



## Mathematics Resources Contest 2011-12

The Mathematics Resources Contest is a comprehensive contest jointly organised by the Hong Kong Academy for Gifted Education (HKAGE) and Mathematical Database (MD). Unlike the traditional learning mode, it aims at encouraging students to think critically and mathematically in order to identify and analyse interesting mathematical problems in our daily life, and to explore, find and evaluate the solutions through problem-based learning.

In addition to broadening students' horizons in mathematics through mathematical explorations and investigation, the contest promotes out-of-classroom learning opportunities for students to consolidate their learning and fosters student collaboration. Participants will have the opportunity to demonstrate their mathematical talents and insights by developing mathematical models of daily life problems. They are also encouraged to display their distinctive products in a creative manner. Awardees' products will serve as online resources with the purpose of sharing knowledge.

### I. Participants

All Hong Kong full time secondary school students (Secondary 1 to 7) are eligible to participate in the contest. Each team should be comprised of **One to Six Students**.

1. **For non-HKAGE student members**, applications are to be made via their respective secondary schools with a teacher as the coordinator. A school may have more than one team participating in the contest and a teacher may also lead more than one team.
2. **HKAGE student members** can choose to form their own teams with other HKAGE student members and apply directly via the HKAGE Online Application Platform.

### II. Format

Participants should think about a problem or situation and then apply mathematical knowledge and problem solving and critical thinking skills to analyse and solve the problem. Although the findings may not be complete, participants should try their best to make a rigorous argument, analyze and summarise their findings, and then conclude with a generalisation and appropriate guess.

Participants can turn their problems encountered in their daily life into mathematical situations or explore any mathematical problems they are interested in. There is no limitation on the topic but the products should be related to mathematics and contain the basic principles of mathematical exploration, reasoning and generalisation. Besides mathematical knowledge, participants also need to show their original observation, imagination and analysis in the products. There is no limitation as to the presentation format of the products but they should be able to serve as website resources with the purpose of knowledge sharing. Each team should set an appropriate title for the product. (For details, please refer to Rules and Regulations and Sample Proposals.)

### III. Rules and Regulations

1. Each team is required to submit a proposal upon application. Please download the "**Proposal Template**" and "**Sample Proposals**" from the HKAGE website for reference.
2. Each team will receive preliminary feedback from the Adjudicators on the submitted proposal on or before **15 Dec 2011** to ensure participants' products follow the rules and regulations. (This proposal will not affect the final result)
3. The product and summary should not contain any information that may reveal participants' personal information, e.g. name, age, birthday, school name and grade.
4. The proposal, product and summary can be written in **either English or Chinese**, but a mixed use is not allowed.

5. The **product summary** should include the group's reference number, product title, format, introduction, mathematics topic(s) covered, conclusion, remarks (please indicate the format of the file(s), opening method or sequence if necessary) and references. If the product includes more than one file, please indicate clearly the assessment sequence of the files under "remarks". Otherwise, it may affect the assessment flow of the Adjudicators. The product summary should be written in not more than 1000 words. Please download the "**Product Summary Template**" from the HKAGE website for reference.
6. The **format** of the product can be articles, stories, comics or movie clips. The products which are mainly composed of texts (e.g. articles and stories) are advised to contain illustrations or graphics like function graphics, footnotes and indexes so as to facilitate ease of reading by Adjudicators. (For details, please refer to Product Format)
7. If the product includes content or ideas from a third party, all the references including reference books and websites should be cited in the product.
8. There are no restrictions on the number of words, colours and length of the product, while the convenience of online publication of the product must be taken into consideration.
9. **Product Specification**  
Each team should submit all their **source** files and **distribution** files. Every file to be read by the judges shall be put at a folder named "**Distribute**", while the source files shall locate in a folder named "**Source**".

Generally, our judges only rate according to the files in the folder "**Distribute**". In case of file corruption or missing, each judge will decide, based on one's professionalism, whether or not, and, how the source files shall be considered.

#### **Distribution Files:**

To ensure every judge should receive consistent content and format in the product, every file in folder "**Distribute**" shall fulfil the following requirements:

#### Articles, Comics or Stories

They shall be stored in Portable Document Format (**PDF**).

#### Movies

The total size of all movies shall **not exceed 2GB** and each movie should be stored in either **avi**, **.wmv** or **.mp4** format. If necessary, please state clearly the codec that is required. Participants shall balance between the appearance and the limitations over network distribution.

#### Comics and Movies

If any annotations in words are needed in comics or movies, make sure the format is consistent within the product.

#### Presentation

It shall be stored in Portable Document Format (**PDF**). Marco is not allowed. Participants shall avoid overuse of visual animation effect.

#### Web

- Every file shall be put inside a folder and with index page named **index.html**. The folder shall be compressed and stored in format **.zip**, **.rar**, **.tar** or **.7z**.
- Participants need not setup a web server and shall not use any server-side-script.
- The usage of advantages skills like javascript is not encouraged. The main focus of this competition is mathematical contents.
- Besides, participants shall also consider the following points:
  - 1) Make sure people using common web browser (Internet Explorer, Firefox, Chrome, Safari and Opera) under different operating system (Windows XP, Vista, 7, MacOS and Linux) can read the website without any issues.

- 2) The website should be compatible with word processing home computers with general hardwares. It shall never require any high performance hardware like a good display card or high resolution monitor.
- 3) In case, the website needs embed other plugin, like java (GeoGebra) , flash, please state clearly in the Remark of the product summary so that our judges may configure the machine in advance.
- 4) The encoding of the website must be **Unicode**. Ensure every link in the website are relative links.

#### Others

Other files like the .ggb file from GeoGebra shall be put in the folder “**Distribute**”. Participants shall state clearly the instruction to access the file in the Remark of the Product Summary. Participants are not recommended to use uncommon paid software.

#### **Source Files:**

There is no any restriction on the usage of software in this competition. However, any necessary files shall be put inside the folder “**Source**” for our future usage.

For example, all source codes of a flash file (including actionscript etc.), the source of an article .doc, .docs or .tex, the source of a PowerPoint .ppt , .pptx etc.

#### **IV. Timeline**

Date	Activity
30 Nov 2011 (Wed)	Deadline for application and proposal submission through the HKAGE Online Application Platform
15 Dec 2011 (Thu)	Participants receive preliminary feedback from Adjudicators on their submitted proposals
15 Feb 2012 (Wed)	Deadline for product submission
Early Mar 2012	Announcement of the finalists
Late Mar 2012	Finalists meeting with the panel of adjudicators
Mid-Apr 2012	Result announcement
Mid-May 2012	Prize-giving ceremony

#### **V. Application and Product Submission**

Each team is required to apply and submit the following documents through the **HKAGE Online Application Platform (<http://hkage.org.hk>)** by the specified deadline in order to participate in the contest. A **Confirmation Email** will be sent to the Teacher Coordinators and HKAGE student members respectively after the HKAGE Online Application Platform has confirmed and accepted the application, proposal submission and product submission.

- (1) **Application and Proposal Submission** on or before **30 Nov 2011 (Wed) 5:00p.m.**
  - The proposal should be named and saved as the below format before uploading to the specified platform as indicated in the application confirmation email.  
**Proposal File Format: Product Title (Ref. No.).PDF**  
**(The Ref. No. will be shown in the application confirmation email.)**
  - Please download the “**Proposal Template**” and “**Sample Proposals**” from the HKAGE website for reference.
- (2) **Product and Summary Submission** on or before **15 Feb 2012 (Wed) 5:00p.m.**
  - The product and summary should be saved in **ONE folder** and named as the below format before uploading to the specified platform as indicated in the application confirmation email.  
**Folder Format: Product Title (Ref. No.).ZIP**  
**(The Ref. No. will be shown in the application confirmation email.)**
  - Please download the “**Product Summary Template**” from the HKAGE website for reference.

## **VI. Adjudication and Meeting with Adjudicator Panel**

All products will be assessed according to the following criteria:

- (1) Originality and creativity
- (2) Relation to the topic chosen
- (3) Concise explanation of deep mathematics principles involved in the product
- (4) Lively and interesting interface or presentation
- (5) Educational value

The preliminary adjudication is based on the product and the summary. The finalists will have a meeting (this meeting will not affect the final result) with the representatives of the adjudicator panel for feedback in **late Mar 2012**. Finalists will be allowed to modify their products by a specified deadline. After the re-submission, the finalists will undergo the final adjudication which decides the final result of the contest.

## **VII. Panel of Adjudicators**

Preliminary Adjudicators:

- Representatives of The HKAGE
- Committee Members of MD

Final Adjudicators:

- Prof AU Kwok Keung, Thomas (Department of Mathematics, CUHK)
- Dr CHEUNG Ka Luen (Department of Mathematics and Information Technology, HKIEd)
- Dr LEUNG Shing Yu (Department of Mathematics, HKUST)
- Prof SHUM Kar Ping (Retired Professor, Department of Mathematics, CUHK)
- Mr NG Ka Yu (Project Officer, The HKAGE)
- Mr WU Kai Chiu (Chairman, Mathematical Database)

## **VIII. Awards and Prize-giving Ceremony**

There will be Best Content Award, Best Presentation Award, Originality Award and Honourable Mentions. Awardees will be invited to the Prize-giving Ceremony which will be held in **mid-May 2012**. The awarded products will be displayed on the websites of the HKAGE and MD.

<b>Awards</b>	<b>Prizes</b>
Best Content Award	Trophy, Certificate and HK\$1,200 Book Coupon
Best Presentation Award	Trophy, Certificate and HK\$1,000 Book Coupon
Originality Award	Trophy, Certificate and HK\$1,000 Book Coupon
Honourable Mention	Certificate and HK\$500 Book Coupon

## **IX. Result Announcement**

The result will be posted on the HKAGE website in **mid-Apr 2012**. Invitation emails to the Prize-giving Ceremony will be sent to awardees in **mid-Apr 2012**.

## **X. Copyright**

The HKAGE and MD reserve the right to publish in full or part of the finalised products, which will not be returned to participants.

## **XI. Other Details**

1. The finalised products must be the original work of the participants (reference and citation of others' works must be specified) and have not been published through any competitions, websites, and media such as newspapers and magazines.
2. The personal information of the participants provided should be true and correct.
3. Participants who violate the above rules will be disqualified.
4. Members of MD are not allowed to join this contest.

## **XII. Enquires**

Tel.: 3698 3500 (Ms YIP)

HKAGE Website: <http://hkage.org.hk>

Email: [sps@hkage.org.hk](mailto:sps@hkage.org.hk)

MD Website: <http://mathdb.org>