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.

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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

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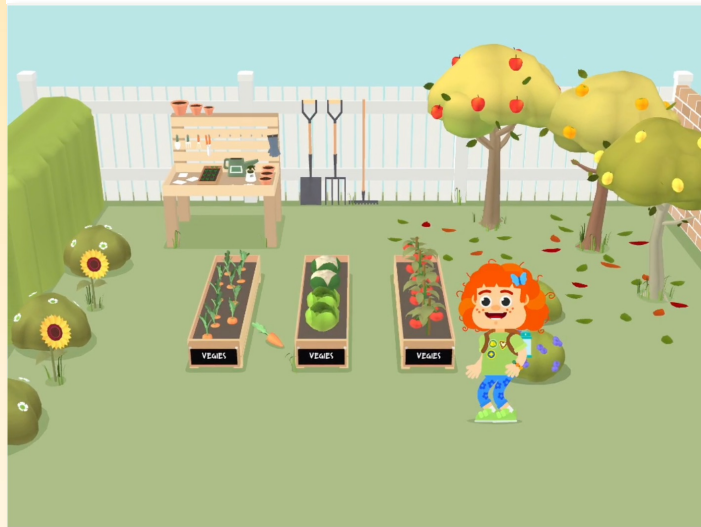
What is ELSA: STEM in Schools?

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
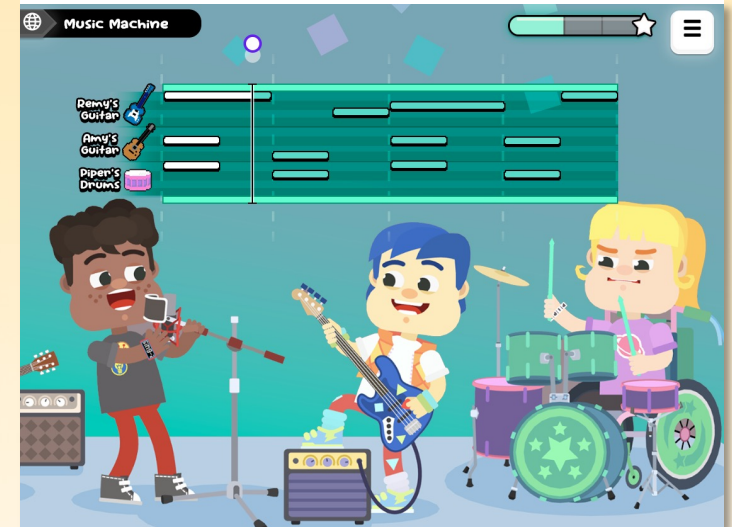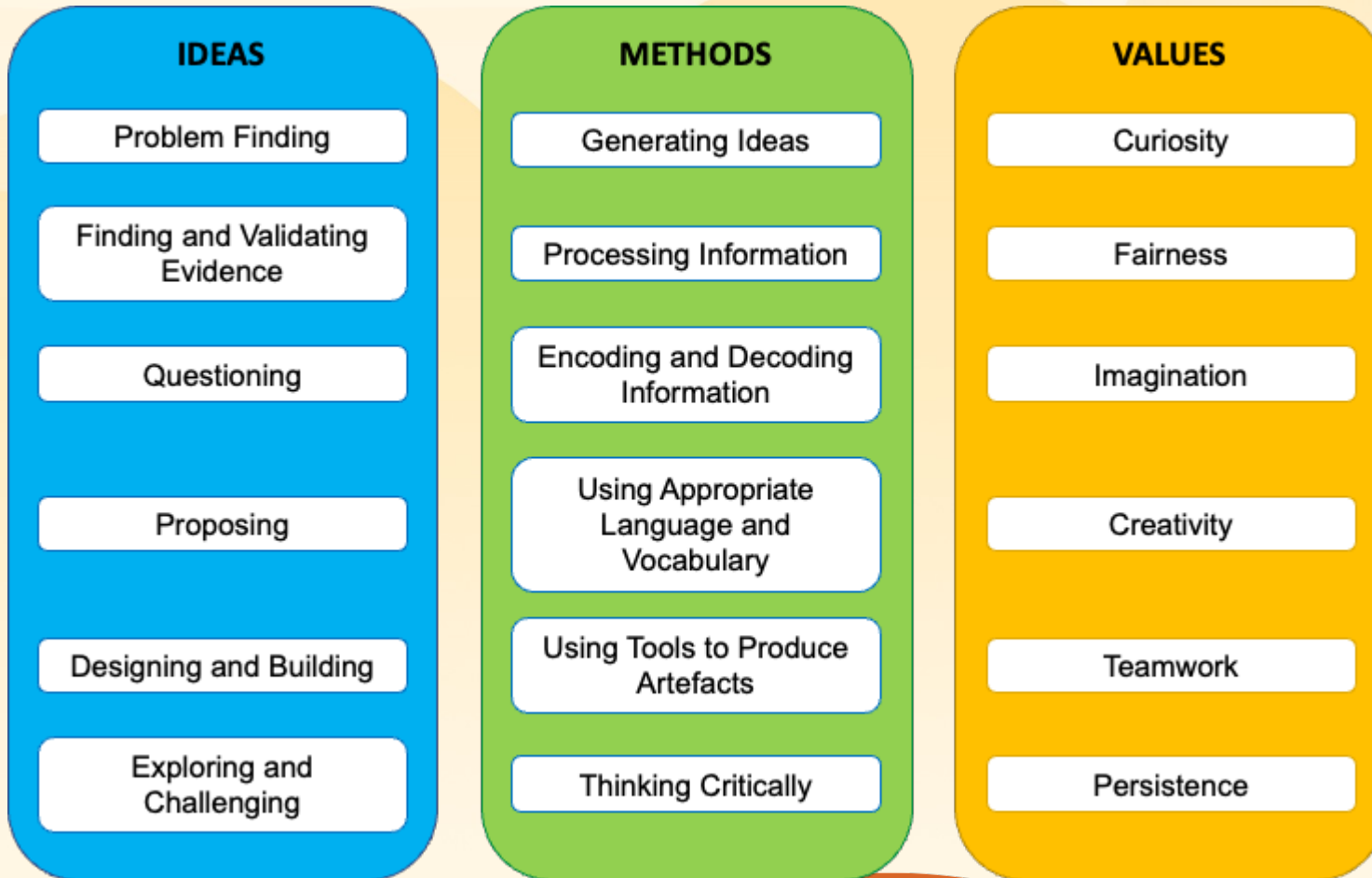
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ELSA: STEM in Schools themes

Community (Foundation)

Context (Year 1)

This is Amy from
Emergency Response Center HQ.

Culture (Year 2)

STEM Practices

| IDEAS	METHODS	VALUES
Problem Finding	Generating Ideas	Curiosity
Finding and Validating Evidence	Processing Information	Fairness
Questioning	Encoding and Decoding Information	Imagination
Proposing	Using Appropriate Language and Vocabulary	Creativity
Designing and Building	Using Tools to Produce Artefacts	Teamwork
Exploring and Challenging	Thinking Critically	Persistence

- 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.

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Pedagogy: Experience-Represent-Apply (ERA)

STEM Practices
Ideas
Methods
Values
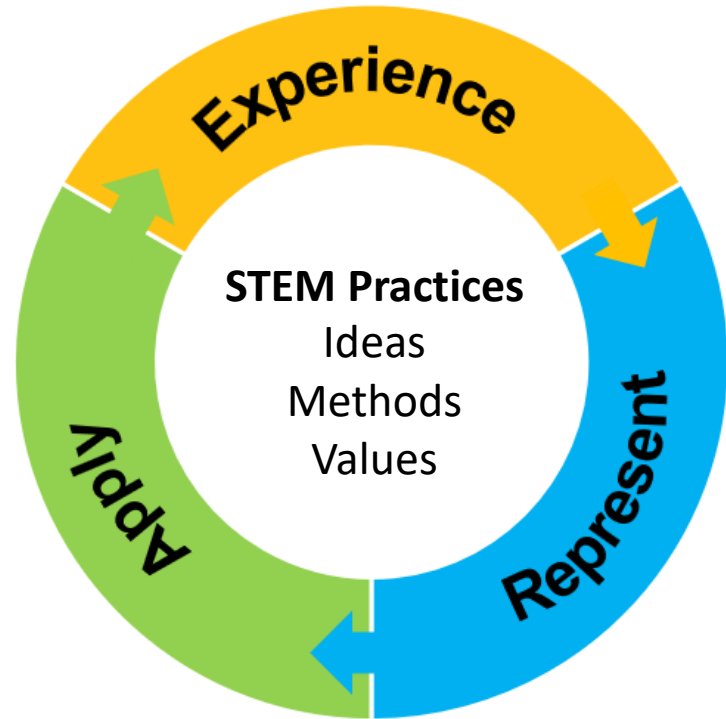
Experience ... children experience a concept first with off-app activities

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.

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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.

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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.

STEM Practices
Ideas
Methods
Values

Experience
Represent
Apply
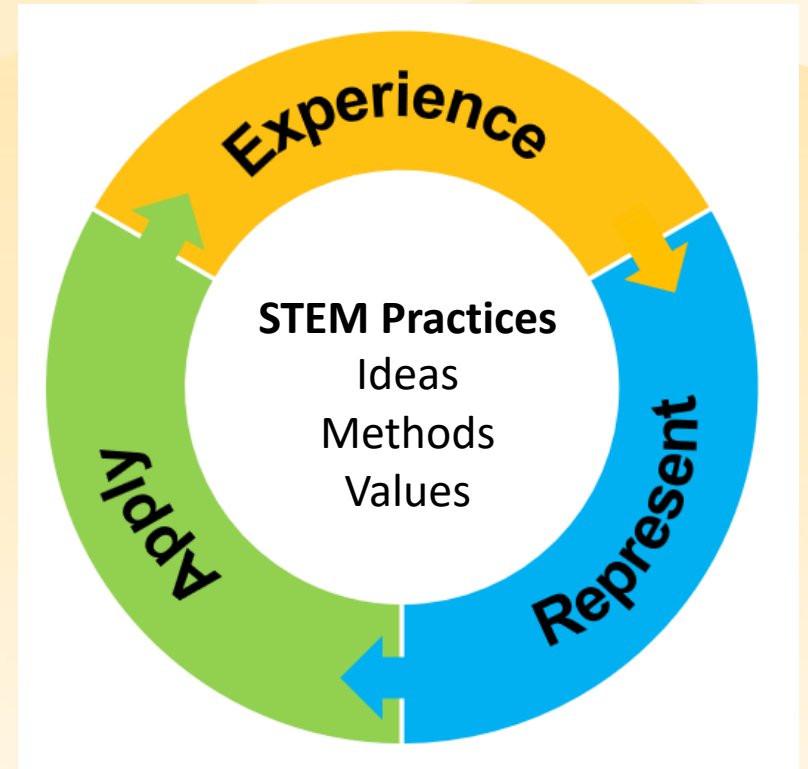
Digital components

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

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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).

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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.

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Digital group expectations

Group 3

Digital Tools

- access to the ELSA: STEM in Schools digital tools (Terms 2 & 3)

- access to technical setup videos

- deliver the online pre- tests and post-tests

For the ongoing success of the program, your participation in the Digital Tools group is essential. Data from your group is critical for us in improving the program for 2025 and beyond.

You will be provided with FULL ACCESS to ELSA: STEM in Schools in Term 4, 2024 and for 2025, including all Professional Learning.

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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 the ELSA Digital Tools Program, you will initially *only receive access to digital tool tech-setup PL in Term 1.*

From Term 4, 2024 you will receive full access including:

- Access to pre-recorded PL regarding the pedagogical underpinnings of the program.
- Access to pre-recorded PL exploring the content to be delivered in the program.
- Access to pre-recorded videos that explain concepts relevant to a particular year level.

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What we need you to do...

- [Pre- 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
- Watch a video explaining access to the digital games and encourage your children to engage with the [digital games](#) for 10-15 minutes per child, per week in Terms 2 and 3
- 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
- Deliver the full program in 2025 (it will be available in Term 4, 2024 if you would like to deliver a component of it)

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When will you get access? Need help?

Digital games for Foundation, Year 1 and Year 2 will be available for students to access from the start of Term 2.

Access to the teacher tool to administer the Pre-test and Post-test and to complete pre and post program surveys will be available from the start of Term 2.

Full access to learning program for Foundation, Year 1 and Year 2 will be available for you from the start of Term 4 and in 2025.

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.

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Questions and thank you