# Families Enjoying Maths Together – Organising a Family Maths Event

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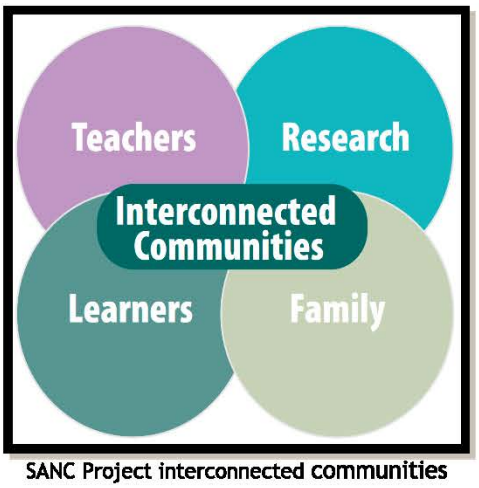
## Introduction

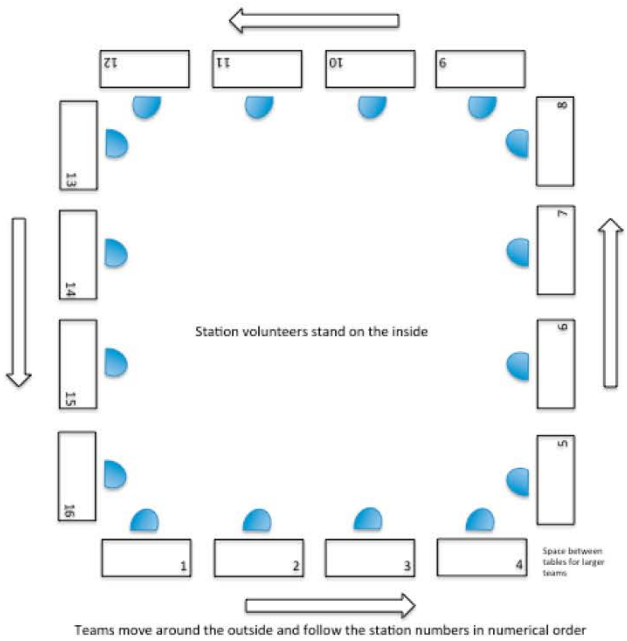
As early as 1974, Bronfenbrenner wrote about the importance of family involvement in child development, particularly with regard to the success of intervention programmes. Evidence indicates that the family is the most effective and economical system for fostering and sustaining the development of a 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 programme. Without such family involvement, any effects of intervention, at least in the cognitive sphere, appear to erode fairly rapidly once the programme ends (Bronfenbrenner, 1974).

In the South African Numeracy Chair (SANC) project we work with a number of intersecting communities (teachers, learners, families and researchers) to enthuse mathematical passion and learning. Since 2013 the project has supported a number of schools and after-care centres in setting up and running Family Maths Events. These events form part of our 'community buzz' and aim to get families talking and enjoying maths together, as well as encouraging a 'maths is fun' ethos. In this article we share our experiences of organising such events and hope to encourage others to set up similar events in their own communities.




SANC Project interconnected communities

## What resources are needed for the event?




### *Venue and other resources*

Depending on the number of people you have invited you will need a venue big enough to hold up to 20 tables and a maximum of about 100 people. If you have an outdoor space this can also be used depending on the weather. We suggest that the teams move around the outside of the tables whilst the volunteers are stationed inside as shown in the picture.

Depending on your organisation, you may want to cater for children in different age groups. Some of the after-care centres we have worked with have set up activities for younger (pre-school) children and activities for older children. In this case you can set up stations for different age groups in separate venues.

If you are going to take the opportunity to talk to the parents after the activities as we suggest you do, then you may need to re-arrange the tables and chairs. We usually send learners for refreshments and discuss with parents and caregivers ways to support their children's mathematical learning through homework support and the inclusion of dice and card games as regular family activities.

### *Activity station resources*


You need a variety of mathematical activities for the event, with at least one activity per station. So if you have 20 stations you will at least 20 activities. A range of activities is available on our website[1]. These can be printed out and laminated for extra durability and continued re-use. Each activity comes with a solution. Our webpage also has printable registers, scorecards and other useful resources for the day.

Each station needs to be set out at a table. If you choose to laminate activities for re-use then you will need a whiteboard marker and a small cloth to clean the laminated sheet (the activity list on our website indicates the exact requirements for each activity).

Each team needs a pencil and a rigid board on which to attach their scorecard. You can use commercially available clipboards, or for a cheaper alternative simply cut thick grey cardboard into A5 size and use a large paperclip to secure it. One person needs to act as the timekeeper for the day and a bell or whistle is useful for calling participants to attention.

## PLANNING AND RUNNING THE EVENT

### *Prior to the event*

There are a number of things to think about prior to the event. These are listed below.

- Decide which grade/group of learners you want to involve in the event. Invite the siblings and parents of these children to participate as a team in the event.
- Considerations:
  - Depending on the size of your venue, aim for a maximum of 100 people.
  - Emphasise a prompt start time.
  - Saturday mornings work well, but you know your parents and learners best, so choose a time when you think they will come.
  - Allocate about 2 to 3 hours for the event.
- Prizes are a good motivation and can be awarded for different reasons. For example, the family who is the most punctual, the family group/team that gets the highest score for the activities, the family/team where the children are encouraged to work things out for themselves and so on. Three to four prizes are enough. Vouchers, playing cards, dice, games, and so on make suitable prizes.
- Invite volunteers to help 'man' the activity stations. These volunteers will be responsible for looking after one activity station for the duration of the event and could be, for example, other teachers, older learners, or President's Award candidates.

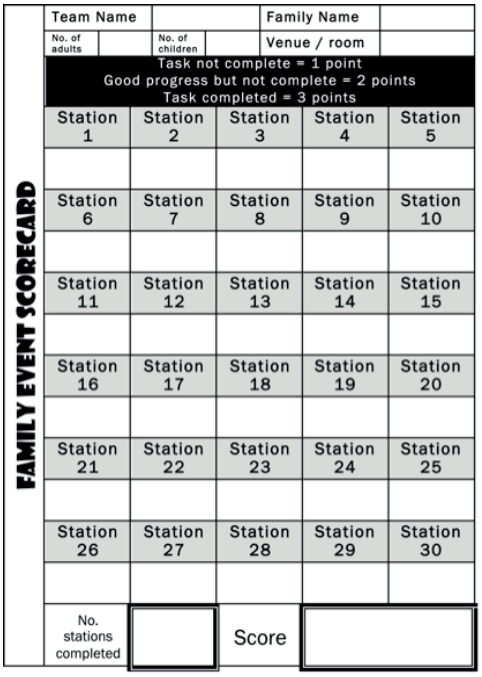
[1] http://www.ru.ac.za/sanc/numeracybuzz/familymathsevents/

***On the day***

- Set up the venue for the maths activities.
  - Set up a table for each activity, giving each table a unique number.
  - Aim for no more than 20 stations.
  - Each table or "station" is manned by a volunteer who is given the solution for the activity.
  - Each volunteer needs to be given time to understand how the activity works.
  - It is often a good idea to put more than one activity per station. The second acts a supplementary task in case the team finishes the main task early. It is important that teams do not move onto the next station before the whistle blows.
- As each family group arrives at the event:
  - Get them to sign the register.
  - Give them a scorecard, clipboard and pencil.
  - Allocate each family group a Team Name and write this on the scorecard.
  - Allocate each family group a station number. This is the station at which they will start.
  - Do some introductory activities until the event starts.
- Once everyone has arrived
  - Have a short (5 minutes or less) briefing session about how the event works.
  - Teams go to their allocated station number.
  - One person acts as timekeeper. This person blows a whistle to start the event and after the allotted time on each station.

***The actual event***

- The station volunteer explains the activity to the team.
- Family groups/teams work at their allocated station for between 3 to 4 minutes.
- Each family group/team is given a score for the activity and this is written in the box for the particular station.
- The team takes their scorecard with them and moves onto the next station in **numerical** order.
- Repeat the above steps until all teams have completed each station.
- Once teams have completed all the stations, scorecards are collected and scores added up for each team.
- Prizes can then be allocated based on previously decided criteria.




***How does the scoring work?***

The scorecard caters for up to 30 activity stations. It has space for the team and family name. It can also capture how many adults and children are in the team. If you choose to set up more than one venue for your event, then it is also useful to note which venue the team will work in. Once the team has finished the task at a particular station, the station volunteer will score the team as follows:

- 1 point if the team made no progress on the task.
- 2 points if the team made good progress but did not complete the task.
- 3 points if the team completed the task.

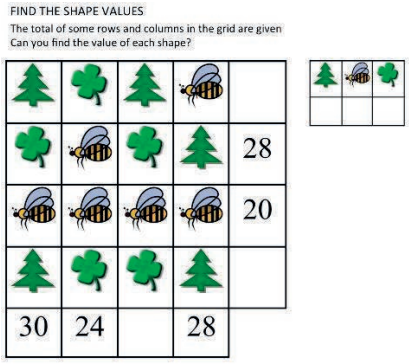
### *Concluding the event*

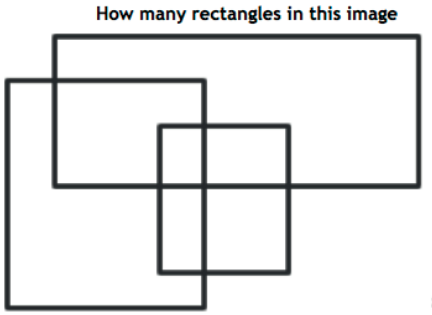
It is often useful to have a session (30 to 45 minutes) with the families after the event to talk about how the adults can assist their children with maths homework. We often provide each family with a set of playing cards and/or dice and teach them a few maths games that can be played together as a family using these readily available resources.

### WHAT TYPES OF ACTIVITIES WORK WELL FOR SUCH AN EVENT?

Our website hosts a number of activities that can be used for these events. An example of 20 possible activities is given below:

| | | | |
|---|---|---|---|
| Domino windows | How many rectangles? | Calculator puzzles | Tangram (build the square) |
| Go figure | Find shape values | Number grid puzzles | Build the 100 squares (3 digit numbers) |
| Find the missing numbers | What colour is each shape? | Matchstick puzzles | Tangram (build the cat & dog) |
| Make 24 | Puzzles (Faces and dogs) | Addition and maths maze | Perspective puzzles |
| How many cookies? | How many triangles? | Maths cross-puzzle | Hidden shape puzzles |




### CONCLUDING COMMENTS

Family maths events have proven to be both fun and successful community-based activities for bringing families together to talk about and do maths. Parents have 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 simply weren't sure how to go about doing this. Our hugely positive experiences lead us to encourage other communities to run such events in their schools or community centres. Our broader hope is that the ideas shared in this article inspire others to run maths events which include families in whatever form they see as most appropriate to their communities.

### REFERENCES

Bronfenbrenner, U. (1974). Is early intervention effective? *Day Care and Early Education*, *2*(2), 14–18.

### ACKNOWLEDGEMENT

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