

NATIONAL MATHEMATICAL CENTRE ABUJA, NIGERIA



**Presentation
by
THE DIRECTOR/CHIEF EXECUTIVE OFFICER
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President, African Mathematical Union (AMU)**

**@
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**The
Giant
Protractor**

- ❖ The National Mathematical Centre (NMC) Abuja, Nigeria is an Inter-University Centre.
- ❖ Established in 1988, with the main responsibility of stimulating and sustaining interest in the Mathematical Sciences, through the conduct of research and generating capacity in the mandate area.

- ❖ Over the years, our research and capacity building activities have revolved 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 situations.
- ❖ 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.

NMC Admin Building



NMC Mathematical Science Library





This Presentation Covers (In the Last 12 Months):

- ❑ New Initiatives
- ❑ Capacity Building Activities in NMC
- ❑ Achievements
- ❑ Areas in Need of further International Cooperation and Collaboration
- ❑ Upcoming COMSATS Related Activity

New Initiatives

- ❖ Establishment of UNESCO Professorial Chair in Mathematics.
- ❖ Commencement of Initiative for Establishing UNESCO Category II Regional Centre.
- ❖ Introduction of Mental Maths Project (MMP).
- ❖ NMC Graduate Scholarship Scheme.
- ❖ Mathematical Sciences Graduate Foundation Development and Entrepreneurship Training Programme.
- ❖ One-year Visiting Research Fellowship.
- ❖ Institution and Crowning of the Africa Mathematics Queens.

1. Establishment of UNESCO Professorial Chair in Mathematics

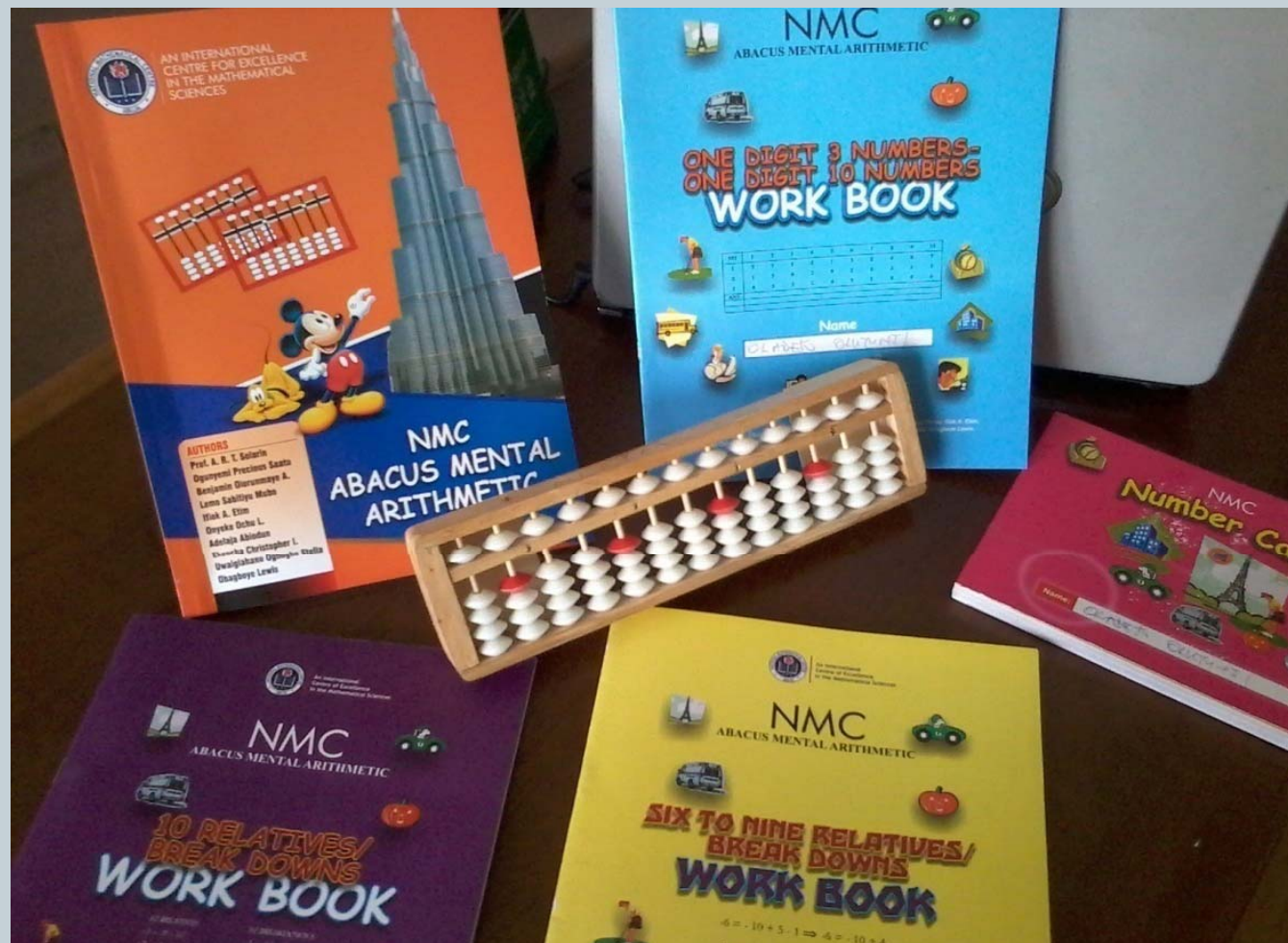
- ❖ Mathematics is the bedrock of Science and Technology and by extension, a key to sustainable national economic development.
- ❖ The UNESCO Chair for Mathematics is a Professorial Chair to be endowed in NMC, Abuja for a period of five years. It is expected to take off in September, 2014.
- ❖ It is solely for training, research activities and development of high-level personnel in Mathematics for Institutions of higher learning in Nigeria and the African sub region.
- ❖ The UNESCO Chair will serve as a learning centre for the national participants and the international community, geared towards the promotion of Mathematics cum Science Education.

2. Commencement of Initiative for Establishing UNESCO Category II Regional Centre

- ❖ The NMC has commenced initiatives and efforts towards the establishment of UNESCO Category II Regional Centre at the National Mathematical Centre, Abuja.
- ❖ The Regional Centre when in place, will identify areas of joint programme implementation and areas where greater synergies could be promoted at the National and Regional levels, to improve the Mathematical Sciences, for Scientific and Technological development.

3. Introduction of Mental Maths Project (MMP)

- ❖ The Mental Maths Project is another new initiative which aims at boosting the mental and mathematical abilities of the Nigerian and African Child.
- ❖ One of the components of this project is the **Mental Maths programme**.
- ❖ Doing Mental Mathematics (Arithmetic) involves performing mathematical calculations employing the mental capability of the human brain and mind, through concentration, without using any physical instruments such as the computer, calculator, paper or pencil.



NMC
Abacus
Mental
Arithmetic
Publications

The National Mathematical Centre has developed and published a number of high quality and Easy-to-Use Mental Maths (Arithmetic) books, based on the Chinese Abacus.

- ❖ The effective use of these books enables a child to do long calculations in seconds, avoiding errors.
- ❖ It also improves the students' confidence, enhances their ability to get better grades, strengthen their focus power and solidifies their power to commit many mathematical calculations to memory.
- ❖ The Centre has also recorded great successes in the Mental Maths pilot projects in some Nigeria public primary schools, using these newly developed educational materials. (Play of Video Clip of the pilot programme)

4. NMC Graduate Scholarship Scheme

- ❖ The NMC Graduate Scholarship Scheme was instituted to encourage and facilitate the pursuit of high level mathematical science programmes locally and at the international level, by brilliant Nigerian Mathematical Sciences' Graduates.
- ❖ NMC runs this scheme in partnership with a number of institutions such as University of Manitoba, Canada, Uppsala University, Sweden and COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan.

- ❖ These world class Institutions in partnership with the NMC, provide Higher Degree sponsorship opportunities such as Scholarships and Fellowships.
- ❖ In this regards, the Centre is yet prospecting opportunities from other institutions world-wide among which is the Institute for Pure and Applied Mathematics (IMPA), Brazil.
- ❖ Currently, beneficiaries of this scheme are limited to the top twenty best performing candidates in the yearly 3-Month (January – March) Mathematical Science Graduate Foundation and Entrepreneurship Development Programme of the Centre.

- ❖ Under this scheme, Seven(7) Nigerian University Graduate Students are currently undergoing Postgraduate programmes in COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan. They are on various Masters degree (MS) programme on COMSATS-CIIT Scholarships.

5. Mathematical Sciences Graduate Foundation Development and Entrepreneurship Training Programme

- ❖ This is part of the novel and renewed efforts of the Centre to raise a critical mass of high level Mathematicians for Nigerian Tertiary Institutions of learning and the vast labour market.
- ❖ This three (3) months long intensive training is designed for Mathematical Sciences (Mathematics, Statistics, Computer Science, Physics, Mathematics Education) Graduates with at least a second class upper division.

The intensive programme is to equip the Participants with;

- ✓ Needed preparation for Postgraduate Studies in Mathematical Sciences.
- ✓ Equip participants with Entrepreneurship skills leading to gainful employment.
- ✓ The NMC will seek for scholarship from relevant bodies for candidates with good performance in this programme
- ❖ The programme runs yearly from January to March with 2013 and 2014 editions successfully completed.



Some of the Participants in 2014 Edition posed with Coordinator and Lecturers

6. One-Year Visiting Research Fellowship

The NMC is organising a one-year visiting research fellowship in the following areas of research:

- Mathematics (Pure and Applied)
- Mathematical Physics
- Computer Science
- Statistics
- ❖ This research fellowship is opened to only Academic staff in the University system, who are currently occupying positions not less than a senior lecturer or its equivalent.
- ❖ Beneficiaries of these Fellowships must be holders of Doctoral Degrees in their field and are actively involved in relevant research activities.

7. Institution and Crowning of the Africa Mathematics Queens

- ❖ The crowning of the Africa and Nigeria Mathematics Queens by the Nigerian First Lady, Dame Patience Jonathan, was an innovation of the NMC Abuja for attracting and sustaining the interest of the African Girl Child in the study of Mathematics and the Basic Sciences.
- ❖ Under the programme, specially designed modules on difficult areas of Mathematics and other basic science subjects are developed and made friendly to the Girl child.
- ❖ This culminates in well structured competitions at various stages up to the African continental level.

- ❖ This contest generate competition among the female students thereby increasing interest and building their Academic capabilities in the Mathematical Sciences, Science and Technology).
- ❖ Miss Sinamo Bara of Cote d' Voire emerged as the African Mathematics Queen (Senior category) while Miss Titilayo Adewale of Nigeria emerged as Nigeria Mathematics Queen (Junior category).
- ❖ The Mathematics Queens came first in the national (Junior) and continental (Senior) categories, keenly contested among the African Female Students.



Africa Mathematics
Queen(Senior) posed with
Nigeria First Lady(L) and
Nigeria Former Minister of
Education (R)



Nigeria Mathematics
Queen(Junior) posed with
Nigeria First Lady(L) and
Nigeria Former Minister of
Education (R)



Capacity Building Activities in NMC

(Conferences /Seminars/Workshops)

- ❖ Hosting of Pan African Mathematics Olympiad (PAMO) and Pan African Congress Of Mathematicians (PACOM) June-July, 2013.
- ❖ International Workshop on Gifted Education in London, (UK).
- ❖ Capacity building for NMC Academic Staff.
- ❖ Training of All NMC Staff in Mental Arithmetic .
- ❖ National Summer School & Software Training Workshop on Advanced Research Methods and Data Analysis.
- ❖ Capacity building workshop for Mathematical Sciences Lectures in Tertiary Institutions on the Teaching of Mathematics, Statistics and Sciences.

1. Hosting of Pan African Mathematics Olympiad (PAMO) and Pan African Congress of Mathematicians (PACOM) June-July 2013

- ❖ The NMC, Abuja organized and hosted the Pan African Congress of Mathematicians (PACOM 2013) in July, 2013.
- ❖ The Congress, with the **Theme: Contemporary Development in the Mathematical Sciences**, attracted Mathematical scientists from Africa and other parts of the world.
- ❖ The highlights of the events included a 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.

- ❖ PACOM 2013 created an opportunities for presentations of highly valued and quality academic papers on latest works by top and seasoned Mathematicians from which Students and Researchers were exposed to a great deal of current development in the research world.
- ❖ It was also a forum for generating new ideas between thematic experts, other Researchers and Graduate students.

❖ The Director/Chief Executive of the NMC, Professor Adewale Roland Tunde Solarin (My humble self) was elected the President of the African Mathematical Union(AMU), the umbrella Union of all Mathematicians throughout the continent of Africa, during the Pre- Congress assembly of PACOM 2013.



Plenary Session

PACOM 2013



Parallel Session



Invited Lecture from China

Pan African Mathematics Olympiad (PAMO)

- ❖ PAMO hosted young African Mathematicians encouraging them to interact under a competitive environment, thereby improving their mathematical prowess.
- ❖ This Olympiad attracted Mathematical Science Students, who competed with themselves.
- ❖ These young Africans were also able to interact with Senior Mathematicians for the enhancement of their mathematical capabilities.



PAMO 2013
Winning Teams :
Nigeria, Tunisia,
South Africa

PAMO 2013

South Africa Team Leader
(L)Receiving the 2nd
Position Trophy from the
Nigeria former Minister
of Education (R)



2. International Workshop on Gifted Education in London, (UK)

- ❖ The NMC in collaboration with some Human Resources Development Institutions in London, United Kingdom, organized an International Workshop on Gifted Education and Establishment of Gifted and Talented Schools
- ❖ The target audience included; Educational Policy makers (Permanent Secretaries, Directors, and Special Advisers on Education) at the Federal, State and Local Government levels.
- ❖ The objectives of the workshop among others included:
 - ✓ To encourage acquisition of skills for the identification and management of Gifted Children.
 - ✓ To provide strategic tools and personnel skills for turning Normal Children to Gifted Children.
 - ✓ To Disseminate Strategic Skills for mentoring and grooming Gifted Children Education.

3. Capacity building for NMC Academic Staff

- ❖ In furtherance of its train-the-trainer policy, the Centre encouraged its Academic staff to embark on further studies for their Masters and PhD degrees to strengthen them in their areas of specialization.
- ❖ All Academic staff were granted leave with full pay to pursue higher degrees. This was done to further build the Academic manpower base of the Centre thereby improving their capacity to contribute meaningfully to the scientific and technological development of our Country.
- ❖ This will also contribute to the potential of the Centre to actualize its mandates, by improving the ability of the Academic staff to support the system in the coming years.

4. Training of All NMC Staff in Mental Arithmetic



Group
Photograph
of Train –
the-Trainers
Workshop on
the use of
Chinese
Abacus for
Mental
Maths

- ❖ All staff of the NMC, Academic and Non-Academic staff were trained in the use of the Chinese Abacus for Mental Maths.
- ❖ This is in order to impart the knowledge on the would-be participants in the Mental Arithmetic Programme. It is a continuation of the train-the-trainer policy of the Centre.

5. National Summer School & Software Training Workshop on Advanced Research Methods and Data Analysis

- ❖ This capacity building workshop was organized in collaboration with the African Higher Education and Research Observatory (AFRIHERO www.afrihero.org.uk).
- ❖ It was aimed at enhancing the capabilities of individuals, teams and organizations to produce excellent and high-impact research across the triple helix of the Academia, Industry and Government.
- ❖ Participants included the Academics, Postgraduate students and Researchers and Policy makers in industries.



Lecture Session



Practical Session

National Summer School 2013

- ❖ The workshop involved lectures, interactive and practical sessions on the use of advanced statistical and mathematical software, for statistical and analysis of quantitative data.

6. Capacity building workshop for Mathematical Sciences Lectures in Tertiary Institutions on the Teaching of Mathematics, Statistics and Sciences

- ❖ There was a series of capacity building workshops in various subjects which included: Mathematics, Statistics and the Sciences.
- ❖ This workshop anchored by our Mathematics Science Education Programme, Unit was aimed at:
 - ✓ Identifying basic principles of modern teaching in the Mathematical Science.
 - ✓ Updating Lecturers with knowledge of basic concepts in Mathematics, Statistics and Sciences at the tertiary level.
 - ✓ Improving the skills of the Lectures in carrying out research activities in mathematics, statistics and sciences.

Achievements

- ❖ International Collaborations (MoU/Agreements...)
- ❖ Guinness World Record Award
- ❖ COMSATS-CIIT Scholarship for Eleven Nigerian University Graduates
- ❖ Mathematics and Science Olympiad Awards
- ❖ Appointment as COMSATS Distinguished Professor

1. International Collaborations (MoU/Agreements)

- ❖ Effort is being made at revamping the working relationship with the Institute of Pure and Applied Mathematics (IMPA), Brazil.
- ❖ The IMPA had consented to visitation by NMC delegation.
- ❖ During the visit by the high powered NMC delegation, issues of bilateral interest will be discussed and an MoU signed.

2. Guinness World Record Award ...

- ❖ On 1 July, 2013 as part of the Pre-congress events of the Pan African Congress of the Mathematicians (PACOM 2013), the largest mathematics class involving 2,381 high school students was achieved by the NMC at the International Conference Centre Abuja, Nigeria.
- ❖ By this achievement, NMC (Nigeria) established a new World Record in the largest mathematics class, thereby breaking the earlier Guinness World Record of 2000 students held by India.

2. Guinness World Record Award

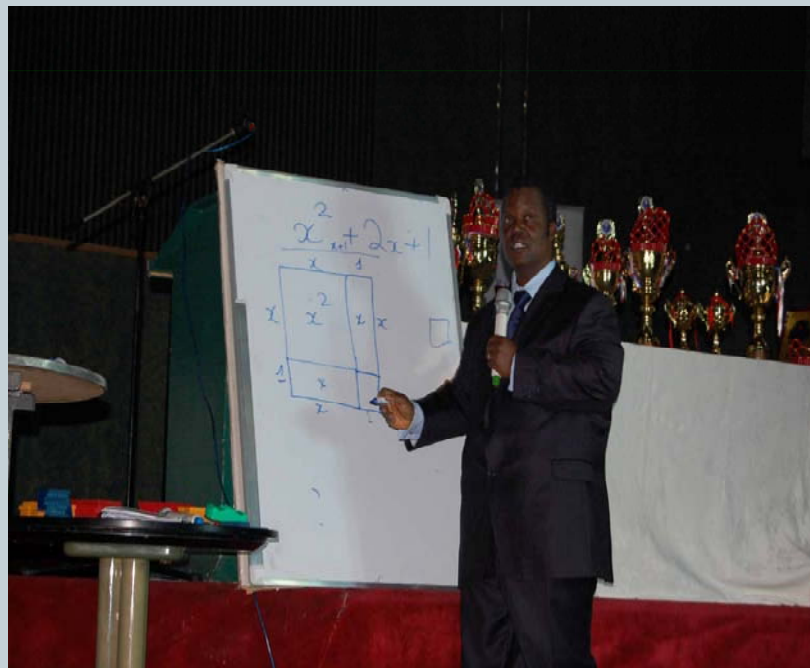


Guinness World Record
Certificate for NMC



2376th Student
Accredited

Prof. A.R.T
Solarin
Teaching the
World Largest
Mathematics
Class



3. COMSATS-CIIT Scholarship for Eleven Nigerian University Graduates

- ❖ COMSATS-CIIT scholarship-based admissions into various Master Degree (MS) programme in COMSATS Institute of Information Technology for the fall 2013 admission were awarded to eleven Nigerian University Graduates, through the collaboration between NMC, Abuja Nigeria and COMSATS.
- ❖ The scholarship offer include:
 - ❖ 100 % tuition fee exemption
 - ❖ 50% rebate on boarding / lodging / transport and food charges
 - ❖ 60 – 80 % waiver on admission and graduation fee.
 - ❖ Round trip Economy class Air flight ticket to and fro Islamabad once during the course duration by COMSATS Headquarters, Pakistan.

4. Mathematics and Science Olympiad Awards

International Competition	Awards (Medals)
Pan-Africa Mathematics Olympiad (PAMO) in Nigeria, May 2013	One (1) Gold One (1) Silver Two (2) Bronze
International Mathematical Olympiad (IMO) in Colombia, July 2013	One (1) Bronze

5. Appointment as COMSATS Distinguished Professor

- ❖ The Director/Chief Executive of the NMC who was elected as the President of the African Mathematical Union (AMU) in July 2013, was also appointed COMSATS Distinguished Professor in September, 2013.
- ❖ While thanking COMSATS authorities for this honour done to us, we pledge our commitment to the vision and ideals of COMSATS, promising to contribute our quota more meaningfully, through this Distinguished Professorial Award.
- ❖ We shall always be ready and available to answer COMSATS' call for any assignments (national or international) aimed at realizing COMSAT's vision and mission.
- ❖ We thank you and promise not to betray the confidence you repose in us.

AREAS IN NEED OF FURTHER INTERNATIONAL COOPERATION AND COLLABORATION

1. Sponsorship opportunities to support the NMC Scholarship scheme in our bid to produce a critical mass of high level Mathematicians.
2. Participation in our One-year Visiting Research Fellowship Programme.
3. Cooperation of the Member Countries in the activities of the Thematic Research Group in Mathematical Modeling, the foundation meeting is to be held soonest.
4. Cooperation in the area of mathematical modeling in weather studies and forecast. Our Centre will be willing to collaborate with the International Centre for Climate and Environment Sciences (ICCES) China and other relevant stakeholders on weather issues in our country.

Upcoming Events

1. COMSATS Thematic Group on Mathematical Modeling

The National Mathematical Centre is planning to hold the Foundation Meeting of the COMSATS Thematic Group on Mathematical Modeling not long from now. Seasoned Scientists in the area of mathematical modeling are being assembled from a number of Universities in Nigeria, to work with team members from other COMSATS Centres of Excellence, to achieve the set goals of this International Thematic Research Group

2. Training of Mathematics Teacher of Federal Government Unity School

The NMC in collaboration with Nigeria's Federal Ministry of Education will train about 200 Mathematics Teachers from all Federal Government unity schools in the nation on current methods of teaching mathematics to arm the teachers effectively well in classroom administration and delivery methods thereby stimulating and enhancing students interests in Mathematics.

Thank You