



資助 Funded by

優質教育基金

Quality Education Fund



香港仔工業學校

ABERDEEN TECHNICAL SCHOOL



香港仔黃竹坑道一號(港鐵黃竹坑站B出口)



香港仔工業學校
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Aberdeen Technical School

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優質教育基金「主題網絡計劃」(QTN)

2025/2026 ATS – 人工智能 x 科技 x STEAM 教育

分享會



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1. 學校背景
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3. STEAM x PIE 校本實踐
4. 校外STEAM成果
5. 教育局 – QTN 計劃
6. 未來展望





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我們的學校

- ▶ 慈幼特色的天主教**全人教育**：**陪伴**及聆聽青年，照顧其獨特性，引導他們**成長**
- ▶ 政府津貼文法中學：富有**科技特色**的**多元化**課程，透過**實踐**方式，以**科學**及**科技**帶動學生學習



建築師陳方桐校友接受NOW TV的訪問，介紹香工的建築風格和特色。

<https://finance.now.com/news/post.php?isapp=1&id=464739>



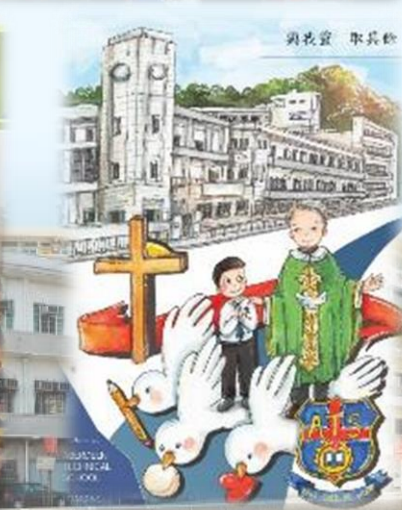


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寄宿服務·學讀書學做人



我們是一家





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學校定位與發展方向

學生分層與多元參與策略

活動及比賽

海外交流



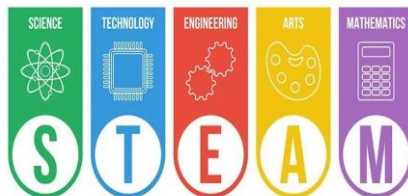
大學講座



企業參觀



國際比賽



EDUCATION

科學科

資訊科技科

設計與科技科

視覺藝術科

數學科

精英計劃

「香工科研4.0」



選拔機制、分層培訓、專業導師指導





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跨科課程設計 (初中)

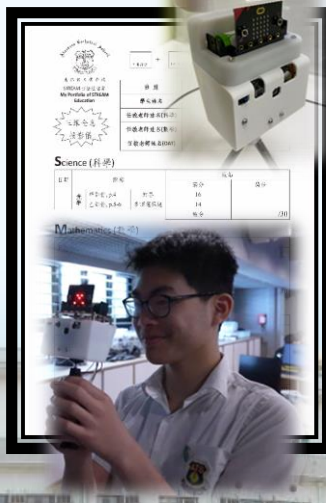
中一 震子機械昆蟲
能量轉換原理應用



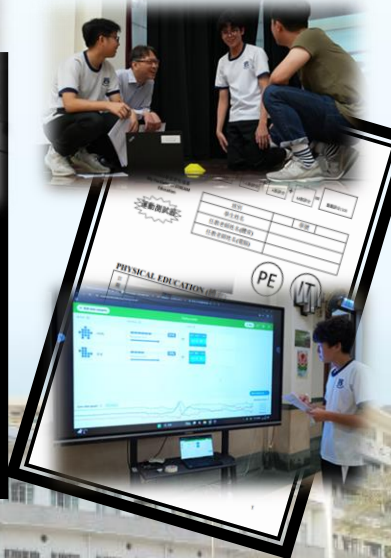
中二 水火箭
作用與反作用力實驗



中三 人面辨析
AIoT技術整合



STEAM x PE





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校外STEAM成果

滙豐香港社區夥伴計劃 社區創新科技大賽 2024

- 最佳項目獎
- 最具潛能獎

Supported by 滙豐 HSBC In Partnership with 港鐵 HKMTR Organized by 義遊 VOLTRA

滙豐香港社區夥伴計劃
SMART Community
社區創新科技大賽 Hackathon
2024

【最佳項目獎、最具潛能獎】
得獎隊伍

香港仔工業學校
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綠色創新：循環再利用
EcoCycle Innovations

作品簡介 Project Introduction

綠色創新：循環再利用。將PET膠瓶切成條狀，經加熱轉化為3D打印耗材，實現FDM 3D打印機的耗材自給自足。適用於所有FDM打印機，配有觸控顯示屏以監控噴頭溫度，並採用PCB電路以增強穩定性和靈活性。此設計減少了對原始材料的依賴及碳足跡，推動循環經濟，實現資源高效利用與環境保護雙重效益。

將PET瓶切成長條 將PET瓶切成長條 將PET瓶切成長條 將PET瓶切成長條

這套系統將PET瓶轉化為3D打印耗材，使FDM 3D打印機在材料使用上更具可持續性。該系統與所有FDM打印機兼容，並配備觸控顯示屏以監控噴頭溫度，同時採用PCB電路以增強穩定性和可擴展性。此設計減少了對原始材料的依賴，減少了碳足跡，支持了循環經濟，通過將廢物轉化為可重複使用的3D打印資源，促進了創新和可持續性。

RoboFest (金獎)





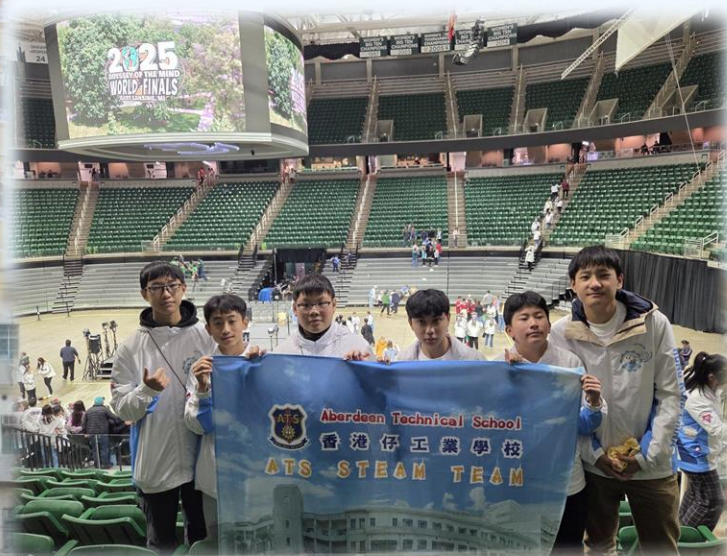
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校外STEAM成果

創意思維世界賽冠軍（香港區）



創意思維世界賽 (World Finals)





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教育局優質教育基金主題網絡計劃 - QTN





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教育局優質教育基金主題網絡計劃 - QTN

- 透過培訓計劃，提升教師及學生對學習人工智能的興趣





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教育局優質教育基金主題網絡計劃 - QTN





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教育局優質教育基金主題網絡計劃 - QTN

- 舉辦教師工作坊，讓參與學校教師認識如何將人工智能應用於STEAM教育中





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教育局優質教育基金主題網絡計劃 - QTN

- 提供實踐和創新機會，以培養學生的科學和科技思維，以及創造力和解決問題的能力





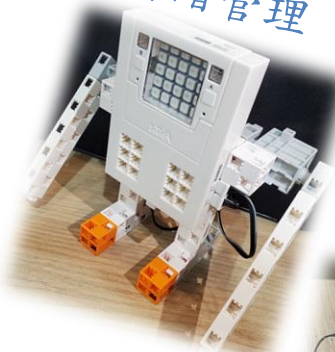
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教育局優質教育基金主題網絡計劃 - QTN

國民教育



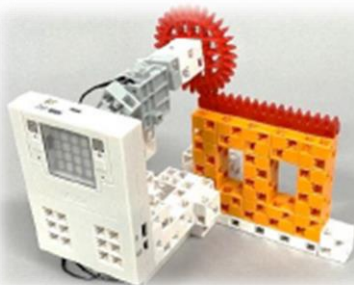
情緒管理



生態環境



智能家居



綠色分類





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- 今年推廣策略的重大進步，是從過往的「正規課時」，加入「課後興趣班」及「主題工作坊」，更舉辦了多間小學的小六專題研習。





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教育局優質教育基金主題網絡計劃 - QTN

- 帶領參與學校師生進行跨校專題研習





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教育局優質教育基金主題網絡計劃 - QTN

- 舉行專業發展活動，如工作坊、示範教學等
- 發展學校STEAM教育課程，支援推行人工智能項目，並提供教案及教學套件等
- 安排網絡會議，分享實際教學時的成功經驗及當中挑戰

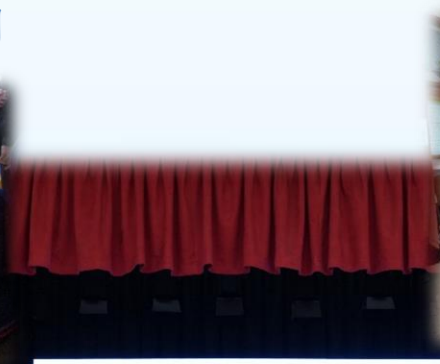




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教育局優質教育基金主題網絡計劃 - QTN

- 透過學校參加聯校香工盃比賽平台實踐及展現 STEAM教育課程及AI套件運用

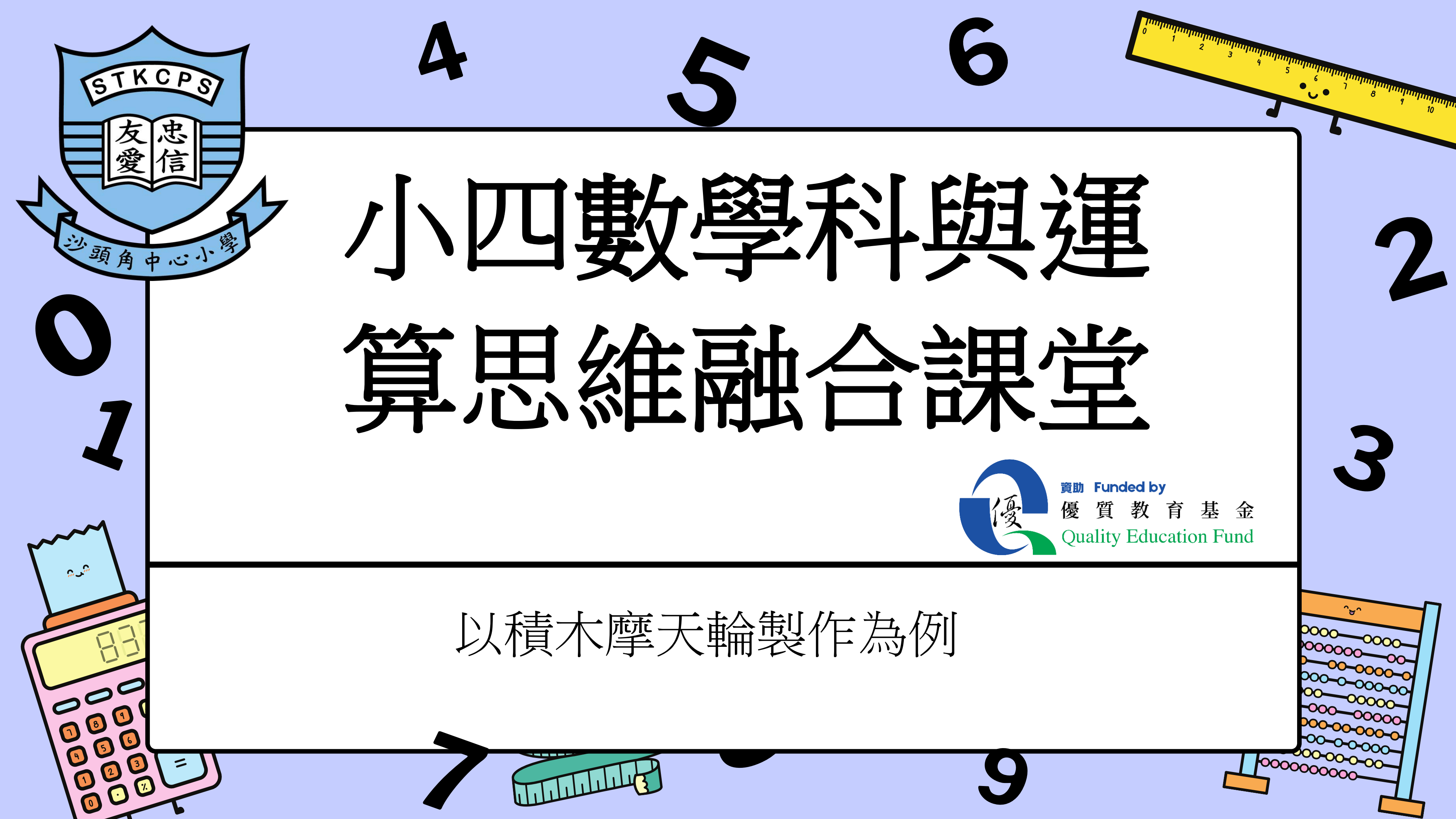




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未來展望

- 學校將繼續透過QTN計劃，推動教學創新，並善用資源，持續優化創新能力和實踐技能，推動中小教師學生的專業成長，進一步提升創新科技應用。
- 同時，學校將擴大「香工盃」等賽事的規模與影響力，鼓勵更多學生參與，讓競賽成為推動跨學科學習、創意思維及共通能力培養的重要平台。
- 未來，學校亦會繼續結合STEAM、環保、可持續發展目標（SDGs）及價值觀教育，持續強化專題研習課程，培養學生主動探究、解難及團隊合作能力，為他們面對未來社會挑戰作好準備。



小四數學科與運 算思維融合課堂



以積木摩天輪製作為例

學習活動分為三個階段：

- 手動積木摩天輪 - 學生先利用積木砌出摩天輪，並透過手動轉動，觀察齒輪如何帶動摩天輪運作，學習齒輪傳動及轉動方向。
- 加入電池盒和馬達 - 學生在原有結構上加入電池盒和馬達，讓摩天輪由人手操作變成自動運行，初步認識自動化的概念。
- 加入編程控制 - 學生進行簡單編程，控制摩天輪的轉動方向、速度和時間，進一步發展學生的運算思維及解難能力。

第一階段：手動積木摩天輪

學習重點：

- 認識摩天輪結構
- 理解齒輪傳動
- 觀察轉動方向
- 建立空間及對稱概念



學生學習表現：

學生能親手砌出摩天輪，透過手動轉動觀察齒輪如何互相帶動，並能初步描述齒輪大小、位置和轉動方向之間的關係。

第二階段：加入電池盒和馬達

學習重點：

- 認識動力來源
- 理解自動化概念
- 比較人手操作和馬達操作的不同
- 量度轉動時間和圈數



學生學習表現：

學生能把摩天輪由手動操作改為自動運行，並能觀察馬達如何帶動齒輪及摩天輪轉動。他們亦能記錄摩天輪在指定時間內的轉動圈數，並比較不同速度下的表現。

第三階段：加入編程

學習重點：

- 使用程式控制馬達
- 設定轉動方向、速度和時間
- 建立簡單演算法
- 進行測試和除錯

學生學習表現：

學生能編寫簡單程式，控制摩天輪按指定時間和方向轉動。他們能透過測試發現問題，並修改程式或結構，令摩天輪運作更穩定。



與小四數學科的連繫

- 圖形與空間
- 對稱與穩定結構
- 角度與旋轉
- 時間與速度
- 數據記錄與比較
- 倍數及比例概念



與運算思維教育的連繫

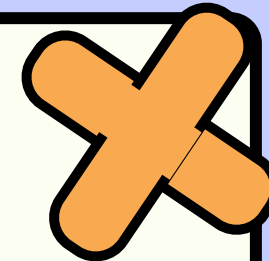
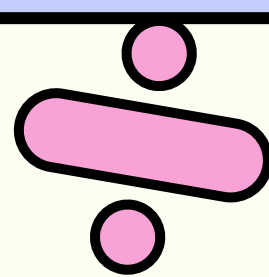
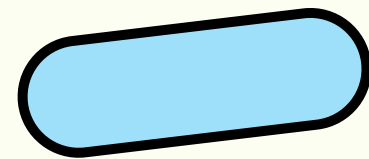
- 分解問題 DECOMPOSITION
- 模式識別 Pattern Recognition
- 抽象化 Abstraction
- 演算法設計 Algorithm Design
- 測試與除錯 Testing and Debugging



學生能力發展

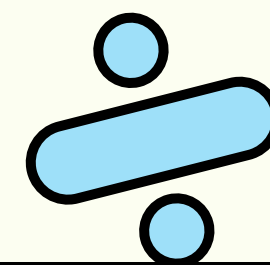
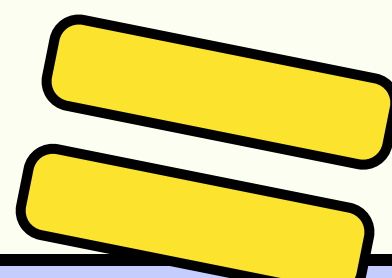
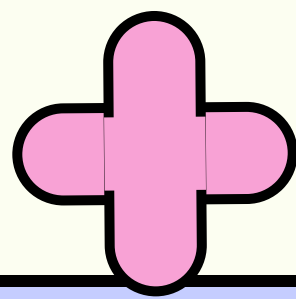
1. 數學應用能力
2. 解難能力
3. 協作能力
4. 創造力
5. 運算思維能力





積木摩天輪活動能有效結合小四數學科和運算思維教育。

這個學習歷程由具體操作逐步走向抽象思維，既能幫助學生理解數學概念，也能培養他們的運算思維、解難能力、協作能力和創造力。學生不只是「砌一個摩天輪」，而是在過程中學習如何觀察、思考、測試、改良和表達，真正體驗STEAM學習的精神。



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TUNG CHUNG CATHOLIC SCHOOL

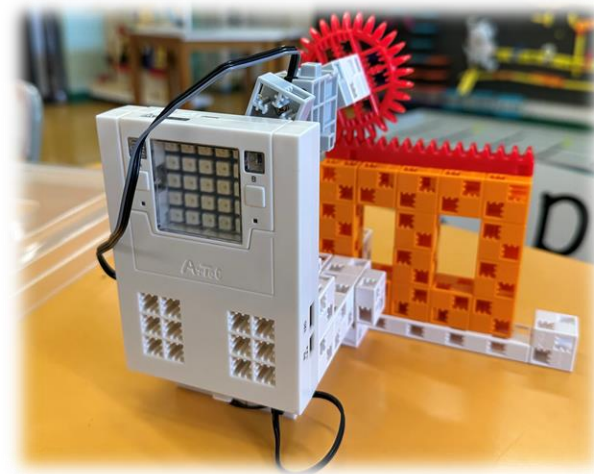
QTN計劃

P. 3 : 製作禮儀機械人

P. 6 : 製作智能人臉識別閘門



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參加計劃的原因：

1. 取得可用的資源
 - ARTEC ROBOT套件 X 80
2. 配合教授 AI 及Coding 的發展方向
3. 認識其他學校所推行的QTN內容

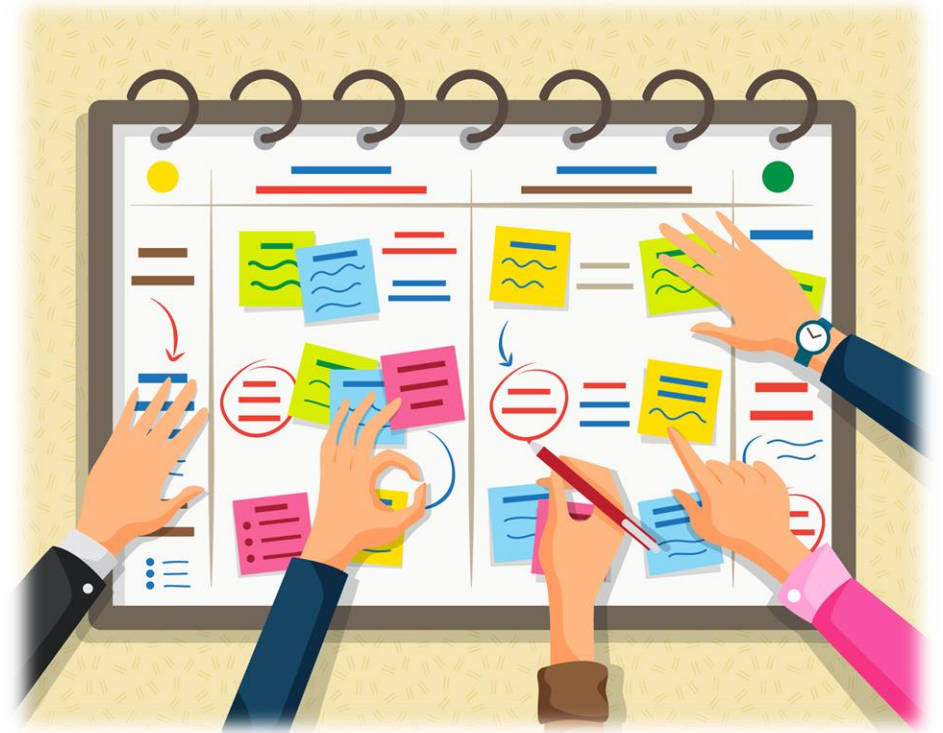




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參加QTN計劃前要深思的事情：

1. 推行的年級
2. 推行的時間
3. 推行時的人手安排





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參加QTN計劃前要深思的事情：

1. 年級？

三年級 + 六年級
(低年級) (高年級)



- 想了解在高、低年級推行的困難點



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參加QTN計劃前要深思的事情：

1.時間？

東天繽紛樂時段

-東天樂時段：50 分鐘

-三年級：4節；六年級：4節



課節	時段	星期一	星期二	星期三	星期四	時段	星期五
	08:05-08:15	早 讀				08:05-08:15	早 讀
	08:15-08:45	早 會				08:15-08:45	早 會
1	08:45-09:15	中文	中文	中文	英文	08:45-09:15	英文
2	09:15-09:45	中文	中文	中文	英文	09:15-09:45	英文
	09:45-10:00	小 息				09:45-10:00	小 息
3	10:00-10:30	常識	常識	數學	中文	10:00-10:30	中文
4	10:30-11:00	體育	資訊科技(單週) 常識(雙週)	英文	中文	10:30-11:00	中文
5	11:00-11:30	宗教	資訊科技	英文	宗教	11:00-11:30	數學
	11:30-11:45	小 息				11:30-11:45	小 息
6	11:45-12:15	英文	數學	視藝	體育	11:45-12:15	常識
7	12:15-12:45	英文	音樂	視藝	常識	12:15-12:45	音樂
	12:45-13:45	午 膳				12:45-13:45	午 膳
8	13:45-14:15	數學	英文	普通話	數學	13:45-14:15	生活教育
9	14:15-14:45	數學	英文	繽紛樂	數學	14:15-14:30	放 學
10	14:45-15:20	功課輔導	功課輔導	繽紛樂	功課輔導		
	15:20-15:30	放 學					



東涌天主教學校

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參加QTN計劃前要深思的事情：

1. 推行的人手安排？

儘量是電腦科科任

三年級：四班 (A-D)

六年級：六班 (A-E)





東涌天主教學校

TUNG CHUNG CATHOLIC SCHOOL

遇到的困難！

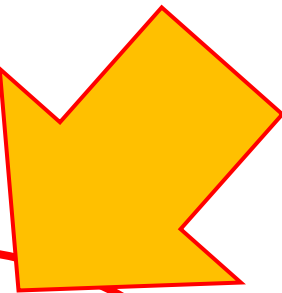




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參加QTN計劃時的困難：

1. 年級？


三年級 + **六年級**
(低年級) (高年級)



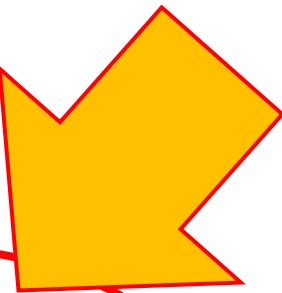
- 想了解在高、低年級推行的困難點



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參加QTN計劃時的困難：

1. 年級？


三年級 + 六年級
(低年級) (高年級)



三年級：難度較高，組裝過程很慢！

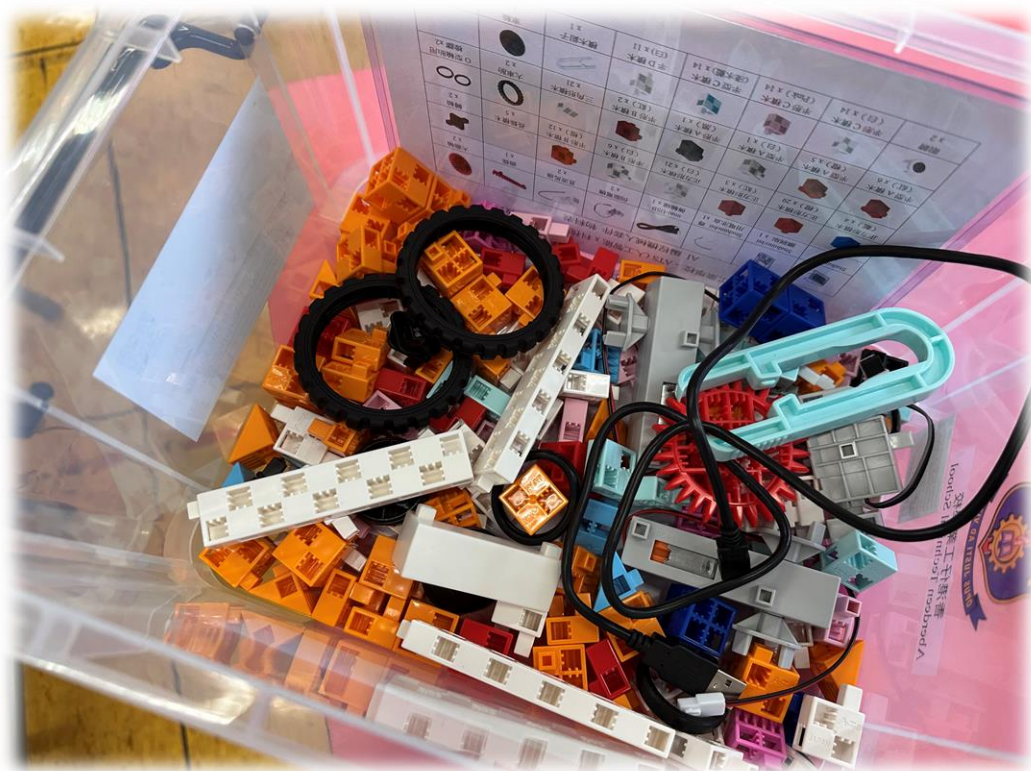


東涌天主教學校

TUNG CHUNG CATHOLIC SCHOOL



遇到的困難！





東涌天主教學校
TUNG CHUNG CATHOLIC SCHOOL

參加QTN計劃前要深思的事情：

1. 推行的人手安排？

電腦科科任

不夠9位

三年級：四班 (A-D)

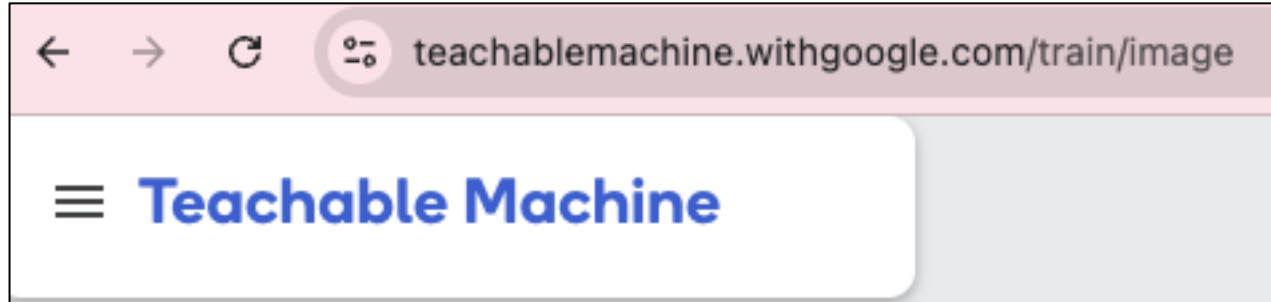
六年級：六班 (A-E)



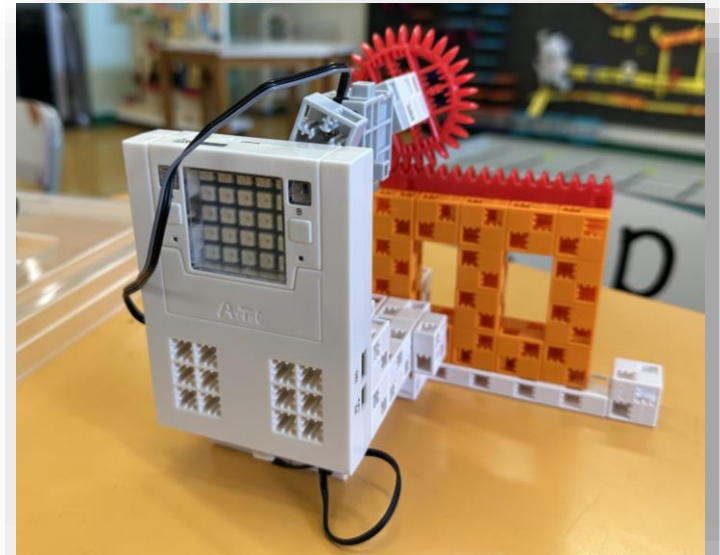


東涌天主教學校

TUNG CHUNG CATHOLIC SCHOOL



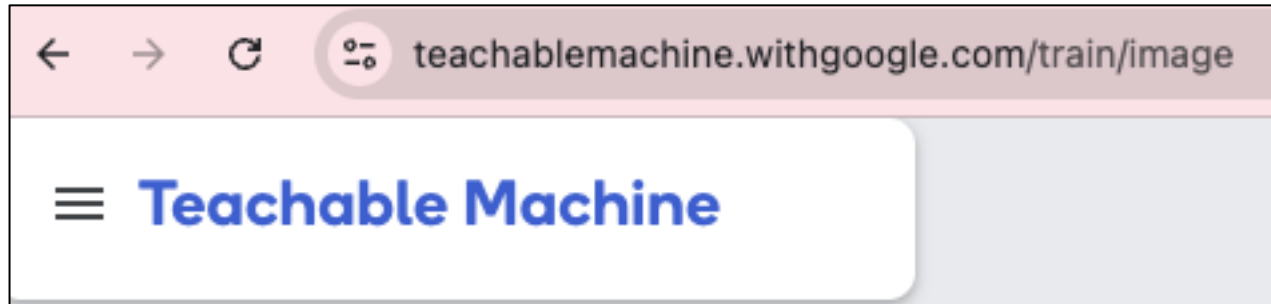
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東涌天主教學校

TUNG CHUNG CATHOLIC SCHOOL



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東涌天主教學校

TUNG CHUNG CATHOLIC SCHOOL



學校只有兩個電腦室

任教電腦

任教電腦

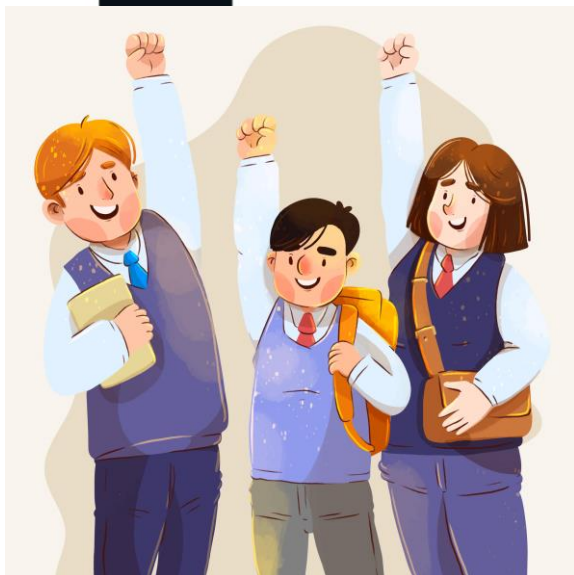


任教電腦

其他科任



感謝香港仔工業學校的支援

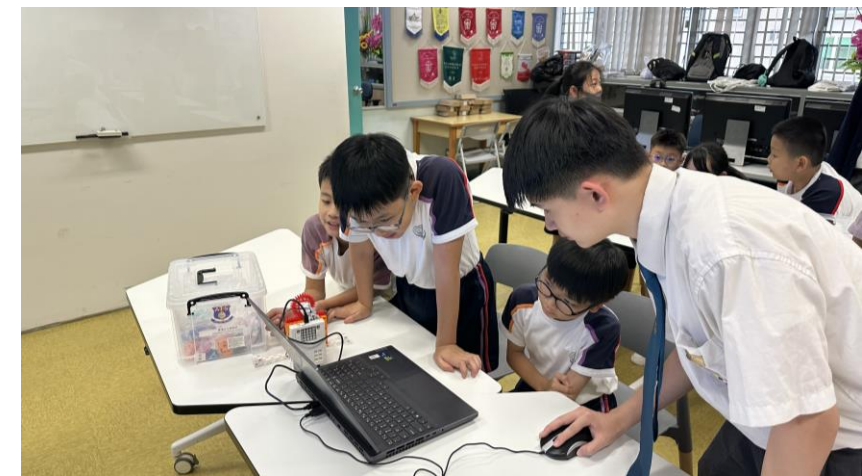
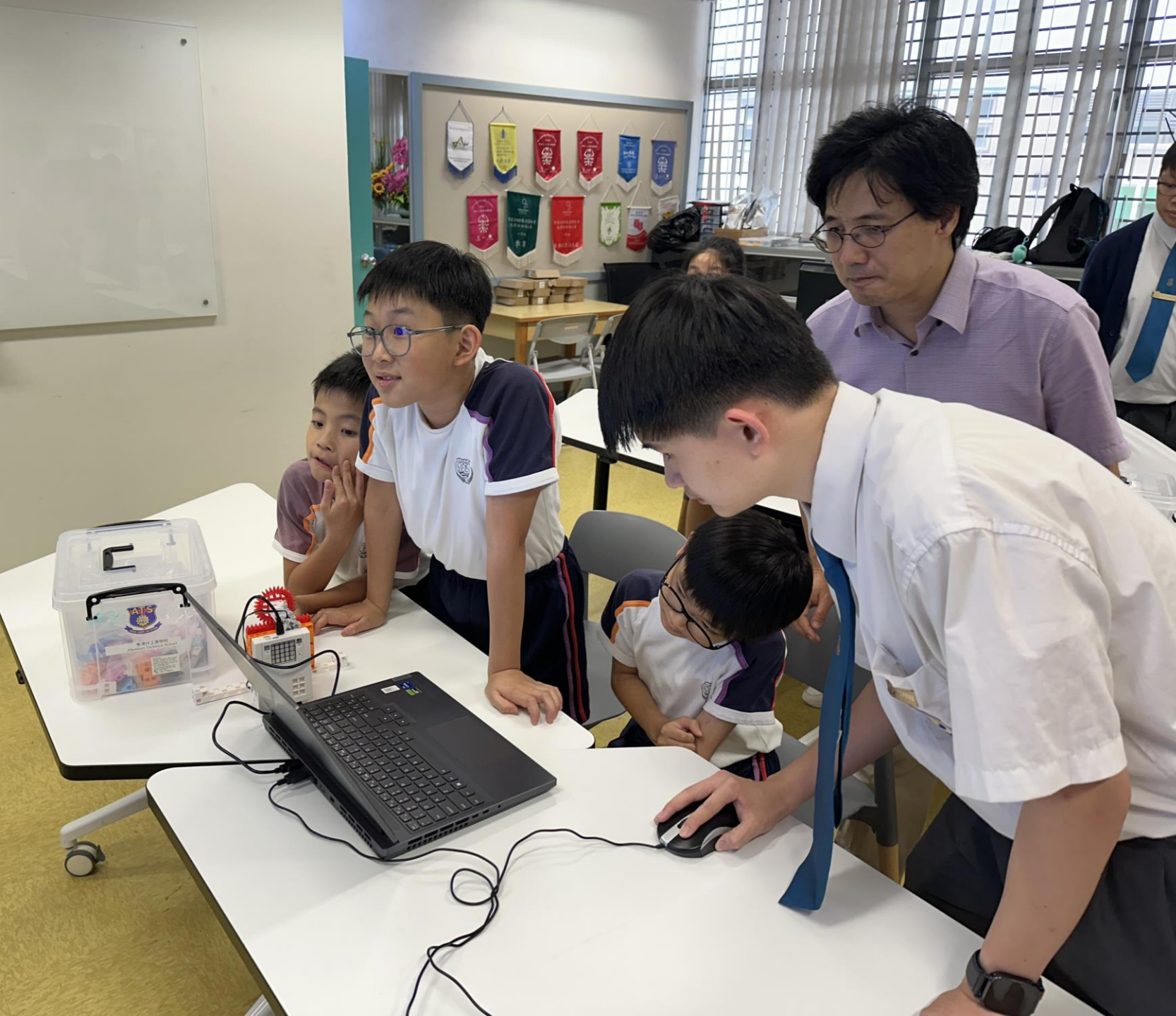


成功完滿！



辛苦但值得！













QTN 優質教育基金主題網絡計劃

AI音樂機械人：科技與人文的傳承

香港仔工業學校 x 保良局王賜豪(田心谷)小學

計劃理念與跨學科協作

跨學科深度融合

本年再度與香港仔工業學校協作，強化 AI 課程與學科知識的連結。是次課程結合**常識科、資訊科技科、音樂科、視藝科**等多元學科。

核心發展目標

讓學生深入理解科技應用，提升創新能力與實踐技能，並在專題研習中**培養正向價值觀與感恩的價值觀**。

課前共備與課題選定



專業對話

兩校老師初期舉行共備會議，檢視全年課程，決定合適課題。



配合校慶

選定「音樂機械人」主題，配合 20 週年校慶及保良精神。

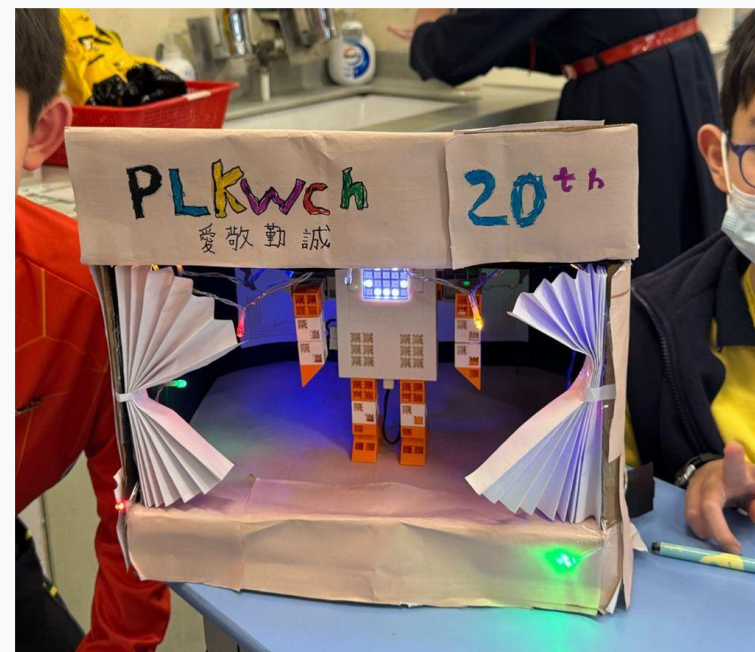


感恩主題

透過科技展示對學校的歸屬感，體現「感恩」的正向價值觀。



AI 音樂機械人與校慶主題



AI 音樂機械人與校慶主題

技術核心：

系統辨識 20 週年校慶主題曲時，自動下達指令驅動機械人動作。

設計概念：

科技不應只是冰冷的機器，更是用來承傳優良文化。

核心學習目標與技能



AI 辨識原理：掌握 Teachable Machine 聲音辨識，學會訓練特定音頻模型。



機械工程：運用 AI 模型驅動機械人動作，結合硬體完成展示。



創意設計：運用校慶元素進行舞台設計，展現藝術美感。

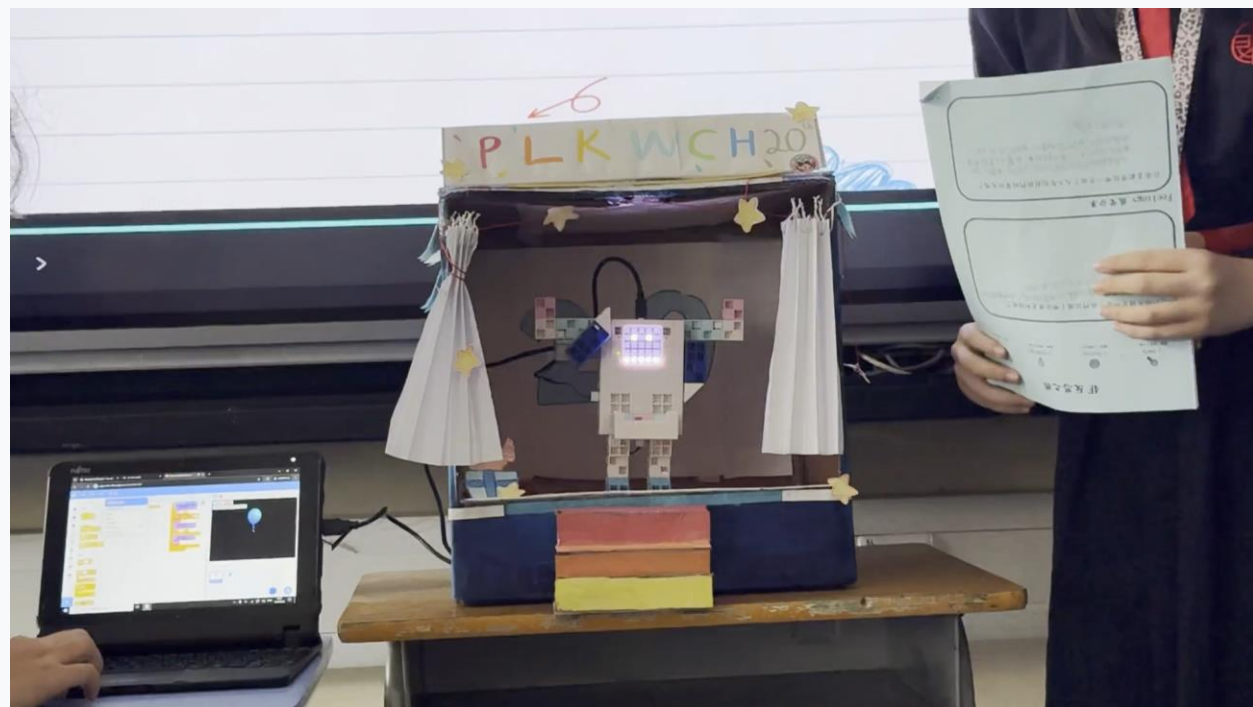


歸屬感建立：透過研究校史深化對學校的願景。

音樂與視藝：創意舞台設計

🎤 音樂科

由家長創作校慶主題曲《良朋好友》作為研習基石。學生需先熟悉旋律與節奏，作為 AI 訓練的原始素材。



音樂與視藝：創意舞台設計

視藝科

設計並製作機械人表演舞台

。學生需繪製功能草圖、訂定物資，將創意轉化為實體佈置。



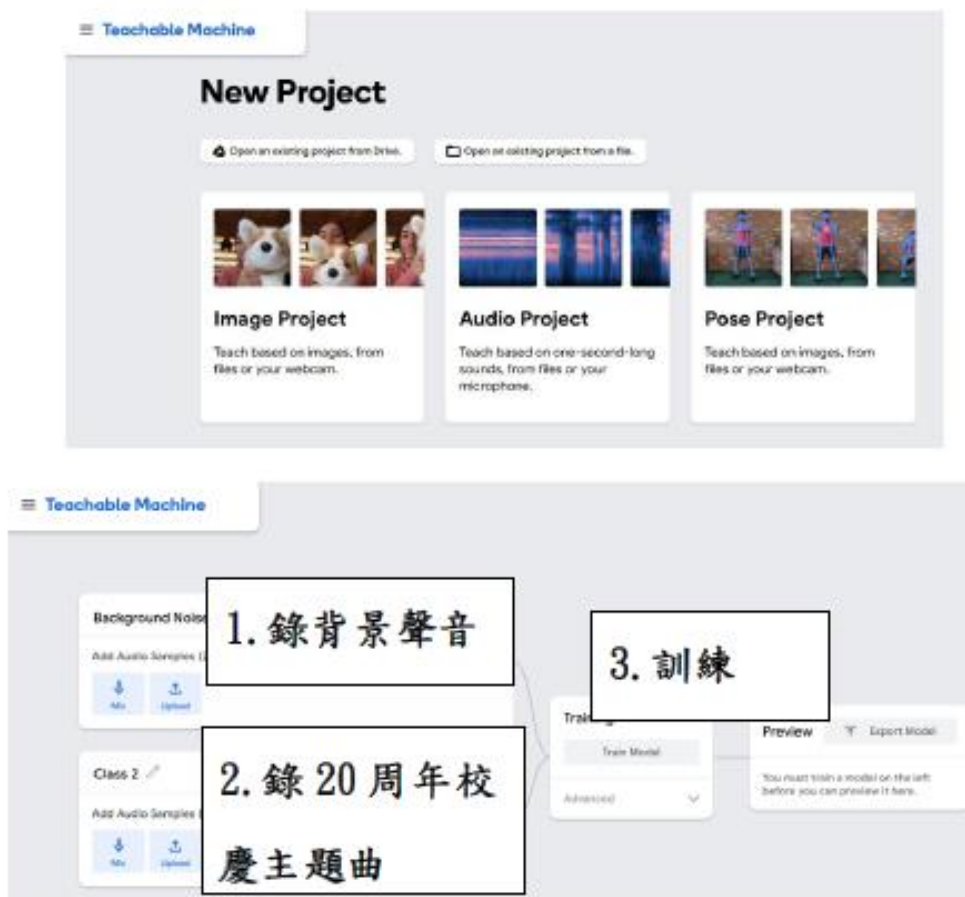
資教與常識：AI 編程實踐

從抽象到實體



資教與常識：AI 編程實踐

機械人編程：將訓練好的 AI 模型轉化為具體的機械動作指令，實現聽音辨位與表演。



致謝與活動花絮

衷心感謝香港仔工業學校師生的專業指導與寶貴協作，讓本次STEAM跨學科教學活動得以順利推展，並為學生帶來豐富及具啟發性的學習體驗。





Po Leung Kuk Lam Man Chan English Primary School

優質教育基金計劃成果推廣－主題網絡計劃 總結分享會(2025/26)
2026年6月29日



- 01** Our School (History, Campuses, School Mottos, Nationalities, Houses, Core values, major concerns)
- 02** QTN Programme
- 03** Smart Gate (AI): Face recognition
- 04** Cross-curricular: STEAM-Values Education
- 05** School STEAM Education
- 06** Competitions
- 07** Conclusion





01

School's Introduction

學校簡介



Our School- **S**chool motto

LMC a School of Love and Care ♥

- **School motto:**
Love, Respect, Diligence and Integrity
and guided with **PLK Spirit**

愛, 敬, 勤, 誠

- **School Slogan:**
Stand as ONE, Make a Difference,
One Team One Mind,
We Care We Respect.

Knowledge	Skills	Attitude
L anguage & Curriculum		M orals & C ontrol

保良精神	The Kuk's Spirit
相互尊重 團結合力 延展愛心 行善助人 感恩知德	Mutual Respect United Effort Benevolence Charitable Gratefulness and Recognition
造福社群的奉獻精神	Dedication to Serving the Community



02

教育局優質教育基金主題網絡計劃 2025/26

ATS (人工智能 × 科技 × STEAM) 教育



Aim of the Program 參加計劃的目標

- Further enhance students' basic abilities in the field of A.I.
進一步提升學生在A.I.領域的基本能力
- Cultivate students' scientific and technological thinking, as well as their creativity and problem-solving skills.
培養學生的科學和科技思維，以及創造力和解決問題的能力
- Strengthen teachers' professional development in artificial intelligence.
加強教師於人工智能方面的專業發展



Major Concerns
學校關注事項

優質教育基金主題網絡計劃 (QTN) 2025/26 (人工智能 x 科技 x STEAM) 教育

Workshops with 香港仔工業學校- 中學老師及學生到校教學

- 11 -12 Feb 2026



Po Leung Kuk Lam Man Chan English Primary School

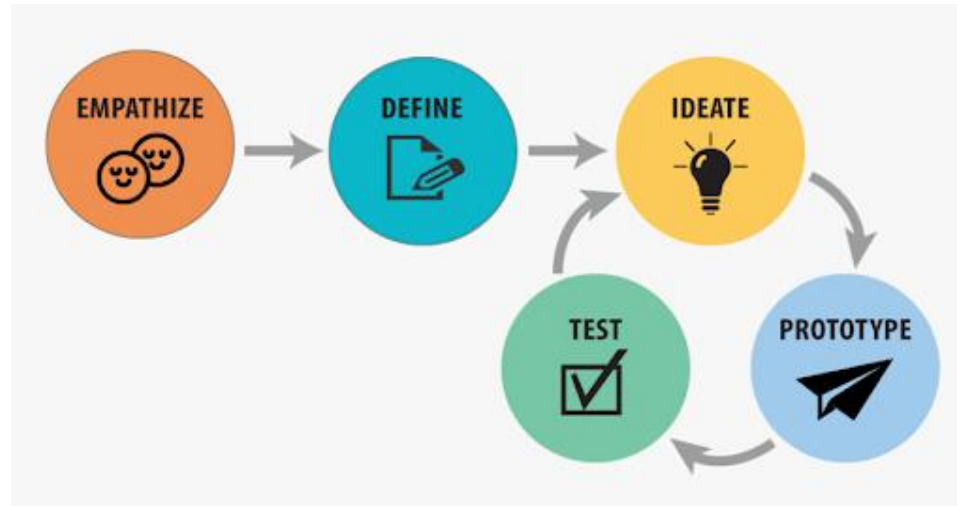
03

STEAM 

P.6 Smart Gate (AI) Face recognition



Design process: Design thinking



STEAM

Read the story and answer the questions.

Empathise

"Who's at the Door?"

Sam's dad is visually impaired and often has difficulty recognising who is at the door. One day, Sam notices that his dad feels anxious when there's a knock on the door because he can't tell whether it's a family member, a friend, or a stranger.

What problem did Sam's dad have when he is at home?

Define

Sam decides to help his dad by installing a smart gate system with facial recognition. What two main functions does the smart gate should have?

(1) _____

(2) _____

Ideate

Let's form our ideas about smart gate step by step!

1. What automatic features do you think a smart gate should have? Fill in the table.

Condition	When family members stand in front of the door	
Door with servo		
Door speaker		

9

STEAM

C. Investigation (55)

1. Design thinking

Test Empathise Ideate Define Repeat Prototype

1. Empathise: Researching the users' needs

2. Define: Stating the Users' needs and problems

3. Ideate: Challenging assumptions and creating ideas

4. Prototype: Creating Solutions for the better future

5. Test: Experimenting with the solutions

STEAM

Read the story and answer the questions.

Empathise

"Who's at the Door?"

Sam's dad is visually impaired and often has difficulty recognising who is at the door. One day, Sam notices that his dad feels anxious when there's a knock on the door because he can't tell whether it's a family member, a friend, or a stranger.

What problem did Sam's dad have when he is at home?

Define

Sam decides to help his dad by installing a smart gate system with facial recognition. What two main functions does the smart gate should have?

(1) Facial Recognition The system can identify whether person is family member and not a stranger.

(2) Automatic lock will notify when there is a stranger.

Ideate

Let's form our ideas about smart gate step by step!

1. What automatic features do you think a smart gate should have? Fill in the table.

Condition	When family members stand in front of the door	When a stranger is detected or no face is recognised
Door with servo	<u>Open automatically</u>	<u>Keep closed</u>
Door speaker	<u>Say "Welcome home"</u>	<u>Warn stranger</u>

9

STEAM

2. Planning the Face Recognition Model

(1) What labels (categories) will you need for Teachable Machine?

Family member (e.g. Grandma, Grandpa)

Background (no face detected to reduce false positives)

(2) Do we need a label for strangers?

Yes, we need to predict the unknown face.

(3) Why do we need a label named background?

To train the ML to know when there is no face detected to reduce false positives.

(4) How can we train the Teachable Machine model better?

Collect images from different angles, use more photos for each label.

3. Integrating the Servo Motor

(1) How will the servo motor control the door mechanism?

The servo will rotate to a certain angle to control the door to lock and unlock.

When a family member is detected, the servo rotates to open/unlock the door.

When a stranger is detected or no face is recognised, the servo remains in a locked position to keep the door closed.

(2) What kind of movements will the servo perform?

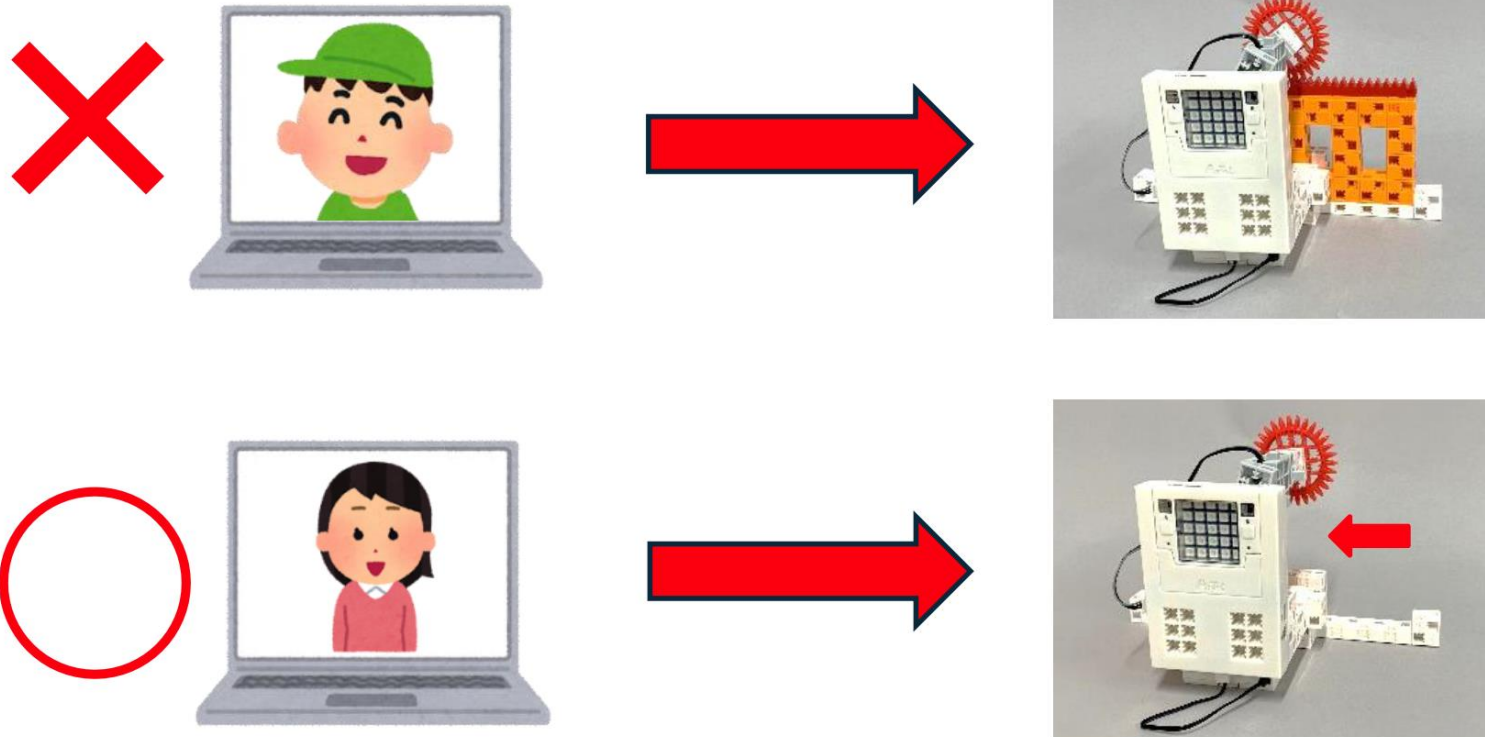
The servo will perform rotational movements such as:

Situation	Angle	Door
When a family member is detected	<u>180°</u>	<u>Open</u>
When a stranger is detected or no face is recognised	<u>0°</u>	<u>Closed</u>

10

Face recognition gate

- ▶ The gate made in this lesson is as shown in the picture below. When the gate sees a stranger, it will not open the gate.
- ▶ On the contrary, when the owner is recognized, the gate is opened.



04

Cross-curricular Learning

跨學科學習：

STEAM x AI x Humanities

(人文科)

Practicing Values Education

實踐價值觀教育



Starting from the 2024-25 academic year, our school will offer separate Science and Humanities subjects for P.1 to P.6.

Strands and Essential Learning Content for All Levels (For details, please refer to the framework.)

Humanities
I. Health and Living
II. Environment and Living
III. Financial Management and Economy
IV. Community and Citizenship*
V. Our Country and Me*
VI. The World and Me



Science
1. Life and Environment
2. Matter, Energy and Changes
3. Earth and Space
4. Science, Technology, Engineering and Society*



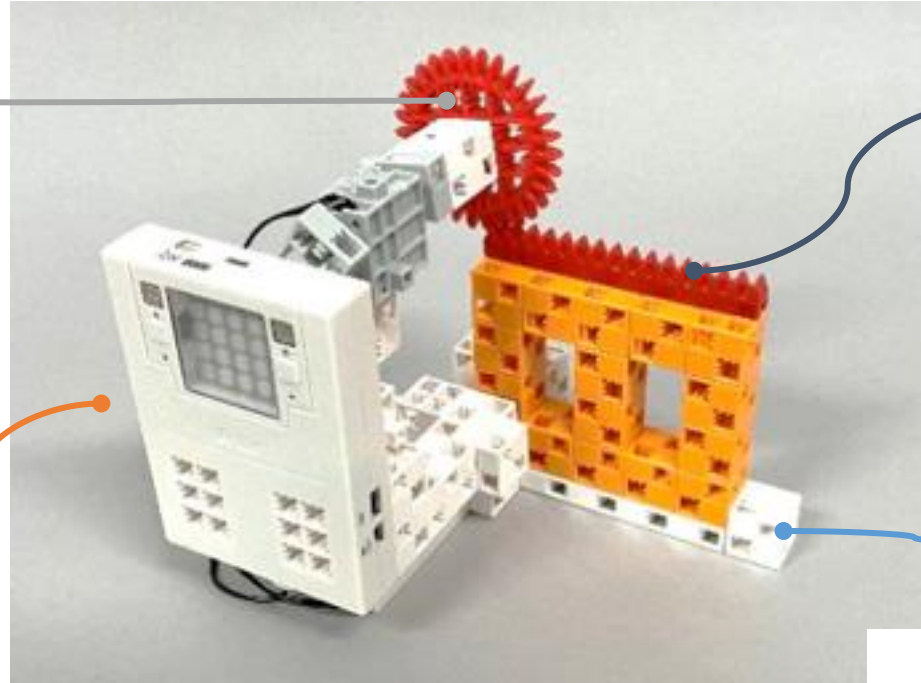
Smart gate

Servo motor

The servo will perform **rotational movements**

Programme

Upload the programming of face detection



Smart gate

The door will close and open automatically

platform

It maintains the smooth movement of the smart gate



STEAM : Cross-curricular: Humanities

P.6 Visit Visually Impaired People

Values Education

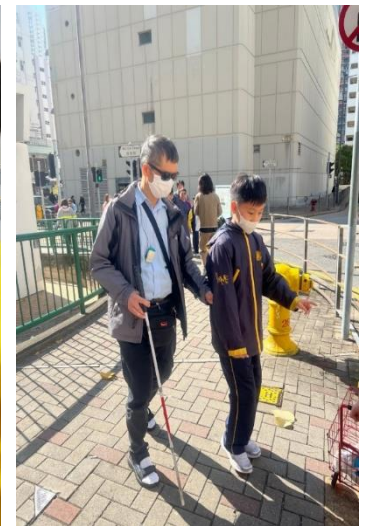
1. Workshop to learn the technique of leading the visually impaired people

2. Do the preparation worksheet – to learn and understand more about the needs of the visually impaired people.

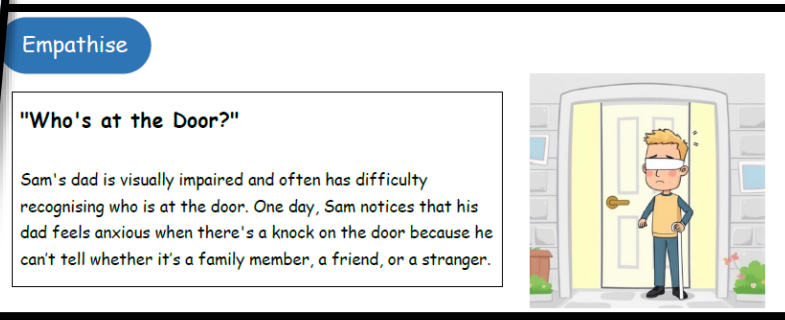
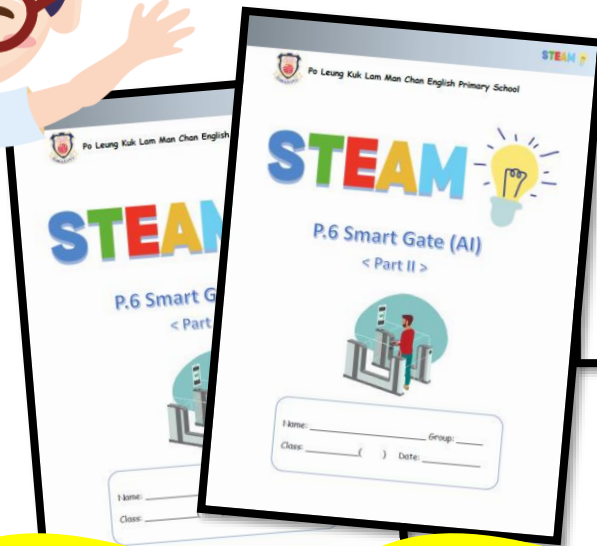
3. Meet with the VIP – interact with them

4. Understand the need of the VIP by interviewing them

5. Do reflection and sharing



Context: After meeting with and understanding **the needs of visually impaired individuals**, students empathize with the challenges they face in their daily lives.



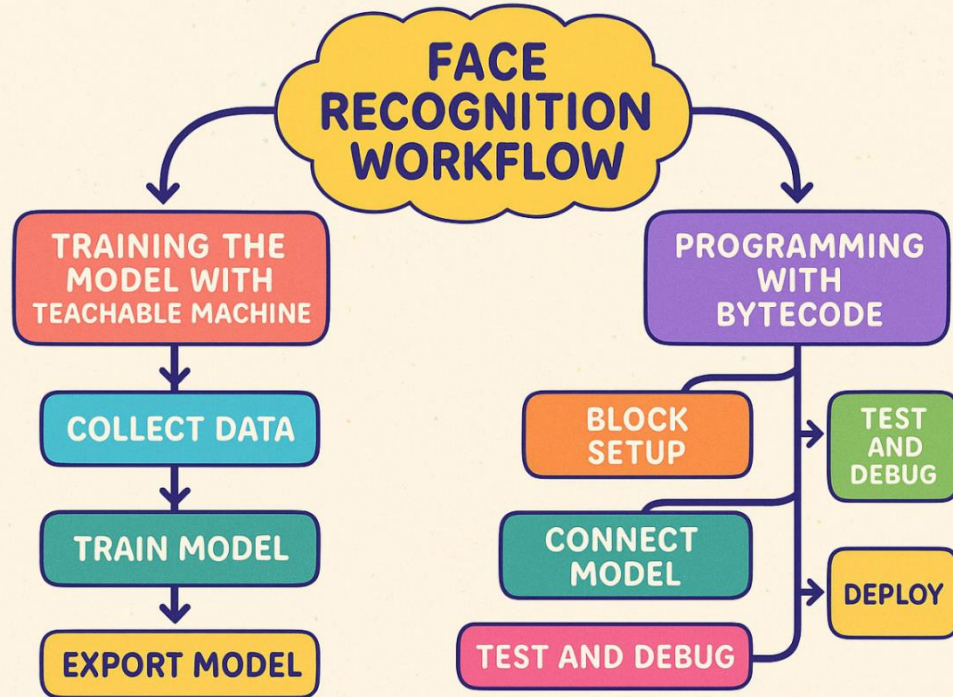
Values Education
價值觀教育

Designed the smart gate to help the VIP to solve the problem

Values learnt through this cross-curricular **STEAM** project x **Service Learning**

- Empathy 同理心
- Respect for Others 尊重他人
- Perseverance 堅毅





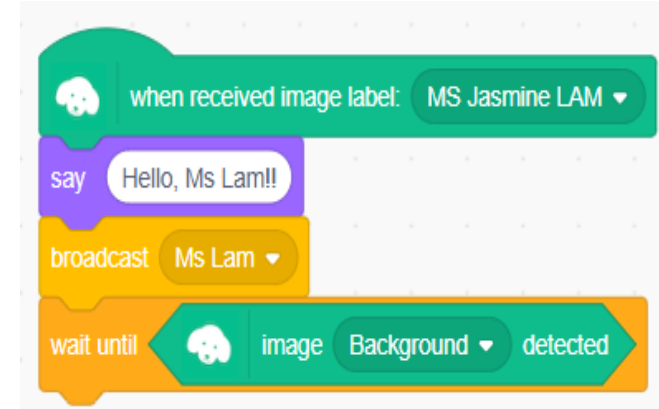
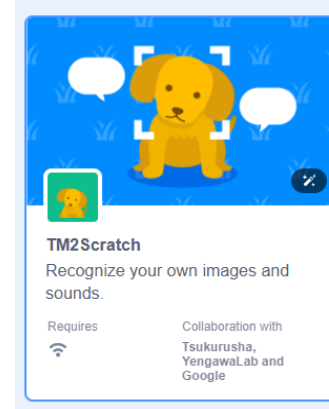
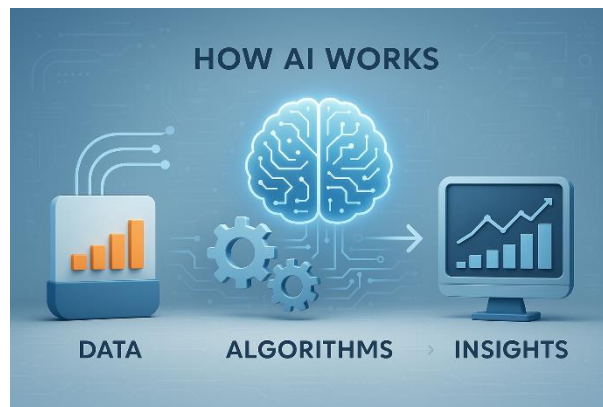
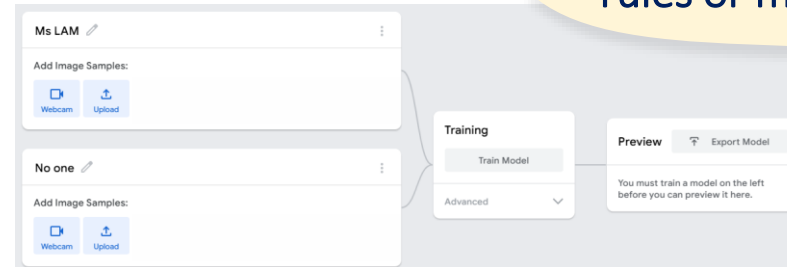
Teachable Machine

Train a computer to recognize your own images, sounds, & poses.

A fast, easy way to create machine learning models for your sites, apps, and more – no expertise or coding required.

[Get Started](#)

Teachable machine
Teachable Machine allows us to teach or train artificial intelligence to formulate rules or models .





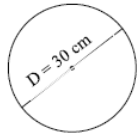
F. Gear and circumference (MATHS)

A. Circumference of circle

Find the circumference of each circle below. (The black dots are the centres of the circles.)

Take $\pi = 3.14$

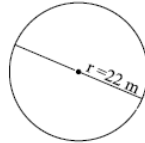
1.



The circumference is _____ cm.

Half of the circumference is _____ cm.

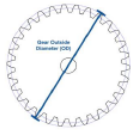
2.



The circumference is _____ m.

Half of the circumference is _____ m.

B. Circumference of the gear



Calculating the outer diameter (OD) of the gear is important to ensure that the gear will mesh properly with its mate. Many gear-making processes rely on the operator accurately touching-off on the part.

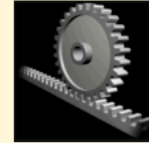
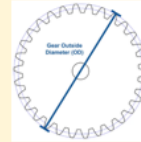
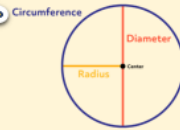
C. Relationship between gear and gear rack



Gear racks are utilized to convert rotating movement into linear motion. A gear rack has straight teeth cut into one surface of a square or round section of rod and operates with a pinion, which is a small cylindrical gear meshing with the gear rack. Generally, gear rack and pinion are collectively called "rack and pinion". There are many ways to use gears such as toys and lateral slide gates.

1

STEAM: Gear and circumference (MATHS)



Students learnt outer diameter (OD) of the gear. Many gear-making processes rely on the operator accurately touching-off on the part. Gear racks are utilized to convert rotating movement into linear motion.

F. Gear and circumference (MATHS)

A. Circumference of circle

Find the circumference of each circle below. (The black dots are the centres of the circles.)
Take $\pi = 3.14$

1. The circumference is 94.2 cm. Half of the circumference is 47.1 cm.

2. The circumference is 345.6 m. Half of the circumference is 172.8 m.

B. Circumference of the gear

Calculating the outer diameter (OD) of the gear is important to ensure that the gear will mesh properly with its mate. Many gear-making processes rely on the operator accurately touching-off on the part.

C. Relationship between gear and gear rack

Gear racks are utilized to convert rotating movement into linear motion. A gear rack has straight teeth cut into one surface of a square or round section of rod and operates with a pinion, which is a small cylindrical gear meshing with the gear rack. Generally, gear rack and pinion are collectively called "rack and pinion". There are many ways to use gears such as toys and lateral slide gates.

D. Applications

Door closed Door open

How long does the gear move?
Measure the length of the outer diameter of the gear.
OD = 6.2 cm

When the door is opened,

Location of plug	Distance of the gear move
1. At the end	9.7 cm
2. In the middle	7.9 cm

What is the relationship between the distance that the gear moves and the length of the door?
When the gear opens, the door moves to the other side.

E. Confidence Level

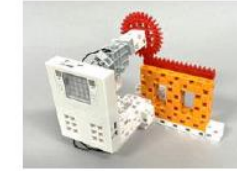
Confidence level (CL) is a statistical measure of the percentage of test results that can be expected to be within a specified range.

Confidence level (CL)	Percent chance of meeting expectations	Percent chance of being wrong
95 %	95%	5%
90 %	90%	10%
50 %	50%	50%



D. Applications

Door closed



Door open



How long does the gear move?

Measure the length of the outer diameter of the gear.

OD = _____ cm

When the door is opened,

Location of plug	Distance of the gear move
1. At the end	
2. In the middle	

What is the relationship between the distance that the gear moves and the length of the door?

E. Confidence Level

Confidence level (CL) is a statistical measure of the percentage of test results that can be expected to be within a specified range.

Confidence level (CL)	Percent chance of meeting expectations	Percent chance of being wrong
95 %	95%	5%
90 %		
50 %		

2

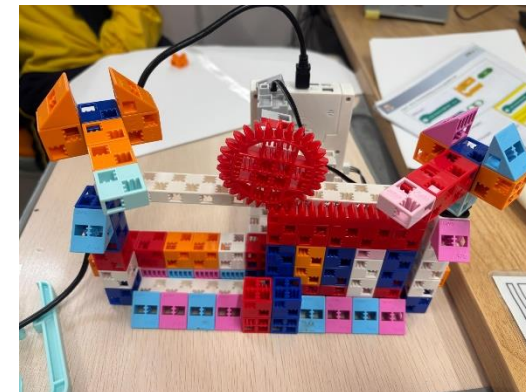
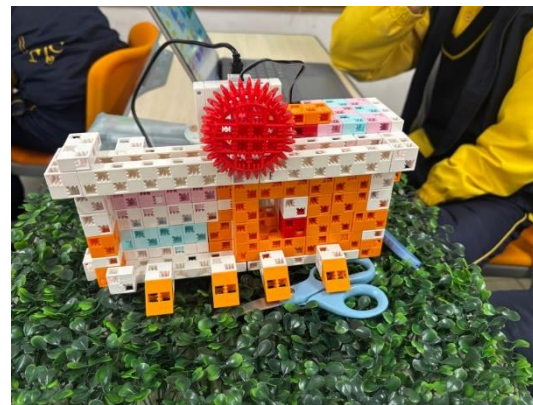


STEAM: Design (VA)



Students learnt to design the dream garden or entryway with the smart gate

The process of designing the Garden or Entryway.



STEAM: Learning Outcomes

LMC a School of Love and Care ♥

Values Education
價值觀教育

Collaboration skills 協作能力

J. Presentation

STEAM Project Presentation

Good morning/afternoon, everyone! We are Group 7 and from Class 6D. Together

Empathise

To start with, our group wanted to solve a real problem. We noticed that VIPs had difficulties for figuring out who was at the door. This can lead to robbery

Define

The main problem is that VIPs don't know who is at the door and attacked by strangers. This can pose a safety risk and make it harder for them to live independently.

Ideate

So, our group came up with an idea to create a smart gate that can: Use teachable machine to train AI and can open the door by itself when

When strangers detected, the door doesn't open and warns the

Prototype

We built the prototype using Artic Robo models and designed keeping the door

Test and Improve

After testing, we found that: The most challenging part was training the

To improve our design,

We would make the structure of the gear gate more stably.

Conclusion

What makes the Smart Gate special is that it not only improves home security but also addresses the needs of visually impaired individuals by providing voice guidance and automating door control.

Thank you for listening! We hope you like our Smart Gate. Together

11

J. Presentation

STEAM Project Presentation

Good morning/afternoon, everyone! We are Group 5 and from Class 6D.

Empathise

To start with, our group wanted to solve a real problem. We noticed that Sam's dad, who is a visually impaired person and often has difficulty recognising who is at the door and may feel anxious when there is a knock on the door. This can lead to opening the door to a stranger or thief.

Define

The main problem is that they cannot tell whether it's a family member or not. This can pose a safety risk and make it harder for them to live independently.

Ideate

So, our group came up with an idea to create a teachable machine to recognise a friend

When strangers detected, the door doesn't open and warns the

Prototype

We built the prototype using Artic Robo models and designed keeping the door

Test and Improve

After testing, we found that: The most challenging part was training the

To improve our design,

We would make the structure of the gear gate more stably.

Conclusion

What makes the Smart Gate special is that it not only improves home security but also addresses the needs of visually impaired individuals by providing voice guidance and automating door control.

Thank you for listening! We hope you like our Smart Gate. Together

11

J. Presentation

STEAM Project Presentation

Good morning/afternoon, everyone! We are Group 2 and from Class 6D.

Empathise

To start with, our group wanted to solve a real problem. We noticed that some VIPs couldn't tell who was outside the house. This can lead to burglary

Define

The main problem is that the VIPs couldn't tell if the stranger is a robber or not. This can pose a safety risk and make it harder for them to live independently.

Ideate

So, our group came up with an idea to create a smart gate that can: Use teachable machine to recognise friends and family of the VIP

When strangers detected, it will warn the VIP and lock the

Prototype

We built the prototype using Artic Robo and the Teachable machine which is a AI core unit

Test and Improve

After testing, we found that: The most challenging part was the coding, since there are many people we had to scan and recognise

To improve our design,

we can add more building blocks to the product to make it more stable.

Conclusion

What makes the Smart Gate special is that it not only improves home security but also addresses the needs of visually impaired individuals by providing voice guidance and automating door control.

Thank you for listening! We hope you like our Smart Gate. Together

11



05

School STEAM Education

學校STEAM教育

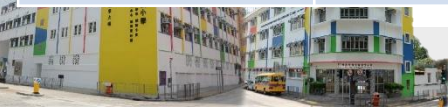


STEAM x National Security x Values Education

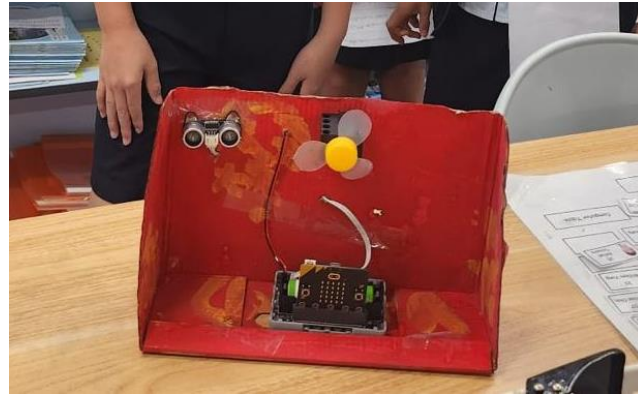
Levels	Theme	Topic	S	T	E	A	M	National Security	12 Values
P.1 	Home Robot	4.1.2 Clean and Tidy Home	Effects of electricity; conversion of energy	Technological products for cleaning the home	Making the home robot	Robot Design	Measuring length and distance	Science and Technology Security	Filial Piety Responsibility
P.2 	Four Inventions	4.2.3 The four Great Inventions	Investigate different materials used for stamps	Use carving design to create stamp.	Plan, prototype, and test stamp designs.	Stamp Design	Investigate patterns and symmetry in design	Science and Technology Security; Cultural Security	National Identity
P.3 	Thermal Bag	3.1.2 Properties of Heat	Heat transfer, rates of heat transfer of different materials	Structure of a water bottle. Everyday objects for keeping things warm	Make use of everyday materials for Production. Identify the product standards of a water bottle bag.	Thermal Bag design	Tools and methods for measuring temperature	Science and Technology Security; Food security	Benevolence Filial Piety

STEAM x National Security x Values Education

Levels	Theme	Topic	S	T	E	A	M	National Security	12 Values
P.4 	Smart Fan	4.2 Natural resources	Applications of sensors; Formation of wind	Structure of fan blades; Coding	Making a frame with eco-friendly materials; Connecting electronic components	Be creative and apply art skills	Estimating rotation speed; Measuring distance	Science Technology Security; Resource Security	Perseverance
P.5 	Smart Airer	2.2.3 Closed circuit	Applications of sensors; Condition for drying clothes	Automated systems ; Coding	Making a frame with eco-friendly materials; Connecting electronic components	Be creative and apply art skills	The concept of degrees ; Using the protractor	Science Technology Security; Resource Security	Perseverance
P.6	Smart Gate (AI)	2.2.5 Technology and innovation	Applications of AI: Face recognition	Automated systems; Coding	Build up models with Lego blocks; Connecting electronic components	Be creative and apply art skills	Application of circumference; Gear and door	Science Technology Security; Artificial Intelligence Security; Social security	Empathy, Respect for Others, Perseverance, Law-abidingness, responsibility



P.4 STEAM projects



P.5 STEAM projects



06

Competitions & Activities

發展學生潛能，建立學生舞台



The 5th ATS - Technology Robot Programming Competition 第五屆香工盃 - 航天科技機械人編程競賽





07 Conclusion

我們將持續優化本校的STEAM教育，推動教學創新，充分利用各種資源，培養學生的創意思維和共通能力。我們希望學生能主動探究問題、解決難題，並發展團隊合作能力，以便為未來的挑戰做好準備。同時，我們也將致力於促進教師的專業成長。

We will continue to optimize our school's STEAM education, promote teaching innovation, and make full use of various resources to cultivate students' creative thinking and essential skills. We aim for students to actively explore problems, solve challenges, and develop teamwork abilities to prepare for future challenges. At the same time, we are committed to fostering the professional growth of our teachers.



Hope you enjoy the sharing today ♥



優質教育基金主題網絡計劃
(2025/2026)

ATS(人工智能 X 科技 X STEAM)教育



香海正覺蓮社
佛教陳式宏學校



資助 Funded by
優質教育基金
Quality Education Fund

關於我們

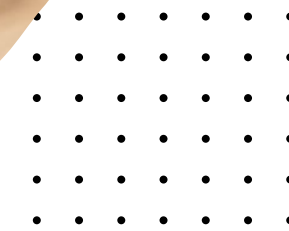
式宏家位於上水區，但和
香港仔工業學校認識日子
甚深，參加由香工舉辦的
不同STEAM活動。



加入計劃原因

> ARTEC BLOCKS

- 小一至小三已在使用，建立邏輯思維和空間感。
- 沒有編程部份。



加入計劃原因

➤ ARTEC ROBO 2.0

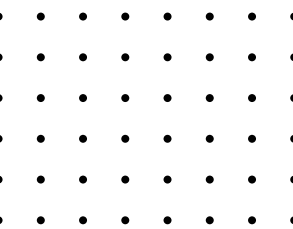
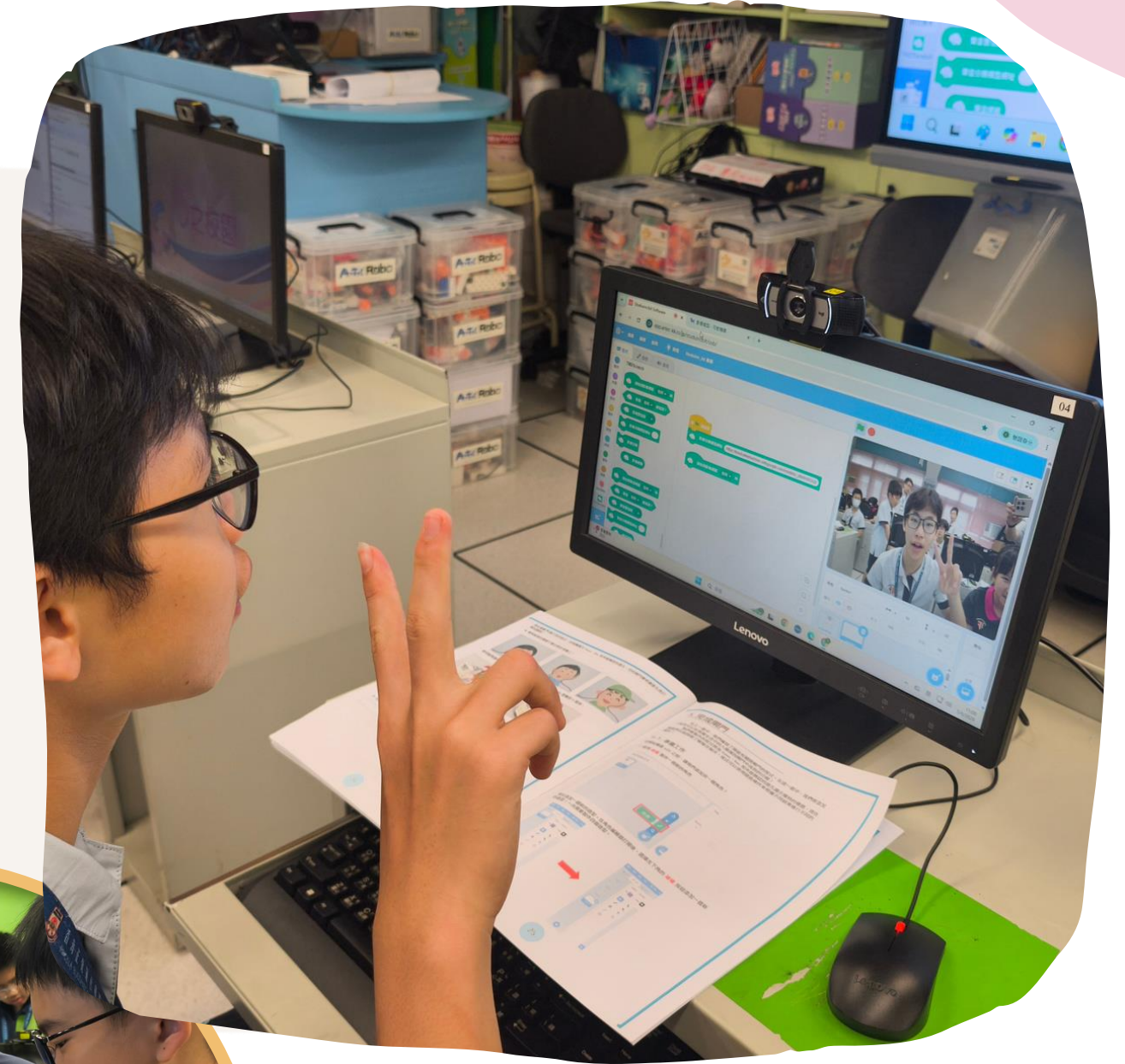
- 有編程部份，亦加入人工智能元素
- 編程介面似MakeCode，易上手
- 已認識品牌積木，可塑性高



加入計劃原因

➤ ARTEC ROBO 2.0

- 有計劃贊助的積木
- 有香工團隊提供的教學資源和支援



課程融入

- 本學年下學期在 **六年級** 電腦科加入 **ARTEC ROBO 2.0**
- 選用「智能人臉識別閘門」單元

人工智能是如何識別人臉？

由於每張臉都是獨一無二的，我們能夠開發這些專為分辨人臉的技術！您可能已經熟悉使用人工智能辨識主人的智能手機，或使用人工智能掃描人臉尋找特定人物的安全攝像頭。在醫學上，醫生甚至可以使用人工智能掃描嬰兒的臉並尋找遺傳的疾病！



拼砌教學

⑧ 將電池盒添加到 ⑦ 的底部。



⑨ 將電池盒連接到您的 Studrobot



複合條件

在此軟件中，您可以使用 **是**、**否** 和 **程式** 積木來製作複合條件。您的 Face Cutout 角色中識別未註冊的面孔的積木使用了下面所示的複合條件。它使用 **是** 積木，因為您需要為 Emma、Ken 和背景圖像設置相同的條件。**否** 積木告訴下面的積木當它發現一個不是這三個標籤之一的標籤時運行！



第 3 課：智能人臉識別閘門



Artec Robo 2.0

姓名：
班別：
學號：

1

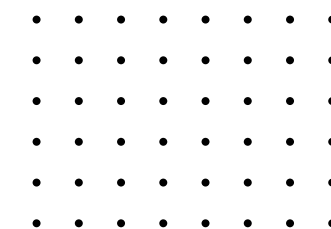
課程融入

- 學習使用Teachable Machine，體驗訓練人工智能
- 編程介面不陌生，快上手
- 積木組裝容易，時間可用於改裝，發揮創意
- 單元包括齒輪(基本機械設計)



教師培訓

- 香工團隊提供到校教師培訓
- 在網上進行支援和交流



挑戰

- 積木管理
 - 不同組之間借還積木，慢慢每箱的積木數量不一，未必能完成項目組裝
 - 積木小巧，容易丟失
 - 數十箱積木需要大空間存放



挑戰

- 時間
 - 每周只有一節電腦課，教授和實踐時間不多
- 人手
 - 科任老師未熟悉運算核心硬件Robo 2.0



挑戰

- 學與教
 - 需要發掘新的主題，以便發展到其他年級。
 - 學生不會每堂重新拼砌，現在一級分組使用，積木箱數是足夠的。將來不同年級同時使用箱數會不足夠，要好好計劃教學進度。



友校交流

香工盃數學比賽



  香港仔工業學校
九十周年校慶
感恩·同行

**第一屆
香工思高盃
數學邀請賽**

2025年11月8日

時間：10:00至12:00
地點：香港仔工業學校
對象：小學四至六年級
費用：全免

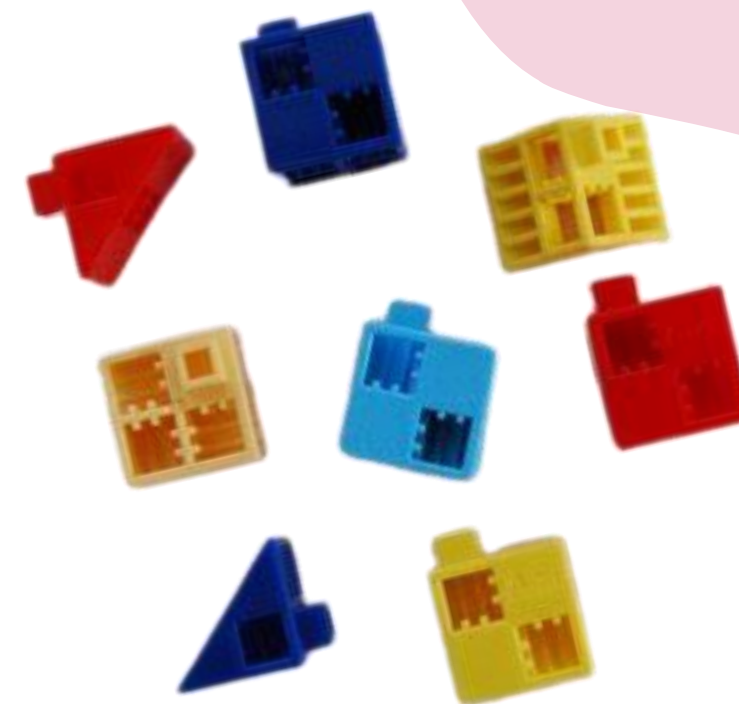
獎項：
設冠、亞及季軍
獎座及獎狀
根據個人得分
另設金、銀、銅獎

聯絡電話：25524141 / 96705419 聯絡電郵：kkchan@ats.edu.hk



友校交流

香工盃航天科技機械人編程競賽



第五屆

香工盃

Aberdeen Technical School Competition

航天科技機械人編程競賽

香港仔工業學校聯同香港城市大學電機工程學院、香港都會學校議會及Winstars Enterprise HK Limited，合辦名為「香工盃」的機械人編程比賽，向全港小學推廣MakeCode 編程，希望透過比賽，提升學生對MakeCode 編程的興趣，增強學生對電子、機械、編程等方面之基本認識，並讓他們有一個發揮創意及擴闊眼界的機會。

活動對象：
小三至小六年級學生
每隊人數：
2-3 名學生及1名指導老師
費用：全免

比賽日
日期：2026年3月14日（星期六）
時間：下午1時至5時半
地點：香港仔工業學校

比賽工作坊
日期：2026年2月7日
2026年3月7日
時間：上午10時至下午12時半
地點：香港仔工業學校

比賽網站
QR Code：



合辦：



未來展望

- 善用積木套件和其他教學資源
- 擴展到高小其他年級
- 用於STEAM拔尖或參加比賽

