



United Nations
Educational, Scientific and
Cultural Organization



ISTIC

INTERNATIONAL SCIENCE, TECHNOLOGY AND
INNOVATION CENTRE FOR SOUTH-SOUTH
COOPERATION UNDER THE AUSPICES OF UNESCO

TRAINING WORKSHOP ON DEVELOPING THINKING SKILLS THROUGH INQUIRY-BASED SCIENCE EDUCATION (IBSE)

**22-26 OCTOBER 2018
KUALA LUMPUR, MALAYSIA**



TRAINING WORKSHOP ON DEVELOPING THINKING SKILLS THROUGH IBSE

BACKGROUND

Many developing countries are faced with basic issues in science education such as the shortage of qualified science teachers, lack of facilities including laboratories and equipment and poor methods of delivery in the teaching of this subject. Teaching tends to be teacher centred and prescriptive thus leaving little opportunity for children for investigation and discovery leading to disinterest in the subject. Science requires a teaching approach in which pupils should be actively engaged in carrying out inquiry and discovery and the use of evidence to formulate hypotheses and theories. Learning by doing is based on personal investigation that helps pupils to develop cognitive processes as well as the sense of curiosity and creativity. Inquiry based activities allow pupils acquire new communication skills, through discussions in the classroom and with the teacher. Instead of the usual memorization and concentration of scientific concepts and formulas, IBSE insists on the appropriation of knowledge through individual investigation and questioning attitude leading the pupils to learn by experimenting in partnership with the teacher. Hence the use of the hands and the brain lends itself as an appropriate teaching and learning strategy for science.

Inquiry based science education (IBSE) has been recognized as an effective method of teaching science. The inquiry based learning approach based on the French *La main a la pate* (literally translated as “hands in the dough”) developed by the French Academy of Sciences in 1996 led by Nobel Prize laureate George Charpak, Prof. Pierre Lena and Prof. Yves Quere, originated out of concern for the lack of interest in science subjects and the need to find an innovative way of renewing the teaching of science. The approach, now disseminated in more than fifty countries, both developed and developing, emphasizes raising pupils’ curiosity, creativity and reasoning by including them in the investigative and discovery process through experimentation. The approach also strengthens pupils’ language skill through the use of science note books

RATIONALE

IBSE is an innovative teaching pedagogy that calls for the active participation of pupils in the learning process through maximizing childrens’ natural curiosity, identification of problems, possible explanations or solutions, hypothesis to be tested, design of protocols to be tested involving several choices, the actual investigation, confirmation of the assumption, structure of knowledge in response to the questions raised and comparison with established facts. All the steps are in line with pedagogy recommended in the current Malaysian primary school science syllabus.

By using IBSE in teaching, it is hoped that learning science for pupils will be appealing and meaningful. This can contribute to increased interest in learning the subject and minimise the current issues facing school science education today. Hence the ultimate beneficiary will be pupils.

The training programme examines the basic principles of inquiry-based science approach to science and technology education in an effort re-emphasize and revive the importance of learning through. The expectation is that participants implement the approach in their own practice and to disseminate what they have learned to colleagues and other science educators in their own institutions and national settings.

OBJECTIVES

- a. To re emphasise the basic principles of inquiry-based science education
- b. To provide opportunities for science teachers to try out IBSE in the teaching of science in their classes;
- c. To experience the process of inquiry-based science teaching and learning; and
- d. To provide examples on developing thinking skills.

PARTICIPANTS

Participants will comprise between 35 – 40 science educators from developing countries who need to upgrade their skills in IBSE or who have not yet attended workshops on IBSE.

International Participants:

The organiser will bear the local cost (accommodation, food and meeting package) to qualified participants who are selected to attend this training workshop.

Participants are required to seek travel grant from their organisations to pay for their travel expenses to Kuala Lumpur, Malaysia.

Malaysian Participants:

The organiser will bear the local cost (food and meeting package) to qualified participants who are selected to attend this training workshop.

Malaysian participants will have to bear their own travel and accommodation expenses. Limited sponsorship on accommodation is available for Malaysian participants based on merit and need on case by case consideration.

WORKSHOP DURATION AND VENUE

The training workshop will be held in Kuala Lumpur, Malaysia from 22-26 October 2018.

APPLICATIONS

Applicants are highly encouraged to submit an online application. The link of the form can be accessed from the website www.istic-unesco.org, or here:

For **International** Participants:

Link: <https://goo.gl/forms/YhpOYySMacnUV4Hd2>

For **Malaysian** Participants:

Link: <https://goo.gl/forms/PFmXCDXTkDhEhHQf1>

A registration fee of RM 50 (~ USD 13) will be collected from each participant at the training workshop.

CLOSING DATE OF APPLICATIONS

All applications should be submitted to the ISTIC secretariat office **before 2 October 2018**

ISTIC will inform the successful applicants to the training programme **not later than 5 October 2018**. Applicants who do not receive word within this date are considered unsuccessful.

SECRETARIAT & ENQUIRIES

Secretariat IBSE Training Workshop
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WORKSHOP PROGRAMME

Day 1	22 OCTOBER 2018 (Monday)
8.30 am – 9.00 am	Registration
9.00 am – 9.45 am	Opening
9.45 am – 10.00 am	Group Photo
10.00 am – 10.30 am	Tea break
10.30 am – 11.00 pm	Science Education and Sustainable Development Goals
11.00 am – 1.00 pm	Hands-on activity 1: Classification of Living Species
1.00 pm – 2.15 pm	Lunch
2.15 pm – 4.00 pm	Hands-on activity 2: According to the La main a la pate approach and analysis of the activity – measuring time
4.00 pm – 4.30 pm	My Science Journal
4.30 pm – 5.00 pm	Reflection on day's programme
5.00 pm	Tea / Adjourn

Day 2	23 October 2018 (Tuesday)
8.30 am – 10.30 am	Hands-on activity 3: Raising questions: Kinds of questions learners raise when exploring a phenomena in their environment
10.30 am – 11.00 am	Tea break
11.00 am – 12.00 pm	Changing non-investigable question into investigable question & Types of Questioning
12.00 pm – 1.00 pm	Applying IBSE into Practice in Class
1.00 pm – 2.15 pm	Lunch
2.15 pm – 3.30 pm	Hands-on activity 4: Inter - disciplinary project. Theme: Water
3.30 pm – 4.30 pm	Hands on Activity 5: Earth Science and natural Disaster 1
4.30 pm – 5.00 pm	Reflection
5.00 pm	Tea / Adjourn

Day 3	24 October 2018 (Wednesday)
8.30 am – 10.30 am	Hands-on activity 6: Climate Change Education
10.30 am – 11.00 am	Tea break
11.00 am – 12.30 pm	Analysis of practice through video
12.30 pm – 1.00 pm	Resources for Teachers
1.00 pm – 2.15 pm	Lunch
2.15 pm - 4.00 pm	Hands-on Activity 7: Earth Science and Natural Disaster 2
4.30 pm – 5.00 pm	Preparation for Micro Teaching
5.00 pm	Tea / Adjourn

Day 4	25 October 2018 (Thursday)
7.45 am – 11.30 am	Field Visit
11.30 am – 1.00 pm	Preparation for Micro – Teaching
1.00 pm – 2.15 pm	Lunch
2.15 pm – 5.00 pm	Preparation for Micro – Teaching
5.00 pm	Tea / Adjourn

DAY 5	26 October 2018 (Friday)
8.30 am – 10.30 am	Micro-Teaching
10.30 am – 11.00 am	Tea Break
11.00 am – 12.30 pm	Micro-Teaching
12.30 pm – 2.30 pm	Lunch and Friday Prayers
2.30 pm - 4.00 pm	Round up and Feedback session
4.00 pm – 4.30 pm	Workshop Evaluation
4.30 pm – 5.00 pm	Closing and Certificate Presentation
5.00 pm	Tea and End of Programme

ORGANISERS



I S T I C
INTERNATIONAL SCIENCE, TECHNOLOGY AND
INNOVATION CENTRE FOR SOUTH-SOUTH
COOPERATION UNDER THE AUSPICES OF UNESCO

**International Science, Technology &
Innovation Centre (ISTIC) for South-South
Cooperation under the Auspices of UNESCO**

The International Science, Technology and Innovation Centre (ISTIC) for South-South Cooperation under the auspices of UNESCO was established on 21 January 2008 and is based in Kuala Lumpur. The creation of the ISTIC is a follow up of the Doha Plan of Action which has been adopted by the Heads of States and Government of the Group of 77 and China, during the meeting in Doha, Qatar, from 12 to 16 June 2005 on the occasion of the Second South-South Summit of the Group of 77 (G77). ISTIC is fully funded by the Government of Malaysia. One of the main functions of ISTIC is to develop and implement science, technology and innovation development programme for members of G77 and China targeted at facilitating the integration of national science, technology and innovation policies, capacity building, exchange of experiences and best practices, and creating a problem-solving network of centres of excellence in developing countries.

As reflected by its name, the Centre acts as an international platform for South-South cooperation in science, technology and innovation and make use of the network of the G77 plus China and the Organization of the Islamic Conference. The overall goal of the Centre is to increase the capacity for management of science, technology and innovation throughout developing countries.

