FLL Challenge – 項目研究

授權主辦機構

Trumptech 尊科

Official LEGO® Education Partner

策略伙伴

香港青年協會
the hongkong federation of youth groups

協辦機構

香港電腦教育學會
The Hong Kong Association for Computer Education

	概述	賽季信息	對象	隊伍組成	使用套件
FIRST LEGO LEAGUE EXPLORE	運用LEGO®積木和LEGO® Education Wedo 2.0創作獨特的解決方案，並透過製作展板和匯報展示學習成果!	報名截止：3月31日 比賽準備：3 - 7月 評審時間：7月	6 - 10 歲	2-6名學生 + 1-2名導師帶領	WeDo 2.0 套件 + 年度 Explore 套裝
FIRST LEGO LEAGUE CHALLENGE	通過團隊合作搭建並編程機械人，就年度主題進行思考和研究並設計解決方案。學生需運用LEGO® Education SPIKE™ Prime或MINDSTORMS® EV3 套件制定戰略、設計、搭建、編程，並測試機械人。	報名截止：3月31日 比賽準備：3 - 7月 評審時間：7月	小學組：9 - 12 歲 中學組：12-16 歲	2-6名學生 + 1-2名導師帶領	SPIKE™ Prime + SPIKE™ Prime 拓展套裝 或 EV3 套件 + 年度 Challenge 套裝

FIRST® 核心價值 Core Value

通過實踐核心價值以表達高尚的專業精神和競賽合作共存意識（Gracious Professionalism & Coopertition）

發現更多

我們探索新的技能及想法

不斷創新

我們用創意及堅持不懈的精神解決問題

影響世界

我們應用學到的知識去改變世界

彼此包容

我們尊重他人並接納彼此的不同

團隊合作

我們合力工作的效果更強大

樂在其中

我們享受並讚揚我們的工作

2021 FLL Challenge 主題：RePLAY

面對城市急速步伐，不少人都選擇留在室內，失去對戶外活動的興趣：

- 創作與別不同的活動空間，允許更多運動、活動及玩樂模式，包容不同能力和技能程度的人投入其中，保持健康！

項目研究

- 發掘問題
- 設計一個改善這個問題的方案
- 分享你的研究（包括問題及解決方案）

創作一個創新的解決方法

- 改進一些現有的東西
- 以一個創新的方式去運用現有的東西
- 發明一些全新的東西

Ringfit

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Ringfit

- 理念：Quality of Life
- Wii – Wii Fit 的延伸
- 改進：較輕便的控制器
- 更新 – Rhythm Game mode
- 獎項
  - The Best Family Game in 23rd Annual DICE Awards
  - Game Beyond Entertainment in 16th British Academy Game Awards

Teqball

https://www.youtube.com/watch?v=35P6NYQE8DY 10:38

Teqball

- 在2012年由3個熱愛足球的人發明
- 靈感：覺得足球有太多碰撞，容易受傷
- 方案：混合足球及乒乓球的運動
- 遇到的困難：本身用平面的乒乓球，足球難以彈到運動員身上
- 獲得專利
- 改進：TeqLite
- 延伸：Teqball World Championship

給復康者及老人的Kinect

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盲人門球

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Brain Storm時間

- 活動空間？
- 不同能力和技能的人？
- 運動、活動及玩樂模式？

在疫情下如何保持活動？

- https://www.youtube.com/watch?v=Ryl37A7RhKw

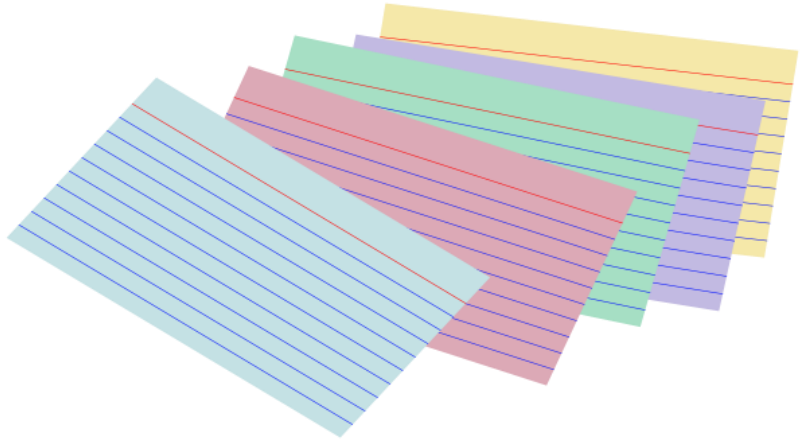
項目研究 – 表達技巧

匯報前的準備 (1)

- 對報告的內容有透徹的了解
- 預備好答問環節
- 有足夠的引用 / 資料支持論點

會報前的準備 (2)

- 可預備簡單的提示卡(Cue Card)
- 多練習，增加自信
- 用攝綠機拍下自己練習時的情況，再作改進
- 預備好網上會報的器材



會報時注意的事項 (1)

- 保持笑容
- 表現自信
- 需要有眼神交流

會報時注意的事項 (2)

- 聲線要有合適的高低仰揚，避免太過單調
- 配合適當的手勢

其他貼士 - 心理上的預備 (1)

- 盡可能報告重點，內容不是愈多愈好

What Did the Researchers Do and Find?

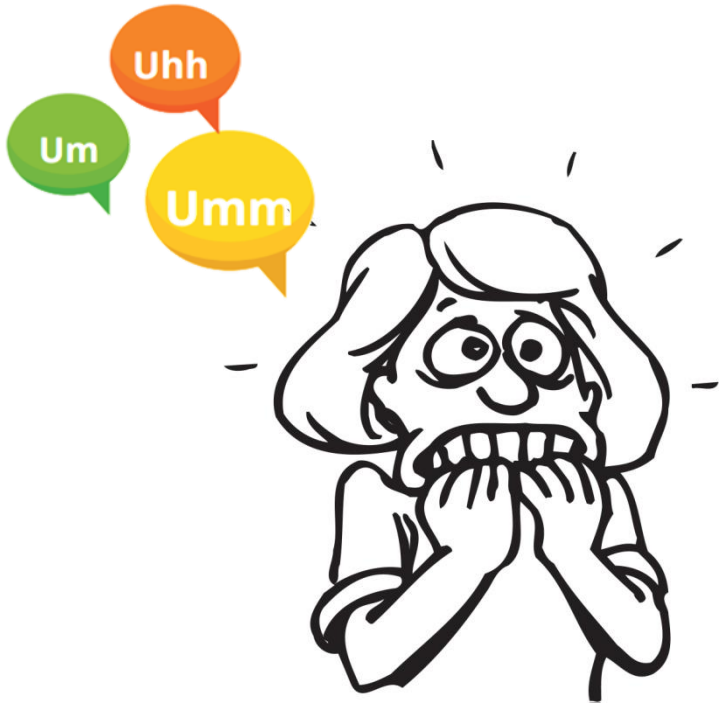
The researchers linked data on everyone who left the UK Armed Forces between 1996 and 2005 with information on suicides collected by the National Confidential Inquiry into Suicide and Homicide. Since 1996, the Inquiry has been collecting information about all suicides (defined as cases where the coroner has given a verdict of suicide or of "undetermined death") in the UK, including information about whether the deceased used mental health services in the year before they died. The aim of the Inquiry is to reduce the risk of suicides (and homicides) in the UK by improving the country's mental health services. Between 1996 and 2005, 233,803 people left the Armed Forces and 224 (nearly all men) died by suicide. The researchers' statistical analysis of these data indicates that the overall suicide rate in the ex-military personnel was similar to that in the general population. However, the risk of suicide in men aged 24 y or younger who had left the military was 2–3 times greater than that in the same age group in both the general male population and in men serving in the Armed Forces. The risk of dying by suicide was highest in the first 2 y after leaving the military but remained raised for several years. Risk factors for suicide among ex-military personnel included being male, serving in the Army, having a short length of service, and being of lower rank. Only a fifth of the ex-military personnel who committed suicide had been in contact with mental health services in the year before they died, and the rate of contact with these services was lowest among individuals in the age groups at the highest risk of suicide.

What Do These Findings Mean?

These findings indicate that young men leaving the UK Armed [illegible] sk of suicide, particularly shortly after leaving. The study was not [illegible] for this increased risk, but the authors suggest three main pe[illegible] of transitioning to civilian life, (2) exposure to adverse experiences wh[illegible] vulnerability to suicide before entering the military. The study provid[illegible] ort the third hypothesis—untrained personnel with short lengths of [illegible]vice have a [illegible] high risk of dying by suicide after leaving the military, suggesting that the increased [illegible]k may reflect a pre-military vulnerability. The researchers suggest that practical and psychological preparation might be helpful for people leaving the Armed Forces and that appropriate help-seeking behavior could be encouraged in these individuals. In the UK, the National Health Service is currently piloting a community-based mental health service for military veterans, characterized by regional clinical networks involving partnerships of relevant experts.

其他貼士 - 心理上的預備 (2)

- 不要太著重一個特定的字詞而被「卡住」
- 如不小心遺漏一些內容，請繼續報告，不要因此而影響整個報告的流暢度

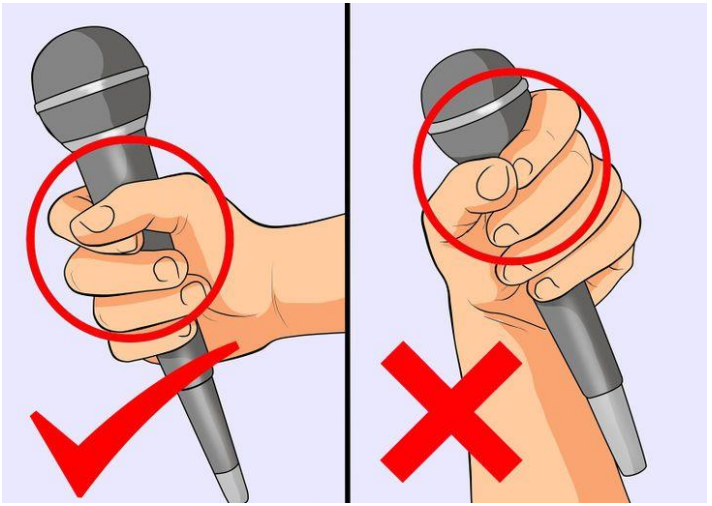


其他貼士 - 心理上的預備 (3)

- 可花心思去制訂你個人或隊伍的風格
- 做一些能讓自己舒服或放鬆的事，
  如：穿著一套舒適的服裝

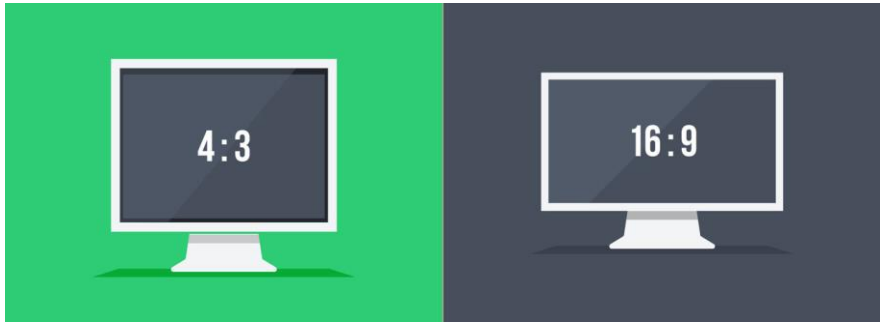
其他貼士 - 技巧上的預備 (1)

- 要注意手握麥克風(Microphone)的位置
- 不要用手拍打麥克風
- 小心使用夾麥克風，確保聽眾能聽到清楚



其他貼士 - 技巧上的預備 (2)

- 確保將被使用的電腦能配合你的簡報(Power-point)
- 注意簡報投影片的大小比例
- 確保有流暢的網絡



報告時的3S結構

- Story
  以故事作引子

- Slides
  合適的簡報 / 投影片

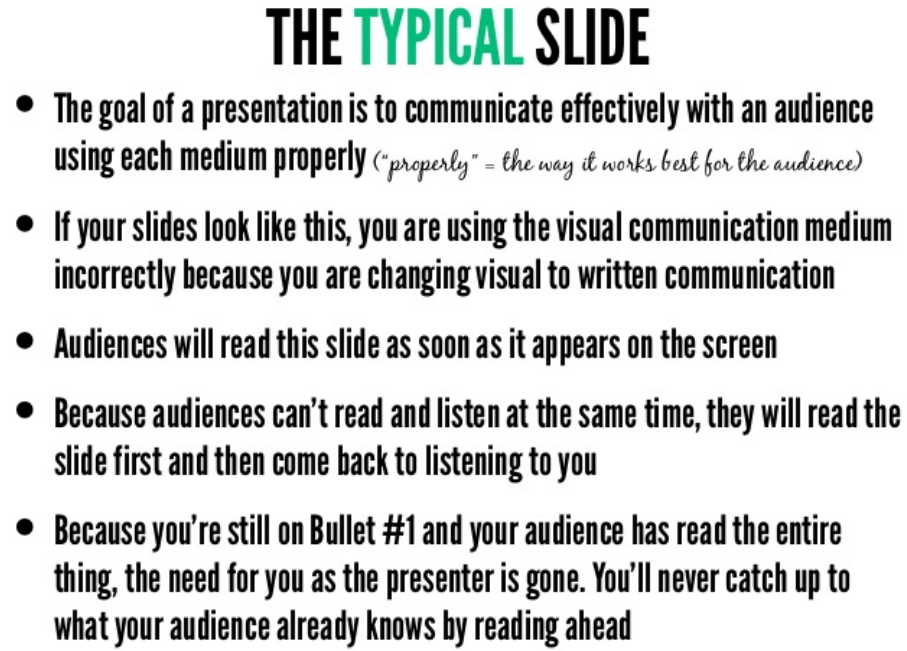
- Sound-bite
  關鍵「搶耳」的句子令人留下深刻印象

報告A-F

- **A**im（研究的目的？）
- **B**ackground（進行甚麼資料搜集？）
- **C**onsideration（曾經想過甚麼方案？）
- **D**ecision（最後的方案是甚麼？）
- **E**valuation（如何向其他人分享再尋找更好的方法？）
- **F**uture（有未來的發展嗎？）

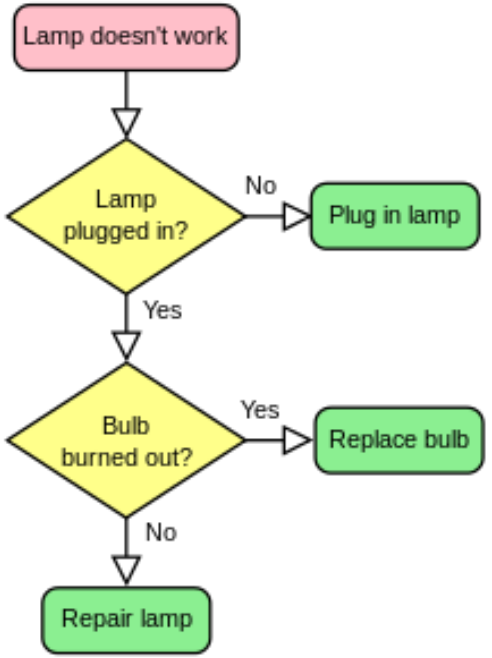
如何製作合適的簡報？(1)

- 簡報並不是一篇文件，如有真正的需要可適當使用項目符號(Bullet Point) 點出重點
- 是否真的需要有概要投影片？



如何製作合適的簡報？(2)

- 簡化複習的數字或圖表
- 利用流程圖(Flow Chart)表示複習的過程和關係
- 過於複雜的字型、公式或過多的圖畫反而會弄巧反拙

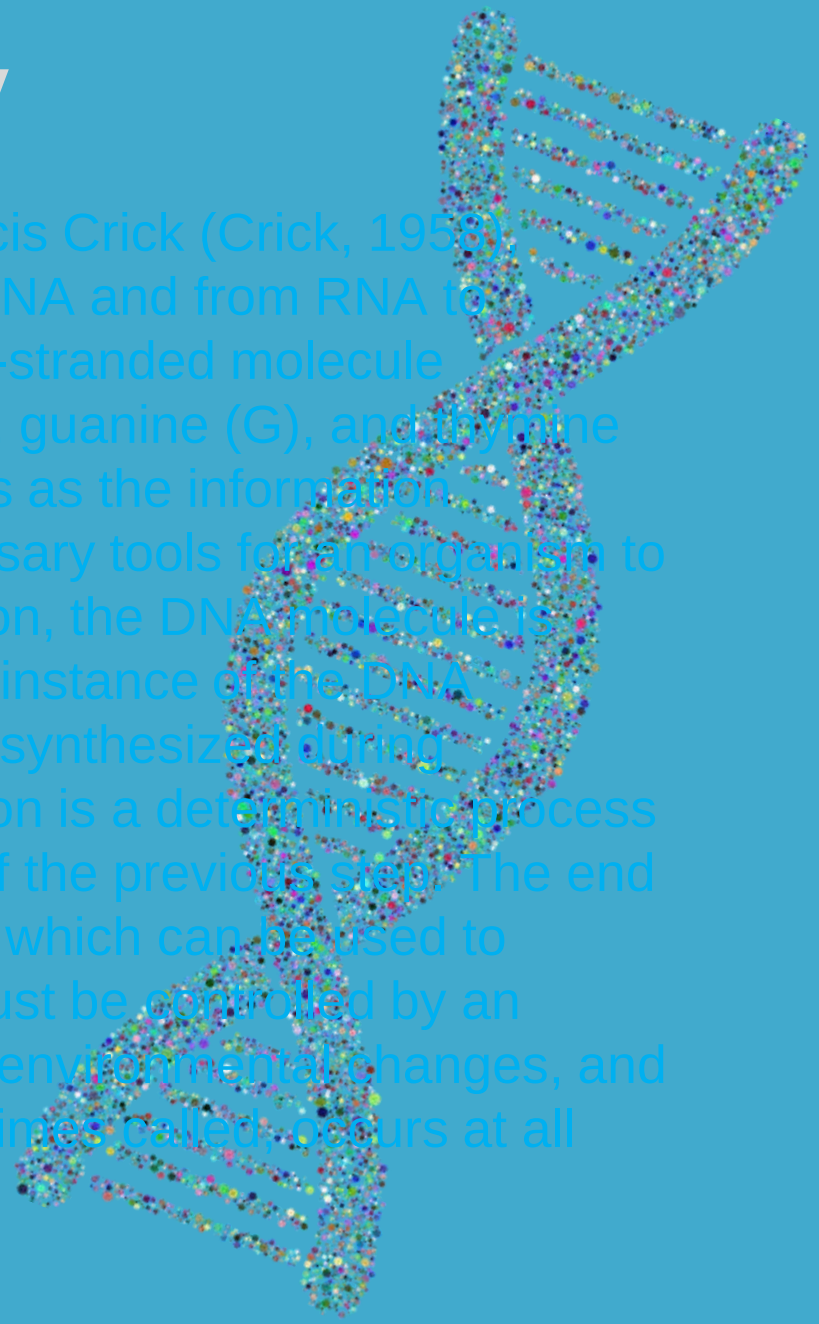


如何製作合適的簡報？(3)

- 再三校對你的簡報，有錯字嗎？

Central Dogma of Molecular Biology

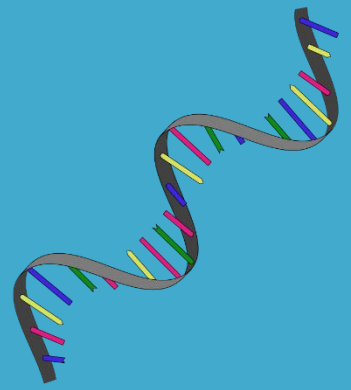
The Central Dogma of Molecular Biology, first proposed by Francis Crick (Crick, 1958), describes the directional processes of conversion from DNA to RNA and from RNA to protein. This gene expression process starts with DNA, a double-stranded molecule consisting of base-paired nucleic acids adenine (A), cytosine (C), guanine (G), and thymine (T) on a sugar-phosphate backbone. This genetic material serves as the information storage for life, a dictionary of sorts that provides all of the necessary tools for an organism to create the components of itself. During the process of transcription, the DNA molecule is used to make messenger RNA (mRNA), which carries a specific instance of the DNA instructions to the machinery that will make protein. Proteins are synthesized during translation using the mRNA molecule as a guide. Gene expression is a deterministic process during which each molecule is manufactured using the product of the previous step. The end result is a conversion from the genetic code into a functional unit which can be used to perform the work of the cell. As you can imagine, this process must be controlled by an organism in order to make efficient use of resources, respond to environmental changes, and differentiate cells within the body. Gene regulation, as it is sometimes called, occurs at all stages along the way from DNA to protein.



Centrel Dagma of Molecelar Bioloogy

DNA

Transcription



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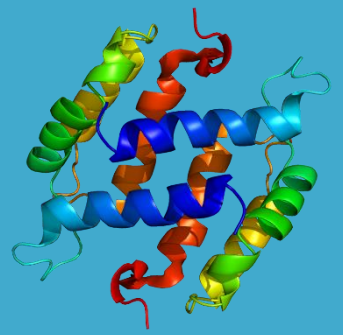
RNA

Translation



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Protein

Sound Bite

一至兩句句子

一8秒內完成

令人深刻的主旨

- Teqball is the world's fastest growing sport. (Teqball)
- Explore a fantasy adventure world to defeat a bodybuilding dragon and his minions using real-life exercises! (RingFit)
- That's one small step for man, one giant leap for mankind. (Neil Armstrong)
- Everything will be okay in the end. If it’s not okay, it’s not the end! (John Lennon)

項目研究 - 評審準則 (Rubric)

準則	內容
Identify	對問題辨識、分析及資料來源
Design	創新程度及訂立方案的過程
Create	方案的可行性及全面性
Iterate	如何分享給不同的人士，並從中獲得改進的方法
Communicate	如何有效率或創意地發表最後的方案

- https://firstinspiresst01.blob.core.windows.net/first-game-changers/fll-challenge/Rubrics.pdf

隊伍參考

FIRST LEGO LEAGUE

問答環節