



# A Journey to Mathematics through Exploration

(MATP1421)

<b>Introduction</b>	Exploration is very important for the development of mathematical theories. However, traditional ways of learning fail to offer such experience adequately. In this course, participants will learn mathematics through observation of patterns, relations and connections in numbers as well as arithmetic and geometric figures. The course will also introduce classic problems and stories about theory development, in addition to mathematics integrated into our daily lives.		
<b>Programme Type / Level</b>	Across Domains and Interdisciplinary Course (Level 1) ( <a href="#">Token-required</a> )		
<b>Instructor(s)</b>	Dr LAU Chi Hin Lecturer, Department of Mathematics, CUHK	Dr. Lau obtained his BSc degree from CUHK and PhD degree from HKU. He has almost twenty years of experience in secondary and tertiary education. During his teaching career, he was involved in many different programmes in gifted education organised by CUHK, HKAGE, Education Bureau, etc.	
<b>Pre-requisite</b>	Students should be able to: <ul style="list-style-type: none"> <li>● Have basic arithmetic of numbers including fractions, decimal and directed numbers.</li> <li>● Calculate the areas of simple geometric figures, e.g. triangles, parallelograms and circles.</li> </ul>		
<b>Target Participants</b>		<ul style="list-style-type: none"> <li>➢ P4 to P6 HKAGE student members</li> <li>➢ Class size: 30</li> </ul>	
<b>Medium of Instruction</b>		English with English Handouts	
<b>Certificate</b>		<b>E-Certificate</b> will be awarded to participants who have: <ul style="list-style-type: none"> <li>❖ Attended <b>AT LEAST 3</b> sessions AND</li> <li>❖ Completed all the assignments with satisfactory performance</li> </ul>	
<b>Intended Learning Outcomes</b>		Upon completion of the programme, participants should be able to: <ol style="list-style-type: none"> <li>1. Understand how certain classic problems in mathematics were solved;</li> <li>2. Apply methods like simplification, induction and generalisation in exploration;</li> <li>3. Use simple arguments in the proofs of mathematical statements;</li> <li>4. Solve daily lives problems by exploration.</li> </ol>	
<b>Screening</b>		Please answer the screening question in the online application form. *The screening question is designed to help the applicant understands 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 logic in the screening question can be enrolled in the programme.	
<b>Application Deadline</b>	<b>4 Nov, 2019</b> <b>12:00 n.n</b>	<b>Application Result</b> <b>Release Date</b>	<b>15 Nov, 2019</b>
If student members withdraw from the programme after the Application Deadline, the token will be deducted.			

## Schedule



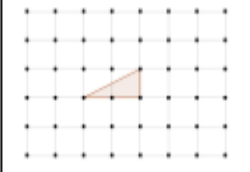
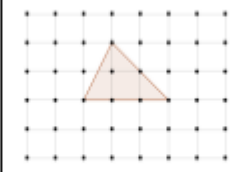
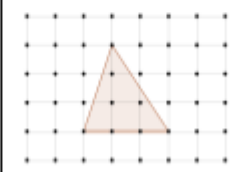
Session	Date	Time	Venue
1	8 Feb 2020 21 Aug 2020	2:00 p.m.-5:00 p.m. 9:30 a.m.-12:30 p.m.	<del>*HKPC Building, Room 107</del> Zoom Meeting
2	15 Feb 22 Aug		
3	22 Feb 24 Aug		
4	29 Feb 25 Aug		

\*Address: 78 Tat Chee Avenue, Kowloon, Hong Kong ([Map](#))

## Sample Example for the Programme

### 1 Pick's formula

A lattice point on the coordinate plane is a point with integer coordinates. A lattice polygon is a polygon whose vertices are lattice points. An interior point of a lattice polygon is a lattice point lying inside the polygon. A boundary point of a lattice polygon is a lattice point lying on the boundary of the polygon. Given a lattice polygon, denote by  $A$ ,  $I$  and  $B$  the area, number of interior points and number of boundary points of the polygon. Complete the following table.

Polygon	$I$	$B$	$A$
	0	4	1
	1	6	3
			

## Enquiries

For enquiries, please contact us at 3940 0101 after language selection, press "1".