

Enrichment Program for Gifted Learners (Online Winter Program 2021) 優才增益課程 (網上冬季課程 2021) Course Introduction 課程簡介

Experiments with Fun: Through Lens and Aperture • 奇趣科學實驗：光圈漫遊之旅 (Course Code 課程編號：S101)

Description 課程簡介 : The essence of STEM is the nurture of scientific thinking. The course aims to provide an inquiry-based learning experience for primary school students through hands-on experiments. Instructors will lead and guide the students through a variety of activities. From preparation to assembling materials, students learn to make their own DIY optical tools and instruments step by step. Through a series of inquiry experiments, students will be guided to explore the underlying scientific knowledge.

The theme of this course is "Light". Interesting optical phenomena and daily-life examples will be shown to raise students' interest and curiosity on the topic. Basic concepts in optics, including characteristics of light transmission, reflection, refraction, as well as their applications will be covered. The small class size (with an instructor-student ratio of 1:5-7) will allow more interactive elements between students and instructors.

**The course content is developed based on the Kids@UST Science Workshop: "Science – Now You See Me" (Apr 2018), "Little Detective: The Thief of Helios" (Dec 2018), and almost identical to the contents of "Experiments with Fun: A Story of Optical Riddles" (Aug 2020) and "Experiments with Fun: A tour of Aperture" (Aug 2021).*

培養科學思辨能力，是 STEM 教育的宗旨。本課程會以手作活動和科學探究實驗為主。課堂上，導師將帶領學生組裝材料，一步步製作自己的光學工具及儀器，進行一系列探究實驗，並引領學生逐步探索背後的科學原理和知識。

課程內容以「光」為主題，藉著日常生活中有趣的光學現象，提起學生的興趣及好奇心。學生會認識到一些基本光學概念，包括光的傳播特性、反射、折射和科技應用。本課程將採用小班教學模式（導師與學生比例為 1:5-7），務求令學生和導師在課堂上有更多互動。

**本課程內容設計及編排，是以「小朋友@科大」科學工作坊—「科學：感官」（2018 年 4 月）、「科學小偵探：光影神偷」（2018 年 12 月）內容為基礎；並與「奇趣科學實驗—光影神偷」（2020 年 8 月）及「奇趣科學實驗—光圈漫遊之旅」（2021 年 8 月）內容幾乎相同。*

Instructor 導師 : **"Kids@UST" Undergraduate Student Instructors**—A team of HKUST undergraduate students who are leading and teaching the Kids@UST Science/Mathematics workshops organized by the Center for the Development of the Gifted and Talented, HKUST. They are of different academic backgrounds (Science, Engineering, Business, etc.), but share the same passion in teaching and STEM education. They also actively take part in teaching STEM classes for different primary schools and education centers. All of them are well-equipped and experienced in leading diversified science activities, and aspire to pursue a career in education in the future.

「小朋友@科大」本科生導師——一群對教學有熱誠及抱負的香港科技大學本科生，現正任教和協助籌劃本中心的「小朋友@科大」科學/數學工作坊。他們來自不同學院（理科、工程、商科等），於課餘時積極參與各小學或坊間教育機構的 STEM 教學工作，累積了和小學生進行多元化科學活動的豐富教學經驗，期盼將來能投身教育工作。

Date & Time 日期及時間 : Dec 22, 23, 29 & 30, 2021 (Wed & Thu)
【Class A: 10:30am – 12:15pm】
【Class B: 2:30pm – 4:15pm】

*Online lesson will be postponed in case of bad weather. Make-up lesson will be arranged on:
Jan 3 (Mon) 【Class A: 10:30am – 12:15pm】【Class B: 2:30pm – 4:15pm】*

2021 年 12 月 22、23、29 及 30 日 (週三及四)

【A 班：上午 10 時 30 分至下午 12 時 15 分】

【B 班：下午 2 分 30 分至 4 時 15 分】

倘遇惡劣天氣，網上課堂將延期舉行。補課日期及時間：

1 月 3 日 (週一)【A 班：上午 10 時 30 分至下午 12 時 15 分】【B 班：下午 2 分 30 分至 4 時 15 分】

***The two classes have identical content 兩班授課內容相同**

- Language : Cantonese (Notes in Chinese)
教學語言 粵語 (中文筆記)
- Requirements : P.4 – P.6 students who are interested in Science
修讀條件 對科學有興趣的小四至小六學生
- Award : Students with 75% attendance will be issued a certificate
獎勵 學生出席率達 75%，將獲頒發證書乙張
- Course Fee : HKD 2,550 (A material pack valued at HKD 250 will be sent to student by post)
費用 港幣 2,550 元 (學生將獲取價值 250 元之材料包，並以郵遞派送)
- Remarks : (1) All EPGL winter courses will adopt online teaching and learning in 2021.
備註 (2) Students are expected to:
i) take part in interactive class exercises during the live-online lessons;
ii) A material pack will be distributed to student before lesson. Students are required to prepare some of the items and stationery by themselves. Students are also required to prepare part of the materials according to the guidelines in the material pack before course starts;
iii) carry on with self-learning activities with the post-class extension materials provided for best learning outcome.
(3) Course instructor will modify the course content to facilitate online learning, if necessary.
- (1) 本年度優才增益冬季課程將採用網上教學模式。
(2) 網上課程將以多元形式進行：
i) 實時網上課堂，包括堂上互動學習活動；
ii) 學生將獲發材料包，亦需自行準備部分材料及文具。課堂前，學生須按材料包內的指引，預先預備部分材料。
iii) 善用課程提供的課後延伸活動自學，加強學習成效。
(3) 如有需要，導師將調整課程內容以配合網上教學模式。
- Application : Submit an [Online Application](#) [Deadline: 2021-11-10 (Wed)]
申請 填寫[網上申請表](#) [截止日期：2021-11-10 (週三)]
- Enquiry : CDGT, HKUST 香港科技大學資優教育發展中心
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