23rd INTERNATIONAL BIOLOGY OLYMPIAD

8th – 15th July 2012

OFFICIAL REPORT
INTRODUCTION

The 23rd International Biology Olympiad (IBO) was held in Singapore from 8th July to 15th July, 2012. IBO2012 was hosted by the National Institute of Education (NIE), Nanyang Technological University (NTU) and the National University of Singapore (NUS) and sponsored almost entirely by the Ministry of Education (MOE). Singapore played host to a total of 440 participants from 59 competing countries (as well as one new observing country, Costa Rica and one non-competing country, Liechtenstein). These participants comprised 234 student competitors accompanied by 207 Jury members and observers. The full participant list is provided in the IBO2012 Program Book (Appendix 1, pages 7 to 10).

Compared with previous IBOs, the 23rd IBO Organizing Committee was rather lean, with only 34 key committee members, aided by 109 helpers and 104 volunteer guides (Appendix 1, pages 14 to 16). The two Co-Chairpersons of the IBO2012 Organizing Committee were Associate Professors Shirley Lim and Tit-Meng Lim. The IBO2012 Organizing Committee, though small in size, worked together as a cohesive team to provide all participants with a wonderful experience of Singapore culture.

The student competitors stayed at the Prince George’s Park Residences at the NUS while Jury members and observers were housed in the dormitories at NTU. The close proximity of the NTU dormitories to the Jury Room ensured that travel time to and from the questions-vetting venue is reduced as it is within walking distance. In addition, this is in keeping with the notion of reducing our carbon footprint.

The IBO2012 program officially kicked off with the grand Opening Ceremony on the 9th July, with His Excellency, Dr Tony Tan Keng Yam, President of the Republic of Singapore as the Guest-of-Honour. To mark the auspicious occasion, the President ‘dotted the eyes’ of two new Chinese dancing lions to “bring them to life”. Cultural items were performed by primary school children who were part of the prize-winning dance items and bands in the annual Singapore Youth Festival. The daily program of the entire IBO for both student competitors and Jury members is given in Appendix 2.

Special efforts were made by the organizers to introduce aspects of Singapore life into the daily activities. All the meals were carefully chosen to showcase typical Singapore cuisine as Singapore is well known as a food paradise. Pages 11 to 13 in the IBO2012 Program Book (Appendix 1) provide detailed information on the daily menus such that all participants can better appreciate the local cuisine. The menus were different for every meal and varied from Chinese (from diverse dialects such as Cantonese, Teochew, etc.), Malay, Indian, Peranakan food to Western food.
In addition, student competitors and the Jury members plus observers were also given a glimpse of how Singapore solves her problem of water shortage: they visited the NEWater Plant as well as the Marina Barrage. A kite decoration competition was organized at the Marina Barrage, followed by a fun evening of night kite flying. Jury members were also introduced to the steamboat dining culture – a traditional roundtable dining experience to cultivate camaraderie by cooking your own food. There were also visits to museums, the Jurong Bird Park, the Underwater World and the Singapore Zoo. At the Bhangra Night, participants let their hair down and partied the night away encouraged by the vibrant drums of the Sikhs.

The expenditure for hosting the event totaled about USD 1.1 million. Participation fees were pegged at USD 2,000 for each team (comprising two Jury members and four student competitors) and USD 1,440 for each individual Observer – these rates were not considered as high in comparison with past IBO participation fees. A total of USD 201,894 was collected from the 440 participants with the rest of the expenditure for IBO (about USD 900,000) being funded by the MOE, Singapore.

THEORY AND PRACTICAL TESTS

The Scientific Committee, with the assistance of the international Sub-group (Table 1), worked tirelessly to ensure that a high standard of the IBO competition was maintained with quality questions and tasks. In fact, IBO2012 has the distinction of having the least number of words for the theoretical tests (7003 words) and the third lowest number of words for the Practical tests (7619 words) (Fig. 1).

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poonpipope Kasemsap</td>
<td>Thailand</td>
</tr>
<tr>
<td>Hans Morelis</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Mary Oliver</td>
<td>Australia</td>
</tr>
<tr>
<td>Alexander Rubtsov</td>
<td>Russia</td>
</tr>
<tr>
<td>Anindya Sinha (Rana)</td>
<td>India</td>
</tr>
<tr>
<td>Dennis Kappei</td>
<td>Germany</td>
</tr>
<tr>
<td>Daniel Wegmann</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Olga Waksmann</td>
<td>Germany</td>
</tr>
<tr>
<td>Alex Friedman</td>
<td>Germany</td>
</tr>
</tbody>
</table>
Practical tests (each of 90 minutes’ duration and worth 50 points each) were held on July 10 in the four big laboratories of the National Institute of Education (NIE), at the Nanyang Technological University campus. The four biological fields tested were: (1) Cell & Molecular Biology, (2) Microbiology & Biochemistry, (3) Plant Diversity, Anatomy & Physiology, and (4) Animal Anatomy & Ecology.

The Theoretical tests (each lasting 3 hours) were held on July 12 at the NIE Gymnasium and for the first time in the IBO competitions’ history, comprised all ‘Type B” questions. Paper 1 (89.30 points) and paper 2 (89.60 points) had 49 and 46 questions respectively, with no questions being skipped (i.e., only parts of a few questions were omitted after Jury discussion).

A total of 193 questions were submitted by Argentina, Australia, Bulgaria, China, Chinese Taipei, Czech Republic, Georgia, India, Indonesia, Italy, Korea, Kuwait, Latvia, Mexico, Netherlands, New Zealand, Russia, Singapore, Slovakia, Slovenia, Switzerland, Thailand, Turkey, Turkmenistan, United Arab Emirates, Ukraine, and United States of America (27 countries). The organizers selected and modified only 29 questions as most were Type A questions; the contributed questions comprised 28.88% of the total 187.2 points of the Theoretical tests.
The distribution of the various fields of biology (i.e., Cell biology, Plant anatomy and physiology, Animal anatomy and physiology, Ethology, Genetics and evolution, Ecology, and Biosystematics) conformed to the guidelines of the IBO with deviations of less than 2% in each topic (Table 2).

Table 2. The distribution of points for the various biological fields in the two theoretical tests that were prepared by the Scientific Committee prior to the Jury vetting session.

<table>
<thead>
<tr>
<th>Field</th>
<th>Paper 1</th>
<th>Paper 2</th>
<th>Total</th>
<th>%</th>
<th>Exptd Weighting</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Biology</td>
<td>15.3</td>
<td>19.9</td>
<td>35.2</td>
<td>18.8%</td>
<td>20%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Plant Anat &amp; Physio</td>
<td>14.7</td>
<td>10.8</td>
<td>25.5</td>
<td>13.6%</td>
<td>15%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>Anim Anat &amp; Physio</td>
<td>24.6</td>
<td>23.1</td>
<td>47.7</td>
<td>25.5%</td>
<td>25%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Ethology</td>
<td>3.9</td>
<td>3.8</td>
<td>7.7</td>
<td>4.1%</td>
<td>5%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>Genetics &amp; Evolution</td>
<td>18.9</td>
<td>21.1</td>
<td>40</td>
<td>21.4%</td>
<td>20%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Ecology</td>
<td>11.1</td>
<td>9.7</td>
<td>20.8</td>
<td>11.1%</td>
<td>10%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Biosystematics</td>
<td>5.3</td>
<td>5</td>
<td>10.3</td>
<td>5.5%</td>
<td>5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>93.8</td>
<td>93.4</td>
<td>187.2</td>
<td>100%</td>
<td>100%</td>
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</tr>
</tbody>
</table>

A complete set of the 23rd IBO questions (theoretical and practical tests), together with the answer keys and marking schemes are given in Appendix 3.

**RESULTS OF THE 23rd IBO**

Statistical analysis of the theory tests showed high reliability, significant correlation, with no outliers (Fig. 2A). In general, students who did well for Theoretical Test 1, also did well for Theoretical Test 2. Similarly, the performance of the students for the Theoretical tests (combined) was highly correlated with the scores for the four Practical tests (Fig. 2B). There were no outliers, indicating that there was unlikely to be any cheating.
Fig. 2. Scatterplot of scores of the students in the various tests: (A) Theoretical Test 2 against Theoretical Test 1; (B) Practical Tests total score against Theoretical Tests total score.

From the scatterplots in Fig. 3 A – D, it can be seen that students did the best in Practical Test 1 (Cell & Molecular Biology), with the mean score of more than 70% and the worst in Practical Test 2 (Microbiology & Biochemistry), with low mean score of less than 40%. The mean score for Practical Test 3 (Plant Diversity, Anatomy & Physiology) and Practical Test 4 (Animal Anatomy & Ecology) were 60% and 50% respectively, indicating that the students fared better in the Plant Diversity test than in the Animal Ecology test.
Fig. 3. Scatterplot of Total Practical scores against individual Practical tests: (A) Practical Test 1; (B) Practical Test 2; (C) Practical Test 3, and (D) Practical Test 4.

The total scores of the student competitors were converted from percentage scores to t-scores, with equal weighting for the Theoretical Tests (50%) and the Practical Tests (50%). The complete list of student t-scores is given in Appendix 4. Test papers were randomly picked for checking of translations and accuracy. The following countries’ test papers were checked: Chinese Taipei, Germany, Japan, Korea, Russia, Singapore, and Thailand – and everything was in order.
In keeping with the IBO rules, about 10%, 20% and 30% of the student competitors were awarded medals: 25 gold medals, 48 silver medals and 73 bronze medals. The design of the medals featured the IBO2012 logo on one face and the official IBO logo on the flip side (Fig. 4); the photograph on the Cover of this report shows the gold, silver and bronze medals. A full description of the design of the IBO2012 logo is given in Appendix 1 (page 6).

Fig. 4. Design of the 23rd IBO medal featuring the logo (with a DNA strand, the Sunda Pangolin and the Singapore Rhododendron).

At IBO2012, the next highest ranking 25 students (after the medal winners) were awarded Merit Certificates as encouragement for their good performances. Fig. 5 shows the certificates that were given to the medal winners as well the merit certificate recipients. The certificate of participation that was given to all participants of the IBO2012 is shown in Fig. 6.

Fig. 5. Design of the 23rd IBO Certificate of Awards for medal winners: Gold, silver and bronze (left to right). The gold, silver and bronze lettering were hot-stamped with matching metallic foil onto the certificates.
Fig. 6. Design of the 23\textsuperscript{rd} IBO Certificate of Merit.

Fig. 7. Design of the 23\textsuperscript{rd} IBO Certificate of Participation for all participants at the IBO2012.
CLOSING CEREMONY

The Closing Ceremony was held on the 14th July and the Guest-of-Honour was Ms Chan Lai Fung, Permanent Secretary (Education Policy), MOE, Singapore. Before the results of the IBO2012 were announced, there was the traditional presentation of award to the winners of the IBO Video Competition. Team Japan's hilarious entry for the Bio Video Competition was voted by the 234 competitors to be the best entry in this competition.

Upon completion of the medal awards ceremony, the IBO Cup and Flag were officially handed over by the two Co-Chairpersons of IBO2012 to the next host of the IBO, Switzerland. Dr Daniel Wegmann and Ms Irène Steinegger-Meier received the cup and flag on behalf of Switzerland. In keeping with the tradition set by the organizers of the IBO in 2011 (Chinese Taipei), the flags of the participating countries were also handed over to the next organizers. Everyone then adjourned to the Raffles Marina where a sumptuous spread awaited them – a fitting Farewell Banquet for a week-long of competition, fun and camaraderie.

EPILOGUE

Several IBO-Firsts were achieved at IBO2012. Internet access for each country was provided in the Jury Room. Massage chairs (manufactured by a Singapore company, OSIM) were provided for the Jury members in the Jury room – these were proclaimed a big hit by all those who had weary bodies from the long hours of translation work! Reusable insulated mugs, personalized with names of the Jury members and Observers were provided so as to make the IBO2012 a 'green' IBO. Monogrammed souvenir towels were given to all participants. Wireless 'clickers' were provided to each country for electronic voting – a simple and painless way to collate votes for debated issues.

Several newspaper articles were published in the national English newspapers, The Straits Times, about the IBO2012 just prior to the event (May 25th 2012: Appendix 5), during the IBO itself (July 10th 2012, Opening Ceremony: Appendix 6) and at the end of the whole IBO (July 15th 2012, Closing Ceremony and Results: Appendix 7).

After the IBO2012, two articles were published in September 2012 about the event: (1) NIE News (Appendix 8) and, (2) NTU Link (Appendix 9). In March 2013, 23 members of the 23rd IBO Organizing Committee were honoured by NTU with the Nanyang Award 2013 for Teamwork (Appendix 10).
Program

23rd International Biology Olympiad
Singapore, 8-15 July
The 23rd International Biology Olympiad, Singapore
**Program at a glance**

<table>
<thead>
<tr>
<th></th>
<th>Jury and Observers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sunday, 8 July</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrival &amp; Registration</td>
<td><em>(NUS &amp; NIE/NTU)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Monday, 9 July</strong></td>
<td></td>
<td></td>
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<tr>
<td>Opening Ceremony <em>(Nanyang Auditorium/NTU)</em></td>
<td></td>
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<tr>
<td>Vetting of Practical Tasks <em>(Sports Hall/NIE)</em></td>
<td>Review of Lab Equipment &amp; Visit to NTU <em>(SBS/NTU)</em></td>
<td>Ice-breakers <em>(PGPR/NUS)</em></td>
</tr>
<tr>
<td><strong>Tuesday, 10 July</strong></td>
<td></td>
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<tr>
<td>Excursion: NEWater Plant &amp; Jurong Bird Park</td>
<td>Practical Tasks <em>(Labs/NIE)</em></td>
<td>Social Night <em>(PGPR/NUS)</em></td>
</tr>
<tr>
<td><strong>Wednesday, 11 July</strong></td>
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<tr>
<td>Vetting of Theory Questions <em>(Sports Hall/NIE)</em></td>
<td>Excursion: Visit to NUS, Jurong Bird Park &amp; NEWater Plant</td>
<td></td>
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<tr>
<td><strong>Thursday, 12 July</strong></td>
<td></td>
<td></td>
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<tr>
<td>Excursion: Visit to A*Star &amp; Underwater World (Sentosa)</td>
<td>Theoretical Tests <em>(Gym/NIE)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Friday, 13 July</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinators’ Meeting <em>(Sports Hall/NIE)</em></td>
<td>Excursion: Visit to A*Star &amp; Underwater World (Sentosa)</td>
<td>Team Building: Kite-making Workshop</td>
</tr>
<tr>
<td>Excursion: Peranakan &amp; National Museums</td>
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<tr>
<td>Special Activity: Kite-flying &amp; Marina Barrage Tour</td>
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<tr>
<td><strong>Saturday, 14 July</strong></td>
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<tr>
<td>Checking &amp; Finalisation of Marks <em>(Sports Hall/NIE)</em></td>
<td>Excursion: Singapore Zoo</td>
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<tr>
<td>Closing Ceremony <em>(Nanyang Auditorium/NTU)</em></td>
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<tr>
<td>Farewell Dinner <em>(Raffles Marina)</em></td>
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<tr>
<td><strong>Sunday, 15 July</strong></td>
<td></td>
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<tr>
<td>Farewell &amp; Departures</td>
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</tbody>
</table>

**A*STAR:** Agency for Science, Technology and Research  
**NIE:** National Institute of Education, NTU  
**NTU:** Nanyang Technological University  
**NUS:** National University of Singapore  
**PGPR:** Prince George’s Park Residences, NUS  
**UWS:** Underwater World Singapore
# Program

## 23rd International Biology Olympiad Opening and Closing Ceremonies
Nanyang Auditorium, Nanyang Technological University

<table>
<thead>
<tr>
<th>Opening Ceremony</th>
<th>Closing Ceremony</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday, 9 July 2012, 9.45am</strong></td>
<td><strong>Saturday, 14 July 2012, 3.30pm</strong></td>
</tr>
<tr>
<td>9.45am</td>
<td>3.30pm</td>
</tr>
<tr>
<td>Arrival of Guest-of-Honour</td>
<td>Arrival of Guest-of-Honour</td>
</tr>
<tr>
<td>His Excellency Dr Tony Tan Keng Yam</td>
<td>Ms Chan Lai Fung</td>
</tr>
<tr>
<td>President of the Republic of Singapore</td>
<td>Permanent Secretary (Education Policy)</td>
</tr>
<tr>
<td>Ministry of Education</td>
<td>Video of IBO Highlights</td>
</tr>
<tr>
<td>Competitors’ March-past</td>
<td>Closing Remark by Chairman of IBO Coordinators</td>
</tr>
<tr>
<td>Opening of Event</td>
<td>• Associate Professor Poonpipope Kasemsap</td>
</tr>
<tr>
<td>Address by Chairpersons of IBO2012 Organising Committee</td>
<td>Closing Address by Chairpersons of IBO2012 Organising Committee</td>
</tr>
<tr>
<td>• Associate Professor Shirley Lim</td>
<td>• Associate Professor Shirley Lim</td>
</tr>
<tr>
<td>• Associate Professor Lim Tit Meng</td>
<td>• Associate Professor Lim Tit Meng</td>
</tr>
<tr>
<td>Address by Chairman of IBO Coordinators</td>
<td>Cultural Performances</td>
</tr>
<tr>
<td>• Associate Professor Poonpipope Kasemsap</td>
<td>Presentation of Award for Video Competition</td>
</tr>
<tr>
<td>Oath by Competitors’ Representative</td>
<td>Prize Presentation for IBO2012 Competition</td>
</tr>
<tr>
<td>Oath by Representative of International Jury</td>
<td>Handing-over of IBO Cup &amp; Flag</td>
</tr>
<tr>
<td>Cultural Performances</td>
<td>Invitation Speech by Host of IBO2013</td>
</tr>
<tr>
<td>12.00pm</td>
<td>Closing Performance</td>
</tr>
<tr>
<td>End of Ceremony</td>
<td>6.00pm</td>
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<tr>
<td>End of Ceremony</td>
<td>End of Ceremony</td>
</tr>
</tbody>
</table>

## Location of Nanyang Auditorium, Nanyang Technological University (NTU)
23rd International Singapore Biology Olympiad

Wednesday 8 July
- 10:00-12:00: Arrival & Registration
- 14:00-16:00: Welcome & Opening Ceremony

Monday 9 July
- 10:00-12:00: Visit to School of Botany In pts.
- 14:00-16:00: NTS Registration

Tuesday 10 July
- 10:00-12:00: Visit to School of Physics
- 14:00-16:00: NTS Registration

Wednesday 11 July
- 10:00-12:00: Visit to School of Chemistry
- 14:00-16:00: NTS Registration

Thursday 12 July
- 10:00-12:00: Visit to School of Computer Science
- 14:00-16:00: NTS Registration

Friday 13 July
- 10:00-12:00: Visit to School of Mathematics
- 14:00-16:00: NTS Registration

Saturday 14 July
- 10:00-12:00: Visit to School of Environmental Science
- 14:00-16:00: NTS Registration

Detailed Schedule

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About the IBO

The International Biology Olympiad (IBO) is a competition for secondary school students. Their skills in tackling biological problems, and dealing with biological experiments are tested. Interest in biology, inventiveness, creativity and perseverance are necessary. In bringing together gifted students, the IBO tries to challenge and stimulate these students to expand their talents and to promote their career as scientists.

A very important point is bringing together young people from over the world in an open, friendly and peaceful mind. Every participating country sends four students, who are the winners of the respective national competitions. They are accompanied by two team leaders who represent the country.

The IBO began in 1990 with six countries participating and held in Olomouc, Czechoslovakia (now Czech Republic). Singapore started as an observer country at the 11th IBO in Turkey (2000), and has competed every year since the 12th IBO held in Belgium, Brussels (2001). Singapore is proud to be the host for the 23rd International Biology Olympiad and welcomes participants from over 60 countries to our island nation.

To learn more about the IBO, visit the website of the Coordinating Centre of the International Biology Olympiad at www.ibo-info.org. The website of IBO 2012 Singapore is at www.ibo2012.org.
Welcome Message

From Singapore, a tiny tropical island smaller than most big cities in the world, we extend to all friends, colleagues and participants of the 23rd International Biology Olympiad (IBO) a very warm and big welcome to our Garden City!

Over the period of 8th – 15th July, we shall continue the spirit of IBO in celebrating some of the world’s most promising secondary biology students, through a unique event designed to encourage and challenge exceptionally gifted young talents.

IBO 2012 is organized mainly by a team of professors and support staff from the National Institute of Education (NIE) at the Nanyang Technological University (NTU), and the Department of Biological Sciences at the National University of Singapore (NUS) as well as some other academic and administrative staff members from various departments in NTU and NUS. The efforts are strongly supported by our Ministry of Education in the form of professional administrative alliance as well as financial grant.

During the IBO week, participants will be housed in the NUS campus, while jury members will be staying in the NTU campus. The IBO theory and practical tasks will be conducted at the NIE. NTU and NUS are the oldest universities in Singapore and each has its own unique characteristics. NTU is situated in a rather hilly terrain at the western part of Singapore, whereas NUS is on Kent Ridge at the south-western part of the country. Both campuses enjoy lush greenery landscape befitting our Garden City image.

Singapore is well known as a favourite tourist destination with a very efficient airport that ranks among the best in the world. It is also known as a food and shoppers’ paradise. Visitors can expect a very vibrant and multiracial social tapestry that makes Singapore unique. While the IBO is a platform for friendly competition, we welcome all to come and enjoy the many surprises that our tiny nation offers and befriend our people of different ethnicity, many of whom can speak at least two languages and are good at making visitors feel at home.

We shall have engaging fun amidst the tough roles as participants and jury members. We shall work hard and play hard. We shall also grow our friendship and share our love for biology!

Dr Shirley LIM and Dr LIM Tit Meng

Associate Professors
Co-chairpersons, IBO 2012 Organising Committee
About the IBO 2012 Logo

The IBO 2012 Logo was designed to represent the spirit of the International Biology Olympiad and embody a sense of the host country’s unique relationship with nature. The logo’s principal colour is the bold red closely associated with Singapore, affectionately known as ‘the little red dot’ in reference to its appearance on the world map. In the national flag, red symbolises ‘universal brotherhood and equality’, a sentiment in common with the IBO’s aims.

The letters 'I-B-O' have three iconic images superimposed. The DNA double-helix over the letter 'I' symbolises the molecular and cell biology, microbiology and biochemistry disciplines. At the very core of life, DNA is the underlying unity within the diversity of all living things. These disciplines also form the core of modern Life Science industry that Singapore has made a strategic pillar of growth in its economy, investing heavily in pure and applied research, and manufacturing sectors to become a major research hub in this arena.

The letter 'B' has a Sunda Pangolin or Malayan Pangolin (*Manis javanica*) ambling through, and represents the animal functional morphology and ecology aspects of the competition. Also known as the scaly anteater, this native mammal of the order Pholidota inhabits the Central Nature Reserves, Western Catchment Area and the larger offshore islands. This nocturnal animal gets its name from the Malay language word, *pengguling*, which means “something that rolls up”. This it will do when sleeping or threatened. *Manis javanica* can be found widely distributed in Southeast Asia.

The letter 'O' features the Singapore Rhododendron (*Melastoma malabathricum*), also known as the Straits Rhododendron which signifies the fields of plant diversity, anatomy, and physiology. It is not really a rhododendron but belongs to the family Melastomataceae and is distributed across tropical Asia. Known in Malay as the *Sendudok*, parts of the plant are consumed as remedies for various gastrointestinal ailments. The seeds stain the tongue black (Melastoma is Greek for ‘black mouth’). Although a very common native species in Singapore’s nature reserves and also seen around disused clearings or cleared land, it lacks the celebrity status of orchids, of which Singapore is a major worldwide exporter. The Vanda Miss Joaquim, a hybrid orchid cultivar, is Singapore’s national flower.

On the Cover

Featured on the cover and on the back of the IBO 2012 T-shirt is the Sunda Slow Loris (*Nycticebus coucang*), also known as the Greater Slow Loris. A nocturnal and arboreal primate native to Singapore and the region, this protected species is listed as ‘Vulnerable’ and threatened by habitat loss and the illegal pet trade.
ARGENTINA
Lucas Santiago Harte
Bruno Hernández Cravero
Ignacio Alfredo Iglesias Grasso
Juan Manuel Pérez Bertoldi

ARMENIA
Vahagn Gevorgyan
Davit Ghazaryan
Vardges Tserunyan
Robert Yeghikyan

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Nicholas Rosa
Janelle San Juan
Jennifer Volaric

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Izzat Mammedov

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Katsiaryna Maskalenka
Aliaksandr Syradoyeu
Uladzislau Tsiareshchanka

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Axelle Hue
Lisa Kinget
Nicolas Willekens

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Anderson De Sousa Jorge
Andressa Gomes Sales
Tiago Lubiana Alves

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Vladimir Milov
Lazar Mitrov
Viktoriya Stancheva

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Jenessa Kerr
Fang (Ivy) Wu

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Shuaixin He
Anran Li
Yihao Zhang

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Ching-Pin Cheng
Ming-Hsuan Lu
Yuan Wang

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Alexandros Maliotis
Christos Milliotis
Soteris Soteriades

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Lenka Curnová
Holcová Magdalena
Eva Vojáčková

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Frederik H. V. Holck
Majken L. Jessen
Jesper B. Levring

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Eva-Lotta Käsper
Erik Tamre
Jaan Toots

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Santeri Maatsola
Veera Partanen
Jussi Penttinen

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Guram Lobzhaniidze
Saba Oboladze
Nika Sabashvili

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Martina Heller
Christian Vahlensieck
Anna Laura Wittek

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Effrosyni-Chrysoula-Nikoleta
Koronaïou
Agapi-Maria Rissaki
Konstantinos Samaras-Tsakiris

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Aidos Kuatov
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Hyun Gyu Kim
Jeong Ho Park
Byung Jun Woo

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Martyna Petrylyte

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Eugenio Pérez-Molphe
Paola Sansón

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Papimeri Dumitru
Bivol Sergiu
Slovei Valeria

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Ariungoo Ganbat
Chinkhuu Ikhhbayar
Mashbayar Sukhbat

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Marko Pejatovic
Mirko Pejatovic
Janko Zekovic

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Kyra Defourny
Han Mertens
Laura van Schijndel
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Edward (Eddie) McTaggart
Evelyn Qian
SuMin Yoon

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Oludowole Emmanuel
Ezeigbo Ivan
Nwankpa Princewill

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Obaidullah
Hassaan Mirza
Hafsa Shahab
Usama Tahir

POLAND
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Michal Kania
Hubert Majcherski
Dawid Mehlich

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Roxana Gabriela Sandu
Victor Serban

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Dmitry Sutormin
Dmitry Travin

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Haitong Mao
Nol Swaddiwudhipong
Hui Ting Zhang

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Filip Nemcko

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Anže Godicelj
Domen Kampjut
Manca Potočnik

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Lerato Motjopi
Vikar Singh
Grayson Lea Vadival

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Francisco José Cárceles Moreno
José Carlos Dorado Fajardo
Fernando Senovilla Sanz

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Dilhara Rodrigo
Pramith Ruwanpathirana
Prasan Warnakula

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Carl Swedenborg

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Samuel Tschopp
Rino Vicini

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Paween Kleawpiya
Puwanat Sangkhapreecha
Araya Taphangphun

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Sencer Goklemez
Turan Kaya
Akile Ebrar Mirat

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Nurgeldi Bazarov
Guvanch Charyyev
Bayram Sehetdurdyev

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Olena Fedonyuk
Veronika Kedlian
Vitalii Kleshchevnikov

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Tareq Alkhanoori
Mohhamed Alnawa
Abdullah Alqaydi

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Oliver Adams
Freddie Dyke
Joshua Hodgson
Robert Starley

UNITED STATES OF AMERICA
Nikhil Buduma
Lei Ding
Jing Liu
Kevin Ma

VIETNAM
Nguyen Thi Hai Anh
Nguyen Thi Ngoc Hong
Tran Duc Huy
Nguyen Thu Trang
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<td>Magda Sobolewska</td>
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<td>Alexandra Simon-Gruita</td>
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<td>Russia</td>
<td>Alexander Rubtsov</td>
<td>Vladimir Pasechnik</td>
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</table>
SINGAPORE
Beverly Goh
Ngan Kee Ng
Wee Beng Tay
Choon Kook Sam

SLOVAKIA
Pavol Elias
Miroslava Slaninova
Peter Fedor

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Tatjana Durmič

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Pham Van Lap
Le Dinh Tuan
Duong Minh Lam
Nguyen Quang Huy
Nguyen Manh Ha
Tran Thi Thanh Xuan

NON-COMPETING COUNTRY
LIECHTENSTEIN
Michael Jutzi (Observer)
Matthias Gappisch (Observer)

OBSERVER COUNTRIES
COSTA RICA
Shirley Camacho

AFGHANISTAN
(yet to confirm at the time of printing)

BANGLADESH
(yet to confirm at the time of printing)

MALAYSIA
(yet to confirm at the time of printing)
**Daily Menu for Jury and Observers** (subject to change)

### 8 JULY 2012 SUNDAY

**Meal:** Dinner (VLS)
**Style:** Sit-down, Chinese Cuisine
**Venue:** Executive Café, NTU

Slice Abalone Combination Cold Dish
Fish Maw Thick Soup
Steamed Grouper in Hong Kong Style
Stir-fried Scallop & Celery in XO Sauce
Sautéed Black Mushroom with Spinach
Fried Rice with Prawn wrapped in Lotus Leaf

**Honey Dew Sago**

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### 9 JULY 2012 MONDAY

**Meal:** Breakfast (H)
**Style:** Buffet
**Venue:** NIE Rainforest Café

Steamed Soon Kueh (Steamed dumpling made of tapioca flour with shredded bamboo shoots, jicama, dried mushrooms)
Assorted Fruit Cake
Cheese Donut
Assorted Finger Sandwiches
Coffee & Tea

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**Meal:** Lunch (H)
**Style:** Buffet
**Venue:** NIE Nanyang Auditorium

Singapura Mee Siam with Gravy (Thin rice noodles (vermicelli) in spicy, sweet and sour light gravy)
Mantou (steamed bread) with Tea Chew
Braised Duck & Fish Otak (spicy fish cake)
Chef’s mixed Fruit Cocktail Salad
Potato Salad
Indonesian Butter Chicken
Ginger Crusted Fish with Lemon Mustard
Battered Oat Prawn with Curry Leaves
Traditional Chinese Cottage Pie
Broccoli, Cauliflower & Carrot in Herbs
Nonya Stewed Mixed Vegetables
Rocky Shrimp Croquette
Fragrant Olive & Mushroom Rice
Selection of Fruit Mochi (Mango, Pineapple, Yam and Strawberry)
Selection of English Tea Cakes (Mango Tango, Classic Blueberry and Fragrant Pandan)
Selection of Pastries Melangie (Chocolate Éclair and Snowy Cream Puff)
Tropical Fruit Punch

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**Meal:** Afternoon Tea (SH)
**Style:** Buffet
**Venue:** NIE, Outside Jury Room

Chocolate Muffin
Samosa (fried or baked pastry with a savory filling such as spiced potatoes, onion)
Fried Bee Hoon (rice vermicelli)
Fruits
Brewed Coffee/Tea

---

**Meal:** Dinner (H)
**Style:** Buffet, Malay Cuisine
**Venue:** NIE, Rainforest Café

Biryani Rice (Basmati rice flavoured with spices)
Roti Jala (roti) (crepe)
Chicken Kurma
Biryani Masala Mutton
Sweet and Sour Fish
Mashed Potato with Cauliflower
Sautéed Mixed Vegetables
Cucumber with Pineapple Salad
Setong Ball Sambal (spicy meat balls in chili sauce)
Mixed Fruit Cocktail
Lime Cordial
Tea tank (“Juni” literally means “pull”, pouring the tea back and forth in two vessels to create a thick frothy lop)

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**Meal:** Supper (SH)
**Style:** Buffet
**Venue:** NIE, Outside Jury Room

Strawberry Roll, Mini Hot Dog Bun
Red Bean Soup (sweet dessert, served warm)
Fruits, Brewed Coffee/Tea

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### 10 JULY 2012 TUESDAY

**Meal:** Breakfast (H)
**Style:** Buffet
**Venue:** NIE, Rainforest Café

Assorted Danish Pastries
Chicken & Shrimp Siew Mai (Cantonese-style meat dumpling)
Assorted Nonya Kueh (local cakes)
Assorted Mini Burger Sandwiches
Coffee & Tea

---

**Meal:** Lunch (VH)
**Style:** Packed
**Venue:** Jurong Bird Park

BENTO SET:
- Pandan-flavoured (Screwipine) Rice
- Broccoli and Carrot
- Potato Wedges
- Apple
- Dessert

---

**Meal:** Dinner (H)
**Style:** Buffet, Chinese Cuisine
**Venue:** NIE, Rainforest Café

Cucumber, Tomato, Carrot & Green Salad with Traditional Sauce
Chicken Served With Black Pepper Sauce
Baby Kai Lan with Young Corn in Crabmeat Sauce
Fillet Fish with Asparagus & Mushroom
Squid with Homemade Chili
Steamed Tiger Prawn with Chinese Herbs
Freshly made Steam Crystal Bun
Braised Tofu with Crabmeat Sauce
Traditional Mushroom Rice
Dessert (Double Boiled Longan, Red Date, White Fungus & Lotus Seed)
Fruit Punch

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### 11 JULY 2012 WEDNESDAY

**Meal:** Breakfast (H)
**Style:** Buffet
**Venue:** NIE, Rainforest Café

Steamed Crystal Bun (Steamed dumpling made of tapioca flour with shredded bamboo shoots, jicama, dried mushrooms)
Yam (Taro) Cake
Swiss Roll
Samosa
Assorted Muffin
Coffee & Tea

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**Meal:** Lunch (VH)
**Style:** Buffet, Malay Cuisine
**Venue:** NIE, Outside Jury Room

Sarawak Lodeh (vegetables in coconut milk soup, contains shrimp)
Lontong (compressed rice wrapped in banana leaf)
Grilled Chicken Wing
Sambal Sotong (squid in chili sauce)
Otah Otah (fish cake)
Telur Belada (hard-boiled eggs in gravy)
Nasi Pandan (rice cooked with screwipine leaf)
Bundung Drink (rose syrup cordial)

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**Meal:** Afternoon Tea (SH)
**Style:** Buffet
**Venue:** NIE, Outside Jury Room

Fried Popiah (vegetable roti)
Assorted Sandwiches
Fruits
Brewed Coffee/Tea

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**Meal:** Dinner (H)
**Style:** Buffet, Indian Cuisine
**Venue:** NIE, Rainforest Café

Samosa
Chicken Curry
Fish Masilia (fish in onions & tomatoes gravy)
Aloo Gobi (potatoes and cauliflower)
Chana Masala (chick peas)
Palak Paneer (spinach with cottage cheese)
Naan Bread
Saffron Rice
Raita (yoghurt with cucumber)
Suji Halwa (semolina pudding)
Lime Juice

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**Meal:** Supper (SH)
**Style:** Buffet
**Venue:** NIE, Outside Jury Room

Short Cake Muffin
Donut
Green Bean Soup (sweet dessert, served warm)
Fruits
Brewed Coffee/Tea

---

**KEY**
- **V**: Vegetarian options provided
- **L**: Late dinner available until 2100h, limited number
- **S**: Snacks (biscuits, nuts, fruits, instant beverages, instant cereals, instant noodles available upon request)
- **H**: Halal meal
- **N**: No pork, no lard
12 JULY 2012 THURSDAY

Venue: NIE, Rainforest Cafe

Meal: Breakfast (H)
Style: Buffet

Donut
Assorted Nonya Kueh (local cakes)
Chwee Kueh (steamed rice cakes topped with savoury radish)
Assorted Finger Sandwiches
Coffee & Tea

Meal: Lunch (H)
Style: Buffet
Venue: A*Star

Meal: Afternoon Snack (H)
Style: Packed
Venue: Underwater World Sentosa

Meal: Dinner (H)
Style: Buffet, BBQ Style
Venue: Marina Barrage

13 JULY 2012 FRIDAY

Venue: NIE, Rainforest Cafe

Meal: Breakfast (H)
Style: Buffet

Fried Carrot Cakes (fried radish cake in dark sauce)
Turnip Fritter
Éclair
Coffee & tea

Meal: Morning Tea (SH)
Style: Buffet
Venue: NIE, Outside Jury Room

Fruit Tartlet
Tuna Puff
Walnut & Brownies Cake
Fruits
Brewed Coffee/Tea

Meal: Lunch (VH)
Style: Buffet, Fusion cuisine
Venue: NIE, Rainforest Cafe

Boneless Chicken served with Black Pepper Sauce
Pink Dory Fish Fillet served with Mediterranean Sauce
Squid with Homemade Chili served on a Bed Of Banana Leaf
Baby Kai Lan with Baby Corn served with Crabmeat Sauce
Thai Style Hot & Spicy Sautéed Prawn Ball
Rendang Mutton (spicy mutton)
Miniature Pomegranate (fried seafood dumpling)
Cold Cheng Teng (sweet dessert made from a variety of grains)
Peach Tea
Fruits

Meal: Afternoon Snack (H)
Style: Packed
Venue: NIE, Rainforest Cafe

Apple Almond Bun
Orange Juice
Chips

Meal: Dinner (V)
Style: Sit-down, Chinese
Venue: Marina Barrage

Steamboat
(A simmering pot of stock at the center of the dining table. While the hot pot is kept simmering, ingredients are placed into the pot and are cooked at the table. Typical hot pot dishes include thinly sliced meat, wobbly vegetables, mushrooms and seafood. The cooked food is usually eaten with a dipping sauce).

14 JULY 2012 SATURDAY

Venue: NIE, Rainforest Cafe

Meal: Breakfast (H)
Style: Buffet
Venue: NIE, Rainforest Cafe

Assorted Mini Bun
Pound Cake
Steamed Rice Cake
Curry Puff
Chicken Char Siew Soup (pastry)
Swiss Roll
Coffee & Tea

Meal: Morning Tea (H)
Style: Buffet
Venue: NIE, Outside Jury Room

Blueberry Jam Tart
Mini Egg Tart
Pandan (Screw Pine) Roll
Fruit

Meal: Lunch (FV)
Style: Buffet, Peranakan (Straws-Chinese) Cuisine
Venue: NIE, Rainforest Cafe

D.L.Y Kueh Pai Ti with Condiments (thin and crispy pastry tart shell filled with a spicy, sweet mixture of thinly sliced vegetables and prawns)
Signature Nonya Laksa (rice noodles in rich coconut gravy, Nonya refers to Peranakan women)
Nonya Fried Rice
Ayam Buah Keluak (chicken pieces with nuts from the kepayang tree to produce a rich sauce)
Chicken Nghi-Hiang (five spices spring roll)
Nonya Chap Chye (mixed vegetables) with Black Mushroom
Udang Woku (deep-fried prawns with garlic and ginger)
Grilled Dory with Sambal (chili sauce)
Bo Bo Cha Cha (dessert - sweet potato and taro in coconut milk)
Assorted Nonya Kueh (local cakes)
Freshly Squeezed Lime Juice

Meal: Dinner (H)
Style: Buffet
Venue: Raffles Marina

Assorted Western Cold Cuts
Half Shell with Mussel
Prawn and Mango with Cocktail Sauce
Angular Salad with Chicken, Mango and Avocado
Tuna Salad
Clam Chowder Soup
Assorted Bread with Cheese Spread
Grilled Rosemary Chicken
German Sausages with Onion Sauce
Pan Fried Salmon on Ratatouille
Black Pepper Yakiniku Beef Udon (Japanese noodles)
Buttered Seasonal Spring Vegetables topped with Toasted Almonds
Roast Herb Potatoes
Irish Stew Lamb
Roast Beef with Pepper Sauce
Assorted Tropical Fresh Fruit
Crème Brûlée
Mini Tiramisu
Mango with Pomelo
Chocolate Fondue
Ice Tea

KEY

V Vegetarian options provided
L Late dinner available until 2100h, limited number
S Snacks (biscuits, nuts, fruits, instant beverages, instant cereals, instant noodles available upon request)
H Halal meal
N No pork, no lard
Daily Menu for Student Competitors  (subject to change)

9 JULY 2012 MONDAY
Meal: Lunch (H)
Style: Buffet
Venue: NTU Nanyang Auditorium

Singapura Mee Siam with Gravy (thin rice noodles (vermicelli) in spicy, sweet and sour light gravy)
Mantou (steamed bread) with Teo Chew
Braised Duck & Fish Otak (spicy fish cake)
Chef’s Mixed Fruit Cocktail Salad
Potato Salad
Indonesian Butter Chicken
Ginger Crusted Fish with Lemon Mustard
Battered Oat Prawn with Curry Leaves
Traditional Chicken Cottage Pie
Broccoli, Cauliflower & Carrot in Herbs
Selection of Pastries Melange
Selection of English Tea Cakes
Selection of Fruit Mochi
Fragrant Olive & Mushroom Rice
Rocky Shrimp Croquette
Nonya Stewed Mixed Vegetables
Broccoli, Cauliflower & Carrot in Herbs
Traditional Chicken Cottage Pie
Battered Oat Prawn with Curry Leaves
Ginger Crusted Fish with Lemon Mustard
Indonesian Butter Chicken
Potato Salad

10 JULY 2012 TUESDAY
Meal: Morning tea (H)
Style: Buffet
Venue: Holding Room

Tuna and Egg Mayonnaise Sandwich
Chicken Pie
Banana Muffins
Apple Juice
Chocolate Milk
Snacks

Meal: Lunch (H)
Style: Buffet
Venue: Holding room

Coconut Rice
Omelette
Fish Cake
Lemonade

Meal: Afternoon tea (H)
Style: Buffet
Venue: Holding room

Butter Cake
Apple Turnover
Muffins
Orange Juice
Chocolate Milk
Snacks

11 JULY 2012 WEDNESDAY
Meal: Lunch (H)
Style: Buffet
Venue: Jurong Bird Park

Bento Set:
Pandan-flavoured (Screwpine) Rice
Breaded Fish
Broccoli Carrot
Potato Wedges
Apple
Desert

Meal: Afternoon Snack (H)
Style: Packed
Venue: NEWater

Butter Cake
Apple Juice
Chips

12 JULY 2012 THURSDAY
Meal: Morning Snack (H)
Style: Packed
Venue: Exam Hall

Tomato, Chicken Ham, Cheese Sandwich
Chocolate Milk
Chocolate Snack

Meal: Lunch (H)
Style: Buffet, Fusion Cuisine
Venue: Nill, Rainforest Cafe

Chef’s Garden Salad
Broccoli topped with Lychee
Boneless Chicken with Mango Puree
Tiger Prawns & Green Apple
Fish Fillet with Asparagus, Bamboo Shoot
Baked Mussels in Garlic Butter
Spaghetti with Gênoise Sauce
Stuffed Crab Pincer
Mini Eclair & Cream Puff
Fruit Punch

Meal: Afternoon Snack (H)
Style: Packed
Venue: Exam Hall

Chinese Po Lo (chicken filling) Bun
Apple Juice
Chocolate Snack

13 JULY 2012 FRIDAY
Meal: Lunch (H)
Style: Packed
Venue: Underwater World Sentosa

Chicken Rice

Meal: Afternoon Snack (H)
Style: Packed
Venue: Underwater World Sentosa

Apple Almond Bun
Orange Juice
Chips

Meal: Dinner (H)
Style: Fastfood
Venue: Marina Barrage

MEALS AT PGPR

BREAKFAST (VH)
9 – 15 July 2012
Style: Canteen, variety of dishes served
Venue: PGPR

LUNCH (VH)
14 July 2012
Style: Canteen, variety of dishes served
Venue: PGPR

DINNER (VH)
8 – 11 July 2012
Style: Canteen, variety of dishes served
Venue: PGPR

KEY
V Vegetarian options provided
H Halal meal
N No pork, no lard

14 JULY 2012 SATURDAY
Meal: Morning Snack (H)
Style: Packed
Venue: Singapore Zoo

Chicken Ham, Cheese, Tuna Sandwich
Blueberry Muffin
Apple Juice
Snacks

Venue:
Style:
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WONG Shing Hei, Thomas
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YING Fangting
ZAKARIA, Nur Diyana
ZHANG Menglan
ZHOU Jing
ZHOU Yanjun
Follow the solid or dashed arrow route to the Rainforest Cafe, Gym, & Sports Hall, NIE

Turn left, walk along the covered footway to level B3

Take lift PE-1 to level B1

Walk up the stairs here
Teams competing at the 23rd International Biology Olympiad, Singapore, 8-15 July 2012
**International Biology Olympiad (IBO) 2012**

**Singapore, 8-15 July**

**All Day Arrival**

**11:00 - 18:00** Registration

**18:30 - 20:00** Welcome Dinner

---

**Monday, 9 July**

07:00 - 08:15 Breakfast

08:45 Bus departs NIE Blk 1

09:45 - 12:00 Opening Ceremony NA, NTU

12:00 - 13:00 Lunch NA, NTU

13:30 - Late Vetting of Practical Tests NIE

---

**Tuesday, 10 July**

07:00 - 09:30 Extended Breakfast

10:00 Bus departs NIE Blk 1

11:00 - 12:00 Visit to NEWater Plant NEWater

13:00 - 16:30 Visit to Jurong Bird Park JBP

17:30 - 18:00 Meet with Competitors NIE

18:30 - 20:00 Dinner RF Café

---

**Wednesday, 11 July**

06:30 - 08:00 Breakfast RF Café

08:30 - Late Vetting of Theoretical Tests NIE Blk 5

---

**Thursday, 12 July**

07:00 - 09:30 Extended Breakfast RF Café

10:00 Bus departs NIE Blk 1

10:30 - 13:00 Visit to A*STAR & Lunch A*STAR

14:00 - 16:30 Visit to Underwater World UWS

16:30 - 17:30 Meet with Competitors NIE

17:30 - 22:30 Dinner & Bhangra Night NIE

---

**Friday, 13 July**

07:00 - 08:00 Breakfast RF Café

08:30 - 09:30 Checking Practical Scores NIE Blk 5

09:30 - 12:00 Coordinators’ Meeting NIE Blk 1

12:00 - 13:00 Lunch RF Café

12:30 - 14:00 Extended Breakfast

14:30 Bus departs NIE Blk 1

14:45 - 16:45 Practical Test (Shift 3) NIE

15:30 - 17:00 Practical Test (Shift 4) NIE

17:30 - 18:00 Meet with Jury Members NIE

18:30 Bus departs NIE

19:30 - 22:00 Dinner & Social Night PGPR

---

**Sunday, 15 July**

06:30 - 09:30 Breakfast RF Café

Up to 12:00 Farewells and Departure Bus to Airport

---

**JURY SCHEDULE**

**Sunday, 8 July**

07:00 - 07:45 Breakfast PGPR

07:30 Bus departs PGPR

08:00 - 12:00 Checking Theoretical Test NIE Blk 5

12:00 - 13:00 Lunch NIE

13:15 - 14:45 Practical Test (Shift 3) NIE

15:30 - 17:00 Practical Test (Shift 4) NIE

17:30 Meet with Jury Members NIE

18:30 - 22:00 Dinner & Bhangra Night NIE

---

**Tuesday, 10 July**

06:00 - 06:45 Breakfast PGPR

07:15 Bus departs PGPR

08:30 - 10:00 Practical Test (Shift 1) NIE

10:45 - 12:15 Practical Test (Shift 2) NIE

12:15 - 13:15 Lunch NIE

12:45 - 14:45 Practical Test (Shift 3) NIE

15:30 - 17:00 Practical Test (Shift 4) NIE

17:30 - 18:00 Meet with Jury Members NIE

19:30 - 22:00 Dinner & Social Night PGPR

---

**Wednesday, 11 July**

06:00 - 08:15 Breakfast PGPR

08:45 Bus departs PGPR

09:00 - 10:15 Visit to Faculty of Science NUS

11:00 - 14:30 Visit to Jurong Bird Park JBP

15:45 - 16:45 Visit to NEWater Plant NEWater

16:45 - 18:00 Visit to School of Biological Sciences (SBS) NTU

18:00 - 19:00 Dinner PGPR

19:00 - 21:00 Ice-breakers PGPR

---

**Thursday, 12 July**

07:00 - 07:45 Breakfast PGPR

08:15 Bus departs PGPR

09:30 - 12:30 Theoretical Test (Paper 1) NIE

12:30 - 14:00 Lunch NIE

14:30 - 17:00 Theoretical Test (Paper 2) NIE

17:30 - 22:30 Dinner & Bhangra Night NIE

---

**Friday, 13 July**

07:00 - 08:00 Breakfast PGPR

08:30 Bus departs PGPR

09:00 - 10:15 Visit to A*STAR A*STAR

11:00 - 14:00 Visit to Underwater World UWS

15:00 - 18:00 Team-Building Activity: Marina Barrage Tour

18:00 - 19:30 Dinner

19:30 - 22:00 Special Activity: Marina Barrage Night

---

**Saturday, 14 July**

06:15 - 07:00 Breakfast PGPR

07:30 Bus departs PGPR

08:30 - 12:00 Visit to Singapore Zoo Zoo

12:00 - 13:45 Lunch NTU

14:00 - 17:00 Theoretical Test (Paper 2) NIE

17:30 - 22:30 Dinner & Bhangra Night NIE

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Please refer to noticeboards for announcements of any changes to the schedule. RF Café: Rainforest Café; for others, see overleaf.
S’pore to host top biology contest

ASPIRING biologists are set to battle it out in a prestigious global contest, which is coming to Singapore for the first time.

More than 260 students from 65 countries will put their knowledge to the test by tackling problems and experiments at the International Biology Olympiad. Held over eight days, the annual event is being organised by the National Institute of Education, the National University of Singapore and the Singapore Institute of Biology.

The last time the Republic hosted a major international science competition for secondary students was in 2001, when it organised the International Physics Olympiad. President Tony Tan Keng Yam is patron of this year’s event, which will be held from July 8 at Nanyang Technological University.

As well as competing for the top honours, contestants and officials will also get to see the city’s major attractions, such as the Singapore Zoo, National Orchid Garden, museums and the zoo.

Singapore has been taking part in the competition since 2010. Its best showing was last year in Taipei, where it finished third behind the United States and Taiwan.

President Tony Tan Keng Yam is patron of this year’s contest, the 23rd so far. It will begin on July 8 at Nanyang Technological University.

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Malay activity groups 'can play bigger role'

FOR 35 years, Malay activity groups have been helping people of all communities to engage in cultural, social and sports activities. Now they have been thrown into the limelight to help nurture Singapore's future leaders.

The new challenge for Malay Activity Executive Committees (MAECs), as they are called, is to generate interest in Malay culture among the younger generation. Some are already doing it, with young Malay residents playing the main role in maintaining the cultural activities and community resources.

He said, for example, they could work with museums and other Malay-Muslim organisations to run projects focused on local families and link up with other community partners to outreach to the young.

Mr Tharman, who is also FAS president, said MAECs should ensure that their activities are well thought out to address the needs of the community.

Mr Mosa Masjor, chairman of the Ministry of Social and Family Development (MSF) committee, said the committees were working towards a common challenge.

'They can play the critical role of social facilitators on the ground and help residents resident and local leaders in forming the appropriate narrative and community resources,' he said.

For example, they could work with museums and other Malay-Muslim organisations to run projects focused on local families and link up with other community partners to outreach to the young.

In 1985, they were renamed Malay Activity Executive Committees (MAECs). Then known as Muslim Community Organisations (MCOs), the committees were set up to cater to the needs of the community. The core activities of the committees were social welfare, community building and education.

The chairman of the Ministry of Social and Family Development (MSF) committee, Mr Mosa Masjor, agreed with the committees' role in promoting Malay culture and community. The committees were set up to cater to the needs of the community.

The core activities of the committees were social welfare, community building and education.

One of the main challenges they faced was the need to engage young residents and local leaders in forming the appropriate narrative and community resources.

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Singapore tops biology olympiad

Team wins four golds to tie for No. 1 spot with the US; RI student is top scorer

Sherri Lee

The 23rd International Biology Olympiad (IBO) ended on a high note for Singaporean counter, with students coming up top in the prestigious competition. The Singapore team won four gold medals, placing first in a field of 236 students from 59 economies along with the United States, which also scooped four golds. China, Taiwan and South Korea tied for second place, with three golds each, while Estonia and Finland tied for third with two golds.

Raffles Institution (RI) student Nol Swaddiwudhipong finished as the top scorer of the Olympiad, it is the first time a Singaporean student has taken the top spot. The four gold medals won by Singaporean students are the first to be won by the Republic in a single year and also the first time a Singapore team has taken the No. 1 spot.

Emotions ran high at the awards ceremony, as participants waited to hear the results. “It was agonising,” groaned Nol, who waited over 11/2 hours to find out he had won. The others in the team placed sixth, 11th and 23rd individually.

The tests required teams to apply their thinking skills to original data from research papers. Competition regulations disallow more than two weeks of intensive preparation, so they had been studying hard since late June. The tests included a written examination and a laboratory practical test.

The other members of the Singapore team were Zhang Hui Ting and Mao Haitong, also from RI, and Lim Yuan Wei from Hwa Chong Institution. They are all 18 years old, and in JC 2.

The four were selected from more than 300 students who took part in the Singapore Biology Olympiad (SBO) last year.

Singapore wins four golds to tie for No. 1 spot with the US; RI student is top scorer

$480,000 for the autistic

More than $480,000 has been raised for autistic people in the seventh annual fund-raising drive led by the Autism Resource Centre and Pathlight School. The amount targeted was $300,000.

Mr Chan Chun Sing, Acting Minister for Community Development, Youth and Sports, and Senior Parliamentary Secretary (Community Development, Youth and Sports, and Foreign Affairs) Sam Tan were present at yesterday’s event, called “A Very Special Walk 2012,” which drew more than 800 participants. Rain meant the planned walk to Bishan Park was cancelled, and replaced with game stalls and performances at autism-focused Pathlight School in Ang Mo Kio.

The money raised will fund the centre’s Employment and Employment Centre, which was launched in March and aims to equip autistic youth and adults with employable skills.

“People with autism and other special needs want to be independent, just like us,” said Moulmein-Kallang GRC MP Denise Phua, who is the autism centre’s president.

Walter Sim

A Public Educational Health Forum by Pacific Healthcare

Speaker: Dr. Law Wei Seng

Date of event: 12 July 2012 (Wednesday)
1 August 2012 (Wednesday)

Time: 5.30pm – 7.30pm

Venue: Pacific Healthcare Specialist Centre
299 Orchard Road
919-01, Paragon Tower Lobby 2

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NIE hosts the 23rd International Biology Olympiad

By Mr Timothy Tan, Natural Sciences and Science Education Academic Group

Having hosted the International Physics Olympiad in 2006, the National Institute of Education (NIE), Singapore played host to the world for the 23rd International Biology Olympiad (IBO 2012), from 8 to 15 July 2012.

In partnership with the Ministry of Education (MOE), Singapore, the event was co-organised by a dedicated team of professors and staff from NIE/Nanyang Technological University, Singapore and the National University of Singapore (NUS). The team led by Co-Chairs, Associate Professor Shirley Lim from NIE and Associate Professor Lim Tit Meng from NUS saw the global participants delight in a myriad of exhilarating activities. The students were accompanied by adult delegates, mostly high-school educators and professors, who formed the international jury panel that vetted and translated the test papers into their students’ native language. All participants were hosted on excursions of interest, particularly biological ones, with a mix of cultural indulgence throughout their stay.

IBO 2012 saw 234 student competitors from 59 countries taking part in a gruelling series of practical tasks and theoretical tests that assessed their knowledge and skills across various disciplines of in the biological sciences, grouped into four key areas: Cell and Molecular Biology; Microbiology and Biochemistry; Plant Diversity, Anatomy and Physiology; and Animal Anatomy and Ecology. Concluding on a high-note, participants are looking forward to the next Olympiad to come.

Kudos to Teams Singapore and USA, who each garnered the maximum of four gold medals, with Singapore’s Mr Nol Swaddiwudhipong securing the Top Gold Medal.

For more information, visit www.ibo2012.org
The Nanyang Awards are given in recognition and celebration of the outstanding achievements and contributions of faculty, staff and students. The prestigious Awards were launched in 2005.

The design of the Trophy is inspired by the outspread wings of an eagle in flight. The majesty, grace and power of the soaring eagle represent our desire to fulfill our mission in a borderless domain.

The award symbolizes a deep sense of passion and a single-minded resolve to overcome obstacles and achieve excellence.

23rd International Biology Olympiad Organizing Committee

The 23rd International Biology Olympiad (IBO) was hosted by Singapore from 8 - 15 July 2012. This event was jointly organized by NIE, NTU and NUS with support from MOE. Participants from 59 countries (a total of 440 participants) attended IBO 2012, which had an extremely complex scientific and social programme that required elaborate co-ordination and detailed planning. There were 34 Committee Members, 23 of whom were NTU colleagues, in the IBO Organising Committee, inclusive of the Scientific Committee. The Organizing Committee made it their mission to ensure that student competitors were challenged with good quality biological science practical tasks and gruelling theoretical questions so that Singapore is recognized for her excellence in biology education. Countless hours were spent to ensure that all equipment worked; creative media and publicity materials were produced to publicise the event and participants brought back memorable souvenirs. All these contributed positively to their experience with NTU. The participants not only experienced the well-planned physical infrastructure NTU provides, they were warmly welcomed by the University’s community. The dedication and spirit of excellence exhibited by the members of the Organising Committee are highly commendable. Their self-sacrificial attitude has inspired many colleagues and demonstrated clearly what it means to give one’s best in every project.
Young budding biologists from the world over gathered in Singapore for the first time during the prestigious International Biology Olympiad (IBO) held from 8 to 15 July. A total of 234 of the world’s most promising pre-university/senior high school biology students and 283 officials from 59 countries made Singapore their home during this period.

The student participants were housed in NUS dormitories, whilst the jury members and officials resided in NTU hostels during IBO 2012 Singapore. The eight-day event with rigorous practical and theoretical tests, social and cultural programmes and business meetings, was organised by a committee co-chaired by Associate Professor Shufey Lim from the National Institute of Education (NIE), and Associate Professor Lim Tit Meng from the National University of Singapore (NUS). Members of the Organising Committee comprised professors and staff from NIE, and the Department of Biological Sciences at NUS, as well as other staff members from various departments in NTU and NUS.

The opening ceremony held on 9 July at NTU’s Nanyang Auditorium, was graced by His Excellency, President Tony Tan Keng Yam, who was also the Patron of the 23rd IBO. The Singapore delegation was led by Dr Beverly Goh from Natural Sciences and Science Education, NIE, and Dr Ng Ngan Kee from the Department of Biological Sciences, NUS. The team was also mentored by a team of professors from NIE and NUS, and alumni from previous IBOs.

IBO 2012 Singapore ended on a high note with the Singapore team garnering four gold medals for the first time, ranking first of the 59 countries that competed. In addition, the top gold medal was awarded to Singapore competitor, Mr Nol Swadhimudipong – this is the third time since Singapore’s first venture into the IBOs in 2001 that it has won the top medal. The competition was closely fought as all the participants were winners at their respective countries’ National Biology Olympiads.

The recruitment of IBO volunteers began in February 2012 with information sessions being held at NTU and NUS. Close to 200 students applied as volunteers, including foreign students studying in Singapore. A total of 106 volunteers were finally selected.

• The youngest volunteer was 14 years old, whilst the oldest was 30.
• A total of 83 female and 151 male students participated in IBO 2012 Singapore, with 234 of them celebrating their birthdays in July. Of these, four had birthdays that fell within the IBO period.
• The youngest competitor was Emmanuell Oludowoke, a 13-year-old, from Nigeria. Another young competitor was 14-year-old Elmar Mammadli from Azerbaijan.
• A pair of twins, Marko and Mirko Pajatovic from Montenegro, participated in the IBO.
• Singapore participated in the IBO for the first time, as an observer country, in the year 2000. A year later, Singapore competed for the first time, winning two gold and two silver medals and ranking third out of 38 countries.
• Competition regulations state that participants are not allowed more than two weeks of intensive preparation, so they had been studying hard only from late June.
• Team Spain brought their own footballs and posed with them in photographs.
• Students were provided with snacks and drinks. Given the lengthy duration, students were provided with snacks and drinks.
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The International Biology Olympiad (IBO) is a competition for secondary school students where they tackle biological problems and conduct biological experiments. It is necessary for the students to be interested in biology and to have traits of inventiveness, creativity and perseverance. IBO tries to challenge and stimulate these students to expand their talents and to promote their career as scientists.

The IBO aims to bring together young people from over the world in an open, friendly and peaceful mind. Four students from each participating country are sent for the competition. These participants, who are winners of the countries’ respective national competitions, are accompanied by two team leaders.

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Youth from around the world gathered in Singapore to compete in the 23rd International Biology Olympiad, hosted by Singapore for the first time.