ANIMATE YOUR ANGLES IN CIRCLE GEOMETRY

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TARGET AUDIENCE: FET Phase

DURATION: 2 hours

MAXIMUM NO. OF PARTICIPANTS: 30

MOTIVATION

Teaching circle geometry to learners standing at a blackboard is not easy, especially to learners in rural schools who have very little understanding of basic geometrical concepts. Investigating geometry as spelled out in the CAPS Mathematics FET document page 34 and which requires Grade 11 learners to "investigate and prove the theorems of the geometry of circles." is almost impossible – especially given the time constraints of the new curriculum. Investigating and illustrating geometry using the dynamic nature of *Geometers Sketchpad* is efficient, interesting and motivating – for us as educators and for our learners. This workshop is designed for first-time users of *Geometers Sketchpad*. We hope that participants will enjoy it and, as we did, broaden their understanding of circle geometry through the construction of the theorems. Participants will investigate, using *Geometer's Sketchpad*, how different angles in a circle are related and then demonstrate the circle theorems.

CONTENT

Part 1: 30 minutes Discussion and demonstration

First we will demonstrate the basic functions of *Geometers Sketchpad*. Then, by constructing diagrams, we will show how we use it in our classrooms in a rural school to investigate how various angles in a circle are related. Participants in the workshop will then have the opportunity to do their own similar investigations.

Demonstration: Sketchpad screen and basic functions. (5 minutes)

Demonstration: Make your own kaleidoscope (for beginners only)

Demonstration: The angle in a semi-circle is a right-angle

Part 2: 90 minutes Hands-on activities

(Activity: Make your own kaleidoscope)

Activity: The angle in a semi-circle is a right-angle

More activities: Worksheets with detailed and step-by-step instructions for each theorem will be available.

Participants will be free to do their own investigations. A sheet of suggestions will be available.

Facilitators will be available to assist them.

Muzondo, F. & Mtangayi, B. (2013). Animate your angles in circle geometry. In Z. Davis & S. Jaffer (Eds.), *Proceedings of the 19th Annual Congress of the Association for Mathematics Education of South Africa*, Vol. 2. (pp. 50 – 51). Cape Town: AMESA.

ABSTRACT

The focus of the workshop is circle geometry and how to use the dynamic properties of *Geometers Sketchpad* to illustrate it. Detailed step-by-step instructions for illustrating the various circle theorems will be available as well as suggestions for general geometric investigations. The content of the worksheets make the workshop suitable for secondary school educators.