EXAMINING THE VISUAL PATTERNS THAT OCCUR AROUND US IN A MATHEMATICAL WAY

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Mathematics Education Primary Programme

TARGET AUDIENCE: Intermediate Phase Teachers.

DURATION: 2-hours

MAXIMUM NO. OF PARTICIPANTS: 30

MOTIVATION

In the Curriculum and Assessment Policy Statement, Intermediate Phase learners are expected to describe patterns by referring to lines, shapes, objects, symmetry and transformations. This tends to be a neglected aspect of the curriculum, partly because many teachers claim that the learners they teach live in a world devoid of pattern.

CONTENT

This workshop will include displays of patterns in commonly found objects. Teachers are likely to find that at least some of the objects displayed and photographed will be familiar to the learners that they teach.

A brief introduction (15 minutes) will focus on visual patterns and developing language for learners to describe patterns mathematically. The introduction will also focus on the transformations: reflection, rotation and translations. The workshop will challenge the notion that patterns we see around us are created by reflections, rotations or translations, but suggest rather that it is only the drawn replicas of these patterns that can be constructed by the transformations.

The workshop will focus on ways of describing the patterns be referring to symmetry, shapes and lines (Worksheets 1 & 2). Teachers will create copies of some of the patterns by selecting a key shape in the pattern and reflecting, translating, or rotating this shape (Worksheets 2 & 3). At the end of the worksheet teachers will consider ways of incorporating what they have learnt into the own teaching plans. Teachers will spend about 25 – 30 minutes on each of the attached worksheets. Teachers are kindly requested to bring pencils, rulers and pairs of compasses to the workshop.

ABSTRACT

This workshop is aimed at Intermediate Phase teachers who wish to learn ways of teaching their pupils to describe the patterns they see around them by referring to symmetry, shapes and lines; to identify the key shape, line or object whose repetition creates the pattern; to draw copies of patterns by reflecting, translation and /or rotating a shape or object.

Collins, H. (2013). Examining the visual patterns that occur around us in a mathematical way. In Z. Davis & S. Jaffer (Eds.), *Proceedings of the 19th Annual Congress of the Association for Mathematics Education of South Africa*, Vol. 2. (p. 17). Cape Town: AMESA.