

The Grade 9 Maths ANA – What Can We See After Three Years?

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INTRODUCTION

The Annual National Assessments (ANA) were introduced to address South Africa's poor performance in international mathematics assessments such as TIMSS and SACMEQ. The Grade 9 test was first written in 2012 with a national average of 12.7%. In 2013 the average increased to 13.9% but then dropped to 10.8% in 2014. The overall picture is one of very poor performance with the result that many questions are being asked about the value and purpose of the ANA.

The Department of Basic Education (DBE) identifies three purposes for the ANAs: (1) a measure for the state to gauge improvement in the education system, based on learner performance year-on-year; (2) a diagnostic assessment to identify areas of weakness in learners' performance; and (3) to provide a model of good assessment practice. While these are all important goals, they are not necessarily achievable through a single instrument. However, this is not the focus of our article. Our purpose here is to report on a content analysis of the three ANA papers which we undertook in the first quarter of 2015, paying particular attention to cognitive demand and levels of difficulty. We share our findings on these aspects, as well as on trends that arise as we look across the first three years of the Grade 9 Maths ANA.

CLASSIFICATION OF ITEMS

Classification of items into taxonomies is never a simple matter, and there are no perfect taxonomies. We have attempted to use existing taxonomies with which teachers are familiar but we are not suggesting that these are definitive levels or categories.

LEVELS OF COGNITIVE DEMAND

Levels of cognitive demand describe the nature of the item in terms of the mathematical demand. An early Grade 9 ANA document (DBE, 2011) distinguishes three levels: knowledge of basic concepts, application of concepts and non-routine problem solving. However, we chose to work with the four levels of cognitive demand as described in the CAPS document since these are the levels that teachers work with regularly.

- *Knowledge* – requires straight recall, use of mathematical facts, identification and direct use of formulae.
- *Routine procedure* – well-rehearsed and familiar algorithms, simple calculations that may involve several steps, use of formulae requiring change of subject.
- *Complex procedure* – several calculations that are not all of the same type, complex calculations, route to solution is not entirely obvious, connecting representations, developing proof, requires conceptual understanding.
- *Problem solving* – unseen, non-routine problems, route to solution is not suggested, also requires conceptual understanding.

Grade 9 Ana Maths 2014

Monica Hendricks



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International Handbook of Teacher Education John Loughran, Mary Lynn Hamilton, 2016-05-04 The International Handbooks of Teacher Education cover major issues in the field through chapters that offer detailed literature reviews designed to help readers to understand the history issues and research developments across those topics most relevant to the field of teacher education from an international perspective This volume is divided into two sections The organisation and structure of teacher education and knowledge and practice of teacher education The first section explores the complexities of teacher education including the critical components of preparing teachers for teaching and various aspects of teaching and teacher education that create tensions and strains The second examines the knowledge and practice of teacher education including the critical components of teachers professional knowledge the pedagogy of teacher education and their interrelationships and delves into what we know and why it matters in teacher education **Improving Primary**

Mathematics Education, Teaching and Learning Mellony Graven, Hamsa Venkat, 2017-01-19 This book focuses on how to improve the teaching and learning of primary level mathematics education within resource constrained contexts It builds on two large numeracy projects within South Africa which speak to broader global concerns and highlight how research and development not only enables one to meet ethical imperatives but also explore how further interventions can be developed Teacher and research communities must work together to create mutually beneficial relationships and establish a cohesive understanding of the requirements of primary mathematics education **Merging Numeracy with Literacy Practices for**

Equity in Multilingual Early Year Settings Robyn Jorgensen, Mellony Graven, 2022-01-01 This book draws on both in and out of school literacy practices with teachers and families to enhance the numeracy of early learners It provides highly illustrative exemplars targeted for learners up to approximately eight years of age whose home language differs from the language of instruction It identifies the challenges faced by these learners and their families and shares ways of building both literacy and numeracy skills for some of the vulnerable learners nationally and internationally The book shares the outcomes and strategies for teaching mathematics to early years learners and highlights the importance of literacy practices for learners for whom the language of instruction is different from their home language Readers will gain a practical sense of how to create contexts classrooms and practices to scaffold these learners to build robust understandings of mathematics

Lessons from the Kalahari Monica Hendricks, 2020-05-05 Lessons from the Kalahari Tracking Teachers Professional Development explores how Northern Cape teachers who were enrolled in a Bachelor of Education in service course responded to three professional development modules specialising in mathematics education English language teaching and Foundation Phase teaching respectively Mainly through fine grained analyses of their classroom practice the studies in this volume demonstrate how these teachers grappled with new content knowledge and pedagogical innovations to improve the quality of teaching in their classrooms The chapters include case studies that range across a variety of pedagogical topics

including mathematics and English teachers classroom practices involvement of parents of Foundation Phase learners and learners autonomous mathematics learning The book makes an original empirically based contribution to the understanding of the challenges confronting primary and secondary school teachers in remote rural parts of Northern Cape province South Africa

Visualisation and Epistemological Access to Mathematics Education in Southern Africa Marc

Schäfer,2023-04-27 This book demonstrates that using visualisation processes in mathematics education can help to enhance teaching and learning and bridge the inequality gap that exists between well resourced and under resourced schools in Southern Africa Drawing on classroom research conducted in the Southern African region it examines how epistemological access in a context of gross inequality can be constructively addressed by providing research based solutions and recommendations The book outlines the visualisation process as an integral but often overlooked process of mathematics teaching and learning It goes beyond the traditional understanding of visualisation processes such as picture forming and using tools and considers visualisation processes that are semiotic in nature and includes actions such as gestures in combination with language It adds value to the visualisation in mathematics education research discourse and deliberation in Africa With a unique focus on Southern Africa and open avenues for further research and collaboration in the region it will be a highly relevant reading for researchers academics and post graduate students of mathematics education comparative education and social justice education

Education in a New South Africa Robert J. Balfour,2015-09-24 A collaborative

series with the University of Cambridge Faculty of Education highlighting leading edge research across Teacher Education International Education Reform and Language Education

Predictive Models for School Leadership and Practices

Amzat, Ismail Hussein,2018-09-07 A successful administrator is one who applies suitable or appropriate leadership styles in various situations or contexts It is crucial to investigate how effective administrators lead their organizations in challenging and difficult times as well as promote the accomplishments of their organization Predictive Models for School Leadership and Practices is an essential reference source that discusses academic administration as well as administrative effectiveness in achieving organizational goals Featuring research on topics such as teacher collaboration school crisis management and ITC integration this book is ideally designed for principals researchers academics educational policymakers and teachers seeking coverage on academic leadership and leadership models

Annual Report Mpumalanga (South Africa). Department of

Education,2016 *Education and Youth Today* Yasemin Besen-Cassino,2016-08-02 This volume brings together the most recent and cutting edge research on the understanding of education It focuses on the lived experience of the students in the context of different educational institutions In doing so it unravels layers of inequalities in the understanding of education

Challenging the Apartheids of Knowledge in Higher Education through Social Innovation Joana Bezerra,Craig

Paterson,Sharli Paphitis,2021-05-12 In order to understand the relationship between social innovation and the reimagining of the knowledge economy necessary to reorient higher education most fully towards the public good we must draw from the

experiences of those working on the front lines of change This collection represents diverse voices and disciplines drawing together the critical reflections of academics students and community partners from across South Africa The book seeks to bring together theoretical and practical lessons about how research methods can be used in socially innovative ways to challenge the apartheid of knowledge in higher education and to promote the democratization of the knowledge economy

Immerse yourself in heartwarming tales of love and emotion with is touching creation, **Grade 9 Ana Maths 2014** . This emotionally charged ebook, available for download in a PDF format (PDF Size: *), is a celebration of love in all its forms. Download now and let the warmth of these stories envelop your heart.

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