CODE FOR FUN SECONDARY 2024

PROGRAMME BOOKLET

For Government and Government-Aided Schools

Please read this booklet before filling up and submitting your application via https://go.gov.sg/cffsec2024

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1 INTRODUCTION

1.1 The Code for Fun Secondary programme (henceforth referred to as "Programme") is a collaboration between the Infocomm Media Development Authority (henceforth referred to as "IMDA") and the Curriculum Planning and Development Division, Ministry of Education (henceforth referred to as "MOE CPDD") to increase students' exposure to computational thinking and digital making. The booklet covers information for Government and Government-Aided schools (henceforth referred to as "schools") supported under the revised Programme from 2023 to 2026.

1.2 Since 2020, all upper primary school students participate in the Code for Fun Primary programme (or a comparable programme), where they develop an appreciation of core computational thinking and coding concepts through simple block-based programming lessons co-developed by IMDA and MOE CPDD. They will also be exposed to emerging technologies such as artificial intelligence and cyber security.

1.3 At the secondary school level, the Programme will continue as an optional programme to provide secondary school students with opportunities to reinforce their appreciation of core computational thinking concepts, delve further into coding, and exercise their creativity through digital making. Students will also further their learning on emerging technologies through resources provided by IMDA and MOE CPDD. The Programme seeds students' interest in technology and improves their ability to use technology to innovate and solve problems.

1.4 For 2024, the Programme consists of a basic 10-hour module and an extended 10-hour module on Digital Making with Data and Artificial Intelligence (AI) (henceforth referred to as "AI Pilot").

1.5 The Programme is aligned with MOE's EdTech Masterplan 2030 in supporting the development of the following digital competencies in students under the "Find, Think, Apply, Create" framework, and technological skills in terms of AI literacy.

- Data Competencies (covered in the AI Pilot)
- Computational Thinking
- Digital Knowledge Currency
- Coding and Programming

1.6 The Programme will be funded by IMDA and MOE CPDD, subject to the terms listed in this booklet.

2 SCOPE OF PROGRAMME

2.1 The Programme supports each school for the entire cohort of Secondary 1 **OR** Secondary 2 students.

2.2 Under the Programme, for the basic 10-hour module, students are funded for 10 hours of training once throughout their candidature in the school[1].

2.3 From 2023 onwards, schools have the option of the **Vendor-Run** or **School-Run** model. As schools are expected to stay with the selected model for the calendar year, schools should

[1] Students who have benefited from the Programme in Secondary 1 will not be funded again in Secondary 2.

consider their available manpower and resources before deciding on a model. Details of the 2 models can be found in the table below.

Vendor-Run Model	**School-Run Model**
Funding and Student Training	
• IMDA and MOE CPDD fund hardware and student training. • Selected training provider conducts student training.	• IMDA and MOE CPDD fund hardware. • School engages teachers or external trainers to conduct comparable student training.
School's Roles and Responsibilities	
<u>Application</u> • Select training course and project theme from the approved list. • Submit application online.	<u>Application</u> • Select hardware from the approved list. • Submit application online.
<u>Submissions</u> • Submit student attendance using template. • Maintain delivery orders of hardware with delivery date and correct quantities.	<u>Submissions</u> • Submit lesson plan to MOE CPDD 1 month before the start of the programme. • Submit student attendance using template. • Maintain delivery orders of hardware with delivery date and correct quantities.
<u>Programme Administration</u> • Check that all trainers who are deployed, both main and assistant, are endorsed by IMDA. • Ensure that students complete the student survey provided by IMDA and MOE CPDD to gauge programme outcomes. • Assign Emerging Tech SLS lesson to students. • Provide evaluation and feedback of the trainer and/or training at the end of the 10-hour programme via the teacher survey.	<u>Programme Administration</u> • Conduct the lessons for students of the selected cohort. • Ensure that students complete the student survey provided by IMDA and MOE CPDD to gauge programme outcomes. • Assign Emerging Tech SLS lesson to students.
<u>Support for Student Training</u> • Make logistic and venue preparations. • Liaise with training provider on project work component. • Deploy a teacher to take attendance and support classroom management for all sessions. • Ensure that students bring their Personal Learning Devices fully charged for lessons and with the necessary software installed. • Update training provider, IMDA and MOE CPDD on changes to training schedule.	<u>Support for Student Training</u> • [Optional] Attend teachers' training arranged by MOE CPDD.

2.4 As an extension of students' learning, IMDA and MOE CPDD will provide a lesson hosted in Student Learning Space (SLS) for students to learn about Emerging Tech. Schools, on both

Vendor-run and School-run models, shall assign and encourage the completion of this SLS lesson[2], when available, to the Secondary 1 or 2 cohort participating in CFF.

2.5 IMDA and MOE CPDD may sit in to observe the CFF training conducted by vendors and/or schools as part of programme monitoring and to look out for best practices for programme review. Advanced notice will be provided to Schools, via email from IMDA and/or MOE CPDD, prior to the observations.

2.6 Digital Making with Data and AI ("AI Pilot")

2.6.1 IMDA and MOE CPDD are piloting an optional extended 10-hour student training module (AI Pilot) on top of the basic 10-hour module. The AI Pilot exposes students to data analytics and digital making projects that integrate data and AI. The Programme supports an entire student cohort for the AI Pilot according to one of the following scenarios.

	Secondary 1	**Secondary 2**
Option 1	Basic 10 hours + AI Pilot	-
Option 2	-	Basic 10 hours + AI Pilot
Option 3	Basic 10 hours	AI Pilot

2.6.2 The AI Pilot will be conducted for the entire cohort by the same training provider that the school has chosen for the basic 10-hour module. The student cohort must have completed the basic 10 hours or an equivalent school-run programme before going through the AI Pilot.

2.6.3 Due to limited availability, only selected schools will be approved by IMDA and MOE CPDD to run the AI Pilot.

3 APPLICATION PROCESS

3.1 Schools are to read this booklet and the accompanying briefing slides before submitting their application online.

3.2 Schools shall select a training provider and training course / programme from the training providers jointly appointed by IMDA and MOE CPDD. Before submitting the online application, schools shall work with the training provider to confirm the choice of training course / programme, estimated delivery date and other relevant details depending on the model. Please refer to the accompanying document on List of Training Providers.

3.3 As the application is done online in one sitting (i.e. no saving of information for continuation later), please have the following information / documents on hand during the application:

A. Completed soft copy (pdf version) of School's Declaration (**Annex A – School's Declaration**), signed by your school's principal and with school's stamp;

B. Completed soft copy (pdf version) of Hardware Request form which includes declaration of School's microcontrollers inventory (**Annex B – Hardware Request Form**), signed by HOD ICT or equivalent and with school's stamp;

C. School's information (e.g. ALP area, cohort size);

[2] MOE CPDD and IMDA will monitor the completion rate of this SLS lesson for the purposes of KPI reporting.

D. Contact details of your school's Principal, Vice-Principal, HOD ICT or equivalent and Teacher-in-charge;

E. **For Vendor-Run Model**: Selected training course, project theme and estimated training start and completion dates;

F. **For School-Run Model**: Selected hardware, estimated training start and completion dates, estimated date to receive hardware and completed soft copy of the details of the School-Run CFF Programme (**Annex C – School-Run Model Form**).

3.4 Schools must submit their application online via [https://go.gov.sg/cffsec2024] during the application window from 18 October 2023 to 24 November 2024. Applications submitted outside of the specified window will not be entertained. The start date of training should be from 29 January 2024 onwards.

3.5 IMDA and/or MOE CPDD will respond to the application within 3 to 4 weeks upon receiving the application to seek clarifications and/or confirm the application.

3.6 **For School-Run Model**, schools shall submit their programme outline to MOE CPDD during the application process and follow up with the lessons plans 1 month before commencement of training.

4 FUNDING GUIDELINES

Student Training – For Vendor-Run Model Only

Conditions of Funding

4.1 IMDA and MOE CPDD will fully fund the conduct of student training provided under this programme for Government and Government-Aided schools, subject to the approval of application.

4.2 Upon IMDA's approval of the school's application, schools shall work with the training provider to schedule and complete the 10 hours of student training of the basic 10-hour module before December of the calendar year for which training was approved. Requests to extend the training timeline will be reviewed on a case-by-case basis.

4.3 Schools shall enrol the entire cohort of Secondary 1 or Secondary 2 registered[3] classes and ensure that all students in the cohort participate in the Programme. Schools shall inform IMDA and MOE CPDD of any changes to the number of classes.

4.4 Schools shall ensure that attendance for each training session is taken by the teacher-in-charge. Schools shall collate the following and submit these information (with school stamp and endorsed by teacher-in charge), in the template provided by IMDA and MOE CPDD, to the training provider for submission to IMDA and MOE CPDD as evidence of training delivered.

- Full names of main trainer and assistant trainer according to IMDA's endorsed trainer list.

[3] Classes must be registered in the school system. Due to subject-based banding, classes may have students mixed across courses – students must be in an officially assigned class (e.g. the class for Math lesson) and students must remain in the same class for the full 10-hour training. Other than to cater for such scenarios, a training class formed by selecting students from different classes will not be supported.

- Number of students who have attended each session of training.
- Number of unique students who have attended at least 5 out of 10 hours of the Programme.

4.5 Schools shall maintain a copy of all training attendance sheets for a minimum period of one year from the last training session and submit these (with school stamp and endorsed by teacher-in charge) to IMDA and MOE CPDD upon request.

4.6 Schools shall deploy a teacher to support classroom management in each class for all sessions of the Programme.

4.7 Schools shall check that the training provider conducts the online student survey to gauge students' understanding and achievement of learning outcomes.

4.8 Schools shall submit teachers' feedback on the training through the online teacher survey for MOE CPDD and IMDA to monitor training quality and finalise payment to the training provider.

4.9 Schools shall check that there is 1 trainer deployed for every 20 students in a class (e.g. 2 trainers for a class of 35 students). Schools shall inform IMDA and MOE CPDD if there is any deviation from this.

4.10 Schools shall provide updates such as any students' or teachers' feedback on the Programme and evidence of students' participation in the Programme to IMDA and MOE CPDD upon request.

4.11 If there are changes to the training schedule (training date and/or time), Schools must inform the training provider, IMDA and MOE CPDD via email at least 5 working days in advance. This is to give the training provider sufficient time to deploy trainers accordingly, and allow IMDA and MOE CPDD to monitor the training progress across schools.

4.12 Schools shall finalise the 4-hour project work component with the training provider at least 10 working days before the start of the project work training. To be reasonable to the training provider, there should be a maximum of 3 rounds of consolidated revisions to the project work component before the finalisation.

Change in Student Level

4.13 If a school chose the Secondary 2 cohort to go through the basic 10-hour module in 2023 and wishes to change to the Secondary 1 cohort for 2024, the school can request funding for student training for both the Secondary 1 and Secondary 2 cohorts for 2024. Both cohorts will be funded for the same training course / programme. This is to encourage more student cohorts to benefit from the Programme.

Microcontrollers and Accessories – For Both Vendor-Run & School-Run Models

Conditions of Funding

4.14 IMDA and MOE CPDD will fully fund the procurement of microcontroller and/or accessories provided under this programme for Government and Government-Aided schools, subject to the approval of application.

4.15 The quantity of microcontrollers and/or accessories supported is dependent on the number of registered classes in the approved cohort. Please refer to the table below for the maximum number of kits supported.

Microcontroller Kit	Tier 1	Tier 2
No. of classes in approved cohort	Up to 5 classes	6 classes or more
Maximum quantity qualified	120 units	200 units

4.16 Schools shall check that delivery orders of microcontrollers and/or accessories have the delivery date and correct quantities stated before endorsing them with school stamp and signature of staff receiving the items. Schools shall maintain these documents for a minimum period of one year and submit them to IMDA and MOE CPDD upon request.

4.17 Microcontrollers issued via the CFF Secondary Programme are covered under warranty for 15 months, starting from the date of receipt of goods. Hence, schools should not accept the delivery of microcontrollers earlier than 3 months from the approved training commencement date.

4.18 If the approved microcontrollers and/or accessories are not delivered by the training start date, schools should inform IMDA and MOE CPDD via email.

4.19 Schools are expected to keep a proper inventory list of the microcontrollers and submit the list as per the template in **Annex B** (stamped and endorsed by at least the School's HOD (ICT) or equivalent) to IMDA and MOE CPDD upon request.

4.20 Schools that have previously received microcontroller kits through other IMDA programmes, such as previous runs of CFF, should select a training course / programme that utilises the same microcontroller as far as possible. Otherwise, schools will need to provide the reason(s) as to why they require new kits, and a declaration of their current inventory (including the number of kits in working condition as well as the number of kits which are not available for re-use).

4.21 For Schools that have previously received microcontrollers between 2021 and 2023, IMDA and MOE CPDD will cover the shortfall in 2024.

A. **CFF Secondary 2021-2023** – If the School chooses a training course that utilises the same microcontroller in 2024 and the provision under CFF Sec 2021-2023 was 120 units, the provision in 2024 will be 80 units if the approved cohort has 6 classes or more. Schools should provide a declaration on their current inventory of the microcontroller using **Annex B.**

5 CONTACT DETAILS

Please contact Mr. Tan Xuan Yuan at tan_xuan_yuan@imda.gov.sg or Mr. Seah Zuo Sheng at seah_zuo_sheng@moe.gov.sg should you have any queries.

ANNEX – LEARNING OUTCOMES FOR CODE FOR FUN PROGRAMME (SECONDARY)

Areas	Scope / Learning Outcomes
Coding Concepts & Introduction to microcontrollers	1. The training shall include the following: a. Teach and reinforce the 4 Computational Thinking concepts (Decomposition, Abstraction, Pattern Recognition and Algorithm Design), where applicable, in coding activities; b. explaining and predicting the output of code with concepts such as sequencing, selection, iteration, and logical reasoning; c. use of selection statements such as IF and IF-ELSE, and iteration statements such as FOR/REPEAT, WHILE loops and Boolean Operators in programs to achieve intended outputs; d. identifying and manipulating inputs and variables to achieve specific outputs; e. understanding and using functions in programs; f. performing arithmetic operations; g. debugging programs to achieve intended outputs; and h. Readability of codes and good programming principles. 2. The training shall incorporate elements of making and design prototyping. This should include: a. Introduction to design prototyping principles; b. introduction to microcontrollers and their functions; c. introduction to external sensors and data collection; and d. applications of microcontrollers in the real world.
Digital Making Project (Up to 4 hours)	1. The digital making project section should reinforce students' understanding through practical work. 2. The project should show synthesis of students' learning to produce an algorithm to solve assigned problems in one of the themes: a. Sustainable Living; b. Emerging Technologies; c. Future of Transportation; d. Cities and Urban Landscapes; e. Health and Food Science; and f. Entrepreneurship. 3. The project should allow students to: a. apply design prototyping principles; b. perform event-based programming, based on inputs from external sensors and/or data from the internet; c. Modify microcontrollers and its additional parts to achieve desired outcomes; and d. Talk about and justify their planning and problem-solving process

Areas	Scope / Learning Outcomes
Digital Making with Data and AI (AI Pilot)	1. Collect data from sensors attached to a microcontroller 2. Analyse data and make simple inferences from the analysed data 3. Understand how input quality and bias affect the performance of AI 4. Create a digital artefact that incorporates AI and sensors to solve a problem related to the project theme