
- In striving for the enhancement of scientific literacy for all, greater attention is needed to ensure STE, at both the basic and post-basic levels, is RELEVANT to the needs of the changing society and to the needs of both boys and girls as future citizens, whatever their intended career;
- Education for Sustainable Development, especially in relation to issues of peace building, developing tolerance, appreciating human rights, HIV/AIDS, food scarcity, poverty alleviation, ecological concerns and hence the developments of life skills (including entrepreneurship skills), as well as to the promotion of society values, needs to be

incorporated into the intended STE curriculum and must be an integral part of the assessment of students at all grade levels;

- STE teaching must emphasis student learning of, and assessment strategies associated with, skills promoting problem solving and socio-scientific decision making; emphasis must be given to greater appreciation of the actual nature of the concept called science, rather than the simple memorisation of scientific facts, theories and laws.
- To facilitate the inclusion of Education for Sustainable Development as part of STE, continuous professional development (CPD) should be mandatory for every STE teacher.
- Partnerships and networking need to be recognised as having an important contribution, within the region, within the country and within Africa, to the development of STE teaching, especially with regard to relevance, sustainable development and gender/equity issues; the importance of establishing and promoting a professional STE teacher association needs to be a priority in aiding the promotion of such partnerships and networks.

**PARSEL workshop**

Participants had the opportunity to join in a workshop on making science more popular and relevant. In this workshop, participants were asked to develop a scenario from everyday life which could be used to introduce the scientific teaching ideas. Below is one example which was created by the participants on teaching about viruses and in particular the HIV/AIDS virus.

*THE SCENARIO* A beautiful and intelligent girl, Jumai, failed a course twice. The lecturer asked her to meet him in a hotel for negotiations. Out of frustration she consented to the terms of the negotiation which included having sexual relationship with the lecturer. That relationship resulted in Jamai contracting HIV/AIDs. Incidentally Jumai had a boyfriend on campus to whom she transferred the deadly disease.

*FOLLOW-UP SCIENTIFIC IDEAS*

1. Can there be any cure for the infected person?
2. Apart from sexual intercourse are there other ways of contacting HIV/AIDs?
3. What are the options for preventing infection of HIV/AIDs?
4. In what ways can people living with HIV/AIDs manage to lead useful and productive lives ?
5. What are the likely consequences of this viral infection on the people and society ?

Group participants

| | |
|---|---|
| Dr Chinwe Nwegbo | UNN-Enugu state leader |
| Dr Donatus Ezeh | Ebonyi State member |
| Dr Nkachi Onyegegbu | UNN-Enugu state leader |
| Mrs J. Oboite | Edo state |
| Mrs Franca Gundu | FCT COE Abuja |
| L.N.Nnaji | Imo State |

ICASE is now interested in working with member organisations or others in promoting promising approaches to raising scientific literacy and popularity of science teaching. Should you or your organisation have interest in putting forward ideas in this newsletter or knowing more about the workshop, please contact the ICASE President, Jack Holbrook, (jack@ut.ee).

**ICASE journal.**
As mentioned last month, the ICASE Executive Committee at its last meeting in February decided that ICASE should move to producing an open source, online journal. The reasons for this were two-fold
(a) the cost of the printed version was becoming too great,
(b) an online journal held the potential for greater readership, especially in large or developing countries.

ICASE wishes to thank the editor of the printed version of the journal for his efforts in developing the journal, but respects his wish not to continue as the editor of the online version. He requests that queries about the journal are no longer referred to him.

The journal will continue to be a peer reviewed journal concentrating on 'what research says to the science teacher,' or 'what science teacher organisations see as innovative ideas.' ICASE had hoped to get the new version up and running by June 2009, but this is delayed while the ICASE website is being upgraded. Nevertheless, **ICASE now welcomes the submission of articles**. As always, ICASE will publish articles in English and will help with the editing of English for those writing who are not native English speakers. Submissions from member organisations related to their operations which may interest an international readership are very welcome.

For more details and how to make submissions online and for other matters related to the journal, please contact, in the first instance, the ICASE President, or your regional representative (see section 7 of this newsletter).

**ICASE Asian regional symposium in Guilin, China**
This event will taken place in November 1-3. Further details are given in section 6 of this newsletter. This event is particular geared to science teachers and science educators in the Asian regional but participants are welcome from all regions of the world. Guilin is a very picturesque city in China, If you have never been there, here is your chance !

**ICASE World Conference**
The call for papers is now out (see www.worldSTE2020.ut.ee). Shortly details for making onlin submissions will be available on this website. The conference website will be linked also to the main ICASE website – www.icaseonline.net.

# 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.

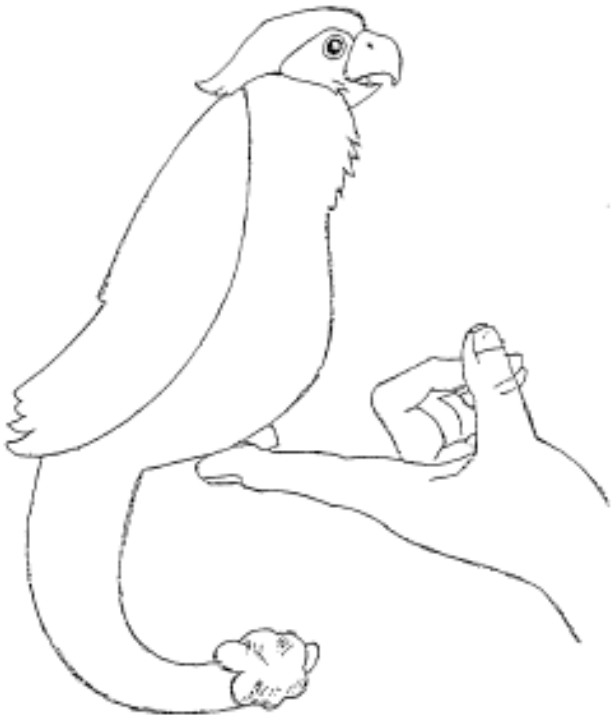
***ICASE would be delighted to publish your favourite activities. Please send to jack@ut.ee***

## A) STEP ACTIVITY

### Balancing bird

Challenge: How can you make a bird perch on your finger ?

**What you need**
Cardboard
Scissors
Pencil
Plasticine



**What to do**
Use the diagram of a bird on this page as a 'template' to draw a bird on cardboard.
Cut out the bird.
Try balancing the bird so that it will perch on your finger. Can you do it?
If not try the next step.
Attach some plasticine on the lowest point – the bird's tail.
Does the bird balance on your finger now?

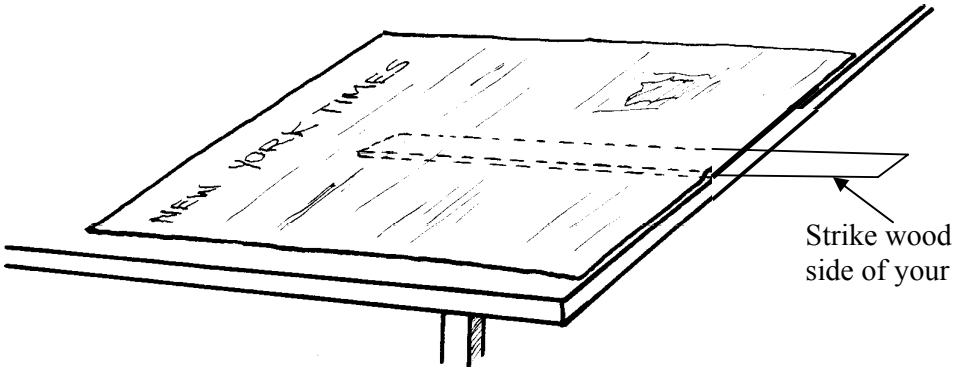
**More to do**
How much plasticine do you need on the tail for the bird just to balance?
Ret making other animal shapes and balancing them
Try making a tightrope walker. Design things too hold onto so that the tightrope walker maintains balance while doing stunts.

## B) ADDITIONAL SCIENCE ACTIVITY

### THE HEAVY NEWSPAPER

Materials: 1. One or two full sheets of an ordinary newspaper.
2. A stick of pine wood (0.3x3x75 cm)

(a piece of wood panelling, or old ruler is excellent




Procedure

1. Place the stick on a table with a smooth surface and let it protrude over the edge about 8 cm.
2. Ask: "What will happen if I hit this protruding end of the stick?" (anticipated answer: 'stick will fly up').
3. Strike it and let the students catch the flying stick.
4. Place the stick back on the table like in point 1, and cover it with the newspaper flush with the edge of the table.
5. Ask: "What do you think will happen now if I hit it again?"
   (anticipated answer: 'the paper will fly up' or 'paper will tear').
6. Smoothen down the paper with your left hand and strike the protruding end of the stick with your right hand (a sudden sharp blow with the edge of the palm): stick breaks:
7. By pulling the stick out another 8 cm after breaking, the cycle of smoothing the paper and breaking, point 6 may be repeated.

Questions:

1. What did I do with my left hand?
2. Why was it necessary to smoothen the paper before hitting?
3. What would happen if the protruding end of the stick was slowly pushed down?
4. How much weight was actually holding the stick down?

Explanation:

By smoothening the paper down, there was almost no air under it, but a whole column of air exists above the paper, pushing down on the paper with the atmospheric pressure. This is about 1 kg/cm$^2$.

The total weight or force pushing down on a 60 x 80 cm paper is roughly: 60 x 80 x 1 kg = 4800 kg, which is close to the weight of two large cars.

It is therefore impossible to lift it with the thin stick!

## C) USING EXPERIMENTAL IDEAS IN SCIENCE TEACHING

This newsletter contains two experimental ideas. It is hoped that these will be 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.

The heavy newspaper experiment is most likely to be a teacher demonstration and the skill for the teacher is how to make this exciting !!

### 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.

### 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 appropriate for younger students.

So what would be the investigatory questions for these experiments ?

This is a challenge left for you to consider.

# 3. An Introduction to Ideas for greater Relevance of Science Teaching for the Enhancement of Scientific Literacy

*Jack Holbrook, ICASE President*

*Last month this column looked at ideas related to scientific literacy. It built on past ideas developed in ICASE workshops, but looked into student needs for the 21st century. However, the views put forward do not necessarily relate to those accepted by the ICASE Governing Body and these views can be challenged and refuted.*

*Last month a suggested definition for scientific literacy was given as*

> *"developing the ability to creatively utilise sound science knowledge in everyday life, or in a career, to solve problems, make decisions and hence improve the quality of life".*

This definition does not include any mention of specific content, although it needs to build on 'sound' (generally accepted) scientific knowledge. It recognises the importance of being able to support student development of life skills (the different skills, some combination of which are needed by us all in everyday life), especially in the areas of scientific problem solving and socio-scientific decision making.

It is expected that the content is derived from the context used in the learning. Hence the extent and emphasis of the content is also determined by the context chosen for developing the scientific ideas. Research supports the notion that a contextual teaching approach can lead to popularity and relevance in science lessons.

*Two questions related to this arise:*

1. *How can a context-based approach be developed, based on relevance and popularity ?*
2. *If the context is related to issues, how can such issues support the need for education to be the focus for the teaching that takes place in science lessons ?*

*These questions are now addressed.*

One useful approach to initiate the teaching is by means of **a scenario,** which introduces the chosen issue deemed to be relevant to the students. If the scenario is familiar to the students (it is a social issue), they will be able to appreciate the situation. And if the scenario is built around a topical, or societal issue or concern which is current, then this will be particularly familiar to the students. The only proviso in developing the scenario is that it does relate to a socio-scientific situation. That is, the societal situation has an underlying science component (it is this science that will be developed further in subsequent lessons).

From the scenario, the students are expected to identify with this familiar situation. If the students do relate to the situation, it is expected they will be able to put forward opinions and this introduces relevance into the teaching. And in considering the issue or concern, the relevance will be expected to encourage the students to be intrinsically motivated to find out more about the scientific ideas.

The scenario can set the scene in whatever way the teacher considers appealing to students. It could be a story, a set of slides, a videotape, a cartoon or set of cartoons, a puzzle, a game, a description of a situation, a dialogue between two persons, or a meeting of a group of people, etc. The important aspect is that the scenario has appeal to the students. An unappealing scenario is a disaster. Not only will motivation be lost, but valuable teaching time will be wasted.

Once the students have had the opportunity to interact with the scenario, the teacher is in a position to explore students' understanding of the situation and the viewpoints they express. The teacher will also be able to explore their scientific understanding and whether the viewpoints expressed are backed by scientific explanations (they are evidence based). Allowing students to appreciate the scenario and the teacher to explore students' understanding and viewpoints is not expected to take more than one teaching lesson.

Following the scenario introduction, science ideas, related to the issue, now become the focus of attention. The science, of course, is curriculum related and the teaching of this is part of a well developed teaching scheme (if it is not, then clearly the particular issue is *inappropriate at this time* even though it may be very appealing to the students).

This second lesson builds on the students' prior scientific constructs and move into exploring the underlying scientific ideas. This begins the second phase which is the typical inquiry teaching approach and is purely related to scientific ideas. The teaching now becomes 'decontextualised' from the complex social situation that formed the issue in phase 1. In phase 2 the students are guided in their scientific learning, with its relevance established via the scenario and with, it is hoped, the teacher sustaining a motivational classroom environment.

As is typical for student centred teaching, the students are guided to develop educational skills. Thus positive attitudes, perseverance, creative thinking, developing procedures interactively and so on, are all part of the learning in this second phase. These educational attributes do not displace the conceptual science understanding, but encourage the students to think more, to take greater ownership for their learning and to begin to interact with one another in a meaningful way.

While the first phase (typically lesson 1) is educational in a constructivist sense, stage 2 (which is likely to be a minimum of 2 lessons) allows a range of educational competencies to be developed in a scientific problem-solving situation, covering personal and social skills as well as cognitive learning and process skill development. It also provides the stage for students to gain an appreciation of the nature of science (a topic to be explored further in a later column).

As stage 2 decontextualises the teaching away from the initial issue and hence the scenario, it is no longer inhibited by stage 1. The extent of scientific coverage in stage 2 can be fully controlled by the teacher and the usual concept maps for teaching can be drawn. However, if stage 2 digresses from the situation in the scenario too greatly, the relevance of the teaching may become lost. Stage 1 thus provides limitations to the width of conceptual science teaching and the teacher needs to bear this in mind. The key to stage 2 science learning is that the scenario determines the extent of the learning, not a curriculum drawn up purely on decontextualised, scientific content.

This leads to 2 key questions to be developed further in the next issue -

1. If stage 2 teaching becomes decontextualised, why should this be any more relevant than teaching where the teacher uses an interesting example to begin the lesson ?
2. What does a scenario look like ?

# 4. SAFE SCI Be Protected

*Article provided by Dr. Ken Roy – Chairman of the ICASE Standing Committee on Safety in Science Education. He is also Director of Environmental Health & Safety, Glastonbury (CT), an authorized OSHA instructor and science safety consultant. Email: Royk@glastonburyus.org*

## EYEING SAFETY!

### I. THE SCIENCE TEACHER THAT NEVER HAS AN ACCIDENT!

It is amazing how many science teachers work in academic laboratories and are under the belief that they will never have an accident – especially involving their eyes! This is based on anecdotal observations of middle and high school laboratory activities dealing with hazards where students should be required to wear chemical splash goggles but as for their teachers – they have decided either safety glasses will do the trick or worst of all – no eye protection will be needed. In many countries, the science teacher is not only breaking the law, but equally important – is not modeling professional standards of best safety practice for students.

The second issue is when science teachers incorrectly select the wrong eye protection not only for themselves but for their students. The purpose of this article is to set the record straight about eye protection.

### II. WHAT DOES OCCUPATIONAL HEALTH & SAFETY SAY?

In Britain, Australia, Canada, the US and many other countries, occupational safety and health regulations require relatively similar eye protection in laboratories. In the USA, the Occupational Safety & Health Administration (OSHA) requires employee personal protective equipment (PPE) for protection against workplace hazards. PPE for eye and face protection is found under OSHA's General Industry safety standard 29 CFR §1910.133. In addition, Hazard assessment and equipment selection requirements are under OSHA's 29 CFR §1910.132 standard. Below are several of the standard's sections which assign responsibility of PPE to the employer in the US:

***§1910.132(d)***
*Hazard assessment and equipment selection*
***§1910.132(d) (1)***
*The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment.*
***§1910.132(d) (2)***
*The employer shall verify the required workplace hazard assessment has been performed through written certification.*
***§1910.133(a) (1)***
*The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.*

***§1910.133(b)***
*Criteria for protective eye and face devices.*
***§1910.133(b) (1)***
*Protective eye and face devices purchased after July 5, 1994 shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference as specified in Sec. 1910.6.*
***§1910.133(b) (2)***
*Eye and face protective devices purchased before July 5, 1994 shall comply with the ANSI "USA standard for Occupational and Educational Eye and Face Protection," Z87.1-1968, which is incorporated by reference as specified in Sec. 1910.6, or shall be demonstrated by the employer to be equally effective.*

As in most other countries, academic laboratories in middle and high schools fall under regulations similar to the OSHA standard in the US. In addition, most states have goggle statutes which apply to students in the academic laboratory. The following basic criteria should be met by all protective devices – including eye protectors.

Protectors shall:

A. Provide adequate protection against the particular hazards for which they are designed
B. Be of safe design and construction for the work to be performed
C. Be reasonably comfortable when worn under the designated conditions
D. Fit snugly and not unduly interfere with the movements of the wearer
E. Be durable
F. Be capable of being disinfected
G. Be easily cleanable
H. Be distinctly marked to facilitate identification only of the manufacturer

Each of the basic science laboratory hazards is to be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury. The general procedure for determining appropriate eye protective equipment is to:

1. Evaluate the level of risk and seriousness of potential injury.
2. Identify the type of protective equipment that is available, and what protection it provides.
3. Compare the capabilities of various types of PPE to the exposure of hazards by employees.
4. Select the PPE that provides a greater level of protection than the minimum required to protect employees from the hazards.
5. Select PPE that will fit each employee properly and provides protection from the hazard.

[If an employee is allowed to furnish their own PPE, the employer is still responsible for its condition/appropriateness].

## III. THE PROOF IS IN THE PAINT BALL!

The science teacher is charged under "duty of care" to determine the appropriate eye protectors for him/her self and for students. This decision can be made by identifying the PPE available and determining the protection provided. One valuable resource is a chart titled ***Comparison of Eye Protection Options*** developed by safety consultant Linda Stroud of Science & Safety Consulting Services (http://www.sciencesafetyconsulting.com/links.html). This chart graphically summarizes the effectiveness of each type of eye protectors found in middle and high school science labs.

Chemical splash safety goggles with impact/splash protection wins hands down when it comes to working with hazardous liquids in the lab! Of course, any of the eye protectors shown which are impact resistant in compliance with ANSI Z87.1 are acceptable in working with solid hazards. Remember all chemicals have hazards; hazards cannot be removed; however risks can be minimized with appropriate protection.

## IV. FINAL THOUGHTS!

In summary, science teachers must be prepared to make appropriate judgments for eye protectors – for themselves and their students. It is the law and carries liability for the teacher should an accident occur and the parents of the injured student goes for litigation. One picture is worth 1000 words as they say. Don't make the mistake of underrating the laboratory hazard and having a safety incident.

One final thought, remember the hierarchy of approach to safety – Consider use of engineering controls (e.g. fume hoods) first, engage administrative work practices second and lastly, address PPE issues! Be certain to check with your national or local occupational health & safety laws and regulations, in addition to professional or best practices.

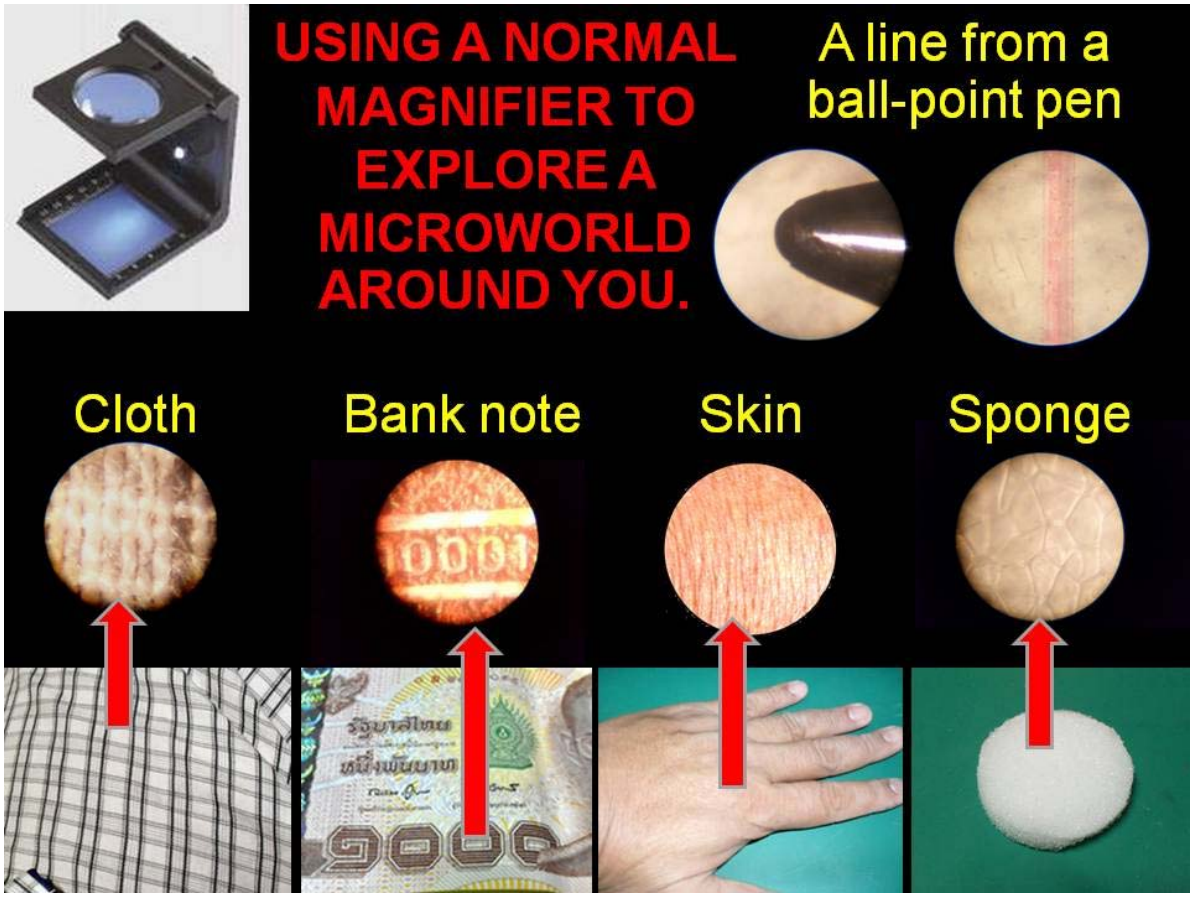
Live Long & Prosper Safely!

**Resources:**

Occupation Safety & Health Administration Eye & Face Protection - 29 CFR 1910.133:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9778
American Chemical Society Video - ***Safety In The Academic Chemistry Lab - Eye Protection***:
http://www.youtube.com/watch?v=r8RD_sn4GlE
Special thanks go to safety consultant Dr. Linda Stroud for her permission to use the *Comparison of Eye Protection Options* chart and review of this article. (The chart is not in the e-mail version of the newsletter - the newsletter is being kept to a member size below 800kbytes. The chart will appear in the online version of the newsletter – see www.icaseonline.net)

## 5. Janchai Corner

Here is a further example of using a simple piece of equipment.




Do you have favourite home-made equipment of your own ? Why not share this with others. Contact Dr Janchai (janchai@loxinfo.co.th).

*Janchai Yingprayoon is the Immediate Past President of ICASE. He is based in Thailand.*

## 6. Calendar of Events

**International Congress of Science Education, 10 years of the Journal of Science Education (Cartagena, Colombia, 15 - 18 July 2009)**.

The main aim on this Congress is to discuss international experience in science education. The venue in Latin America presents a special opportunity for our community, and your participation would create a high interest and impact for this international event.

The Journal of Science Education, JSE, has an international character and publishes articles about the science education (Physics, Chemistry, Biology, Mathematics, etc.) for the university and secondary or high school levels. Authors from 53 countries have published more than 320 full peer evaluated articles in previous issues, various authors are from your country. Our authors are: from Europe (47%), America (45%), Asia (7%), Africa (1%). About 46% of published works have been about research in science education.

We invite you to take part in this International Congress. We are very interesting in if you can organize a symposium or workshop about one of the several topics to be talked about at the congress.
Two important dates were:
* Preliminary registration: 15 December 2008
* Sending the abstracts: 10 February 2009 but you can still participate !

*Please see the website for more details* http://www.colciencias.gov.co/rec/cong

**ESERA 2009 Conference, Istanbul, Turkey**
The next European Science Education Research Association conference will be held in Istanbul, Turkey from the August 31st - September 4th 2009. The venue is the Grand Cevahir Hotel and Conference Centre. For more information consult the ESERA website or contact M. Fatih TAŞAR : mftasar@gazi.edu.tr or Gültekin ÇAKMAKÇI : cakmakci@hacettepe.edu.tr

**ICASE Asian Symposium XI, 1-3 November 2009, Guangxi Normal University, Guilin, P.R.China.**
The 11th ICASE Asian Symposium will be organised by the ICASE-GNU Guilin Teacher Training Center (GTTC) with the Research Institute of Science Education (RISE) at Guangxi Normal University, from the 1-3 November 2009. The theme of the symposium is Bridging the Gap between Formal and Informal Science Education and is a founding event for the newly established ICASE Guilin Teacher Train Center. The symposium will provide an opportunity for science teachers and education to meet in order to

- Learning from and interact with invited science education experts on how top create ad wisely use high educationally valued teaching materials in order to make genuine improvements in science learning and teaching;
- Share ideas and experiences with each other related to science teaching practices
- Visit and discuss RISE and its partner schools on developing featured science teaching resources.

The symposium venue will be the Yuchai Campus of Guangxi Normal University and all academic activities will take place within the RISE facilities. The language of the symposium will be English

Registration fees – Overseas participants 2000¥ (students 1000 ¥)
Local participants (rate to be decided) 7.5 ¥ = 1 US$

***Updated details will appear on the RISE website www.risechina.org***

For more information please contact the secretariat – Miss Handan Huang, Research Institute of Science Education, Guangxi Normal University, Guilin 541004, P.R. China
E-mail gxnucsc@sohu.com

Cosmed 2009, the 3rd International Science and Mathematics Education conference will be held at RECSAM, Penang, Malaysia from the 10-12 November 2009. The theme of the conference is Improving Science and Mathematics Literacy, Theory, Innovation and Practice.

The objectives of the conference are:

To provide a forum to review views, exchange ideas and share experiences, especially on the development of scientific and mathematcial literacy at all levels
To review and recognise the integrationof ICT to develop sciecn eand mathematics literacy
To review and enhance continuous professional development as a means to sustain the development of sciecne and mathematcis literacy
To encourage the sharing of knowledge skills and epxerineces of experts working on new strategies to sustain sciecn eand mathematcis literacy reforms in teaching and assessment
To strengthen professional networkinng among sciecne and mathematcis educators both locally and globally
To maintain professinal contacts to enhacne among a consortium of internationla orgnaisations and educational institutional to facilitate greater dissemination and exchange of expertise at an international level.

Key note speakers are Kaye Stacy, Foundation Professor of Mathetical Education, University of Melbourne, Australia and Profesor David Treagust, Deputy Dean of Graduate Studies, Science and Mathematics Education Centre, Curtin University of Technology, W.Australia. Participants can registr online at www.recsam.edu.my/cosmed.

**National Science Teachers Association (NSTA)**, Philadelphia, USA
The next NSTA **National Conference will be held in** Philadelphia, PA from March 17-21, 2010. Please consult the NSTA website for more details. An international day will be held on the 16th March.

## 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.

Conference theme - **Innovation in science and technology education: research, policy, practice.** The Call for Papers is now announced for each of the sub-themes – *research; policy and practice. [See website for more details about the call for papers - www.WorldSTE2010.ut.ee ]*

**10th ECRISE 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). We kindly invite all academicians, doctoral students, science teachers, and researchers to take part in these events.

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. Topics include:

- Results of science/chemical education research and reports on evidence-based and/or research informed practice at all levels in the fields.
- Teaching and learning chemistry/science at all level of education (from elementary schools to universities, general and vocational schools).
- Life long learning in chemistry/science.
- New technologies in chemical/science education.
- Laboratory work (Micro Scale Chemistry, safety issues etc.).
- Chemistry/science teachers' education (pre- and in-service training).
- Teaching chemistry/science to students with diverse abilities (teaching gifted student, teaching students with learning difficulties).
- Critical analysis of chemistry/science textbooks and curricula.
- Green chemistry and environmental chemistry education.
- Ethical issues in chemistry/science education and research
- Chemistry and Society, public understanding of chemistry.
- History and philosophy of chemistry/science.
- Chemistry/science and industry.
- International programmes and projects in chemistry/science education.

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 Nodzynska DIDSCI 2010 secretary at e-mail address: didsci2010@ap.krakow.pl

# SPECIAL NOTICE to Science Teacher Associations and Science Education Organisations

**Why not advertise your conference, symposium or meeting in this newsletter!! Whether the event is national, regional or international, or your organisation is large of small, activities and events can be of interest to science teachers and others worldwide. Please send details, especially for events in 2010 to Jack Holbrook the ICASE President (e-mail jack @ut.ee. Insofar as space permits, this section of the newsletter can carry all information you supply.**

# 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 for 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
E-mail miia@ut.ee

**Treasurer**
Adrian Fenton
E-mail Adrianfentonicase@yahoo.co.uk

**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
Director, RECSAM, Malaysia
E-mail: azian@recsam.edu.my
(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
E-mail I.Milne@auckland.ac.nz