

What's New? Coding Literacy in Schools

In first world societies, we take it for granted that computers are essential in schools and that students need basic computer literacy skills. It is now accepted that basic computer literacy is a separate curriculum item from digital technology.

Computer scientists now recommend that the term *computational thinking* be used in schools.

Jeanette Wing¹ states that 'computational thinking involves solving problems, designing systems, and understanding human behavior, by drawing on the concepts fundamental to computer science.'

According to Emeritus Professor Leon Sterling² of Swinburne University of Technology, Victoria, Australia, "Just as mathematics applied itself to the physical world, explaining mechanics and electro-magnetism, we are currently applying mathematics to understanding data, information and knowledge. Thus, computational thinking has a role in mathematics curriculum, and also in a science curriculum where insights provided by data add to our scientific knowledge."

"Space can be made in the curriculum by connecting coding to mathematics and science lessons. Computing examples and well-designed exercises can highlight the relevance of math and science."

"Recognizing faces, translation between languages, and searching in large collections can all be explained in terms of data and provide practical and interesting experiences for using coding and scientific methods. Computing projects can easily be structured to give students experience with important generic skills, such as persistence, collaboration and communication."

Science is happening all around us all the time;
it affects our lives hourly if not every minute.

Worldwide there is momentum behind teaching coding. Many countries (such as the USA, UK, Australia, New Zealand, Poland and Israel) are experimenting with including coding in the school curriculum.

While it is not necessary nor realistic that all students become coders, it is important that they appreciate what computers do and how they do it. The best way of conveying the understanding is by having students learn to code.

In an already crowded curriculum, should teaching coding replace the teaching of foreign languages? Using a language such as French is about communicating with people and recognizing the culture from which the language emanates. Communication between people is fundamentally different from communication between human and computer. The answer is no.

In Australia, coding concepts are now being introduced from Kindergarten to Year 2, when children will learn how to follow and describe a sequence of steps (computational thinking) and about the ways data is represented as pictures, symbols and diagrams.



They will learn to use a children's coding program, for example *Scratch Jr*, to develop projects such as designing a dance sequence.

In Years 3 and 4 they learn about different types of data – such as text, images, and videos – and how the data can be represented in different ways using codes and symbols.

By Years 5 and 6 students look at how different digital systems work together and be able to develop a storyboard for a computer game they would create using a visual programming language.

In early high school, a new Years 7 to 10 technology syllabus makes a non-visual coding language compulsory.

Associate Professor Matt Bower, an expert on technology in education at Macquarie University, Australia, said, "The key to maximizing the benefits of introducing coding early is providing teachers with the capabilities to teach coding and computational thinking in a way that ignites children's curiosity and wonderment."

¹ Wing, J. M. (2006) 'Computational Thinking', *Communications of the ACM*, 49(3), 33–35.

² Sterling, L. (2016) 'Coding in the Curriculum: Fad or Foundational?', *Research Conference*, pp. 79–83.

Coding for Kids THE BEST RESOURCES



to develop their social prowess, awareness and skills. It provides the essentials of sound protocol and etiquette with hints on being business-like in Rotary, leading to more effective meetings and interactions.

By drawing on a strong skill set of good manners will make any employee more effective in the workplace and therefore the workplace itself will become more productive.

The first version of this guide was written in 2004 and following four sell-out paper editions, has been updated and reworked as a digital edition – expanded and enhanced to meet the needs of current social issues.

The cost of about US\$1.50 is minimal and **all proceeds go to The Rotary Foundation.**

Library for All

Library For All has developed and launched a **globally available free digital library** to provide books to communities where history, poverty or remoteness are everyday barriers to accessing knowledge.



Recent data shows that over 130,000 children are reading with Library For All at home and in the classroom. This creates a positive flow-on effect, encouraging interest in books and literacy.

The Library For All library provides a unique, curated collection of engaging content created by an international publishing team. They publish children's books that are high quality, age-appropriate and culturally relevant for the communities being served.



It is critically important that children have access to books with stories, settings and characters to whom they can relate. **Books are freely available** to anyone with any Android device through the [Google Play Store](#).

Library For All also partners with leading development organisations around the world to deploy their [Spark Digital Library Kits](#) to classrooms and communities. Additionally, they print and ship their curated collection as physical books to create libraries for classrooms, communities and homes wherever needed.

For more information, visit: <https://libraryforall.org/>



Good Manners in Rotary

Why Bother with Manners?

Having good manners will give a person confidence as it means **knowing how to act in a manner that is socially acceptable and respectful.**

Excellent manners can help you to have better relationships with people you know and those you will meet or encounter whether in your Rotary Club, in the workplace or

in society in general.

The Kindle eBook, [Good Manners in Rotary](#), is a concise, clear guide and strong model for Rotarians



Transforming Education in Low-Income Schools

by Octavio Jarrin R., member of the Rotary Club of La Puntilla, Ecuador and Keith E. Axtell, member of the Rotary Club of Marin Evening, United States.

An assessment of mathematics teachers in Ecuador showed they received little training in content preparation and teaching techniques. This resulted in teachers with little motivation and enthusiasm when preparing and teaching their classes. In addition, some teachers do not have skills to manage large groups of students (40-50 per classroom). In Guayaquil, there are many urban areas with scarce resources in terms of facilities and equipment that can manage large groups of students.

In order to promote a more favorable environment for learning science and mathematics, a local organization, Escuela Superior Politecnica del Litoral (ESPOL), designed a program called “*Seedbed of Future Scientists and Engineers: Transforming the Basic Education of Low-Income Schools*” which, with the endorsement and support of the Rotary Club of La Puntilla, has trained 120 teachers from 29 educational units located in Monte Sinaí, a low-income area in Guayaquil, Ecuador.

The pilot program was run from October 2018 through July 2019 with the aim of providing teachers with the opportunity to learn educational tools. The pilot consisted of experimental play training in: Mathematics A (development of inductive thinking), Mathematics B (development of deductive thinking), physics, chemistry, biology and language.

Teachers learned how to create an environment where young people are encouraged to learn from their mistakes, ask questions and think innovatively.

One of the key success factors for this program was the selection process of participant teachers. The most important variable noted was each teacher's interest in the development and welfare of their students. As an early indicator of progress, the participating teachers started sending us photos of how they were implementing what they had learned right after our first training. Students' engaged faces, lit up with happiness and joy, encouraged teachers to



Above: Teachers in Ecuador learn new skills in teaching experimentation in physics and other science and math-related subjects.

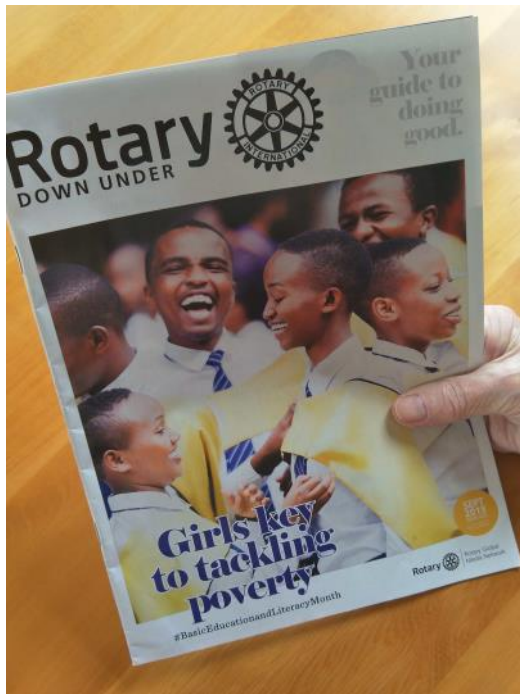
question their previous teaching techniques.

Of the 125 teachers who started the program, 115 finished it. 82% of the participating teachers presented improvements in their teaching practices. Many enthusiastic teachers have established a weekly day for experiments, others have understood the need for continued education throughout life.

In a closing speech, a teacher commented that the sessions had led them to recognize that they had often preferred relying on certainty instead of exploring new ideas, and that this program, rather than just giving them an opportunity to learn a new teaching technique or work strategy, had given them new ideas to address their commitment to professional development.

Below: Smiling, well-behaved students show their attentive engagement with their teacher's new approaches to teaching.





Congratulations

Around the world there are about 30 Regional Rotary magazines. **Rotary Down Under** (RDU) is the magazine that services all Australian and New Zealand based districts, therefore covering many nations in the South Pacific.

In September 2019, RDU featured education and, in particular, the education of girls. (- see cover page left.) There were 15 pages featuring a wide and diverse selection of very worthwhile activities in education. We thank the editors of RDU for their support and cooperation in furthering these essential goals and as endorsed by Rotary International.

2019 Literacy Month Awards

Currently the Committee is considering the many 2019 applications for the three \$400 awards available. The Committee will communicate directly with the winners.

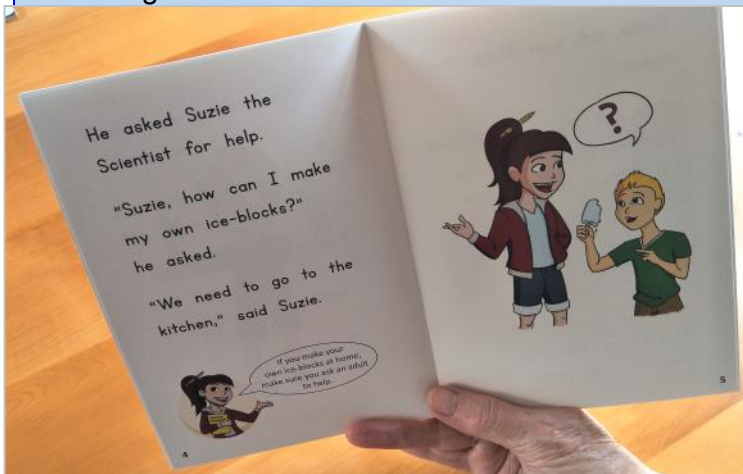


Linking early Mathematics, Science and Reading

Children are intensely curious. It was a delight to see a University in Queensland, Australia (Griffith) supported by a local Rotary District (D. 9640) and parents produce quite an exciting set of early reading books about beetles, sharks, triangles, stars, ants and much more.

Of course, there is a logic to the collection of 96 books as they comply to the national curriculum for Australia. These books from the earliest level are hosted by two characters: Millie (mathematics) and Suzie (science) who lead the readers along an ever slightly increasing difficult but alluring world not normally offered to youngsters. They show that science and mathematics are indeed part of our everyday lives.

The books are engaging and encourage parents to read along with their child. Sets of these books enrich classrooms and there's an interactive element. Visit: www.milliethemathematician.com.au or www.suziethescientist.com.au To accompany these books, there are e-books and worksheets available online - all complementing the notion that reading is interesting.



Functional Literacy

Kofi Annan, a former Secretary General of the United Nations once stated, "Literacy is a bridge from misery to hope".

In most communities around the world there are many adults who cannot read, write or compute sufficiently and at a level to obtain or sustain employment. This Newsletter has mostly highlighted opportunities for the younger people around us, however, 'functional literacy' is the right of each individual to have those skills necessary to participate fully in all aspects of community life.

Functional literacy is the essential set of tools that each of us needs to earn a living, respond to the demands made on us by society, and to solve problems that we face in our daily lives.

It has been said, that "literacy is for life", however, in an age of rapid change, early literacy beginnings may not last for a lifetime. We all must continue to develop skills to remain functional all our working lives.

Members of Rotary would do well to be advocates for those already in the workforce to mentor those around who they might recognise as needing help and support. **Be a PAL. Promote Adult Literacy!**

Solutions will be local and sharing challenges and successes through a medium such as this Newsletter can indeed make a difference.



FOOD PLANT SOLUTIONS

ROTARIAN ACTION GROUP

In Rotary there are about 27 global Action Groups approved by Rotary International to address critical issues. Readers will be well aware that this Newsletter regularly brings issues and ideas about literacy, numeracy and basic education to your attention. From time to time we plan to share the elements of other Rotary Action Groups.

Food Plant Solutions

Formed in 2007, Food Plant Solutions creates educational materials that explain what nutritious food is, why our bodies need it and what plants to grow and eat that will meet our nutritional needs.

Our materials empower people, but particularly women, through education, highlighting a range of highly nutritious plants with differing seasonal requirements and maturities. This allows people to make informed choices about what to grow and eat.

Often the plants we identify are what international agencies now refer to as “Neglected and Under-utilised Species”. These plants are adapted to their environment, have sound nutritional density, functional food benefits and a natural resistance to pest and disease.

Our work is underpinned by the Food Plants International database developed by Tasmanian agricultural scientist and Officer of the Order of Australia recipient, Bruce French. This database contains information on over 30 800 edible plants for all countries of the world and is the largest of its kind.

We do not send people in-country, but form partnerships with existing aid providers who use our materials to educate communities, particularly women



and children, on the nutrient value of their local foods. This sustainably addresses malnutrition and food security and is very cost effective.

One example is our program partner in Vietnam commenced a pilot school garden program that has been expanded from two schools to now include 14 schools in two provinces, impacting over 3000 children. In 12 months, malnutrition reduced between 40–100%.

Food Plant Solutions: a sustainable solution that empowers women, is cost effective and proven to work.

Please contact info@foodplantsolutions.org for further details.



Above: Clear, highly visual materials assist school children’s understanding about nutrition.

LitRAG Office-Bearers

LitRAG Executive Committee:

- Chair: John Thorne, PRID (Australia)
- Vice Chair: Carolyn Johnson, PDG (USA)
- Secretary: Courtney Doldron, Pres. (Canada)
- Treasurer: Harvey Baxter, Rotarian (USA)

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- Sylvia Byers, PDG (Australia)
- Chebab Elawar, PDG (USA)
- David Fowler, Past President RIBI (England)
- Shekhar Mehta, PRID (India)
- Anand Seth, Rotarian (USA)
- Courtney Doldron, Rotarian (Canada)

LitRAG Advisors to the Board:

- Bill Boyd, Past RI President (New Zealand)
- Noraseth Pathmanand, PRID (Thailand)
- William Stumbaugh, Rotarian (Ecuador)

Website: www.litrag.org

Facebook: <https://www.facebook.com/Reading.Rotary/>

Contact John Thorne or Carolyn Johnson: info@litrag.org

The Literacy Rotarian Action Group is a recognised Rotarian Action Group and operates in accordance with Rotary International Policy but is not an agency of or controlled by Rotary International. Note: Rotarian Action Groups are a resource to Rotary clubs and districts in their speciality but are not an agency of RI and may not act on behalf of RI as part of all agreements.