From little things, big things grow

Who and what is Primary Connections?

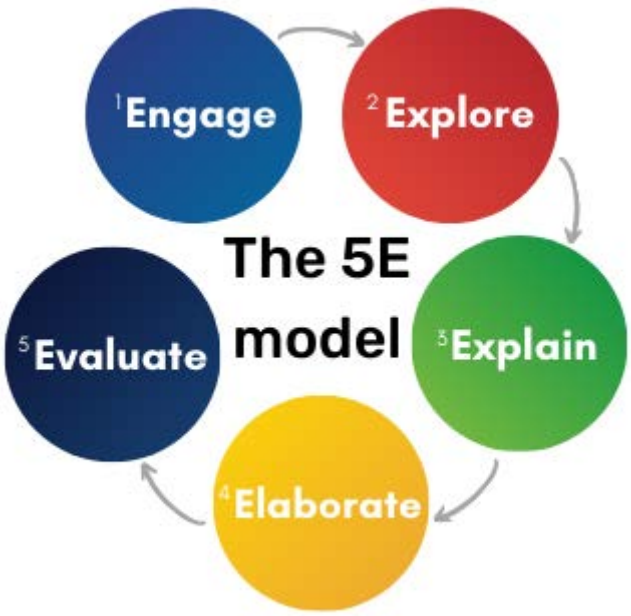
- A primary school science education program of the Australian Academy of Science funded by Australian Government.
- Recognised by 94% of primary teachers (1) and used by more than 75% of Australian primary science teachers since beginning in 2004 (2).
- An inquiry approach to primary science education.

What is inquiry learning?

- An approach that promotes curiosity and supports knowledge construction by engaging students in practical and hands-on activities.
- Students demonstrate learning by drawing, making models, videos and in many other ways called representations.

What is the Primary Connections inquiry approach?

A five phase model called the 5E inquiry model.



Phase	From the student's perspective
Engage	What do I think? What do I know about this topic? What am I curious about? What questions do I have about this topic?
Explore	I'll do some activities to investigate.
Explain	What have I learnt so far? How do I know?
Elaborate	I know a bit more now so I'm ready to do more investigating. What have I learnt? How do I know?
Evaluate	How has my thinking changed?

Watch this video for more information about the Primary Connections approach.

(1) Primary Science Teaching Survey, Australian Science Teachers Association, 2014 asta.edu.au/programs/assist/primary_science_teaching_survey
(1) Primary Connections: linking science with literacy Stage 6 Research Evaluation, University of Technology Sydney, 2018
(2) primaryconnections.org.au/sites/default/files/files/primary-connections-stage6-evaluation-report-uts.pdf

At a glance: From little things, big things grow

Lesson	Phase of learning	What students will do	What you will need	What students will produce
1	The ENGAGE phase of learning: Stimulate students' interest and thinking about the topic.	• Walk around a backyard or park. • Draw the plants they find. • They answer: What do you think plants need to help them to grow?	• Paper, • Pens or pencils Optional: a device for taking photos	A labelled drawing showing what they think a plant needs to grow and be healthy.
2	The EXPLORE phase of learning: Students explore the topic in a hands-on way.	• Predict what would happen if plants received too much sunlight or water, or not enough sunlight or water. • Set up an investigation that will last 4 weeks. • Students use informal units to measure seedlings.	• Paper, pens, pencils, markers • Plant seedlings • One popstick per seedling • small bag of potting mixture or nutrient-rich soil • small pots • self-adhesive labels (or paper and sticky tape) • 1 small measuring cup or water mister Optional: a device for taking photos	A table of their predictions about plant growth.
3	The EXPLORE phase of learning: Students explore the topic in a hands-on way.	• Closely observe a seedling. • Students use informal units to measure seedlings.	• Paper and pencils • 1 popstick per seedling, for measuring • A potted seedling (not part of the investigation) or an image (provided) • Small paintbrush, or small soft broom. Optional: a device for taking photos	An annotated drawing representing the parts of plants that grow above and below the ground.
4	The EXPLORE phase of learning: Students explore the topic in a hands-on way.	• Place celery sticks in coloured water. After at least 4 hours observe and discuss any changes to the celery. • Draw how they think the water travels through a plant. • Students use informal units to measure seedlings.	• Paper and pencils • 1 popstick per seedling, for measuring • 1 clear and strong container, half full of water • 1 teaspoon of red or blue food colouring • 1 stalk of celery, cut with a sharp implement • Several small pieces of celery, cut with a sharp implement Optional: a device for taking photos	A drawing that represents how they think water travels through plants.
5	The EXPLAIN phase of learning: Opportunity for students to explain what they think, based on previous activities. They look at current scientific research about the topic.	• Find patterns in their weekly measurements. • Make claims about what plants need based on the measurements they have taken in previous weeks. • Students graph their measurements.	• Paper and pencils • 1 popstick per seedling, for measuring • All the popsticks you have used to measure the seedlings over the past 4 lessons. Optional: the photos you took of your seedlings • a device for taking photos • PVA glue	A graph of their measurements. Verbal and written claims about what plants need to grow well, based on their measurements.

Check with your child's teacher for guidance about the Elaborate and Evaluate phases of learning.