

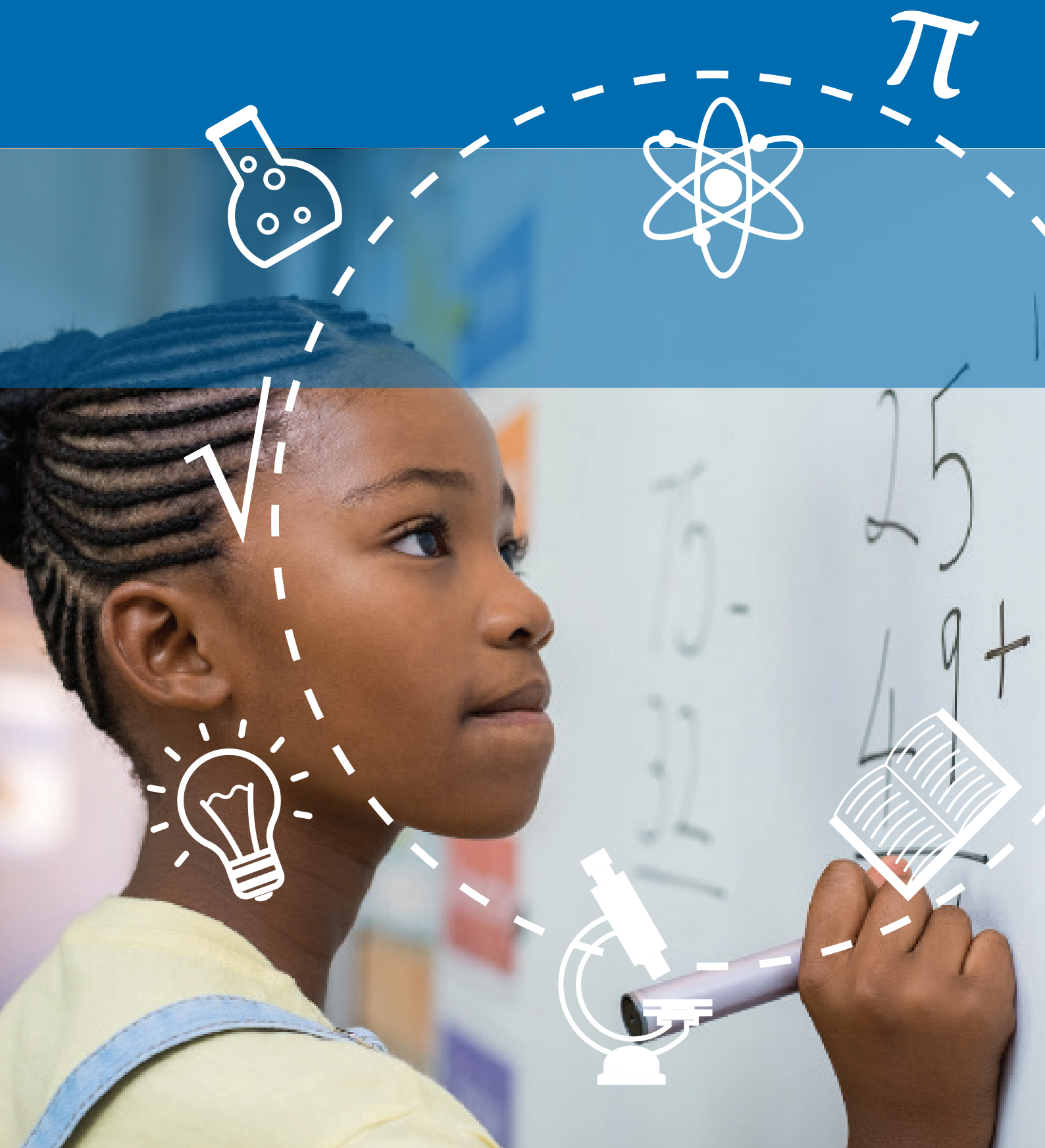
ANNUAL REPORT

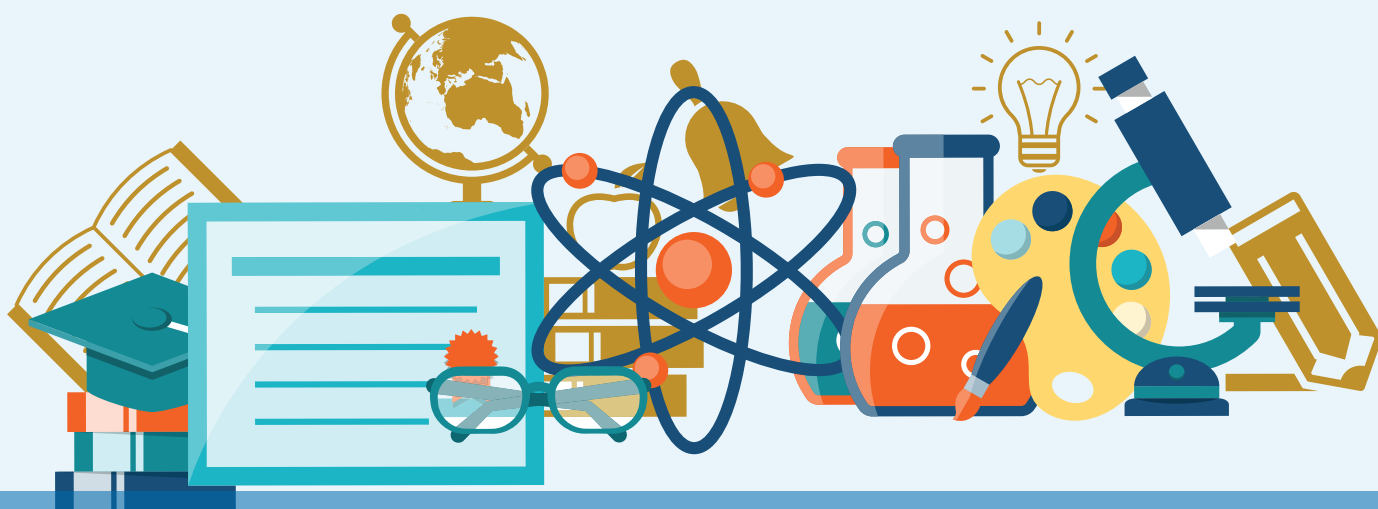
2017-2018



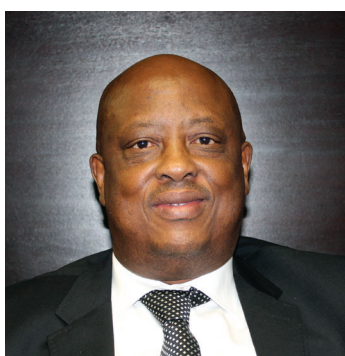
kutlwanong
centre for maths, science & technology

Advancing student performance
in Maths and Science





CEO'S OVERVIEW



TUMELO MABITSELA

CEO

Kutlwanong achieved exceptional Grade 10, 11 and 12 results for the 2017 and 2018 academic year. While these results are a testament to our learners hard work, as an organization focused on constantly evolving we also explored ways to improve our performance year on year. More specifically, we assessed the value chain of students that enter Kutlwanong at a Grade 10 level and the number of students who accessed STEM careers at tertiary institutions. Our aim was not only to boost performance in Maths and Science from Grade 10 onwards but to also ensure that our mandate of facilitating a pool of black professionals to enter these STEM careers was fully realized.

When these learners first attended our programme in 2014, those achieving between 50 – 100% for Maths were 71.3% and for Physical Science 75%. In 2016, when these learners completed their matric, we saw a significant improvement in their performance - those achieving between 50 – 100% for Maths were 77% and for Physical Science 79%. These results far superseded the National results of the Department of Education.

Our model in action

Our approach to the challenges of Maths and Science is multi-pronged. We provide curriculum support, teacher development, learner support and career pathing. We focus on teacher development alongside our learner support programme and career pathing. These three programmes work side by side, to support each other and together are the ingredients behind our students top performance.

Our learners attend our programme on Fridays, Saturdays, Sundays, public and school holidays. While these learners' access 4 ½ hours at school, we offer them an additional 5 ½ hours per week per learning area at Kutlwanong. This extensive time on tasks enables them to be well grounded and to master particular concepts within a subject. This is the key ingredient behind their top performance. The learners' foundation in Maths and Science is well grounded early on at a Grade 10 level, setting them up for success in Grade 11 and 12 as well as their tertiary education thereafter



Teacher development

Kutlwanoong recruits the best talent in terms of our curriculum team, from our head office staff to the teachers who deliver our programme. Talent involves not only proficiency in our teams' knowledge of Maths and Science but most importantly, their ability to bring content to life, the creativity in their lesson plans, revisions and most importantly teaching methods.

Teacher development is significant and a necessary part of our model as it enables teachers to understand and unpack concepts, methodology and delivery of teaching content. Our teacher development is broken into two elements, firstly compulsory weekly content prep meetings that teachers attend at their centres. Secondly we offer teacher development conducted by our head office Maths and Science curriculum specialists where we teachers are trained on various CAPS curriculum, concepts and methodology. The combination of these two elements enables teachers to be well versed on CAPS curriculum and content and well as aptly prepared to deliver their classroom lessons with confidence and high quality.

R&D

In 2017 we looked at the role of the national benchmark tests, among others, and how our learners were performing at various tertiary institutions. This research also sought to understand the knock-on effects of our programme and how it indirectly improved the lives of our learners and their families. In measuring the impact, Investec employed an external research agency to understand the impact of our programme in this

multi-faceted way, and most importantly how it has boosted the entry of black professionals into STEM careers. The report provides important statistical information on the positive impact of our work, and is available on request.

Career Pathing

Our career pathing team, for the 2017 and 2018 academic, worked closely with our Grade 11 students in relation to AP scores. An AP score is the correlation of learners' results with the entry requirements for particular tertiary courses. Tertiary institutions are placing more value on Grade 11 results, enabling students to receive provisional university admissions in Grade 11. Previously, Kutlwanoong learners who performed well in Grade 12 were not enabled access to certain STEM careers based on their Grade 11 results. In relation, Kutlwanoong adapted its model to concentrate on students achieving top Grade 11 results, to satisfy the required AP scores. Our career path team also worked closely with students at a Grade 11 level, to ensure they had selected their career and submitted university application forms in time. Students selected their STEM careers, applied for university and in most cases were offered provisional acceptance in Grade 11- boosting our students' entry to studying STEM career at university and pursuing these as professionals thereafter.

We remain committed to the National Development Plan (NDP) and using our skills, knowledge and experience within STEM to contribute to the vision 2030 – in the achievement of sound results for Grade 12 learners in these subjects.

CURRICULUM

The curriculum team at Kutlwanong are responsible for the delivery of the Maths and Science curriculum for Grade 10, 11 and 12. In essence, their role is to ensure that teachers and centre managers are capacitated and equipped to deliver content, lesson plans and play a key role in advancing learner performance.

The curriculum team is led by Collen Mkwana. For the 2017-2018 calendar year, the curriculum team built on the lessons of the previous academic year.

Particularly these were:

Standardisation of lesson planning. Teachers and centres managers were previously responsible for lesson plans. Discrepancies impacted on how content was delivered in the classroom, and as a result on learner performance. To mediate this, the curriculum team standardised lesson planning throughout all centres. Standardisation assisted monitoring and measurement of learner performance as delivery of the lesson was the same across all centres.

- **Annual Teaching Programme (ATP):** Teaching and learning in all the Kutlwanong Centres is driven by a common ATP. All centres follow the same ATP to the letter, which also informs the Assessment Programme.
- **Resource Provisioning:** The teachers and the learners across the centres are provided with Teaching and Learning Material timorously to support curriculum delivery.
- **Standard diagnostic report.** A standard report template was implemented across the centres, to identify learner gaps/ problems with content. It also enabled curriculum staff to develop clear strategies to improve learner performance in problem areas. We dedicated more time to these areas and were able to visualise learner performance in relation to the curriculum across centres with a single view.
- **Exam prep.** The diagnostic report also identified specific content for revision in the last push which is the last quarter before final exams. All grades used this information in their exam prep and performance was tracked per centre for improvements. This activity is coordinated centrally at Kutlwanong Head Office and conducted across the centres in the form of roadshows. The centres are provided with support based on their individual needs as informed by the centre analysis of results and the Diagnostic Report.
- **LEAD intervention consolidated.** Our team consolidated the LEAD tutor intervention programmes. We identified LEAD tutors and deployed them to centres that were having problems. We dispatched high quality resources to help those centres. This helped to ensure consistency and bring the standard of those centres up. It also allowed us to track performance amongst the centres that needed support to monitor improvement. This strategy has many benefits. LEAD tutors that were deployed assisted teachers and learners with the curriculum content. Teachers in those centres were empowered, learned new ways to deliver content and also understood it better themselves. They were in turn enabled to assist other teachers in their area and their district with this new knowledge, so the knock on effects are powerful. This also strengthened lesson preparation and our diagnostic strategies.
- **Information Exchange.** We found that there was a powerful sense of information exchange amongst teachers, by deploying LEAD tutors to different centres. This strategy meant that we were strengthening our team work across our centres, from within. We are developing the teachers, not only the ones at the centres being trained but also the trainers. Everyone had an opportunity to grow, to learn, to develop, and share those experiences at their home centre. Enabling a cross pollination of experiences and ideas.
- **A pool of specialists.** Our strategy has meant that we are developing a Kutlwanong pool of curriculum specialists within Maths and Science. Removing the key man dependency and capacitating more staff to work across roles and provide support where needed. Early 2019, we had a national curriculum planning session to reflect on the 2018 curriculum and to interrogate the strategies employed across the year. The 2019 planning was done as a collaborative process, with input from all centres. These processes enable us to consolidate our strategies and to ensure that we improve in the coming years.
- **Monitoring and Support.** All the Kutlwanong centres are monitored throughout the year, to check progress and the implementation of





the curriculum programme. Relevant Support is provided based on the needs of the centre. During the visits learners and teachers are addressed to motivate and encourage them.

- **Valediction.** This is an annual activity conducted from the 3rd term to motivate the learners in preparation for the examinations.

We also hold stakeholder meetings, where we meet with district officials from the DoE and parents of Kutivavung learners. Parents meetings enables communication between teachers and parents – they understand the challenge we face in the classroom and we work with them to decrease learner drop-out.

My team hosts weekly planning meetings, as the head of curriculum I see all lesson plans weekly. This enables me to

challenges and deviations, then I am in a better position to assist with adapting curriculum plans. Using technology has also facilitated a more streamlined process and enables us to archive material so we can refer to it as necessary. Having all material available electronically also means we get to do an analysis – placing us in a better position to identify gaps and to fill them quickly.

Our ultimate aim is to support our teachers so that they teach with confidence and deliver content aptly. Our success lies in planning, limiting discrepancies and in providing support with a national team. Each member of the curriculum team must feel empowered to do perform their role, to train others and to provide support to centres in need. Fostering this sense of team spirit and using tools to enhance and deliver on our strategic analysis is our success.

CAREER PATH

The Career Path team are responsible for providing career guidance to Grade 10, 11 and 12 learners but also to facilitate access to tertiary education and bursaries. For career guidance the teams conduct career talks, take students to career expo's and bring industry leaders to profile different types of careers to students. They also help students complete their bursary and tertiary application forms to boost the number of students accessing a tertiary education.

- **Career Path.** There is a selection of careers that we profile, mainly STEM but we do explore other fields as well. We have partnered with different universities across provinces, they present information on the faculties. The aim is to assist students to understand the various choices and to identify what appeals to them in terms of what to study.
- **Broadening the range of institutions.** For 2017 and 2018 University of Pretoria were the main content providers of career and university information. However, we have diversified and now facilitate a wide range of institutions to talk to our students – in an aim to be more inclusive. Our aim is to encourage students to consider a wide range of institutions to study at and to inform them about: application criteria, costs, high school performance and other information about pursuing their tertiary education.
- **Grade 10 commencement.** Previously the main focus was to provide career pathing for Grade 12 students. Our focus has now shifted to Grade 10 and 11 students – to help them make career decisions and apply for tertiary education with their Gr 11 report, and gain acceptance prior to their matric year. Our aim is that when these students get to Grade 12, they are focused on academic performance and their report is mainly for registration purposes at university.
- **4th Industrial Revolution** - Young people need to be informed about the 4th industrial revolution as it has huge implications for their careers and their professional choices in the future. We invite corporates nationally to present to our student and raise awareness about the 4th Industrial Revolution. Some of the topics that we delve into revolves around robotics, artificial intelligence and careers in technology. Our aim is to expose these students to the world of technology, help them understand how to use and the role it can play in their lives – prior to their entry to university. Currently almost all bursary applications are done online, but we identified that many of our students were struggling because they weren't exposed to computers and how to use it. Concepts like email, browsing the internet and submitting applications online were foreign to them. So we started with the basics and built things up from there.



- **Online correspondence from tertiary institutions** - Previously we created emails for students and then applied on their behalf to tertiary institutions. This became a problem as students received an accept/ decline response from the university over email but many did not respond. We have students who did not pursue a tertiary education immediately after completing their matric – not because they did not get acceptance, but because they did not respond to the institution. So the digital training component is new and we have begun basic training with our students to help alleviate this.

Motivating National Top Performance

In 2018, we had 3 Kutlwano learners who were recognised as national top performers, invited to the Minister of Education's ceremony and awarded for the performance. We have started to encourage students to aim for attendance at the Minister of Education's top performer lunch. The # is that students have a goal to reach for, they are not just trying to perform well, they are aiming to be the best of the best, nationally. This fosters healthy competition amongst the learners and also motivates them to do their very best. It's also a nice objective for our learners to aim for, beyond just studying to pass.

University Registration Fees

All learners have to pay application fees to tertiary institutions, but since we are an NGO

and these learners come from disadvantaged backgrounds we worked with the universities to waive these fees. Our students can't afford these fees, and it should not be a barrier to entry and access at tertiary institutions. If a student is applying for multiple degrees at various universities it became difficult as they couldn't afford these fees. By these fees being waived our learners can access more opportunities to study and pursue professional careers thereafter.

University Alumni

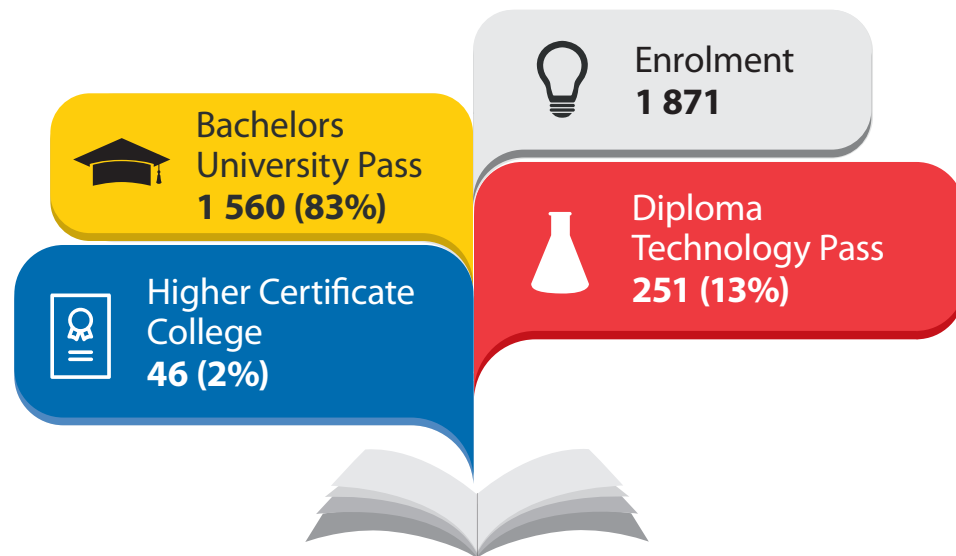
We spend a lot of time with the students at the university alumni associations. We have identified many challenges that these students face when they enter tertiary education and we have tried to address some of those at a high school level. Students need a range of skills to succeed at university, how can we start to get them thinking about that and equipping them for that at an early stage? Our learners also need to think about work, not in their third year of study, but from their first year. So they plan for it, they take steps towards it and in their third year they are prepared for it, before they graduate.

Our aim as the career path team is to inform our learners about careers, to help them access further education to pursue that career and to offer them support whilst at tertiary institutions to ensure that they succeed and graduate. Much of what we do has to be adapted year on year – but we remain committed to developing our students and gearing them up for success!



SUMMARY 2018 RESULTS

Nationally Kutlwanong produced **1060 distinctions**
for Maths and Physical Sciences



Mathematics Core

- A total of **409** distinctions were achieved in Mathematics
- **88** learners scored between **90** and **99%** in Mathematics
- **3** learners scored **100%** in Mathematics
- The average learner performance (Subject Average) for Mathematics is **65%**

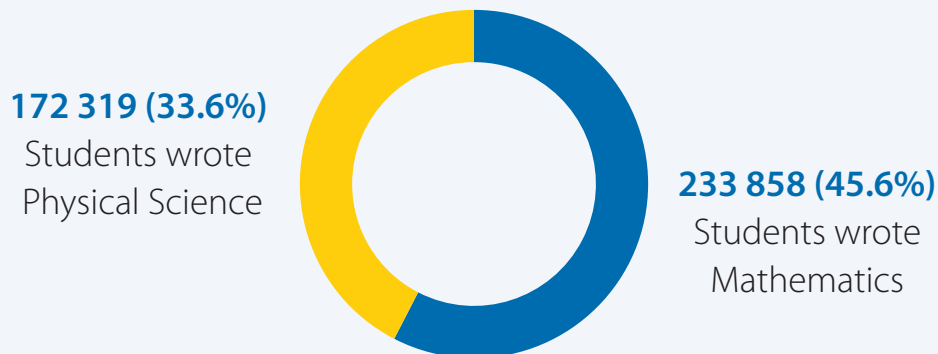
Physical Sciences

- A total of **651** distinctions were achieved in Physical Sciences
- **249** learners scored between **90** and **99%** in Physical Sciences
- **28** learners scored **100%** in Physical Sciences
- The average learner performance (Subject Average) for Physical Sciences is **70%**



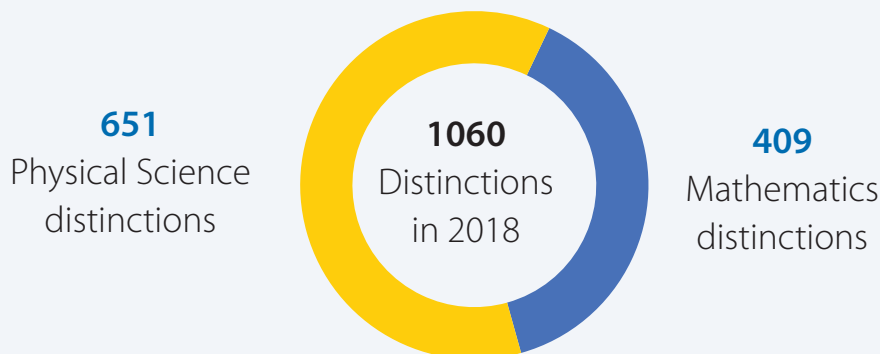
National Class of 2018 Results

512 735 Students
sat for the NSC Grade 12 matric exams

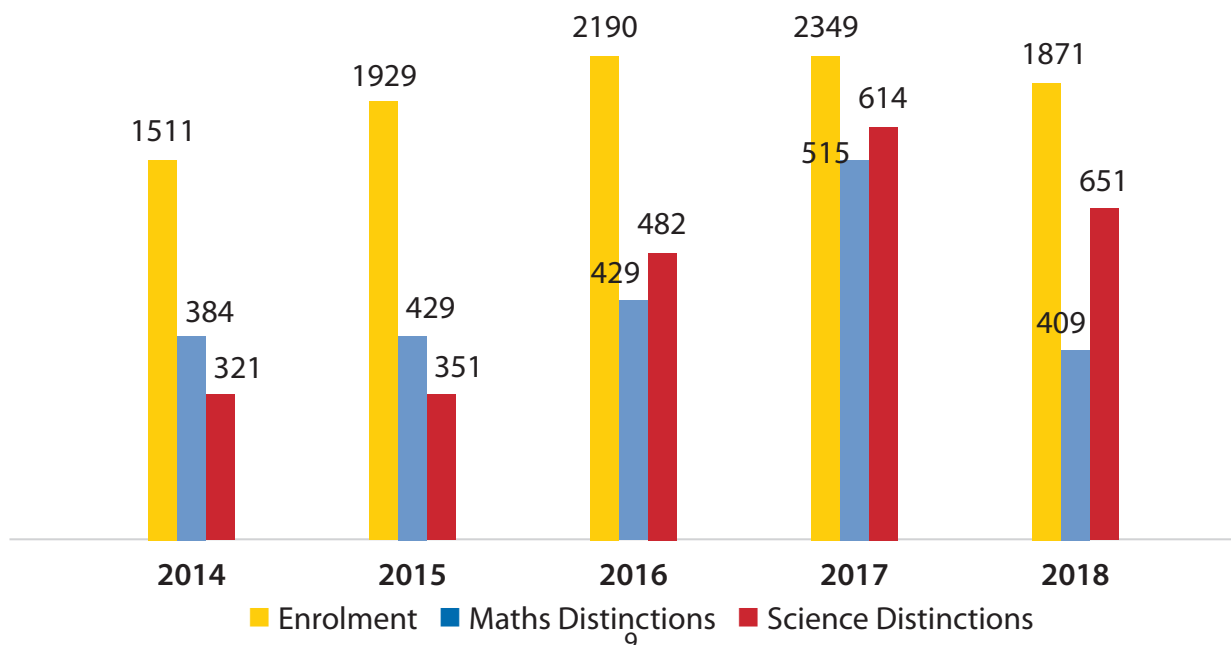


National Kutlwanong Class of 2018 Results

1871
Total Kutlwanong Grade 12 learners



Kutlwanong distinctions over five years



2018 MATRICULANTS

Top candidate in Quintile 1: Molelekeng Mokwena (Qwaqwa Centre)

Top candidate in Quintile 2: Kamva Goso – (Philippi Centre)

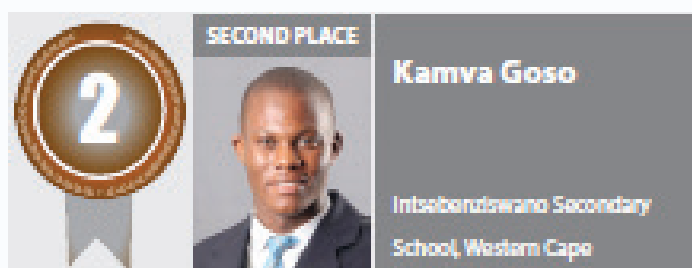
2nd in Physical Sciences in the Country: Kamva Goso – (Philippi Centre)

2nd top candidate in Quintile 4: Tiisetso Molata (Dobsonville Centre)

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National top achievers (NSC – Class of 2018)

Top achiever in physical sciences

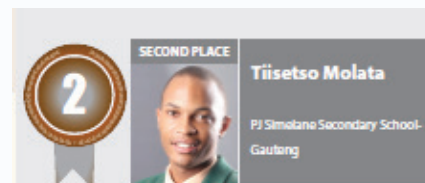
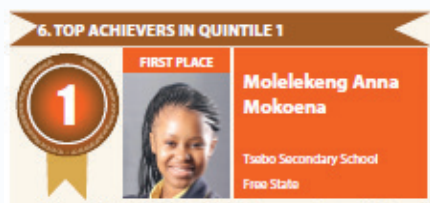


TOP ACHIEVERS IN QUINTILES

1st Quintile 1

1st Quintile 2

2nd Quintile 4



Provincial awardees

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28 Kutlwanong Promaths were awarded Provincial awards in Mathematics and Physical Sciences in Eight Provinces.



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