



香港資優教育學苑

The Hong Kong Academy for Gifted Education

香港特別行政區政府教育局資助

Subvented by the Education Bureau, the Government of the HKSAR

S1IM0003C

(Token- required)

[**Gifted Programme**]

Mathematical Olympiad Course (Level I)

Maths Ignition – Number Theory

Instructor from International Mathematical Olympiad
Hong Kong Committee Limited



Application Deadline
30 Jul 2024 12:00 noon

Result Release
30 Aug 2024

Intended Learning Outcomes

Upon completion of the gifted programme, gifted students should be able to:

1. broaden their mathematical knowledge in the topic of Number Theory on the basis of junior secondary mathematics curriculum;
2. strengthen their problem solving and higher-order thinking skills;
3. learn more about the scope of International Mathematical Olympiad Training.

◆ Gifted Programme Introduction

- Maths Ignition is an introductory programme. It is designed as a series of courses on different topics and is developed as a bridging programme to the 'IMO Training' programme.
- 'Maths Ignition – Number Theory' is the third course of the series. It aims to broaden students' knowledge in Number Theory on the basis of junior secondary mathematics curriculum through exploration and investigation approach.
- Students might be considered for direct admission to the 'Introduction to Olympiad Mathematics 2025 (Phase I)' (S1IM0008C), an intermediate-level programme offered by IMO Hong Kong Committee Limited if attained:
 - (a) distinction in 2 MI courses; OR
 - (b) merit or above in 3 MI courses; OR
 - (c) completion or above in 4 MI courses
- This programme is co-organized with International Mathematical Olympiad Hong Kong Committee Limited (IMOHKCL)

◆ Suitable for

- S1 to S3 HKAGE student members
- Class size: 30
- All applicants MUST attend the Aptitude Test held in HKAGE on 17 Aug 2024 except for those who have attended the Aptitude Test held on 18 Nov 2023, 17 Feb 2024, or 11 May 2024.

* Not for students who have enrolled in:

1. CGMO Training (Phase I) (S1IM0007C) or
2. Introduction to Olympiad Mathematics (Phase I) (S1IM0008C) or
3. Any phase of International Mathematics Olympiad (IMO) Training before.

Remarks:

- Due to the limited seats in computer rooms, students who have attended the Aptitude Test on 11 May 2024 would not be allowed to take the test on 17 Aug 2024. Their results on 11 May 2024 will be used for this programme.
- Students will be selected randomly in attending the Aptitude Test if the application is over-subscribed. Only selected students could join the Aptitude Test held on 17 Aug 2024.
- A notification email will be sent on 5 Aug 2024 for the application result of the Aptitude Test.
- All unselected students will be regarded as their application of this programme unsuccessful.

◆ Medium of Instruction

Cantonese with English handouts

◆ Aptitude Test

- Students who wish to apply for this programme must take a general aptitude test on **17 Aug 2024 (1:45 p.m. – 3:45 p.m. or 4:00 p.m. – 6:00 p.m.)**, except for those who have attended the Aptitude Test held on 18 Nov 2023, 17 Feb 2024, or 11 May 2024.
- This general aptitude test covers a wide range of topics in mathematics. The purpose of the test is to figure out the applicant's knowledge in different fields of mathematics in order to choose the most suitable students for different programmes. Neither under-qualified nor over-qualified students will be admitted.
- The next aptitude test is tentatively scheduled on **16 Nov 2024**. The result of an aptitude test will be valid for one year. If a student takes the test more than once, the latest result will prevail. The following table lists the programmes for which the results of this general aptitude test will apply.

Programme Date	Code	Programme Name	Aptitude test valid			
			18 Nov 2023	17 Feb 2024	11 May 2024	17 Aug 2024
Sep 2024	S1IM0003C	Maths Ignition - Number Theory	✓	✓	✓	✓
Nov 2024	S1IM0004C	Maths Ignition - Algebra	✓	✓	✓	✓
Feb 2025	S1IM0005C	Maths Ignition - Coordinate Geometry		✓	✓	✓
Mar 2025	S1IM0007C	CGMO Training 2025 (Phase I)			✓	✓
Mar 2025	S1IM0008C	Introduction to Olympiad Mathematics 2025 (Phase I)			✓	✓
Jul 2025	S1IM0001C	Maths Ignition - Combinatorics				✓
Aug 2024	S1IM0002C	Maths Ignition - Geometry				✓

Remarks:

1. All aptitude tests will only be arranged on the designated dates. No make-up test will be arranged.
2. No Calculator is allowed.
3. Please bring along with your Identification Card, e.g. HKID, student ID.
4. Please arrive at the venue 15 minutes prior to the Aptitude Test begins.

If students who have selected to join the aptitude test are absent without any reasons and prior notification provided, it will result in a lower priority in joining the aptitude test next time when they apply.

◆ Schedule

Session	Date	Time	Venue
Aptitude Test	17 Aug 2024	1:45 p.m. – 3:45 p.m. OR 4:00 p.m. – 6:00 p.m.	Mongkok (To be confirmed)
1	21 Sep	2:00 p.m. – 5:00 p.m.	Room 203, HKAGE
2	28 Sep		
3	5 Oct		
4	12 Oct		Room 403, HKAGE

- A notification email will be sent on **5 Aug 2024** for the application result of the Aptitude Test.
- For any assessment to be held in the programme, **no make-up** will be arranged.

◆ Certificate

E-Certificate will be awarded to participants who have:

- attended **at least 3 sessions**; and
- completed all the assignments with satisfactory performance

◆ Sample Notes

1. What is the sum of all factors of 899899?
2. Find all positive integers x and y such that $xy = 4x + 7y$.

◆ Appendix - IMO-related Programmes

- IMO-related programmes is a series of programmes that provide International Mathematical Olympiad (IMO) related training. It aims to equip students with the mathematics knowledge and curriculum of IMO, problem solving skills, and high-order thinking skills progressively.
- There are different enrollment methods, e.g. aptitude test. For details, please refer to each programme's poster.

Level I

Maths Ignition (MI) Programmes

- For S1-S3 HKAGE student members
- Introductory training in Mathematical Olympiad by topics
- Application for five MI programmes will be open in Apr, Jul & Oct each year
- Enroll through aptitude test

Level I to II

Introduction to Olympiad Mathematics (ITOM)

- For S1-S6 HKAGE student members
- Two phases of training
- Application will be open in Jan each year
- Enroll through aptitude test; OR
- Students who attained (a) distinction in 2 MI courses; OR (b) merit or above in 3 MI courses; OR (c) completion or above in 4 MI courses could enroll directly

Level I to III

China Girls' Mathematical Olympiad

- For S1-S6 HKAGE female HKAGE student members
- Three phases of training
- Application will be open in Jan each year
- Enroll through aptitude test; OR
- Students who have completed any phase of IMO/CGMO/ITOM Training could enroll directly
- CGMO HK Team members will be selected based on their performance in the trainings

Level III to IV

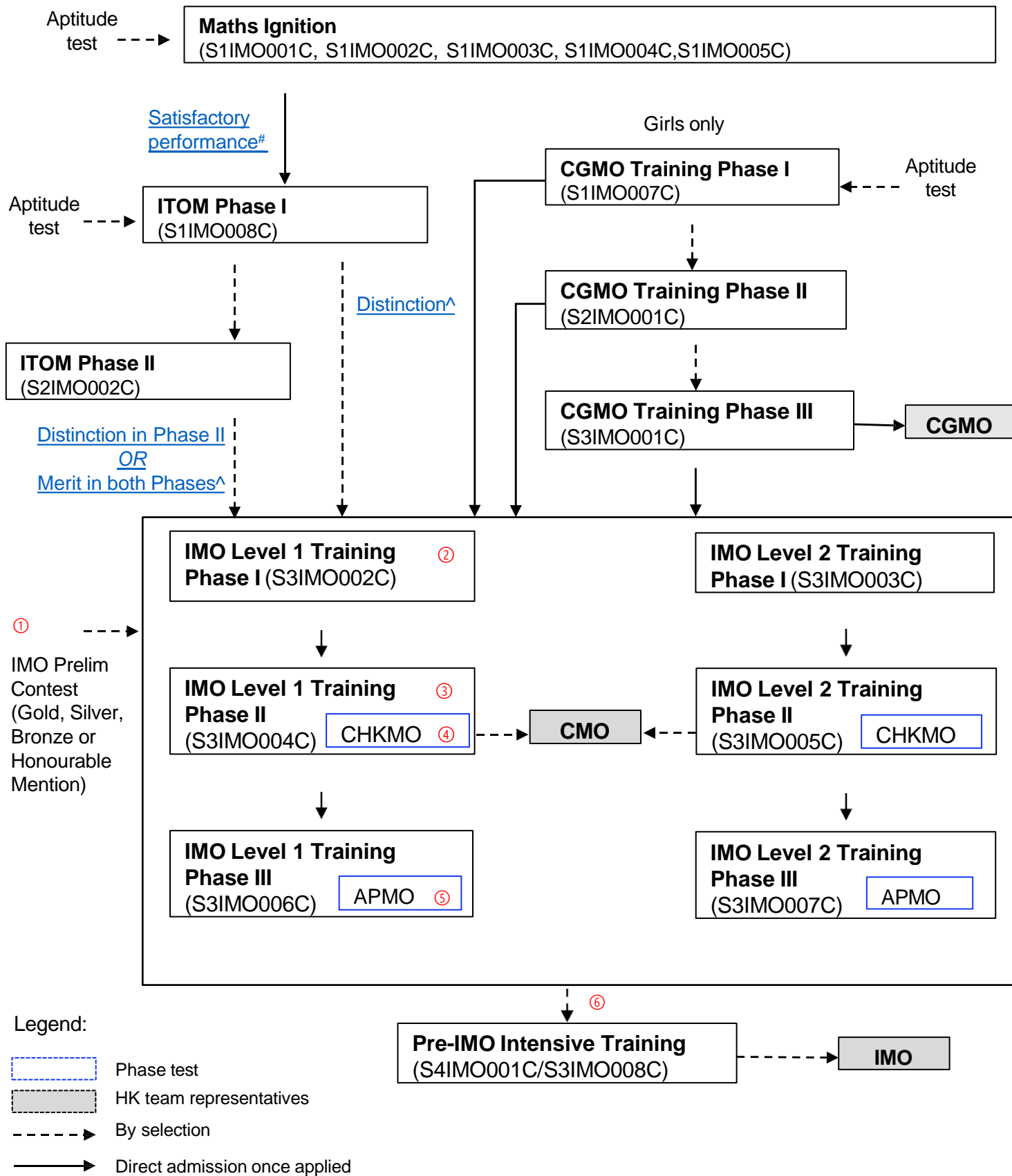
International Mathematical Olympiad (IMO) Trainings

- For all awardees of IMO Preliminary Selection Contest - Hong Kong; and the students with achieved satisfactory performance in the above-mentioned training
- Four phases of training
- IMO HK Team members will be selected based on their performance in the tests and trainings

*For detailed flowchart and timeline, please refer to the next page.

International Mathematical Olympiad Related Programmes

(English version only 只提供英文版)



Remarks:

ITOM – Introduction to Olympiad Mathematics
 CGMO – China Girls' Mathematical Olympiad
 IMO – International Mathematical Olympiad

CHKMO – Hong Kong (China) Mathematical Olympiad
 CMO – Chinese Mathematical Olympiad
 APMO – Asian Pacific Mathematics Olympiad

IMO2025 HK Team representatives are selected based on their performance in the assessments from ② through ⑥

IMPORTANT information for International Mathematical Olympiad (IMO) Training

IMO Training

Suitable for

- IMO Preliminary Selection Contest awardees ① or
- Student members who have completed any phase of CGMO Training or
- Student members who have completed any phase of ITOM Training with Distinction
- Student members who have completed both phases of ITOM Training with Merit

Training /Competition	Content	Tentative schedule	Remark
Phase I Training	13 x 3-hr lessons	Jul - Aug	
	Test 1 ② 3 hr, 6 proof problems	Aug	<ul style="list-style-type: none"> ▪ Phase test ▪ No make-up test
Phase II Training	17 x 3-hr lessons	Sep - Dec	
	Test 2 ③ 3 hr, 4 proof problems	Oct	<ul style="list-style-type: none"> ▪ Phase test ▪ No make-up test
	CHKMO ④ 3 hr, 4 proof problems	Dec	<ul style="list-style-type: none"> ▪ Phase test ▪ No make-up test
Phase III Training	8 x 3-hr lessons	Jan - Mar	
	APMO ⑤ 4 hr, 5 proof problems	Mar	<ul style="list-style-type: none"> ▪ End-of-phase test ▪ No make-up test
Selection Tests for Pre-IMO Intensive Training	Test 3 ⑥ 2 days x 4.5 hr, 3 proof problems	Apr or May	<ul style="list-style-type: none"> ▪ About 20 students to be selected based on previous tests ▪ No make-up tests
Pre-IMO Intensive Training	IMO HK Team (6 students) & Alternate Team (6 students)		<ul style="list-style-type: none"> ▪ 12 students to be selected based on previous tests
IMO	2 days x 4.5 hr, 3 proof problems		<ul style="list-style-type: none"> ▪ IMO HK Team
CMO	2 days x 4.5 hr, 3 proof problems		<ul style="list-style-type: none"> ▪ About 6 students to be selected based on previous tests
CGMO	2 days x 4 hr, 4 proof problems		<ul style="list-style-type: none"> ▪ About 8 female students selected via CGMO training

IMO2025 HK Team representatives are selected based on their performance in the assessments from ② through ⑥

Useful websites

IMO official website:	http://www.imo-official.org/
IMO website:	http://imo2024.uk/
Art of Problem Solving:	http://www.artofproblemsolving.com/
Mathematical Excalibur:	http://www.math.ust.hk/excalibur/

#Entering ITOM with Satisfactory Performance in Maths Ignition (MI) Programmes

Starting from 1 September 2023 onwards, students who fulfilled one of the criteria below are eligible to enter ITOM - "Introduction to Olympiad Mathematics (Phase I)" (S1IMO008C):

- good results in aptitude test; **OR**
- distinction in at least 2 different MI courses; **OR**
- merit/distinction in at least 3 different MI courses; **OR**
- pass/merit/distinction in at least 4 different MI courses

^Entering IMO Training with Satisfactory Performance in ITOM or CGMO

Starting from 1 September 2023 onwards, students who fulfilled one of the criteria below will be invited to enter IMO training Phase I Level I (S3IMO002C):

- Non-HKAGE student members / HKAGE student members who were awarded Honourable Mention or above in IMO Preliminary Selection Contest – Hong Kong; **OR**
- HKAGE student members who have completed any phase of CGMO; **OR**
- HKAGE student members who have attained distinction in any phase of ITOM; **OR**
- HKAGE student members who have attained merit in both phases of ITOM