USING DICE AND CARD GAMES IN MENTAL MATHS SESSIONS

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TARGET AUDIENCE: Foundation (Grades 2 & 3) and Early Intermediate Phase (grades 4 & 5)

DURATION: 2 hours

MAXIMUM PARTICIPANTS: 30

ABSTRACT

Short games, particularly those played with cards and dice, are very accessible to younger learners and can aid in the development of core number skills, mental agility and fluency in number. Mathematical games are 'activities' which involve a mathematical challenge, are governed by a set of rules and have a clear underlying structure, normally have a distinct finishing point and have specific mathematical cognitive objectives (Way, 2013).

The Foundation Phase CAPS (Department of Basic Education, 2011: 12) document states that "mental mathematics plays a very important role in the curriculum", so dice and card games are ideal for incorporating into mental sessions as they are easy to set up, implement and tidy away. Other benefits include motivation, developing positive attitudes towards maths and allowing children to operate at different levels of thinking.

The workshop will introduce the benefits of dice and card games and some quick dice games will be played as a whole group warm up activity. Participants will then move around the room in groups playing different games at different stations. The final hour will examine the mathematics behind each game and to discuss practical ways of introducing the game into the classroom.

MOTIVATION FOR THE WORKSHOP

We run after school maths clubs for Foundation Phase learners as part of the work of South African Numeracy Chair (SANC) project. Debbie and Diliza run 2 clubs each within the project schools and Debbie co-ordinates a number of others. Co-presenters Nombulelu & Yaleka are teachers who run other clubs with support from the SANC project. We use a lot of games in the clubs. We all know that children enjoy playing games but are they a worthwhile educational activity? As part of our work in the Chair project and specifically in the after school maths clubs, we have found that short games, particularly those played with cards and dice, are very accessible to learners and can aid in the development of core number skills, mental agility and fluency in number.

Games are often used in classrooms as teaser activities, as time-fillers or as a reward for finishing work. We suggest that short, quick dice and card games can be integrated more fully into the maths classroom by incorporating them into mental maths sessions. The

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Foundation Phase CAPS (Department of Basic Education, 2011: 12) document states that "mental mathematics plays a very important role in the curriculum" and makes provision for 20 minutes of mental maths per day, so dice and card games are ideal for incorporating into these mental sessions as they are easy to set up, implement and tidy away.

Jenni Way's (2013) informative series of articles entitled "Learning Mathematics Through Games Series" on the University of Cambridge NRICH website, lists numerous benefits to learning through games. These include motivation, developing positive attitudes towards maths and allowing children to operate at different levels of thinking as well as providing opportunities to learn from each other.

Games taught and used in the classroom can potentially also be played at home and shared with family members, thereby allowing learners to spend more time on maths, to consolidate skills and practice what they have learnt in class, to teach other people the rules and to get other people involved in mathematics.

By attending this workshop, participants will be introduced to and play a variety of short card and dice games and examine the mathematics behind each game. It is hoped that they will be able to incorporate these into their classroom. A free booklet of dice and card games used in the workshop is available from the *NICLE Session Resources* page on South African Numeracy Chair website (South African Numeracy Chair, 2013): http://www.ru.ac.za/media/rhodesuniversity/content/sanc/documents/SANC%20Games%20Booklet%202012v1.pdf.

DESCRIPTION OF CONTENT OF WORKSHOP

The workshop will begin with an introduction into the benefits of dice and card games (10 minutes). A few quick dice games will be played with the whole group as a warm up activity (15 minutes). This will be followed by about an hour of mixed dice and card games. The participants will be split into groups and will move around the room playing 6 different games at different stations. They will have 10 minutes to play each game before moving onto the next one. The final part of the workshop (35 minutes) will be to examine the mathematics behind each game and to discuss practical ways of introducing the game into the classroom.

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REFERENCES

Department of Basic Education. (2011). Curriculum and Assessment Policy Statement Grades 1-3: Mathematics. Policy (pp. 0–102). Pretoria: Department of Basic Education, South Africa.

South African Numeracy Chair. (2013). NICLE Session Resources. Retrieved January 31, 2013, from http://www.ru.ac.za/sanc/numeracyresources/partnersessionresources/sessionresources/#d.en.73876

Way, J. (2013). Learning Mathematics Through Games Series: 1. Why Games? NRICH. Retrieved January 17, 2013, from http://nrich.maths.org/2489