



KIDS CRACK THE CODE

Clubs that teach children as young as eight to program computers are springing up across Hong Kong to prepare students for a hi-tech future, writes **Raymond Ma**

Ask children here what they are doing after school and the chances are that they are increasingly likely to be spending more of their time in front of a computer. But the good news is they are not just playing video games that rot their brains.

In Hong Kong, as elsewhere around the world, children as young as eight are being urged to learn to write computer code in preparation for a world where being able to program a computer will be just as common as basic literacy is today.

From September, writing

computer programs will be part of the mandatory curriculum in all primary and secondary schools in Britain; coding education officially went mainstream in the United States in December when President Barack Obama helped the non-profit organisation Code.org to kick off a campaign encouraging school students to take short tutorials in how to program computers.

Meanwhile, Hong Kong has seen a slow but steady rise over the past year in community groups and schools offering to teach children

how to program computers and mobile devices to do all manner of useful and fun things.

One such initiative is First Code Academy, co-founded by Michelle Sun, a former Goldman Sachs analyst turned engineer. The idea is to help Hong Kong children reconnect with their creativity in a digital age where they would rather stare at mobile phones or tablets than express themselves using boring old pens and paper.

This is why the school teaches coding on mobile devices as

opposed to desktop computers and notebooks, Sun says.

Encouraging children to design mobile applications also helps them to build up logic skills and engage in critical thinking. "Kids these days practically grow up with iPads and tablets," she says. "The implication is they are much more tech savvy, but at the same time they are being spoon-fed a lot of pre-packaged media and entertainment. They're being robbed of that creative power that children should have."

At Sun's workshops, children



Michelle Sun (left), co-founder and chief executive of First Code Academy (and above) during one of the school's code-writing classes. Photos: Jonathan Wong

weekends and last an hour and a half to two hours, Sun says.

This summer, the tutorial school will also launch additional classes divided into three age groups. Kids aged between eight and 11 will be introduced to foundational computer science concepts; those aged 12 to 15 will be taught more in-depth knowledge about how to program plus problem-solving skills, while older children will be encouraged to test their ideas through hands-on app development grounded in everyday needs.

"Having an eight-year-old child sit down for one and a half hours is a challenge in itself, says Sun, the school's chief executive. "Computer science is not just sitting down and trying to solve problems. It can be a living activity, too.

"We do a lot of unplugged activities: we tell kids to close and step away from their computer, and learn about algorithms, how to think like a computer scientist, break down problems and go to the white board. There's a variety of things we want them to experience in computer science and think through with logic and then go back to the computer to make the application."

Another initiative is Code Club HK, part of a global volunteering network helping children aged nine and 11 develop computing skills. The project was launched in Hong

Kong this year by David Greenwood.

The idea behind the club is to match volunteers with schools that are interested in having after-school coding classes. Volunteers teach at participating schools for an hour each week.

Courses are structured so students can take on progressively bigger challenges. In their first and second terms, students use a simple, graphical language called Scratch to learn the basics of programming. In term three, they learn the fundamentals of web development using HyperText Markup Language (HTML) and Cascading Style Sheets, while in term four they start to learn Python, a popular programming language used by professional coders today. Greenwood says more than 100 volunteers and 30 schools in Hong Kong have signed up so far. The local chapter of the club, currently focused on translating material developed for Code Club UK into Chinese, hopes to have 20 per cent of the city's primary schools running one of its clubs by 2016.



Computer science is not just trying to solve problems. It's a living activity, too

MICHELLE SUN, FOUNDER FIRST CODE ACADEMY

Since it was founded five months ago, the chapter has also been busy trialing Code Club within four schools in Hong Kong, with a view towards an official launch in September.

Other organisations have also picked up on the idea. Earlier this year, CityU Apps Lab teamed up with the Rotary Club of Tai Po to launch a workshop for 30 Form Four and Five students at five schools in Tai Po and Central districts. The intensive 18-hour course – stretching over nine lessons – was free to students.

Ray Cheung, director of CityU Apps Lab, who led the first round of workshops, says they cover a range of topics related to writing programs for mobile apps, from basic Java syntax, to programs in Android, Rich Site Summary (RSS) and Extensible Markup Language (XML) data transfer. The course also teaches students how to program simple applications, such as a weather-related app and a "shake and wake" alarm clock that uses a mobile phone's accelerometer in place of a snooze button.

Cheung says the goal is not to nurture people to work in software development, but to get youngsters interested in writing computer programs as an outlet for their creativity. Yet it doesn't hurt that some people may become interested enough to consider a career in the technology sector in Hong Kong, he says.

Francis Au, president of the Rotary Club of Tai Po, says he came up with the idea of launching the introductory workshops after interviewing local secondary school students and finding that many had neither the ledge nor the interest in writing computer programs.

As for arguments about whether children should be encouraged to sit in front of a computer instead going outside to play or learn a musical instrument, Au says the key is balance. "You don't want children to be doing one single thing for too long – just like if they keep playing basketball and doing nothing else.

"As a parent, if they're interested in something, you should try to help them excel."

learn to program using a language called App Inventor, which employs a drag-and-drop graphical user interface to allow applications to be built using blocks of pre-written computer code.

Children make simple games and quizzes, as well as using more elaborate programs such as a Photo Booth, which allows pictures taken with a mobile phone camera to be modified. One student came up with an app that allows them to take pictures of their wardrobe to help them plan what to wear each week.

For First Code Academy, what began last July as a one-day course has grown steadily into classes at three major international schools – Chinese International School, Canadian International School, and American International School, as well as private lessons. Classes are held after school or during