WEB DEVELOPMENT CLUB

DESIGN AND CODE WEBSITES AND WEB-BASED APPLICATIONS

CRIMSON | Global Academy

CGA CLUBS

What is the Web Development Club?

The Web Development Club is a school-led club at CGA that allows students with an interest in website design and coding to further learn how to develop their own websites and if they want to publish the finished product.

Club members learn HTML, CSS, and Javascript (the three most common languages used to build sophisticated websites).

Students learn to build unique websites designed for any platform (mobile, tablet, PC, laptop), pages that can run embedded games, as well as website security.

"We started the club because we thought as a modern-day skill any student should be able to develop a website."

Dr. Andrew Daniel, Club teacher

The club also allows students from different parts of the globe to come together and discuss their passions and ideas. The collaborative approach helps students develop better products through the course of the club.

Websites created by students in the club are an impressive addition to their college application portfolios.

Why join?

THINK. LEARN. CODE.

At CGA we encourage students to develop their interests outside the classroom by offering a variety of extracurricular activities. Through Crimson Community students can connect with others who have similar interests.

But what if you wanted to take your passion for one of these interests to the next level? What if you could develop your own websites that could be later monetised? If those are your interests then the Web Development Club is for you.
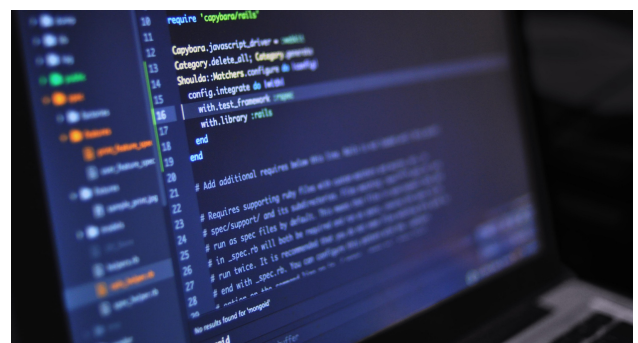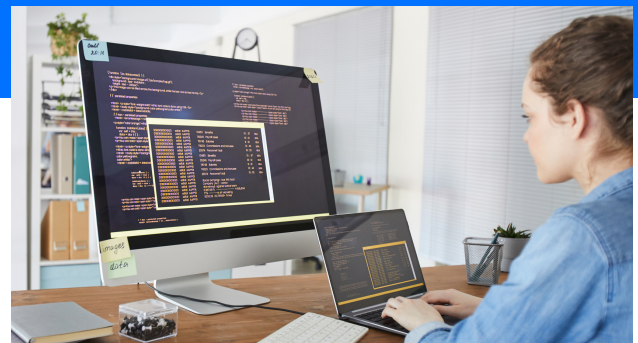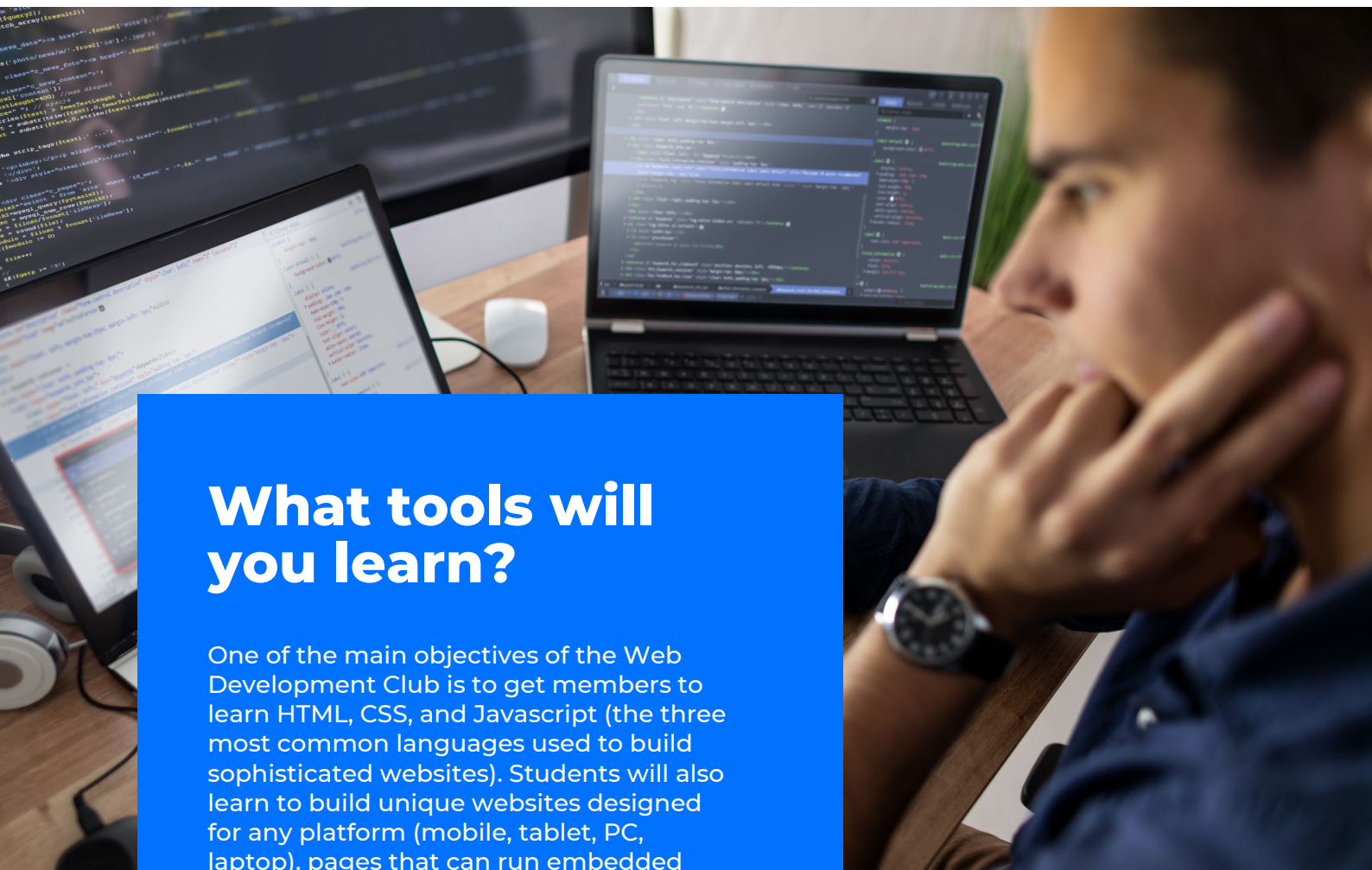
What tools will you learn?

One of the main objectives of the Web Development Club is to get members to learn HTML, CSS, and Javascript (the three most common languages used to build sophisticated websites). Students will also learn to build unique websites designed for any platform (mobile, tablet, PC, laptop), pages that can run embedded games, as well as website security.

HTML 5

HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. HTML uses "markup" to annotate text, images, and other content for display in a Web browser.

CSS

Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. It is designed to enable the separation of presentation and content, including layout, colours, and fonts.

JAVASCRIPT

JavaScript is a programming language that conforms to the ECMA Script specification. JavaScript is high-level, often just-in-time compiled, and multi-paradigm. JavaScript is one of the core technologies of the World Wide Web.
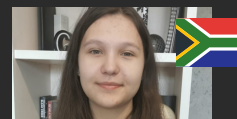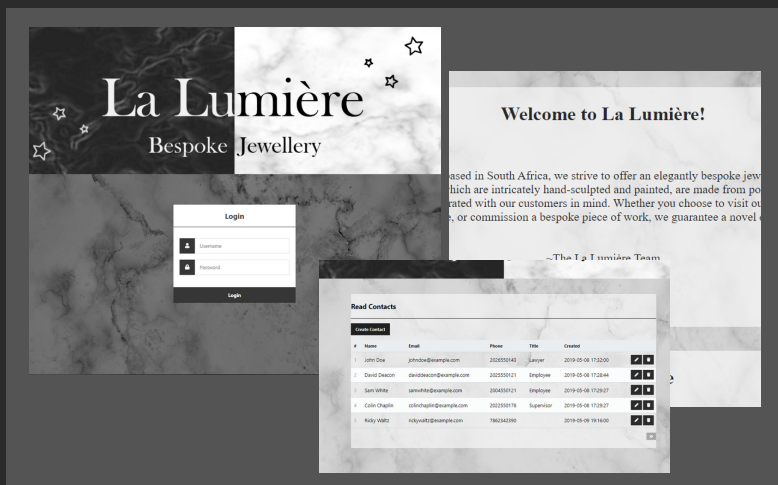
Student showcase

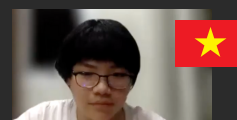
ARYAN
Part-time student

Aryan is currently coding an AI application, in which AI 'agents' learn by reinforcement learning to improve their performance on a given task.

CAITLIN
Full-time student

Caitlin's latest project links a webpage securely into a database. This required integration of five different computing languages in order to complete the app.
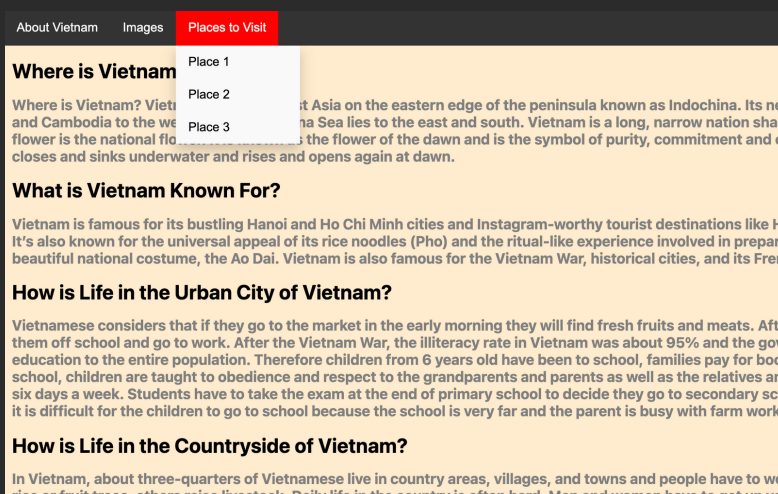
HUNG YU
Part-time student

Hung Yu created webpage on Vietnam tourism with interactive dropdown menus coded in Javascript.

Student showcase

BOIDS

—

Boids is an artificial life simulation originally developed by Craig Reynolds for the Batman movies, to simulate large groups of computer generated bats flying around! CGA Web Dev students have been exploring the maths of this program.
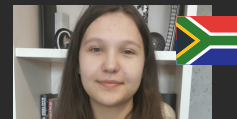
CAITLIN
Full-time student

—

The Sierpinski triangle is a self-similar fractal. Caitlin replicated this in her Web Dev classes using Javascript. This is really clever work, as it uses an infinite fractal algorithm. There is a separate web page in the app explaining the concepts.

> *"What I particularly enjoy about our Web Dev club is seeing students who are complete beginners, and who work really hard to get to grips with coding, and they've ended up publishing their apps. That makes me very proud. "*

Dr. Andrew Daniel

Associate Principal,
Mathematics teacher
and Web Dev teacher at CGA

MEET YOUR TEACHER

The Web Dev club is led by Dr. Andrew Daniel, CGA's Associate Principal and mathematics teacher based in the UK.

Across his career Dr. Daniel has taught in five different schools, in the UK and overseas, and also been involved in areas such as university preparation and extra-curricular programmes.

At CGA he teaches International GCSE and AS Level Mathematics. A good number of Dr. Daniel's former students are now studying at Oxford or Cambridge, or the Ivy League universities in the US.

Dr. Daniel has a Master's degree in education, and a PGCE in Mathematics.

His particular area of interest is technology and IT in education and early in his career he was shortlisted as a finalist for the National Teaching Awards to recognize his work in technology.

He was involved in some of the original projects in the UK to trial interactive whiteboards for classroom teaching, and has been working to develop software to support mathematics teaching. More recently, he has been involved in training with American universities in areas such as the mathematics of 3D computer game design, and artificial intelligence.

He brings all this knowledge to the web development club.

Club info

No previous knowledge of web design, HTML, CSS or Javascript needed to join the club

- All are welcome to join us – there is no significant mathematical content required to join the club

- You'll need to install a personal copy of a text editor such as Atom (open source and free to install) on your computer – instructions will be given

- You'll also need an internet browser on your computer – Google Chrome is recommended

- You will learn to create your own webpages, and, if you wish, publish the pages live to the web.

"For students who want to push themselves really hard in their academic work, apply for top universities in the future and have a really powerful piece of work to show - this club could be an amazing opportunity."

Dr. Andrew Daniel, Club teacher

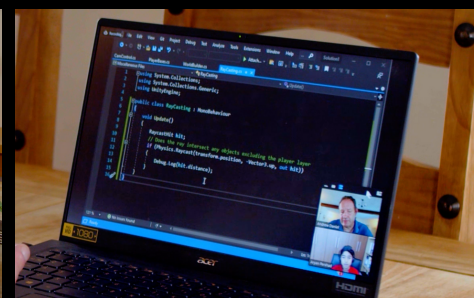## When do we meet?

Every Thursday at
3pm-4pm BST

Available spots?

The maximum amount of members for this club is 16.

Why web dev?

Computer coding is the literacy of the 21st century.

Course Schedule

Part 1: Introduction to Webpage Design

WEEK	TOPICS
1	Set up of the text editor. Intro to HTML: tags; the structure of an HTML document. Creating a first webpage.
2	Intro to webpage styling and graphics using CSS coding
3	Further HTML and CSS: tables, forms, navbars
4	Creating a fully styled example webpage
5	Student project part 1: building own website
6	Student project part 2: building own website

Part 2: Responsive design and advanced topics

WEEK	TOPICS
1	Media queries: changing webpage graphics for different viewing devices
2	Javascript and interactivity example: creating an interactive photo image gallery
3	Javascript for web-hosted games: Pong!
4	Intro to server-side scripting: PHP and databases; internet security
5	Advanced student project part 1: building own responsive website
6	Advanced student project part 2: building own responsive website

What are the key learnings?

Through the web development club students will take a deep-dive into the following:

- How are webpages created and styled to look good?
- How are webpages designed for any platform? Mobile, tablet, PC, laptop?
- How can we run games in webpages?
- How can we build unhackable webpages?
- How to build, discuss and improve your own webpage using the HTML, CSS and Javascript languages, the three languages most commonly used to create sophisticated webpages. Javascript is often ranked as the single most important computer language to learn for future careers.

Which subjects and courses is it good for?

Web development is a key skill for most career paths these days.

"We think at CGA that it is very important for us to give these coding skills to our students for the future," says Dr Daniel.

CGA wants to make sure that students can successfully demonstrate their coding skills in their university applications. A well-developed website will be a great addition to a student's admission portfolio to pursue a variety of educational paths in university.

If you are interested in graphic design or digital marketing, this club is perfect for you.
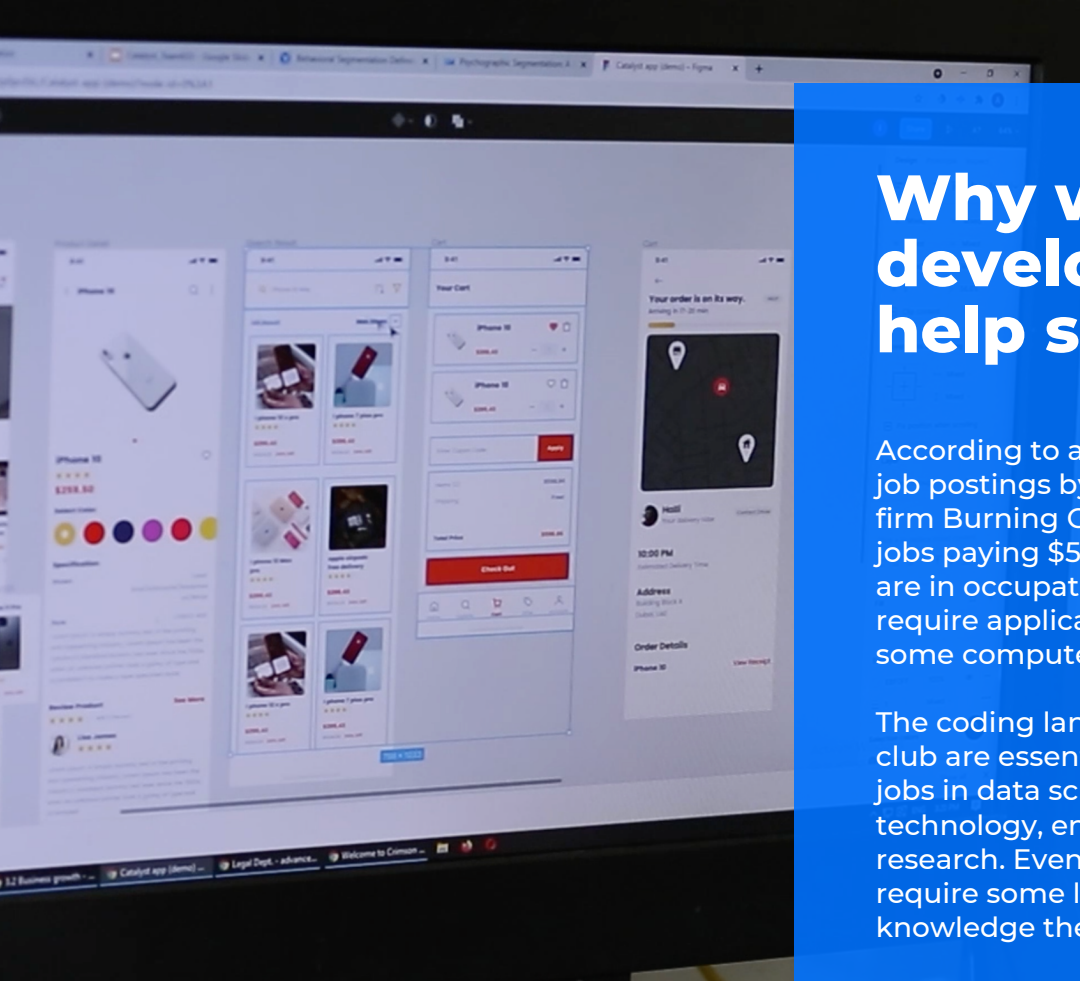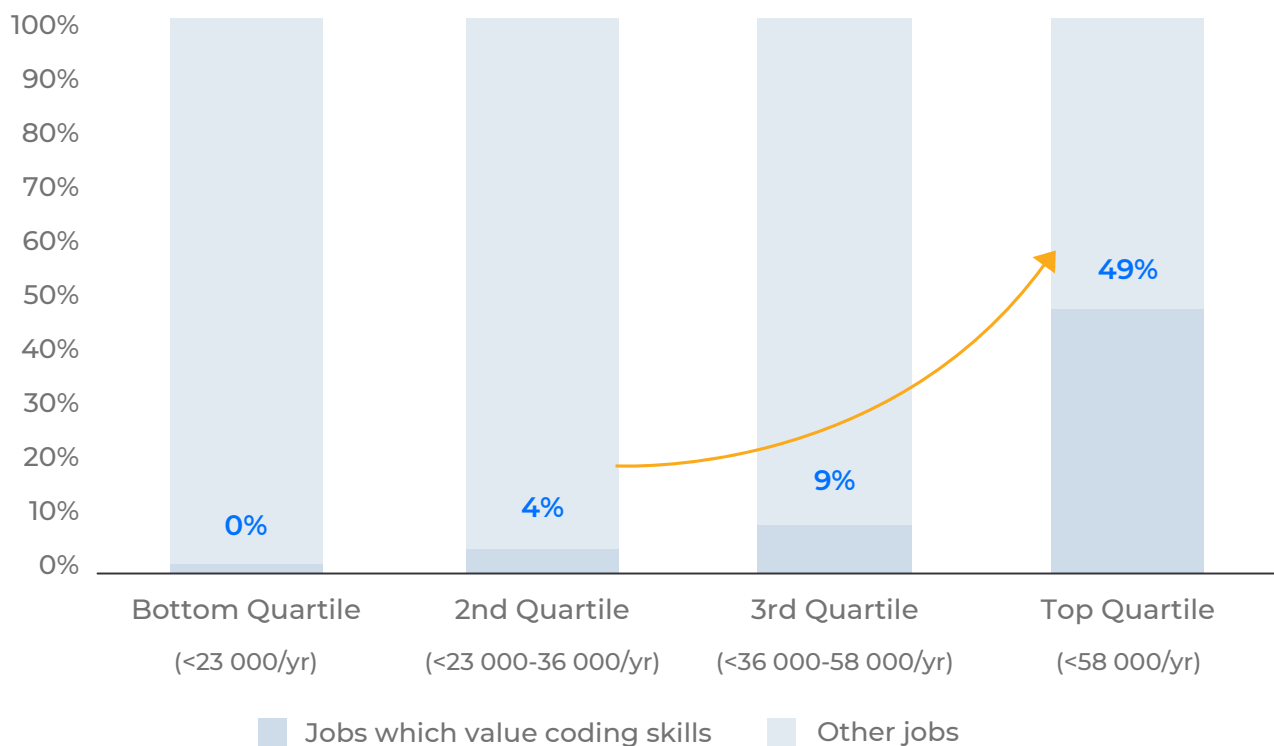
Why will web development help students?

According to an analysis of 26 million job postings by job market analytics firm Burning Glass, about half of the jobs paying $57,000 or more per year are in occupations that commonly require applicants to have at least some computer coding knowledge.

The coding languages taught in the club are essential skills for high-paying jobs in data science, information technology, engineering and scientific research. Even jobs in arts and design require some level of coding knowledge these days.

Percentage of job openings that value coding skills

	Bottom Quartile (<23 000/yr)	2nd Quartile (<23 000-36 000/yr)	3rd Quartile (<36 000-58 000/yr)	Top Quartile (<58 000/yr)
	0%	4%	9%	49%

■ Jobs which value coding skills   ■ Other jobs

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Career pathways and growth opportunities

Web development will help students construct interesting and secure websites.

This is a great addition to any university application portfolio. Additionally students will be able to learn basic coding skills that can be helpful in a variety of college courses as well as careers.

"Some of our students have learned a lot and achieved some phenomenal results," says Dr Daniel. I think some are to the extent that they could do it professionally.

Industry	Avg salary p/a	Projected employment growth
Information Technology	$90 000	8.8%
Art and Design	$78 000	8.2%
Engineering	$74 000	2.9%
Science	$61 000	6.3%

Programming jobs are growing fastest, 50% faster than the market overall. In general, programming jobs are growing 12% faster than the market average.

+ Do I need previous experience to join?

No prerequisite knowledge is required to join the club. You'll need to install a personal copy of a text editor such as Atom (open source and free to install) on your computer and instructions will be given. You'll also need an internet browser on your computer and Google Chrome is recommended.

+ How do I join the web dev club?

All you have to do is fill out a form and you will be on your way to coding. The class meets once a week.

+ What are the fees?

The membership fee is $40 NZD per month on a subscription basis (cancel anytime)
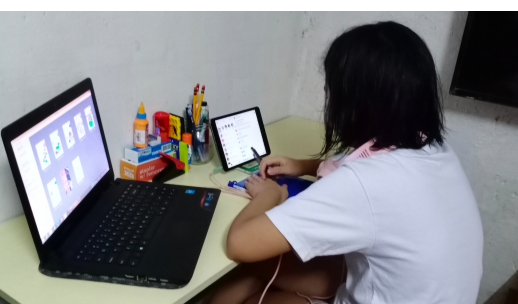
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Book a meeting with our Admissions team to find out more. Speak with one of our staff directly who can answer any questions you have.

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