Purnululu Aboriginal Independent Community School

Whole School Plan – Mathematics

Revised January 2016

Rationale		
To improve the numeracy outcomes of students at Purnululu Aboriginal Independent Community School (PAICS) and provide teachers with agreed direction and requirements for planning and delivery of Mathematics lessons.		
Mathematics Outcomes		
Students are confident, creative users and communicators of mathematics, able to investigate, represent and interpret situations in their personal and work lives and as active citizens.	Students develop an increasingly sophisticated understanding of mathematical concepts and fluency with processes, and are able to pose and solve problems and reason in *Number and Algebra, Measurement and Geometry, and Statistics and Probability.*	Students recognise connections between the areas of mathematics and other disciplines and appreciate mathematics as an accessible and enjoyable discipline to study.
PAICS Numeracy Profile		
PAICS students often possess some early mathematical concepts as they enter school in the early years, however, it is at school that most PAICS students first encounter mathematics as a learned skill beyond incidental experiences at home and are first introduced to expressing mathematical concepts in Kartiya English (Standard Australian English). It is acknowledged that all PAICS students are multilingual and are developing mathematical language and understandings alongside learning English as an Additional Language or Dialect (EAL/D). Kriol is the first language for most PAICS students. This is what they know, who they are and how they think and learn. PAICS students learn Kartiya English at school to express their mathematical understanding and thinking as many mathematical terms and phrases are limited, ambiguous or non-existent in the Kriol language. Kriol speakers, both students and Aboriginal Education Workers (AEWs), are encouraged to speak their language to each other in and outside the classroom to ensure students understand what they're being taught. Teachers are expected to speak and teach in Kartiya English and are encouraged to become learners of other community languages such as Kriol and Gija. PAICS aims to equip students with the skills, strategies and fluency to reason and make meaning of the mathematical processes in their world. PAICS teachers and AEWs work alongside each other to equip students with the language to effectively communicate mathematical ideas and understandings in both Kriol and Kartiya English.		

Beliefs and Understandings about Mathematics

We believe students learn best when:

- There are high expectations for developing understandings of mathematical concepts.
- Early years (K-1) mathematics instruction should be play-based (using the Kathy Walker approach).
- There is a consistent, whole school approach.
- EAL/D strategies and approaches are recognised as imperative components of Numeracy teaching and learning.
- Explicit Numeracy teaching occurs, using the AICS Numeracy Portal resources to guide assessment and planning.
- 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 to understand data, determine targets and plan strategies.
- Teaching and learning of mathematics is both culturally responsive and tailored to the needs of the cohort of learners.

Strategies for Developing School/Community Partnership

- Open days
- Annual revision of School/Community Partnership and Strategic Plan
- Newsletters
- Special events – Literacy and Numeracy week
- Display of learning samples in the Common Area

School and Class Organisation

- Main Mathematics Block – second session (11:00 – 12:30); additional numeracy to be determined by each classroom teacher in consultation with Principal.
- Class organisation: Junior Primary (K-1), Middle Primary (2-4) & Upper Primary (5-7), *No high school students enroled.
- Individual Education Plans (IEPs) for all students. These should be updated at the beginning of each school year, and as required in the IEPs (recommended every semester).
- Management of mathematics resources to be responsibility of classroom teachers and AEWs and overseen by the principal.
- Classroom support provided by AEWs. External support from AISWA Numeracy Consultants.
- At least one full-time AEW in each classroom to support literacy as directed by the teacher, priority support given to Junior Primary class.

Leadership, Coordination and Professional Learning

- Numeracy improvement plan to be lead and coordinated by the Numeracy Coordinator, in consultation with Principal.
- The role of AEWs in supporting students' numeracy learning include:
  - Teaching students, most usually in small groups, as determined by and in consultation with the classroom teachers
  - Translating Kartiya 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 class numeracy planning
  - Help the teacher to monitor students' progress in numeracy 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 numeracy and minimise disruptions

Agreed Whole School Approaches to Literacy Teaching

PLANNING

Teachers must plan a minimum of 1.5 hours per day (7.5 hours per week) of explicit numeracy learning.
Teachers must include the following planning content in their term planning submissions.

- Australian Curriculum Yearly Overview Template for AICS Numeracy (appropriate years attached)
- Yearly Outline of curriculum intentions
- Weekly Overviews
- Assessment Schedule and Tasks
- Contextual Statement with information specific to class cohort

Key resources to be used in teaching and learning of Mathematics:
AICS Numeracy Portal Resources
First Steps in Mathematics
Developing Efficient Numeracy Strategies (Stage 1 & 2)
Natural Maths
ORIGO – Stepping Stones
Fast Facts Program

Paul Swan resources
No nonsense maths
Peter Sullivan – Open-ended Maths Activities

	Term 1	*Term 2*	*Term 3*	*Term 4*
Core Components	Understand Number	Understand Number	Understand Number	Understand Number
	Calculate and Operate – Addition and Subtraction*	Calculate and Operate – Multiplication and Division*	Calculate and Operate – Addition and Subtraction*	Calculate and Operate – Multiplication and Division*
Integrated Components	Measurement	Measurement	Measurement	Measurement
	Geometry	Statistics and Probability	Geometry	Statistics and Probability
	Money	Money	Money	Money
	Pattern and Algebra	Fractions	Pattern and Algebra	Fractions

*This focus is taught explicitly while the other operations are consolidated

All mathematics teaching and learning is in accordance with the *Australian Curriculum Framework –Mathematics V5.1 F-10 (ACARA)* and the *Early Years Learning Framework 0-K (DEd).*

	Wk 1	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**
Term 1	Planning Meeting				Assessment & Update Data				Assessment & Update Data	Resource Returns
Term 2	Planning Meeting				Assessment & Update Data	Watching Others Work	Moderation	Assessment & Update Data		Resource Returns
Term 3	Planning Meeting				Assessment & Update Data			Watching Others Work	Assessment & Update Data	Resource Returns

Term 4

Planning Meeting	Assessment & Update Data	Moderation	Assessment & Update Data	Resource Returns

Planning Meeting – All staff meet to set class targets and plan how maths will look across the school each term. Teachers set individual targets for each student.
Assessment & Update Data – All students assessed against a minimum of three components from Numerate and two components from Calculate. Data is to be updated on the individual scope and sequence documents and the online portal (ANTT).
Moderation – Staff meet to discuss and moderate assessment tasks and work samples.
Resource Returns – All resources to be returned to the Numeracy storeroom, located in the computer room.
Watching Others Work – Teacher demo and observation rounds. Timing depends on teacher preference and school commitments.

ASSESSMENT

Each term, teachers must update the Numeracy Profiles for each student. These profiles include;

AICS Numeracy Tracking Tool

NUMERATE
- Reading Numbers
- Writing Numbers
- Saying the Number Sequence
- Counting Collections
- Subitising and Partitioning
- Understanding Place Value

CALCULATE
- Basic Facts
- Addition and Subtraction (M,W,C)
- Multiplication and Division (M,W,C)
- Rounding
- Judging Reasonableness of Answers

At the end of each term, teachers update the Individual Scope and Sequence Documents for each students and enter current assessment data on the ANTT online data collection portal.

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.			
Priority Improvement Areas in 2015			
Improvement	Resources/Budget	Professional Learning	Evaluation and Timelines
Assessment and record Keeping	ANTT and Individual Scope and Sequence Docs	In-house PD on delivery of assessment tasks and record keeping practices.	Term 2 Term 4
Inquiry Based Maths	WLA for Early Years teacher $1500 Apply for AISWA PD funding assistance	Kathy walker Approach Play/project based PL	Term 2 - ongoing

Please see attached documents for examples of planning and tracking tools.