



PROGRAMME GUIDE FOR SCHOOL LEADERS

Humanoid Robotics in Your School

What the UNIONE AI programme teaches, how it runs, what a school needs to provide, and how learning is judged.



UniOne AI Education Pte. Ltd.

Powered by Booster K1 · Official Education Partner of Booster Robotics

A Singapore company bringing humanoid robotics to schools

UniOne AI Education is a Singapore company bringing humanoid robotics education to schools and institutions, and the Official Education Partner of Booster Robotics.

This guide gives school leaders a short view of the UNIONE AI Curriculum Framework: what the programme teaches, how it runs, what a school needs to provide, and how learning is judged.

THE PROGRAMME AT A GLANCE

One robot, forty lessons, Grades 4–12

The Robot Operation Programme is a single-hardware curriculum that teaches learners to operate a Booster K1 humanoid robot safely and thoughtfully.

40

LESSONS

4

PACE PATHWAYS

3

LEVELS

1HARDWARE
PLATFORM

AREA	DETAIL
Lessons	40: four pathways of ten lessons each
Learners	Grades 4–12 (about ages 9–18), taught at three levels
Hardware	One platform: the Booster K1 humanoid, about 95 cm and 20 kg
Programming	Mind+ block programming
Thinking method	The EMBODY Method, used in every lesson
Delivery model	One trainer, 15 learners and two robots (1 : 15 : 2), as a guide

The final ratio, session length and timetable are set with each partner institution, following the school's own policies.

WHY THIS PROGRAMME

From owning a humanoid to teaching robot operation

A school can buy a humanoid robot, but without a structured curriculum it often becomes a remote-controlled toy or a conversational tutor. The robot is a major investment, and it pays off only when it supports structured, assessable learning.

UNIONE AI is the curriculum layer that closes this gap. It moves students from using the robot to genuinely operating it: handling it safely, timing commands, using sensors and judging the cost of wrong decisions.

TRADITIONAL ROBOTICS CLASS	UNIONE AI PROGRAMME
Robot as a remote-controlled toy	Robot as a programmable, sensing platform
Trial-and-error code tweaking	A structured thinking method (EMBODY)
An impressive demo counts as success	Explaining the result counts as evidence
A single summative score	A four-level evaluation framework

The EMBODY Method™

Students do not adjust numbers at random when something fails. They question their assumptions first, then change the code. They use these six moves in every lesson, not only when something goes wrong.

E**Express**

State what the robot should achieve before touching code.

M**Monitor**

Run it and track where reality differs from the plan.

B**Brainstorm**

Pause to challenge assumptions instead of editing at once.

O**Orchestrate**

Realign physical factors, sensors and logic before re-coding.

D**Deploy**

Build a new strategy, not a small parameter tweak.

Y**Yield the Why**

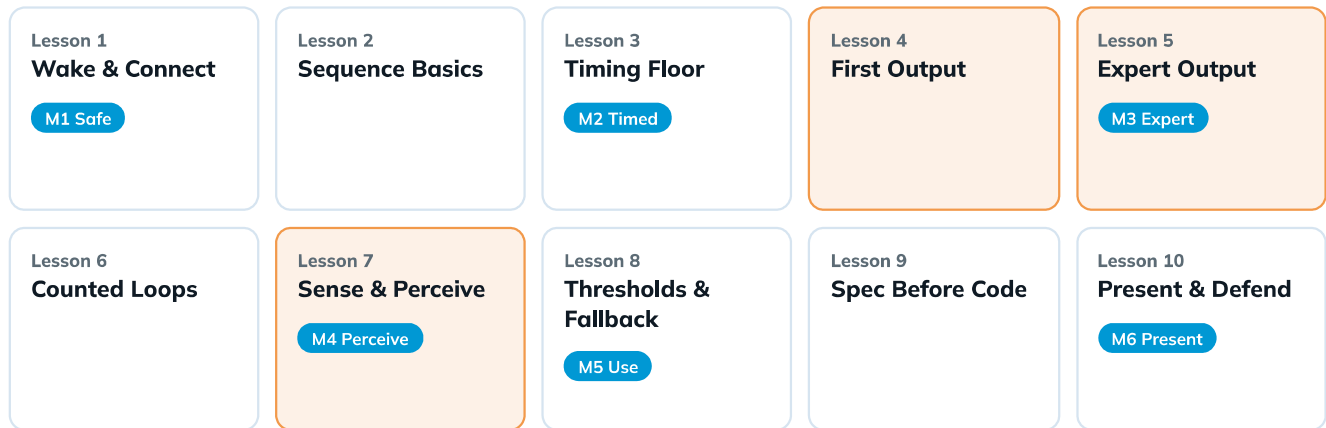
Ask why it worked, so the learning carries over.

HOW THE CURRICULUM IS STRUCTURED

One ten-lesson arc, six milestones

Every pathway follows the same ten-lesson arc, so a student's progress reads the same way in all four. Seven core lessons are shared across pathways, and three lessons bring in pathway-specific content.

☐ Core lesson, same in every pathway ☐ Pathway-specific lesson



Each milestone is a checkpoint where a student must explain their reasoning, not only finish the task.

MILESTONE	LESSON	WHAT THE STUDENT CAN DO
M1 Safe	1	Wake, connect and handle the robot safely
M2 Timed	3	Sequence actions and set timing and units correctly
M3 Expert	5	Use the pathway's main outputs (movement, speech, lights, arms)
M4 Perceive	7	Use a sensing service such as vision or speech recognition
M5 Use	8	Make the robot decide, using conditions and thresholds
M6 Present	10	Run the final project live and explain the code

THE SPIRAL

Learners go round the four pathways three times, once at each level. Each turn uses the same lessons with a new focus, so ideas return at greater depth from Grade 4 to Grade 12.

Robot operation, linked to subjects you already teach

Each pathway connects to school subjects and ends in a culminating project that students present and defend.

P

Performer

Robotics & Performing Arts

LINKS TO

Music, Drama, Dance

DRIVING QUESTION

Can a robot put on a performance that moves people?

CULMINATING PROJECT

Robot Theatre

A

Athlete

Robotics & Sports

LINKS TO

PE, Mathematics, Science

DRIVING QUESTION

Can a robot compete in our sports day?

CULMINATING PROJECT

Robot Sports Day

C

Companion

Robotics & Service

LINKS TO

Language, Social Studies, CCE

DRIVING QUESTION

Can a robot help people in our school who genuinely need help?

CULMINATING PROJECT

Campus Service Station

E

Engineer

Robotics & Engineering

LINKS TO

Science, Engineering, Mathematics

DRIVING QUESTION

How do you prove a robot is genuinely reliable?

CULMINATING PROJECT

Reliability Challenge

WHERE STUDENTS END UP

Across the 40 lessons, every student moves from robot operator to programmer to implementer to innovator, and from following a script to defending an original design.

Three stations, three levels, three kinds of support

Each lesson runs as a three-station rotation, so learners spend only part of the time at the robot and arrive prepared.

1

Self-directed

Learners watch a recorded lesson video at their own pace.

2

Pair work

Learners discuss, apply and debug ideas with a partner before touching the hardware.

3

Robot with facilitator

Hands-on time, live testing and code review, with one facilitator overseeing two robots.

Three levels

The lessons, blocks and robot stay the same at every level. The level sets the focus of each turn through the programme.

LEVEL	GRADES	FOCUS
L1 Robot Exploration	4–6	Explore what the robot can do and how blocks control it
L2 Robot Applications	7–9	Apply blocks, sensing and logic to real tasks
L3 Robot Programming	10–12	Design, program and test their own solutions

Grade bands are a guideline. The trainer assesses each learner in the first lessons and sets the level, so a learner new to the robot starts at L1 whatever their grade.

Differentiated support (3C)

Within a level, trainers adjust how much of the thinking the learner does. Learners move up on evidence of their work, not on the calendar.

Copy

The trainer shows, the learner follows a worked example.

Calculate

The learner works out values from a formula, chart or measurement.

Construct

The learner builds from a goal alone and explains why it works.

Safe handling (M1) is always taught at Copy.

Space, power and supervision

The Booster K1 is a humanoid of about 95 cm and 20 kg with 22 degrees of freedom. The programme treats safe operation as a skill learners demonstrate, not a rule they read, and it starts every pathway with safety.



AREA	REQUIREMENT
Space	A level, non-slip floor of at least 3 m × 3 m, with 1.5 m of safety clearance
Power	At least two battery packs per robot, each giving about 80 minutes of active run-time
Handling	The robot is carried according to protocol. An overhead safety harness rig is required for power testing, and full-body dance requires gantry protection
Supervision	As a guide, one trainer for 15 learners and two robots. The final ratio follows the school's own policies

BEFORE ANY PROGRAM RUNS

Learners show they can wake the robot safely, identify no-touch zones and explain the robot's four-mode state machine.

LEARNING FOR EVERY LEARNER

Same lesson, different depth

Learners with different starting points and paces work on the same lesson and reach the same milestones. Each lesson's task is prepared at all three 3C stages, and learners can revisit the recorded lessons at their own pace.



Results come from several kinds of evidence, so no single skill such as typing or presenting decides the outcome. Schools apply their own access and learning-support policies, and trainers can adjust the task, pace or way of showing evidence without lowering what is expected for the level.

Several kinds of evidence, not one score

Learning is judged on several kinds of evidence and read against each learner's level and 3C stage.



FORMATIVE

During lessons

- Station reviews
- An Engineering Notebook
- Peer and self evaluations

SUMMATIVE

At milestones and project end

- Project portfolio and presentation
- Skills achieved against the milestones
- Progress through the 3C stages

Four levels of evaluation

1

Reaction

Did the lesson feel worth their time?

2

Learning

Can the learner explain why a program works?

3

Behaviour

Live robot runs and fault diagnosis.

4

Results

Transfer to other projects and peer teaching.

WHAT DOES NOT COUNT AS EVIDENCE

How impressive the robot looks, whether it ran flawlessly first time, and typing speed or block count. How a learner finds and fixes a fault counts for more than luck, and each learner explains their own reasoning, so group output is not credited to everyone automatically.



Bring humanoid robotics to your school

To discuss bringing humanoid robotics education to your school or institution, get in touch with UniOne AI Education.

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