Part B Project Summary

Project Title:	Project Number
Hong Kong Direct Subsidy Scheme Schools Council (DSSSC) STEM Fair 2018	**2017/0644 (Revised)**

Name of Organization: Hong Kong Direct Subsidy Scheme Schools Council (DSSSC)

(1) Goals: To Organize The STEM Fair 2018 from 22 – 24 September 2018

Objectives: to students
(i) To support EDB to promote STEM in schools and introduce STEM careers
(ii) To foster cooperation among schools and develop STEM in students
(iii) To acknowledge the efforts of achievements of STEM education in various schools and provide an opportunity for students to showcase their success and share good practices with other schools

(2) Targets:

Expected number of beneficiaries: 18,000 (students, teachers, parents, public)

(3) Implementation Plan:

(i) Duration: Sep 2018 to Aug 2019

(ii) Process / Schedule: Recruitment of participating schools (Sep 18), Preparation and Publicity (Sep 18), Setting up booths and STEM Fair 2018 (21 – 24 Sept18), STEM related workshops / seminars / visits offered by IT companies (Oct18 – Jul19), Evaluation of the project, publications and Financial Audit of Project (Jul – Aug19)

(iii) Collaboration with other parties / partners: 54 DSS schools (school list refers to Proposal)

(4) Products:

(i) Deliverables/outcomes: STEM Fair 2018

(ii) Dissemination of deliverables / outcomes: DVD, publications, post-event workshops and visits

(iii) Commercialization potential of deliverables / outcomes: Publications about the STEM Fair 2018 will be produced and disseminated.

(5) Budget: **$528,000**

Breakdown: (a) Staff: $7,200, (b) Service: $349,000, (c) Equipment: $0, (d) Works: $0 (e) General Expenses: $171,800

(6) Evaluation:

(i) Performance indicators: Success of project will be evidenced by the large number of participating schools and visitors. Besides, participants should be satisfied with the arrangements and implementation of the STEM Fair. STEM education should be promoted successfully and cooperation among schools on STEM education should be fostered.

(ii) Outcome measurements: Focus-group interviews, pre-and post-activity surveys will be conducted to collect feedback from participants. Besides, performance improvements of students can also be assessed after the STEM Fair.

Project Details

Project Title	Project Number
Hong Kong Direct Subsidy Scheme Schools Council (DSSSC) STEM Fair 2018	2017/0644 (Revised)

Basic Information

Name of School / Organisation / Individual: Hong Kong Direct Subsidy Scheme Schools Council

Beneficiaries

(a) Sector: ☑ Kindergarten ☑ Primary ☑ Secondary ☑ Special

(b) Students: 10000 (in number)* and All levels (class level/age)*

(c) Teachers: 3000 (in number)*

(d) Parents: 5000 (in number)*

(e) Participating Schools (excluding applicant school): 54 DSS schools (in number and types)*

(f) Others: IT Companies, professionals and service providers

Proposal

(I) Project Needs

(a) Please state the aims of the project in clear and concise terms and elaborate on how the proposed project could impact on school development.

The DSSSC has 73 member schools. We hosted the first STEM Fair last year and it was a successful experience with over 8000 participants joining the 2-day-event. Our goal is to support EDB to promote STEM in schools and introduce STEM careers to students. Besides, it fosters cooperation among schools and develop STEM in our students. We also want to acknowledge the efforts and achievements of STEM Education in various schools and provide an opportunity for the students to showcase their success and share good practices with other schools.

The STEM Fair 2018, which will be held from 22 – 24 September 2018, is expected to bring great impact to all participating schools in various forms that include enhancing the teaching and learning strategies in different schools, especially in STEM Education. The complexities of today's world require all people to be equipped with a new set of knowledge and skills to solve difficult real-life problems. A strong STEM education is becoming increasingly recognized as a key driver of opportunity, and data shows the need for STEM knowledge and skills will continue to grow in the future. Those graduates who have practical and relevant STEM precepts embedded into their educational experiences will be in high demand for all job sectors.

Besides, the STEM Fair is also a great opportunity for Professional Development of teachers and educators. Teachers learn from their engagement with students in organizing and preparing for the event, participation in STEM Fair and through networking opportunities with fellow teachers. Teachers themselves value these aspects and consequently STEM fair participation is a sustainable form of professional development.

With the main objective of promoting STEM education in schools and introduce STEM careers to students, the DSSSC would like to achieve the following outcomes by holding STEM Fair 2018:

The STEM Fair creates opportunities for live interactions among participants
Students give presentations and demonstrations on their own projects in confidence and with sense of satisfaction
Educators or scientists visiting the booths and share their knowledge with the students and teachers
Facilitators lead participants in hands-on workshops
The STEM Fair provides a platform for students to show what they have learned and what they are good at in a creative and effective way that best represent their projects, and reward their achievements
The STEM Fair helps boosting students' confidence and presentation skills through communicating with the visitors.
The STEM Fair is a precious continuous professional development chance for teachers from different schools
The STEM Fair is a golden opportunity for life-long learning for every participant (educators, teachers, students, parents and the public)

(b) (i) What are the areas of the needs and priorities of the school?

- ☑ Enhance learning and teaching to facilitate students' knowledge on subjects / learning areas / generic skills development
- ☑ Promote students' social and emotional development
- ☑ Enhance school management / leadership and teachers' professional development / wellness
- ☑ Others
  To partner with professionals and service providers
  To promote the exchange and sharing culture among schools

(ii) Please give background information to justify the demonstrated needs as mentioned in (b)(i).

- ☑ School development plan:
  In response to the promotion of STEM Education by the EDB as well as the Smart City Blueprint of Hong Kong, many schools had defined their major concerns of the year to be preparing students for the fast-changing technological world through STEM or STEAM Education. All the teachers in the participating schools had designed curriculum or activities that nurture students' STEM skills. The STEM Fair is a channel to showcase their work and achievements.

- ☐ Survey findings: _____
  _____

- ☑ Literature review summary:
  According to the Report on Promotion of STEM Education – Unleashing Potential in Innovation by the EDB, it stated that the EDB was "pleased to learn that with STEM education being highlighted as a curriculum emphasis, some schools have become more proactive in implementing STEM education at the school level." It also stated that the EDB "shall continue to identify good practices from schools and facilitate sharing of successful experiences through networking activities."

According to the Smart City Blueprint of Hong Kong, under the section of Smart People, it stated that the government plans "to organise intensive training programmes on STEM education for curriculum leaders of primary and secondary schools from the 2017/18 to 2019/20 school years to enhance their capacity in holistic planning and implementation of the updated curricula and STEM-related activities". Besides, it will also "provide enhanced information technology (IT) training to secondary school students outside normal school curriculum".

The STEM Fair is an obvious way to achieve what the government planned to further promote STEM education, offer training opportunities for teachers and facilitate the sharing of successful experiences.

☐ Assessments on students' performance: _____

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☑ Relevant experiences:
The DSSSC STEM Fair 2017 was held in School on 24-25 September 2017. Mr. , Secretary for Education, gave a short address to open the Fair, and souvenirs were presented to the sponsors of the event.

Special guests, including Mr. , the Secretary for Innovation and Technology of the HKSAR, Mr the Minister of Science and Technology Education Department of the Liaison Office of the Central People's Government in the HKSAR, Mr. , the Deputy Minister of Science and Technology Education Department of the Liaison Office of the Central People's Government in the HKSAR, Mrs. , Deputy Secretary for , were then toured around the school campus and engaged in the scientific presentations of over 24 different schools, colleges, academies and businesses.

Over the two days, there were also many informative speeches, lectures and workshops about STEM projects. The keynote speakers were Professor who spoke on 'Global Scientific Trends' and Professor , a member of the China Academy of Science, who spoke on 'Secrets of the Molecular World'. These lectures were followed by several other equally interesting and inspiring seminars by different professionals and service providers.

These all well supported with the event of I Expo 2017 which was held from 24 September to 2 October 2017 at the Hong Kong Convention and Exhibition Centre by Foundation. In order to capitalize on their STEM enthusiasm, students were therefore encouraged to visit the Expo after the Fair, by the free transportation provided by DSSSC, in order to take their interest in these scientific activities even further.

Overall, the STEM Fair was a great success with over 8000 participants in two days. It was suitable for students of all ages, and that includes their parents, and it was a wonderful testament to the positive impact that STEM is having in schools across Hong Kong.

(c) Please elaborate on the innovative ideas or new practices to enhance, adapt, complement and/or supplement the existing practices that will facilitate the development of the school to address the needs specific to its own context.

The STEM Fair creates opportunities for live interactions among participants. This can take many forms, like students giving presentations and demonstrations on their own projects, educators or scientists visiting the booths and talking with the students and teachers, facilitators lead participants in hands-on workshops and so on. The key is using the "exhibits" as a conduit to foster direct communication on STEM related issues among participants. Like last year, we had presentations on Augmented Reality Chinese medicine herb garden, Artificial skin display, 'smart home' exhibits and a 3D-printed Robots. There were mini-laboratories to watch, nuclear disaster extrication machines to operate, robotic football to play, 3-D printing machines to control, Virtual Reality adventure programs to experience, and Scratch learning programs to try. Every display stand was both informative and interactive, and there was no shortage of keen students and teachers to explain and demonstrate the projects to the visitors. Many of the booths proudly displayed the prizes and awards that their work had already won in recent competitions.

There are certain benefits of organizing the STEM Fair such as providing a platform for students to show what they have learned and what they are good at in a creative and effective way that best represent their projects. Besides, it help boosting students' confidence and presentation skills through communicating with the visitors. Nevertheless, it is a precious continuous professional development chance for teachers from different schools and golden opportunities for life-long learning for every participant.

(II) Project Feasibility

(a) Please describe the design of the project, including:

(i) Approach/Design/Activity (Applicants are advised to provide details on project activities as well as learning and teaching arrangements.)

Since it was a great success last year, the STEM Fair will again be hosted in [redacted] School this year and the logistics similar to last year's will be adopted. We expect over 50% of the DSS schools will join the STEM Fair by either holding booths or joining the activities.

There will be an Opening Ceremony on Day 1 in which distinguished guests will be invited to officiate the STEM Fair. For all 3 days, booths hosted by different schools will be set up around the playgrounds and some classrooms in the school campus. Other classrooms will be used for workshops while the school hall and G7 the school theatre, will hold keynote speeches as well as seminars delivered by IT professionals and service providers. Sharing on STEM good practices for teachers and educators will be held in different conference rooms in the school.

Once again, this year's STEM Fair will support the Ir[illegible]t[illegible] Expo 2018 which will be held at the Hong Kong Convention and Exhibition Centre by [redacted] Foundation around the same time.

Furthermore, students and teachers of participating schools are entitled to join the workshops / seminars / visits to O[illegible]n Park from Oct 2018 – Jul 2019 (Please see Appendix for tentative schedule).

Below are some of the programmes of STEM Fair 2017 for reference.
The Keynote speeches include:

- 'Global Scientific Trends' by Professor , the Professor of Department of Science and Environmental Studies in Univeristy
- 'Secrets of the Molecular World' by Professor a member of the China Academy of Science, who spoke on

Other seminars include:

- STEM Challenge by
- STEM + Coding =
- Hack the bits by

Workshops include:

- Dash Shooting Playground by
- Gigo DIY Hovercraft by
- Maker's room Experience by
- Coding with sensors by
- + Intelligent Home by
- P for STEM by
- t@ by STEM@
- x hydroponics@ by STEM@

Participating schools with booth presentation include:

(ii) Key Implementation Details

Project period: Sep 2018 to Aug 2019

Month / Year	Content / Activity / Event	Target Beneficiary/Participants
Sep 2018	Recruitment of participating schools Preparation and Publicity	Participating schools
21 – 24 Sep 2018	Setting up of booths STEM Fair 2018	Participating schools, parents, teachers, general public
Oct 2018 – Jul 2019	STEM related workshops / seminars / visits offered by IT companies (Please refer to the appendix for details of tentative schedule of workshops / seminars / visits to be offered)	Participating schools
Jul – Aug 2019	Evaluation of the project and publications Financial Audit of Project	Participating Schools and general public

(b) Please explain the extent of teachers' and/or principal's involvement and their roles in the project.

(i) Number of teachers involved and degree of input (time, types, etc.):

The Committee members of the DSSSC will be responsible for organizing the STEM Fair. 20 teachers (including the Principal) from each participating school will be involved in the preparation work and setting up of booths to present the projects or products by their schools. Teachers, students, parents from all kinds of schools as well as the general public are welcome to visit the booths, join the workshops and attend the keynote speeches and seminars during STEM Fair 2018.

Furthermore, students and teachers of participating schools are entitled to join the workshops / seminars / visits to C[illegible] Park from Oct 2018 – Jul 2019.

(ii) Roles of teachers in the project:

☑ Leader ☑ Co-ordinator
☑ Developer ☑ Service recipient

(c) Please provide the budget of the project and justify the major items involved.

Grant Sought: HK$ 528,000

Budget Item	Expenditure Detail (Including the breakdown for the budget items)		Justifications
	Item	Amount ($)	
Staff ($7,200)	**Security** 2 guard for 4 sessions on 3 days	$7,200	For a public event with expected over 10,000 visitors, security guards are needed to maintain crowd control, record visitor headcount for fire standards and mustering purposes, ensure the visitors are respectful to the participants and stay away from restricted areas. (Average rate: $900 per session per guard, i.e. $900 x 4 x 2)
Service ($349,000)	**Designing and Setting up of the venue and booths**	$278,000	Around 60 booths will be designed and tents will be set up as structures to house the STEM related products of the participating schools to be showcased in the STEM Fair. Besides, there will be other event-related decorations. This parts cost approximately $251,000. There is also a cost on the Electrical Provision, such as Event Wifi Service and Extra Sound System, which is approximately $27,000 for 3 days, i.e. $9,000 per day). For a public event with 54 exhibiting schools and over 10,000 visitors, extra Wifi services and sound systems are essential to provide enjoyable experience for participants

	Workshops / seminars / visits offered by IT companies from Oct 2018 – Jul 2019	$71,000	Please refer to P.15 and 16 for estimated costs.
General expenses ($171,800)	**Subsidy to participating schools**	$108,000	($2000 x 54) The subsidy can be used as logistical expenses or in setting up the exhibits at the booths during the STEM fair.
	Venue Rental for 3 days	$58,000	The venues include primary school playground, secondary school playgrounds, school halls, conference rooms and classrooms. Please refer to P.14 for tentative estimated costs.
	Audit Fee	$5,000	As required
	Miscellaneous	$800	According to last year's experience, miscellaneous costs include unexpected extra costs on any items related to the event (such as extra costs of trainers / materials for trainings) which was around $1,000 last year.
	Total Grant Sought ($):	**$528,000**	

Assets Usage Plan: N/A

(III) Expected Project Outcomes*

(i) Please describe how to evaluate the effectiveness of the project.

☑ Focused group interviews:
Reporters from the Schools' Campus TV will interview the participants and visitors on their views of the STEM Fair. This will show how satisfied the participants are with the STEM Fair. It also collect data on what aspects of STEM Education is most welcomed by various types of participants and help to plan for future STEM Fairs.

☑ Pre-and post-activity surveys:
The pre-activity surveys help the Organising Committee to gain an understanding of the potential audiences' interests and disciplines, particularly on STEM-related projects. Besides, they also help to find out special audience needs to be catered for.

The post-activity surveys help to check that the STEM Fair works in a practical sense. It determines what extra resources are needed every day. Moreover, it gives feedback on the achievement of objectives and provides information on how a program is working overall and what the participants have learnt and gained from the STEM Fair.

☑ Performance change of students in assessment:
By practicing presentation and demonstration on their projects in the STEM Fair, students will be more familiarized with their work and more confident in communicating and interacting with visitors from all walks of life.

☑ Others (please specify):There will be following up STEM workshops / activities for teachers and students throughout the year. Once approval is made, these programmes will be posted up as soon as possible and registration will take place on a first-come-first-served basis.

(ii) Please state the project deliverables or outcomes.

☐ Learning and teaching materials
☐ Resource package
☑ DVD

The Campus TV team and photographers of some participating schools will be responsible for event filming, capturing, interviewing and editing a DVD to make the STEM Fair to be more memorable. Besides, it is a good means to share what had been happening in the three days as a picture or a screen shot tells a thousand words. The DVD will be sent to all participating schools and the QEF for sharing good practices with those who cannot join the STEM Fair. Teachers in different schools will be inspired by other schools' showcases on how to apply STEM in their daily teaching while students will be stimulated and encouraged to create and innovate for a better living using STEM skills learnt from other schools.

The contents of the DVD may include:

- Showcases of STEM projects from various participating schools (presentations and demonstrations by students)
- Interviews on teachers and students involve in the STEM Fair
- Sharing by teachers and students on their experience in applying STEM knowledge and skills in their daily teaching and learning
- Filming and capturing of the process of STEM Fair in the 3 days

Hopefully, by watching the DVD, educators and teachers can by inspired by other schools' experience in designing STEM related activities in their own schools and promote STEM through their daily teaching. On the other hands, students will be encouraged and stimulated to innovate and create their own STEM products or initiate their own STEM related projects after watching the examples of other students shown in the DVD.

☑ Others

Publications about the STEM Fair on Educational and Technology periodicals, magazines and newspapers

Workshops / seminars / visits offered to interested parties (students and teachers from participating schools)

The teachers and students who play different roles in the STEM Fair (organizer, exhibitor or participants) will be invited to share their experience and reflect on what they have gained (such as knowledge and skills to be applied in their daily teaching and learning) in the event via various ways such as writing articles for Educational and Technology periodicals, magazines and newspapers or being interviewed by media who visited the STEM Fair. The contents of sharing may include:

- Showcases of STEM projects from various participating schools (presentations and demonstrations by students)
- Interviews on teachers and students involve in the STEM Fair
- Sharing by teachers and students on their experience in applying STEM knowledge and skills in their daily teaching and learning
- Reflection of what the participants had learnt in the STEM Fair

Hopefully, by reading these publications, educators and teachers can by inspired by other schools' experience in designing STEM related activities in their own schools and promote STEM through their daily teaching. On the other hands, students will be encouraged and stimulated to innovate and create their own STEM products or initiate their own STEM related projects after watching the examples of other students in the publications.

Workshops / seminars / visits offered to interested parties (students and teachers from participating schools) will be organized so as to further promote STEM Education after the STEM Fair (please refer to the Appendix for details) Through these post-event activities, teachers and students learnt how to deal with STEM related projects and gain more experience and confidence in promoting STEM Education in their schools. The detailed learning objectives, contents and more information can be found on P. 17 to 21 of this document.

(IV) Evaluation Plan

The STEM Fair will be evaluated in various ways such as the followings:

Reporters from the Campus TV of different schools will interview the participants and visitors on their views of the STEM Fair. This will show how satisfied the participants are with the STEM Fair. It also collect data on what aspects of STEM Education is most welcomed by various types of participants and help to plan for future STEM Fairs for the Organising Committee as well as plan for future teaching and learning activities by various schools.

Pre-activity surveys will be conducted on random online registered participants. This will help the Organising Committee to gain an understanding of the potential audiences' interests and disciplines, particularly on STEM-related projects. Besides, they also help to find out special audience needs to be catered for during the event.

Post-activity surveys will be conducted for most of the, if not all, participants via online platform. It helps to check that the STEM Fair works in a practical sense. It also determines what extra resources are needed every day. Moreover, it gives feedback on the achievement of objectives and learning outcomes. Last but not least, it provides information on how the STEM Fair is working overall and what the participants have learnt and gained from the STEM Fair.

By practicing presentation and demonstration on their projects in the STEM Fair, it is believed that students will be more familiarized with their work and more confident in communicating and interacting with visitors from all walks of life. This can be told be observation by the teachers and parents and from their feedbacks.

There will be follow-up STEM related workshops / activities for teachers and students throughout the year after the STEM Fair. The success of the STEM Fair will be shown by the participation rate of these workshops / activities.

(V) Success Criteria

The Success of the STEM Fair can be shown in different ways such as:

The number of participants (count in people-times) is more than last year (that is 8000).

The survey findings show that over 70% participants think the STEM Fair had successfully promoted STEM Education.

The survey findings show that over 70% participants are satisfied with the STEM Fair.

The survey findings show that over 70% participants had gained some STEM related knowledge or learnt some skills in the STEM Fair.

The survey findings show that over 70% participants would like to join the STEM Fair again if it will be held next year.

The enrolment rate for the post-events (workshops / trainings) is over 70%.

(VI) Dissemination Plan

One of the aims of the STEM Fair is to create opportunities for live interactions among participants and provide a platform for sharing good practices in teaching and learning. Therefore, the DSSC plans to disseminate and sustain the outcomes in several ways such as:

The Campus TV team and photographers of some participating schools will be responsible for event filming, capturing, interviewing and editing a DVD to make the STEM Fair to be more memorable. Besides, it is a good means to share what had been happening in the three days as a picture or a screen shot tells a thousand words. The DVD will be sent to all participating schools and the QEF for sharing good practices with those who cannot join the STEM Fair. Teachers in different schools will be inspired by other schools' showcases on how to apply STEM in their daily teaching while students will be stimulated and encouraged to create and innovate for a better living using STEM skills learnt from other schools.

The teachers and students who play different roles in the STEM Fair (organizer, exhibitor or participants) will be invited to share their experience and reflect on what they have gained (such as knowledge and skills to be applied in their daily teaching and learning) in the event via various ways such as writing articles for Educational and Technology periodicals, magazines and newspapers or being interviewed by media who visited the STEM Fair.

(VII) Sustainability Plan

Post-event Workshops / seminars / visits offered to interested parties (students and teachers from participating schools) will be organized so as to further promote STEM Education after the STEM Fair (please refer to the Appendix for details). This is an obvious way to sustain the outcomes of the STEM Fair and in favour of the possibility of holding another successful STEM Fair next year and in the years to come. By joining the STEM Fair and these post-event activities, teachers and students will learn how to deal with STEM related projects from others' good practices and gain more experience and confidence in promoting STEM Education in their schools.

(VIII) DSS Schools that had expressed their interests in joining and supporting the STEM Fair 2018 (updated on 14 June 2018)

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(IX) Procurement Procedures

The DSSSC promises to ensure that all procurements of goods and services in this project will be carried out on an open, fair and competitive basis.

(X) Report Submission Schedule

My school commit(s) to submit proper reports in strict accordance with the following schedule:

Project Management		Financial Management	
Type of Report and covering period	**Report due date**	**Type of Report and covering period**	**Report due date**
Progress Report 1/9/2018 – 28/2/2019	31/3/2019	Interim Financial Report 1/9/2018 – 28/2/2019	31/3/2019
Final Report 1/9/2018 – 31/8/2019	30/11/2019	Final Financial Report 1/3/2019 – 31/8/2019	30/11/2019

General Expenses – Venue Rental for STEM Fair (breakdown) (Tentative)

Description	Approximated Cost	Justifications / Breakdown / Calculations
Playground of Primary School	$5,250	$350 (for 2-hour session) x 5 sessions per day x 3 days
Playground of Secondary School	$5,250	$350 (for 2-hour session) x 5 sessions per day x 3 days
Covered playground of Secondary School	$5,250	$350 (for 2-hour session) x 5 sessions per day x 3 days
School Hall (with air-conditioning and lighting panels)	$8,200	[$260 (per hour) + $150 (air conditioning for hour)] x 20 hours (in 3 days)
6 Classrooms (with air-conditioning with A/V Systems)	$17,280	$120 (per hour) x 8 hours per day x 3 days x 6 classrooms
2 Conference Rooms (with air-conditioning and A/V systems)	$9,600	$300 (per hour) x 4 hours x 4 sessions (in 3 days) x 2 conference rooms
Student Activity Centre (with air conditioning and A/V systems)	$7,200	$300 (per hour) x 8 hours per day x 3 days
Total:	$58,030	
Final (rounded off to the nearest hundred dollars)	**$58,000**	

DSS STEM Fair 2018 post-event workshops / seminars / visits (Tentative)
Estimated Costs

Workshop / Seminar / Visit	Date	Duration	Target participants	No of students / teachers per session	Equipment / Material Cost per session	Course Fees per session	Hourly Rate for each trainer	Cost per participant	Total
Smart City workshop (Web Map production software + Internet of Things)	6 Oct 2018 20 Oct 2018	3 hours per session	Secondary students Teachers (total: 2 sessions)	20 20	$2,800 $2,800	$3,000 $3,000	$1,000 $1,000	$290 $290	$11,600
Augmented Reality (AR) workshop	3 Nov 2018 17 Nov 2018 2 Mar 2019	3 hours per session	Primary students Secondary students Teachers (total: 5 sessions)	20 20 20	Nil	Free	Free	Free	Free
FarmBot + Big Data Analysis + Data Visualization workshop	1 Dec 2018	3 hours per session	Secondary students Teachers (total: 2 sessions)	20 20	$1,000 $1,000	$3,000 $3,000	$1,000 $1,000	$200 $200	$8,000
Visit to O. Park (STEM Education Prorgamme)	22 Dec 2018 29 Dec 2018	3 hours per session	Primary students Secondary students (total: 2 sessions)	20 20	Nil	$1,400 $2,800	$467 $934	$70 $140	$4,200
3D Design and Laser Cutting workshop	12 Jan 2019 26 Jan 2019	3 hours per session (2 sessions per course)	Secondary students Teachers (total: 4 sessions)	20 20	$3,800 x 2 $3,800 x 2	$3,000 x 2 $3,000 x 2	$1,000 $1,000	$680 $680	$27,200
Virtual Reality (VR) workshop	23 Feb 2019 13 Apr 2019 6 Jul 2019	3 hours per session	Primary students Secondary students Teachers (total: 5 sessions)	20 20 20	Nil	Free	Free	Free	Free

Workshop / Seminar / Visit	Date	Duration	Target participants	No of students / teachers per session	Equipment / Material Cost per session	Course Fees per session	Hourly Rate for each trainer	Cost / participant	Total
Robotics workshop	16 Mar 2019	3 hours per session	Secondary students (total: 1 session)	20	$1,000	$3,000	$1,000	$200	$4,000
Internet of Things (IoT) workshop	30 Mar 2019	3 hours per session	Teachers (total: 1 session)	15	Free	Free	Free	Free	Free
Food printer workshop	4 May 2019	3 hours per session	Secondary students (total: 1 sessions)	20	$5,000	$3,000	$1,000	$400	$8,000
3D Design and Printing workshop	20 Jul 2019 27 Jul 2019	3 hours per session (2 sessions per course)	Secondary students (total: 2 sessions)	20	$1,000 x 2	$3,000 x 2	$1,000	$200	$8,000
								TOTAL:	**$71,000**

DSS STEM Fair 2018 post-event workshops / seminars / visits (Tentative)
Information of Learning Activities

Workshop / Seminar / Visit	Learning Objectives	Learning Contents / Activities	Expected Learning Outcomes	Selection Criteria of participants	Potential Trainers
Smart City workshop (Web Map production software + Internet of Things)	• To enable participants to understand the concepts of IoT and GPS • To equip the participants with the knowledge of using web map and sensors in implementing IoT elements for a smart city • To enhance the IT and logical thinking skills of the participants	These workshops discuss the role that Internet of Things (IoT) and emerging technologies such as GPS and sensors play in building smart sustainable cities worldwide. The sessions provide several examples of applications in smart cities based on IoT deployment.	The participants will understand the role that Internet of Things (IoT) and emerging technologies such as GPS and sensors play in building smart sustainable cities worldwide. They were able to use the Map in Learning software for making web maps and analyze online data.	1. Students or teachers who are interested in the workshop will be nominated by schools (based on their needs and talents). 2. The schools have to apply through an online platform. 3. To be fair, each school will only be allowed to nominate up to 3 students / teachers for each activity. 4. Places will be allocated on a first-come-first serve basis 5. Nominations will be put on waiting list if number of applicants exceed the quota for each class (please refer to P.14 & 15 for quota for each class)	Experts and trainers who work in IT companies that produces Web Map software and make use of IoT for building prototype for smart cities for at least 1 year. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers.

Augmented Reality (AR) workshop	• To enable participants to understand the concepts and use of AR • To nurture the participants' creativity and computational skills in making their own AR products	These workshops presents a review of current Augmented Reality (AR) technology and provides examples of AR modelling. The sessions train participants to create their own AR products	The participants will understand what AR is and how it is used in our daily life. They will also create their own AR products.	ditto	Experts and trainers who work in IT companies that produces AR software, mainly for education purposes. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience. Besides, full-time teachers with AR teaching experience will join as teaching assistants and share their experience with the participants.
FarmBot + Big Data Analysis + Data Visualization workshop	• To enable participants to understand the concepts and use of FarmBots and Big Data • To equip the participants with the knowledge of using FarmBot, Big Data and Data visualization in farming and gardening • To enhance the IT, logical thinking and organization skills of the participants	These workshops discuss the use of FarmBots and Big Data technologies to increase the precision and success rate of farming and gardening. The sessions demonstrate the ways to analyze and visualize big data.	The participants will understand how FarmBots and Big Data were used in the agriculture filed and they will know the ways to analyze and visualize big data.	ditto	Experts and trainers who work in an IT company that were specialized on FarmBots and Big Data. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.

Visit to C Park (STEM Education Prorgamme)	• To enable participants to understand the life of different animals • To promote the concept of conservation • To enhance the creativity, numeracy and collaboration skills of the participants	By joining the STEM Education Programmes organized by the O[illegible] Park, the students gain exciting learning experiences through immersive resources and interactive activities about animals, conservation, liberal studies and mechanics.	The participants will learn by playing and doing on topics about animals, conservation, liberal studies and mechanics.	ditto	Trainers of Ocean Park Academy
3D Design and Laser Cutting workshop	• To enable participants to understand the concepts and use of 3D design software and laser cutting machine • To nurture the participants' creativity and computational skills in making their own Laser cutting products	These workshops explore the 3D design process and the technical aspects of laser cutting. The sessions train the participants to create their own laser cutting products.	The participants will understand and practice the 3D design process and produce their own laser cutting products.	ditto	Trainers for laser cutting workshops from service providers that had experience in providing school-based IT training. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.
Virtual Reality (VR) workshop	• To enable participants to understand the concepts and use of VR • To nurture the participants' creativity and	These workshops presents a review of current Virtual Reality (VR) technology and provides examples of the use of VR in different aspects. The sessions train	The participants will understand what VR is and how it is used in our learning and teaching. They will also create their own VR products.	ditto	Experts and trainers who work in an IT company that produces VR software, mainly for education purposes. Besides, full-time teachers with VR teaching experience will join as teaching assistants and share their experience with the participants.

	computational skills in making their own VR products	participants to create their own VR products			
Robotics workshop	• To enable participants to understand the concepts and use of motors and sensors • To nurture the participants' creativity, computational and collaboration skills in making their own robots and controlling software	This workshop discusses the use of sensors and motors in building robots. The session trains the participants to create their own robots with hardware and software components.	The participants will understand and practice the use of sensors and motors in their own building robots with hardware and software components.	ditto	Trainers for Robotics workshops from service providers that had experience in providing school-based IT training. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.
Internet of Things (IoT) workshop	• To enable participants to understand the concept of IoT • To equip the participants with the knowledge of using motors and sensors in implementing IoT elements for a smart city • To enhance the IT and logical thinking skills of the participants	This workshop discusses the role that Internet of Things (IoT) and emerging technologies such as sensors and motors play in building smart cities. The session provides several examples of applications in smart cities based on IoT deployment.	The participants will understand the role of IoT and the use of sensors and motors play in building smart cities. They will be able to think of some innovations on applying IoT concepts in their teaching in the future.	ditto	Trainers for IoT workshops from service providers that had experience in providing school-based IT training. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.

Food printer workshop	• To enable participants to understand the concepts and use of 3D design software and food printer • To nurture the participants' creativity, computational and collaboration skills in making their own cookies	This workshop explore the 3D design process and the technical aspects of food printers. The session trains the participants to create their own 3D designed and printed cookies.	The participants will understand and practice the 3D design process and produce their own 3D printed cookies.	ditto	Trainers for Food printer workshops from service providers that had experience in providing school-based IT training. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.
3D Design and Printing workshop	• To enable participants to understand the concepts and use of 3D design software and 3D printers • To nurture the participants' creativity and computational skills in making their own 3D printed products	This workshop explore the 3D design process and the technical aspects of 3D printers. The session trains the participants to create their own 3D designed and printed product.	The participants will understand and practice the 3D design process and produce their own 3D printed products.	ditto	Trainers for 3D printing workshops from service providers that had experience in providing school-based IT training. Trainers are preferred to be University graduates with IT backgrounds and teaching experience or experience in conducting training for students and teachers with at least 1 year working experience.

DSS STEM Fair 2018 post-event workshops / seminars / visits
Tentative Calendar

September 2018

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October 2018

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November 2018

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December 2018

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January 2019

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February 2019

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March 2019

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April 2019

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May 2019

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June 2019

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July 2019

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August 2019

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Workshops / Seminars / Visits

DSS STEM Fair 2018	22 – 24 Sep 2018	All schools
Smart City Workshop (Map In Learning - MIL + Internet of Things - IoT)	6 Oct 2018 20 Oct 2018	Teachers Secondary students
Augmented Reality (AR) Workshop	3 Nov 2018 17 Nov 2018 17 Nov 2018	Teachers Primary students Secondary students
FarmBot + Big Data Analysis + Data Visualization Workshop	1 Dec 2018 1 Dec 2018	Teachers Secondary students
C Park Visit (STEM Education Programme)	22 Dec 2018 29 Dec 2018	Primary students Secondary students
3D Design and Laser Cutting Workshop	12 Jan 2019 26 Jan 2019	Teachers Secondary students
Virtual (VR) Reality Workshop	23 Feb 2019	Teachers
Augmented Reality (AR) Workshop	2 Mar 2019 2 Mar 2019	Primary students Secondary students
Robotics Workshop	16 Mar 2019	Secondary students
Internet of Things (IoT) Workshop	30 Mar 2019	Teachers
Virtual (VR) Reality Workshop	13 Apr 2019	Primary students Secondary students
Food Printer Workshop	4 May 2019	Secondary students
Augmented Reality (AR) Workshop	18 May 2019	Primary students Secondary students
Virtual (VR) Reality Workshop	6 Jul 2019	Primary students Secondary students
3D Design and Printing Workshop	20 Jul 2019 27 Jul 2019	Secondary students