



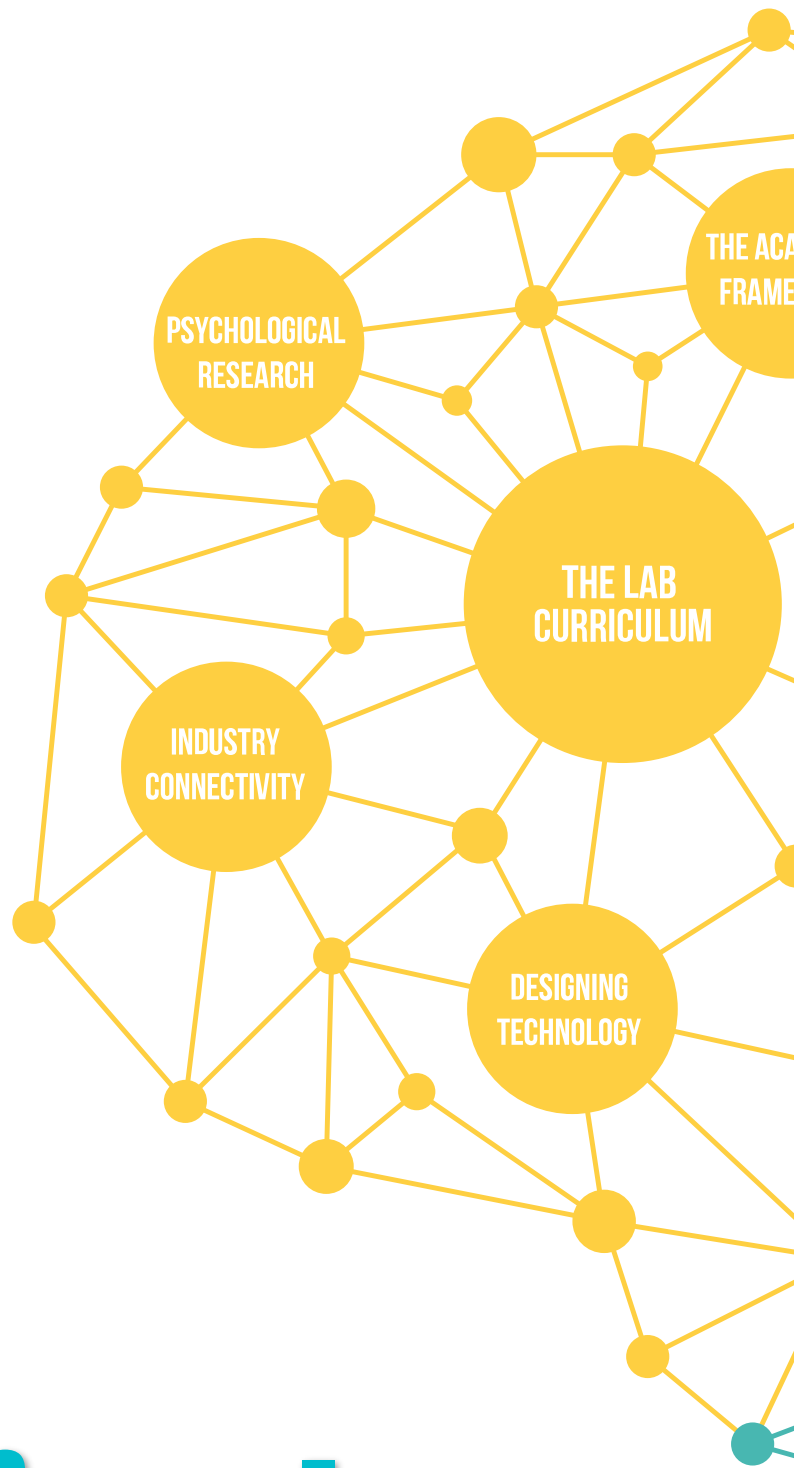
THE LAB

LEARNING WITHOUT BOUNDARIES

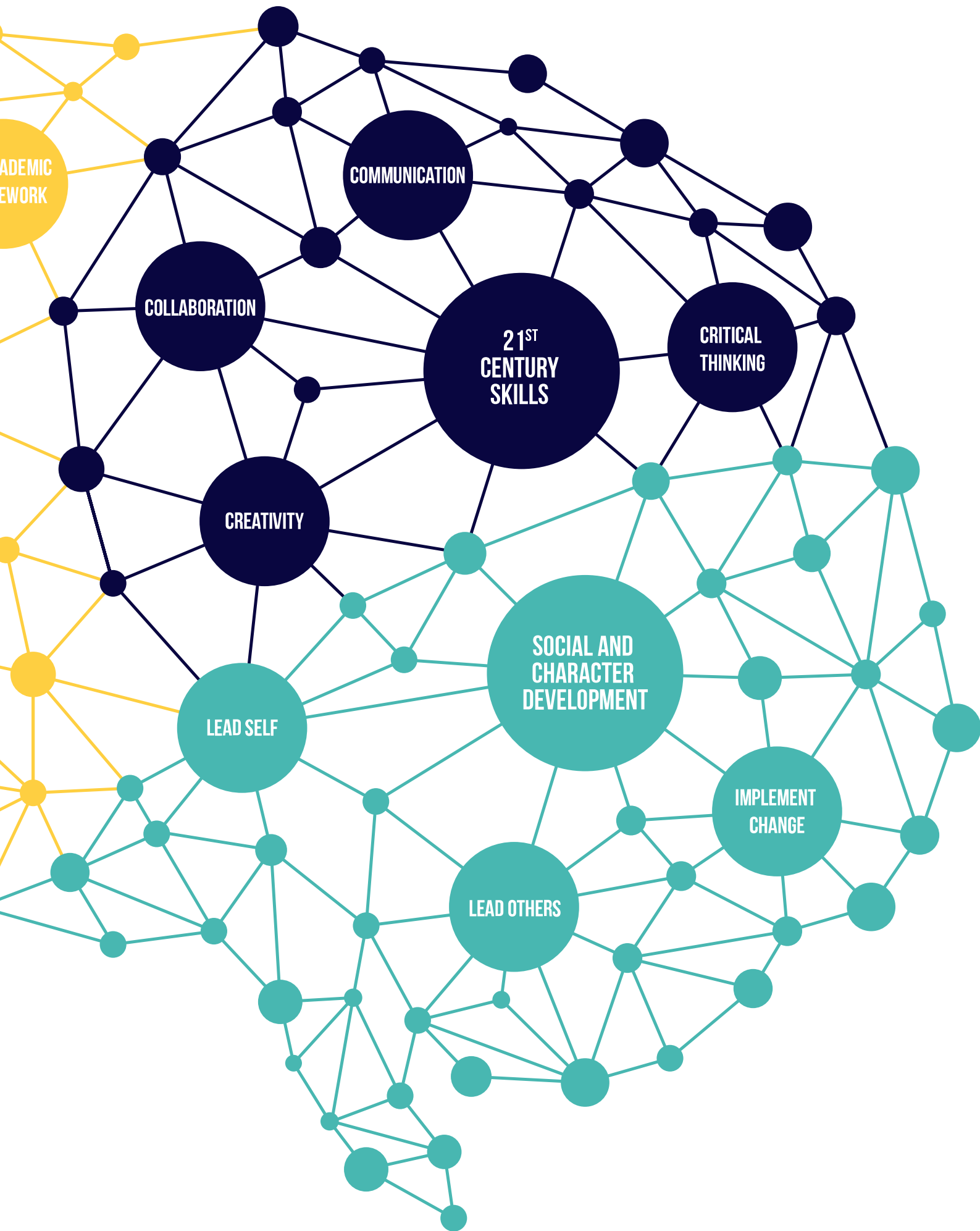
# THE LAB JUNIOR

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 Snake Hand	Decimals Negative Numbers	Motors
2	Build and Program a Ball Machine	Decimals Negative Numbers	Motors
3	Build and Program a Car	Physics relating to a car	Motors Logic
4	Build and Program a Drop Tower	Angles Degrees	Motors Logic
5	Build and Program a Bug	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 smart worm	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 Cleaning Robot	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 Carpark Gantry	Math Operators Logic	Conditionals (If) Ultrasonic Sensor
5	Build and Program a Sledge	Math Operators Logic	Conditionals (If-Else) Ultrasonic Sensor
6	Build and Program a Turtle	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 Walking Bot	Logic	Conditionals (If-Else-If-Else) Colour Sensor
9 - 10	Final Project		



# PROGRAM OUTLINE

## TERM 1

Week	Challenge	Math/Science Concept	Tech/Eng Concept
1	Build and Program a Slot Machine	Whole numbers	Sequence Randomness
2	Build and Program a Tricycle	Rounding Estimation Range	Sequence Randomness Range
3	Learn the Concepts of Flowcharts	Flowcharts	Flowchart in Programming
4	Build and Program a Grabber	Decimals Positive and Negative Numbers	Wait Until ()
5	Build and Program a Car	Angles	Turns
6	Build and Program a Patrol Ranger	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 a Self-driving car	Relational Operators (i.e. less than)	Conditionals (If) Ultrasonic Sensor
2	Build a Robot Cat	Relational Operators (i.e. more than)	Conditionals (If-Else-If) Ultrasonic Sensor
3	Build 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 see-saw robot	Angles	Conditionals (If-Else-If-Else) Gyro sensor
2	Build and Program a car navigation system	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 CPR robot	Logic Statements	Nested Ifs Ultrasonic Sensor Touch Sensor
5	Build and Program a CPR robot	Logic Statements	Nested Ifs AND Operators
6	Build and Program a basketball Launcher	Range	Reflected Light Intensity Colour Sensor
7	Create a Proportional Line Follower	Light Intensity Reflection of light	Proportional Integral Derivative
8	Build and Program a dangerous gorilla		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 catapult	Algebra	Variables Passcode System
3	Build and Program a Pie Face Game	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 light sensitive car	Calibration Ambient Light Intensity	Variables Light Sensor
7	Create a Counter	Variables X Y axis	Variables
8	Build and Program a smart worm	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**                      **\$650 (\$65/class)**

**40 Classes**                      **\$2,400 (\$60/class)**

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



# CONTACT US

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