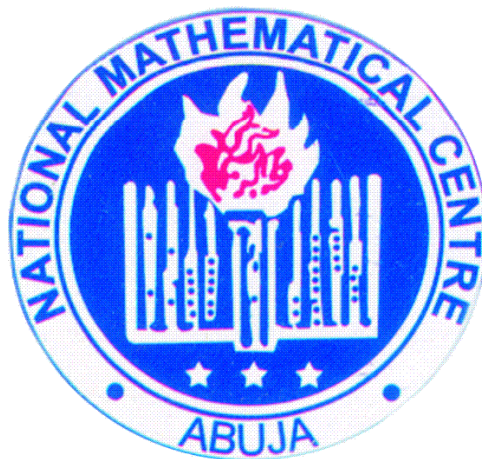


NATIONAL MATHEMATICAL CENTRE ABUJA, NIGERIA



**Briefing by the Director/Chief Executive
Prof. Adewale Roland Tunde Solarin**

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**16TH Meeting of the Coordinating Council of the Commission On Science
and Technology for Sustainable Development in the South (COMSATS).
CSIR, Accra, Ghana.**

May 2-3, 2013

CARDINAL OBJECTIVE OF THE CENTRE



- ❖ The National Mathematical Centre (NMC) Abuja, Nigeria is an Inter-University Organization.
- ❖ The cardinal objective of the Centre is to promote research and build high level manpower in the mathematical sciences.
- ❖ Our research and capacity building activities revolve around developing appropriate initiatives and



- ❖ resources of international standing
- ❖ for sustaining interest in the mathematical sciences at all levels and their applications to real-life issues.
- ❖ Meaningful development in Sciences and Technology requires a solid foundation in Mathematics.
- ❖ This cannot be achieved as long as Mathematics is perceived as a difficult subject.



1. DEMYSTIFYING THE LEARNING OF MATHEMATICS

❑ The Centre is putting in place strategies to making the learning and teaching of Mathematics as simple as possible using:

❑ **Mathematical Games**

❑ **Rubik's Cube Programme (competitions)**

❑ **Mathematics Kits and Teachings aids**

❑ **Mental Arithmetic using Chinese ABACUS**




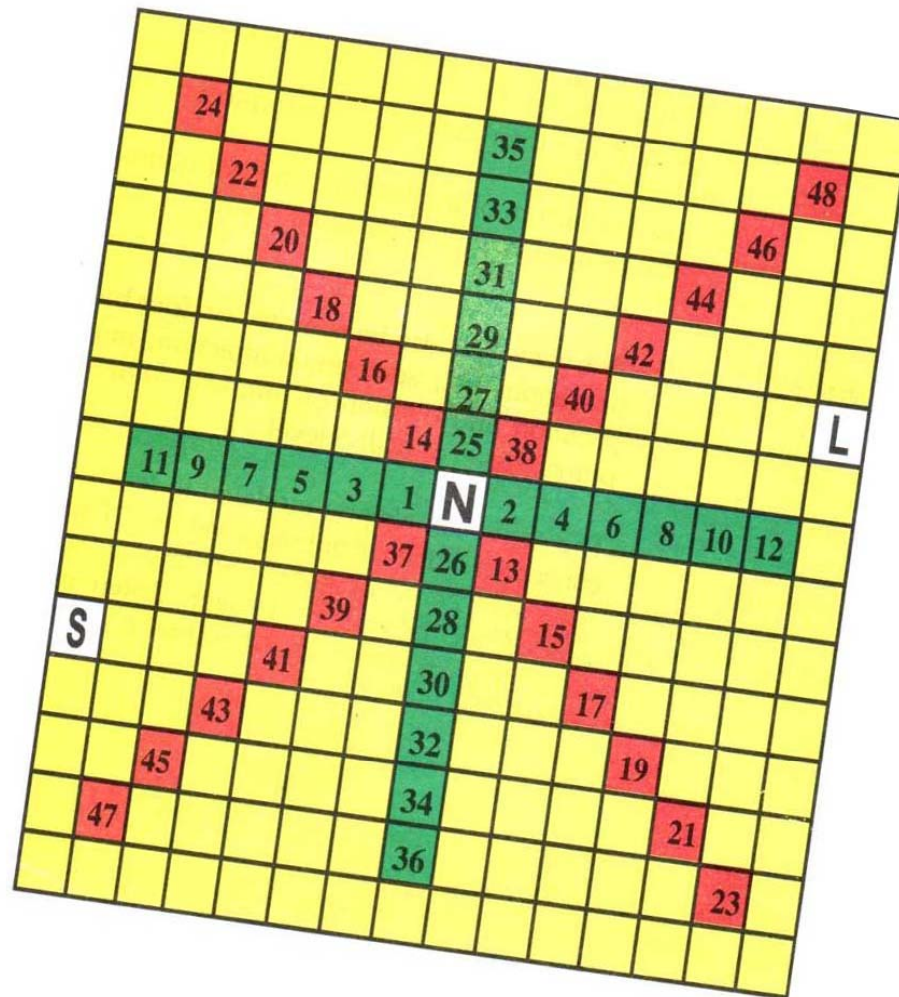
Mathematical Games

- *“Amusement and Pleasure ought to be combined with instruction in order to make the subject more interesting*” PLATO
- There is yet much phobia for mathematics especially at Basic Level.
- NMC has developed over thirty Mathematical Games. These include:



- GEOMETRIC LUDOMATICS – To Teach Fractions, Angles, Percentages and Mensuration.
- NO WAY CORNER – To teach Logical Reasoning and topological movement. e.t.c.

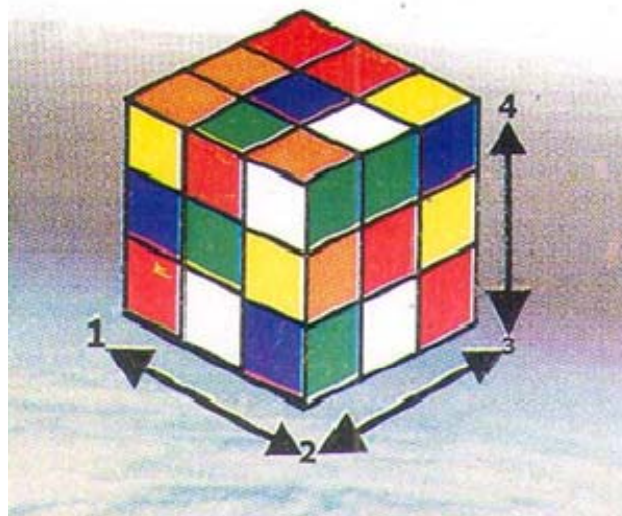
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- These Mathematical games are already packaged in one of the publications of the NMC and is used in the teaching of Mathematics in Nigeria.



FACTOR SCRABBLE

FACTOR SCRABBLE is a Mathematical Game that stimulates the interest in learning factors of different numbers which include LCM and HCF.

Rubik's Cube Programme (RCP)



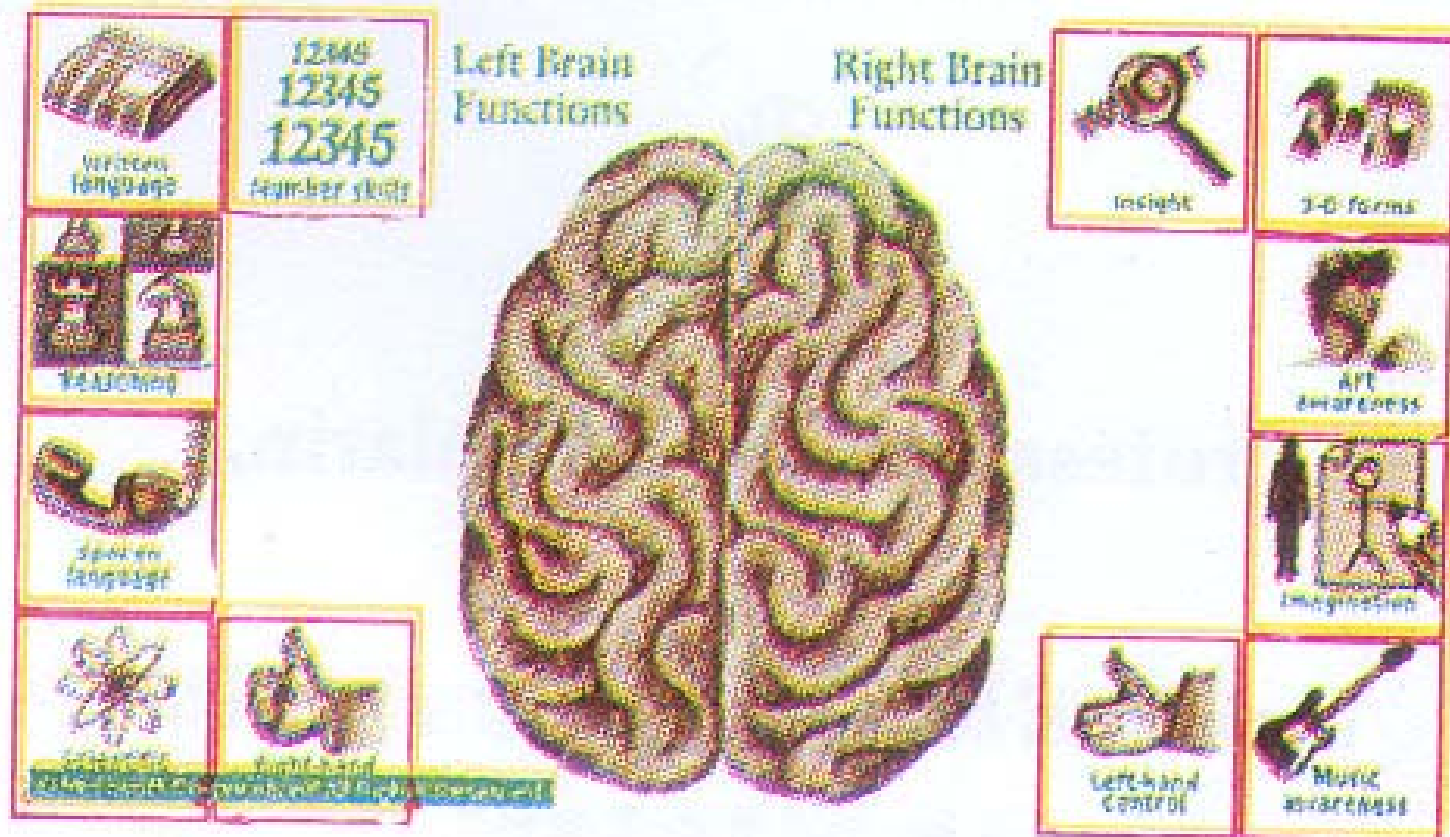
Rubik's Cube



This is one of my new initiatives at the Centre

- It was adapted, taught and competition organized among students by the NMC.
- Rubik's Cube Programme (RCP) is algorithmic based and is designed to help student to strategically develop both sides of the brain, by using both hands equally.
- Rubik's Cube Programme stimulates the student's ability to imagine, senses of feeling, hearing and sight.
- The Centre teaches both students and teachers how to solve Rubik's cube within very short time duration.

Left and Right Brain





Teachers learning how to solve Rubik's Cube

Mathematics Kits and Teachings aids

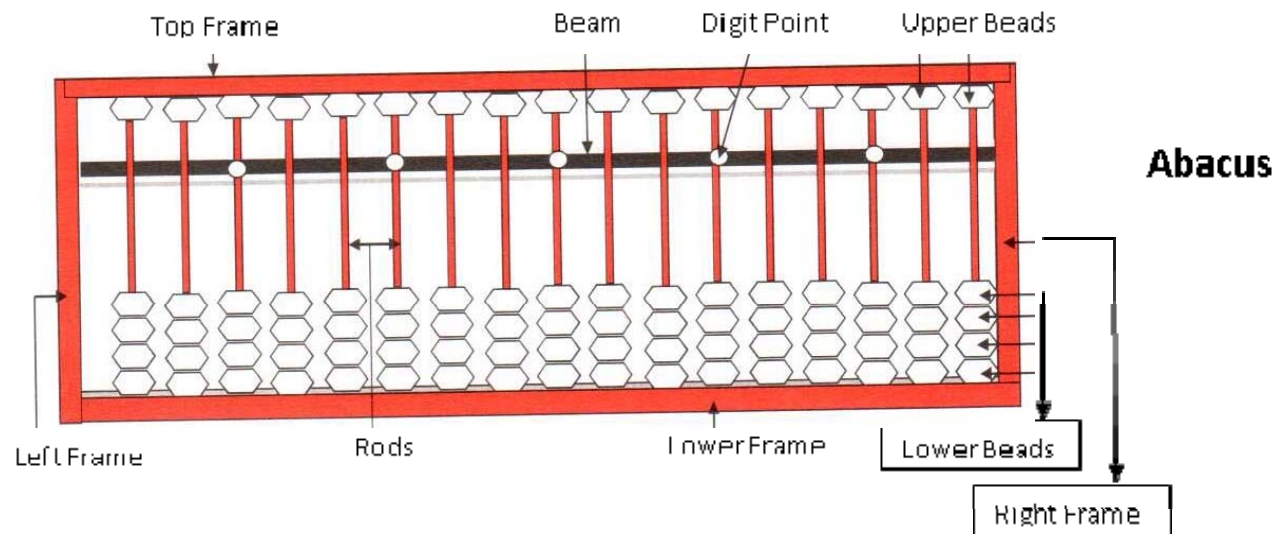




- Those areas of the mathematics which tend to be difficult can be made simple using teaching aids.
- The Centre is able to produce and distribute Mathematics teaching aids to schools at all levels and
- organize workshops for teachers on the proper use of these teaching aids.
- This features regularly in our “Train the Trainers” workshops for Teachers in Nigeria.

ABACUS Mental Arithmetic

Abacus Mental Arithmetic comprises arithmetical calculations using only the human brain with no help from calculators, computers or pen and paper. NMC has developed a good number of materials on Abacus Mental Arithmetic. These help the student maximize the latent power of the mind as the student learns to use both halves of the brain. Trainings are being organized for teachers and students all over Nigeria.





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2. TALENTS HUNT AND DEVELOPMENT

- ☐ **International Workshop on Gifted Education and International Competitiveness.**
- ☐ **Mathematical Olympiad Symposium, Training and Research**
- ☐ **National Mathematics Competition**

International Workshop on Gifted Education and International Competitiveness.

- The Centre organizes international workshop on gifted education and international competitiveness.
- This is to encourage acquisition of skills for the identification and management of Gifted Children,



- Provide strategic tools and personnel skills for turning Normal Children to Gifted Children and to disseminate strategic skills for mentoring and grooming Gifted Children.
- The Center has succeeded in grooming a number of such children. Example is Pius Onah who gained direct entry admission into Cambridge University, UK ever before graduating from secondary school in Nigeria.

Mathematical Olympiad Symposium, Training and Research

- Specialized trainings are organized to discover and develop young talents in
- Mathematics, Sciences and Informatics to a world class level
- to enable them compete with their counterparts from other parts of the world.
- Nigerian Olympiad candidates are groomed through this training.



Selected candidates (Junior and Senior secondary school level) undergoing specialized trainings in preparation for participation in Olympiads – An international competition in Mathematics, Sciences and Informatics.



National Mathematics Competition

- As part of our mandates is to promote and sustain interest in Mathematics, the Centre conducts annually though separately National Mathematics Competition among
- Universities, Polytechnics and Colleges of Education Students,
- Prizes and medals are awarded to top 50% of the contestants.



National Mathematics Competition in Progress

3. GENERATING HIGH LEVEL MANPOWER IN MATHEMATICAL SCIENCES

- ☐ **Sponsorship of Higher Degrees Programme in Mathematics**
- ☐ **Post Graduate Programme of NMC**
- ☐ **Organization of Workshops, Conferences and Seminars**

Sponsorship of Higher Degree Programmes in Mathematical Sciences

- The Centre encourages acquisition of higher degree in Mathematical Sciences by:
- sponsoring Master and PhD degree programmes of the academic staff of Nigerian Tertiary Institutions .
- This is made possible through collaborative supports of some organizations and universities, home and abroad.



Post Graduate Programme of NMC

- In pursuit of our mandate to produce high level manpower in the mathematical sciences, the Centre since 2007 initiates its own postgraduate degree programmes in the mathematical sciences in collaboration with six Nigerian Universities.
- The Centre in collaboration with University of Abuja is running Financial Mathematics Programme at Postgraduate Diploma and Masters Degree levels.



The current student population stands at:

Degree Programme	Nos
Postgraduate Diploma (PGD)	5
MSc	55


Organization of Workshops, Conferences and Seminars

- To facilitate knowledge sharing, discovery of new and emerging mathematical challenges and solutions,
- exploring applicability of Mathematical science concepts to solving contemporary human related issues,
- the Centre organizes national and international conferences and seminars.
- This creates a forum where notable Professors of Mathematics and Postgraduates students interact, present papers and establish fresh linkages.



Within the period under consideration the Centre had the following:


- ❑ 2nd Meeting of All Professors of Mathematics and Heads of Departments of Mathematics in Nigerian Universities and Nigerian Mathematicians in Diaspora.
- ❑ National Workshop on Mathematical Modeling and Simulation
- ❑ National Mathematical Sciences Graduates Foundation Development and Entrepreneurship Training Programme

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- **2nd Meeting of All Professors of Mathematics and Heads of Departments of Mathematics in Nigerian Universities and Nigerian Mathematicians in Diaspora.**
 - This week long conference attracted Mathematical Scientists from home and abroad.
 - It afforded the Centre the opportunity to discover new research tasks, facilitates linkages, partnership and strengthens cooperation between scholars of Mathematical Sciences world-wide.



National Mathematical Sciences Graduates Foundation Development and Entrepreneurship Training Programme

- This three(3) months long intensive training equipped the Participants with:
 - ✓ Needed preparation for advanced studies in Mathematical Sciences
 - ✓ Ability to be useful in Research and Educational Institutions.
 - ✓ Entrepreneurship skills
 - ✓ Relevant knowledge that would make them readily available for employment in the labour market

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- Between January – March 2013, about 60 selected unemployed graduates of Mathematical sciences took part in the Mathematical Sciences Graduate Foundation Development and Entrepreneurship Training Programme.
 - Examinations were written to select top 20 who will continue with Postgraduate training;
 - The remaining 40 were trained on how to effectively teach mathematics at secondary school level using our kits



Class in Session (Jan – March, 2013)



The top 20 will:

- continue with foundation postgraduate training programmes;
- Be prepared and funded to write GRE and TOEFL;
- Sponsored for postgraduate studies;

PACOM 2013

- Center is organizing and hosting the Pan African Congress of Mathematicians (PACOM 2013) in June, this year.
- The Congress will be based on the **Theme:**
- **Contemporary Development in the Mathematical Sciences.**
- It is expected to attract Mathematical scientists from Africa and other parts of the world.



The highlights of the events will include:

- ✓ General Assembly,
- ✓ Pan African Mathematical Olympiad (PAMO)
- ✓ Invited plenary lectures
- ✓ Invited lectures in the parallel sessions
- ✓ Short communication
- ✓ Posters presentation
- ✓ Books exhibition
- ✓ Round tables and excursions



4. CAPACITY BUILDING ACTIVITIES (Workshops, Conferences and Seminars)

- Pan-African Mathematical Olympiad Symposium, Training and Research (PAMOSTAR)**
- “Train The Trainers Workshop for Teachers”**
- TQM: Total Quality Management**



Pan-African Mathematical Olympiad Symposium, Training and Research (PAMOSTAR).

- ❑ This was a two week training organized for teachers to discover and develop young talents in mathematical sciences to a world class level to enable them compete with their counterparts from other parts of the world.
- ❑ Trainers were invited from America and Europe.
- ❑ It was in the same vein that the 6th Nigerian Universities Computer Programming Contest (NUCPC) 2012 was held
- ❑ The Centre also facilitated participation in the 2012 West Africa Regional ACM-IBM Collegiate Computer Programming Contest as well as a number of international Olympiads in Mathematics, Sciences and Informatics.



Train The Trainers Workshops for Teachers:

- As part of Nigerian government efforts at achieving the Millennium Development Goals (MDGs) in the area of Mathematics and Science education,
- series of *train-the-trainers* workshops were held for teachers and our text-books in difficult concepts in mathematics were distributed all over Nigeria.



- There were also capacity building workshops held for mathematical sciences
- lecturers and researchers in tertiary institutions;
- Professionals in industries in Nigeria in Mathematical sciences, Statistics, and Computer applications for statistical analysis and researches



Participants in our “Train the Trainers” Workshops at Jalingo, Nigeria



TQM: Total Quality Management

- Total Quality Management (TQM) has been adopted as the strategic direction in NMC by the new management.
- In line with this, Intensive in-house trainings, seminars and workshops were organized for all cadre of staff.
- The Centre was able to sponsor a number of her researchers and professionals on specialized local and foreign trainings to improve on the Centre's staff capacity, performances and service delivery.
- The Management of the NMC has initiated a move for ISO Certification.



5. COLLABORATION

- The Center has signed a number of MOUs with Research institutions home and abroad and is benefitting immensely from their various provisions.
- The Centre is yet seeking more collaborations in joint organization of its programmes, researches and manpower development
- Extension of her services to other African countries, because our mandate includes African region.



6. CHALLENGES

- The major challenge facing our various activities is funding. The statutory funding is grossly inadequate.
- However, a Public and Private Partnership (PPP) measure among others is being adopted to address this challenge.



7. ACHIEVEMENTS

- Individual and institutional awards



International Competition	Awards (Medals)
Pan-Africa Mathematics Olympiad, Tunisia, September 2012	One (1) Gold One (1) Silver One (1) Honourable Mention
International Mathematical Olympiad (IMO), Argentina, July 2012	One (1) Bronze Three (3) Honourable Mention



- Participation in a good number of foreign and local capacity building trainings by both Researchers and the supporting staff of the Centre.
- Improvement in infrastructure

Thank You