

The Y.W.C.A. Hioe Tjo Yoeng College
Planning for STEAM education (v.1 2017-2018)

1. **Main foci:** (i) Teachers as a whole having more exposure and mastery of STEAM education
(ii) Integrating STEAM education elements into current practices (phase 1)
2. **Preliminary expectations of students' learning:**

Level	Expectations on pedagogical considerations
5	Solving problems related to life issues
4	Solving designed problems
3	Cross-subject
2	Application of knowledge
1	Hands on tasks

3. Proposed learning tasks / activities

Foster STEAM elements in various subjects – Ref.: Pt.2 Preliminary expectations of students' learning

	Science	Physics	Chemistry	Biology	D & T	CL/ICT	Maths
Curriculum	S1: DIY Energy converter S2: Water rocket design and launching S3: PBL	Use of motion sensor in experiments	Making of metallic bookmark by electroplating Fuel Cell Car	S5-S6: CUHK X AMGEN Biotech Lab project	Project Approach: S.1 Memo Stand & Desk Tidy S.2 Mechanical Music Box S.3 Bridge structure building & Make a Change (Problem-solving activities)	S2: Mobile App design, Robotics (mbot) S3: Java programming	S2: Making & Using Clinometer (+ VA) S3: Survey Activity (apps on tablet)
External activities /	HKIJSBO 全港水火箭大	S3-4: Physics	S3-5: Australian National	S5: PolyU SSMSC	No specific focus. (It	S5: HKACE IT Elite	S5: PolyU SSMSC

competition	賽 Budding Scientists	Olympiad training S5: PolyU SSMCS	Chemistry Quiz S5: PolyU SSMSC S3-5: Chemist- online	S5: HKJSBO	depends on the nature of activities and competitions)	S3/4: PolyU Computer App Programming (CAP) S3: HKACE Fun with learning S5: HKACE HKOI	
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4. Major Highlights:

- (i) November 2017 – 24 hours Pedal Kart Charity Race
- (ii) Feb – May 2018 - S.3 Cross-subjects Project-based Learning Activities (setting topics and tasks in relation to STEAM education)
- (iii) Apr 2018 – STEAM Fair in Academic Week 2018
- (iv) EITC Programme:

	EITC
Curriculum	S2: Mobile Apps(APP Inventor), VR(google cardboard), Digital Game design(Unity) S3: 3D modeling, AR, IoT (arduino), robotics & sensors(mbot)
External activities / competition	S3: CityU CS Challenge Difference Robotic and mobile app competition

5. Schedule

Teacher's development		Student's development	
12 June 2017	Visit Lok Sin Tong Yu Kan Hing Secondary School	26 May 2017	Pedal kart: Pit Crew formed
30 Sept 2017	Brainstorming session of STEAM education	July – Aug	Pedal Kart: Two karts modifications and assembling
9 Sept 2017	Visit Lego Education Maker Lab opening at Sun Kei Secondary School	3-4 Oct	Pedal kart: Racing Kart – Time attack
11 Sept 2017	Meeting with ex-HKASM chairman Wong CK	10-12 Oct	Pedal kart: Fun Kart - Trial
13 Sept 2017	STEAM unit meetings	27 Oct 2017	The Chinese Chess Challenge: 1K vs AI
		1-3 Nov 2017	Pedal Kart Final Training
4-5 Nov	24 hr HK Roundtable Pedal Kart Race (S4-S6)	4-5 Nov	24 hr HK Roundtable Pedal Kart Race (S4-S6)
		16 Nov	AMGEN Biotechnology Director visit HTYC
		23 Nov	Lesson demonstration (Period 6 – S6 Bio) <ul style="list-style-type: none"> • AMGEN guests • CUHK • EDB officer • HKASME • Social media
20 Jan 2018	Volvo Ocean Race Visit (S1-S2)	20 Jan 2018	Volvo Ocean Race Visit (S1-S2)
		Jan 2018	2018 全港校際「無人機」比賽 – 賽前工作坊
		April 2018	2018 全港校際「無人機」比賽 (S4: 4 stds)
Mar - May	Project Based Learning (PBL) (S3)	Mar - May	Project Based Learning (PBL) (S3)
27 April 2018	Participate STEAM Fair (Academic week) <ul style="list-style-type: none"> • S3 PBL showcase • EITC products 	27 April 2018	STEAM Fair (Academic week) <ul style="list-style-type: none"> • S3 PBL showcase • EITC products

6. Budget (preliminary)

Categories:

- A) STEAM related - External competition
 - a. Application fee
 - b. Activity expenditure
- B) STEAM related hardware and software equipment purchase

Preliminary estimates:

No	Items	Expenditure (HK\$)
1	Books / magazines related to STEAM education	10,000
2	Expenditure on Pedal Kart charity race	30,000
3	Robotics competition	5,000
4	Support to science competitions	10,000
5	Expenditure on S.3 Project-Based Learning activities	10,000
6	Expenditure on STEAM Fair (Academic Week 2018)	5,000
7	Expenditure on related equipment	30,000
d8	Expenditure on MAKER activities (materials for product design)	30,000
9	Support to L&T training problem-solving skills	30,000
10	Annual STEAM competition in HTYC	20,000
11	HTYC Publication on STEAM activities	20,000
Total		200,000

7. Unit members

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