



ELSA

STEM in Schools

WELCOME!

Some housekeeping before we begin

- Later in this session you will be moved into breakout rooms according to which group your school has been assigned to (RCT, Digital, BAU).
- If you are unsure as to what group you are in, could you please text the teacher from your school who completed the expression of interest so that you know which group to move to.
- If you are still unsure, remain in the main room once we have moved into the breakout rooms.
- We will have time for questions both in the breakout rooms as well as in the main room at the end of the session.

Who are we? The ELSA backstory...

- A team of academics and professional staff from the STEM Education Research Centre (SERC) at the University of Canberra
- Led by Centenary Professor, Tom Lowrie, a world-renowned education researcher and the co-creator of the original Early Years Learning Framework (EYLF)
- Our team won the Federal Government tender in 2016 to create Early Learning STEM Australia (ELSA) for preschool-aged children
- Following the success of ELSA Preschool, we received further government funding to create a program for the first three years of formal schooling (K–2)
- Enter ELSA: STEM in Schools

What is ELSA: STEM in Schools?

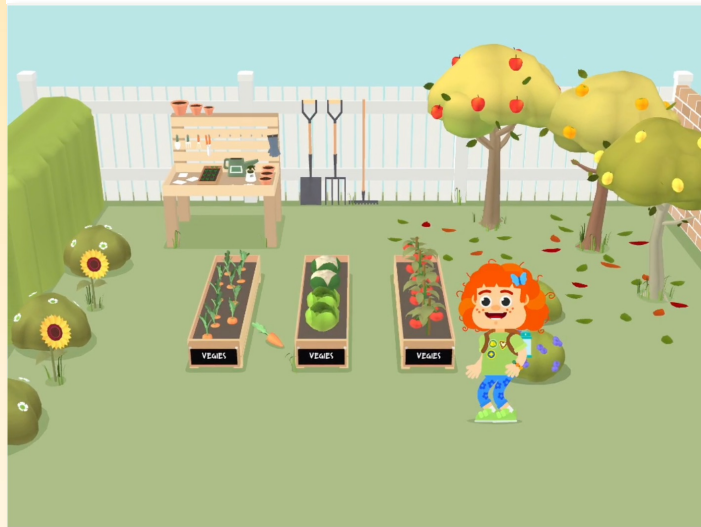
A learning program that integrates in-class learning activities with digital experiences to enhance primary school student's STEM skills, understanding and confidence.

Our Goals:

- science, technology, engineering and mathematics (STEM) learning for all children across the early years of schooling
- provide professional learning to empower teachers
- measure the success of ELSA: STEM in Schools in improving children's spatial reasoning, logical reasoning and numeracy

ELSA: STEM in Schools themes

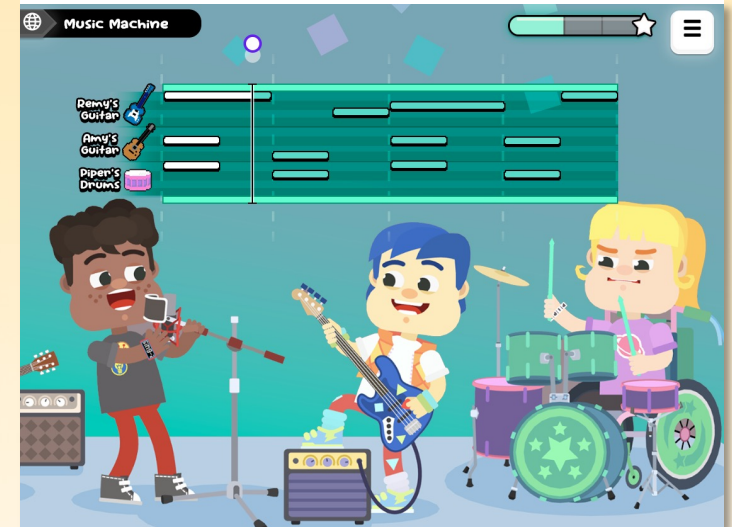
Community (Foundation)



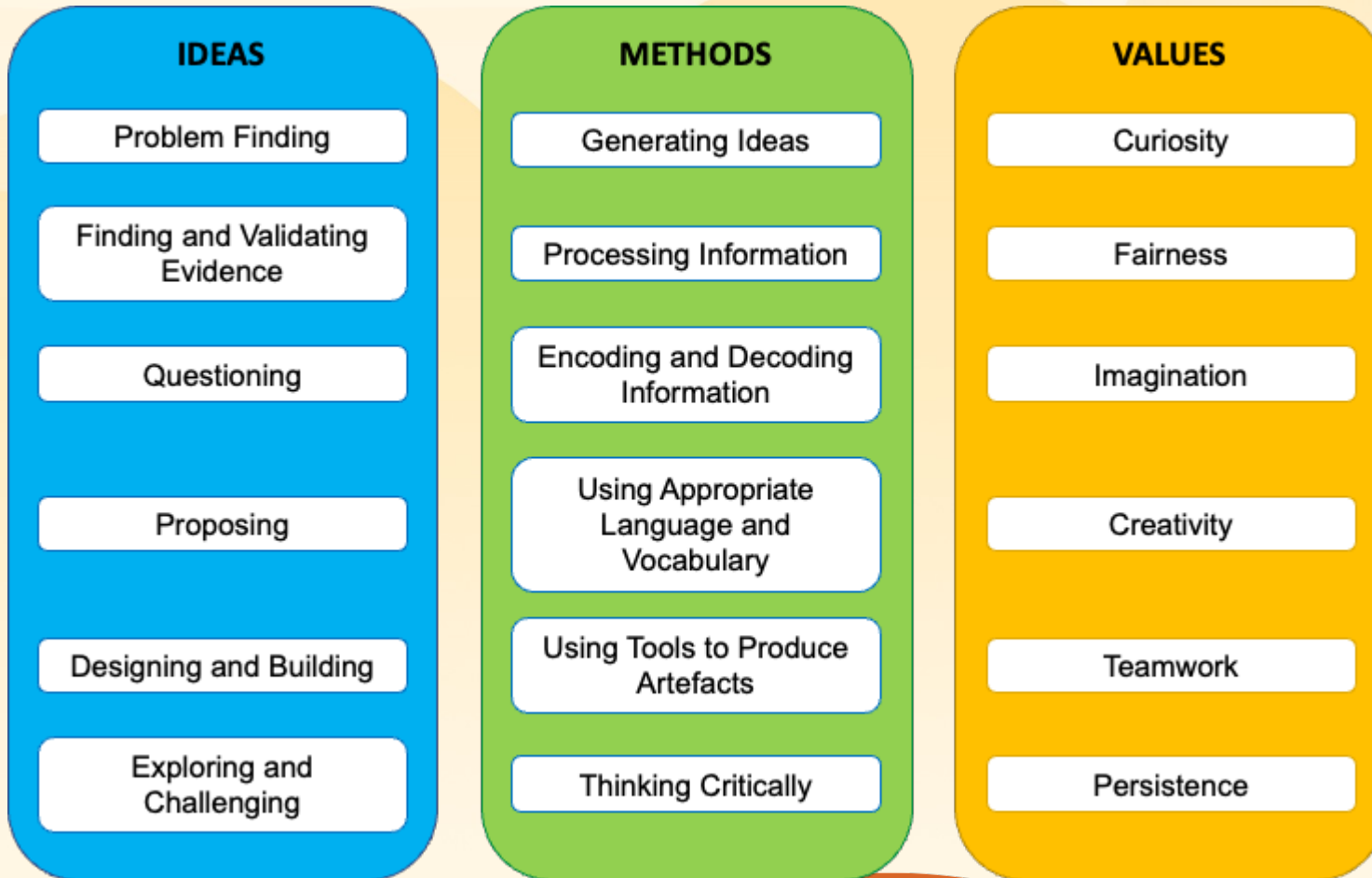
Context (Year 1)



Culture (Year 2)

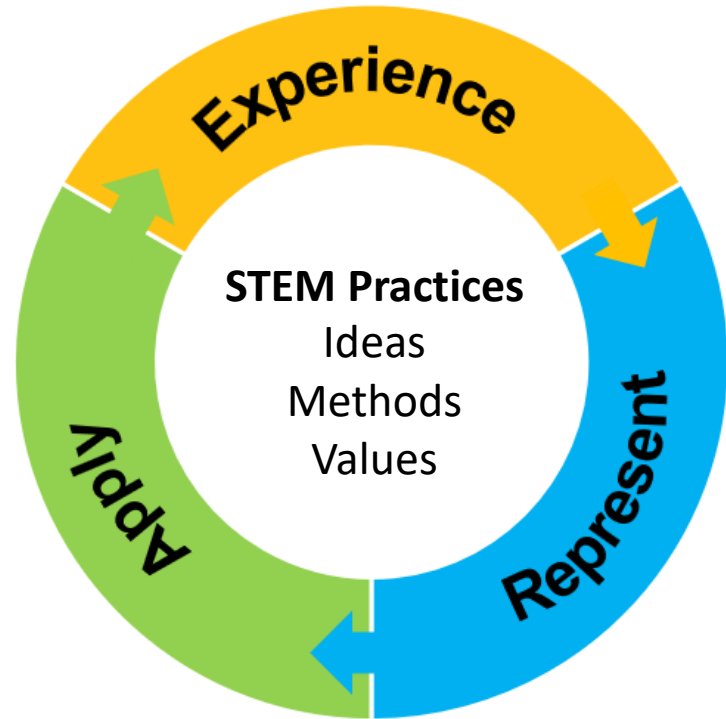


STEM Practices



- Our approach to STEM is a little different to other programs.
- We look at the Ideas, Methods and Values that underpin authentic STEM experiences.
- We unpack the STEM Practices in a comprehensive way in a series of PL videos.
- These videos will be available via our Teacher tool.

Pedagogy: Experience-Represent-Apply (ERA)



Experience ... children experience a concept first with off-app activities

Represent ... this concept is represented on the app in game format

Apply... children apply the concept to their own environment

Underpinning the program is our ERA pedagogical model. We will discuss the model and its application in your classroom in a series of online PL available on our Teacher tool.

What does the program look like?

The ELSA: STEM in Schools program will include:

For Teachers

- Units of work designed around the ERA model
- Teacher digital tool
- Professional learning (PL) course
- Help desk and support

For Students

- Digital games specifically designed for each year in the program.
- Hands-on classroom activities

For Families

- Free website with STEM activities for inside and outside the home and when travelling.
- These activities are designed to support families to engage with STEM concepts relevant to children in F-2.

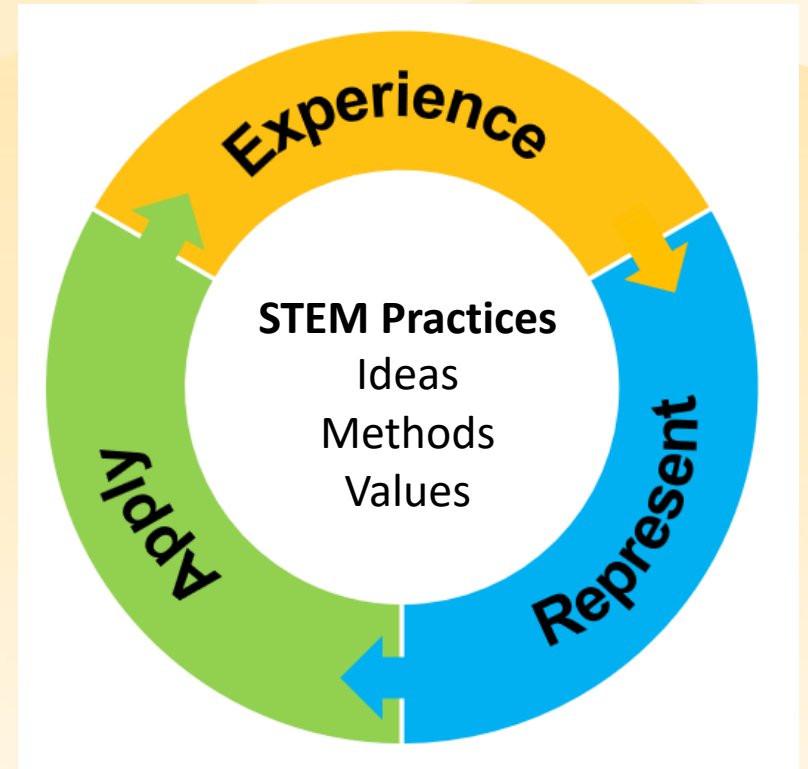
Mix of non-digital and digital experiences

The ELSA: STEM in Schools program has been designed to achieve an appropriate balance of digital and non-digital learning experiences.

Two-thirds of the activities are completed with students in the classroom or outside in the school grounds, and one-third of the activities are digital.

This allocation of activities to non-digital and digital activities is reflected in our unit plans.

These unit plans are based on our **Experience, Represent, Apply** (ERA) model.



Digital components

The **Teacher tool** is accessible from any web browser and will include:

- Unit plans underpinned by ERA model
- Mapping of units to the Australian Curriculum (V9)
- Professional Learning resources
- Class management module
- Digital dashboard of students' game usage and learning achievements

The **digital games** have been specifically designed for each year level (F, 1 and 2).

Each game addresses different STEM 'big ideas' and builds capacity in STEM skills.

Term 2

Foundation BIG IDEA 1. Spatial Ordering
BIG IDEA 2. Location and Transformation

Year 1 BIG IDEA 1. Decoding Information
BIG IDEA 2. Spatial Measurement

Year 2 BIG IDEA 1. Debugging
BIG IDEA 2. Spatial Movement

Term 3

Foundation BIG IDEA 3. Computational thinking: abstraction
BIG IDEA 4. Patterns

Year 1 BIG IDEA 3. Sequencing and decision-making
BIG IDEA 4. Mechanical reasoning

Year 2 BIG IDEA 3. Graphic Languages
BIG IDEA 4. Fractions

What you will need...

- Digital devices with access to a web browser.
- The program will work on laptop or desktop computers, Chromebooks, or tablet devices.
- Basic classroom resources; for example, blocks, drawing materials and basic household objects.
- Space in your learning program to allocate
 - 1 - 1.5 hours per week to implement the ELSA STEM in Schools Program (RCT and Non-RCT groups)
 - 12-15 minutes per child (Digital group).



2024 Pilot Program Structure

This year we are piloting the ELSA: STEM in Schools program. This means we are testing it out for the very first time to see what works and what doesn't.

Your feedback is crucial and will allow us to improve the program in the future. Each of the four groups is of equal importance to the ongoing success of the program.

There are **four groups** in our 2024 pilot:

1. Full ELSA Program (Full)
2. School Business As Usual (BAU)
3. ELSA Digital (digital games only)
4. Non-RCT

We will now move into separate breakout rooms to discuss your group's role in the project.

You will be moved into one of the following rooms: *Room 1 – Full and Non-RCT; Room 2 – BAU; Room 3 – Digital*. If you are not automatically moved into one of the rooms, then remain in the current room.

We will all come back into the main room for Q & A. See you all again shortly.



ELSA

STEM in Schools

**RCT and Non-
RCT Groups**

Summary of RCT and Non-RCT

Group 1

Full ELSA Program

- full access to the ELSA: STEM in Schools program (Terms 2 & 3, 2024)
 - 4 [Unit plans](#) for each year level
 - Suite of [digital games](#) customised for each year level
- full access to online professional learning
- deliver online pre-tests and post-tests

Group 4

Non-RCT

- full access to the ELSA: STEM in Schools program (Terms 2 & 3, 2024)
 - 4 Unit plans for each year level
 - Suite of digital games customised for each year level
- full access to online professional learning
- deliver online pre-tests and post-tests
- possible involvement in small research projects and case studies carried out at your school

What will your PL look like?

We will offer a [range of PL](#) throughout the year.

- Some PL sessions will be live and interactive like this webinar.
- Other PL sessions will be pre-recorded and will be available from the Teacher tool.
- Pre-recorded sessions include PL regarding our key pedagogical underpinnings:
 - STEM Practices
 - the ERA cycle
 - spatial reasoning
 - logical reasoning
- We will provide the full recordings of our live webinars.
- We will also repurpose aspects of these webinars as short videos.

- As part of either the FULL ELSA Program or the Non-RCT program, you will receive
- Access to live webinars exploring the content to be delivered in the program.
 - Access to pre-recorded PL regarding the pedagogical underpinnings of the program.
 - Access to pre-recorded videos that explain concepts relevant to a particular year level.

What we need you to do...

- Pre-testing and post-testing with students
 - Tests will be available and completed via the ELSA Schools online platform.
 - You will have 14 days to hold the Pre and post-tests.
 - Pre-tests will open at the start of Term 2. Post-tests will open at the end of Term 3.
- Complete pre- and post-program surveys and small reflections at the end of each unit
- Allow our team access to your school to do small research projects (non-RCT group) if required
- Tell us ASAP if your class or school are unable to continue participating in our 2024 pilot
- Keep an eye on your email as we will send key updates to you throughout the pilot
- Attend the upcoming Big Ideas seminar (two options, end of March or early April) – here we will discuss the program in detail

When will you get access? Need help?

Access to the teacher tool, learning program and digital games for Foundation, Year 1 and Year 2 will be available from mid-March.

Contact us:

Email: elsa.schools@canberra.edu.au

Phone (Mon-Thurs): **1800 512 225**

Website: <https://elsaschools.edu.au>

We will now return to the main room for Q and A.

Questions and thank you