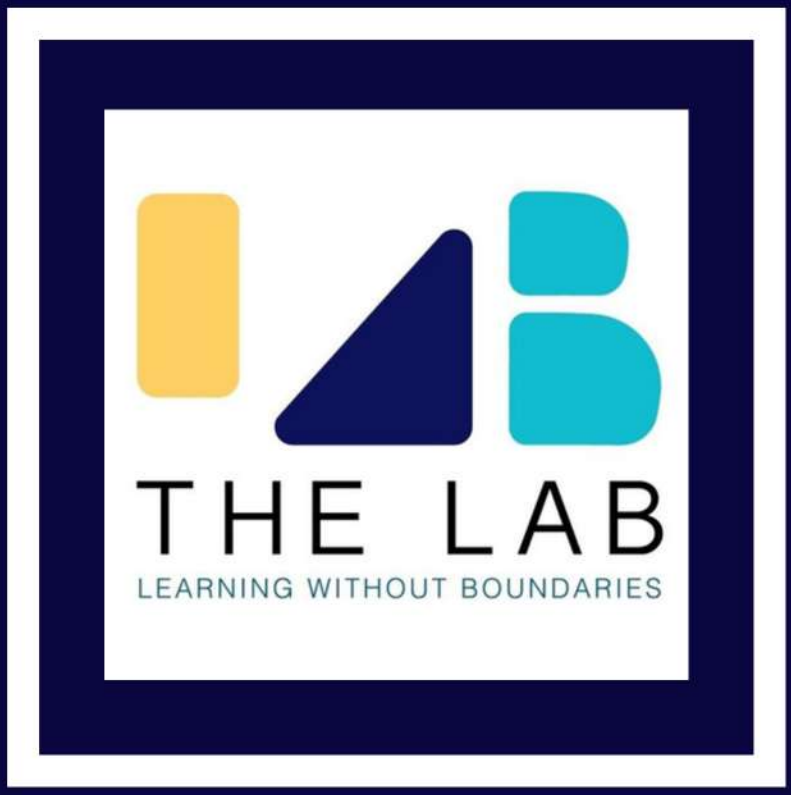
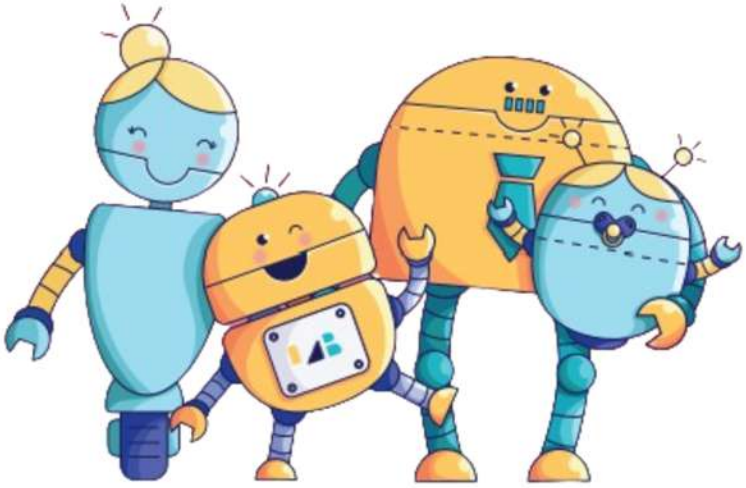

THE LAB
LEARNING WITHOUT BOUNDARIES

THE LAB CODER

Childhood and early adolescence are the critical age ranges for children to learn anything, including Coding, because their brains are still developing and learning “how to learn”.

Now is the chance to introduce your child to native programming.



MEET THE SENIOR TEAM

DR. OKA KURNIAWAN

Dr. Oka is a Senior Lecturer for Singapore University of Technology and Design. His research areas include Computer Science Education.

CURRICULUM SPECIALIST

DR. SCARLETT MATTOLI

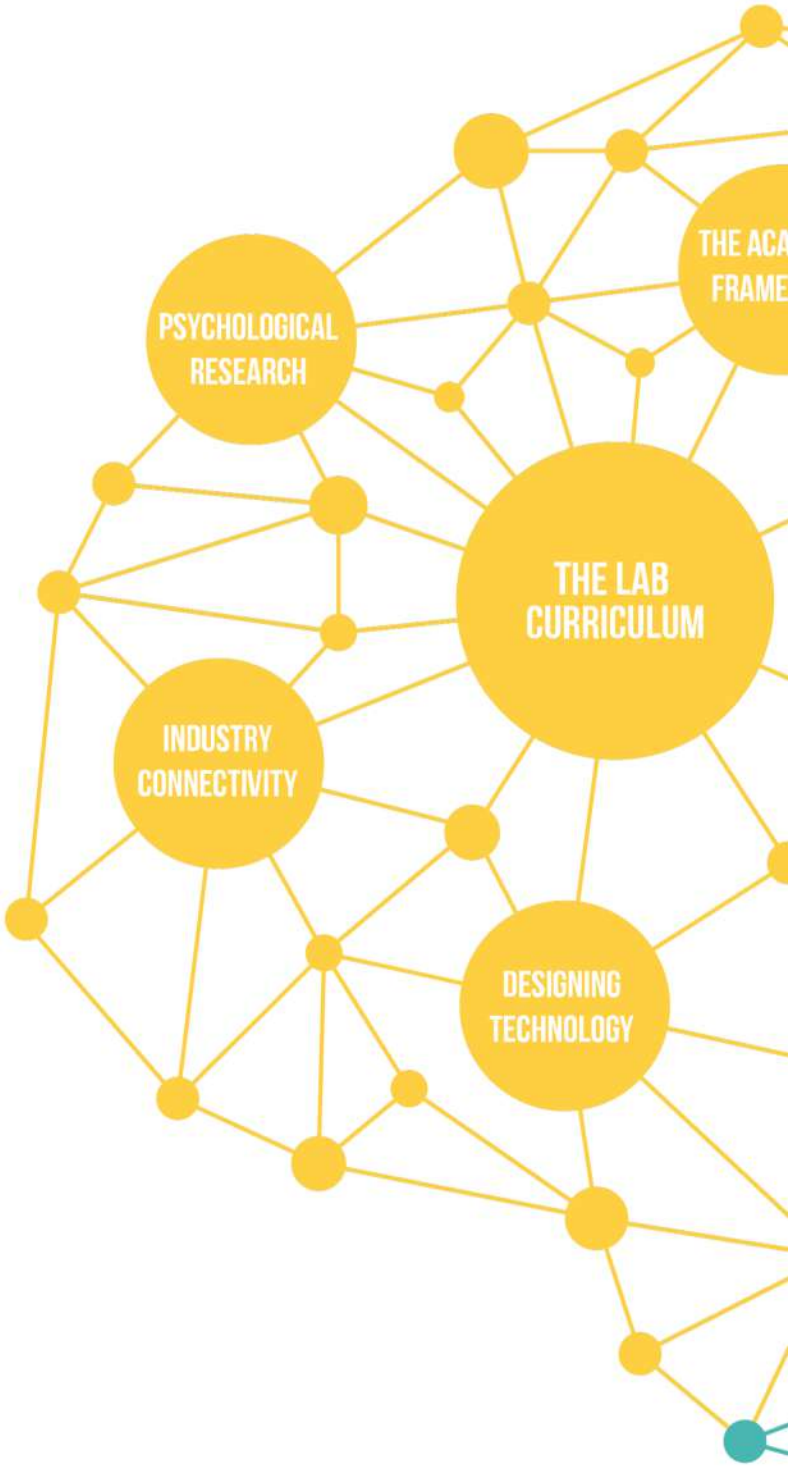
Dr. Scarlett is a Psychotherapist/Counsellor, Coaching Psychologist & Supervisor and Psychometrist, specialising in psychological and therapeutic support.

CHILD PSYCHOLOGIST SPECIALIST

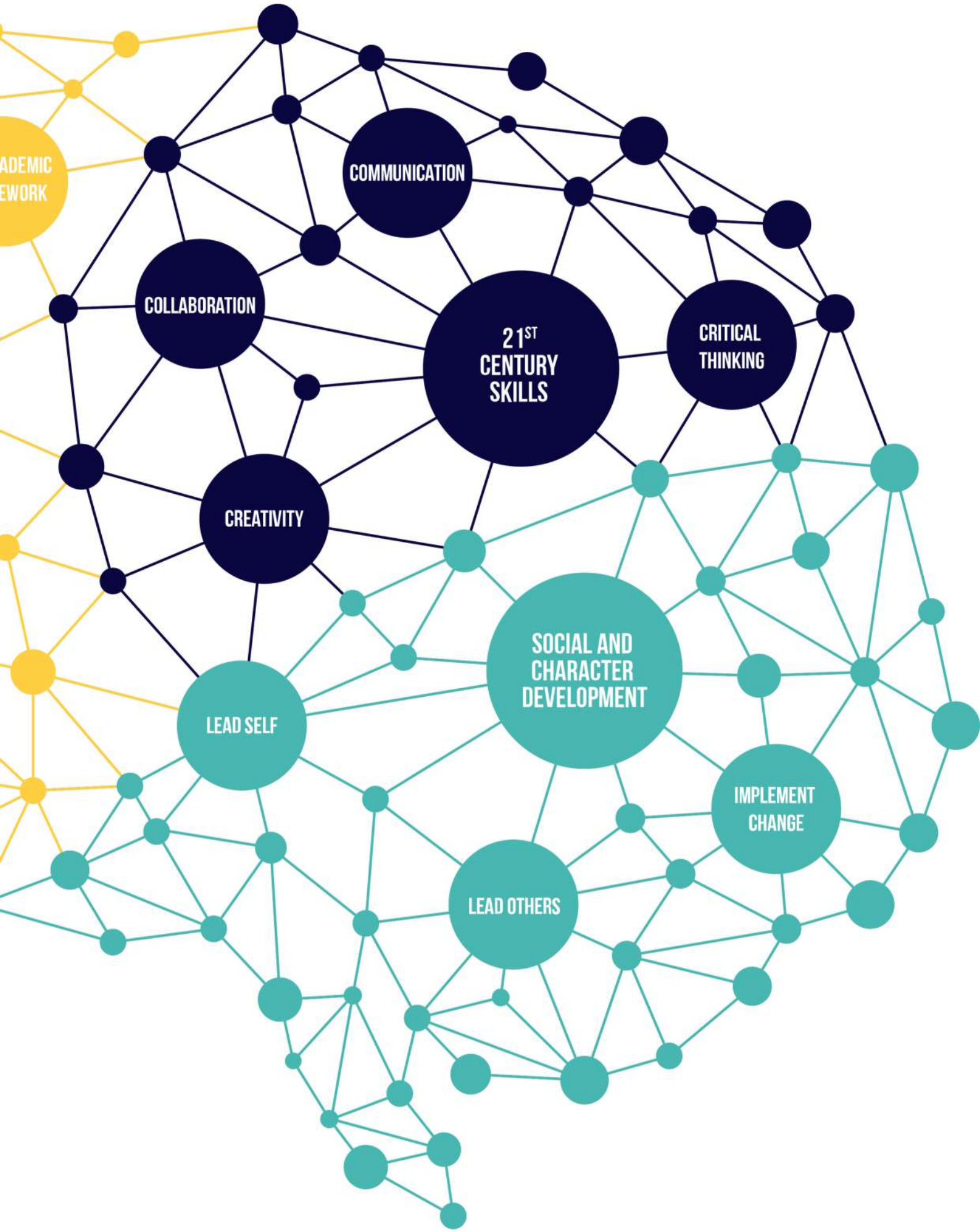
DR. COLLIN ANG

Dr. Collin is the Managing Director of Decision Science and is a thought leader in the industry for digital transformation and analytics

TECHNOLOGY SPECIALIST


PSYCHOLOGICAL RESEARCH
THE ACA FRAME
THE LAB CURRICULUM
INDUSTRY CONNECTIVITY
DESIGNING TECHNOLOGY

CURRICULUM


ADEMIC
EWORK
COMMUNICATION
COLLABORATION
21ST CENTURY SKILLS
CRITICAL THINKING
CREATIVITY
SOCIAL AND CHARACTER DEVELOPMENT
LEAD SELF
IMPLEMENT CHANGE
LEAD OTHERS

EMPOWERING STUDENTS THROUGH COMPUTATIONAL THINKING & AI LITERACY

THE LAB coder

FOUNDATION FOR AGE 10 & 14 YEARS OLD

By the end of this course, your child will build strong skills in Computational Thinking, gain solid AI literacy, and code confidently in Python.

This curriculum is reviewed by Dr. Oka Kurniawan, Senior Lecturer SUTD

Program Outline

- Open lab structure
- Student-centered, inquiry-based curriculum
- 4 Levels (Foundation,
- Basic, Intermediate, Advanced)
- Fuses Coding with multiple disciplines
- Ratio 1:8
- Duration 100 mins

JOIN US FOR A FUN-FILLED LEARNING EXPERIENCE!

WE DO NOT WAIT TO DISCOVER POTENTIAL — WE DEVELOP IT.

Eligibility

- At least one year in The Lab
- Finished Coder - Basic Level

At The Lab Singapore, excellence is not reserved for a select few — it is a standard we cultivate in every trainee.

All Coder-level trainees are **guaranteed entry** into our prestigious Champion Team Training Programme upon completing the Basic level, advancing them into structured preparation for national and international competitions..

Our Champion Team goes beyond participation — it delivers disciplined training, strategic development, and rigorous coaching to build the confidence and technical mastery required to excel on larger stages.

FOUNDATION

Detail: *The Lab Coder Foundation is a stepping stone to the Lab Coder program. It serves as a preparatory program for students to ease them into the rigorous requirements of the Lab Coder program. It provides a broad introduction to allow students to acquire the skills of a good programmer.*

The curriculum focuses mainly on developing the 3 core skills to prepare the student for The Lab Coder program. These are visualisation, analysis and debugging.

No. of levels: *4*

Visualisation	**Analysis**	**Debugging**
Given a target outcome, students assemble the provided code blocks to reproduce the intended result. This guided approach helps narrow down coding possibilities while gradually introducing new command blocks.	Students are tasked with analyzing written code to understand how it executes and to determine the resulting output. This process strengthens their ability to anticipate outcomes and spot discrepancies.	Debugging involves understanding the expected outcome, examining the actual output, identifying discrepancies, and correcting errors. Students sharpen these skills through hands-on challenges that are intentionally designed with bugs.
By grounding students in these core technical fluencies, The Lab Coder Foundation equips them with the mindset and methodologies essential for full programming tasks in the Coder modules.		

BASIC

Detail: *The curriculum is designed for the age of AI, where strong problem-solving skills are more essential than ever. By exploring real-world applications across diverse fields—such as Equity in Engineering, Neuro-inclusive Design, Linguistics, and innovative game development—it empowers students with bold ideas and practical know-how, even if they have little or no prior coding experience. At the same time, it grounds their learning in the timeless principles of computer science, ensuring they remain relevant and adaptable in the face of rapid technological change.*

No. of levels: *2*

Robotic IO Modules	**Programming Concepts**	**Problem Solving Approaches**
Raspberry-Pi Buzzer LCD Motor Ultrasonic distance sensor Button sensor Colour sensor	Algorithmic sequencing If controls Conditional loops Logic operators Comparison operators Random number generator	Order recognition Pattern recognition Branching & layered logic Flow diagram Code labelling Flowchart Visual analysis Tabulated data interpretation Development of programs in different genres; Practical, Fun and Abstract.

Throughout the curriculum, students engage in exercises that strengthen their ability to apply programming concepts to problem-solving using a variety of approaches. Robotic modules provide interactive input and output, enriching the experience through hands-on exploration. Comprehensive digital course notes support their learning, while at the end of each level, students design and develop small projects to showcase their creativity.

INTERMEDIATE

Detail: *The curriculum begins with the foundations of the Basic modules and gradually progresses to advanced topics through the introduction of powerful concepts. It sharpens problem-solving skills by tackling dynamic data and applying structured methods to complex challenges. At its core lies a timeless principle: no matter the scale of a problem, success comes from careful planning and breaking it into clear, manageable steps.*

No. of levels: *2*

Robotic IO Modules	**Programming Concepts**	**Problem Solving**
Raspberry-Pi Buzzer LCD Motor Ultrasonic distance sensor Button sensor Colour sensor	Algorithmic sequencing If controls Conditional loops Count loop Logic operators Comparison operators Random number generator Variables List data structure Function	Order recognition Pattern recognition Branching & layered logic Flow diagram Code label Flowchart Visual analysis Tabulated data interpretation Development of programs in different genres; Practical, Fun and Abstract

Throughout the curriculum, students participate in exercises that advance their problem-solving skills through the application of more sophisticated programming concepts. Comprehensive digital course notes support their learning, and at the end of each level, students design and develop small projects to showcase their competency.

ADVANCED

Detail: *To prepare students for real-world, scalable programming, we progress from block-based coding to Python, chosen for its clarity and conceptual depth. In today's AI-driven landscape, success depends less on rote syntax and more on architectural thinking, adaptive design, and seamless integration. Human developers remain essential, bridging AI's blind spots with domain knowledge and creative problem-solving.*

No. of levels: *3*

Python Essential	**Python Advanced**	**Python OOP**
Console IO Variable and Operators Datatype and Casting If Statement Loops List String Manipulation Mini-Project on simulated AI	Try-Exception Function 2D List Dictionary File IO Turtle Mini-Game Project	Class Class Variable Static Method Class Inheritance Class Polymorphism Mini-Project on Simulation Coding with AI

Learners develop technical fluency to identify flaws in AI-generated code and manage prompt complexity. The course balances deep expertise with context-aware problem-solving, supported by comprehensive reference notes. The final assessment emphasizes refining AI outputs through clear problem understanding, critical analysis, and effective interaction.

SCHOOLS ACHIEVED VIA DSA CODING & ROBOTICS:

SCHOOL OF SCIENCE AND TECHNOLOGY, SINGAPORE

NUS HIGH SCHOOL of Math & Science

St. Joseph's Institution
Looking Forward Since 1852

DUNMAN HIGH SCHOOL SINGAPORE

華僑中學 HWA CHONG INSTITUTION

Anglo-Chinese School (Independent)
A Methodist Institution (Founded 1886)

SINGAPORE POLYTECHNIC | SP

We are committed to supporting your child's learning journey and progression with us—empowering them through specialized programs, national and global competitions, and exclusive activities that strengthen their Direct School Admission (DSA) portfolio and ignite their passion for innovation.

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JOIN US AT

COMMIT TO A YEARLY MEMBERSHIP
&
GET PROMOTIONAL RATES!

Enjoy up to two visits per week with your membership

3 months	$380/mth
6 months	$340/mth
12 months	$320/mth

** *Registration fee is $80 per student*

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