



Purnululu Aboriginal Independent Community School

Whole School Plan – Science

Revised August 2015

Rationale

Science provides an empirical way of answering interesting and important questions about the biological, physical and technological world. The knowledge it produces has proved to be a reliable basis for action in our personal, social and economic lives. Science is a dynamic, collaborative and creative human endeavour arising from our desire to make sense of our world through exploring the unknown, investigating universal mysteries, making predictions and solving problems. Science aims to understand a large number of observations in terms of a much smaller number of broad principles. Science knowledge is contestable and is revised, refined and extended as new evidence arises.

The Australian Curriculum: Science provides opportunities for students to develop an understanding of important science concepts and processes, the practices used to develop scientific knowledge, of science's contribution to our culture and society, and its applications in our lives. The curriculum supports students to develop the scientific knowledge, understandings and skills to make informed decisions about local, national and global issues and to participate, if they so wish, in science-related careers.

In addition to its practical applications, learning science is a valuable pursuit in its own right. Students can experience the joy of scientific discovery and nurture their natural curiosity about the world around them. In doing this, they develop critical and creative thinking skills and challenge themselves to identify questions and draw evidence-based conclusions using scientific methods. The wider benefits of this "scientific literacy" are well established, including giving students the capability to investigate the natural world and changes made to it through human activity.

The science curriculum promotes six overarching ideas that highlight certain common approaches to a scientific view of the world and

which can be applied to many of the areas of science understanding. These overarching ideas are patterns, order and organisation; form and function; stability and change; systems; scale and measurement; and matter and energy.

Curriculum Outcomes

Science aims to ensure that students develop...

- an interest in science as a means of expanding their curiosity and willingness to explore, ask questions about and speculate on the changing world in which they live
- an understanding of the vision that science provides of the nature of living things, of the Earth and its place in the cosmos, and of the physical and chemical processes that explain the behaviour of all material things
- an understanding of the nature of scientific inquiry and the ability to use a range of scientific inquiry methods, including questioning; planning and conducting experiments and investigations based on ethical principles; collecting and analysing data; evaluating results; and drawing critical, evidence-based conclusions
- an ability to communicate scientific understanding and findings to a range of audiences, to justify ideas on the basis of evidence, and to evaluate and debate scientific arguments and claims
- an ability to solve problems and make informed, evidence-based decisions about current and future applications of science while taking into account ethical and social implications of decisions
- an understanding of historical and cultural contributions to science as well as contemporary science issues and activities and an understanding of the diversity of careers related to science
- a solid foundation of knowledge of the biological, chemical, physical, Earth and space sciences, including being able to select and integrate the scientific knowledge and methods needed to explain and predict phenomena, to apply that understanding to new situations and events, and to appreciate the dynamic nature of science knowledge

PAICS Science Profile

PAICS predominately provides education to Gija people. PAICS students learn Aboriginal perspectives of science from elders in the community and throughout units at school, delivered by Gija classroom assistants and teachers. PAICS is situated in the East Kimberley, surrounded by bush-land with a plethora of opportunity for students to explore scientifically. PAICS students typically enter school with an already established understanding of their natural surrounding environment, with an inquisitive interest in the way the world works.

Beliefs and Understandings about Science

We believe students learn best when:

- There are high expectations for developing Science understandings
- There is a consistent, whole school approach
- EAL/D strategies and approaches are recognised as imperative to all teaching and learning
- Science teaching and learning is engaging, purposeful, culturally responsive and contextual
- Science teaching integrates use of technologies, texts, hands-on experiences, open-ended questioning and interactive activities
- Integrated units of Science and other Key Learning Areas occur
- Students actively participate in their learning goals, as set by themselves, their community and their teachers
- Teachers, parents and students are given explicit success criteria and opportunities for reflection
- The classroom environment is supportive and encourages risk-taking
- Staff meetings are made available for staff to collaborate and plan together

Strategies for Developing School/Community Partnership

- Open days
- Annual revision of School/Community Partnership and Strategic Plan
- Fortnightly visits to Warmun Language Centre
- Newsletters
- Display of learning samples in the Common Area

School and Class Organisation

- Science is to be a focus unit for at least one (1) term of each school year, and a key component of an integrated unit for an additional term of each school year.
- Class organisation 2015: Junior Primary (K-4), Upper Primary (4-7), *No high school students enrolled.
- Management of Science resources to be responsibility of classroom teachers and AEWs and overseen by the principal.
- Classroom support provided by AEWs. Remote support from AISWA Consultants.

- At least one full-time AEW in each classroom to support all learning as directed by the teacher, priority support given to Junior Primary class.

Leadership, Coordination and Professional Learning

- Science whole school plan to be lead and coordinated by teachers, in consultation with Principal.
- The role of AEWs in supporting students' Science learning include:
 - Teaching students, most usually in small groups, as determined by and in consultation with the classroom teachers
 - Translating Kariya English spoken by the teacher into Kriol for students to ensure maximum understanding
 - Being there for students if they are scared to speak up to non-Kriol speaking teachers
 - Share ideas with the teacher and contribute to Science unit/lesson planning
 - Help the teacher to monitor students' progress in Science by watching the students working and discussing observations with the teacher
 - Supporting students so they understand school way, in order to maximise the learning time in History and minimise disruptions

Agreed Whole School Approaches to Science Teaching

PLANNING

Teachers must plan a minimum of 1 hour per week (10 hrs per term) of Science learning (integrated) for at least 2 terms throughout the school year.

Teachers must include the following planning content in their term planning submissions.

- Links to Australian Curriculum Outcomes
- Yearly Outline of curriculum intentions
- Weekly Overviews
- Assessment Schedule and Tasks
- Contextual Statement with information specific to class cohort

KEY RESOURCES

The following resources are to be used when planning, assessing and teaching Science:

Science out of a Box – teacher companions, activity books and experiment resources.

Science Made Easy

Primary Science

Primary Connections

ASSESSMENT

Teachers are to collect at least 2 samples of formal assessment per Science unit for each student.

Student Progress Tracking – at the end of each term, teachers update the Individual Student tracking Sheet for History using the Australian Curriculum Science Scope and Sequence document.

REPORTING

Reporting - Teachers will write reports against the Australian Curriculum at the end of each semester. Reports are given to parents at parent/teacher interviews so results can be discussed and explained in person. In 2015, the current report format will be revised in consultation with the PAICS community.