

## **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 Exam For 2014

**Leentjie van Jaarsveld, Kobus  
Mentz, Charl C. Wolhuter**



## **Grade 9 Ana Exam For 2014:**

**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     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

**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     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     **South African**

**Schooling: The Enigma of Inequality** Nic Spaull, Jonathan D. Jansen, 2019-11-05 This volume brings together many of South Africa's leading scholars of education and covers the full range of South African schooling from financing and policy reform to in depth discussions of literacy numeracy teacher development and curriculum change The book moves beyond a historical analysis and provides an inside view of the questions South African scholars are now grappling with Are there different and preferential equilibria we have not yet thought of or explored and if so what are they In practical terms how does one get to a more equitable distribution of teachers resources and learning outcomes While decidedly local these questions resonate throughout the developing world South Africa today is the most unequal country in the world The richest 10% of South Africans lay claim to 65% of national income and 90% of national wealth This is the largest 90/10 gap in the

world and one that is reflected in the schooling system Two decades after apartheid it is still the case that the life chances of most South African children are determined not by their ability or the result of hard work and determination but instead by the colour of their skin the province of their birth and the wealth of their parents Looking back on almost three decades of democracy in South Africa it is this stubbornness of inequality and its patterns of persistence that demands explanation justification and analysis This is a landmark book on basic education in South Africa an essential volume for those interested in learning outcomes and their inequality in South Africa The various chapters present conceptually and empirically sophisticated analyses of learning outcomes across divisions of race class and place The book brings together the wealth of decades of research output from top quality researchers to explore what has improved what has not and why Prof Lant Pritchett Harvard University There is much wisdom in this collection from many of the best education analysts in South Africa No surprise that they conclude that without a large and sustained expansion in well trained teachers early childhood education and adequate school resources South Africa will continue to sacrifice its people s future to maintaining the privileges of the few Prof Martin Carnoy Stanford University Altogether one can derive from this very valuable volume if not an exact blueprint for the future then certainly at least a crucial and evidence based itinerary for the next few steps Dr Luis Crouch RTI

*Democratic Evaluation and Democracy* Donna Podems, 2017-02-01 Democratic evaluation brings a way of thinking about evaluation s role in society and in particular its role in strengthening social justice Yet the reality of applying it and what happens when it is applied particularly outside the West is unclear Set in South Africa a newly formed democracy in Southern Africa the book affords an in depth journey that immerses a reader into the realities of evaluation and its relation to democracy The book starts with the broader introductory chapters that set the scene for more detailed ones which bring thorough insights into national government local government and civil societies experience of evaluation democratic evaluation and their understanding of how it contributes to strengthening democracy or not A teaching case the book concludes by providing guiding questions that encourage reflection discussion and learning that ultimately aims to inform practice and theory

*Annual Performance Plan* Mpumalanga (South Africa). Department of Education, 2016

**World Yearbook of Education 2021** Sotiria Grek, Christian Maroy, Antoni Verger, 2020-11-26 Providing a comprehensive introduction to the topic of accountability and datafication in the governance of education the World Yearbook of Education 2021 considers global policy dynamics and policy enactment processes Chapters pay particular attention to the role of international organizations and the private sector in the promotion of performance based accountability PBA in different educational settings and at multiple policy scales Organized into three sections chapters cover the global local construction of accountability and datafication global discourse and national translations of performance based accountability policies and enactments and effects of accountability and datafication including controversies and critical issues With carefully chosen international contributions from around the globe the World Yearbook of Education 2021 is ideal reading for anyone

interested in the future of accountability and datafication in the governance of education **Annual Report Mpumalanga** (South Africa). Department of Education, 2015 Discipline in Education Johan Botha, 2021 This book addresses a perennial challenge to the success of the South African education system namely discipline This volume steers the interrogation of discipline in a new direction reflecting on ways in which recent research can benefit South African schools This includes the need for alternative discipline that will enhance education The scholarly contribution lies in its in depth exploration of the relevance of research findings to South African schools and to the twenty first century socio political environment For the first time scholarly interrogation of the issue of learner discipline in South African schools draws on indigenous knowledge systems Its post colonial and decolonial perspectives offer an ethical and moral compass for behaviour that could contribute to the well being of South African society and other societies similarly afflicted by anti social behaviour The book offers a range of perspectives on the debates on discipline and associated issues and should stimulate future discussions on discipline and indiscipline at a time when South Africa and many other societies engage with the effects of social and political transformation This scholarly book is aimed at academics and researchers The contributors include philosophers moralists corporativists education law specialists curriculum specialists specialists in education and culture advocates of ubuntu and people using meta syntheses of approaches and practices and religious practices such as a Christian ethical moral approach to parental and school discipline They draw on their insights into postcolonialism the impact of indigenous knowledge theories of agency dysfunctionality and school underperformance The book offers an intriguing depiction of opposing views on discipline

**Teaching Reading Comprehension to English Learners in Secondary Schools: A Research-Based Approach** Cekiso, Madoda, Olifant, Florence, Mokhtari, Kouider, 2025-04-23 Teaching reading comprehension to English learners ELs in secondary schools presents unique challenges as these students must navigate the complexities of academic texts and the intricacies of language acquisition Effective instruction requires a research based approach that considers the diverse linguistic cultural and cognitive backgrounds of these learners Recent studies highlight the importance of integrating strategies that build both language proficiency and content knowledge essential for helping ELs develop the skills needed to comprehend complex materials Fostering metacognitive awareness through strategies like summarizing questioning and making connections can empower students to become active and strategic readers This approach recognizes the need for a supportive inclusive classroom environment that encourages language development while promoting academic achievement in content areas Further research may help educators provide English learners with the tools to thrive as capable readers in secondary school Teaching Reading Comprehension to English Learners in Secondary School A Research Based Approach explores various aspects of teaching reading comprehension to English Second Language ESL learners in secondary schools It examines current challenges and evidence based strategies in reading comprehension This book covers topics such as language learning reading strategies and teacher training and is a useful resource for academicians researchers and

scientists      **Research for Educational Change** Jill Adler, Anna Sfard, 2016-06-17 Research for Educational Change presents ways in which educational research can fulfil its commitments to educational practice Focussing its discussion within the context of mathematics education it argues that while research generated insights can have beneficial effects on learning and teaching the question of how these effects are to be generated and sustained is far from evident The question of how to turn research into educational improvement is discussed here in the context of learning and teaching hindered by poverty and social injustice In the first part of the book four teams of researchers use different methodologies while analysing the same corpus of data collected in a South African mathematics classroom In the second part each of these teams makes a specific proposal about what can be done and how so that its research generated insights have a tangible beneficial impact on what is happening in mathematical classrooms Combining two discourses that of researchers speaking to one another and that of researchers communicating their insights to those responsible for educational practice the book deals with the perennial question of communication between those who study educational processes and those who are directly responsible for teacher education educational research and classroom practices This book will be key reading for postgraduates researchers and academics in education and particularly in the areas of mathematics education education research teacher education and classroom practice It will also appeal to teacher educators practitioners and undergraduate students interested in educational research      The Sustainability of Higher Education in Sub-Saharan Africa Peter Neema-Abooki, 2024-07-02 This book delves into the role of higher education as a means of sustainable development in Sub Saharan Africa Contributions from across the region examine the strategies and technological advances available to enable students to deal with an uncertain future and are organised under two key themes Curriculum and Teaching and Higher Education and Innovations The volume brings together theoretical and practical perspectives relating them to international benchmarks while maintaining the specificities of the African context It will be of interest to students and scholars as well as practitioners whose work interrogates higher education quality assurance and sustainable development goals      *Santa Ana River Main Stem and Santiago Creek*, 1978      **Twenty Years of Education Transformation in Gauteng 1994 to 2014** Felix Maringe, Martin Prew, 2015-05-05 Twenty Years of Education Transformation in Gauteng 1994 to 2014 An Independent Review presents a collection of 15 important essays on different aspects of education in Gauteng since the advent of democracy in 1994 These essays talk to what a provincial education department does and how and why it does these things whether it be about policy resourcing or implementing projects Each essay is written by one or more specialist in the relevant focus area The book is written to be accessible to the general reader as well as being informative and an essential resource for the specialist reader It sheds light on aspects of how a provincial department operates and why and with what consequences certain decisions have been made in education over the last 20 turbulent years both nationally and provincially There has been no attempt to fit the books chapters into a particular ideological or educational paradigm and as a result the

reader will find differing views on various aspects of the Gauteng Department of Educations present and past We leave the reader to decide to what extent the GDE has fulfilled its educational mandate over the last 20 years     Leadership Approaches to Negotiate Challenges in a Changing Education Landscape Leentjie van Jaarsveld,Kobus Mentz,Charl C. Wolhuter,2020-12-31 The argumentative point of departure of this scholarly book is the common conviction of specialists in the field of education in South Africa that the national education system is not at a satisfactory level in both the academic and the public discourse Such allegations are made and frequently stronger adjectives than non satisfactory are used Results of international test series in which South Africa has participated such as the 2015 TIMSS tests confirm the negative verdicts found in the public and scholarly discourse This book aims to argue that although the lack of performance could be attributed to a multiplicity of factors one factor that can make a difference in the achievement levels obtained by learners in schools is leadership The book demonstrates that a particular problem of both the scholarly and the public discourse on education in South Africa is an overtone of defeatism or resignation blaming all ills in the education system and educational institutions on historical legacies and or contextual factors such as socio economic deprivation in the catchment areas of schools or poor resources and infrastructure This collected work was inspired by a recently published spate of articles on top performing schools including top performing schools in rural communities in which it was demonstrated that good leadership can overcome such contextual and other challenges The book unpacks the issue of leadership in South African schools from a variety of perspectives thus contributing to the development of the scholarly discourse on Educational Leadership in South Africa The target audience of the book is scholars of Educational Leadership The research reported in the chapters draw on a wide range of methodologies including empirical survey research questionnaires and interviews critical literature surveys and the comparative method     The Education Triple Cocktail Brahm Fleisch,2018-08-15 The Education Triple Cocktail brings together rigorous quantitative and qualitative research on a new approach to improving foundational teaching and learning for schoolchildren living in working class poor and remote rural communities in resource constrained systems like South Africa At the core of this book is the theory and evidence for a powerful new interlocking and mutually reinforcing change model Inspired by the AIDS treatment story the three pronged approach of structured daily lesson plans appropriate and high quality educational materials and one on one instructional coaching to help teachers transform their instructional practices in early grade classrooms shows that it will improve learning outcomes For education systems defined by low levels of early grade learning and profoundly unequal outcomes The Education Triple Cocktail offers a theoretically informed evidence based way forward This book will be of immense use to teachers students of Education policymakers and parents     Cross-nationally Comparative, Evidence-based Educational Policymaking and Reform Alexander W. Wiseman,Petrina M. Davidson,2018-06-29 In this volume scholars and policymakers examine how large scale assessments and quantitative data are used to inform policy making at all levels of education worldwide and how data can be used to better understand specific

national and regional educational challenges

### **Accountability in education: meeting our commitments**

UNESCO,2017-10-30 The second edition of the Global Education Monitoring Report GEM Report presents the latest evidence on global progress towards the education targets of the UN Sustainable Development Goals With hundreds of millions of people still not going to school and many not achieving minimum skills at school it is clear education systems are off track to achieve global goals The marginalized currently bear the most consequences but also stand to benefit the most if policy makers pay sufficient attention to their needs Faced with these challenges along with tight budgets and increased emphasis on results oriented value for money countries are searching for solutions Increased accountability often tops the list The 2017 8 GEM Report shows the entire array of approaches to accountability in education It ranges from countries unused to the concept where violations of the right to education go unchallenged to countries where accountability has become an end in itself instead of a means to inclusive equitable and high quality education and lifelong learning for all The report emphasizes that education is a shared responsibility While governments have primary responsibility all actors schools teachers parents students international organizations private sector providers civil society and the media 0 3 have a role in improving education systems The report emphasized the importance of transparency and availability of information but urges caution in how data are used It makes the case for avoiding accountability systems with a disproportionate focus on narrowly defined results and punitive sanctions In an era of multiple accountability tools the report provides clear evidence on those that are working and those that are not Back cover

### **State Assessment Policy and Practice for English Language**

**Learners** Charlene Rivera,Eric Collum,2014-05-12 State Assessment Policy and Practice for English Language Learners presents three significant studies each examining a different aspect of states strategies for including English language learners in state assessments an Analysis of State Assessment Policies Regarding Accommodations for English Language Learners a Survey and Description of Test Translation Practices and an Examination of State Practices for Reporting Participation and Performance of English Language Learners in State Assessments With the rise in population of English language learners and the subsequent stepped up legislative focus on this student population over the past decade states have been challenged to include English language learners in state assessment programs Until now the little data available on states policies and practices for meeting this challenge has been embedded in various reports and professional journals and scattered across the Internet This volume offers for the first time a focused examination of states assessment policies and practices regarding English language learners The three studies were supported by OELA the U S Department of Education s Office of English Language Acquisition Language Enhancement and Academic Achievement for Limited English Proficient Students State Assessment Policy and Practice for English Language Learners is of interest to researchers and professionals involved with the assessment of English language learners state and district level policy makers and academics teacher educators and graduate students in a number of fields including educational and psychological assessment testing



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i the number of kwh of electricity that can be produced in one year one point is earned for the correct setup and 1 point for the correct answer units are not required but the student must show calculations in order to receive the answer point

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this question sets the context for the rest of the interview so it may be the first question they ask and expect you to know make sure that you study what the see more

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boolean logic is a core element of vlsi and microchip development so this is a question you can expect to hear since it relates to boolean algebra you might see more

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make sure you familiarize yourself with this concept so you can answer with confidence and minimal delay and try to elaborate on the depletion region as much as see more

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for this question you can go into further explanation to elaborate on the two types if you don t remember both of them try to name at least one of them see more

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