

GIFTS AND OCCUPATIONS – ‘EXPLORING MATHEMATICS’ (ELDA 4 IN THE NCF)

TINA BRUCE, XOLISWA NDHOVE, MAGDELINE MDLADLA. 16.3.17 Cape Town ECD Education Conf.

WHAT MATERIALS?

Children do not need expensive materials in order to play and learn. Choose materials carefully with the focus on educationally worthwhile learning through play. Remember, pre-structured toys are expensive and have constrained and narrow ways of being used. Educationally worthwhile **materials that are open-ended** are usually low cost or no-cost. They encourage children to play creatively and imaginatively and to think and problem solve, as well as socialise and concentrate as they learn. They encourage gross and fine motor skills.

The **Gifts and Occupations are open-ended materials** pioneered by the first educator (Friedrich Froebel 1782-1852) to emphasise how **play needs to be central** in the education of young children from birth. Play gives children joy in the feeling of being at work. Through the Gifts and Occupations children are learning to be skilled, and to think mathematically, which will benefit them in their later education and later work as adults.

The Gifts are 1. the soft sphere, 2. hard sphere, cube and cylinder and then a variety of solid wooden blocks(3-6) mathematically integrated based on variations of the cube. Froebel was a mathematician, crystallographer and forester who founded the kindergarten. A set of freestanding wooden blocks is high cost, but they can be made from cardboard boxes which relate mathematically. Eight same size cubes make one unit, and four make half a unit. Each small cube is one quarter.

The Occupations

- 3D solid shapes -Clay, like the wooden blocks is solid, but malleable. So are sand and water and cooking dough. Children learn about the solid three dimensional world they live in first.
- Flat shapes are experienced through parquetry and flat rings.
- Bends and curves which transform lines and circles and flat lines fascinate young mathematicians! Drawing and painting, paper folding, sticklaying, weaving, sewing, and threading offer these experiences.
- The point is important. Pin boards and peg boards help, and so does paper pricking.
- Last but not least is the simple non cost construction kit. It can be made from sticks and a blob of clay. Which takes children back to solid 3D shapes again!

All of the Gifts and Occupations are used in schools with diverse communities and cultures throughout the world in ways which are culturally sensitive. It is better to spend money training practitioners than on expensive materials which are not sustainable.

HOW TO USE THE MATERIALS (AND HAVE EDUCATIONALLY WORTHWHILE CONVERSATIONS WITH CHILDREN)

- Help children to link mathematics to everyday life and the natural world around them.
- See the beauty, patterns and symmetry in the world.
- Encourage the development of knowledge and understanding through ‘exploring mathematics’ (the focus of this workshop).
- Watch out for child initiated, teachable moments with adult support and extensions.

The NCF stresses that children should not carry out boring, repetitive exercises. Use open-ended materials so that children make choices and decisions and learn through their play. Create a ‘can do’ (not a ‘don’t do’) atmosphere. Children appreciate adults who are calm and respect their efforts. They need adults they can make strong connections with (NCF framework).

