香港4D FRAME 數理科學創意比賽

Hong Kong 4D Frame Maths & Science Creativity Competition

Benefits to Students 學生得益

Students will have chance to explore creativity! Participants can learn how to transform the abstract "STEAM" concept to practical application. Thinking out of the box, students can develop in below mathematical, scientific and creative aspects:

學生將會獲得創意發揮的機會！在過程中，學生可學習將STEAM的抽象概念變成實際應用，跳出思考框框，有助數理及創意思維方面的發展：

空間及立體的概念	Spatial Thinking Concept
分析能力	Analytical Skills
團隊合作	Team-building Skills
創意表達技巧	Creative Presentation Skills
創意解難能力	Creative Problem-solving Ability
策略規劃	Strategic Planning

Programme Schedule 活動日程

Application and Enquiries 報名及查詢

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Introduction 簡介

The Hong Kong Federation of Youth Groups (HKFYG) introduced the STEAM Educational Programme "4D Frame" from South Korea to Hong Kong in 2012. 4D Frame is an innovative educational tool developed for creative mathematics and science education. To stimulate students' creativity and enhance their spatial thinking with eye-hand coordination ability, the Federation was organising the first regional competition **"Hong Kong 4D Frame Maths & Science Creativity Competition"** to all local primary and secondary schools from the 2017 school year.

Participating teams in different divisions will receive a specific topic every year. Teams will then design the 4D Frame model for the Mission Achievement according to the topic and finish the Creation Record showing the scientific theories to the judges. As all the tasks have to be finished within limited time, the critical thinking, creativity problem-solving and presentation skills can also be trained throughout the Competition.

香港青年協會於2012年引入南韓STEAM教育工具4D Frame，並舉辦相關之課程給本地學生。4D Frame 是一套能啟發學生創意，並讓學生對空間及立體概念有更深認知的動手學習工具。協會於2017年舉辦首屆**「香港4D Frame數理科學創意比賽」**，鼓勵青少年動手創作，從過程中訓練數理思考能力，提升創意，增強表達溝通能力。

不同的參賽組別須就著每年公佈的題目，於比賽當天的有限時間內，創作具有個人特色之4D Frame模型，並完成創作歷程及任務挑戰，向評審展示作品之數理科學概念，考驗隊伍的創造力及對排列組合及空間運用的邏輯能力。

Organiser 主辦機構　香港青年協會 the hongkong federation of youth groups

Sponsors 贊助機構　創新科技署 Innovation and Technology Commission　HKSTP 香港科技園

Competition Components 賽事形式

This is a team-based Competition opened for all local primary and secondary schools. Each school may send up to 10 teams to the Competition. Each team may have 2 team members and 1 team instructor. All enrollments will be accepted on a first-come-first-served basis. Teams may use either Cantonese or English to compete in the Competition.

Teams participate in the Competition according to their grades and age groups:

Junior Primary Division	- age under 9 (Primary 1 to 2)
Senior Primary Division	- age under 12 (Primary 3 to 5)
Junior Secondary Division	- age under 16 (Secondary 1 to 3)

Registration fee for each team is **HK$400**. Enrolled teams can join the Workshop held by the organiser free of charge (first-come-first-served basis).

The three main components in the Competition are:

1. Creation Record
2. 4D Frame Model Design
3. Mission Achievement (For Senior Primary Division or above)

學校將以隊制形式參賽，每間學校最多可派10支隊伍參加，每隊由2名學生及1名教練組成。
參賽名額先到先得。隊伍可選擇用廣東話或英語作賽。

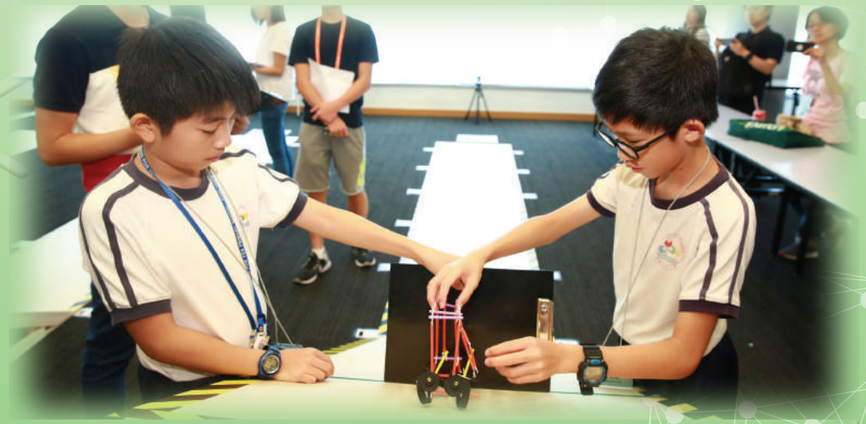
比賽共設三個組別：

初小組：年齡9歲或以下（小學一至二年級學生）
高小組：年齡12歲或以下（小學三至五年級學生）
初中組：年齡16歲或以下（中學一至三年級學生）

每支隊伍必須繳付參賽費**港幣四百元正**。成功報名參賽的隊伍可免費參與由主辦機構舉辦的工作坊（名額有限，先到先得）。

比賽內容主要分為三個部份，包括：

1. 創作歷程
2. 4D Frame 模型設計
3. 任務挑戰（只適用於高小組及初中組）



4D Frame Model Design 4D Frame 模型設計

Teams will design a 4D Frame model by using the materials provided in the Competition with reference to the topics and guidelines of the year. Teams will have 3 hours to complete the 4D Frame model. No score will be given for any incomplete works after the Competition.

參賽隊伍就大會每年發佈的題目及任務，利用大會即場提供的4D Frame物資，設計及完成一個相關的4D Frame模型。比賽時間為3小時，參賽隊伍需於指定時間內完成4D Frame模型，所有未完成之作品將不會被評審。

Mission Achievement 任務挑戰

Mission Achievement aims to test participants' actual ability to 4D Frame spatial structure and problem-solving during the creative design process. Mission tasks will be revealed to teams at the time the topics and guidelines announced. For different divisions, specific requirement will be given in the guidelines. Teams have to test the 4D Frame model and try to complete the mission tasks within the competition period.

As time is limited for doing the Creation Record, building the 4D Frame model and finishing the mission tasks, teams will then need to make a strategic decision for better time management and work in cooperation to get the highest scores.

任務挑戰旨在於創意設計的過程當中，測試參賽隊伍對4D Frame的空間及立體結構之認識及解難能力。比賽題目及任務內容將會於比賽前隨「比賽指引」同時發出。不同組別之題目及任務皆有分別，參賽隊伍需於比賽期間不停測試及調整4D Frame模型以完成任務。

由於時間有限，參賽隊伍需要有策略地分配時間，完成4D Frame模型創作、任務挑戰及創作歷程，以獲取最高分數。

Creation Record 創作歷程

Teams are required to prepare the Creation Record of their 4D Frame Design during the Competition period, and submit at the end of the Competition time. The Creation Record serves to detail the journey of how the 4D Frame model works.

參賽隊伍需於比賽時間完結前設計並完成創作歷程。評審將就著每隊之創作歷程，了解整個4D Frame 模型的製作過程及運作原理。