

SUBJECT CHOICE BOOKLET

Grade 10 - Grade 12

JAPIE KRIGE
SAAL / HALL



PAUL ROOS
GIMNASIUM | GYMNASIUM

CONTENTS:

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Compulsory subjects:

1. Afrikaans Home Language or Afrikaans First Additional Language
2. English Home Language or English First Additional Language
3. Mathematics or Mathematical Literacy
4. Life Orientation

Choice subjects:

1. Business Studies
2. Second Additional Languages: German
3. Second Additional Languages: Xhosa
4. Economics
5. Engineering Graphics and Design
6. Physical Science
7. Geography
8. History
9. Visual Art
10. Design
11. Life Science
12. Music
13. Computer Application Technology
14. Information Technology
15. Accounting
16. Advanced Programme Mathematics



PAUL ROOS
GIMNASIUM – GYMNASIUM



Supported by: *Chartered Accountants Inc.*

NATIONAL SENIOR CERTIFICATE (NSC)

The National Senior Certificate is a level 4 qualification on the National Qualification Framework (NQF).

The certificate requires that learners should study seven subjects from Grade 10 – 12: four compulsory and three optional subjects.

The subjects are:

1. Two official languages: one must be on the Home Language level, and the other must be on either Home or First Additional.
2. Language level. One of the two languages should be the language of learning and teaching.
3. Mathematics or Mathematical Literacy
4. Life Orientation
5. Plus, three other subjects offered by the school.
6. Promotion requirements for NSC:
7. One official language at home language level: minimum 40%
8. Two other subjects: minimum 40%
9. Three subjects: minimum 30%

You may fail one subject (less than 30%) if you have completed all the school-based assessments in this subject.

MINIMUM REQUIREMENTS FOR ADMISSION TO HIGHER EDUCATION INSTITUTIONS. ALL SUBJECTS ARE 20 CREDIT SUBJECTS, EXCEPT FOR LIFE ORIENTATION.

QUALIFICATION	MINIMUM REQUIREMENT FOR ADMISSION
Higher certificate	Pass the NSC with: • Minimum of 30% in the language of learning and teaching of the HEI, • Two other subjects: 40% or more. • Three subjects: 30% or more.
Diploma	Pass NSC with: • Minimum of 30% in the language of learning and teaching of the HEI, • Three other subjects: 40% or more • Two subjects: 30% or more
Bachelor's degree	Pass NSC with: • Minimum of 30% in the language of learning and teaching of the HEI, • Four x 20 credit subjects 50% or more. • Two subjects: 30% or more • A Higher Education Institute is entitled to specify an appropriate level of subject achievement or specific subject requirements for a particular programme at the institution.

SUBJECT CHANGES

General information

- The feasibility of subject combinations depends on class sizes, timetable variables and availability of teaching staff. It is not a given that the above-mentioned options will materialise.
- Mathematics is a requirement for Physical Sciences and Information Technology. If you decide at a later stage to change to Mathematical Literacy you will therefore also need to change these subjects.
- Design and Visual Art are also offered after school hours at PJ Olivier Art Centre.

Extra subjects

- Options: Information Technology, Geography, History, Life Science, History, Business Studies, Economics, Design and Visual Art.
- If a learner takes an extra subject, he might need to write two examinations in one day.
- It is the learner's responsibility to collect all the work, notes, assignments and – dates from the teacher. No additional classes are presented for extra subjects.

WHEN A LEARNER CHANGES A SUBJECT IT IS THE LEARNER'S RESPONSIBILITY TO CATCH UP ON WORK HE MISSED.

How does a learner make a subject change?

- A subject change form can be collected from Mrs E Horn's class (W7). It is also available on the website of the school. The form must be completed (please do not leave any part of the form out as all the information is needed to complete the process on the departmental system). The learner is welcome to make an appointment with Mrs Barnes to receive guidance regarding his subject choice/change.
- A learner may not start with Engineering Graphics and Design, Physical Science, Accounting, IT, CAT and Mathematics in Gr. 11 and Gr. 12.

Grade 10:

A learner may change a maximum of two subjects in Grade 10 only at the end of the second term. The closing date for these changes will be communicated to the learners ahead of time. All changes are subject to the approval of the rector and the WCED.

Grade 11:

A learner may change a maximum of two subjects in Grade 11 only at the end of term one. The closing date for these changes will be communicated to the learners ahead of time. In exceptional cases, a learner may change one subject at the end of grade 11. All changes are subject to the approval of the rector and the WCED.

Grade 12:

- No subject changes are allowed in grade 12.

ASSESSMENT ACCOMMODATIONS

Accommodations are granted to learners with special educational needs (LSEN) in accordance with departmental policy and should not be seen as a right for learners in mainstream education. Special needs include neurological disorders; auditory and visual impairments; physical, learning, emotional and behavioural disabilities.

Please note that the ability to complete an assignment timeously and independently is an essential skill for tertiary study or entering the job market and for this reason great care must be given to the granting of additional time for assessment.

A learner is granted an assessment concession in order to obtain the most accurate reflection of his knowledge, potential and skills. The assessment standard may never be compromised and the learner with special needs may never be advantaged.

The pre-supposition of the policy of the WCED is that the process is initiated by the school on the grounds of needs/problems that have materialised in the classroom/general school context. Parents are advised to contact Mrs de Lange or Mrs Barnes if they feel that their son's learning impediment is being overlooked by the teachers.

According to the provincial policy, all requests must reach the counsellor before 30 October of a learner's grade 10 year.

REFER TO THE COMPREHENSIVE ACCOMMODATION DOCUMENTS ON THE SCHOOL'S WEBSITE FOR MORE INFORMATION OR E-MAIL MRS DE LANGE OR MRS BARNES.



SUBJECT INFORMATION

COMPULSORY SUBJECTS

Afrikaans Home Language:

Beskrywing:

Klem op Afrikaans Huistaal word daarop geplaas om die denke en kommunikasie van leerders te verbeter. Voorsiening word veral gemaak vir taalbedrewenheid met klem op lees- en skryfvaardighede.

Onderwerpe/Inhoud:

1. Luister en praat

- Deur middel van effektiewe luister en praat, word inligting versamel en saamgevoeg en kennis gebou, probleme opgelos en meningsvorming aangemoedig.

2. Lees en kyk

- Ontwikkeling van kritiese denke word daardeur bevorder met die doel om 'n bedrewe leser in die lees van literêre en nie-literêre asook visuele tekste te word.

3. Skryf en aanbied

- Gereelde skryfoefeninge stel die leerder in staat om funksioneel en kreatief in Afrikaans te kommunikeer. Die leerder leer om idees en gedagtes duidelik te formuleer en oor te dra.

4. Taalstrukture en -konvensies

- Stel die leerder in staat om met Afrikaanse taalgebruik te eksperimenteer op woord- en sinsvlak asook in volledige formele of informele tekste.

Afrikaans First Additional Language:

Description:

Learners think mainly in their home language and then translate their thoughts and ideas. The learning of a first additional language enhances bilingualism and intercultural communication.

Topic / Index:

The language skills, namely: Listening, Speaking, Reading and Writing will receive equal attention so that Additional Language learners can think, debate and communicate in Afrikaans. The learning plan provides for learner interaction and self-discovery and learner involvement is encouraged in all class activities.

What is the difference between Home Language and First Additional Language?

- In Home Language (the language of learning and instruction), listening and language skills are further developed and refined and emphasis is placed on developing the learners reading and writing skills.
- First Additional Language skills, such as Listening, Speaking, Reading and Writing all receive equal attention and focus. The work that is done in the Afrikaans First Additional Language class is practical and useful. It is utterly important that the Additional Language learners have a good vocabulary so as to allow for good communications skills to be developed.
- In First Additional Language focus is placed on the expansion of the vocabulary of each learner.

COMPULSORY SUBJECTS CONTINUED

English Home Language or English First Additional Language:

Excellent command of English has become imperative in our global society and at PRG it is our aim not only to teach the learners the English syllabus but also to raise their knowledge and use of the language to extraordinary levels, thus giving them an advantage in almost everything that they do at school, as well as in their future lives and careers. Furthermore, with excellent English skills, learners may truly become 'global citizens' and compete with confidence for worldwide career opportunities.

Both English Home Language and First Additional Language are taught and assessed according to the following components:

1. Listening and Speaking: learn to communicate effectively, logically, politely and with confidence.
2. Language Structures and Conventions: learn to understand the structure and nuances of language in order to use this knowledge to improve writing, speaking and thinking skills.
3. Reading and Viewing: learn to comprehend passages; enjoy reading; develop insight and self-discovery.
4. Writing and Presenting: develop powers of observation; write imaginatively, accurately and coherently; write correctly according to context.

Important Points About Home Language And First Additional Language:

- **Oral topics** and assessments for Home Language are aimed at higher-level thinking and use of advanced vocabulary and language structures; FAL candidates are offered opportunities to express their viewpoints about age-related topics and language usage is expected to be less complex.
- **Language Study** in the Home Language classroom deals with the basics as well as more advanced nuances of language such as stylistic devices, whereas the focus in the First Additional classroom is on honing basic skills and equipping the learners with the correct idiomatic usage of English.
- **Literature Study** in Home Language concerns novels, plays, short stories and poetry of a more complex nature (the inclusion of one or more Shakespeare plays in Grades 10 to 12 is a given). Home Language learners are required to deal with these texts critically and analytically. The prescribed texts for First Additional Language may be equally challenging, but the learners are not required to acquire such a profound level of understanding.
- **Writing assignments**, similar to oral topics, may be less challenging for First Additional Language learners than those for Home Language learners. Both groups, however, are taught to deal with a wide variety of essay types and transactional writing formats.

Career matters:

It is self-evident that communication is paramount in every sphere of life, but the following fields do require an above-average proficiency in English:

- Journalism
- Media
- Marketing
- Education
- Social sciences
- Entertainment
- Management

COMPULSORY SUBJECTS CONTINUED

English Home Language or English First Additional Language continued:

FAQs:

How do I know if my child should carry on with Home Language in Grade 10?

- Learners who are not mother-tongue speakers and who would like to continue with English as Home Language in Grade 10, should be mindful that to do so and be able to cope comfortably, they should achieve a minimum of 65% in grade 9.

Why do the marks sometimes drop so significantly in Grade 10?

- This phenomenon causes a great deal of stress for learners and parents alike and the answer consists of two parts: firstly, the Grade 7-9 system (GET) uses a completely different weighting system in which the oral component is disproportionately important - e.g. it constitutes 48% of a learner's June mark whereas the literature component may count as little as 8%. In Grades 10- 12, this is completely reversed, with the oral component reduced to a fraction of the final mark and the language/literature components making up the bulk of the final mark. Since most learners do well in oral assignments, they may appear stronger on their reports in the junior grades than they really are. The second half of the answer is generic - learners face a sudden increase in academic work in Grade 10 and many of them are caught off guard.

Will my child be disadvantaged if he does not carry on with Home Language?

- It is advisable that learners should familiarise themselves with the requirements for future tertiary courses as soon as possible, because there may be a requirement for a certain percentage in English Home Language specifically, but generally speaking, Home Language students are not advantaged over First Additional Language learners.

Why does my child do worse in First Additional Language than in Home Language?

- The answer to this mystery is manifold - learners sometimes switch to First Additional Language after a too disappointing bout in the Home Language classroom, only to discover that they are doing worse in First Additional Language - this is often the case because learners assume that FAL is easier and involves less work. First Additional Language can be technically demanding and learners have to work diligently to master the many language rules.

What can I do to help my child improve his English marks?

- This is the desperate question of both Home and First Additional parents and the answer is not contained in a magic word, but rather in a change in approach: language proficiency is rooted in the old adage, input equals output. Reading (novels, magazines, newspapers) is the obvious way to increase input, but other sources (albeit unconventional) may also be gaming, socialising and watching good television programmes/films.



COMPULSORY SUBJECTS CONTINUED

Mathematics and Mathematical Literacy:

Description:

Mathematics is a language that makes use of symbols and notations for describing numerical, geometric and graphical relationships. It is a human activity that involves observing, representing and investigating patterns and qualitative relationships in physical and social phenomena and between mathematical objects themselves. It helps to develop mental processes that enhance logical and critical thinking, accuracy and problem solving that will contribute to decision-making. Mathematical problem solving enables us to understand the world (physical, social and economic) around us, and, most of all, teaches us to think creatively.

Topics/Content:

In the CAPS syllabus, a grade 9 learner must choose between the subjects MATHEMATICS and MATHEMATICAL LITERACY.

Content-wise, the difference between the two subjects are the following. Summary of the content of the curriculum for Mathematical Literacy:

MODULE 1: NUMBER AND OPERATIONS IN CONTEXT:

- Percentages e.g. percentage increase and decrease
- Using mathematical knowledge to manage personal finances and set up a personal budget
- Adapt a budget to accommodate, for example, a change in the price of petrol or an increase or decrease in bond repayments
- Simple and compound interest

MODULE 2: FUNCTIONAL RELATIONSHIPS:

- Variables and rate of change
- Direct and inverse proportion
- Drawing graphs of a number of situations in real life.
- Interpreting graphs and tables of data of situations in real life

MODULE 3: SPACE, SHAPE AND MEASUREMENT

- Perimeter and volume
- Converting units of measurement within the metric system e.g. centimetres to metres, square centimetres to square metres
- Drawing and interpreting scale drawings

MODULE 4: DATA HANDLING (STATISTICS)

Summary of the content of the curriculum for Mathematics:

Functions:

- Graphs: straight line graphs, hyperbolas, parabolas, exponential graphs,
- Trigonometric graphs (all graphs are also translated horizontally and vertically).
- *It is especially the graphs which are much more difficult than was expected in the old HG/SG curriculum Number patterns.*

COMPULSORY SUBJECTS CONTINUED

Mathematics and Mathematical Literacy continued:

Financial mathematics:

- Compound and simple interest, inflation, hire purchase agreements
- Understanding the implications of fluctuating foreign exchange rates

Algebra:

- Manipulation of algebraic expressions
- The solution of linear, quadratic, exponential and simultaneous equations
- The use of mathematical models to solve real-life problems
- Probability

Euclidean geometry and measurement:

- Triangles and quadrilaterals of the old HG/SG curriculum
- The understanding of the effect on area and volume if any dimension is multiplied by a constant factor.
- Trigonometry
- Analytical geometry
- Statistics

Skills developed:

- To develop fluency in computation skills without relying on the usage of calculators.
- Mathematical modelling is an important focal point of the curriculum.
- To provide the opportunity to develop in learners the ability to be methodical, to generalize, make conjectures and try to justify or prove them.
- To be able to understand and work with the number system.
- To show Mathematics as a human creation by including the history of Mathematics.
- To promote accessibility of Mathematical content to all learners.
- To develop problem-solving and cognitive skills.
- To prepare the learners for further education and training as well as the world of work.

Qualities required and career possibilities:

How do you choose between Mathematics or Mathematical literacy?

- Use the Gr.9 June Exam Mathematics marks as a guide:
 - More than or equal to 60%, choose Mathematics
 - Between 50% and 60%, carefully consider whether your son really needs Mathematics for his future career.
 - Less than 40%, choose Mathematical Literacy.
- Consider the career your son wishes to pursue:
 - For a career, such as in pure Mathematics, Actuarial Sciences, Engineering, Science etcetera, it is obvious that he should choose Mathematics as a subject.
 - For any other course, you should determine whether Mathematics as such is required for that specific course and then make the appropriate choice.

COMPULSORY SUBJECTS CONTINUED

Mathematics and Mathematical Literacy continued:

- Take your son's personality into account:
 - In order to be successful in Mathematics a learner must:
 - Be able to concentrate in class
 - Have the self-discipline to work
 - Be willing to, and have the time to do homework every day as well as over weekends
 - Be able to work independently
 - Have the discipline to summarise work
 - Be able to ask questions if he does not understand

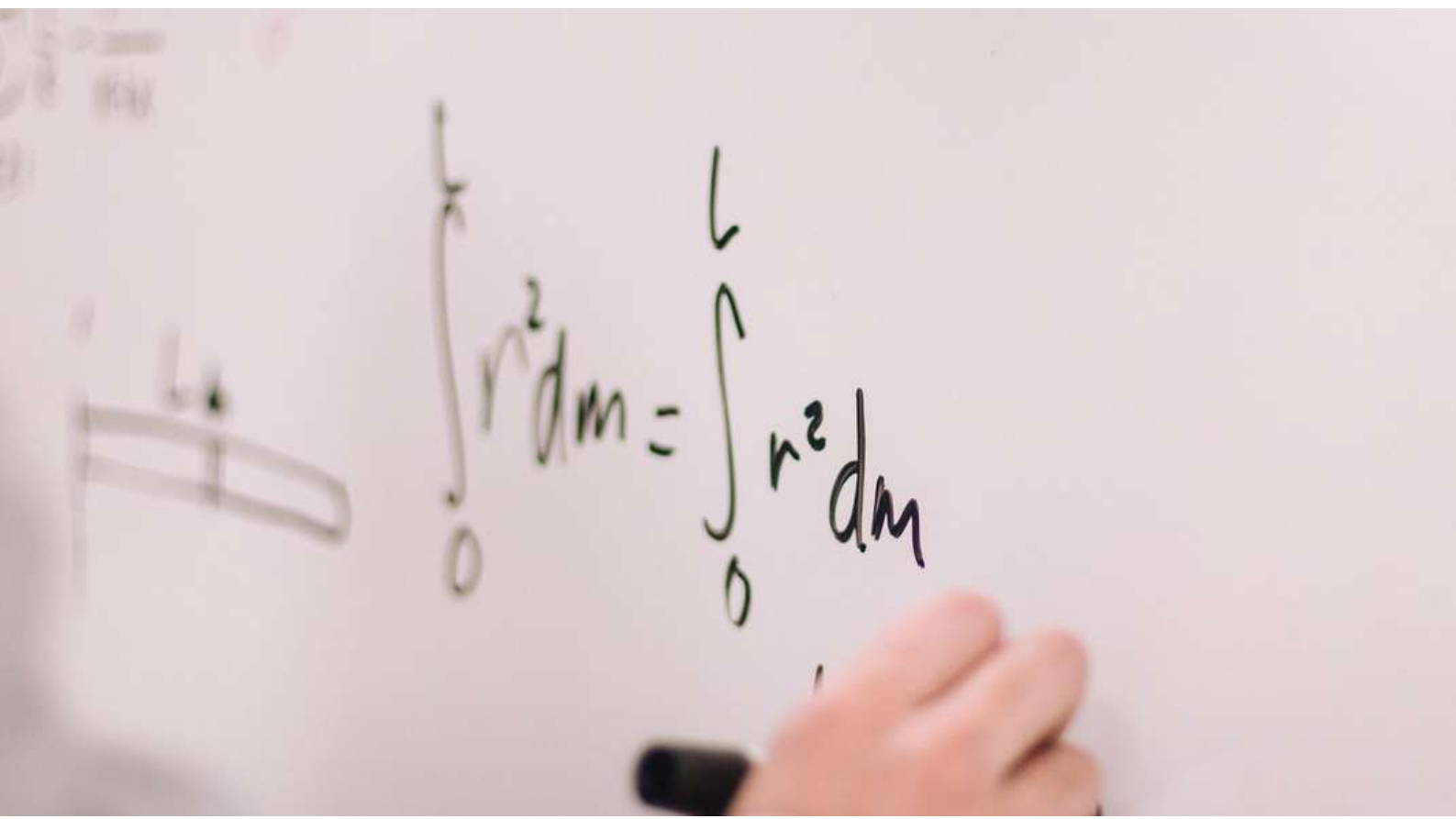
Final word:

Maths is used as one of the subjects that determines admission to University because it determines whether a person can reason and make plans which can be set out logically and executed. In other words, it determines your problem-solving skills, a necessary skill on many levels.

Maths lessons in Paul Roos are designed to stimulate learners to think for themselves. It encourages them to use the knowledge they have gained confidently in order to solve problems. One of the big drawbacks of our time is that learners want to know how to solve a problem without taking the time to battle with the problem themselves.

To truly master a subject like Maths entails more than a quick discussion about what can be done or an extra lesson to improve one's marks on the next test.

The day a learner has the determination and will to apply the basic knowledge, definitions and theorems he has learnt to solve problems, he will truly be a master and will no longer be a slave that has to be coached along the way.



COMPULSORY SUBJECTS CONTINUED

Life Orientation:

Description:

Life Orientation serves as the core subject to develop learners and provide them with orientation regarding the demands and realities of life. Twenty-first-century skills are developed and emphasized. Learners are therefore exposed to a variety of themes.

According to the National Curriculum and Assessment Policy Statement (CAPS), Life Orientation is the study of the self in relation to others and society. Skills, knowledge and values regarding self, the environment, responsible citizenship, a healthy and productive life, social involvement, recreation and physical activities, careers and career choices are discussed. Opportunities are included to get involved in the development and practice of a variety of life skills like problem-solving, making informed choices and taking suitable actions to live significantly and successfully in a fast-changing society. It does not only focus on knowledge but also emphasizes the importance of the application of skills and values to real-life situations, participation in physical activities and community initiatives.

Topics/Content:

There are six main topics which are focused on:

- Development of the self in society
- Social and environmental responsibility
- Democracy and human rights
- Careers and career choices
- Study skills
- Physical Education

Skills developed:

Life Orientation aims to:

1. Guide and prepares learners to respond appropriately to life's responsibilities and opportunities;
2. Equip learners to interact optimally on a personal, psychological, cognitive, motor, physical, moral, spiritual, cultural and socio-economic level;
3. Guide learners to make informed and responsible decisions about their own health and well-being and the health and well-being of others;
4. Expose learners to their constitutional rights and responsibilities, to the rights of others and to issues of diversity;
5. Equip learners with knowledge, skills and values to make informed decisions about subject choices, careers, additional and higher education opportunities and the world of work;
6. Expose learners to various study methods and skills pertaining to assessment processes and
7. Expose learners to an understanding of the value of regular participation in physical activity.

Career possibilities:

Life Orientation provides a basic background to those who would like to further their studies in fields such as Law, Sports science, Psychology, Industrial psychology, Philosophy and Religious studies.

SUBJECT INFORMATION

CHOICE SUBJECTS

Business Studies:

Description:

The subject of Business Studies deals with the knowledge, skills, attitudes and values that are critical for informed, productive, ethical and responsible participation in the formal and informal economic sectors. The subject encompasses business principles, theory and practice that underpin the development of entrepreneurial initiatives, sustainable enterprises and economic growth.

Topics/Content:

- Business environment:
 - Micro, market and macro environments
 - Business sectors
 - Contemporary socio-economic issues
- Business venture:
 - Entrepreneurship
 - Business opportunity and related factors
 - Business Plan
 - Management and leadership
 - Forms of ownership
 - Setting up a business
 - Contracts
 - Business location
 - Investment securities and insurance
 - Presentation of business information
- Business role
 - Creative thinking and problem-solving
 - Self-management, professionalism and ethics
 - Human rights, inclusivity and environmental issues.
 - Social responsibility
 - Stress, crisis, change and conflict management
 - Relationship and team performance
- Business operation:
 - Business functions
 - Quality of performance

Skills required

- Passion for the business
- Language skills
- Organisational skills
- Analytical skills

CHOICE SUBJECTS

Business Studies continued:

Skills developed:

- Business Studies will ensure that learners:
 - Acquire and apply essential business knowledge, skills and principles to productively and profitably conduct business in changing business environments;
 - Create business opportunities, creatively solve problems and take risks, respecting the rights of others and environmental sustainability;
 - Apply basic leadership and management skills and principles while working with others to accomplish business goals; are motivated, self-directed, reflective lifelong learners who responsibly manage themselves and their activities while working towards business goals;
 - Are committed to developing themselves and others through business opportunities and ventures;
 - Are able to secure formal employment, and are in a position to pursue sustainable entrepreneurial and self-employment career pathways.

Career possibilities

Business studies are useful for those thinking about a career in chartered accounting, consultancy, investment banking, retail buying, teaching or starting your own SMME.



CHOICE SUBJECTS

Second Additional Languages: German:

Description:

German Language Studies teaches the following proficiencies:

- Effective communication in modern German
- Knowledge of the various structures of the language
- Creating personal responses to various texts
- A critical understanding of some basic literary texts

Skills developed:

- Speak and converse in German
- Understand and respond to spoken German
- Read and understand German
- Write in German

Why is it important to study foreign languages?

Is speaking English not sufficient if English is spoken and taught worldwide? Is it worthwhile to study a foreign language in the South African context?

- A few important thoughts
 - Globalisation – in the global village knowledge of foreign languages gives us compatibility
 - Internationalisation – knowledge of a foreign language broadens horizons and facilitates cooperation at the international level.
 - Academic exchanges – both at school and at the university level provide unique networking opportunities
 - Tourism – especially in the Western Cape, serves as a great source of job opportunities
 - Business – foreign languages give you the edge in the international business world
 - University studies – undergraduate and postgraduate opportunities, especially in Europe. There are numerous bursaries available. In Germany, courses are virtually free, but a good knowledge of the language is a prerequisite.
 - Travelling – English is not spoken everywhere! German is the most widely used mother tongue in Europe.
 - Occupation – foreign language knowledge is an advantage on each resume, which provides better career opportunities
 - Technology and Research – through foreign language knowledge, access to academic resources in the original text is secured



CHOICE SUBJECTS

Second Additional Languages: German continued:

FAQs:

- (Half) Mother tongue speakers: Can start in Grade 10, but no native language tuition is offered, only German as Second Additional Language.
- Newcomers in grade 10: It is possible, but not recommended, to start German in Gr. 10.
- Pupils with no prior knowledge of the language would need intensive private tutoring. Each case is treated individually.
- Communicative method: Up to grade eleven, 50% of the reporting mark is oral continuous assessment. Communication as an outcome is central to teaching.
- Grade 12: Portfolio 25%, oral 25%, written examination 50%
- IEB: All foreign languages are tested nationwide and handled by the IEB (Independent Examinations Board).
- Modern textbooks: Are imported from Europe, in compliance with the latest developments in foreign language teaching.
- Exchange schemes: Various possibilities are available (4 weeks to 3 months), as well as individual training courses by teachers.

Profile of the foreign language learner:

Any pupil with an inquisitive mind, wanting to broaden his horizons, has enough courage to take up the challenge of learning a new language.

German International:

Since 2008, PRG has been one of a handful of schools in SA that form part of the German government's international academic PASCH network, also known as the Partnerschulprojekt. There are only FOUR of these non-German-speaking schools directly supported by the Goethe Institute, and we are privileged to be one of them. Two grade 10 learners have just returned after having completed a 3-week language course in Germany (Dresden) with fully paid Goethe bursaries. Our classroom has 20 laptops, with the Goethe Institute as our main sponsor. Every second year, pupils have the opportunity to go on a study trip to Germany – putting into practice what has been learnt in the classroom under the watchful eye of their teacher!

Matric pupils can do an internationally acknowledged German examination (Zertifikat Deutsch als Fremdsprache) at the US.

Finally, German learners from grades 10 to 12 enjoy the extraordinary privilege of learning German in tandem with a Polish class through a Moodle internet learning platform.

CHOICE SUBJECTS

Second Additional Languages: isiXhosa

Description:

In a country rich in diverse cultures and languages, it has become important for learners to become contributing members of their multilingual communities. A need to communicate with someone in their mother tongue has been identified, and many businesses and organisations throughout the corporate and public spheres have responded to this need by incorporating an African language into their language policies. The focus of isiXhosa Second Additional Language is to prepare learners to communicate effectively at both social and interpersonal levels in order to prepare them for further education or the world of work. As isiXhosa is the second most spoken language in South Africa, communicating effectively in this language can prove to be a great advantage to the learner. Please take note that this subject will only be offered should enough learners enrol.

Content:

The following skills are taught in IsiXhosa Second Additional Language in order to develop learners' communicative competence:

- Reading and viewing
- Listening and speaking
- Writing and presenting
- Language Study

All four skills are integrated in order to develop the learners' communicative abilities. In this way, learners are taught to communicate not only effectively, but also confidently and appropriately as determined by context. Learners are encouraged to use the language in a manner which allows them to find out more about not only themselves but also the world and its cultures which surround them.

Therefore, learners are trained to use isiXhosa as a means to think critically and creatively which will enable them to express these findings and experiences both orally and in writing.

Career possibilities:

Being able to communicate in isiXhosa may be advantageous to learners who wish to pursue studies in a wide range of fields, from Health Sciences to fields in the Financial Sector. IsiXhosa as a Second Additional Language is also advantageous to learners who want to pursue careers in education, translating, interpreting, and language policy and planning.



CHOICE SUBJECTS

Economics

Description:

Attention is given to the following aspects: economic growth, inflation, monetary and fiscal issues, price formation, markets, business cycles, the public sector, etc. The aim of Economics as a subject is to give learners basic economic literacy. With a good basic background, learners will have a better understanding of economic principles and pursuits.

There are calculations in Economics, but it is not primarily a mathematical subject. There are strong relations between Economics and most of the other subjects which a learner can take.

Topics/Content:

- Macroeconomics:
 - Economics: basic concepts
 - Basic economic problem
 - Circular flow
 - Quantitative elements
 - Economic systems 6. Business cycles
- Microeconomics:
 - Dynamics of markets
 - Public sector intervention and composition of the RSA economy
- Economic pursuits:
 - Economic growth and development
 - Money and banking
 - Population and labour force
 - Labour market
 - Redress since 1994
- Contemporary economic issues:
 - Unemployment
 - Labour relations
 - Globalisation
 - Inflation
 - Tourism
 - Poverty
 - Other economic issues and quantitative elements of economics



CHOICE SUBJECTS

Economics continued

Skills developed:

Economics learners will be able to:

- Use resources efficiently to satisfy the competing needs and wants of individuals and of society;
- Understand the concept of monetary and real flows in an open economy within the confines of production, consumption and exchange;
- Develop skills to apply to demand and supply, and cost and revenue analyses in order to explain prices and production levels;
- Understand reconstruction, growth and development, as well as a critical approach to initiatives for a fair distribution of income and wealth, human rights, and responsibilities;
- Acquire an advanced Economics vocabulary that will allow them to debate and communicate the essentials of the subject;
- Apply, in a responsible and accountable manner, principles that underlie basic economic processes and practices;
- Explore a variety of methods and strategies to analyse and explain the dynamics of markets;
- Collect, analyse and interpret production, consumption, and exchange data as well as other information in order to solve problems and make informed decisions;
- Understand human rights concerns, reflect on the wealth creation process, and engage in poverty alleviation;
- Analyse and assess the impact of local and global institutions on the South African economy, explain economic events and forecast their consequences or predict likely future outcomes.

Qualities required:

Learners must develop the skill of understanding a concept and must then be able to put it into their own words and then apply the principle. Very good reading and comprehension skills are therefore needed. In order to cope with the volume of work covered, a learner will need sound study methods. Basic numeracy skills are a strong requirement.

Career possibilities:

Economics at the school level is not a requirement for any tertiary studies.

The subject is a strong recommendation for any student who wishes to pursue financial studies at a tertiary level. The content and the concepts covered at school are the same as at a tertiary level. Therefore, there is less pressure on first-year students in financial studies to master the basic concepts of Economics as they have already covered the work at school.

Final word:

What type of learner should take Economics? The subject is recommended to learners who take an interest in current affairs and who possess good reading and comprehension skills. Such a learner will have a healthy curiosity about the financial affairs of the day, and they usually enjoy Economics as a subject.

CHOICE SUBJECTS

Engineering Graphics And Design (EGD)

Description:

Engineering Graphics and Design (EGD) teaches internationally acknowledged principles that have both academic and technical applications. The emphasis in EGD is on teaching specific basic knowledge and various drawing techniques and skills so that the EGD learners will be able to interpret and produce drawings within the contexts of Mechanical Technology, Civil Technology and Electrical Technology.

Topics/Content:

1. Mechanical Drawings: Most of the drawings will be of machine parts, sectional views, Cams and Loci.
2. Civil Drawings: The pupil will learn how to draw perspective drawings, and isometric views as well as understand and draw house plans.
3. Electrical Technology: This forms part of 'Civil', which demands a knowledge and understanding of circuit diagrams and electrical wiring of a house.
4. Computer: We use AllyCad. Two and three-dimensional drawings will be done on the computer.

In all 4 outcomes, the design process plays a big role.

Skills developed:

- Graphical drawings as the primary means of communication in the technological world
- Specific basic content and concepts within the contexts of Mechanical Technology, Civil Technology and Electrical Technology
- Various instrument and freehand drawing techniques and skills
- Solving technological problems through graphical drawings

Qualities required:

The pupil that will make a success of EGD must be enthusiastic, have an aptitude and insight into the field, and be prepared to work hard. Mathematics **(not literacy)** is recommended.

Career possibilities:

- Draughting
- Architecture
- Town planning
- Engineers

Final word:

To be successful in Gr. 10 – 12 it is advisable for the learner to have an average of 70% in grade 9.



CHOICE SUBJECTS

Physical Science

Description:

Physical Science investigates physical and chemical phenomena. This is done through scientific inquiry, and the application of scientific models, theories and laws in order to explain and predict events in the physical environment. This subject also deals with society's need to understand how the physical environment works in order to benefit from it and responsibly care for it. All scientific and technological knowledge, including Indigenous Knowledge Systems (IKS), is used to address challenges facing society.

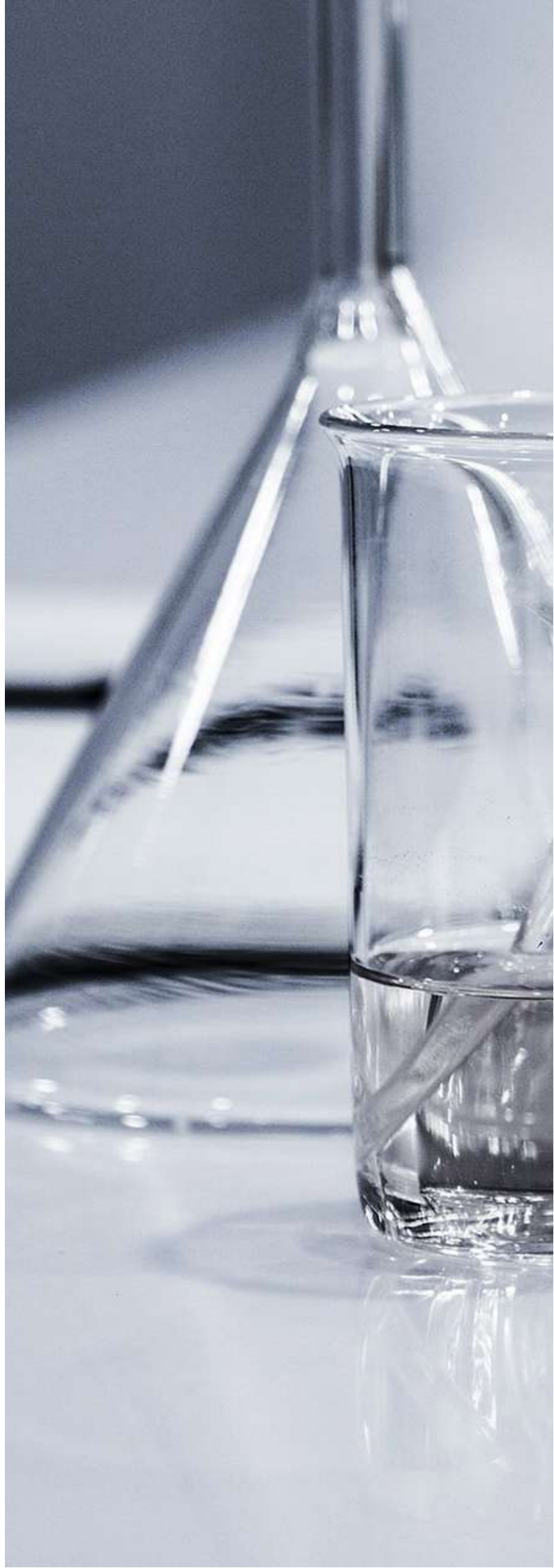
Topics/Content:

Physical Science is a combination of Physics and Chemistry. At the end of matric, learners write separate Physics (Paper 1) and Chemistry (Paper 2) papers that count equally for a final mark. Six main knowledge areas inform the subject of Physical Sciences. These are:

- Matter and Materials
- Chemical Systems
- Chemical Change
- Mechanics
- Waves, Sound and Light
- Electricity and Magnetism

Skills developed:

Skills that are nurtured include: classifying, communicating, measuring, designing an investigation, drawing and evaluating conclusions, formulating models, hypothesising, identifying and controlling variables, inferring, observing and comparing, interpreting, predicting, problem-solving and reflective skills. Physical Science promotes knowledge and skills in scientific inquiry and problem-solving; the construction and application of scientific and technological knowledge; an understanding of the nature of science and its relationships to technology, society and the environment.



CHOICE SUBJECTS

Physical Science continue

Qualities required:

- A genuine interest in the Sciences
- Curiosity about how things work
- Sound mathematical ability (above 60% in Grade 9)
- Mathematics as a subject from Gr 10 – 12
- A strong work ethic
- Ability to absorb a large volume of information in a short time
- Good language, comprehension and interpretation skills
- Ability to memorise large amounts of information
- Insight

Please note that Natural Science (Gr 8 and 9) bears little to no resemblance to Physical Sciences with regards to volume and difficulty. Good marks for Natural Science are not an indicator of success in Physical Sciences.

Career possibilities:

- Pharmacology
- Medicine and dentistry
- Engineering
- Physiotherapy
- Radiography
- Agriculture
- Biochemistry, Genetics, Geology, Physiology
- Certain Aviation courses
- Certain Architectural courses

Please note: Admission to most of the above courses requires a minimum of 60% for Physical Sciences.

Final word:

Physical Sciences is a demanding and challenging subject that requires learners to study independently. Learners must be ready to work continuously from day one as the content in Grade 10 forms the foundation for the subject in Gr 11 and Gr 12.

CHOICE SUBJECTS

Geography

Description:

Geography is a multi-disciplinary subject that provides a link between the natural sciences and the humanities. It focuses on the study of human and physical environments and the interaction/relationship between people and the environment. The concept that unifies Geography is space, meaning all geographical phenomena have a spatial dimension and operate in a continuously changing environment.

Topics/Content:

Topics in Geography are explored by embracing the following knowledge framework, namely:

- Place
- Spatial processes
- Spatial distribution patterns
- Human and environmental interactions

GRADE 10

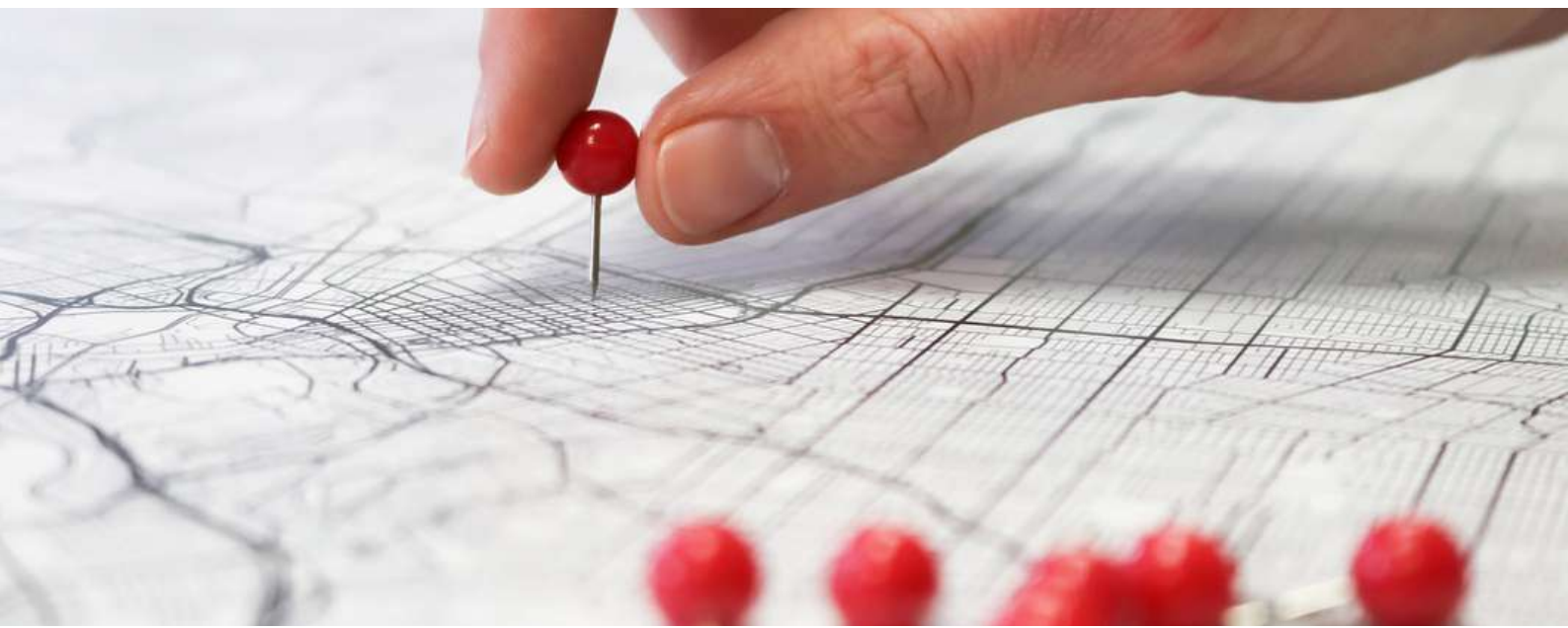
- Climatology
- Geomorphology
- People and Places (Population)
- Water resources
- Geographical skills and techniques (Map work and GIS)

GRADE 11

- Geographical skills and techniques (Map work and GIS)
- Climate and weather
- Geomorphology
- Development Geography
- Resources and sustainability

GRADE 12

- Geographical skills and techniques (Map work and GIS)
- Climate and weather
- Fluvial Processes and landforms
- Settlement Geography
- Economic Geography of SA



CHOICE SUBJECTS

Geography continued

Skills developed:

A Geography enquiry method is applied during the study to develop the following skills:

- Observation – What is it and what does it look like?
- Description – Where does it occur and why?
- Analysis and explanation – What happened/is happening and why?
- Evaluation and prediction – What are the effects?
- Decision-making – How should it be managed?
- Evaluation and Judgement – What actions can be taken?

Pupils will acquire knowledge, understanding and attitudes that can be applied in a variety of contexts and situations. There has never been a more relevant time to study Geography, given a growing increase in issues such as climate change, migration, environmental degradation, disease, water shortages and resource depletion. These issues require a global community with the ability to apply critical geographical thinking.

Career possibilities:

Careers with a strong geographical link include aviation, cartography, earth sciences, eco-tourism, Geographical Information Systems (GIS), geology, land surveying, meteorology, and environmental-related careers (law, management), regional and urban planning, hydrology and oceanography.

Final word:

Geography in the FET phase is the only discipline that teaches map skills and basic GIS (a computer database and programme that allows you to study certain phenomena in order to make informed judgements and solve issues using computer technology).

History

Description

The study of history is relevant to the modern world and the way we critically engage in the world around us. The study of History at Paul Roos will challenge learners to structure arguments, critically engage with relevant topics and in general, teach young minds to think.

Topics/Content:

A wide variety of topics are covered from Grade 10-12. The study of South African history is multi-faceted and includes topics such as early settlement, Afrikaner Nationalism and international resistance to Apartheid. The focus on world history includes a wide variety of ancient and modern history spanning every continent and is relevant to the modern world.



CHOICE SUBJECTS

History continued

Skills developed:

Whereas the Junior levels (Grade 8 and 9) are mostly explorative, the Senior levels (Grade 10, 11 and 12) deal with themes in much greater depth. Learners are taught:

- Research skills: the ability to produce ideas in a readable and coherent form
- Independent and critical thinking
- Analytical skills
- Critical awareness

Qualities required:

- Strong language skills
- Mature judgement
- A love for reading
- Politically and socially informed
- An open mind

Career possibilities:

A common misconception is that history does not prepare students for a future career, which is a complete fallacy. History teaches our learners to recognise and counteract bias, propaganda and manipulation, as well as use the information to see the world in a logical and analytical way. As history covers all dimensions of the human experience, it links to a wide variety of disciplines, such as:

- Anthropology
- Law
- Economics
- Teaching
- Administration and government service
- Political Studies
- Journalism
- Psychology
- Sociology

Moreover, a future employer who can be relied upon to think analytically and exercise sound judgement will always be valuable.

Final word:

In conclusion, History helps us understand change. It helps us judge wisely and fairly. History repeats itself. It supplies us with invaluable transferable skills and provides us with cultural awareness. With a better understanding of this, we aim to create responsible citizens.

CHOICE SUBJECTS

Visual Arts (at the PJ Olivier Art Centre)

Description:

In Visual Arts, basic art techniques are taught and applied by creating artworks in which the learner depicts his feelings and opinions on a wide range of issues visually.

Visual Arts covers a broad field of creative practice that involves the hand, the eye, the intellect and the imagination in conceptualising and creating two-dimensional and three-dimensional artworks, objects and environments which reflect the aesthetic, conceptual and expressive concerns of individuals or groups. Learners acquire the capacity to make practical and aesthetic decisions in the development of a coherent body of work. The subject of Visual Arts is about self-expression and offers learners a way to engage meaningfully with, and respond to, their world. It provides opportunities to stimulate and develop learners' intellect, engaging their creative imagination through visual and tactile experiences and the innovative use of materials and technology in realising their ideas. It also encourages learners to develop an individual visual language and literacy, which is informed and shaped by the study of visual culture, both past and present.

Topics/Content:

- Learners must choose ONE of the following Visual Arts disciplines: Drawing, Painting, Photography, Printing, Sculpture or Ceramics.
- Conceptualising through the development and realisation of creative ideas.
- Making of creative artworks, management of process and presentation and the following of safe practices.
- Visual culture studies: emphasis on visual literacy.

Skills developed:

- Explore, develop and realise creative ideas in response to both externally set and self-generated projects, drawing on own experience and own knowledge of visual culture in the past and present
- Explore and manipulate materials, techniques, processes and technology in the making of imaginative and innovative artworks of personal expression
- Explore materials, processes and techniques in an efficient, economical, safe and responsible way;
- Manage own working process
- Observe, assess and analyse art forms, processes and products
- Communicate effectively using visual, oral and written language skills
- Critically appraise own work and that of others
- Develop entrepreneurial skills and professional practice within the art to explore a variety of career options
- Be exposed to the diversity of visual arts traditions in international and Southern African contexts and use it as a resource
- Appreciate the critical role visual arts play in the enrichment of the visual environment of the school and community
- Understand the links between visual arts and the creative industries, such as design and advertising
- Understand the social and historical role of visual arts in transforming societies

CHOICE SUBJECTS

Visual Arts (at the PJ Olivier Art Centre) continued

Qualities required:

Learners should be able to work in a disciplined way on practical projects that sometimes require independent decision-making in order to solve 'problems' within the creative process. Time planning and perseverance are very important qualities for the successful completion of a practical project. Learners should also be open to constructive criticism as part of the learning and creation process.

Career possibilities:

In Visual Arts, learners are prepared to solve problems and think critically and it is, therefore, preparation for 21st-century professions. The following professions are a selection that is directly related to the field of study:

- Professional artist, gallery owner, art dealer, curator, art historian, art critic, architect, art teacher, art therapist, illustrator, photographer, and set designer.

Final word:

- Learners may choose only 1 of the 2 subjects - Visual Art OR Design
- Learners interested in this subject should make a choice regarding the subject discipline they want to follow and therefore a selection test is taken to determine which direction is appropriate.
- The Art Centre will also arrange an information session where learners and parents can ask questions regarding Visual Arts as a subject.

Please contact PJ Olivier directly for any enquiries related to Visual Art.

Website: www.pjolivier.co.za

3 Blom Street, Stellenbosch

021 886 4854

Email: admin@artschool.za.net



CHOICE SUBJECTS

Design (at the PJ Olivier Art Centre)

Description:

In Design as a subject, you will learn to create an aesthetic functional product that can be marketed in the consumer world. Items include jewellery, advertisements, book illustrations, textile designs on materials/wallpaper, pots, bowls, plates and cups.

Design is a creative problem-solving process and includes the study of both design practice and design theory. The design process involves problem identification, planning, research, innovation, conceptualisation, experimentation and critical reflection. This process typically results in new environments, systems, services and products, which may be unique or intended for mass production, or which may be constructed by hand or produced by mechanical and/or electronic means. The design adds value to life by creating products that have a purpose, are functional and have aesthetic value. Design products can shape the social, cultural and physical environment to the benefit of the nation. Most importantly, Design equips learners with crucial life skills such as visual literacy, critical and creative thinking, self-discipline, and leadership. It also encourages learners to be resourceful and entrepreneurial, to strategise and be team players.

Topics/Content:

Learners can choose ONE of the following Design Disciplines to specialise in Grade 10-12: Ceramic Design, Illustration, Textile Design or Jewellery Design.

Learners are introduced to the following aspects of the various disciplines:

- Design process and factors influencing the process of design in a business context.
- Design production, time management and safe practice.
- Design theory:
 - History of design
 - Design literacy
 - Design in a socio-cultural/ environmental and sustainable context



CHOICE SUBJECTS

Design (at the PJ Olivier Art Centre) continued

Skills developed:

In Grades 10 to 12, Design learners will

- Develop their ability to analyse, invent, innovate and construct a visual language
- Develop knowledge, technical abilities and skills in the conceptualisation, production and context of design
- Explore and manipulate materials, processes and techniques efficiently, economically, safely and responsibly
- Appraise their own work and that of others critically
- Understand that design may be a tool for social change by improving the quality of life and providing solutions in response to individual and community needs
- Understand the social and historical contribution of design with regard to economic growth, entrepreneurship and sustainability
- Develop an awareness of career opportunities in the design industry
- Manage their own working process and time effectively
- Develop presentation and communication skills in order to convey design concepts accurately
- Acknowledge and reflect on the design, art and craft of local and international and past and present cultures

Qualities required:

Learners should be able to work in a disciplined way on practical projects that sometimes require independent decision-making in order to solve 'problems' within the creative process. Time planning and perseverance are very important qualities for the successful completion of a practical project. Learners should also be open to constructive criticism as part of the learning and creation process.

Career possibilities:

Advertising Designer, Logo / Brand Developer, Magazine / Website Page Designer, Textile Designer, Jewellery Designer, Architect, Interior Designer, Town Planner, Fashion Designer, Animation Artist, Digital Illustrator, Advertising / Fashion Photographer, Potter, etc.

Final word:

- Learners may choose only 1 of the 2 subjects - Visual Art OR Design
- Learners interested in this subject should make a choice regarding the subject discipline they want to follow and therefore a selection test is taken to determine which direction is appropriate.
- The Art Centre will also arrange an information session where learners and parents can ask questions regarding Visual Arts as a subject.

Please contact PJ Olivier directly for any enquiries related to Design.

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CHOICE SUBJECTS

Life Sciences

Description:

"Life Science is all about the principles of life and maintaining a balance. It is a study of the link between other fields such as Physiology, Agriculture, Earth Science, Physical Science, Mathematics, Technology, Community Health, Medicine, Populations and Environmental Studies, Archaeology, Anthropology and Palaeontology." (Bowie et. al 2008)

Life Sciences is the in-depth look at the biological world (natural living world of plants, animals and microbes), the environments in which they live and their impact on it. It focuses in more detail on the processes of life and the interrelationships of their surrounding environments. It differs from Natural Sciences in the way that no Physical Sciences such as inorganic chemistry and physics (e.g. electricity/forces) are discussed or included in the curriculum.

GRADE 10

- Chemistry of life - Inorganic compounds - Organic compounds
- Cell - a unit of life • Cell division (mitosis)
- Plant and animal tissue
- Support and transport systems in plants
- Support systems in animals
- The transport system in mammals
- Biodiversity and classification
- History of life on Earth
- Biosphere to ecosystems

GRADE 11

- Energy transformations to support life: photosynthesis
- Animal Nutrition
- Energy transformations: respiration
- Gas exchange
- Excretion
- Biodiversity - classification of microorganisms
- Biodiversity - plants • Reproduction - plants
- Biodiversity - animals • Population ecology
- Human impact on the environment: current crises

GRADE 12

- DNA code of Life
- RNA and protein synthesis
- Meiosis
- Reproduction in vertebrates
- Human reproduction
- Nervous system
- Senses
- Endocrine system
- Homeostasis Darwinism and Natural Selection
- Human evolution Human impact on the environment: current crises Grade 11

CHOICE SUBJECTS

Life Sciences continued

Skills developed:

- Identifying a problem;
- Hypothesising;
- Selecting apparatus or equipment and/or materials;
- Identifying variables;
- Suggesting ways of controlling variables;
- Planning an experiment;
- Suggesting ways of recording results; and
- Understanding the need for replication or verification

Qualities required:

A learner who has achieved above 40 % for Natural Sciences should be able to cope successfully in the Grade 10 year provided that the learner shows the following characteristics:

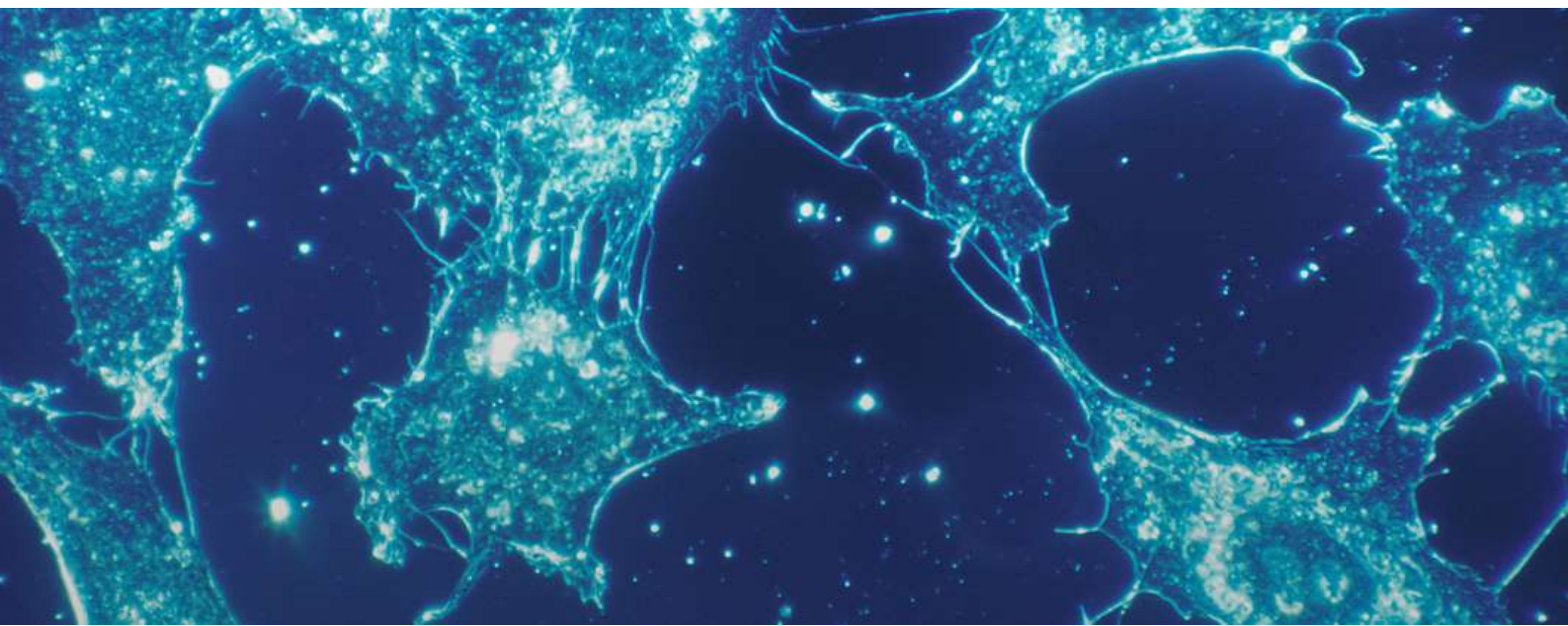
- An interest in how our natural biological world works.
- The ability to have insight into certain complex biological processes and the inter-relationships between them.
- The ability to read and understand new biological concepts and then translate these concepts into their own written word.
- The willingness to learn and study.
- Learners who have no interest in the inner workings of biological life will not enjoy this subject.

Career possibilities:

Life Science is compulsory for the Medical Sciences (depending on Universities) and strongly recommended for studies in the Agri Sciences, Sport Science and all Biological Sciences.

Final word:

Life Science is applicable to everyone. It helps you understand why your body is acting the way it does or why nature works the way it does. The subject teaches you to ask questions and answer them for yourself by going through all processes, step by step. It can be a journey in discovering the basics of all living things.





CHOICE SUBJECTS

Music

Description:

Music is the art of organising sounds and silence, expressing intellectual, emotional and spiritual aspects of human experience. Music is an art form that can be combined with other forms and is often enhanced by technology. It can communicate a broad range of historical, cultural and socio-economic ideas and issues. Music has the power to unite groups and mobilise community involvement for the improvement of quality of life, social healing, and affirmation of human dignity.

Pupils who elect to do music as a subject have a choice of studying either Western Classical Music or Jazz.

Topics/Content:

The subject curriculum involves the study of:

- A musical instrument
- Improvisation, Composition and Arrangement
- Theory of Music
- Music History
- Aural development
- Music Technology
- Active participation in the department's ensemble program, e. g. Jazz Band, PRG Big Band, Choir, Stringendo, Singing group and the Young maestro project

Skills developed:

- Self-motivation: Music students of necessity become self-motivated, as daily work on their instrument after school hours is essential.
- Time management: these are developed as the student's instrumental work increases in complexity and scale; students learn to utilise the limited time available with maximum efficiency in order to achieve the best possible result.
- The ability to work alone and in a team.
- The development of creative thinking.
- Academic studies have demonstrated the benefits flowing from the study of music increased concentration, improved Maths and Science as well as language ability.

CHOICE SUBJECTS

Music continued

Qualities required:

- Learners enrolling on the subject of music should preferably have reached at least a Grade 2 level in the theory and practice of music. This is the level of Creative Arts: Music and Drama or Music as a subject at Paul Roos.
- Students must be self-motivated, and able to work individually as well as in a team.
- If unsure about the student's aptitude for music as a subject please contact Mr Cezarre Strydom (Subject Head: Music), who will perform a test to see if the student is attuned to the subject.

Career possibilities

The music industry is a vast, global multibillion-dollar enterprise and offers an enormous number of career opportunities in the fields of classical, jazz and popular music: composer, arranger, performer, conductor, recording engineer, producer, video producer, DJ, and event organizer.

Related fields: music retail, musical theatre, education, music journalism, advertising, film music, radio and television, music software development and production.

Keep in mind:

Music-as-subject not only promotes the learner's cognitive and emotional development but also offers a permanent practical skill that will help them for the rest of their future.

Computer Application Technology

Description:

Computer Applications Technology is the study of the integrated components of a computer system (hardware and software) and the practical techniques for their efficient use and application to solve everyday problems. The solutions to problems are designed, managed and processed via end-user applications and communicated, using appropriate information and communication technologies (ICTs). ICTs are the combination of networks, hardware and software, as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge.

Topics/Content:

- Theory
 - Computer hardware and software;
 - Networked environments;
 - Information and communication technologies in different environments;
 - Computer ethics, security and viruses;
 - Ergonomics, health and safety issues; social and environmental issues;
 - Using an operating system including file management; and general troubleshooting.
- Applications (Word, Excel, PowerPoint, Access and Web Design)
 - Competence in input and manipulation of data;
 - Effective use of various end-user computer application programmes;
 - Integration of application programmes in a variety of contexts;
 - Effective communication.

CHOICE SUBJECTS

Computer Application Technology continued

- Information Management
 - Find, collect, analyse and critically evaluate data;
 - Organise and process information in various formats; and
 - Present and communicate information.

Skills developed:

In Computer Applications Technology a learner will:

- Use end-user software applications proficiently to produce solutions to problems within a defined scenario;
- Understand the concepts of ICTs with regard to the technologies that make up a computing system;
- Understand the various technologies, standards and protocols involved in the electronic transmission of data via a computer-based network;
- Use the Internet and the WWW and understand the role that the Internet plays as part of the global information superhighway;
- Find authentic and relevant information, process the information to draw conclusions, make decisions and communicate the findings in appropriate presentation media; and
- Recognise the legal, ethical, environmental, social, security and health issues related to the use of ICTs and learn how to use ICTs responsibly.

Qualities required:

- Learners must develop the skill of understanding a concept and then apply the principle. Very good reading and comprehension skills are therefore needed.
- The amount of content covered by the subject makes a very good study method a necessity. Many practical tasks are done during the year. The theory is usually a problem when they have to apply knowledge in a particular scenario.
- Basic numeric proficiency is an important requirement, especially when working with Excel.

Career possibilities:

The subject allows learners to develop basic to advanced end-user computer skills (Word, Excel, Access, PowerPoint). This ensures that learners can enter different career pathways in a number of fields, or apply these, and related skills, to create employment for themselves and for others. Computer Applications Technology at the school level is not a requirement for any tertiary studies, but computer literacy is a requirement for any tertiary studies.

- Office Administration
- Entrepreneurship
- Secretarial Degree (Major in Computers and Business Management)
- Public Relations
- Teacher/Educator
- Business Studies/Management
- Accountant

CHOICE SUBJECTS

INFORMATION TECHNOLOGY

Selection Requirements:

- Only a select number of students will be able to take Information Technology.
- A minimum selection average of 70% is required for taking Information Technology.
- Class size: 34 learners. The class is filled by the top 34 applicants who achieved at least 70% for the selection average.
- The selection average is calculated using Grade 9 marks as follows:
Mathematics = $((1 \times \text{Term 1}) + (2 \times \text{Term 2}) + (1 \times \text{Term 3})) / 4$
Home Language = $((1 \times \text{Term 1}) + (2 \times \text{Term 2}) + (1 \times \text{Term 3})) / 4$
Average = (60% of Mathematics) + (40% of Home Language)

$$\left\{ \frac{((\text{Mathematics (Term 1)} + (2 \times \text{Term 2}) + (\text{Term 3})))}{4} \div 100 \times 60 \right\} + \left\{ \frac{((\text{Home Language (Term 1)} + (2 \times \text{Term 2}) + (\text{Term 3})))}{4} \div 100 \times 40 \right\} = \text{Selection Average}$$

Description:

Information technology is the study of the various inter-related physical and non-physical technologies used for the capturing of data, the processing of data into useful information and the management, presentation and dissemination of data. Information technology studies the activities that deal with the solution of problems through logical and computational thinking. It includes the physical and non-physical components for the electronic transmission, access, and manipulation of data and information.



CHOICE SUBJECTS

Information Technology

Topics/Content:

- Solution Development: Algorithms, Web Development(XHTML), Introduction to Solution Development, Application Development, Software Engineering Principles
- Communication Technologies: Networks, E-communication
- Systems Technologies: Hardware, Software, Computer Management
- Internet Technologies: Internet, WWW, Internet Services
- Data and Information Management: Data Representation, Database Design and Management
- Social Implications: Legal, Ethical, Social, Environmental and Health Issues

Skills developed:

- Use appropriate techniques and procedures to plan solutions and devise algorithms to solve problems using suitable techniques and tools;
- Understand and use appropriate communication technologies for information dissemination;
- Appreciate and comprehend the various system technologies used in the developing of a computer-based system;
- Understand that all ICT systems are built upon software engineering principles;
- Understand and use Internet technologies for various tasks;
- Comprehend and apply the concepts of data and information management to understand how a knowledge-driven society functions; and
- Understand the social implications

Qualities required:

- Mathematics is a requirement for taking Information Technology.
- A good mark in languages is also strongly recommended.
- Motivation:
 - Perseverance in carrying out tasks
 - Capability of handling an extra (8th) Subject
 - Proven interest in computers
 - Independent learning capability
 - Attention to detail
 - Self-discipline

Career possibilities:

Bio-informatics; Business information systems; Computer engineering; Computer science; Engineering (all types); Financial information systems; Geographical information systems; Informatics; Information systems; and Information technology.

CHOICE SUBJECTS

Accounting

Description:

Accounting focuses on measuring performance and processing and communicating financial information about economic sectors. This discipline ensures that principles such as ethical behaviour, transparency and accountability are adhered to. It deals with the logical, systematic and accurate selection and recording of financial information and transactions, as well as the compilation, analysis, interpretation and communication of financial statements and managerial reports for use by interested parties. The subject encompasses accounting knowledge, skills and values that focus on the financial accounting, managerial accounting and auditing fields. These fields cover a broad spectrum of accounting concepts and skills to prepare learners for a variety of career opportunities. The table below indicates the main topics in the Accounting curriculum.

Topics/Content:

- Indigenous bookkeeping
- Ethics
- GAAP principles
- Internal control
- Bookkeeping of sole trader – recording credit and cash transactions; General Ledger; Trial Balance; Accounting equation
- Financial statements – adjustments, closing transfers, Income Statements, Balance Sheet, Notes to financial statements, Analysis of financial statements.
- Cost accounting
- VAT
- Salaries and wages
- Budgeting

Skills developed:

- Being organised
- Thoroughness
- Accuracy
- Meticulousness
- Financial literacy
- Ethical behaviour
- Good judgment
- Critical, logical and analytical capabilities
- Neatness



CHOICE SUBJECTS

Accounting continued

Qualities required:

Accounting is a demanding and challenging subject that requires learners to study independently. Learners must be ready to work continuously from day one as the content in Grade 10 forms the foundation for the subject in Gr 11 and Gr 12.

Career possibilities:

Accounting is recommended for any course in the fields of economic and management sciences.

- Accounting
- Economy
- Import/export
- Compliance officer
- Banking
- Management analyst
- Investment management

Final word:

Please note that EMS (Gr 8 and 9) bears little resemblance to Accounting with regards to volume and difficulty. Good marks for EMS are NOT an indicator of success in Accounting.

Future Studies Mathematics

Future Studies Mathematics (also abbreviated as Admaths) is an extra subject which is not a choice on the subject choice form, as it is not offered in the NSC syllabus. This subject is examined by the IEB (Independent Examination Board) at the end of grade 12 and the syllabus that is followed is also that of the IEB. It is taught from Grade 10 to Grade 12 only once a week after school hours for 90 minutes. All the administration of this course, including tuition fees, is administered by the Admaths Centre in Bellville. Classes are taught at PRG by Paul Roos Gymnasium Mathematics teachers.

The content of the syllabus is more advanced than that of the ordinary Mathematics syllabus and provides a very good introduction to the Calculus part of any first-year Mathematics Course at university.

Taking the Future Studies Mathematics course helps to ease the transition from school Mathematics to University Mathematics. Future Studies Mathematics is therefore highly recommended for any learner who wants to pursue a degree including a Mathematics course.

CHOICE SUBJECTS

Future Studies Mathematics continued

The contents include the following:

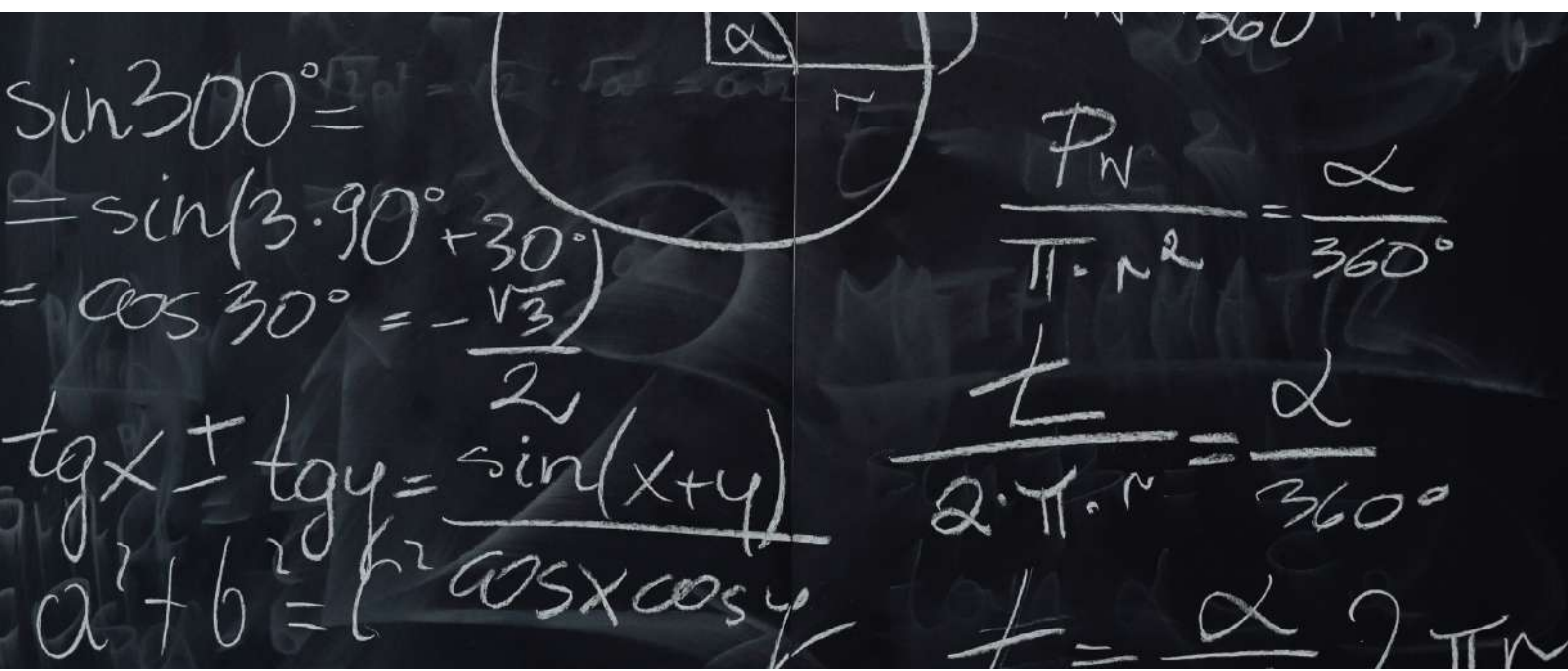
- ALGEBRA: Word problems, linear programming, partial fractions, nature of roots, complex numbers, absolute values, mathematical induction, the number e
- CALCULUS: Limits, continuity, the composition of functions, differentiability, radian measurement, Riemann, chain rule, product rule, quotient rule, implicit differentiation, trigonometric derivatives, graphs of rational functions, integration, arcsine function
- FINANCIAL MATHEMATICS: Deferred annuities, balance outstanding on loan, sinking funds
- MODELLING: Recursive equations, discrete population models
- STATISTICS & PROBABILITY: Independent and mutually exclusive events, conditional probability, normal distribution, area under a normal curve, testing of hypotheses, correlation and linear regression
- MATRICES: Operations, determinants, inverses, Gauss, transformations
- GRAPH THEORY: Circuits and paths (Euler & Hamilton), Fleury's algorithm, Dirac's Theorem, isomorph graphs, Dijkstra, Chinese postman and network

Future Studies Mathematics teaches learners to handle an extra workload and to work independently. It definitely helps to improve their higher order and creative thinking skills.

To take this subject a learner must comply with the following conditions:

- Obtain an average of 80% or more for his two Mathematics examinations in Grade 9
- Have enough discipline to work and study independently for many hours
- Be able to work at a fast tempo
- Commit himself to attend weekly classes sometimes at the cost of his other extra-mural activities such as sports practices and games
- Commit himself to finishing the course until the final exam in Sept of Grade 12.

Any learner interested in taking this subject must enrol through the Admaths Centre at www.admaths.co.za



Paul Roos Gimnasium - Suidwal, Stellenbosch, 7600

Tel: 021 887 0017 - E-mail: info@paulroos.co.za

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