Supporting and promoting science education internationally

The ICASE Newsletter July 2008

Newsletter of the International Council of Associations for Science Education.

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1. ICASE endeavours

Rather than link individuals, ICASE is an umbrella organisation forming a communication network between national and regional science teacher organisations involved in science education at the primary and secondary levels. Most specifically the ICASE link is between non-Governmental science teacher associations, but also includes other organisations interested in science education such as science societies, science institutes. In recognising the important role played by Universities in pre- and in-service education and the interlinking with other science education bodies, ICASE also strives to form a link with institutions, complementing the role of UNESCO.

The ICASE role is to:

1. *extend and enhance the quality of formal and non-formal science and technology education for all, with particular reference to the children and youth of the world.*
2. *provide and support activities and opportunities that will enhance formal and non-formal science and technology education throughout the world.*
3. *assist and support all members and other organisations throughout the world which are involved in formal and non-formal science and technology education.*
4. *establish and maintain an international communication network for member organisations and their members involved in formal and non-formal science and technology education.*
5. *encourage and support the establishment and development of professional science and technology organisations, especially teacher organisations in all countries.*

For more information and knowledge of past issues of this newsletter see www.icaseonline.net

2. Science Activities

For a number of years ICASE produced a pre-secondary newsletter which often contained one page of science activities (STEP activities – activities designed to allow young children to take a step into science by direct experience). The newsletter has been disbanded as a publication, but the ideas, strongly supporting inquiry teaching, are still valid.

Below is included a step activity plus an activity for lower secondary level Give them a go !

A) STEP ACTIVITY

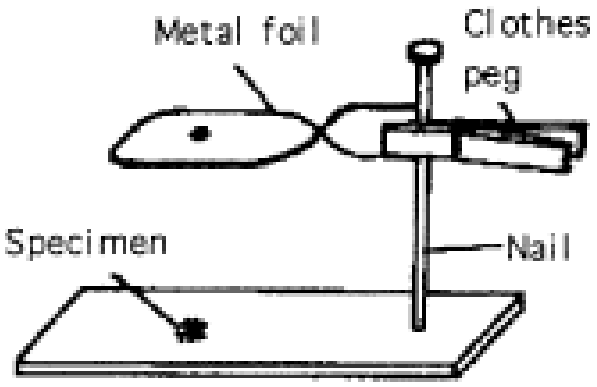
Water magnifiers

Challenge: Can you make a \simple microscope\ ?

What you need
A strip of thin aluminium foil
A clothes peg
A liquid dropper
A piece of flat wood
Long nail
Hammer

What to do

1. Using the piece of flat wood as a stage, hammer the long nail firmly into the wood
2. Make a hole in the strip of aluminium foil using a suitable tool (the tip of an old ball point pen if the foil is thin enough, or a nail of suitable diameter)
3. Fold the end of the foil through 90 degrees to act as a clamping surface
4. Clamp the foil to the nail using the clothes peg
5. Using the dropper place a drop of water over the hole in the foil
6. Place a small object on the \stage\ and by easing the peg a little, adjust the height of the water drop until the object is in focus.

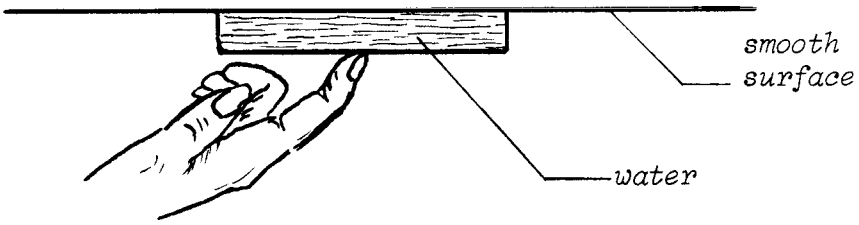


B) LOWER SECODARY ACTIVITY

AIR EXERTING PRESSURE

THE STICKING CUP OF WATER

Materials: 1. A Petri dish (or other shallow dish with smooth rim)



Procedure:

1. Fill the Petri dish brim-full with water.
2. Bring the dish to the smooth surface: push it against the surface making sure that there are no air bubbles left in it.
3. At this point make sure that the dish will stick to the surface, then ask a student to hold it up or do as if you need to get something and have to leave the dish.
4. Give the student permission to let go of the dish or say: "Maybe I can let go of the dish" (if holding it yourself).

Questions:

1. Why do we need a smooth surface?
2. Why does the dish stick to the surface?
3. How much force is holding the dish up?
4. How heavy a dish can we stick to the surface?
5. How long will the dish keep sticking to the surface?

Explanation:

By filling the dish completely full with water, there is no air left and thus there is no air pressure working down on the dish. The only force working down on the dish is *gravity* and thus the weight of the dish plus the water. The force holding the dish against the surface is equal to the air pressure of 1 kg per cm^2 of dish surface area. A dish with a 3 cm radius will have a force of about 27 kg holding it up minus the weight of the water and the dish itself. Once the dish is sticking to the surface, it will stay up for quite a long time until some water evaporates and air seeps into the dish.

The water, in this case, acted as a seal preventing the air coming into the dish. An application of this principle is when we wet suction cups with water to make them stick better to smooth surfaces.

3. Teaching Goals from US National Science Education Standards

Needed Changes in the Way Teachers Teach
as Envisioned in the U.S. National Science Education Standards (NSES)

A series of short articles, written by Robert E. Yager, Professor of Science Education, University of Iowa, USA, summarizing each of the Less/More contrasts in the six NSES chapters.

The "teaching" chapter is the first summarizing the visions for change released in 1996. These were placed first because of their importance. (Certainly, for me and many others (e.g., NSELA members!), teaching embodies the keys for accomplishing the needed reforms! Too many efforts of reform start and end with experts and/or governments producing curricula which outline what teachers should do to accomplish better student learning. But, changes in teaching are drastically needed with a rationale and a model for others to see. It should be an insult for professional teachers to be given "teacher-proof" materials to use with students – assuming that the reforms could be accomplished if only the prepared materials were used and followed with hints to teachers in teacher guides. Government officials are usually unprepared and should not "direct" reform efforts.

There are nine visions for the changes of teaching that if implemented and used would accomplish more successes and general reforms in science classrooms around the world.

Another reason for teaching to precede all else included in the National Standards is that there were no debates regarding the proposed changes. They did not upset any of the thousands who helped develop the "Standards". Perhaps this lack of disagreement occurred because the scientists involved were more concerned with specific content to be used in classrooms and cared less about teaching – or, even recognizing its importance! The nine changes envisioned for changing science teaching are:

Less Emphasis On	**More Emphasis On**
1. Treating all students alike and responding to the group as a whole	Understanding and responding to individual student's interests, strengths, experiences, and needs
2. Rgidly following curriculum	Selecting and adapting curriculum
3. Focusing on student acquisition of information	Focusing on student understanding and use of scientific knowledge, ideas, and inquiry processes
4. Presenting scientific knowledge through lecture, text, and demonstration	Guiding students in active and extended scientific inquiries
5. Asking for recitation of acquired knowledge	Providing opportunities for scientific discussion and debate among students
6. Testing students for factual information at the end of the unit or chapter	Continuously assessing student understanding (and involving students in the process)
7. Maintaining responsibility and authority	Sharing responsibility for learning with students
8. Supporting competition	Supporting a classroom community with cooperation, shared responsibility, and respect
9. Working alone	Working with other teachers to enhance the science program (NRC, 1996, p. 52)

4. African Regional Conference Full details

International Council of Associations for Science Education

NIGERIA 2009
AFRICA REGIONAL CONFERENCE
On
Challenges to Sustainable Development in Africa through Science and Technology Education

Conference Partners

- Federal Ministry of Education
- Federal Ministry of Science & Technology
- United Nations Educational, Scientific and Cultural Organisation
- International Council of Scientific Unions, Africa Regional Office
- Science & Technology Education Post-Basic Project
- Nigerian Educational Research & Development Council
- International Council of Associations for Science Education
- Science Teachers Association of Nigeria

Theme
Meeting the Challenges of Sustainable Development in Africa through Science and Technology Education.

Sub-Themes
1. Meeting the challenges of food security
2. Poverty alleviation through science and technology education
3. Enhancing relevance of science and technology curriculum and curriculum delivery
4. The role of the teacher and teacher professional development
5. Strengthening peace building through science and technology education
6. Combating HIV and AIDS through education, prevention, care and support
7. Strengthening partnerships
8. Nanotechnology for sustainable development

Date: May 24 - 28, 2009

Venue: Abuja Sheraton Hotel and Towers, Abuja, Nigeria

Conference Registration Fee: ₦35,000 or U.S. $300 payable by bank draft issued in favour of "Science Teachers Association of Nigeria" and forwarded to:

ICASE African Representative
Science Teachers Association of Nigeria
The STAN Place, Kwali
P.M.B. 777, Garki, Abuja, Nigeria

Preamble

Africa entered the 21st Century with both promise and challenges. There were high hopes as increasing number of countries adopted democratic governance and collectively insisted that it was unacceptable to be perceived as a continent prone to endemic violence, and where peace, security, stability, and development are but a distant possibility. However, the low level of investment in the development of human capital, distortions in the institutional framework for economic management are some of the critical factors that have handicapped the harnessing of the rich resource potential in the continent, and also forestalled economic development.

The Perth Declaration of the ICASE 2007 World Conference on Science and Technology Education suggests a ray of hope for Africa through quality science and technology education. The Declaration accented to by delegates from over 50 countries recommends that governments should adopt science and technology education as the main lever for sustainable development. The overarching goals are to place African countries, both individually and collectively, on a path of sustainable growth and development; eradicate poverty; halt the marginalisation of Africa in the globalisation process and enhance its full and beneficial integration into the global economy.

An earlier ICASE conference recognized the need for partnership if science education is to be relevant for both responsible citizenship and for careers. This partnership is seen as essential for sustainable development to be a serious component of science and technology education for future partnerships.

The challenges facing sustainable development in Africa cannot be handled by Government alone. They require all segments of the African community to be involved. The recent PISA international study has highlighted concerns in the few African countries which participated and hence this conference is a timely attempt to bring together science educators in Africa to consider how relevant science and technology education for all can move forward and play its role in providing future citizens with knowledge, skills and values for sustainable development.

Objectives

The ICASE-2009 Africa Conference will

- review development in Africa in all its facets with a view to identifying key challenges that can be addressed through science and technology education;
- examine the role of science and technology education for relevance in meeting the challenges facing the region especially in agriculture/food security, poverty alleviation, HIV and AIDS, and peace building;
- suggest effective science and technology education/methodologies especially in curriculum development, the role of the teacher and teacher development, and bridging the digital divide.
- propose strategies for strengthening sub-regional and regional partnerships in supporting the delivery of quality science and technology education;
- specify the role of science and technology education in promoting sustainable development through sub-regional (e.g. ECOWAS and SADC) and regional (e.g. NEPAD) networks; and
- develop an Action Plan on science and technology education for sustainable development in Africa.

Call for papers

Participants are invited to submit **summaries** and **full** text of papers, and proposals for poster sessions and workshops. The organizers intend to publish the conference proceedings ahead of the conference. Therefore, all papers intended for presentation during the conference have to be

submitted in full including summary. The full paper should not be longer than 10 pages, A4 size. The paper should be typed single spaced using Times New Roman font size point 12. All presentation should conform to the formats prescribed below for the conference.

Format of the Summary

The summary of a typical paper intended for oral presentation should contain a description of the paper in not more than one A4 page. This will be used to describe the paper in the conference programme. The summary should include the title, author's name, institutional affiliation, country, specialization and a maximum of five (5) key-terms. The key-terms are designed to provide a guide to the issues raised or discussed in the paper. The summary should also include the purpose of the paper, issues addressed/research methodology, proposed solutions/major findings and conclusion(s).

Format of the full paper

The full paper should be structured as follows:

1. Introduction
2. Objectives/Research questions
3. Conceptual framework/Theory
4. Issues addressed/Design and Procedure
5. Proposed solutions/Findings
6. Conclusion(s)

Posters

Poster size should not exceed 1.0 x1.5 metres

Deadline

The deadline for online submission of papers and proposals is ***31 December 2008.*** Please submit directly through the following e-mail address: eniayeju@stanonline.org with copy to jack@ut.ee

Duration of Presentations

A Papers

1. Sub-theme Keynote speakers: 45 minutes plus 45 minutes of question /discussion time.
2. Contributed papers: 15 minutes plus 5 minutes of question time.

B. Workshops

Workshops should be planned for 60 or 90 minutes and so indicated in the proposal.

About Abuja

Abuja, Nigeria's purpose-built capital, is a beautiful city in central Nigeria. It is located in the Federal Capital Territory. The city officially replaced Lagos as the capital in December 1991. It is located in a scenic valley of rolling grasslands. At the north-eastern end stands the most striking feature on Abuja's landscape, Aso Rock, a 400metre-high monolith. Aso means 'success' or 'victory'. According to legend, the original inhabitants of the region lived at the base of the rock for centuries, unconquered. For them, Aso served as a place of refuge as well as a mystical source of strength. At the base of the rock, the Presidential Complex, National Assembly, and the Supreme Court lie in the *Three Arms Zone*, so called because it houses the administrative offices of the executive, legislative, and judicial arms of the Federal Government. Government agencies began moving into the new capital in the early 1980s, as residential neighbourhoods were being developed in outlying areas. Today, Abuja remains one of the modern cities in Africa. It has an international airport and is linked to other cities in Nigeria by air and a network of highways. It has a population of slightly over one million. The weather at the time of the conference is expected to be warm with temperatures ranging from 24^0C - 30^0C, so warm clothing is not required.

ABUJA HOTEL TARIFFS*

S/No.	Name & Address of Hotel	Room Type Name	₦**
1.	Nicon Luxury, Area 10	Classic Room	39,550
		Superior Room	55,257
		Business Suite	69,608
2	Transcorp Hilton, 1 Aguyi Ironsi Street	Twin Hilton Guest Room	37,000
		King Hilton Guest Room	40,000
		King Hilton Deluxe	65,000
		Royal Room	73,000
3.	Sheraton Abuja Hotel & Towers, Ladi Kwali Street (see photo)	Classic King Single	35,750
		Superior Room	45,500
		Junior Suite	67,600
		Executive Suite	96,200
4	Sheraton Towers, Ladi Kwali Street	Towers King	52,000
		Towers Junior Suite	79,300
5.	Nanet Suites, Ekiti House, Kur Mohammed street	Suite with Kitchenette	20,000
6.	Rockview Hotels, Wuse II	Superior Rooms	18,170
		Executive Rooms	20,700
		Queens Rooms	23,239
		Deluxe Rooms	25,530
		Royale Rooms	28,060
		Alcove Rooms	33,120
		King Size Rooms	30,590
		Business Suites	48,300
6	Agura Hotel, Moshood Abiola Way	Standard Room	14,950
		Business Suite	30,000
		Deluxe Suite	55,000
7	Royalton Hotels, Gongola Street, Area 2	Executive Room	8,900
		Alcove Room	12,600
		Royale Suite	20,000
		Presidential Suite	26,100

*** Rates are as of May 2008**

**** Naira Conversion rate is ₦120. = USD 1.**

For Further Information, please contact the Conference Convenors:

Dr. Ben B. Akpan
ICASE African Representative and
Executive Director
Science Teachers Association of Nigeria
The STAN Place
Kwali
P.M.B. 777
Garki, Abuja
Nigeria
Email: icase@stanonline.org

Professor Peter Okebukola
Faculty of Education
Lagos State University
Ojo
Lagos
Nigeria
Email: peter@okebukola.com

or visit: http://www.stanonline.org/ICASE-2009


Sheraton

5. Calendar of Events

SLASME (Sri Lanka) The 24th annual general meeting, scheduled for May 2008, has been postponed until July 19 and 20, 2008. This is particularly because of the prevailing situation in the country due to war and bombs. Planned are lectures and presentations of science investigatory projects by those interested, including secondary school students.

20th ICCE 3-8 August 2008, Mauritius .20th International Conference on Chemical Education. Theme: Chemistry in the ICT Age. Venue: Le Meridien Hotel. This is in conjunction with **a satellite conference** 11-12 August 2008, University of Nairobi, Kenya. Website http://www.uom.ac.mu/20icce.htm

The International Conference on Chemical Education (ICCE) is the main conference of the Committee for Chemistry Education of the International Union of Pure and Applied Chemistry (IUPAC). This is the first time that the conference will be hosted in the Sub-saharan region. There will be an online conference one month before the main conference and the latter will be followed by a satellite symposium in Nairobi. The conference will consist of plenary lectures delivered by renowned speakers and one Nobel laureate namely Prof Roald Hoffmann has kindly agreed to honour the event.
The website for the conference is http://www.uom.ac.mu/20icce.htm
The virtual conference will be held from 1st to 25th July 2008 and there is no registration fee. The website for the virtual conference is http://www.uom.ac.mu/icce/Virtual_conference/index.html

SMEC

"Sciences serving science: Cross-disciplinary issues in mathematics and science education" is the third in a series of biennial international Science and Mathematic Education Conferences (SMEC) that have been hosted by the Centre for the Advancement of Science Teaching and Learning (CASTeL), of Dublin City University & St. Patrick's College, Drumcondra.

SMEC 2008 will address the issues of sciences serving science, exploring questions such as transfer of knowledge and skills between disciplines, breadth versus depth in science curricula and the implications of these issues in regard to teacher education.

Papers are invited which relate to any such issues, but in particular those which will focus on:

- Breadth versus depth in science curricula
- Transfer of knowledge & skills between disciplines
- Interdisciplinarity & multidisciplinarity
- Subsidiary subjects in science

- Implications for teacher education

Previous conferences in this series addressed the need for improving science, mathematics and technology education through high quality research and deployment in our education system (SMEC 2004) and the interconnections between teaching and learning of mathematics and science at all education levels (SMEC 2006). http://www.dcu.ie/smec/2008

XIII IOSTE Symposium 21-26 September 2008 Izmir, Turkey
Symposium theme "The use of science and technology education for peace and sustainable development" For further information consult
http://www.ioste2008.org, http://www.ioste13.org or
http://web.deu.edu.tr/ioste13/index/index.php

International Conference on Science and Mathematics Education, October 27 – 29, 2008, UP NISMED, Quezon City, The Philippines

The University of the Philippines National Institute for Science and Mathematics Education Development (UP NISMED), in cooperation with UNESCO International Bureau of Education (IBE – Geneva), International Council of Associations for Science Education (ICASE) – Asian Chapter, Department of Education, Commission on Higher Education, and Department of Science and Technology – Science Education Institute will hold an international conference on science and mathematics education on October 27 – 29, 2008 at UP NISMED Complex, Diliman, Quezon City.

For further details, see SECTION 3 of this newsletter or contact the Conference Secretariat, UP NISMED, Diliman, Quezon City, Philippines 1101 Email: nismed@up.edu.ph Telefax: (632) 928- 3545

The 22nd Biennial Conference of the Asian Association for Biology Education
November 21-24, 2008 Osaka, Japan

This will be held at the **ANA Gate Tower Hotel, Osaka, Japan**, under the joint sponsorship of AABE and SBSEJ, the Society of Biological Sciences Education of Japan. The theme for this biennial conference is "The Role of Biology Education in Society Today." And sub-themes - Sub-theme 1. Biology Education for Realizing the Preciousness of Life; Sub-theme 2. Biology Education in "The UN Decade of Education for Sustainable Development (UNDESD)"

Country reports will be included as usual. General papers on biology education are also accepted. The Organizing Committee of the AABE 22 strongly encourages participants to send in their Registration Form by **July 31, 2008**.

Contact person:
Dr. Nobuyasu Katayama, The Director of the AABE 22, Department of Environmental Sciences, Tokyo Gakugei University, Koganei, Tokyo 184-8501, Japan. E-mail: katayama@u-gakugei.ac.jp, Facsimile: +81-334710354

FISER'09 May 22-24 2009, Famagusta, Northern Cyprus

A forthcoming international conference on Science and Mathematics education research; *Frontiers in Science Education Research 2009* (FISER'09) will be held May 22-24 2009. The official website of FISER'09 could be accessed via http://fiser.emu.edu.tr.

The conference is organised by the Eastern Mediterranean University, Faculty of Arts and Sciences.

Further information can be obtained from Mehmet Garip, Ph.D. Chair, Organising Committee (fiser@emu.edu.tr)

ICASE African Regional Symposium 24-28 May 2009, Abuja, Nigeria
The theme of the conference - Meeting the Challenges of Sustainable Development in Africa through Science and Technology Education. Venue: Abuja Sheraton Hotel and Towers Conference Conveners: Dr. Ben B. Akpan, ICASE African Representative and Executive Director, Science Teachers Association of Nigeria Email: ben.akpan@stan.org.ng and Professor Peter Okebukola, Faculty of Education, Lagos State University, Ojo, Lagos, Nigeria. Email: peter@okebukola.com or visit the website http://www.stan.org.ng/ICASE-2009

ICASE World Conference 28 June – 2 July, 2010 Tartu, Estonia 3rd World Science and Technology Education Conference. Contact person: Miia Rannikmae (miia@ut.ee). At this time the conference organiser is initiating the planning stage and all member organisations are very much invited to put forward ideas for inclusion in the conference. (see also the ICASE website www.icaseonline.net)

The World Conference 2010 venue today (the building with pillars in the background) and as it was in the 19th century.

6. 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
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E-mail: ben.akpan@stan.org.ng
(Member Organisation – Science Teachers Association of Nigeria)

Regional Representative for Asia
Dr Azian Abdullah
Director, RECSAM, Malaysia
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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

Pre-secondary and informal education
Prof Lynda Paznokas
E-mail lpaznokas@pullman.com

Safety in Science Education
Dr Ken Roy
E-mail: Royk@glastonburyus.org

World Conference
Dr Robin Groves
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