"International young, critical and analytical thinkers compete in friendly rivalry to solve Mathematical Challenges."

Bulgaria International Mathematics Competition 2023

(BIMC 2023)

1st – 7th July 2023

Burgas Municipality, Burgas, Bulgaria

Information

1 Rationale

Mathematics is generally acknowledged as a primary tool in the study of every subject. Using it, students can make sense of the world and solve complex and real problems thus enhancing one's quality of life and self development.

The upper primary level of the Basic Education system provides students with skills in reading, writing and arithmetic. A program of mathematics learning servers to stimulate creativity and develop critical and analytical thinking. Providing children with these higher order-thinking skills at the primary level, the *"Golden Period of learning"*, contributes significantly to their learning development in the secondary level.

2 BIMC 2023 Objectives

a) Organize an international mathematics competition for Key-Stage II (Upper Primary Level) and Key-Stage III (Lower Secondary Level) students.

b) Create an academic atmosphere motivating teachers and students to improve the teaching and learning of mathematics with an emphasis on developing higher-order thinking skills.

c) Establish networks with international educational organizations for the development of teaching and learning of mathematics.

d) Provide young mathematics students from participating countries with opportunities to interact with each other in a friendly environment while sharing both mathematics knowledge and cultural experiences.

e) Provide ideas to upgrade the mathematics curriculum in schools to be on a par with international standards.

f) Provide mathematics teachers and parents of gifted students an international forum to exchange best practice ideas for the improvement of the teaching of mathematics.

g) Empower teachers' confidence to optimize their skills in teaching problem-solving in their daily mathematics lessons.

3 Activities

a) International Mathematics Competition;
  • Elementary Mathematics International Competition 2023 (IMC : EMIC 2023)
  • Invitational World Youth Mathematics Intercity Competition 2023
  (IMC : IWYMIC 2023)

b) International Mathematics Conference;

c) International cultural exchange;

d) Puzzle Challenge

4 Proposed Itinerary

Bulgaria International Mathematics Competition 2023 (BIMC 2023) will be a virtual competition to be held from 1st to 7th July 2023.

Proposed Date and Activities:

Date	Time	Activity	
Saturday,, 1st July 2023	07:30 – 08:30 UTC	Web and Camera Connection Test by all Participating Countries (**in time zones UTC +2 to UTC +10)**	
	09:00 – 10:00 UTC	Opening Ceremony Program	
	10:00 – End UTC	Zoom Meeting of Team Leaders + Translation of Problem Papers	
	13:00 – 14:00 UTC	Web and Camera Connection Test by all Participating Countries (**in time zones UTC -5 to UTC 0)**	
Sunday, 2nd July 2023	00:00 – 11:00 UTC	Continuation of Translation of Problem Papers	
	07:30 – End UTC	*International Math Seminar (Online)*	
Monday, 3rd July 2023	07:30 – 09:00 UTC (KS 2) 07:30 – 09:30 UTC (KS 3)	Individual Contest **(for UTC +2 to UTC +10)**	
	10:30 – 11:45 UTC	Team Contest (KS 2 and KS 3) **(for UTC +2 to UTC +10)**	
	13:00 – 14:30 UTC (KS 2) 13:00 – 15:00 UTC (KS 3)	Individual Contest **(for UTC -5 to UTC 0)**	
	16:00 – 17:15 UTC	Team Contest (KS 2 and KS 3) **(for UTC -5 to UTC 0)**	
Tuesday, 4th July 2023	07:30 – 11:00 UTC	Moderation of Key Stage 2 (Team Contest)	Puzzle Contest (1st Round and 2nd Round)
	11:00 – 12:00 UTC	Cut off for Key Stage 2	
Wednesday, 5th July 2023	07:30 – 11:00 UTC	Moderation of Key Stage 3 (Essay and Team Contest)	Puzzle Contest (Final)
	11:00 – 12:00 UTC	Cut off for Key Stage 3	
Thursday, 6th July 2023	10:00 - 13:00 UTC	Cultural Presentation & Award for Puzzle	
Friday, 7th July 2023	10:00 - 13:00 UTC	Closing & Awards Ceremony	

5 BIMC 2023 Information

5.1 Participation and Application

Participation in the competition is by invitation. Each team must comprise a maximum of 6 members: a team leader, a deputy leader and 4 students. Each participating country is allowed to nominate: two teams for the Key-Stage II and two teams for the Key-Stage III.

The following countries/cities whose status as former hosts of IMC activities may apply to the IMC Executive Board to send two additional teams to participate in each division. These countries/cities are: Bulgaria (Burgas), China, Hong Kong, India (Lucknow), Indonesia, Macau, Philippines, South Africa (Durban), South Korea, Taiwan and Thailand. If the total number of applications is more than 150 teams, the IMC Executive Board reserves the right to limit the entries of teams from some countries in order to make the total number of teams in the competition manageable.

Each participating team will compete in their own country (or region). (See instructions below for venues following COVID19 restrictions).

Each participating country is led by a Country coordinator who is in charge of communicating with the organizing committee. The coordinator may appoint a deputy coordinator to help with the competition arrangements of their own country.

All costs associated with renting buildings and other facilities are the responsibility of each participating country. The team leader must ensure that the selected contest venue is conducive and safe.

5.2 Divisions of Competition

IMC is composed of 2 divisions:
a) Key Stage II Division (Upper Primary Level)
b) Key Stage III Division (Lower Secondary Level)

5.3 Participant conditions

a) **Key Stage II:**
   • Students must not be enrolled in secondary level or in any equivalent institutions;
   • Students must have been born on or after **1st July 2009.**
   • Students who were born between **2nd July 2009** to **1st July 2010** must submit a school certificate as proof that they are a primary school student.

   Each participant must meet both requirements to avoid disqualification.

b) **Key Stage III:**
   • Students must have not been enrolled in upper secondary level or in any equivalent institutions; and
   • Students must have been born on or after **1st July 2006.**
   • Students who were born between **2nd July 2006** to **1st July 2007** must submit a school certificate as proof that they are a lower secondary school student.

   Each participant must meet both requirements to avoid disqualification.

5.4 BIMC 2023 Contest Paper Official Languages

Bulgarian, English and Chinese will be the official language of the BIMC 2023 contest papers and the countries not adopting English will have the opportunity to translate the contest papers into their own language.

5.5 Competition papers

Each participating country must send ten proposed problems, using Word files written in English, for both the Key Stage II contest and the Key Stage III contest. The ten questions must consist of five questions for the individual contest and another five questions for the team contest. The Proposed questions must be sent to the BIMC 2023 Academic Committee on or before 4th May 2023 to allow them enough time to select questions and prepare the competition papers. The team leaders must NOT use the proposed problems or similar ones in the training of their contestants.

5.6 BIMC 2023 Technical Committee

・Math experts from Bulgaria;

・Members of the IMC Executive Board and Academic Committee.

5.7 Structure of the Contest Papers

・**Individual Contest**

a) **EMIC:**

The Individual Contest consists of 15 questions which require only ARABIC NUMERICAL answers to be filled in the indicated blank space on the answer sheet. Each problem is worth 10 points, with a maximum total of 150 points. Students have 90 minutes to complete the competition once the competition manager tells them to begin.

b) **IWYMIC**

The Individual Contest consists of 15 questions, 12 questions require only the answers to be written in the blanks, and the other three of the questions require full solutions. The former is worth 5 points each while the latter 20 points each (partial scores may be awarded according to a marking schema), with a maximum total of 120 points. Students have 120 minutes to complete the competition once the competition manager tells them to begin.

・**Team Contest**

There are 10 problems in the Team Contest, arranged in increasing order of difficulty. Each question should be printed on a separate sheet of paper. The four team members are given 10 minutes to discuss and distribute among themselves the first 8 questions. Each student must solve at least one question. (One problem may not be solved by two members.) No two team members should be given the same question to answer. *Team members are not allowed to use a pencil or pen during the ten minutes discussion period*. Each student has 35 minutes to write independently the solutions to her/his allotted questions without further discussion or sharing of the questions.

The four team members have 25 minutes to solve the last two questions together. Each question is worth 40 points. Questions 1, 3, 5, 7 and 9 require only answers. Questions 2, 4, 6, 8 and 10 require complete solutions for full credits, but partial credits may be awarded according to a marking schema. The total score is 400 points and the total time is 70 minutes.

5.8 Translation of Contest Paper

The countries that need translation of the contest paper must send their intention to the BIMC 2023 Academic Committee before **25th June 2023**.

The countries requesting for translation of the contest papers will receive a declaration of confidentiality form from the Academic Committee. All persons involved in the translation must sign the form and send it back to the Academic Committee. Translation will start after the team leaders' meeting on 1st July 2023. **All the translators must work together in a venue and must arrange webcams during the translation to provide a live feed to the organizing committee.** They will start the process at 11:00 UTC on 1st July and must be finished before 11:00 UTC on 2nd July.

After receiving the contest papers the translator(s) are STRICTLY NOT ALLOWED have any contact with their students until all the contests have been completed.

The team leader can download the problems for printing **3 hours** before the start of the contest.

General Guideline for conducting online BIMC.

- Each participating team will compete in their own country (or region).

- All team members should sit for the competition in the same location for BIMC 2023. For this year, the IMC academic committee won't allow any student to write the competition at home.

- The competitions for both Key Stage II and Key Stage III divisions shall be held on 3rd July, 2023. (See the allocated time slots for the different time zones in the proposed itinerary table).

- Team leaders and deputy leaders must arrange webcams during the competitions to provide a live feed of the examinations to the organizing committee.

- The team leaders can download all contest problems for both Key Stage II and Key-Stage III divisions **3 hours** before the start of each contest on the BIMC website by using the Team Leader account.

  Note:

    o The team leader prints out the question papers and then puts the question papers with two sketch/scrap pages into sealed envelopes. Each participant has their own envelope. The students are only allowed to open their envelopes after the start of the contest.

- After each contest, the team leader must scan all contest papers and send the scanned copies to the jury members for checking.

  Rules for scanning in the papers:

  o At the end of the test, the team leader allows all participants to leave the room. Their contest paper and answer sheets are to be left on their tables. The supervisor scans the answers after all the participants have left the room.

  o The scanning process should be done in view of the web camera.

  o Save the scanned files in pdf or jpg format. If the jpg file format is used then please compress it with a .zip or .rar format.

  o Name the files in this format: **Test Code + ID Code + Name** for Individual Contest and **Test Code + Country Code + Team name** for Team Contest. For example:
    - INA2A-P01_Andy for Key Stage II Individual Contest.
    - INA3A-P01_Betty for Key Stage III Individual Contest.
    - INA2A for Key Stage II Team Contest.
    - INA3A for Key Stage III Team Contest.

  o The team Leader or Tutor must upload the scanned answers no more than 30 minutes after each contest. **When the files are uploaded completely, the Team Leader must confirm this with the Academic Committee.**

- Rules for the participants in the test venue(s):

  o Participants are not allowed to bring books, scientific dictionaries, calculators, and other electronic devices into the contest venue.

  o Participants must write using a black pen or **HB, B or 2B** pencil.

  o Participants must write their ID, name, and their country on each page of the Answer Sheets.

  o Key Stage III part B and Team Contest problems 2, 4, 6, 8, 10 of both Key Stage II and III must have a detailed process written out in the space provided on the test paper. If there is not enough space under the question then the back of the page may be used, but please indicate "Continue on the next page" in the last line. (Or write "Please turn-over" or "PTO" in large letters.)

- After the contest is over, every team leader marks their students' papers and writes the scores on the form provided by the jury.

- Guidelines for Team Leaders during the marking process:

  o Team leaders will receive some Google drive links before 02nd July, 2023 namely:

- **Link 1** is for downloading files, including the Score Forms, Solutions and Marking Scheme of both Individual and Team Contest (for both Key Stages) and the Score Forms from the Juries.

- **Link 2** is for uploading files, including the answer sheet of the Individual Contest, all answer pages of the Team Contest and the Score Forms from the Team Leaders.

o Note:
  - Different countries have different Google Drive links. Team Leaders are asked to please keep all the links confidential.

  - The person who will upload the files needs to have a Gmail account.

  - Permission to access, view, open and edit on the links are initially restricted and will be opened at a specific time for the Team Leaders.

o **For Individual Contest:**
  - When the Individual Contest proper is finished, the invigilator must scan all the answer sheets. Combine all papers of one student into one file. Then, upload the files to **Link 2**.
    The file name of each file must be the student's code.
    For example, INA2A-P01.pdf and INA3A-P01.pdf.

  - Once uploading of all files is completed, please send a note by email or in the WhatsApp group. We will move the files to our folders.

  - If your country enters one or two teams, then you have to upload the files within 30 minutes. If your country enters more than two teams, then you have to upload the files within 1 hour.

  - **After the said time limit, the Link 2 will be closed. We won't be accepting uploaded submissions after the said time limit.**

o **For Team Contest:**
  - The permission to access the link for the Team Contest (**Link 2**) will be opened once the Team Contest has started. When the Team Contest is finished, Team Leaders have to scan all papers. Combine all papers of one team into one file. Then, upload the files to **Link 2**. The file name of each file must be the team name. For example, INA2A.pdf and INA3A.pdf.

  - Once uploading of all files is finished, please send a note by email or in the WhatsApp group. We will move the files to our folders.

  - If your country enters one or two teams, then Team Leaders have to upload the files within 30 minutes. If your country enters more than two teams, then Team Leaders have to upload the files within 1 hour.

  - **After the said time limit, the Link 2 will be closed. We won't be accepting uploaded submissions after the said time limit.**

- After the permission to access the links to upload the Team Contest is closed, then Team Leaders can download the Score Forms, Solutions and Marking Scheme of Contest Papers from **Link 1**.
  - Team Leaders have to mark their students' papers and key in their scores in the score forms. Once marking is completed leaders must upload all score forms to the link for uploading the score forms by team leaders(**Link 2**). When done marking and uploading the scores, please send a note by email or in the WhatsApp group. We will move the files to our folders.
  - For Key Stage II:
    - If your country enters one or two teams, then Team Leaders have to upload the files within 2 hours. If your country enters more than two teams, then Team Leaders have to upload the files within 3 hours. It means Team Leaders have 2 or 3 hours to mark their students' answers.
  - For Key Stage III:
    - Team Leaders have to upload the files within 12 hours. It means Team Leaders have 12 hours to mark their students' answers.
    - After 12 hours the permission to connect to the link for the score forms by team leaders (**Link 2**) will be closed.
- At the same time, Juries also mark the students' answers. When they upload the scores, each Team Leader will compare the scores between Team Leader and Juries. If scores are different, the Juries will recheck.
- Then the latest result will be uploaded to **Link 1** (04th July, UTC 05:30 for Key Stage II and 05th July, UTC 05:30 for Key Stage III). Then the permission to connect to the link for downloading the score forms by Juries (**Link 1**) will be open. Team leaders must download the score forms.
  If you agree with the scores given by the Jury, then please change your score. **Then send the score form to your national coordinator and upload the forms to the BIMC Web.**
- If your national coordinator does not upload the score forms to the **BIMC Web** within 2 hours, then it will be regarded as if the Team Leader does not agree with the scores. The Juries will be in the moderation ZOOM meeting from UTC 07:30 to UTC 10:30 and Team Leaders can discuss their scores with Juries at the moderation meeting.

Note: Please keep in mind, Link 1 is always where you download files for Team Leader's use and **Link 2** is always for where Team Leaders post their updated files, Team Leaders must save the address and **must re-flash the page each time.**

5.9   Awards and Prizes

(1)   Individual Prizes:

Approximately two-thirds of the contestants will receive Individual Awards, in the form of Gold, Silver and Bronze Medals as well as Merit certificates, in the approximate ratio of 1:2:3:4.

(2)   Team Prizes:

There are two Team Prizes, one based on the Individual Contest and another based on the Team Contest. Teams are divided into six groups of almost equal sizes.

(a) Team Prizes based on the Individual Contest (Group Award):

The sum of the highest three scores among the four members of each team for the Individual Contest will be computed. In each group, prizes will be given to the three teams achieving the highest three sums. In the case of ties, precedence is given to the team with the highest score of the fourth team member. If teams remain in a tie, the BIMC 2023 Academic Committee will make a ruling.

(b) Team Prizes based on the Team Contest (Team Award):

The total score of all ten problems is considered the team score. In each group, prizes will be given to one Champion, two First runners-up, three Second runners-up. The teams are ranked first by their total scores. Ties are broken according to the scores of individual problems, starting with the most difficult one. Further ties will be ruled on by the BIMC 2023 Academic Committee.

(3)   Grand Prize:

The Grand Prize is awarded according to the sum of the four team members' scores in the Individual Contest and of the team's score in the Team Contest. The maximum score is $4 \times 150 + 400 = 1000$ (for EMIC) and $4 \times 120 + 400 = 880$ (for IWYMIC). Second and Third Prizes are also awarded. Ties are broken according to the scores of the Team Contest. If teams remain in a tie, it will be broken according to the scores of individual problems, starting with the most difficult one. Further ties will be ruled on by the BIMC 2023 Academic Committee.

(4)   Special Prize:

In addition, a Special Awards will also be presented at the Closing Ceremony:

> Six teams presenting the best performances in the Cultural Night with exceptional merits in coordination, creativity and impression will receive awards as determined by the BIMC 2023 Organizing Committee.

(5)   Puzzle Contest:

In each division, Puzzle Contest prizes will be given to one Champion, two First runners-up, and three Second runners-up.

Proposal on how to award the prizes:

- The organizer will host the awarding ceremony on an online platform and announce the winners by country as per the BIMC rules.
- The organizer will provide an e-certificate for each winner and all members of the delegation of each country.

- The organizer will ship all the medals and trophies to each participating country. Each country will cover the shipping costs for their own medals and trophies. (Additional trophies may be ordered after the awards ceremony) The BIMC organizing committee will send each country their invoice in advance. The national coordinator of the participating country must ensure that the payment for the shipping cost is wired to the organizer. Bank details etc will be provided on the invoice.

6   Period of Application and Procedure

Each participating city or country must apply for participation in BIMC 23.

Proposed Time Table

Date	Activity
Thursday, 2nd March 2023	Interested cities or countries must submit the application form through an e-mail on or before.
Thursday, 4th May 2023	Interested cities or countries must complete the online registration on or before.
Thursday, 4th May 2023	Proposed problems must be submitted on or before.
Thursday, 1st June 2023	Deadline of Registration of Team Leaders, Deputy Leaders, and Participants
Thursday, 1st June 2023	Deadline of Registration of International Mathematics Conference.
Thursday, 15th June 2023	Deadline of Submission of Greetings and Cultural Videos

Each participating city or country has to send confirmation of its participation to these e-mails: ccmp@seed.net.tw, **burgas@bimc2023.com** and   **zh.georgieva@burgas.bg**.

7   Expenses

a) The organizer will be responsible for all official expenses of only 2 teams in each division. For the former host countries/ cites mentioned in no. 5.1 the organizer will be responsible for 4 teams in each division.

b) Additional participants must pay **US$100 per head** for the official competition.

8   Additional Information

Each participating country should do the following:
- Prepare a short video for the opening ceremony for all participants to introduce themselves.
- Prepare a cultural performance video of maximum 5 minutes per country for the cultural night.

9   Responsible Office

Burgas Municipality, Burgas, Bulgaria.   Ms. Zhenya Georgieva

E-mail : **burgas@bimc2023.com**,   **zh.georgieva@burgas.bg**

Phone **:** +359-56-907245