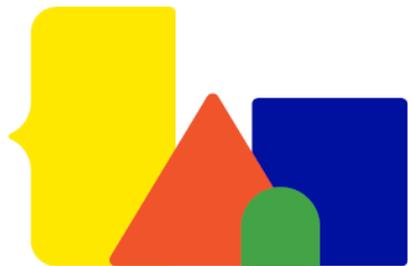# Enriched Module on Coding Education for Upper Primary Level : Collaboration with the Hong Kong Jockey Club Charities Trust - CoolThink@JC Resource Materials

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Programme Director, CoolThink@JC
June 2023

About CoolThink@JC

Initiated and funded by:

香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust

Co-created by:

香港教育大學
The Education University of Hong Kong

Massachusetts Institute of Technology

香港城市大學
City University of Hong Kong

Our Mission
To nurture students' proactive use of technologies for social good from a young age, offer equitable access and mainstream computational thinking education in formal curriculum.

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賽馬會運算思維教育

Why Computational Thinking?

Computati**o**na**l Think**ing

- **Coding** is the ability to write programming language that provide step-by-step instructions to computers.
- **Computational thinking** is the **thought process** required to write good codes. It requires learners to think like computer scientists, who can demonstrate abilities such as **logical thinking**, **problem solving** and **creativity**.
- CoolThink@JC – Computation Thinking Education – **empower students to become creators of the digital world**.
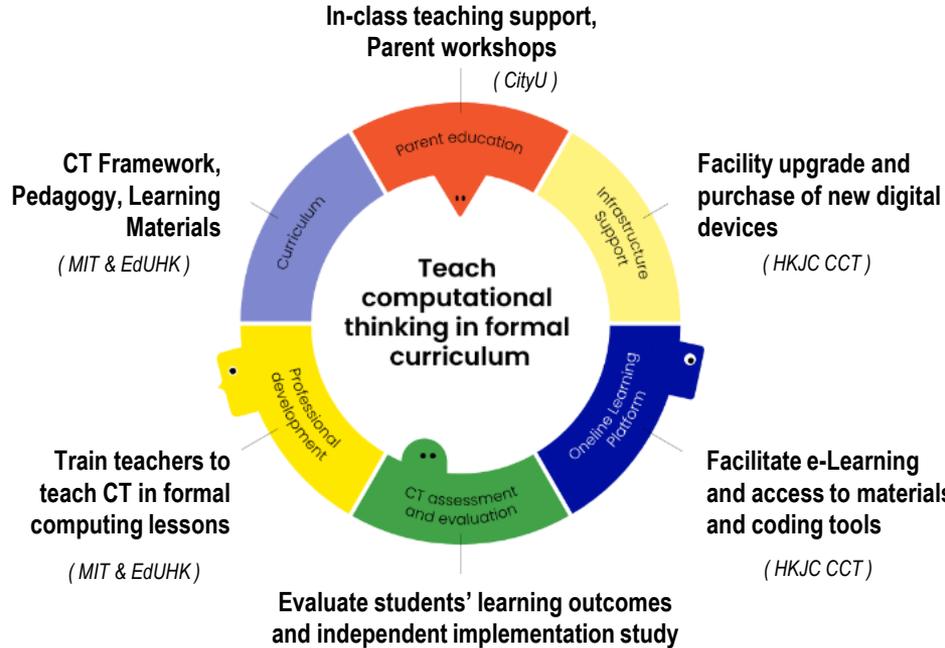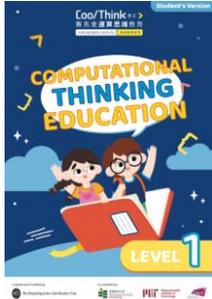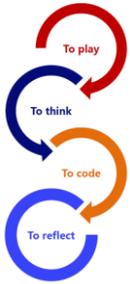
Program or be programmed?

Become **creators**, not mere consumers of technology.

Inspiring Digital Creativity
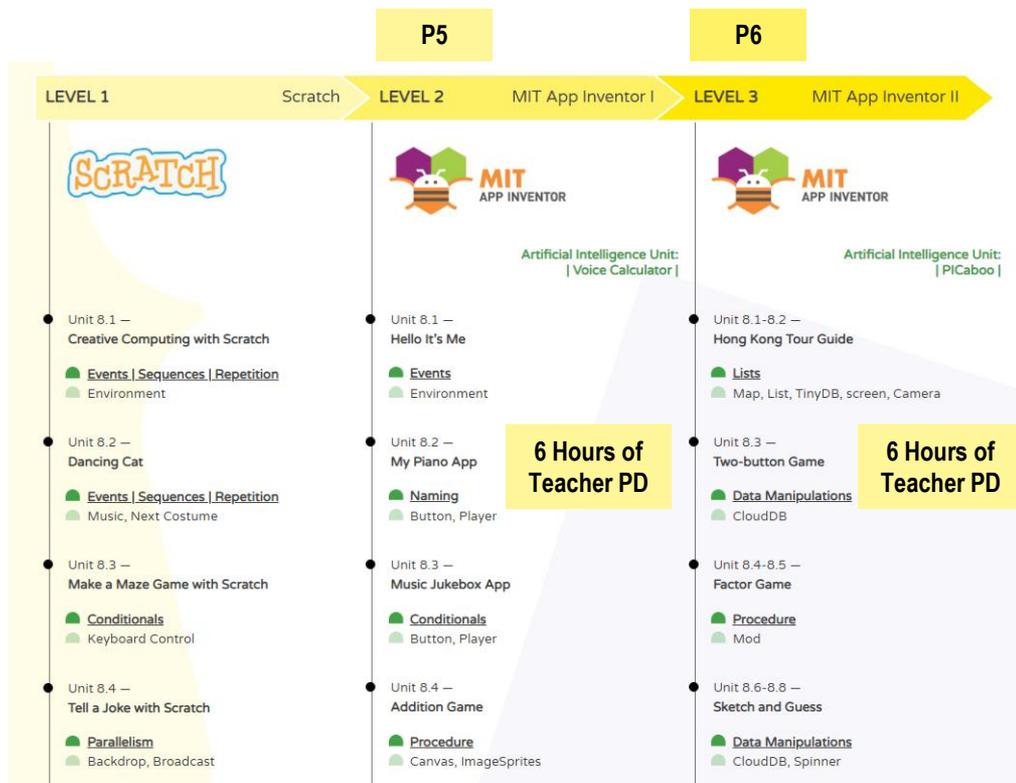
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CoolThink Integrated Service Model

To play
To think
To code
To reflect

COMPUTATIONAL THINKING EDUCATION — LEVEL 1

In-class teaching support, Parent workshops
(CityU)

CT Framework, Pedagogy, Learning Materials
(MIT & EdUHK)

Facility upgrade and purchase of new digital devices
(HKJC CCT)

CoolThink@JC STUDIO

Train teachers to teach CT in formal computing lessons
(MIT & EdUHK)

Facilitate e-Learning and access to materials and coding tools
(HKJC CCT)

Evaluate students' learning outcomes and independent implementation study

Teach computational thinking in formal curriculum

- Parent education
- Infrastructure Support
- Online Learning Platform
- CT assessment and evaluation
- Professional development
- Curriculum

SRI Education
A DIVISION OF SRI INTERNATIONAL

CoolThink@JC

SCRATCH

MIT APP INVENTOR

1. CoolThink learning materials – advanced units

CoolThink offers Level 2 (for P5) and Level 3 (for P6) learning materials and teacher training course to all primary schools.

P5

P6

| LEVEL 1 | Scratch | LEVEL 2 | MIT App Inventor I | LEVEL 3 | MIT App Inventor II |

SCRATCH

MIT APP INVENTOR

MIT APP INVENTOR

Artificial Intelligence Unit:
| Voice Calculator |

Artificial Intelligence Unit:
| PICaboo |

Unit 8.1 —
Creative Computing with Scratch
- Events | Sequences | Repetition
  Environment

Unit 8.1 —
Hello It's Me
- Events
  Environment

Unit 8.1-8.2 —
Hong Kong Tour Guide
- Lists
  Map, List, TinyDB, screen, Camera

Unit 8.2 —
Dancing Cat
- Events | Sequences | Repetition
  Music, Next Costume

Unit 8.2 —
My Piano App
- Naming
  Button, Player

6 Hours of Teacher PD

Unit 8.3 —
Two-button Game
- Data Manipulations
  CloudDB

6 Hours of Teacher PD

Unit 8.3 —
Make a Maze Game with Scratch
- Conditionals
  Keyboard Control

Unit 8.3 —
Music Jukebox App
- Conditionals
  Button, Player

Unit 8.4-8.5 —
Factor Game
- Procedure
  Mod

Unit 8.4 —
Tell a Joke with Scratch
- Parallelism
  Backdrop, Broadcast

Unit 8.4 —
Addition Game
- Procedure
  Canvas, ImageSprites

Unit 8.6-8.8 —
Sketch and Guess
- Data Manipulations
  CloudDB, Spinner

You will get the materials when you attend the training workshops
(provided by EDUHK / MIT HK Innovation Node)

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2. School-based customised CT teaching materials for subject learning

Total 9 award-winning Scratch and App Inventor projects, designed and developed by CoolThink teachers.
Include Scratch & App Inventor project source files, lesson plan and worksheet.
Download from here: https://www.lttc.eduhk.hk/initiatives/ctce/contest/

Awarded Schools and Projects 得獎學校及作品
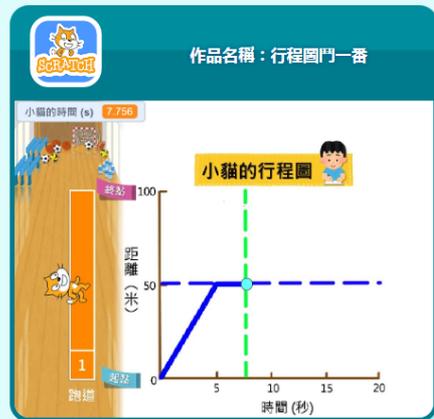
Chan Sui Ki (La Salle) Primary School
陳瑞祺（喇沙）小學

得獎老師：黃志鴻、王偵、莊樂欣

Download 下載 ⌄

King's College Old Boys' Association Primary School No. 2
英皇書院同學會小學第二校

得獎老師：黃茂輝、許文星、胡國柱

Download 下載 ⌄

Ma Tau Chung Government Primary School
馬頭涌官立小學

得獎老師：周天宜、趙一鳴

Download 下載 ⌄

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3. CoolThink Classroom – Scratch learning video

Total 10 self-directed learning video for students, presented by CoolThink teachers.

Watch from here: https://www.youtube.com/playlist?list=PLCcVA2xplO67HPi-GYECvAlSmiEtH50G5

CoolThink 教室

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10 videos 4,019 views Last updated on Apr 22, 2020

▶ Play all   ⤨ Shuffle
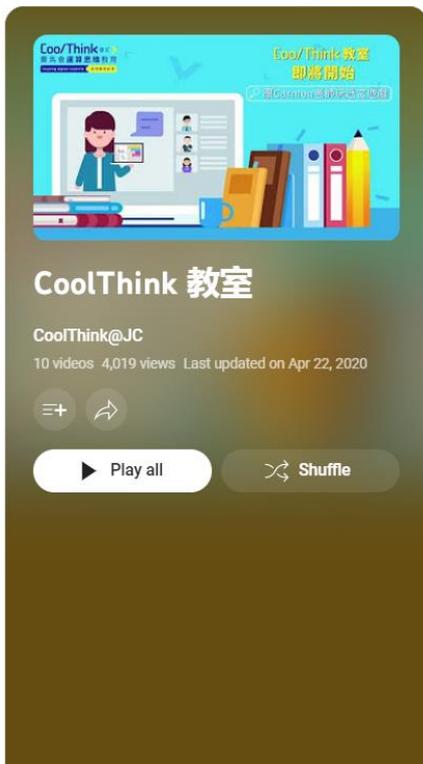
1 【#CoolThink教室 – Scratch 小遊戲：迷宮遊戲（第一回）】
   CoolThink@JC • 7.2K views • 3 years ago
   21:08

2 【#CoolThink教室 – Scratch 小遊戲：迷宮遊戲（第二回）】
   CoolThink@JC • 5.1K views • 3 years ago
   18:27

3 【#CoolThink教室 – Scratch 小遊戲：迷宮遊戲（第三回）】
   CoolThink@JC • 5.1K views • 3 years ago
   27:04

4 【#CoolThink教室 – Scratch 小遊戲：迷宮遊戲（最終回）】
   CoolThink@JC • 1K views • 3 years ago
   13:07

5 【#CoolThink教室 – 用Scratch創作笑話：Tell a joke（第一回）】
   CoolThink@JC • 4.8K views • 3 years ago
   14:18

6 【#CoolThink教室 – 用Scratch創作笑話：Tell a joke（第二回）】
   CoolThink@JC • 8.1K views • 3 years ago
   5:39

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4. Student self-learning video

30-minute interactive student self-learning videos of "動腦動身 Zoom一鬆" online CT learning lessons.
Part 1: https://www.youtube.com/playlist?list=PLCcVA2xpIO661-bGzzhEX3I02Tqaxkpt0
Part 2: https://www.youtube.com/playlist?list=PLCcVA2xpIO6516HV3hZZ1su_QBWOYh5v5

5. How to code and test App Inventor on one iOS device?

The 3 minutes video shows you how to use a single iOS device (iPad) to program an app and then test it using the App Inventor companion app.
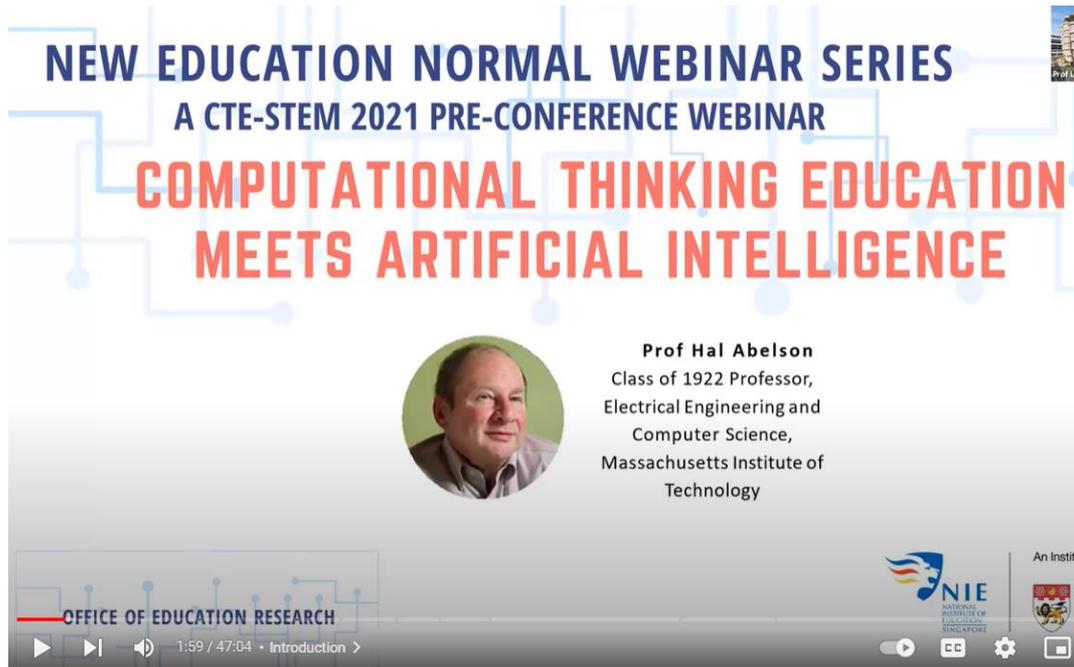
Watch from here: https://www.youtube.com/playlist?list=PLCcVA2xplO67HPi-GYECvAlSmiEtH50G5
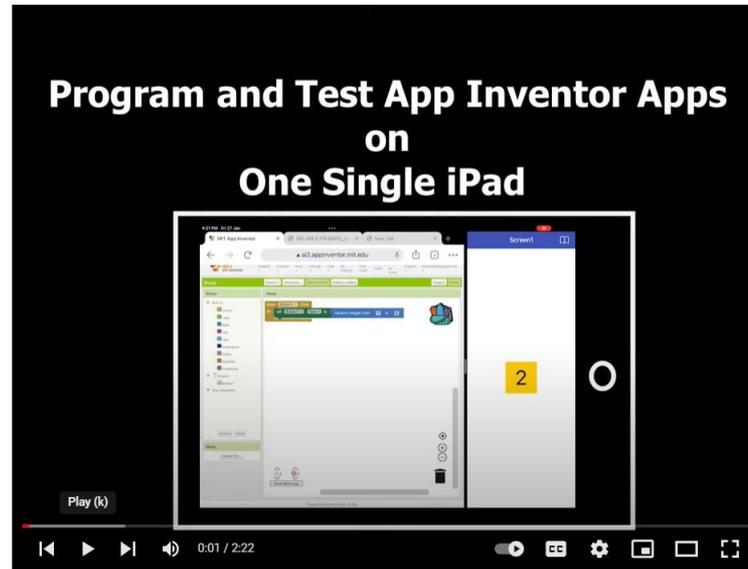
6. Computational thinking education meets artificial intelligence

Prof Hal Abelson from MIT presented in this video about the importance of computational thinking and AI in preparing students for a world increasingly shaped by technology.

Watch from here: https://www.youtube.com/watch?v=jnlD_yq1EqM

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7. Parent education workshop

CoolThink@JC Parent Portal - PE workshop schedule and registration platform, also includes self-direct learning video clips and project showcase.
Click here: https://parents.coolthink.hk

8. Evidence-based Evaluation and Report

Independent Evaluation Report by SRI

Stanford Research Institute (SRI International) has conducted a rigorous 3-year evaluation of the CoolThink pilot project between 2016 and 2019 and the progress made by its students. The report describes outcomes of the initiative for students, as well as the experiences of teachers and other participants, and offers a set of implications for other stakeholders who wish to build on the pilot's successes and lessons.
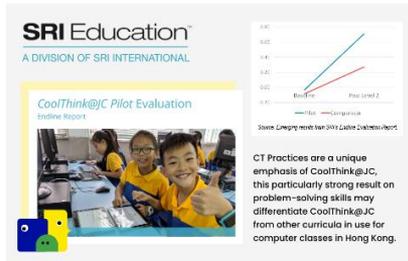
[Download Report](#)

Seal of Alignment Standard by ISTE

Selected through a rigorous professional review process, CoolThink curriculum has been verified as contributing to the pedagogically robust use of technology for teaching and learning, while meeting the critical elements of standard indicators for students. In particular, we obtained full scores in two of the standards, namely "Computational Thinker" and "Innovative Designer".

[Download Report](#)

Certified by Education Alliance Finland

EAF evaluation reported that CoolThink learning materials represent "high education quality and is proved to promote learning efficiently … a very comprehensive and progressive program for learning computational thinking and programming … supports creativity and exploration, yet provides accurately predictable learning outcomes".

[Download Report](#)

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9. CoolThink InnoCommunity Teacher Network

Join our quarterly InnoCommunity gathering at MIT HK Innovation Node for sharing and networking.
Follow CoolThink Facebook page: https://www.facebook.com/coolthinkatjc
Follow MIT HK Innovation Node Facebook page: https://www.facebook.com/hkinnovationnode

Activities and Events

CoolThink@JC Coding Fair 2023 and 2024

CoolThink@JC Competition for primary schools 2023
   (Final and Grand Final on 15 July 2023)

Conference on Computational Thinking and STEM Education
  (Beijing, 28-30 May 2024)

CoolThink@JC Competition 2024

Teachers Sharing Seminars

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Resource Materials

https://www.coolthink.hk/resource-kits

English version

https://www.coolthink.hk/en/resource-kits

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Thank You