Wananami Remote Community School is located at Mt Barnett about 250kms east from Derby on the Gibb River Road. Mt Barnett is 283,280 ha pastoral lease is currently held by the Kupungarri Aboriginal Corporation. Manning Creek runs through the land and is home to the famous Manning Gorge. Established prior to 1903, when the first cattle drove across the King Leopold Ranges occurred, it was abandoned in 1920 when cattle tick arrived in the area. Mount Barnett Station was later returned to the traditional owners who now operate the cattle station. The station runs about 2000 head of cattle that are mustered annually using helicopter. The station is operated by a team from the Kupungarri community, and during peak periods, external people are employed for specialised tasks.

Many of the young people in the community are employed at the station, particularly the young men in roles as ringers, fencers and logistic specialists. The community is serviced by a health clinic and goods can be purchased from the nearby Mount Barnett Roadhouse. The Mt Barnett Roadhouse is one of the most significant buildings in the community and is located in a prominent position on the Gibb River Road. Other services are provided by towns of Derby or Kununurra. Mail is delivered once a week by plane. The area is typically isolated in the wet season but in the dry season, the Gibb River Road is well travelled by tourists being a major tourist route popular with 4WD campers.

Located around the mid-way point along the Gibb River Road and on the Mount Barnett Station, Wananami Remote Community School (RCS) is situated in the Kupungarri community. The community was relocated to its current site about 25 years ago. The elders sought the relocation due to the regular flooding of the original home station. Many of the parents who lived in the original homestead had to attend school in Derby and Kununurra.
Defining Success

The school has achieved improvement in NAPLAN across year levels over the past couple of years. 'Mental Maths' awareness has increased generally in year 2 - 5 test results and through the school's own Action Research. When the school's results are compared through Numeracy Net and Mathletics checks, there have also been some improvements. In an ongoing manner, students are much more resilient because of the small successes experienced daily through consistent practice and methodical approaches.

from as young as five years old. The children attended often attended catholic schools and were housed in parishioner’s family homes. The community elders worked closely with government to establish the school in community in order to keep local children with their families. For a short period the school offered secondary education but due to low numbers, they could not offer a comprehensive program. Older students currently attend boarding schools for secondary education – in Broome, Kununurra or even as far away as Darwin, Geraldton, Perth and Brisbane.

Wananami RCS serves students from the Kupungarri, Imintji (70kms southwest) and Dodnun (70kms northeast) communities as well as other outer lying ones such as Trillangee and Ngallagunda. Students are bussed in each day from these outlying communities. The students arrive around 7.30am where a breakfast is provided; and when school finishes at 2.30 they are returned to community (times can change depending on the season).
As with many remote communities, Wananami RCS acknowledges that the community may not have the rich numeracy practices that are commonly found in urban settings, and that families have different priorities from those valued within formal schooling. These differences impact on the fluency and at-easeness with number that students bring to the school. A priority for the school has been to adopt practices that span the differences between home and school, particularly in relation to numbers, numeracy and mathematical concepts. Similarly, Wananami RCS has implemented several strategies to address the differences between the home environments of the students and the usual expectations of students when they enter school. The approach adopted by the school shifts emphasis from deficit thinking to being proactive with regard to build numeracy fluency and familiarity with number. As such there is a heavy emphasis on number study.

Because the classrooms are multi-age (K-P-1; 2-3; 4-5-6), there is considerable diversity within any one classroom. This variation in age is also compounded by many other variables, such as attendance, behavior, and learning difficulties. As the diversity can be quite broad in any one classroom, there are individual learning plans for each student in the school. When possible, if there are a few students working at the same level, then a group learning plan is developed. Teachers adapt their teaching to cater for this diversity – often having a common focus for teaching at the start of the lesson and then targeted activities that meet the needs of the individual learners.
Recognising that there are few numeracy resources in the communities – particularly those relevant to school mathematics – and that the families may have very different expectations of school and mathematics, a key strategy used at the school has been the development of mathematics (and literacy) backpacks. Working on a rotation system, the backpacks are given to the students to take home to share with their families. A student usually takes the backpack home for a few days and then returns it to the classroom. Each classroom has two backpacks circulating at a time, but there is a back up if a backpack does not return straight after its use. Students are given points for returning the backpacks which is incorporated into their weekly point system that operates as a reward program across the school.

The backpack contains a variety of resources that the student can engage with at home. These include books that can be read to the student or shared with the family (depending on the age or capacity of the student), disposable resources that can be kept by the student (e.g. pencils, crayons, erasers), paper, tasks, games and activities that are fun for the child to do at home. The child should return the backpack in 2-3 days. The return rate is very high. Any resources that are missing from the backpack are replaced so that the next user has a full complement of resources. Teachers anticipate that there will be missing items from the backpacks but see this as a positive as it means that the families have enjoyed the materials. Evidence shows that it is rare for items to go missing.

The materials in the backpacks have learning intentions around the work currently being undertaken in the classroom, are achievable by the students so that they can experience both enjoyment and success, and are flexible. The number of activities in the backpacks varies but they cover both numeracy and literacy (often with the literacy being the books included in the backpacks).

The intent of the backpack is to bring numeracy into the homes and to redress some of the differences between the home and school. It also helps families to see the activities that are being done in school. Many family members have struggled with school and the resources are seen to help them also. Some families have come to the teachers to seek help/advice on how to use the materials or how to help their children with the materials. It has been a very positive strategy for linking in with families, communicating about what is happening at school, and helping students to consolidate learning on key concepts that are otherwise absent in the homes and communities.
In line with the school’s focus on developing skills, knowledge and dispositions towards learning number concepts, since these are seen as fundamental to mathematics, there is a very strong emphasis in the teaching of key number concepts. In various literature in mathematics, they are often referred to as the “big ideas”.

While focusing on key ‘big’ ideas of the number strands, the teachers incorporate a number of strategies within their teaching. Rather than rely on commercial resources, teachers draw on items from the natural environment – gum nuts, stones, or similar items found in the community, at home and in school. Furthermore, Family members may learn to make use of these ‘found materials’ with their children at home. It is felt that the use of such resources incorporates objects that have relevance to the students and helps to create bridges between the home and school.

It is also an integral part of the teaching process to have an open-ended approach to the teaching of number whereby there are multiple (and varied) pathways to achieve the same outcome.
**Counting**

In the early years there is a strong emphasis on counting fluency, including counting on, counting back and skip counting. This is seen to help students to build a familiarity with numbers (recognition and writing) and the aural patterns of counting, as well as develop a fluency with numbers.

The middle and upper years, the number line is represented around the classroom perimeter (up to 1,000,000) so that students can use this as a reference when working with numbers.

As there is a tendency for the students to rely on counting (for addition and other operations), there is a strong focus on the counting on strategy so that a fluency with numbers can be developed.

**Place Value**

Place value was a very challenging aspect of the learning of number. The teachers throughout the school focus considerable teaching on place value, making explicit to the students that knowing how numbers work is important for their learning of mathematics.

**Operations**

With the early years focusing on number and number sense and early operations, the middle and upper years emphasise the full fluency in operations. The teachers stress understanding as well as fluency with number and operations.
Mental Maths

There is an emphasis placed on the students regularly practicing number skills. Teachers explicitly stress the need for the students to have automaticity and fluency in basic number skills (counting, operations and place value) so that they are able to be competent in the worlds beyond the school and community.

Each day, the upper years have drills in mental maths with students practicing mental maths activities and drill in number activities. Students are timed and then peer marked. Students record their scores and track against their personal scores so that they can seek to improve.

Teacher-Led Instruction

Across all years, there is a general approach where teachers incorporate many strategies in their teaching, while often relying on teacher-led instruction. This strategy appears to work well with the students as they respond best when teachers provide clear instructions on what is expected of the students - in terms of what they would be learning, what they would be required to do/complete and how they would be required to work. This is not a teacher-dominated approach but one where the students are very clear in what they are to do.

In the early years, the teacher developed (over a term) a process where the children could work at a ‘number table’. At the commencement of the lesson, the teacher would model to the students what they would do at the table and then seek from the students a description of what they would be doing at the table. Students worked in pairs and explained to each other what they were doing at the table. The independence of the young children had been achieved through careful, explicit teaching of both skills (on how to work collaboratively and mathematically) at the table.

Understanding for All

As the classes are multi-age and very diverse, it is important for teachers to adopt strategies to assess individual student’s understandings. Teachers take considerable time to establish trust and rapport with the students because initially they were hesitant to indicate that they did not understand something. Over time, and with increasing trust, students gained confidence to express their inability to understand. This was only always presented through overt displays but in ways known to the teacher and students. In some classes, teachers check for understanding: a thumbs up (I understand), thumbs down (I don’t understand) and thumbs sideways (I am not sure) to show their level of understanding. This enables the teachers to monitor progress in an immediate way. While there were posters in the room to act as prompts, teachers also recognise that the students need to be prompted from time to time to remember the strategy.

Rapport

Community members and teachers recognise the importance of strong rapport between students, teachers and community members. Community members recognise the importance of teachers having respect for their students and that through respect, rapport would be built with the students and the community. Learning could happen if the students felt that they were valued members of the classroom and school.
Consistency

Teachers had adopted a consistency and routine in their classrooms as to how they would teach mathematics. Each teacher determines the approach that would work best for the students in their classrooms. It was felt that students benefitted from when there was a similarity to each lesson and the format of that lesson. This enabled the students to come to know how the lessons would be conducted and therefore enabling the students to engage with the lessons.

In the early years, for example, the teacher commenced with the same facts (e.g. time using the days of the week or months of the year), often using a chanting process to reinforce concepts. The AIEO would often lead this part of the lesson. Questions posed to the students that matched their range of understandings that are found in a K, P, 1 classroom. For some students, the questions could include the days before or after a particular day, for others it might be the day a number of days before, or days between. Having lessons commence in a similar way each day, students knew what was going to happen and could engage more readily in the learning process.

High Expectations

Wananami RCS is a strong supporter of the high expectations philosophy – of students, teachers, staff and community. The school has intentionally and explicitly moved away from deficit thinking and focused on what participants – students, families, teachers and community – can do, rather than what cannot be done. By identifying what students can do, then it becomes everyone’s role to create learning opportunities for the students so that they are able to move forward. Recognising that the community and families have different experiences from students in other parts of Australia, the school has sought to create bridges between the school and families so as to enable students to gain the opportunities that are taken-for-granted in other contexts.

High expectations also apply to the staff. All staff – teachers, leaders, and support staff – are all expected to have high expectations of themselves and each other, and for the outcomes for the school. A culture has been developed at the school where high expectations are articulated and embedded in the practices and values of the school.

Strong support is provided to teachers, particularly neophyte teachers, to excel in their teaching. This is often a challenge in small remote schools where there are few options to withdraw teachers from their classrooms due to the inability to access relief teachers. At Wananami, the senior teacher and the principal work to develop time release for teachers to work with others (in planning or lesson observations) or to attend professional learning opportunities and/or mentoring, in order to build their capacity to work in remote numeracy.
AIEOs

Wananami is fortunate to have three very strong AIEOs [Aboriginal Indigenous Education Officers] working at the school. They are all leaders in the community and have a strong belief in the value of education. The two women work in the classrooms while the man works as a gardener and assists with general duties and attendance. The AIEOs all have a very high profile within the community – all are leaders (as directors of the community, former station master, and other key roles within the community). The AIEOs have a key role in the classrooms and work alongside the teachers as partners in the education of the students. They participate in the questions posed to students, help with clarification, and join in small group activities.

The school actively supports the professional learning of the AIEOs and includes them in all school activities, and encourages professional learning activities outside the community. One of the women working in the classrooms has a Cert 4 in education. There is a strong belief at the school that the AIEOs are the backbone of the school and that it was important for teachers to ensure that the AIEOs were well supported in their understanding of what was being expected of them. It is the responsibility of the teachers to ensure that they had explained content, strategies and expectations very clearly to the AIEOs so that they could work successfully with the students.

AEIOs were included in all professional development that was undertaken by the teachers.
For many remote students, the numeracy environment of the community may not offer the same opportunities to interact with many of the numeracy practices found in urban settings which are often foundational to the taken-for-granted numeracy understandings in school mathematics. Rather than focus on deficits of the home/community life in the preparation of young students for school numeracy, teachers at Wananami have created a rich range of strategies for building strong number understandings. A primary emphasis in the teaching at the school is the building of robust understandings of number. Focusing on supporting numeracy practices in the home, the school has developed a take-home backpack that contains a range of activities that are fun, engaging and achievable so that the students and families can share numeracy activities in the home contexts. Building strength in number – particularly the big ideas – was a focus at the school. It was seen to be foundational to learning much in mathematics, particularly given the absence of many of the numeracy resources that are found in other contexts. This was a priority for learning. Other strands of the mathematics curriculum are taught but in a more incidental manner. Since most of the other curriculum areas are the application of number, it is important for the students to have good number sense so that they are able to succeed in the other mathematics strands.

Ensuring the AIEOs were a valued part of the teaching teams who had a key role in the teaching at the school, including number work, was an important part of the teaching approach at the school. Teachers need to be consistent and clear in their teaching- from the daily routines, to the lesson formats. This enables students to engage with the content rather than trying to work out the hidden messages being conveyed in the pedagogy being used. The students do not need to ‘second guess’ what is happening, but rather can focus on the content when they understand the routines and practices being adopted. This gives greater time for learning mathematics.

Benefits for Learning and Learners

The approach taken at Wananami focuses on the development of strong number sense and fluency. Recognising that the home and community do not offer the same number resources that are available to students from other contexts, there is a concerted effort to build richer understandings in this key area of mathematics/numeracy. The pedagogical approaches used by the teachers emphasise the learning of number and then its application to other curriculum areas. This strong emphasis on number in the school helps to build a confidence in number.

A revision of number concepts is necessary so that students are reminded and cued into number learning. This helps to prompt those who have been attending regularly and to revise for the more sporadic attendees. Collectively, this helps to build a focus in the lesson for all students to engage with learning.

There is also a need to build bridges with the families, to support number (and numeracy) learning outside the school. The use of the backpacks helps to build families’ knowledge in mathematics, helps them to build a knowledge of what is happening at school, but also consolidates number and mathematical activities in the out-of-school contexts.

Advice to Teachers

The numeracy environment of the community may not offer the same opportunities to interact with many of the numeracy practices found in urban settings which are often foundational to the taken-for-granted numeracy understandings in school mathematics. Rather than focus on deficits of the home/community life in the preparation of young students for school numeracy, teachers at Wananami have created a rich range of strategies for building strong number understandings. A primary emphasis in the teaching at the school is the building of robust understandings of number. Focusing on supporting numeracy practices in the home, the school has developed a take-home backpack that contains a range of activities that are fun, engaging and achievable so that the students and families can share numeracy activities in the home contexts. Building strength in number – particularly the big ideas – was a focus at the school. It was seen to be foundational to learning much in mathematics, particularly given the absence of many of the numeracy resources that are found in other contexts. This was a priority for learning. Other strands of the mathematics curriculum are taught but in a more incidental manner. Since most of the other curriculum areas are the application of number, it is important for the students to have good number sense so that they are able to succeed in the other mathematics strands.

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### Model for Quality Learning

<table>
<thead>
<tr>
<th>General Principle</th>
<th>Implications for mathematics</th>
<th>Focused strategies</th>
</tr>
</thead>
</table>
| Building numeracy practices in the home and community                             | Students and families learn about mathematical and numeracy concepts being taught at school.  | Take home activities that are seen to be fun, enjoyable and achievable.  
Remembering that some parents may not be strong in literacy or numeracy, ensure that the activities can be achieved by students (and families/carers).  
Create opportunities for families to approach school staff for support with the backpacks should it be needed. The backpacks should contain resources with which the students (and families/carers) can experience success, enjoy, and even keep at home (such as pencils, crayons, paper). |
| Build strength in number                                                          | Focus on the big ideas in number concepts.                                                     | Focus teaching on number, counting, place value and operations.  
Teaching should be clear, consistent and explicit so that students can engage with the mathematics rather than trying to understand the implicit assumptions underpinning the teaching.  
Employ different strategies and approaches to teaching the big ideas so as to cater for students who attend regularly and those whose attendance may be more sporadic.  
Keep teaching the big ideas into manageable blocks, maybe 3 weeks, as this will cater for students who attend sporadically to encounter the ideas over that time. |
| AIEOs are an integral component of the teaching community                         | Build the strength and confidence of AIEOs in the teaching of mathematics.                    | Include the AIEOs in professional learning, alongside teachers.  
Ensure that the AIEOs are well prepared to work alongside the teacher, and feel an integral part of the teaching community.  
AIEOs are part of the teaching community and should be given responsibilities for teaching, but well supported so they can build their successes and those of the students. |
Key Messages – Summary

Number is an important component of the mathematics curriculum but is usually not a practice found outside the school. The school needs to develop strategies both in and outside school to build number confidence and competence.

It is important to focus on strengths and address differences in building the capacity of all participants in learning – students, teachers and AIEOs. Resources – both human and physical – can be developed to create strong learning, particularly in number. Building the capacity of the teachers and AIEOs helps to create strong learning opportunities for the students. Creating resources that the students can take home and share with families helps to build knowledge and partnerships with the wider community.

Connection with community is important and strategies (and personnel) can help to build and maintain a strong link with the community. AIEOs are a pivotal link with communities and school.

School demographics

<table>
<thead>
<tr>
<th>Year range</th>
<th>K-12</th>
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<tbody>
<tr>
<td>Total enrolments</td>
<td>48</td>
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<tr>
<td>Location</td>
<td>Very Remote</td>
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<tr>
<td>ICSEA (school)</td>
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<tr>
<td>ICSEA (distribution of students)</td>
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<td>Teaching staff</td>
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<tr>
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<tr>
<td>Non-teaching staff</td>
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<tr>
<td>FTE non-teaching staff</td>
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<tr>
<td>Enrolments: Girls/Boys</td>
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<td>Language background other than English</td>
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<tr>
<td>Student attendance rate %</td>
<td>69%</td>
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</tbody>
</table>

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