

**Advanced Course (A): Setting Out the Blueprint
for School-based Gifted Education and Talent
Pool (Secondary) (Refreshed)**

Dr WONG Tsz-yeung
Carmel Pak U Secondary School

**Gifted
Education**

深造課程(A):
規劃校本資優教育及人才庫的藍圖(中學)(修訂)
迦密柏雨中學王子揚博士

Growing
Self-Directed
Learners

27-10-2023



Carmel Pak U Secondary School



- EMI
- Tai Po



Carmel Pak U Secondary School

- Scientific inquiry skill ↓
- Motivation?
- Ability?
- Self-directed Learning

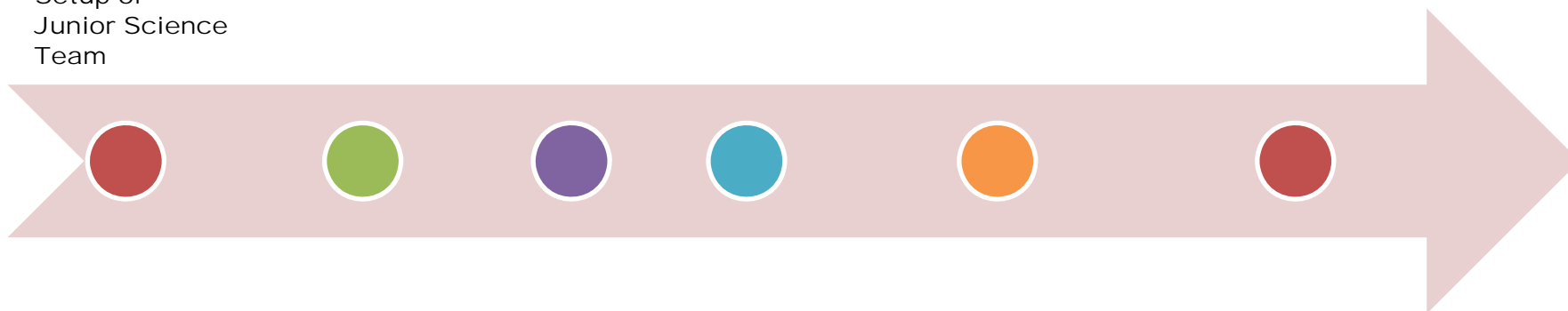


Development of Gifted Education in Carmel Pak U Secondary School



2008

- Science Competitions
- Setup of Junior Science Team



Science Competitions



- Hong Kong Budding Scientists Award

Student contestants are required to submit (i) a proposal to a future world problem / an authentic problem and (ii) a report on an interview with a local scientist (note: the focus of the report is on his/her vigor, perseverance and how he/she strives for success).

It is hoped that students' higher-order thinking skills, creativity and social and personal competency could be enhanced through the learning experience provided by the event.

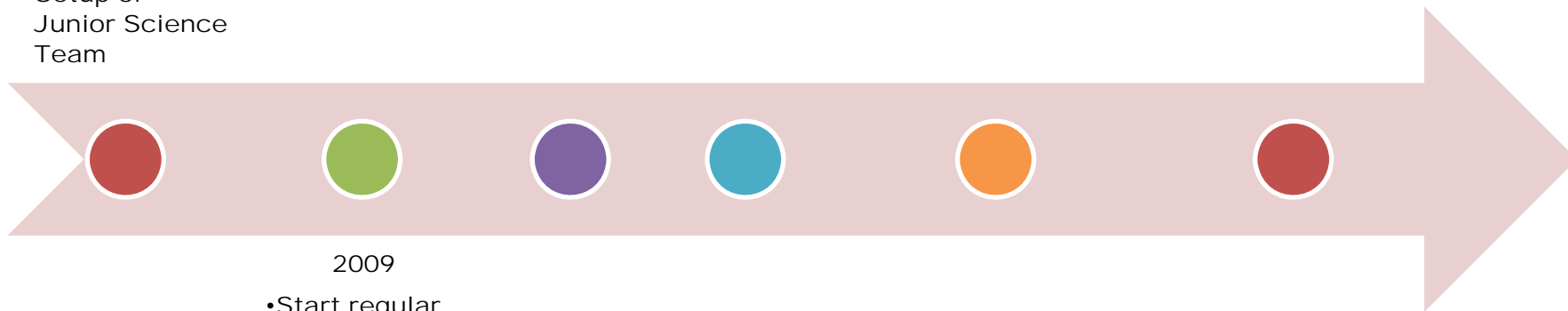


Development of Gifted Education in Carmel Pak U Secondary School



2008

- Science Competitions
- Setup of Junior Science Team



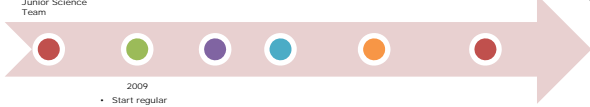
2009

- Start regular training
- Connection to Senior Science Team

Start regular training



2008
 • Science Competitions
 • Setup of Junior Science Team



2009
 • Start regular training
 • Connection to Senior Science Team

- 3-4 students → Around 10 S2 students
- Physics, Chemistry, Biology
- Around 2-3 months → Whole year, once a week

4 Newton's first law of motion

Isaac Newton (1642-1727)

Every object remains in a state of **rest** or **uniform speed** along a straight line unless acted on by a **net force**.

* net force = sum of all forces

12.5 How to prevent rusting?

Using protective coatings

1. Coating with paint, oil, grease or plastic

animation

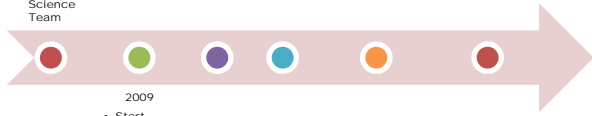
Studying human inheritance

Example: Inheritance of six-toed foot

Key: normal foot □ male ○ female
 six-toed foot ■ male ● female

2008
• Science Competitions
• Setup of Junior Science Team

Connection to Senior Science Team



2009
• Start regular training
• Connection to Senior Science Team

- Project-base scientific investigation
- 2-3 junior teams (usually S3-4 students)
- Joining different local science competitions

Hong Kong Budding Scientists Award

香港科學青苗獎

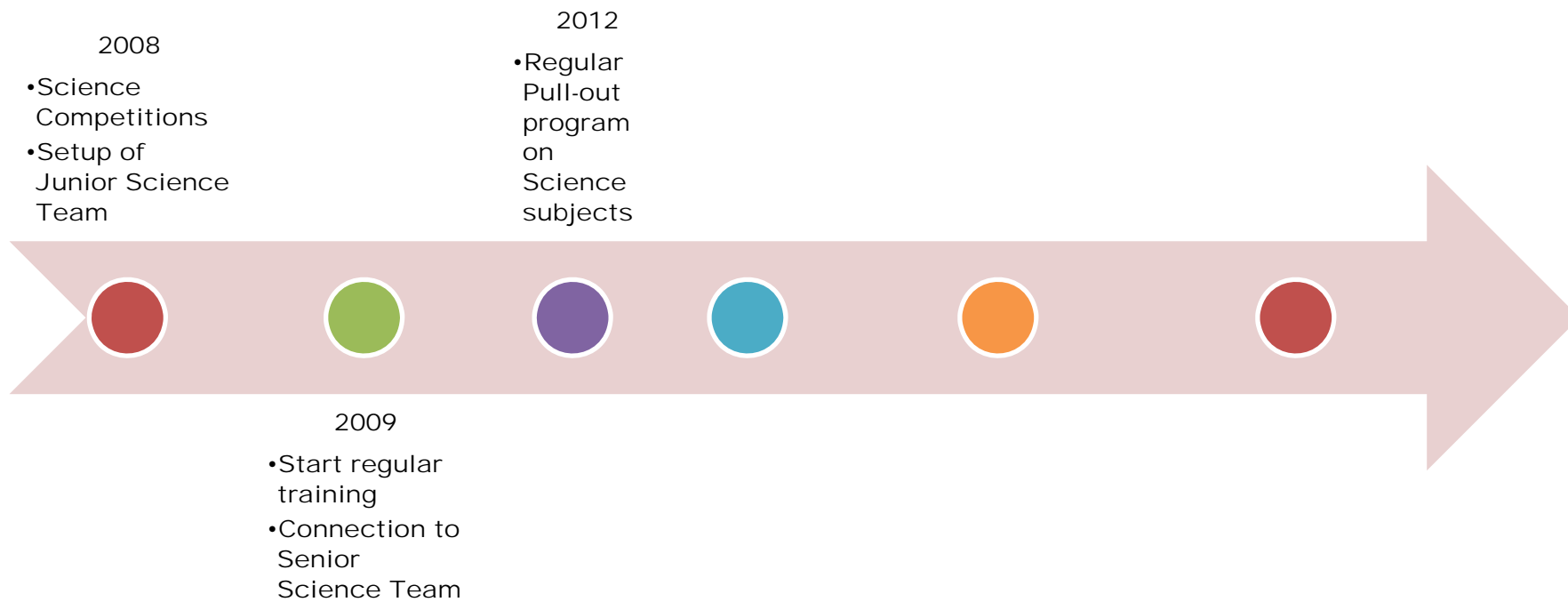
Hong Kong Youth Science and Technology Innovation
Competition

香港青少年科技創新大賽

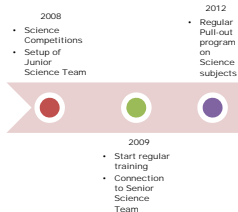
The Hong Kong Student Science Project Competition

香港學生科學比賽

Development of Gifted Education in Carmel Pak U Secondary School



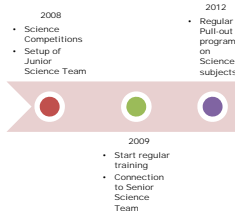
Regular Pull-out program on Science subjects



- Teachers involved increased from 1 to 3.
- Around 3 times per month

Science Training	
16/11/2016(Wed)	Phy
23/11/2016(Wed)	Bio
30/11/2016(Wed)	Chem
3:45-4:45 @ Bio Lab	

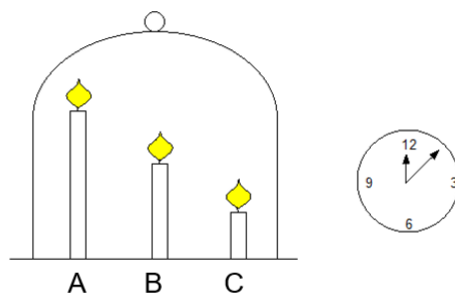
Regular Pull-out program on Science subjects



- Long-term collaboration with the Gifted Education School Network (STEAM education)

Task: Make a prediction

- Which candle(s) will go out first?



- A. Candle A
- B. Candle B
- C. Candle C
- D. The three candles go out at the same time

- 2008
- Science Competitions
- Setup of Junior Science Team

- 2012
- Regular Pull-out program on Science subjects

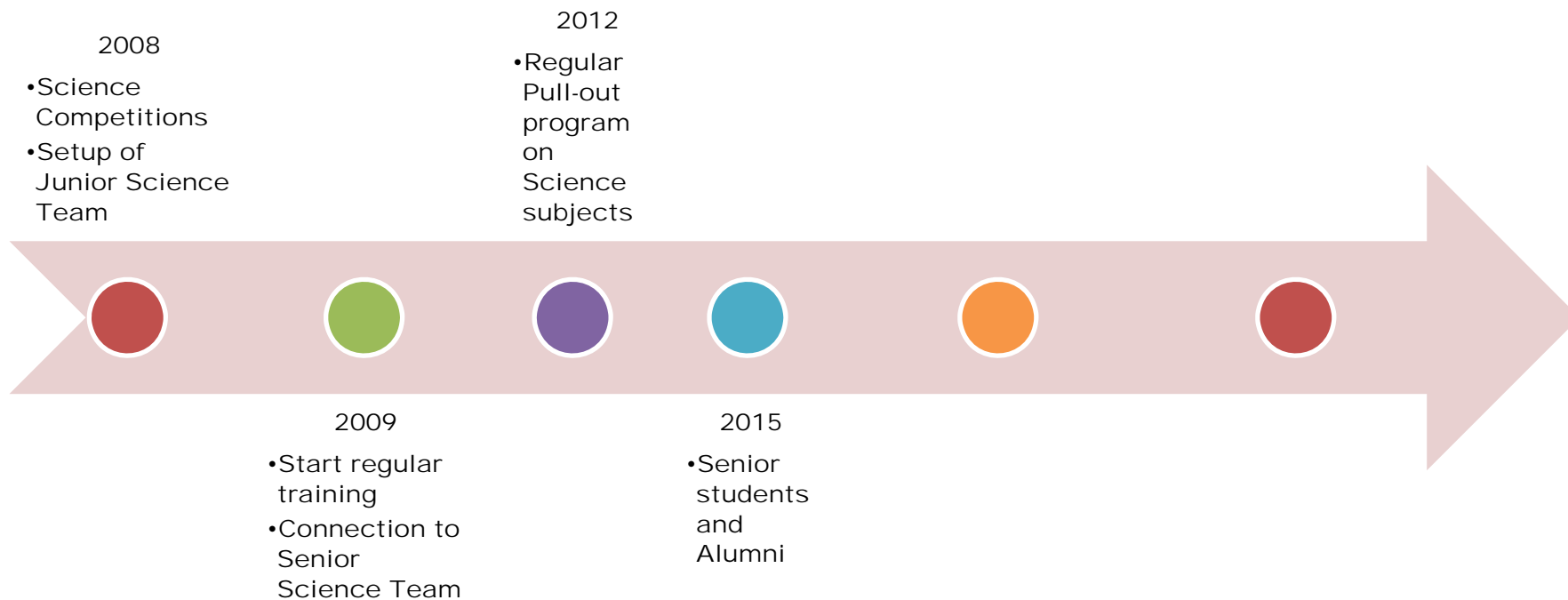
- 2009
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Regular Pull-out program on Science subjects

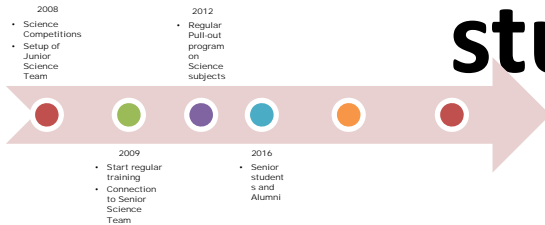


<u>Science Training</u>	
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Development of Gifted Education in Carmel Pak U Secondary School



Involvement of Senior students and Alumni



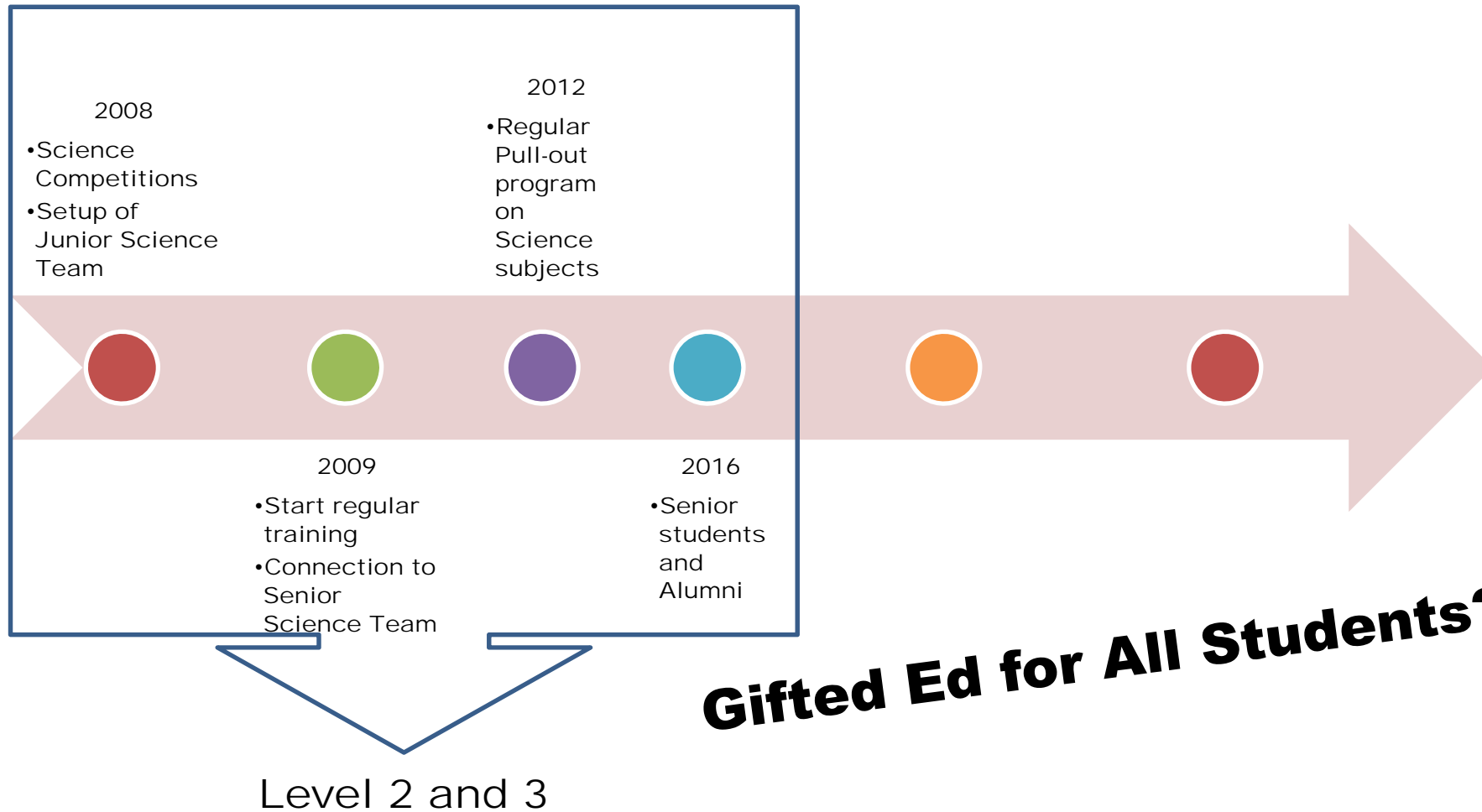
Alumni

- Junior science team trainer
- Rehearse before competition
- Share ideas

Sci Team member becomes tutor

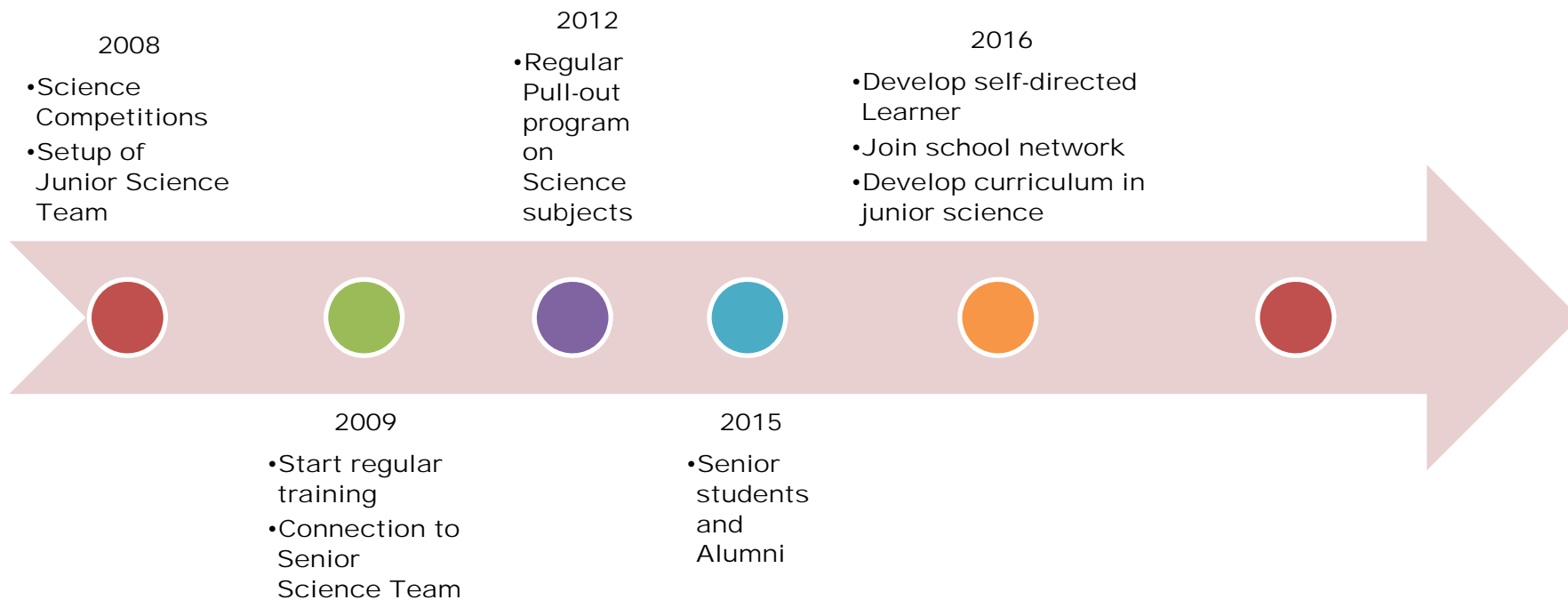
Sci Team member becomes teacher

Development of Gifted Education in Carmel Pak U Secondary School

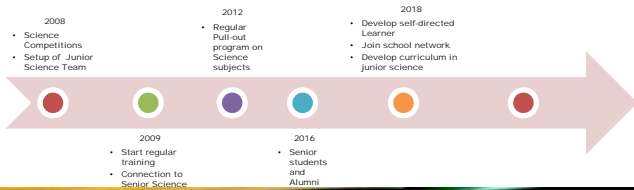


Gifted Ed for All Students?

Development of Gifted Education in Carmel Pak U Secondary School



Develop self-directed Learner



PCM PARALLEL CURRICULUM MODEL

「核心課程」
(the core curriculum)

提供在各學習領域的核心知識，強調在該領域中的理論、概念、原理、事實與技能的學習，它可與任何一個或三個課程設計結合，目的是鞏固學生在各學習領域內相關科目及不同年級課程的基礎認識。一般的核心課程都會展示在一個國家或地區的考評範疇 (standards/syllabus) 內。

「連結課程」
(the curriculum of connections)

是核心課程的擴展，目的是讓學生發現不同學習領域之間知識的關係和聯繫，鼓勵跨學科、時間、地域和文化的學習，以增強學生的思考闊度與深度。

「實務課程」
(the curriculum of practice)

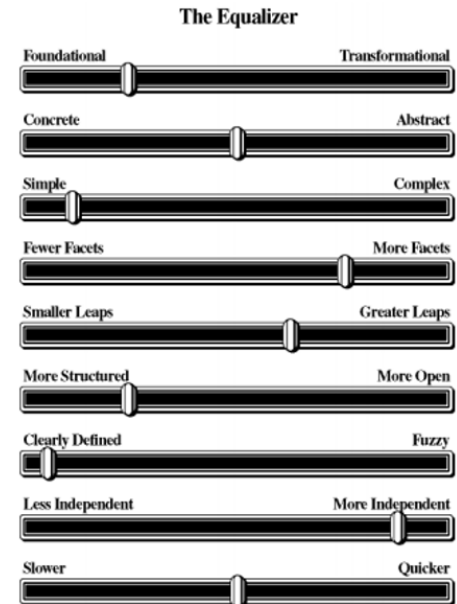
是核心課程的擴展，目的是讓學生從實踐中強化在某一學習領域的認知和技巧，培育學生成為該領域的專家。

「認同課程」
(the curriculum of identity)

協助學生進深思考某一學習領域與個人生活的關係，並透過實務課程，使學生更清楚了解自己的個性、喜好、強弱項、價值觀和能力，最終達至「自我實現」的層次。

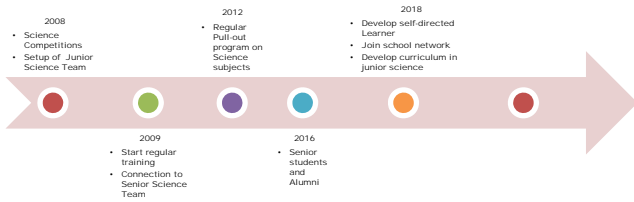
Tiered assignment

1. Does high temperature destroy the amount of vitamin C?
2. Does 'light' or 'low sugar' drinks contain less sugar?
3. Does fat absent in 'fat-free' milk?
4. Does low GI food release glucose slowly?

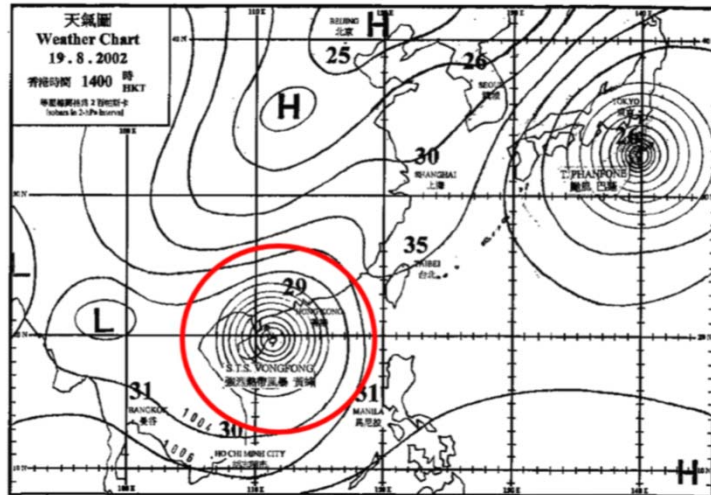


Tomlinson, 1999

Develop self-directed Learner

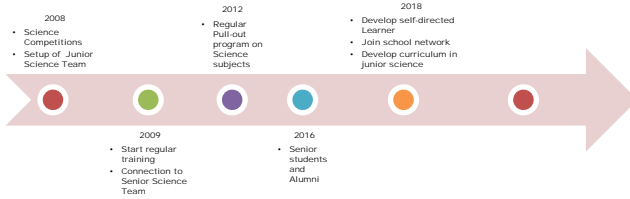


Can you predict the movement of typhoon?



<http://www.hko.gov.hk>

Develop self-directed Learner



IS SDL Reading Scheme

BOOK TITLES
Arthur
REFLECTION

Sustainable Energy- without the hot air
David MacKay

Many people know that non-renewable energy sources are harm to the environment. However, they don't know how much energy is used and saved.

This book has mentioned how much energy is used by humans' economic activities to show how large is the amount of it, like the embodied energy in Europe fertilizers is about 2kWh per day per person in food and farming. Also, taking a bath uses about 5kWh. For comparison, taking a shower uses about 1.4kWh.

Moreover, it has also mentioned what can we do to saving energy. It has listed the actions and the amount of energy is saved. We can take actions like change the filament bulbs to the fluorescent bulbs or LED bulbs. They are more energy efficient. It can save 4kWh/d. In addition, we can drive slowly instead of use an electric car or use public transport instead of private cars, or even cycle and walk to a place that are not too far. We should also take a shower instead of taking a bath.

This book has told us the actual number of energy of using and saving energy. It reminds us how much energy we have used and encourages us to save energy in our daily life. We can start saving energy at this moment.

Individual action

People mentioned in the "What should I do?" table 20.3 indicate a rough personal action of improvement, and a very rough indication of the savings will depend on your starting point. The numbers in table 20.3 assume the starting point of an above-average consumer.

Individual action	Possible savings
Put on a woollen jumper and then allow your hair to dry naturally (at 27°C, wet). Put individual descriptions of all indicators. Make sure the heating is off but warmer in at home. On the same at work.	20kWh/d
Read all your meters (gas, electricity, water) every week, and identify any changes to normal consumption (e.g., washing things off). Compare your study with a friend. Read the meters at your place of work too, noting a personal low energy week.	4kWh/d
Stop driving.	20kWh/d
Drive less. Drive more slowly, drive more gently, use more gears and freewheel.	20kWh/d
Keep using old programs (e.g. computers) don't replace them early.	4kWh/d
Change light to fluorescent or LED.	4kWh/d
Don't buy clothes. Avoid packaging.	20kWh/d
Eat vegetables, eat down out of season.	10kWh/d

Without the above actions are easy to implement, the ones in table 20.4 take a bit more planning, determination, and money.

BOOK TITLES
Arthur
REFLECTION

Mission: Mars
Pascal Lee

I have learnt that Mars spins on its axis like Earth. One complete turn is a Martian day, or one sol. A sol lasts 24 hours and 37 minutes. That's almost exactly like a day on Earth, our bedtime won't change too much if we live in there. Mars is deadly, it has many series problem, such as suffocating air, super low pressures, freezing temperatures, choking hazards and zapping rays.

LIFE ABOARD YOUR MARS SK

SLURP YOUR FOOD

OPERATE THE WATERLESS LAUNDROMAT

OPERATE THE WATERLESS LAUNDROMAT

DANGER! DODGE RADIATION

PROBLEM

SOLUTION

MICROGRAVITY

PROBLEM

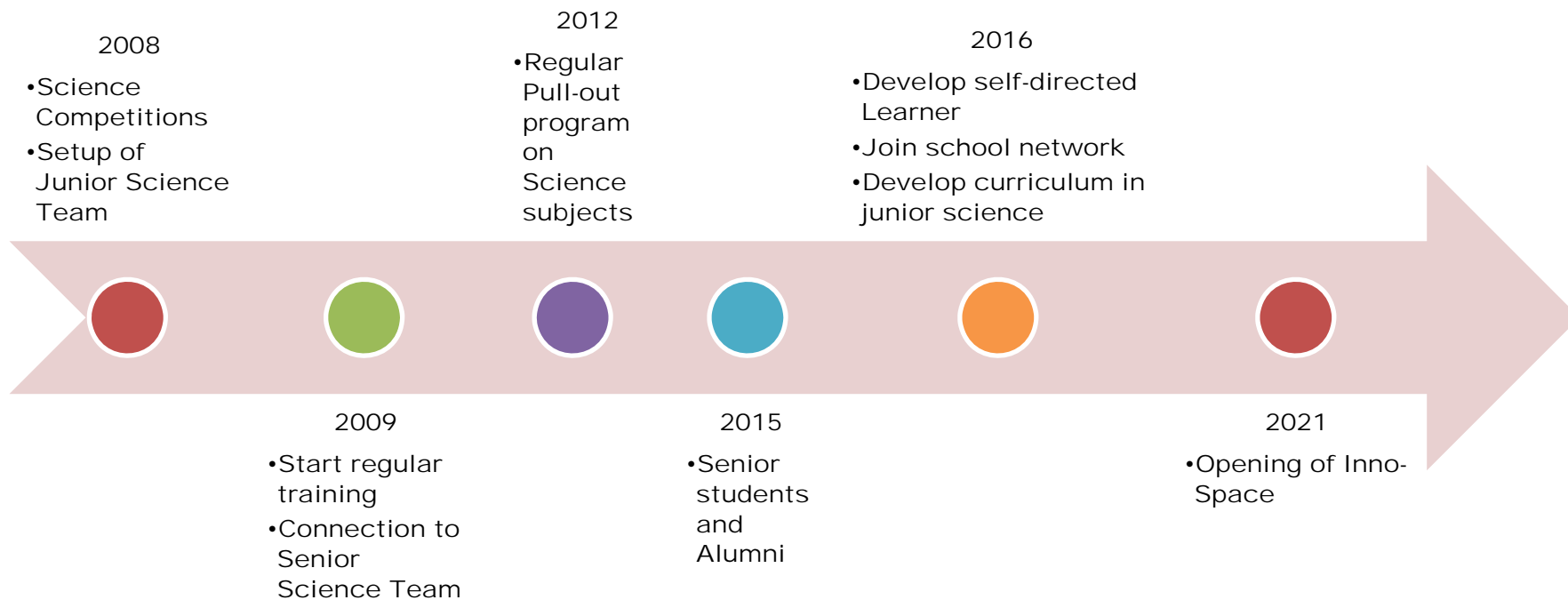
SOLUTION

BRUSH UP ON SKILLS

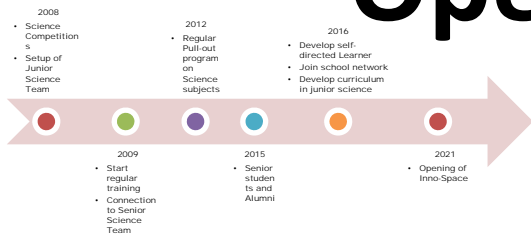
PROBLEM

SOLUTION

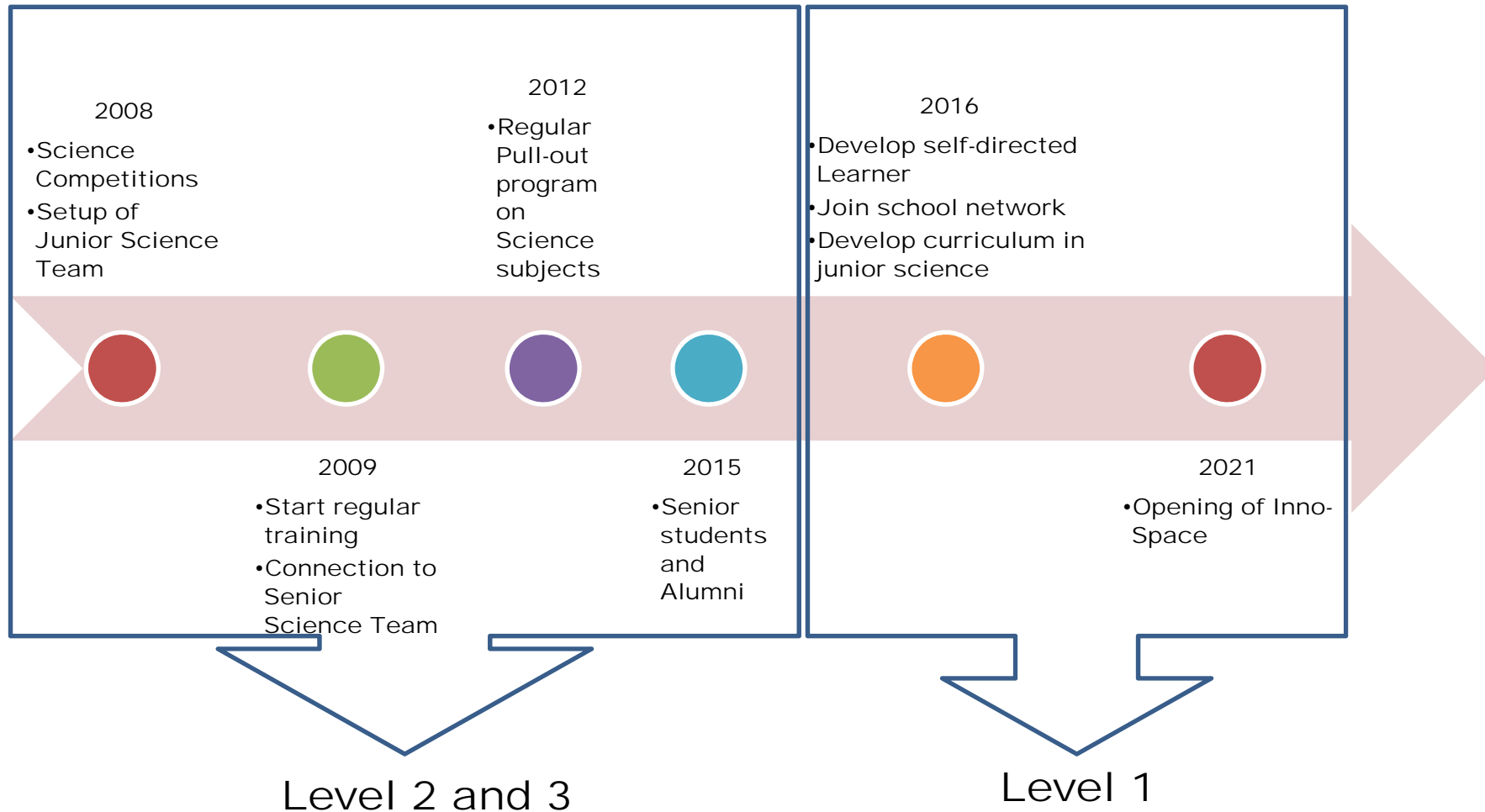
Development of Gifted Education in Carmel Pak U Secondary School



Opening of InnoSpace



Development of Gifted Education in Carmel Pak U Secondary School



How to Recruit Students? - Talent Pool





**WebSAMS –
Current Students**

**Google Form – F1
Newcomers**



Talent Pool

F1 Students – Google Form

Academic



學術	其他 (如有)	校內及校外獎項/成績 (1)	校內及校外獎項/成績 (2)	校內及校外獎項/成績 (3)	1. 你有否參加過由教育	院校名稱	課程名稱	完成年份
中文, 科學					沒有			
英文, 數學, 科學, 電腦					有	香港大學	ENGLISH-TO-GO	2021
中文, 英文, 朗誦		第七十一屆香港學校朗誦節	第十八屆小學生中英作文(班際英文作文比賽 優異)		沒有			
中文, 數學, 朗誦		「燕然盃」學生徵文比賽	第74屆香港學校朗誦節	第九屆全港小學數學挑戰賽	沒有			
中文, 朗誦, 中辯		全港小學「兩文三語」	第74屆香港學校朗誦節五、六年級女子普通話詩詞朗		沒有			
英文, 數學, 科學, 朗誦, 電腦, 中辯, 英辯		第十三屆全港小學校際辯論	第七十三屆校際朗誦節	2022香港學界朗誦大賽	沒有			
科學, 歷史	體育	全學年全級學業獎第二名	參加香港學校朗誦節英語詩	參加小學校際常識問答比賽	有			
英文, 科學, 朗誦, 電腦, 英辯	音樂 視覺藝術				沒有			
英文, 數學, 科學, 電腦, 英辯		學而思英文讀寫競賽, 深	Fun Fun Arena 數學科學	Fun Fun Arena 英文科學	有	資優教育學苑	Screening Programme 2023	
數學, 科學, 電腦, 中辯		第九屆全港小港小學數學	全港小學數學比賽 (大埔	大埔浸信會公立學校/科技	沒有			
數學, 科學, 電腦					沒有			
科學, 中辯	音樂	校際音樂節	PORTRAIT drawing comp	AUTORA 亞太區兒童及青	沒有			
中文, 英文, 數學, 科學, 朗誦	視藝	5-6年級品學兼優獎	七十一、七十三、七十四屆朗誦比賽普通話優良獎		沒有			
英文, 數學, 電腦		乒乓球校隊 男子團體組亞	港澳盃晉級賽 全獎	學界音樂節 5級 銅獎	有	中文大學教育學院	超乎想像的數學世界	2021-2022
中文, 英文, 科學, 朗誦, 電腦, 中辯		2022-2023 年度 大埔區校	2023 Hong Kong International handbell Olympics 全		沒有			
數學, 科學, 電腦	體育, 西班牙文	華夏杯全國數學奧林匹克邀請賽	2023全國總決賽三等獎		有	科大及中大	Mathematical Puzzles 2021和2022	

Sports

體育	其他 (如有)	校內及校外獎項/成績 (校內及校外獎項/成績 (校內及校外獎項/成績 (
籃球, 乒乓球		
游泳, 足球, 羽毛球, 單 跆拳道		跆拳道 黑帶
手球, 排球, 羽毛球, 劍 擊		
羽毛球		
游泳, 排球, 羽毛球, 田徑, 單車, 跳繩		保良局繩跳未來145周4全港跳繩
籃球, 手球, 排球, 羽毛 擊石		大埔區分齡田徑比賽跳大埔區小
羽毛球, 田徑, 閃避球, 跳繩		
游泳		
籃球, 羽毛球, 乒乓球, 閃避球		
游泳, 羽毛球, 單車, 閃避球		
籃球, 單車	NA	NA
游泳, 羽毛球, 單車, 閃避球		三年級運動會女子100米冠軍
乒乓球		
手球, 排球, 羽毛球, 閃避球		
籃球	跆拳道	
游泳, 足球, 籃球, 羽毛球, 乒乓球, 田徑, 單車, 沒有		沒有

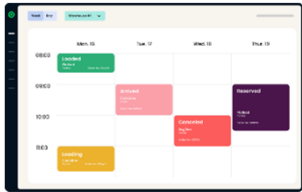
Music

音樂	其他 (如有)	校內及校外獎項/成績 (校內及校外獎項/成績 (校內及校外獎項/成績 (藝術及文娛	其他 (如有)
法國號 (西樂), 低音管 (西樂)			畫畫, 扯鈴	
鋼琴		Graded Piano Solo Grade One Silver Award	畫畫	
鋼琴, 小提琴 (西樂) 口琴			手工藝	
手鈴, 小提琴 (西樂), 長笛 (西樂), 敲擊樂 (西樂)		香港學校音樂節牧童笛	線上行進樂器比賽冠軍	香港國際手鈴奧林匹克
歌詠團, 鋼琴, 手鈴 手鐘		第七十五屆香港學校音	聯校音樂大賽2022 小學	聯校音樂大賽2023 小學
歌詠團, 鋼琴	銅片琴	2023聯校音樂大獎賽—	2022校內音樂比賽—	Hong Kong Piano Con
小提琴 (西樂), 敲擊樂 (西樂)				
鋼琴		英皇鋼琴演奏八級		
歌詠團		香港歌詠團比賽銅獎		
唢呐 (中樂)				
鋼琴		校際音樂節	NA	NA
歌詠團	口琴	二年級低年級組口琴全	三年級大埔區校際集體舞蹈銀獎	
鋼琴				校園電視台
鋼琴, 手鈴, 小提琴 (西樂), 琵琶 (中樂)				手工藝, 校園電視台
				藝術

Art



**Self
Nomination**



**Student
Nomination**

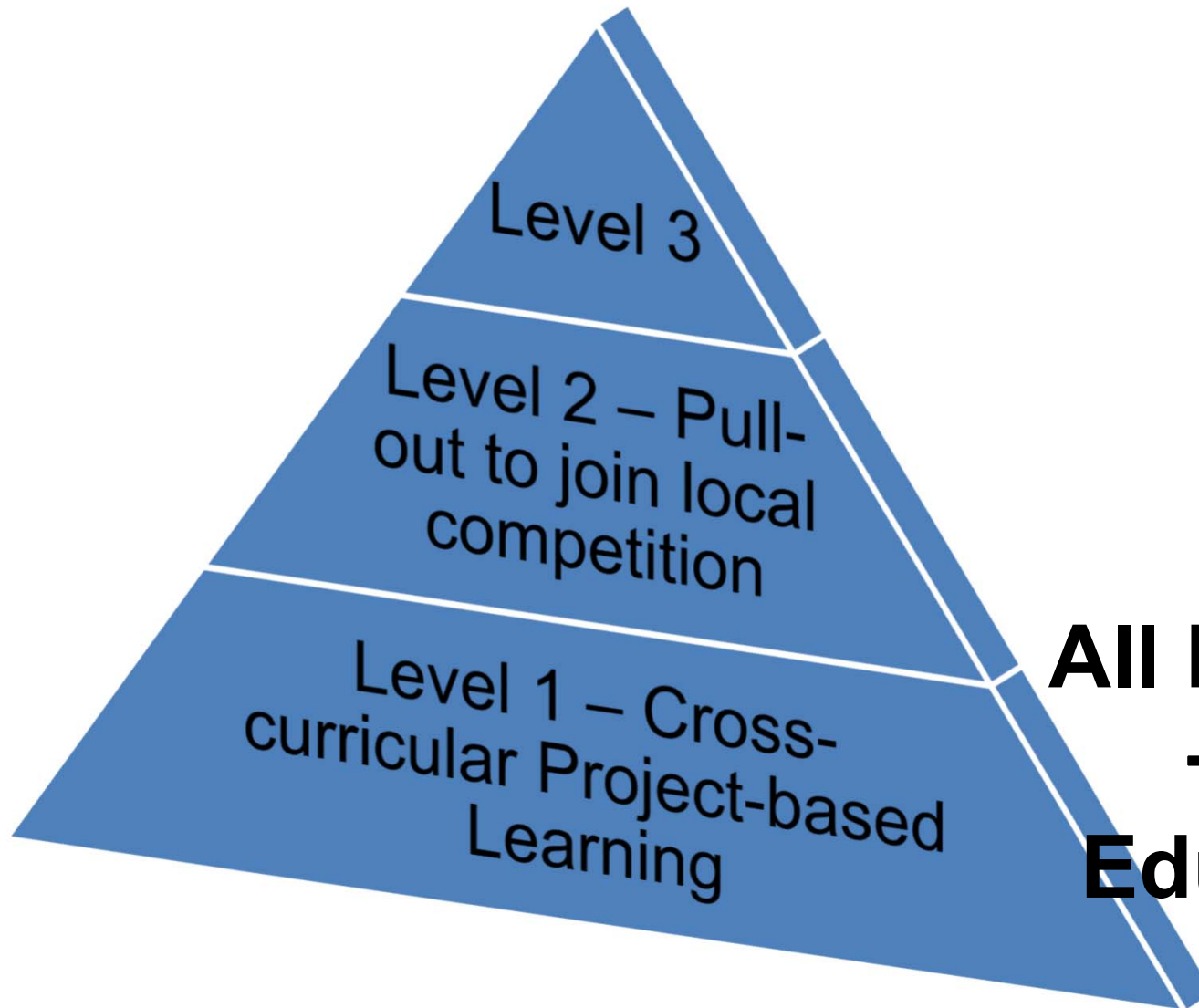


Talent Pool



**Teacher
Nomination**

STEAM Fair for F2 students



**All F2 students
→ Gifted
Education for
ALL**

STEAM Fair for F2 students



滙豐香港社區夥伴計劃

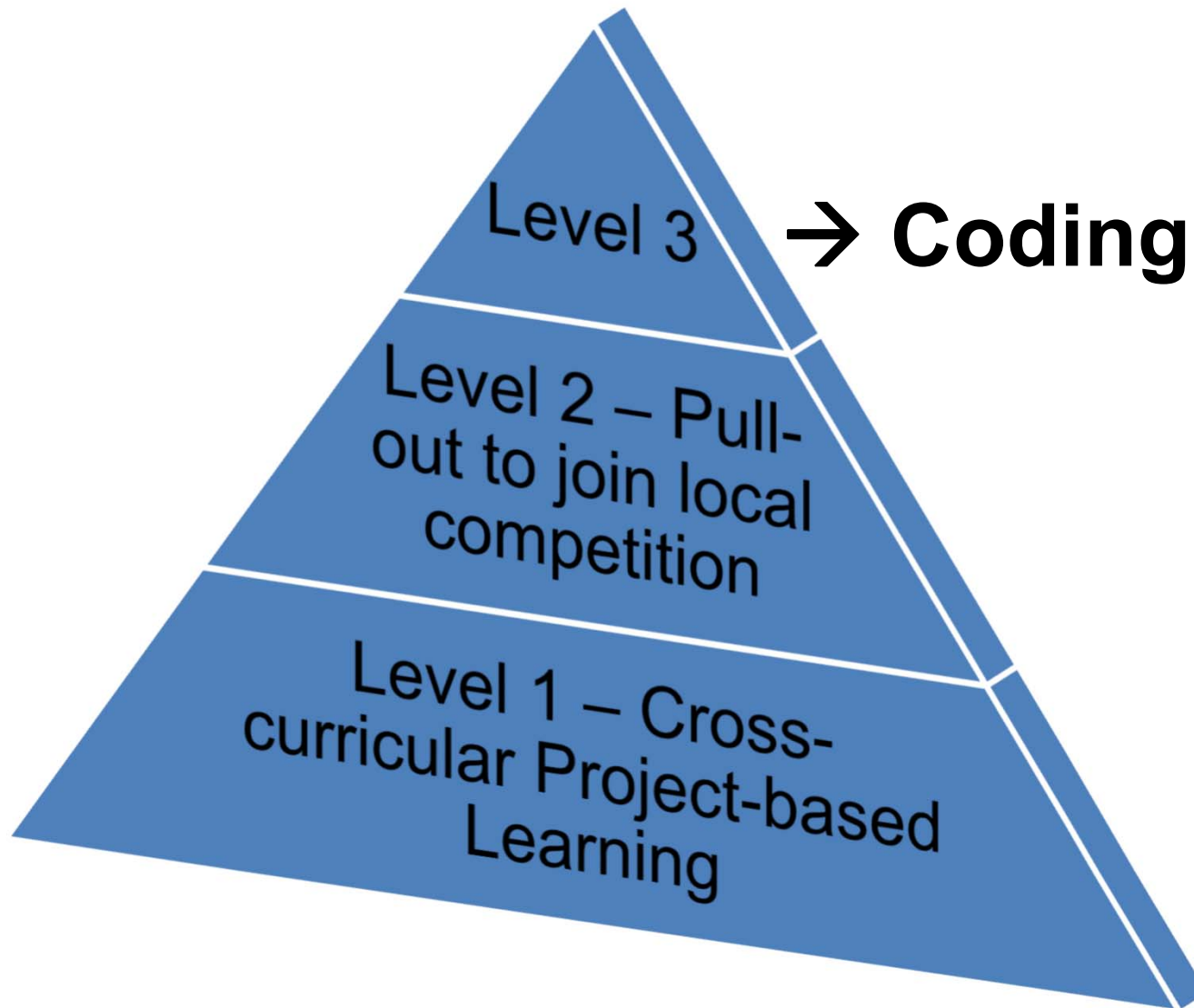
SMART Community Hackathon

社區創新科技大賽 2023

Level 2 – Pull-out to join local competition

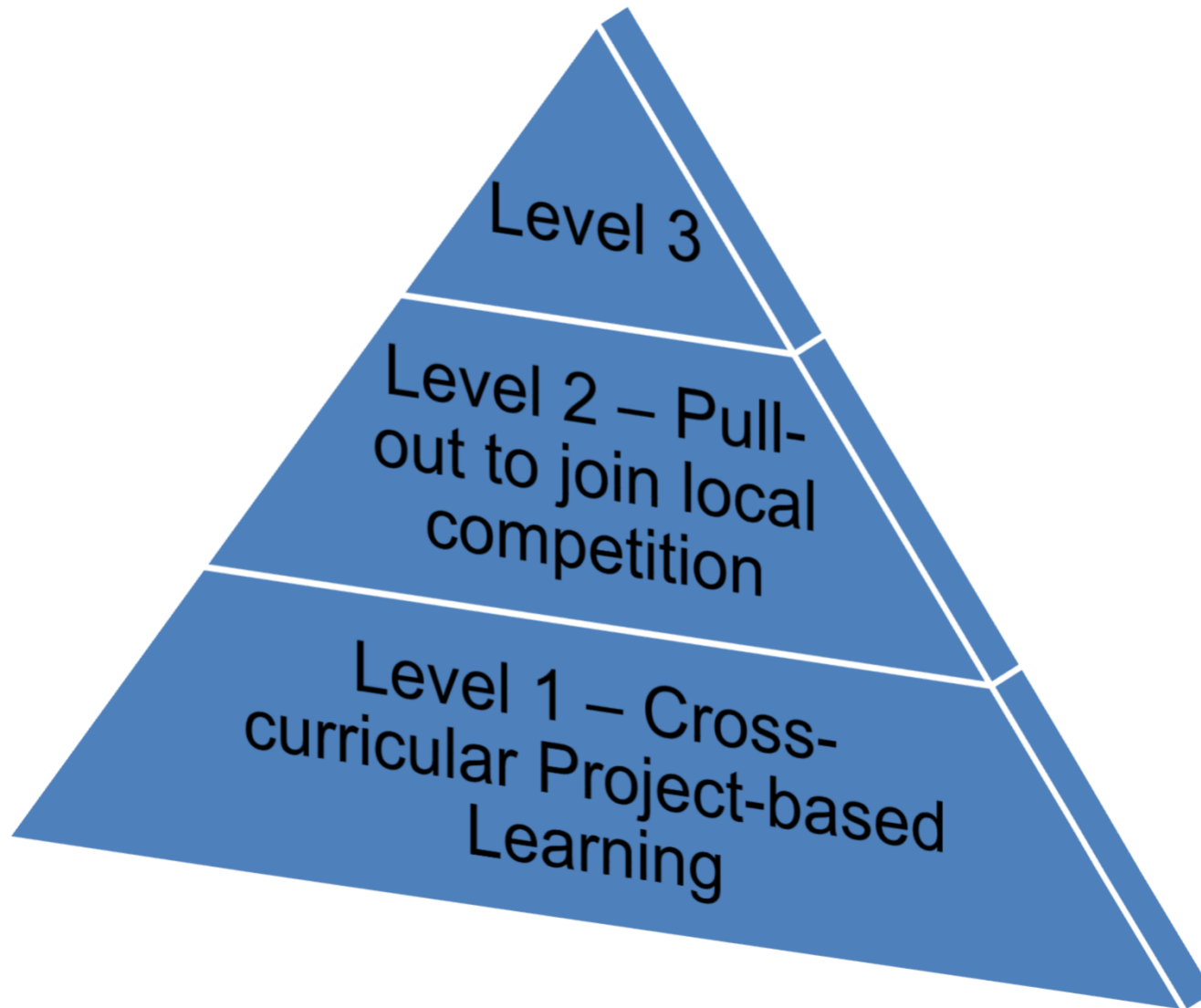
Level 1 – Cross-curricular Project-based Learning

STEAM Fair for F2 students



```
34 private static void printPageInfo(  
35     System.out.println("Page Info;"  
36     System.out.println("*****"  
37     System.out.println("\tPage Nam  
38     System.out.println("\tPage Pic  
39     }  
40  
41 private static void printPosts(Po  
42     System.out.println("Page Post  
43     System.out.println("*****"  
44     for(Post post : posts) {  
45         printPost(post);  
46     }  
47 }
```

From Activity to Talent Pool



Continuation and Succession



Senior → Junior

Space Seed Programme:



iGem Team

Continuation and Succession



Alumni → Students

Chemistry Workshop:

Sci Team member becomes tutor

Sci Team member becomes teacher

Teacher Competency



- Online Foundation Course for Teachers - Gifted Education
- Online Foundation Course for Teachers - Affective Education for Gifted/More Able Students
- Advanced Courses (A-F) in Gifted Education
- Affective Education Series
- Gifted Ed School Network

The
End