

Aligning curriculum, pedagogies and assessment, an example of practice in Year 1

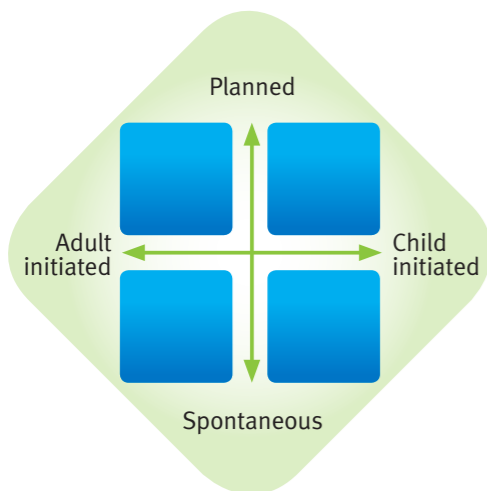
Inquiry learning - Stick insect inquiry centre

Australian Curriculum - Science

Sequencing teaching and learning

How do I teach it?

Achieving range and balance*



Approach

- Inquiry learning

Practices

- Child-initiated inquiry
- Support children to theorise, hypothesise and wonder
- Provide opportunities for young learners to make decisions

Strategies

- Co-construct plans with young learners
- Provide opportunities for active learning with open-ended experiences
- Use questioning judiciously to check for understanding, and to challenge and extend thinking

Characteristics of age-appropriate pedagogies*

- Active
- Agentic
- Collaborative
- Creative
- Explicit
- Language rich and dialogic
- Learner focused
- Narrative
- Playful
- Responsive
- Scaffolded

*See over for an explanation of approaches, practices and strategies, and the characteristics of age-appropriate pedagogies evident in this Example of practice.

Our students

Working together to ensure that every day, in every classroom, every student is learning and achieving

This is an example of how one teacher incorporated **inquiry learning** while implementing the [Australian Curriculum](#) Science learning area in Year 1.

In Term One, the Year 1 teacher was implementing C2C Unit 1 – Science Year 1 (V8.0) Living adventure. Whole class Science lessons were conducted weekly.

After a weekend visit to the museum, one of the young learners was very excited to share what he had learnt about stick insects with his teacher. He asked if they could keep some stick insects in the classroom.

After co-constructing plans, the teacher and young learners created a Stick insect inquiry centre in the classroom. This set of trapezoid tables provided an area to house stick insects in an enclosure, relevant information texts, magnifying glasses, the young learners' Stick insect journals, materials for sketching, painting and writing, and an iPad for capturing learning.

The teacher positioned herself as an active participant in the stick insect inquiry. She scheduled opportunities to work with small groups while the rest of the class were working on related independent learning experiences.

Working in this way ensured that the dominant mode of dialogue in the Stick Insect inquiry centre was between individuals or small groups of young learners. This enabled the teacher to connect with each individual, tailoring questions and modelling content specific language connected to the learning areas.

The Stick insect inquiry centre provided opportunities for the teacher to monitor learning. Each interaction in the Stick insect inquiry centre provided opportunities to have rich conversations, use questioning to check for understanding, and to challenge and extend thinking.

Once the Stick insect inquiry centre had been in the classroom for several weeks, the young learners decided that they would like to share their learning with the Year Five buddies. Buddy visits were co-planned by the Year One and Year Five teachers.

At the completion of the unit of work, the enclosure housing the stick insects became a permanent fixture in the classroom, with many of the young learners monitoring the growth and behaviour of the stick insects for the remainder of the year.

Assessment

What do my students already know? How well do they know it?

Assessment for learning - enabling teachers to use information about learner progress to inform their teaching, including photographs, drawings and written observations in Stick insect journals

Assessment as learning - enabling learners to reflect on and monitor their own progress to inform their future learning goals, including peer feedback from Year Five Buddies

Assessment of learning - C2C Unit 1 - Science - Year 1 (V8.0) - assessment tasks

Making judgments

How will I know how well my students have demonstrated the Achievement Standard?

The Stick insect inquiry centre provided opportunities for teaching and learning as part of the larger C2C Unit 1 - Science - Year 1 (V8.0).

Applying (AP) - Explains how a change in a habitat affects living things. Predicts how a change in a habitat may affect the living things that live there. Shares using appropriate scientific language.

Making Connections (MC) - Identifies that a change in a habitat affects living things. Predicts how a habitat could change. Shares using some scientific language.

Working With (WW) - Describes changes in local habitats. Describes how different habitats meet the needs of living things. Responds to questions and makes predictions. Shares with others.

Exploring (EX) - Identifies that a habitat has changed. Identifies that habitats meet the needs of living things. Makes a prediction with guidance. Contributes to making a shared observation.

Becoming Aware (BA) - Identifies a habitat for a living thing. Makes a statement. Engages in observation when directed.

Feedback

What do my students already know? What do my students need to learn next?

The teacher used photographs, drawings and written observations in the Stick insect journals to inform feedback. The feedback provided the young learners with progress on their learning to date (*Taj, I noticed that you said, 'All stick insects are brown and leaf-shaped' when you were describing the external features of a stick insect*), and gave specific information about what to do next (*Spend some time with Owen and ask him to show you the stick insect he has been observing. Then let's talk about whether your thinking is changing*).

Ongoing informal verbal feedback was embedded in classroom activities throughout this inquiry learning.



Curriculum intent

What do my students need to learn?

Australian Curriculum - Science

Year 1 Level Description

The science inquiry skills and science as a human endeavour strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the achievement standard and also to the content of the science understanding strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching and learning programs are decisions to be made by the teacher.

Incorporating the key ideas of science

From Foundation to Year 2, students learn that observations can be organised to reveal patterns, and that these patterns can be used to make predictions about phenomena.

In Year 1, students infer simple cause-and-effect relationships from their observations and experiences, and begin to link events and phenomena with observable effects and to ask questions. They observe changes that can be large or small and happen quickly or slowly. They explore the properties of familiar objects and phenomena, identifying similarities and differences. Students begin to value counting as a means of comparing observations, and are introduced to ways of organising their observations.

Year 1 Content Description (as applicable to this inquiry learning)

Science as a human endeavour

- People use science in their daily lives, including when caring for their environment and living things (ACSH022)
- Science involves observing, asking questions about, and describing changes in, objects and events (ACSH021)

Science inquiry skills

- Use informal measurements to collect and record observations, using digital technologies as appropriate (ACSI026)
- Use a range of methods to sort information, including drawings and provided tables and through discussion, compare observations with predictions (ACSI027)
- Represent and communicate observations and ideas in a variety of ways (ACSI029)
- Pose and respond to questions, and make predictions about familiar objects and events (ACSI024)
- Compare observations with those of others (ACSI213)

Science understanding

- Living things have a variety of external features (ACSSU017)
- Living things live in different places where their needs are met (ACSSU211)

Year 1 Achievement Standard

By the end of Year 1, students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects. They describe changes in their local environment and **how different places meet the needs of living things**.

Students respond to questions, make predictions, and participate in guided investigations of everyday phenomena. They follow instructions to record and sort their observations **and share them with others**.

Characteristics of age-appropriate pedagogies evident in this example of practice

This inquiry learning built on a young learner's real-world understandings and experiences. The teacher provided opportunities for the young learners to engage in a learning experience that was child-initiated and then co-constructed the learning environment with the young learners. The young learners worked collaboratively with their teacher, their Year Five Buddies and their classmates. Their learning in the Stick insect inquiry centre was social and co-constructed. The teacher clearly articulated the curriculum intent of the learning experience, providing feedback to the young learners, connecting them with the strength of their current learning and then co-constructing future learning goals. The teacher asked questions that cognitively challenged the young learners to extend their views, ideas and open opportunities for rich dialogue.

Although only six of the characteristics of age-appropriate pedagogies have been highlighted here, there were opportunities to embed each of the eleven characteristics.

Characteristics of age-appropriate pedagogies

Creative

Inviting children to consider "What if?" They encourage investigation, inquiry and artistry to explore new possibilities and ways of thinking.

Narrative

Acknowledging the important role that personal, written, oral and digital stories play in all our lives. They support both the production and comprehension of narratives through active processes, especially play.

Active

Requiring physical and embodied engagement across all areas of learning. Whether this is indoors or outdoors, activity is essential in order to activate children's full potential. Their focus, concentration, motivation and self-regulation are enhanced through moving, doing and interacting within a range of learning environments.

Explicit

Making conscious for both learner and educator the relationships between the learning purpose and processes employed and the skills and understanding these processes support.

Playful

Encouraging children to make connections through imagination and creativity to explore alternate worlds and ways of thinking. These worlds, not bounded by reality, offer the freedom children need to innovate and enact new possibilities.

Agentic

Ensuring that children have voice in their learning. Their ideas and interests initiate, support and extend learning possibilities in order to build on their real-world understandings and experiences.

Language rich and dialogic

Ensuring that learning occurs in environments where rich language is modelled and employed by both children and educators. Meaningful dialogues between children, as well as between children and educators, are created to support thinking, learning, engagement and imagination.

Responsive

Incorporating a willingness to be flexible, to ensure that learning is always child, context, content and discipline appropriate. To achieve this, educators will balance opportunities for structure and spontaneity, open-ended and specific tasks, and child-led and educator-led learning.

Collaborative

Being social and co-constructed. Children and educators work together to identify ways of learning and understanding through sustained shared thinking and action.

Learner focused

Recognising that all children learn in different ways and that learning is a highly individualised process. They also acknowledge differences in children's physical, intellectual, cultural, social and personal experiences and perspectives.

Scaffolded

Including such actions as modelling, encouraging, questioning, adding challenges, and giving feedback, provide the support needed to extend children's existing capabilities. Effective scaffolding by both educators and other children provides active structures to support new learning; it is then progressively withdrawn as learners gain increasing mastery.

Approach - Inquiry learning

Practices*

Child-initiated inquiry

One of the young learners initiated the inquiry based on his personal interest and experience. The teacher recognised that implementing the idea of this young learner would further enrich current Science teaching and learning opportunities in the classroom.

Support children to theorise, hypothesise and wonder

By providing each young learner with a Stick insect journal the teacher encouraged observation, thinking, and the regular recording of theories, hypotheses and wonderings. The young learners were able to record learning, reflect on learning and plan for future learning.

The Stick insect journal supported the young learners to consciously focus on the what, how and why of their learning. It also became the tool for sharing their new knowledge, skills and understanding with their Year Five Buddies.

Provide opportunities for young learners to make decisions

The teacher cultivated the young learners' interest and engagement with stick insects to create conditions that enabled the young learners to make decisions about their learning.

These conditions included inviting the Year Five Buddies to experience the Stick insect inquiry centre. The young learners positioned themselves as the experts and planned to teach the Year Five Buddies all that they knew about stick insects and their habitats. Using their Stick insect journals as a prompt, each young learner was able to describe the external features of stick insects and how the needs of the insects were being met by the habitat to his/her buddy.

Behind the scenes, the timing of these Year Five Buddy visits (small groups) was co-planned between the Year One and Year Five teachers.

The Year Five Buddies provided peer feedback about their learning to the young learners via emails after their visits.

**These are examples of Practices implemented, and not intended as a finite list.*

Questions for teacher-based reflection

- How is an array of effective pedagogies ensured?
- How are holistic development and academic goals balanced?
- How is a balance between child-initiated and adult-initiated learning experiences fostered?
- How are positive personal relationships with children nurtured?
- How is playfulness in learning and teaching interactions embedded?
- How are high-quality, verbal interactions encouraged?
- How are interactions to scaffold cognitive challenge and develop higher order thinking incorporated?
- How are real-life, imaginary, spontaneous and planned experiences integrated?

Strategies*

Co-construct plans with young learners

The teacher invested time in explicitly, co-constructing plans with the young learners that identified:

- Science Understanding (What they would be learning, for example, living things have a variety of external features and live in places where their needs are met)
- Science Inquiry Skills (How they would be learning, for example, representing and communicating observations and ideas in a variety of ways)
- Science as a Human Endeavour (Why they were learning, for example, people use science in their daily lives, including when caring for their environment and living things)

Provide opportunities for active learning with open-ended experiences

The Stick insect inquiry centre provided learning opportunities extending beyond a singular activity, that could be repeated or returned to, and that supported active engagement in purposeful learning.

Decisions were made in relation to the physical, temporal and social environment:

- Where should the Stick insect inquiry centre be positioned within the classroom to make it easily accessible for the young learners?
- When would the young learners have access to the Stick insect inquiry centre? Would this require a change to the timetable?
- What social groupings would best support deep engagement in learning?

Would groupings be determined by the teacher, young learners, or a combination of both?

Use questioning to check for understanding, and to challenge and extend thinking

Conferencing with young learners as they engaged with the Stick insect inquiry centre provided the perfect opportunity for the teacher to monitor learning. Teacher questioning included:

- *Could you share what you are thinking with the rest of the group?*
- *What evidence do you have for that idea?*
- *Is your thinking changing? How? Why?*
- *How is this thinking connected to other learning you have done?*

The teacher used the Stick insect inquiry centre as the focus for the C2C Unit 1 - Science Year 1 (V8.0) Monitoring task Constructing a scientific drawing of a habitat including how it meets the needs of living things. While the young learners drew and labelled the stick insect habitat, the teacher checked for misunderstandings and common alternative conceptions through content specific questions. Teacher questioning included:

- *What would happen if we used branches from a different plant in the stick insect habitat?*
- *Why do you think the stick insect is that colour?*
- *How is our stick insect habitat providing shelter to the insects that they wouldn't have in the playground?*

** These are examples of the Strategies implemented, and not intended as a finite list.*

Questions for school-based reflection

- How is the provision of training, resources and support considered?
- How are the professional demands on teachers, and the lead-in time required to establish new approaches, recognised and supported?