Teachers' Guide to Code with Altino Curriculum

NSW Schools

By: Tonie Amos
Curriculum Development Manager
Saeon Australia

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Purpose

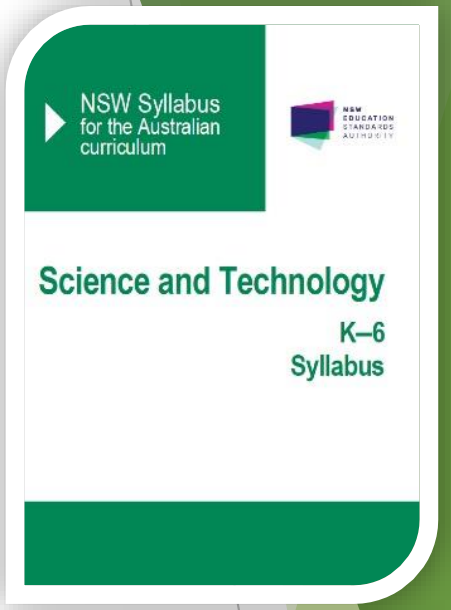
To make it easy for NSW teachers to deliver NESA's Syllabus:

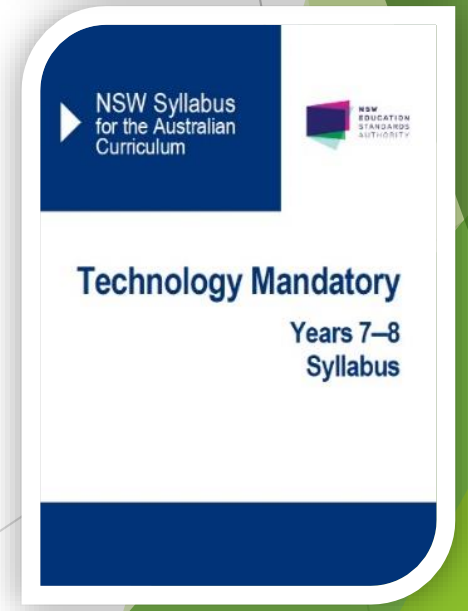
- Science & Technology (K-6); and
- Technology Mandatory (Years 7-8)

Links also provided to NESA:

- Science
- Mathematics
- Music and visual art

Note: Links also provided to: ACARA (Australian Curriculum) Digital Technologies and General Capabilities.





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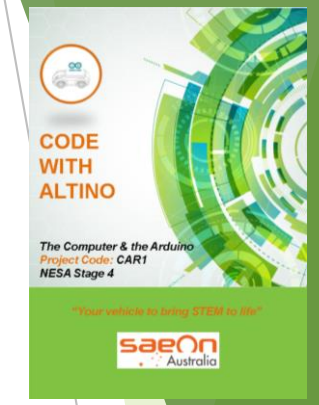
Resources

Australian ‘Code with Altino’ Curricula for all stages available at www.codewithaltino.com.au. Purchase of Altino licence includes full online access (including download) for all your teachers.

Mapping to NESA NSW Syllabus also available for each stage. This can be used as input to online NESA’s Program Builder.



Sample:
Cover of
Module 1 of C (Arduino)
Curriculum for Stage 4

Sample:
Cover of
Module 1 of Scratch
Curriculum for Stages 2-3

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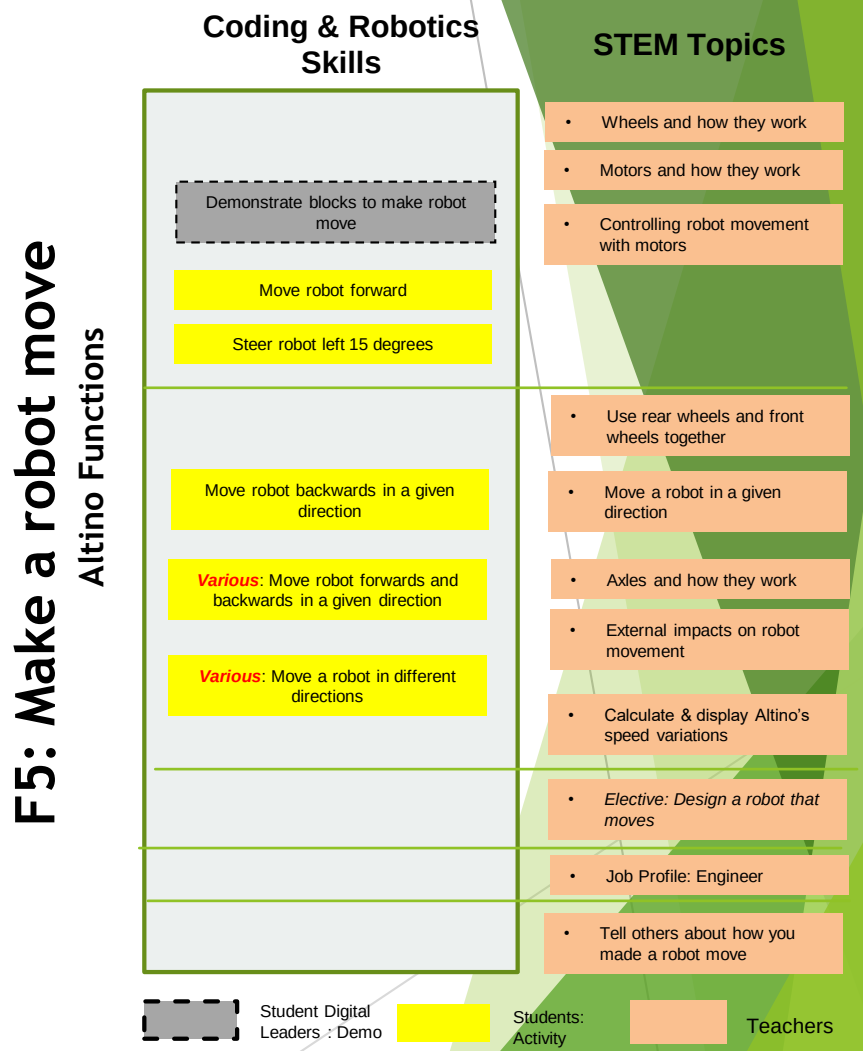
Delivery Method

The ‘Code with Altino’ Curricula has been designed to be delivered by Australian teachers – “tech savvy” and “non-tech savvy”, in classrooms.

Teachers elect 1-2 Digital Leaders (students) for each class.

Each module is separated into Technology and Non-technology streams so “non-tech savvy” teachers can identify where help of Digital Leaders may be required. A sample is provided here: Structure of Module F5 Fast-track Scratch Programme (Stage 4).



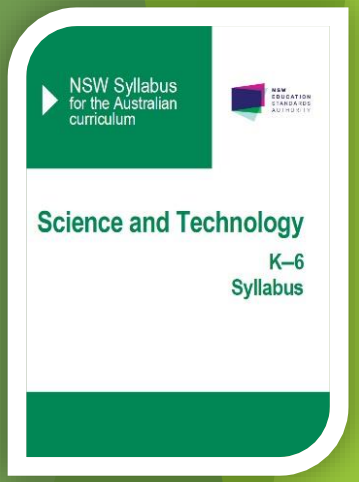
Facilitators' Programme

Saeon Australia offers a 3 hour Facilitator's Programme led by our experts, as a handover. It will be tailored to the needs of your school.

The programme can be run onsite at your school, and any teacher (plus assigned Digital Leaders) can attend. You may choose to add to Teachers' Professional Development pathway.

Inclusions:
Curriculum structure and design
Robot demonstrations
Training – how to use Altino apps, Scratch programming, (Python).
Advice in selecting curricula to suit your students

Delivery: Early Stage 1, Stage 1 (Years K-2)



Use crayon app to teach your students about:

- Sequential thinking
- Having fun with mathematics in the real world
- Basic understanding of how computer programming works

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Delivery: Stages 2-3 (Years 3-6)

NSW Syllabus for the Australian curriculum

Science and Technology K–6 Syllabus

1.Use crayon app

Learn to operate robot by using sequential programming (30 mins +)

2.Use remote control driving app

Learn to operate robot as an app user (30 minutes)

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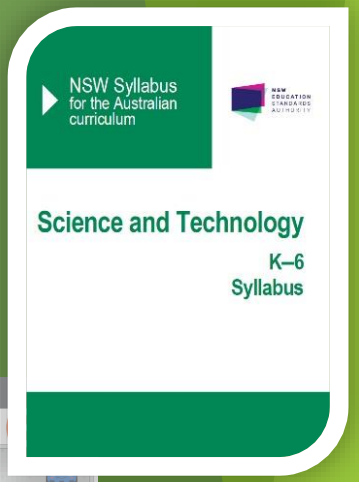
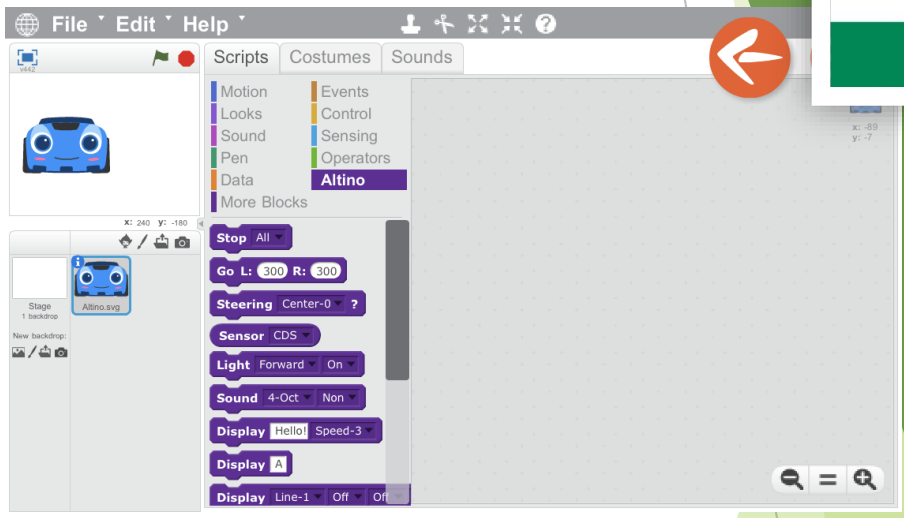
Delivery: Stages 2-3 (Years 3-6) cont..



3. Learn to program in Scratch language

Learn to program all robot functions(est. 16 hours)
Modules F1 to F14 (F=Foundation).



4. Learn to program in Python language (Stage 3) (Optional)

Learn to program all robot functions (est. 16 hours)
Modules PYT1 to PYT14.

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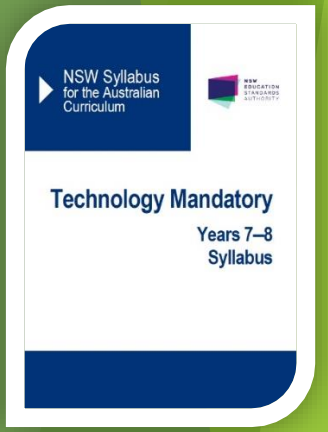
Delivery: Stage 4 (Years 7-8)



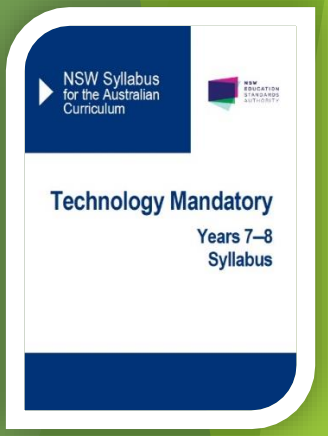
Due to variances of high school students, curricula pathways have been developed for three different types of students:

- Coding beginners – have not had any experience with computer programming
- Specialist computing – have a passion or interest in computer science, robotics or technology and may choose to specialise in this area in the future
- General – do not fall into either of the other two groups.

These pathways are shown in the next table.

They are provided as a guide only and curriculum delivery hours are estimations.

Delivery: Stage 4 (Years 7-8)



Note about NESA Syllabus from Digital Technologies:

- *"designs algorithms for digital solutions and implements them in a general-purpose programming language" TE4-4DP*

Python, C (Arduino) and Java could be described as "general-purpose programming language".

Fast-track Scratch – Option only

Scratch may not be as it is block-based. We suggest however that your **Coding Beginners** commence with the Fast-track Scratch curriculum. After learning the meaning and application of computer programming via this language, their progress into a general-purpose programming language such as Python will be much easier and quicker for both students and teachers. This pathway option is shown in the next table.

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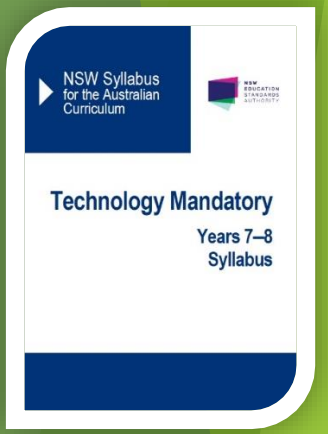
Delivery: Stages 4 (Years 7-8) cont..



LANGUAGES

	Scratch Fast Track (Foundation)	Python	C (Arduino)	
Estimated no. delivery hours	10	16	18	Estimated Total Delivery Hours
Module Codes	F1-F11	PYT1-PYT14	CAR1-CAR14	
GROUPS				
Coding Beginner	1st	2nd		20 (26-6)*
General		1st		16
Specialist Computing			1st (Arduino)	18

*6 hours of Python curriculum delivered via Scratch Curriculum

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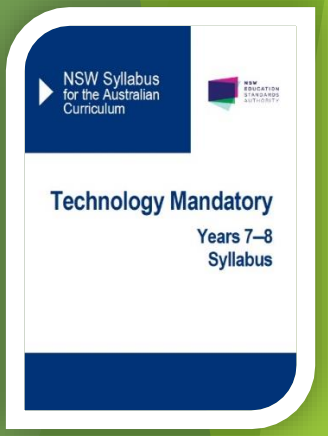
Delivery: Stages 4 (Years 7-8) cont..



NESA requirements – Four Design Projects.

During or after delivery of the Code with Altino Curriculum (Python or C (Arduino), project ideas may come to fruition – including some involving Altino the Robot Car.*

For instance, after completing the C (Arduino) Curriculum, students will be able to add a new sensor to the robot car (e.g. gas sensor) to transform the Altino into a robot that senses dangerous gas levels in a room.

*May require NESA approval.

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Towards 2025 Programme

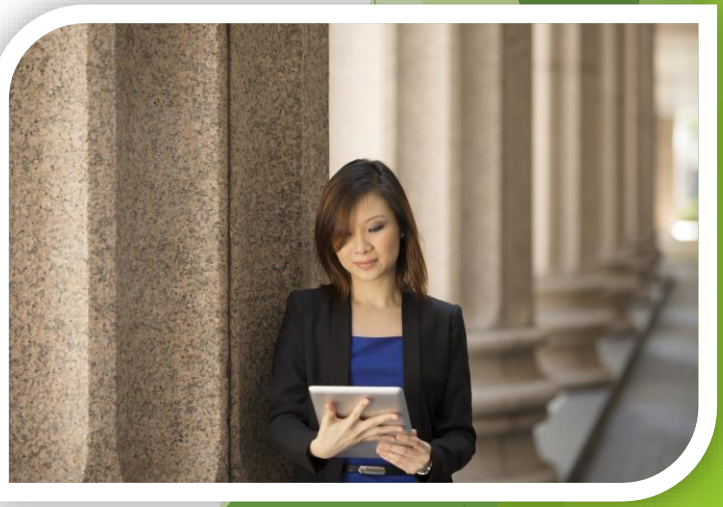
Saeon Australia is currently developing the Towards 2025 Programme that will be especially designed for Year 7 students in 2019. This programme will be ready for teacher delivery in 2021 when these students commence Year 9. It is being designed by Tonie Amos, Saeon Australia's Curriculum Development Manager, who has extensive experience with technology, learning design, change management, corporate and business management.

Its purpose is to provide educational content and activity that helps prepare students for the future workplace in 2025. Topics will include "soft" and technology skills such as:

- Emotional Intelligence
- Computer Programming and Robotics Skills Profile (to show future employers)
- Accessing API libraries for software programming
- Communication and teamwork skills – theory and practice
- General business knowledge and entrepreneurial practice

Developments in NESA's Syllabus will be monitored in case of mapping Possibilities to syllabus outcomes.

Prerequisite for students: *Any Code with Altino Programme*.



Summary Guide for all levels

The table overleaf is a summary guide **for all levels**.
Blue font is optional and may be additional to NESA syllabus requirements.

Current Years 9 and 10

The existing Python or C (Arduino) Curriculum can be taught to Years 9 and 10 as an effective way to teach computer programming. However there is no mapping to NESA syllabus.

International Curricula (pictured here)

Available for purchase, to teach other programming languages for any high school year or at university level. There is no mapping to NESA syllabus and no STEM content. It is recommended that teachers with a technology background deliver these particular programmes.

Guide to Code with Altino Curriculum - NSW Schools

			Crayon Unlimited	Crayon	Scratch	Scratch - Fast Track	Python	C (Arduino)	Java (Android)	C++	Visual Programming Language	Towards 2025 Programme	
		PROGRAMMING LANGUAGE	crayon				python				Visual Studio		
		CURRICULUM MODULES	CU	CRA	F1 - F14 (Foundation)	FFT1-FFT12 (Foundation)	PYT1-PYT14	CAR1-CAR14	JAA	CPP	VPL	TTP	
		Estimated delivery hours (Technology + STEM)	Unlimited	1	16	10	16	18	10	10	15	10	
Learning Focus	Year	NESA stage											Total no. of estimated delivery hours
Sequential Thinking	K-2	Early Stage 1 Stage1	1st										Unlimited
		Stage 2		1st	2nd *(F1-F12)*								13
Block Programming	3-6	Stage 3		1st	2nd		(3rd)						17
General-Purpose Programming	7-8 Coding Beginner	Stage 4				1st	2nd		(3rd)				20 (26-6)*
	7-8 General						1st		(2nd)				16
	7-8 Specialist Computing							1st *(+ Arduino)*	(2nd)				18
Object-Oriented Programming (Elective)	9-10 (Available from 2021)	Stage 5								1	2 *(+ Raspberry Pi)*	3	To be advised

*6 hours of Python curriculum delivered via Scratch Curriculum

Optional - may be additional to Digital Curriculum requirements - not mapped to NESA

Any questions?

e: tonieamos@saeon.com.au

w: saeon.com.au

w: codewithaltino.com.au (curriculum – members only)

f: facebook/Altinotherobotcar

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