



In our work as the South African Numeracy Chair Project we run various development projects including the teacher development community of practice namely, Numeracy Inquiry Community of Leader Educators and the running of several after school mathematics clubs. Our SANC projects over the past three years have been conceptualised as three intersecting communities shown in the diagram

In the past year we have hosted three ‘family maths’ events in different forms. As a result of these events and the excitement and positive feedback that we received from each of these events we have begun to conceptualise families as an essential community that must be added to our conceptualisation of intersecting communities working together to overcome our numeracy crisis and our diagram now shows four interconnected communities

# Engaging families in maths

The involvement of family can have a positive impact on the performance of a child in mathematics

**Mellony Graven & Debbie Stott**

In this article we share our recent experiences of running three ‘family maths’ events with the Grahamstown community. These events form part of our ‘community buzz’ and

‘active citizenry’ that we do as part of our South African Numeracy Chair Project (SANCP). By sharing our experiences we hope to encourage others to set up similar events in their community.

Our SANCP brief is to explore sustainable ways forward to the numeracy crisis and we are increasingly

noting that families are a critical piece in the puzzle.

**Local and international literature**

As early as 1974 Bronfenbrenner, wrote about the importance of family involvement in child development, particularly with regard to the success of intervention programmes.

The evidence indicates that the family is the most effective and economical system for fostering and sustaining the development of the child.

The evidence indicates further that

the involvement of the child’s family as an active participant is critical to the success of any intervention program. Without such family involvement, any effects of intervention, at least in the cognitive sphere, appear to erode fairly rapidly once the program ends.

In more recent research, The Harvard Family Research Project continues to support this notion and points out that “a growing body of intervention evaluations demonstrates that family involvement can be strengthened with positive

results for children and their school success”.

Joyce Epstein’s book on this topic states that “well-designed program and practices of school, family, and community partnerships benefit students, families and schools”.

This is supported by work done in other countries such as Australia [4] and South Africa. Both of these projects work specifically with mathematics. Goos and Jolly state that “parental and community support benefits children’s learning, including their numeracy development”.

## How was the family games challenge organised?



### A selection of games

<b>100 chart jigsaws</b> Available from: <a href="http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/100,charts,jigsaws.pdf">http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/100,charts,jigsaws.pdf</a>	<b>Matchstick patterns</b> Available from: <a href="http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/Grocotts,SANC,Supplement,Patterns.pdf">http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/Grocotts,SANC,Supplement,Patterns.pdf</a>
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<b>Find the value of the shape puzzle</b> Available from: <a href="http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/SANC,Grocotts,Logic,Puzzles.pdf">http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/SANC,Grocotts,Logic,Puzzles.pdf</a>	<b>Find 24 cards</b> Available from: <a href="http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/Maths,24,-cards.pdf">http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/Maths,24,-cards.pdf</a>
Using 3D building blocks to match a picture	<b>Child’s tent building activity</b>
iPad game “Traffic Jam”	<b>Tangrams</b> Freely available from the internet
Chocolate Fix game by ThinkFun (Commercially available)	<b>Building 3D geometric shapes (using GeoGenius kit)</b> Available from: <a href="http://www.geogenius.co.za">www.geogenius.co.za</a>

one in a clockwise direction.

The volunteers manning each station explained the activity and completed the score card for each family group.

Families scored three if they completed the activity and one if they had made progress at it but not completed it in the time available.

After the families had completed all the stations, the scorecards were collected and the scores were added up to find the top three scores.

These family groups were presented with a small prize. Positive anecdotal feedback and a range of literature suggest that such events provide rich opportunities for supporting learning.

Parents commented that they felt they had a second chance at learning maths and that they had desperately wanted to help their children with their learning but weren’t sure how to go about this.

We also received positive feedback from a parent on the local Grahamstown Parents Network. This photo shows that even the baby on one caregiver’s back was captivated by the activity.

Our highly positive experiences lead us to suggest that the country begin to run such events at their schools or in their community centres.

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while waiting for

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Prior to the event, we prepared a number of mathematical activities. Some of these are shown below and some are available from our website. We also created a scorecard for each family group.

On the day of the event, we set up a table for each activity in a large hall, giving each table a unique number.

We allocated grade eight volunteers from two local high schools to the tables and briefed them on how the activity worked and what needed to be done.

As family groups arrived they were given a clipboard (or similar) and a scorecard and asked to name their group. Each family was allocated a table to start at. Once everyone had arrived, the families were given about five to seven minutes at each station before moving to the next



# Family events

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We hope the experiences, ideas and photos shared here inspire others to run events which include families in whatever form they see as most appropriate to their communities.

For our first event we invited a guest speaker, Steve Sherman of Living Maths to host a family maths event open to the Grahamstown community.

Approximately 120 parents and children from across the spectrum of schools attended the event. Families were given a range of challenging problems involving ‘out of the box’ thinking to solve in the form of a worksheet.

Further information and activities of this event can be found on our website.

At the second event Professor Mellony Graven spoke at a parents evening at a SANCP school on “How can parents help learners to develop key foundations for numeracy learning”.

Approximately 110 parents attended the event and Prof Graven shared ideas for developing learner resilience and independence and also some oral and dice games.

The parents’ willingness and determination to support their children’s education was overwhelming and sparked the need for SANCP to host more events across schools in our area. Graven’s speech from this event



can be found at the address below.

Our third event involved a family games challenge at a local development and care centre catering for children from three schools of our project schools. The centre cares

for children considered ‘in need’ of support.

Approximately 120 children and caregivers attended this event held on a Saturday and competed in ‘family’ groups moving through

## Scorecard

Family/Team Name:				
Good progress on task, but not complete = 1point				
Task completed = 3 points				
Station 1	Station 2	Station 3	Station 4	Station 5
Station 6	Station 7	Station 8	Station 9	Station 10
Station 11	Station 12	Station 13	Station 14	Station 15
Station 16	Station 17	Station 18	Station 19	Station 20
Family Score				

mathematical problem solving stations. Thereafter caregivers were provided with ideas for home support such as using dice and other games to learn maths.

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