



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

E1MAT022C

(Token- required)

[**Gifted Programme**]

Mathematics Course (Level I)

Math of the Solar System - Size, Distance and Time

Mr Ng Ching Kong

(Headmaster of Stewards Pooi Kei Primary School)



Application Deadline
13 May 2024 12:00 noon

Result Release
24 May 2024

Intended Learning Outcomes

Upon completion of the programme, participants should be able to:

1. understand the basic structure and information of the Solar System;
2. use scientific notation in dealing with big numbers;
3. use computer (eg Excel, Google Map) to measure and create a scale model of learner's own solar system;
4. apply astronomy software in identifying celestial objects;
5. understand how Lorentz factor is derived and the related phenomenon such as Time Dilation & Length Contraction;
6. reflect on self identity with comparison to the vast universe.

◆ Gifted Programme Introduction

Math is always essential for exploring our interesting and mysterious physical world. From the perspective of learning, providing students with problems and examples demonstrating math's applications in everyday life gives math meanings. Space Math is then considered by NASA to offer such math applications through one of the strongest motivators – Space. By raising and solving 'problems' identified in our solar system, e.g. in the process of creating a scale model of the system, it is expected that this programme could enhance students' understanding of mathematical concepts and their application.

This programme is co-organized with Stewards Pooi Kei Primary School.

◆ Schedule

Session	Date	Time	Venue
1	25 Jul	9:15 a.m. – 12:15 p.m.	2 Lok Ha Square, Fo Tan, Shatin, Stewards Pooi Kei Primary School (Map)
2	26 Jul		
3	29 Jul		
4	30 Jul		
5	31 Jul		

◆ Suitable for

- P4 to P6 HKAGE student members
- Class size: 35

◆ Pre-requisite

Students should be able to know the following Math skills and Science concepts.

- our solar system is a vast system which includes the Sun and the eight planets;
- measurement units (km and AU) and unit conversion;
- the distance from Earth to the Sun;
- multiplication of multiple digit numbers;
- circumference and its relation to radius;
- the Least Common Multiple (LCM).

◆ Medium of Instruction

Cantonese (Supplemented with English) with English Handouts

◆ Screening

Please answer the screening question in the online application form.

*The screening question is designed to help the applicant understand the course level and the course content. The question must be answered by the student applicant and it can only be attempted once. The answer cannot be changed once the application is submitted. Selection is based on students' performance in answering the question. Only students who can demonstrate motivation and the knowledge of mathematics in the screening question can be enrolled in the programme

◆ Certificate

E-Certificate will be awarded to gifted students who have:

- attended at least 4 sessions; and
- completed all the assignments with satisfactory performance



◆ **Sample Notes**

A coronal mass ejection from the sun travels 1.5×10^{13} centimeters in 17 hours.

What is its speed in kilometers per second?