



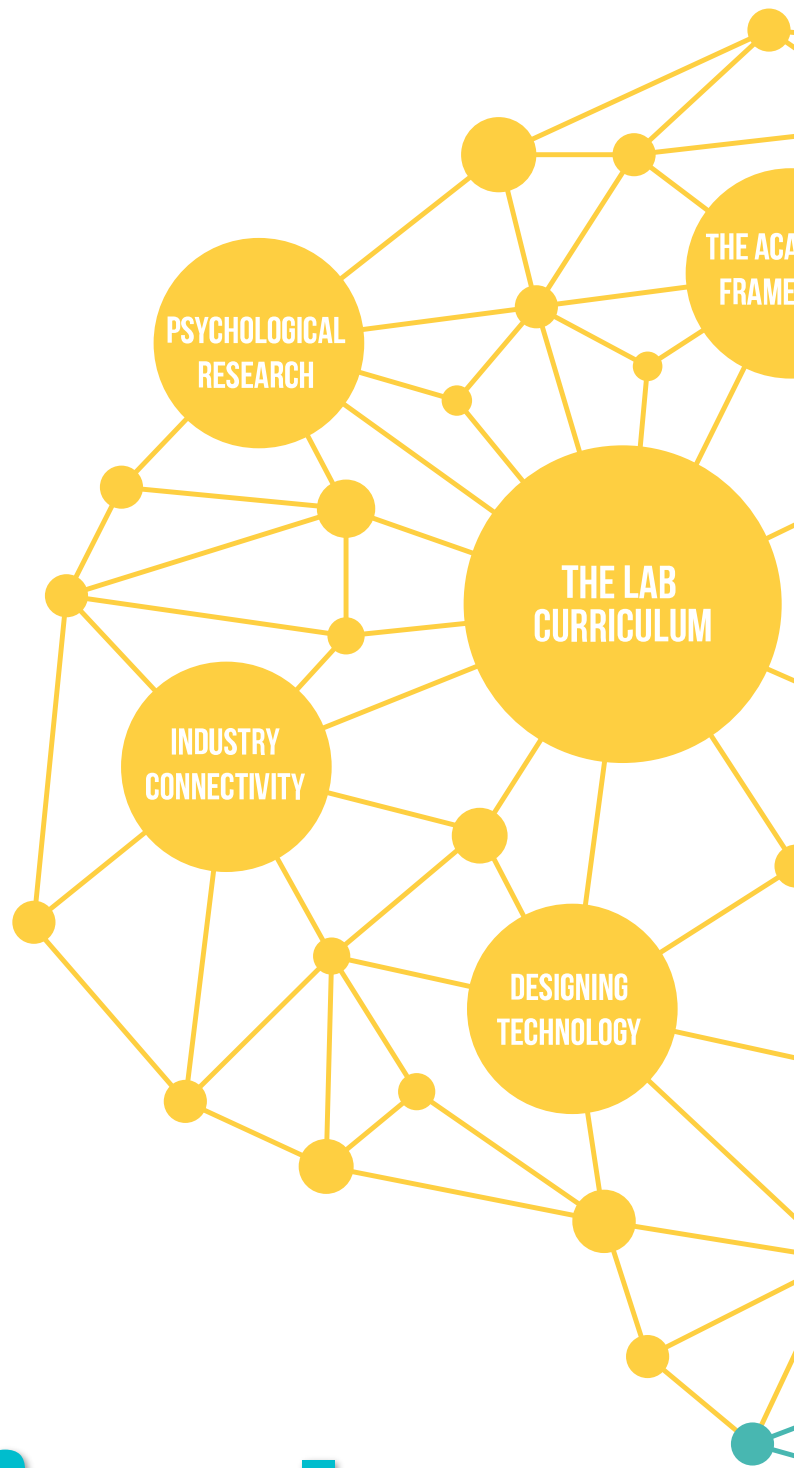
THE LAB

LEARNING WITHOUT BOUNDARIES

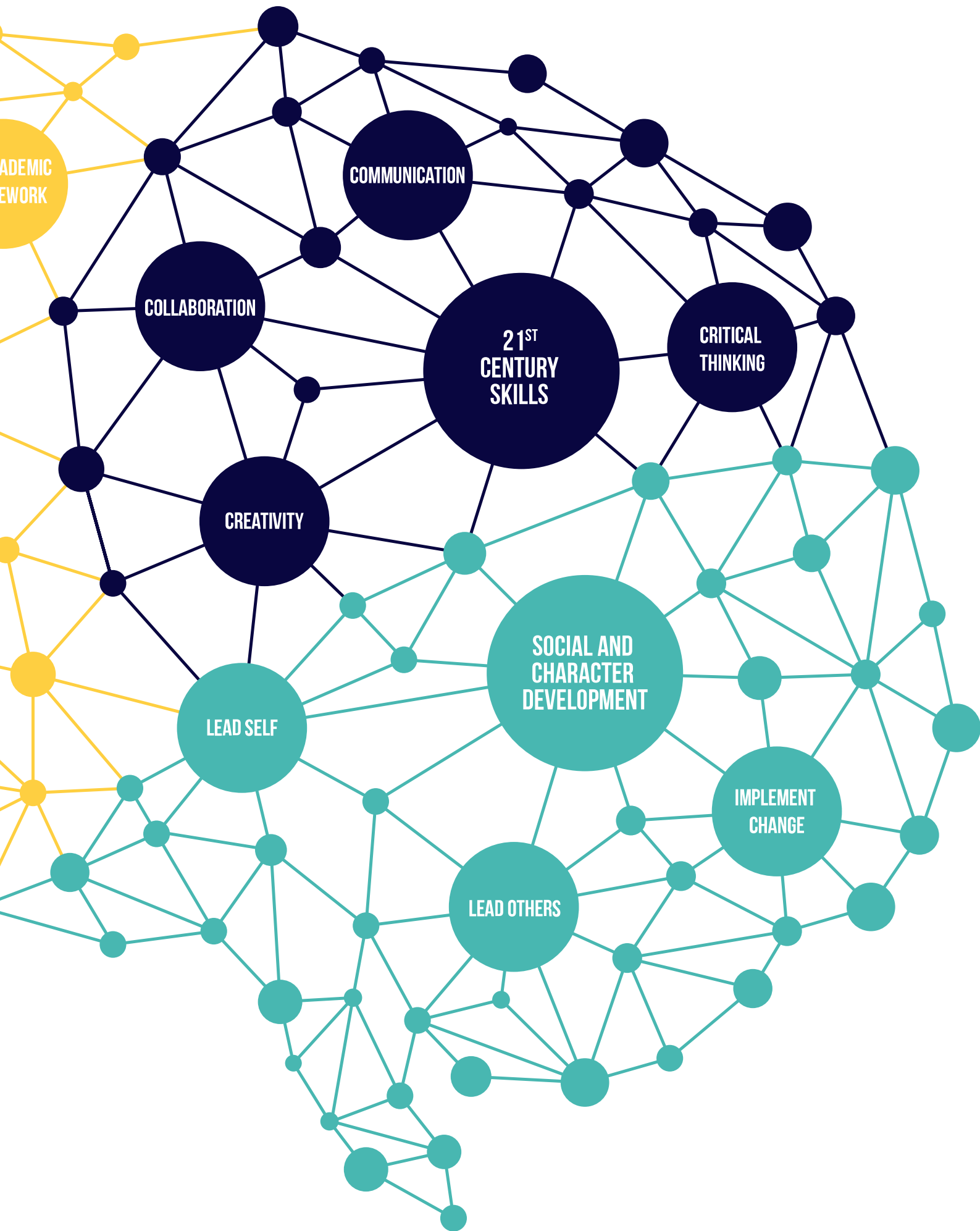
# THE LAB JUNIOR

Schools around the world now have Coding as a subject within their curriculum, beginning as early as the 3<sup>rd</sup> grade. In today's high-tech world, kids are introduced to technology before they are introduced to anything that resembles a book.

Get an early start with technology the right way.



# Curriculum



ACADEMIC  
NETWORK

COMMUNICATION

COLLABORATION

21<sup>ST</sup>  
CENTURY  
SKILLS

CRITICAL  
THINKING

CREATIVITY

SOCIAL AND  
CHARACTER  
DEVELOPMENT

LEAD SELF

IMPLEMENT  
CHANGE

LEAD OTHERS

# Senior Team

**Dr. Oka Kurniawan**  
**The Lab Curriculum Specialist**

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



**Dr. Scarlett Mattoli**  
**Child Psychologist Specialist**

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

**Dr. Collin Ang**  
**Technology/Industry Specialist**

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



# Students

Empowering  
through  
Computational  
Thinking



# PROGRAM OUTLINE

## FOUNDATION 1

Week	Challenge	Math/Science Concept	Coding/Robotic Concept
1	Build and Program a Grabber	Decimals Negative Numbers	Motors
2	Build and Program a Transformer	Decimals Negative Numbers	Motors
3	Build and Program a Van	Physics relating to a car	Motors Logic
4	Build and Program a Drop Tower	Angles Degrees	Motors Logic
5	Build and Program a Scorpion	Multiplication	Motors Logic
6	Build and Program a Racing Car	Division	Motors Logic
7	Build and Program a Spinning Machine	Multiplication Division	Motors Logic
8	Build and Program a Music Maker	Estimation Range	Motors Logic
9 - 10	Final Project		



# PROGRAM OUTLINE

## FOUNDATION 2

Week	Challenge	Math/Science Concept	Tech/Eng Concept
1	Build and Program a Printer	Binary Logic	Conditionals (If) Touch Sensor
2	Build and Program a Flipping Fish	Binary Logic	Conditionals (If-Else) Touch Sensor
3	Build and Program a Frog	Binary Logic	Conditionals (If-Else) Brick Button
4	Build and Program a Sit Up Man	Math Operators Logic	Conditionals (If) Ultrasonic Sensor
5	Build and Program Rowing Machine	Math Operators Logic	Conditionals (If-Else) Ultrasonic Sensor
6	Build and Program a Wheelchair Robot	Math Operators Logic Range (i.e. between)	Conditionals (If-Else) Ultrasonic Sensor
7	Build and Program a Spinning Top	Logic	Conditionals (If-Else-If-Else) Colour Sensor
8	Build and Program a Hopper	Logic	Conditionals (If-Else-If-Else) Colour Sensor
9 - 10	Final Project		



## The Lab Junior Program

The curriculum integrates Computational Thinking (Programming) and Engineering Design Process (Building). It promotes the application of Math and Science, which are foundations to being a good programmer. We also use LEGO robots to engage students into robotics.

The curriculum is built upon the MOE Primary 4 Math and Science syllabus, hence providing a sneak preview of your child's Primary 4 learning journey in a fun and interactive way.

This program is suited for beginners aged 7-9 or students who have graduated from The Lab Kinder or The Lab Junior Foundation Program.

**Class-based structure**

**Fuses Coding with STEM**

**One Year Program  
4 terms of 10 weekly lessons**

**Ratio 1:6**

# PROGRAM OUTLINE

## TERM 1

Week	Challenge	Math/Science Concept	Tech/Eng Concept
1	Build and Program a Jackpot Machine	Whole numbers	Sequence Randomness
2	Build and Program a Rhino	Rounding Estimation Range	Sequence Randomness Range
3	Build and Program a Weathercaster	Flowcharts	Flowchart in Programming
4	Build and Program a Grabber	Decimals Positive and Negative Numbers	Wait Until ()
5	Build and Program a Dog Car	Angles	Turns
6	Build and Program a Base Car	Geometry	Loops Wait Until ()
7	Build and Program a Colour Sensor Car	Logic	Conditionals (IF-Else) Colour Sensor
8	Build and Program a Bulldozer	Recap Session	Recap Session
9 - 10	Final Project		

# PROGRAM OUTLINE

## TERM 2

Week	Challenge	Math/Science Concept	Tech/Eng Concept
1	Build and Program an Ultrasonic Car	Relational Operators (i.e. less than)	Conditionals (If) Ultrasonic Sensor
2	Build and Program a Wally Robot	Relational Operators (i.e. more than)	Conditionals (If-Else-If) Ultrasonic Sensor
3	Build and Program a Guitar	Relational Operators (i.e. equals to)	Conditionals (If-Else-If) Ultrasonic Sensor Sound
4	Build and Program a Wheel of Fortune	Fractions	Conditionals (If) Randomness Touch Sensor
5	Build and Program a Samurai	Relational Operators (i.e. less than)	Conditionals (If) Ultrasonic Sensor Touch Sensor AND Operator
6	Build and Program a Camera	Logic	Conditionals (If-Else-If-Else) Colour Sensor Touch Sensor AND Operator
7	Build and Program a Bulldozer	Area Perimeter	Conditionals (If-Else-If-Else) Touch Sensor
8	Build and Program a Helicopter	Arithmetic Sequence	Wait Until () Touch Sensor
9 - 10	Final Project		

# PROGRAM OUTLINE

## TERM 3

Week	Challenge	Math/Science Concept	Coding/Robotic Concept
1	Build and Program a Balancer robot	Angles	Conditionals (If-Else-If-Else) Gyro sensor
2	Build and Program a Gyro Car	Range	Conditionals (If-Else-If-Else) Gyro sensor
3	Build and Program a Beyblade launcher	Range	AND Operators OR Operators Touch Sensor
4	Build and Program a Shooting Gun	Logic Statements	Nested Ifs Ultrasonic Sensor Touch Sensor
5	Build and Program a Bike with Traffic Light	Logic Statements	Nested Ifs AND Operators
6	Build and Program a Safe Deposit Box	Range	Reflected Light Intensity Colour Sensor
7	Build and Program a Game Master Robot	Light Intensity Reflection of light	Proportional Integral Derivative
8	Build and Program a Bug Robot		String and Integer Ultrasonic Sensor
9 - 10	Final Project		

# PROGRAM OUTLINE

## TERM 4

Week	Challenge	Math/Science Concept	Coding/Robotic Concept
1	Build and Program a Scissors, Paper, Stone Game Machine	Probability Percentages	Variables Random Touch Sensor
2	Build and Program a Pie Thrower	Algebra	Variables Passcode System
3	Build and Program a Catapult	Algebra Time Range	Variables Random
4	Build and Program a Hand Biting Crocodile game	Algebra Time Range	Variables Touch Sensor
5	Build and Program a Pulley System	Physics Ambient Light Intensity	Variables Light Sensor
6	Build and Program a Satellite Robot	Calibration Ambient Light Intensity	Variables Light Sensor
7	Build and Program a Game Console	Variables X Y axis	Variables
8	Build and Program a Bike	Speed	List/Array
9 - 10	Final Project		



# Membership Fees

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## Exclusive Access

Elective Workshops at members' prices

Merchandise at members' prices

**10 Classes**                      **\$700 (\$70/class)**

**40 Classes**                      **\$2,600 (\$65/class)**

\*\* Registration fee is \$80 per student.



# CONTACT US

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