

## Lower Secondary Education Reform



# LOWER SECONDARY IMPLEMENTATION HANDBOOK



Issued free to schools by the Department of Education.

Published 2006 by the Department of Education, Papua New Guinea.

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ISBN: 9980-935-42-1

## **Acknowledgements**

The *Lower Secondary Implementation Handbook* was prepared by principals, teachers and BOG chairpersons from selected secondary/high schools; and representatives from Secondary Inspectorate, Guidance & Counseling Division, Curriculum Development Division, Teacher Education and Staff Development Division.

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This document was developed, printed and distributed with the support of the Australian government through the Curriculum Reform Implementation Project.

## Secretary's Message

The work of principals and head teachers is crucial to the success of the education reforms. The reforms affecting high schools and secondary schools so far have been mainly structural. We must now support these structural reforms with reforms to our curriculum.

The Curriculum Development Unit of the Curriculum Development Division has reformed the curriculum for lower secondary to complement the reforms to basic education from Elementary Prep to Grade 8. These officers have worked with teachers from all regions to ensure that the new curriculum is relevant to our country's needs. Work has been completed on nine new lower secondary syllabuses and teacher guides. In-service materials have also been developed and distributed to assist teachers to understand and implement the reform syllabuses.

This handbook will help principals and head teachers and their colleagues support the introduction and implementation of the new curriculum for lower secondary education. The publishing of new curriculum materials will not change the curriculum in our schools until teachers breathe life into them. You and your teachers need to understand and implement the new curriculum. This will require you all to adapt and improve current practices. I am confident you and your teachers will accept this challenge in the same way that you and they have supported the structural reforms that are dramatically changing the face of education in this country.

I urge you to read this booklet thoroughly and plan carefully with your teachers and community how you will introduce the new lower secondary curriculum by the beginning of 2008.



DR JOSEPH PAGELIO  
Secretary for Education

## Implementation timeline and activities

### 2005/6

Professional learning teams established in schools to lead inservice and preparation

One set of syllabuses provided to schools for preliminary discussion

Some inservice activities on the outcomes approach and planning and programming at school, cluster and/or provincial level

### 2007

Schools receive multiple copies of syllabuses, teacher guides, implementation handbook and inservice materials.

Schools make additional copies of curriculum materials if required

Principals/head teachers, BOM chairperson, school management team and teachers read and discuss this Implementation Handbook

Regular school and cluster-based inservice to develop understanding of subject learning and teaching strategies, assessment requirements and strategies, and subject content

Principals/head teachers, BOMs and school executive audit existing resources and facilities and begin change and improvement process

Teachers volunteer or are selected to teach PD and begin planning and unit development

Decide which subjects the school can offer.

Purchase and/or develop resources to meet essential requirements for Personal Development (PD) and other subjects

Subject teachers trial new approaches to planning, teaching and assessing

Develop school assessment policy and new student report formats

Prepare sample timetables

Hold information meetings for parents, feeder primary schools and community regarding changes to subjects and the school timetable.

### 2008

Begin teaching using new syllabuses and teacher guides

Grade teachers for each subject meet regularly for collaborative planning, sharing of ideas, assessment moderation and evaluation of progress in units

Regular school-based inservice continues, with a focus on student-centred activities and assessment strategies

Continue to purchase/develop resources and improve facilities

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## **Introduction**

This handbook provides background information that will help you understand and prepare for the implementation of the new lower secondary curriculum. Teacher educators, education officers, inspectors and school administrators need to be well informed and able to pass on key information to others.

It is essential to read this handbook because it contains:

- information about the emphasis of curriculum reform
- key messages to give to teachers, students and those in the community
- important features of the new lower secondary syllabuses
- useful hints on how to implement the curriculum changes
- a glossary of terms used in curriculum documents.

### **When is the lower secondary reform curriculum to be implemented?**

School planning for the implementation of the lower secondary curriculum must take place in 2007. This planning will take place along with the development of the wider whole school learning improvement plan (SLIP).

Full implementation of the reform curriculum must take place from the beginning of 2008.

### **Assets and resource management**

It is your responsibility to make sure that the new curriculum materials remain in the school and that they are maintained. These materials will be required to last at least five years. Replacement copies will only be provided at the school's expense.

The materials belong to the school, not the teachers. Label or stamp all the curriculum materials with the school stamp. If you do not possess a school stamp, write the school's name at the front of the books. If the curriculum materials are loaned to teachers make sure you keep a record of to whom they were given and the date they provided. Teachers should sign the book to acknowledge they have received the materials.

**Who needs to be informed?**

This handbook contains key messages for you and various stakeholder groups who need to be informed about the curriculum changes that will take place in secondary/high schools. You must read the handbook carefully and familiarise yourself with its content. You must provide opportunities for teachers, BOM members and other to also read and discuss the content.

## Section 1: Education reform

Education reform has been undertaken to produce an education system that meets Papua New Guinea's needs, in today's challenging world and in the future. The reform began in 1994 and has as one of its key objectives: "To develop an education system to meet the needs of Papua New Guinea and its people, which will provide appropriately for the return of children to the village community, for formal employment, or for continuation to further education and training (National Education Plan, 1996, p 2)." This includes both the reform of the whole curriculum and the restructuring of the whole system.

The foundation of the reform is the promotion of culture, values, attitudes, knowledge and a range of skills appropriate for Papua New Guinean society along with the need for international competitiveness. Before the reform, the Papua New Guinean curriculum was based on foreign Western beliefs and ideas mainly to produce Papua New Guineans to administer the country and achieve academic success. It was recognized that this system needed to change in order to provide a useful education for all other citizens of Papua New Guinea.

The key features of the education reform are:

- a new and more relevant curriculum which emphasises skills development and the use and maintenance of the local languages of the community
- nine years of universal basic education
- the establishment of community-based elementary schools (Elementary Prep to E2) that use the community vernacular as the main language of instruction
- converting community schools into primary schools for grades 3-8
- gradual bridging to English as the language of instruction in the primary school, while maintaining use of the students' vernacular
- the addition of grades 11-12 in provincial high schools to create grades 9-12 secondary schools.
- increasing access to grades 9 and 10 and to grades 11 and 12.

The education reform redirects the school curriculum towards education for integral human development (IHD) rather than for meeting workforce needs only. The reform curriculum has to prepare adequately the majority of school leavers (up to 85%) to live in their communities and conduct community-based subsistence and small-scale commercial enterprises,

while at the same time support the other 15% of students who will find paid formal employment or enter tertiary education upon leaving school.

Elementary reform curriculum materials began development in 1994. A full set of the elementary curriculum materials was distributed to all elementary teachers in 2001. The first edition of lower primary (grades 3-5) curriculum materials began development in 1995 and were distributed with some support materials in 2000. Upper primary reform syllabuses commenced development in 2000 and were trialed in Milne Bay and New Ireland provinces in 2001. They were distributed to schools during 2004. The first Grade 8 examination based entirely on the reform curriculum will take place in 2008.

The lower secondary curriculum was reviewed early in 2004 and the development of new syllabuses commenced soon after. Implementation will begin with Grade 9 in 2008 followed by the first new Grade 10 examination in 2009. Review of the upper secondary curriculum commenced in 2006.

Over the last few years, structural reforms have outpaced the development and release of reform curriculum documents and the provision of related teacher inservice. This has resulted in a situation where reform elementary, primary and secondary schools and classes have been formed, but many teachers have not been trained and some curriculum materials are not available. Teacher training needs will be addressed through the 2007-2014 National Teacher Inservice Plan.

### **Learning areas and subjects**

The National Curriculum for Papua New Guinea is organised into five learning areas: Culture and Community, Language, Mathematics, Personal Development and Science. A learning area is a group of subjects with compatible knowledge, skills, and attitudes. All subjects from Elementary to Upper Secondary are assigned to one of these learning areas. Some subjects draw upon knowledge, skills and attitudes from more than one learning area (e.g. Environmental Studies), but they have been placed in the learning area whose content is judged most similar.

Learning area	Elementary	Lower primary	Upper primary	Lower secondary	Upper secondary (suggested)
<b>Culture &amp; Community</b>	Culture and Community (includes aspects of the following: Arts Community Living Environment Health Physical Education Design and Technology)	Arts  Community Living	Arts  Social Science  Making a Living	Arts  Social Science  Business Studies  Agriculture  Design and Technology (including Home Economics, Practical Skills, Computing, Design & Technology)	Art, Music, Drama, Economics, Geography, History, Business Studies, Information Technology, Computing
<b>Language</b>	Vernacular Language	English  Vernacular language	English  Vernacular language	English  Library & Research skills  Other languages	Language and Literature, Japanese, Bahasa, Mandarin Chinese, Hiri Motu, Tok Pisin

Learning area	Elementary	Lower primary	Upper primary	Lower secondary	Upper secondary (suggested)
<b>Mathematics</b>	Cultural Mathematics	Mathematics	Mathematics	Mathematics	Maths A (Mathematics extension)  Maths B (Mathematics Core)  Life Maths
<b>Personal Development</b>	(Aspects of Personal Development are covered under Culture and Community)	Health  Physical Education	Personal Development (including Health, PE, Guidance)  Religious Instruction	Personal Development (including Health, PE, Guidance)  Religious Instruction	Personal Development (including civics)
<b>Science</b>	(Aspects of Science are covered under Culture and Community)	Environmental Studies	Science	Science	Biology  Chemistry  Physics  Applied Science

## **Section 2: Outcomes approach**

The major change in the reform curriculum is the shift to what students know and can do at the end of a learning period, rather than a focus on what the teacher intends to teach.

An outcomes approach identifies the knowledge, skills, attitudes and values that all students should achieve or demonstrate at a particular grade in a particular subject (the learning outcomes). The teacher is responsible for identifying, selecting and using the most appropriate teaching methods and resources to achieve these learning outcomes.

Imagine the student is on a learning journey, heading to a destination. The destination is the learning outcome that is described in the syllabus document. The learning experiences leading to the learning outcomes are to be determined by the teacher. The teacher uses the curriculum materials, such as syllabus documents, teacher guides, unit samples, and assessment guidelines to plan activities that will assist students achieve the learning outcomes.

Outcomes-based education has two purposes. They are:

- to equip all students with knowledge, understandings, skills, attitudes and values needed for future success
- to implement programs and opportunities that maximise learning.

The three premises (assumptions) of OBE are:

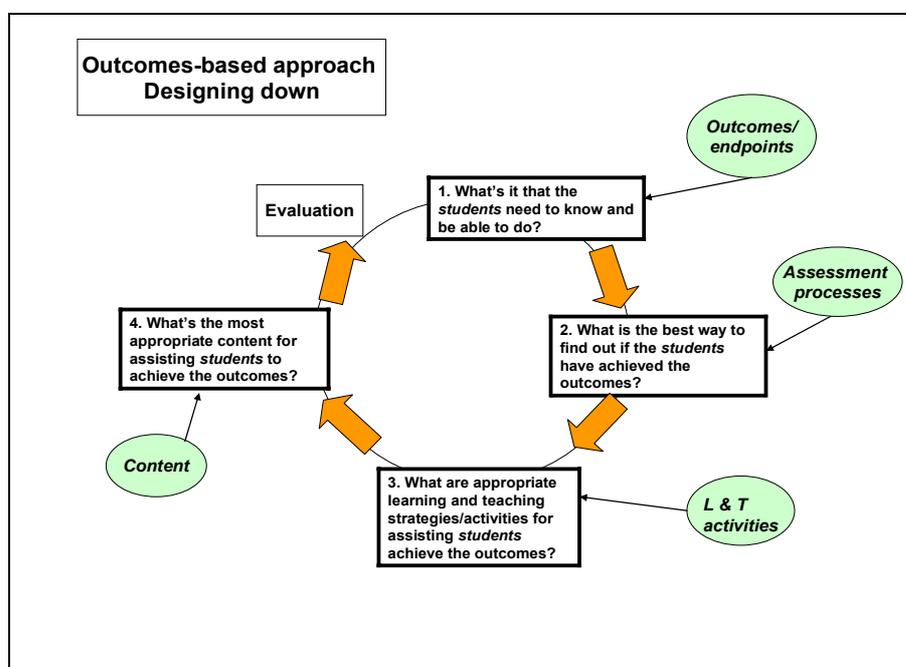
- all students can learn and succeed (but not on the same day or in the same way)
- success breeds further success
- schools can make a difference.

The four principles of OBE are:

1. Clarity of focus through learning outcomes - this means that everything teachers do must be clearly focussed on what they want students to ultimately be able to do successfully. For this to happen, the learning outcomes should be clearly expressed. If students are expected to learn something teachers must tell them what it is and create appropriate opportunities for them to learn it and demonstrate their learning.
2. High expectations of all students - this means that teachers reject comparative forms of assessment and embrace criterion-referenced approaches. The principle of high expectations is about insisting that work be at a very high standard before it is accepted as completed, while giving students the time and support they need to reach this standard. At the same time students begin to

realise that they are capable of far more than before and this challenges them to aim even higher.

3. Expanded opportunities to learn - this is based on the idea that not all students can learn the same thing in the same way in the same time. Some achieve the learning outcomes sooner and others later. However, most students can achieve high standards if they are given appropriate opportunities. Traditional ways of organising schools do not make it easy for teachers to provide expanded opportunities for all students.
4. Planning and programming by designing down - this means that the starting point for planning, programming and assessing must be the learning outcomes - the desired end results. All decisions on inputs and outputs are then traced back from the learning outcomes. The achievement of the outcome is demonstrated by the skills, knowledge and attitudes gained by the student. The syllabuses and/or teacher guides describe some ways in which students can demonstrate the achievement of learning outcomes.



Learning outcomes provide teachers with a much clearer focus on what students should learn. They also give teachers greater flexibility to decide what is the most appropriate way of achieving the learning outcomes and meeting the needs of their students by developing programs to suit local content and involve the community.

The outcomes approach promotes greater accountability in terms of student achievement because the learning outcomes for each grade are public knowledge - available to teachers, students, parents and the community. It is not the hours of instruction, buildings, equipment or support services that are the most important aspect of the education

process but rather, **what students know and can do as they progress through each grade.**

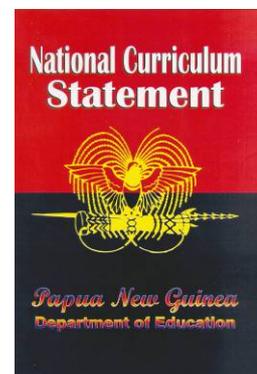
The outcomes approach means that learning

- has a clearer purpose
- is more interactive - between teacher and students, between students
- has a greater local context than before
- is more closely monitored and acted upon by the teacher
- uses the teacher as a facilitator of learning as well as an imparter of knowledge.

### Section 3: Background policies and plans

#### National Curriculum Statement 2002

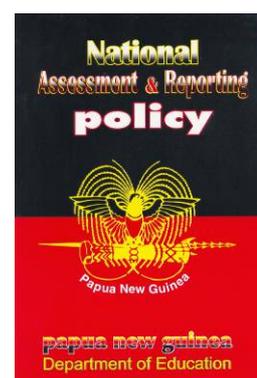
The purpose of the curriculum reform is to provide a relevant basic education for Papua New Guineans while at the same time providing specialist further education and training for those able to make use of it. *The National Curriculum Statement* for Papua New Guinea provides a national framework for curriculum development in Papua New Guinea from Elementary Prep to Grade 12, consistent with the Education Reform.



During the development of this statement, the Constitution of the Independent State of Papua New Guinea, Government Acts and many other important policies, reports and plans were analysed. In particular, this statement is based on *A Philosophy of Education for Papua New Guinea, Ministerial Committee Report*, (1986) often referred to as the Mantane Report, and the integration of current education reform ideas. In addition many educators at all levels and from all regions in Papua New Guinea were consulted and they contributed positively to this statement. This statement was written by Papua New Guineans for Papua New Guinea, and represents a major step forward for PNG's education system.

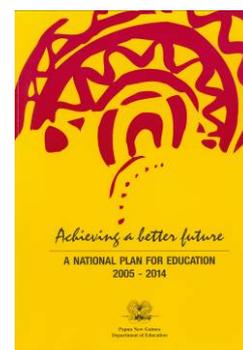
#### National Assessment and Reporting Policy 2003

This policy identifies the principles and practices that must be applied to the assessment and reporting of student achievement from Elementary to Grade 12. It also identifies the roles and responsibilities of those stakeholders who are most concerned with assessing students, reporting student achievements and with receiving and using student assessment information. Students, parents, guardians, members of a community, and various stakeholders have responsibilities to ensure that assessment and reporting is undertaken in ways that meet the needs of students, schools, communities, and the nation. This policy must be read and applied carefully to ensure that assessment and reporting is valid, reliable, fair and equitable.



## National Plan for Education 2005 to 2014

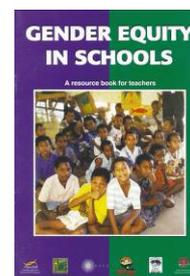
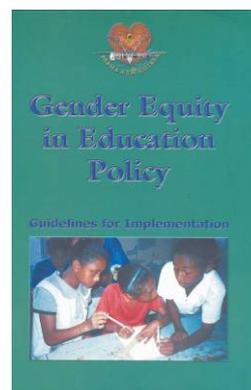
This Plan presents the outcomes for education in Papua New Guinea and the main strategies for achieving them from 2005 to 2014. It builds on the progress made in the first *National Education Plan 1995-2004* volumes a and b, (Department of Education, 1997). It is guided by the National Goals and Directive Principles in the Constitution. The first priority is to provide the opportunity of nine years of basic education for all. In order to complete nine years of basic education every child will have the opportunity to be educated to Grade 8. The first three years of Elementary education will be taught in the language of the community, a move that has the overwhelming support of the community.



In secondary education there will be moderate expansion in order to maintain government objectives regarding transition between Grades 8 and 9, and then Grades 10 and 11. These are 50 per cent and 25 per cent respectively. Emphasis will be placed on quality, with the development of a new curriculum and the provision of teacher training. The bulk of the increase in Grade 9 and 10 places will be as a result of the relocation of the Grade 7 and 8 classes to the primary schools.

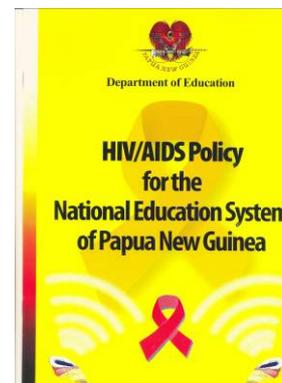
## Gender Equity in Education Policy 2003

At every level of education more males are represented than females. In major studies, cultural factors have been found to be the major obstruction to increasing participation of females at all levels of education (*Gender Analysis in Papua New Guinea*, World Bank, 1998). Access to informal education and training programs is even more difficult for women who are illiterate and the literacy rate among women is estimated at around 40 per cent. Regional variations reflect differences in historical experience. Higher enrolments of girls exist in regions where single sex education was provided in the past by missions. *The Gender Equity in Education Policy* (Department of Education, 2003) provides a framework of principles and practices to improve the lives of all children and promotes gender equity between girls and boys.



## HIV/AIDS Policy for the National Education System of Papua New Guinea 2005

The HIV/AIDS Policy for the National Education System of Papua New Guinea has been developed in the context of the latest data about the spread of HIV/AIDS in Papua new Guinea and the estimated impact on education and the country as a whole. The goal of the policy is for the national education system to participate effectively in Papua new Guinea's multi-sectoral response aimed at reducing the impact of the HIV/AIDS epidemic through the development, implementation, monitoring and evaluation of a comprehensive, relevant and forward thinking response to HIV/AIDS at all levels of the national education system.



The policy contains sixteen guiding principles, and implementation objectives and strategies for four key strategic areas. The objectives are:

- Students acquire the knowledge and information and develop appropriate life skills to be free of HIV infection all their lives.
- Schools and institutions will be positive learning environments where all infected and affected students can access information, care, counselling and support.
- Work environments will be positive and proactive in the prevention of HIV in the workforce and be responsive to the needs of their infected and affected employees, by providing appropriate information, referrals, care and support.
- Management structures and systems will be in place and partnerships developed and sustained, at all levels of the national education system to plan, implement and monitor quality education in the context of HIV/AIDS.

## 2007-2014 National Teacher Inservice Plan – July 2006

The PNG Department of Education has recently overseen most significant changes to its school curriculum. These changes include what is taught, how it is taught, how it is planned for, assessed and reported on. It is likely to take 10-15 years before the required changes are properly and systemically implemented.

The scale and scope of these changes require significant, whole of system support for teachers, other members of school communities and for teacher inservice and preservice providers and managers in order to implement and sustain the curriculum reforms successfully.

This *2007-2014 National Teacher Inservice Plan* has been prepared in order for the DoE to manage these changes and to ensure teachers in particular are competent and confident to adopt them in their programs and practices. It acknowledges the substantial work undertaken to date and sets a direction for the priorities, sequence, scope and management of teacher professional development for the future.

Whilst primarily directed at teacher inservice, this Plan also importantly identifies the scope and sequence of activities and resources required by additional key stakeholders. These include head teachers, inspectors, assessors, PTCs and others who have a role to support teacher education, training and development.

### **Education Plan 1995-2004**

The *National Education Plan, 1995-2004* outlines a vision of the kind of preparation for life that schools must provide for the students of Papua New Guinea. The plan describes an education system that will prepare:

- the vast majority of school leavers who return to their communities where there is and always has been work and opportunities for community-based employment. The major source of employment for these citizens will be their own subsistence and small-scale, community-based commercial enterprises. Their education will have prepared them and/or their parents for this reality.
- those school leavers who will find paid employment in the slowly increasing government, private business and service industries. Their education will have provided them with the academic, technical and vocational skills that will allow them to participate in tertiary education.
- the small number of students, like those of any other nation, who will perform at top international standards.
- the growing number of marginalised rural and urban youth for the realities of life in these situations.

## **Language policy - The Purpose and Future Direction for Language Use in School**

One of the aims of the Education Reforms is to allow the use of vernacular languages in the formal school system as stated in Secretary's Circular No. 1/91. The language of the community, together with its cultures, spiritual and work practices forms the basis for the activities of the school. This means that the local vernacular or a language spoken by both the students and their teachers, will be used as a medium of learning in the formal school system. This will strengthen cultural bonding between children and the community and enable better academic achievements.

Students will gradually bridge to English from Grades 3 to 5. From Grade 6 and at the Secondary level (ie, Provincial High Schools, Secondary Schools, National High Schools, including Vocational Schools) lessons will be conducted in English. However, advantage should be taken where opportunities arise for students to further develop their oral and written vernacular (or lingua franca) skills, or if a concept can be better explained using the vernacular or lingua franca.

Whereas children must be encouraged to learn and use English, all schools at all levels should not discourage free communication in vernacular languages that the children speak in and out of school grounds. This will establish confidence in students to use vernacular in their learning.

## **Section 4: Implementation messages, roles & responsibilities**

### **Principals/head teachers**

Successful implementation of education reform at all levels depends to a great extent on the leadership capacity of the principal/head teacher.

Successful schools have leaders who focus on

- students and their learning and achievement
- creating effective learning environments
- shared decision-making and values
- supporting teachers as they develop new practices and understandings about learning and teaching
- providing opportunities for staff development and training
- providing appropriate resources and infrastructure
- improving parent and community relations
- collaborative planning and consultation with all stakeholders.

The principal/head teacher must have a clear understanding of

- NDOE policies and plans relating to education reform
- the education reform process
- the answers to commonly asked questions.
- the importance of the reform curriculum
- the outcomes approach to learning and teaching
- the requirements and content of all subjects
- the implications of the new syllabuses for current practice
- support that is available for teachers
- processes for monitoring, evaluation and assessment of students
- processes for counselling students and reporting to parents.

### **Pre-service and practicing secondary teachers**

Teachers are the key to the successful implementation of the reform.

Their main responsibility is to provide more relevant learning opportunities with an emphasis on the application of knowledge and development of skills, and to assist students to develop appropriate attitudes and values.

Teachers must become familiar with:

- the National Curriculum Statement, the National Assessment and Reporting Policy and other policy documents and plans.
- the education reform process
- the answers to commonly asked questions.

All teachers must understand

- the importance of the reform curriculum
- the outcomes approach to learning and teaching
- their subject learning outcomes
- their own and other syllabuses and teacher guides.
- the implications of the new syllabuses for their current practice
- support that is available for teachers
- the importance of planning and working with colleagues
- processes for monitoring, evaluation and assessment of students achievements of learning outcomes
- processes for counselling students and reporting to parents.

Teachers can gain support by working with professional learning teams and colleagues within the school, with resource personnel in their district or province, and with inspectors and community leaders to plan for and implement the new curriculum.

### **Boards of Governors**

An active partnership between the Board of Governors and the principal/head teacher and school community is necessary to ensure effective implementation of the reform curriculum.

Board members must

- understand the importance of structural and curriculum reform
- be familiar with the DOE policies and plans underpinning the reform
- provide sound management of school resources, finances and infrastructure
- liaise and plan collaboratively with other stakeholders such as PEA, LLGs, DEA to ensure schools are staffed and resourced appropriately to meet reform requirements
- ensure the schools implement reform curriculum and policy changes.

### **Provincial education authorities (PEA, LLG, DEA, PEB)**

Active involvement and participation of provincial education authorities at all levels is necessary to ensure effective implementation of all aspects of the education reform.

Provincial education authorities must

- be familiar with the DOE policies and plans underpinning the reform
- implement the structural changes required by the reform
- provide necessary facilities such as classrooms, libraries, workshops for practical skills
- provide logistical support such as communication and transport
- ensure schools are staffed appropriately to meet reform requirements

- provide funding for staff development and training to assist teachers to successfully implement the reform curriculum
- plan collaboratively with other stakeholders
- ensure the schools implement reform curriculum and policy changes.

## **Parents, guardians and the community**

Parents, guardians and the community are active partners in the learning and development of their children. They need to know about the content of the reform curriculum, the implications for their children and how they can help.

School leaders and education authorities must tell parents, guardians and the community information about

- the reasons for the reform curriculum
- the subjects in the curriculum and their status
- the expected outcomes of the curriculum (end result of curriculum and its emphasis)
- how subjects will be taught
- how students will be assessed in the curriculum.
- what is different about the new curriculum
- continuity of learning from elementary to secondary.

Parents and guardians can help their children develop appropriate knowledge and skills most effectively by

- ensuring both their sons and daughters attend school.
- having realistic expectations of their children
- guiding and counselling their children through decisions affecting their future career, health and well-being
- caring for and safe guarding school facilities
- paying fees and fund raising to resource the school
- helping with school projects and the developments of both traditional and modern skills
- recognising that the curriculum provides a balance of knowledge, skills, attitudes and values for both academic progress and life in the community.

## **Secondary students**

Secondary students are responsible for much of their own learning and must make choices for their future. They need to know

- about available subjects, unit options and school-developed units/courses
- about subject and unit learning outcomes
- about assessment criteria and task requirements,
- about examinations, certification and options after *Grade 10*
- what is expected of them in terms of attitude and behaviour.

Secondary students must be prepared to

- actively pursue the achievement of learning outcomes
- take ownership of and responsibility for their own learning
- apply their knowledge and skills in learning and assessment activities
- make informed choices in terms of potential and interest when selecting options
- become resourceful and responsible citizens.

## **Inspectors**

School inspectors play key roles in curriculum implementation and appraisal of whole school performance. These include promoting the education reform in schools and communities, monitoring curriculum implementation and supporting and/or assisting with teacher development.

Inspectors must have a clear understanding of

- the importance of structural and curriculum reform
- NDOE policies and plans relating to structural and curriculum reform
- the answers to commonly asked questions
- the outcomes approach to learning and teaching
- the requirements and content of all subjects
- the implications of the new syllabuses for current practice
- support that is available for teachers
- processes for monitoring, evaluation and assessment of students
- processes for counselling students and reporting to parents.

## **Guidance officers and school counsellors**

The main role of guidance officers and school counsellors is to provide advice to students and their parents on career pathways, subject choices and subject combinations. School counsellors also counsel students on issues such as HIV/AIDS, drug taking, behaviour management, conflict resolution and personal problems. Guidance officers also provide professional empowerment training for staff and counsellors and conduct scholastic aptitude tests in schools.

Guidance officers and school counsellors must be able to explain to students, parents and the community

- the reasons for the reform curriculum
- what is different about the new curriculum
- the expected outcomes of the curriculum
- the subjects in the curriculum, their status and how they will be taught
- how students will be assessed in the curriculum.
- continuity of learning from elementary to secondary.

All stakeholder groups involved in lower secondary education can utilise a range of resources to obtain additional information about curriculum and structural reform in education in Papua New Guinea. (See Appendices 1 and 2)

## Section 5: Lower secondary curriculum framework

### The subjects

The curriculum has been designed using nine (9) subject fields. Currently there is one syllabus and teacher guide for each subject field. Students must study a total of seven (7) subjects from at least six (6) subject fields.

All subjects have equal status and comprise five (5) lessons per week

Subject Fields	Subject	40 min periods per week
Language	<i>English</i>	5
Mathematics	<i>Mathematics</i>	5
Personal Development	<i>Personal Development</i>	5
Agriculture	Agriculture	5
Art	Art	5
Business Studies	Business Studies	5
Design & Technology	Home Economics	5
	Practical Skills	5
	Computing	5
	Design & Technology	5
Science	Science	5
Social Science	Social Science	5
	<i>Library and Research Skills</i>	1
	<i>Religious Instruction</i>	1
	<i>Guidance</i>	1
	Subject selected by school	1
	Subject selected by school	1
<b>Total periods</b>		<b>40</b>

All students **MUST** study English, Mathematics and Personal Development. English and Mathematics provide a literate and numerate foundation for learning. Personal Development incorporates aspects of guidance, religious education, physical education, health and social issues crucial to Integral Human Development as described in the Philosophy of Education.

Students select another four subjects from the list above. Students may select two subjects from the Design and Technology field. The seven subjects selected by students for study will provide a broad general education consistent with the aims of secondary education ie cultural

awareness, lifelong learning, knowledge and skills, ethics and good citizenship, technology and enterprise.

All schools are required to allocate one period a week to Religious Instruction, one period to Guidance and one period to Library and Research Skills. Schools can choose how to allocate the remaining 2 periods to meet local or agency requirements.

Where possible, schools should offer all 9 subjects to enable students to make appropriate choices. Schools that cannot offer all nine subjects must select those that are most relevant for their students and which align with community and provincial resources.

#### **Library and Research Skills (Information Literacy)**

Information Literacy embraces information, ICT and library skills along with problem solving and research skills. The huge increase in the amount of information available in the 21st century means that information literacy skills are vital to enable students to access and use information. The school library is an essential learning environment where student access to information is managed and supported, as well as being an important resource for the community.

#### **Implementation timeframes**

2007	Syllabuses and teacher guides will be printed and distributed to schools
2007	Schools/teachers use inservice opportunities to familiarise themselves with reform curriculum content and requirements
2008	Implementation starts with Grade 9
2009	First new School Certificate examination

#### **Syllabuses and teacher guides**

The lower secondary reform curriculum contains some current subjects that have been revised and/or updated and some new subjects and/or subject names.

##### **The syllabuses**

The new syllabuses include the rationale and aims for the subject; curriculum principles; broad learning outcomes for the subject; a content overview; the Grade 9 & 10 units; and information about assessment, examinations and certification. The broad learning outcomes identify the knowledge, skills, attitudes and values that all students achieve or demonstrate by the end of Grade 10.

**Rationale:** The rationale is a statement of justification for the subject. It establishes the subject's importance and relevance and its place in the curriculum at each level. It also explains why studying it will contribute to the achievement of the overall goals of the Papua New Guinea curriculum.

**Curriculum principles:** The principles in the syllabus describe and focus attention on important issues that need to be addressed when teachers implement the syllabus. The curriculum principles in each syllabus identify how each principle is applied to teaching and learning.

**Aims:** Syllabus aims describe in broad terms the knowledge, skills and attitudes students should develop by studying a subject.

**Content Overview:** This section lists the broad learning outcomes to be achieved by the end of *Grade 10* and a description of the strands that describe the dimensions of the subject. This section also describes the unit sequence and structure.

Each syllabus contains a number of structured units for *Grades 9 & 10*. Each unit lists the specific **learning outcomes** for the unit, the **content** that will assist students achieve the learning outcomes and the **assessment** requirements for the unit. The unit learning outcome statements describe one or more concepts and processes that students can achieve in different ways and in different contexts. Assessment tasks are described in detail and are mandatory to ensure consistency across PNG for the awarding of the School Certificate. Some subjects also include option or extension units.

### **The teacher guides**

The teacher guides are designed to assist teachers implement the subjects. Teachers should read their guides thoroughly to become familiar with the contents before planning for the year.

Teacher guides provide detailed information about the structure of the subject. A variety of teaching and learning strategies are included to enable teachers to make learning interesting and enjoyable.

The teacher guides outline the performance standards or provide marking guides for assessment tasks to ensure assessment is valid and reliable. Performance standards must be used by teachers to make judgements about student achievement of learning outcomes. An example of how to use marks to make an overall judgement is included as a model.

The guides include examples of unit programs and student-centred activities to help teachers develop their own detailed teaching programs and lesson plans. They also list or describe the resources needed for each unit. The sample unit programs take teachers step by step through the outcomes approach to planning and programming.

Step 1 - looks at what the unit learning outcomes mean, and what the teacher has to do to help students achieve the learning outcomes.

Step 2 - looks at the assessment requirements, the task and the assessment criteria. It provides performance standards which teachers must use when they are marking the tasks.

Step 3 - looks at the content of the unit, the activities that can be used when teaching the unit, and gives some examples of a ten week program. It does not provide individual lesson plans.

Step 4 - elaborates the unit content and gives examples of some activities the teacher might like to use.

### **Assessment, examinations and certification**

Assessment and reporting practices described here are detailed further in the *Grade 10 Assessment, Examination and Certification Handbook* (available in 2007); *The National Assessment and Reporting Policy for Papua New Guinea* (2003), the lower secondary subject syllabuses and teacher guides and in other support materials produced by the Department of Education.

#### **Assessment**

The main purpose of assessment is to improve student learning. Assessment needs to be **for** learning as well as **of** learning. It is used to evaluate and improve teaching and learning, report achievement and provide feedback to students on their progress. Assessing in an outcomes curriculum involves focusing less on whether a learner has "passed" or "failed" and more on what learning outcomes a learner has achieved and in which areas further support is required.

Assessment measures students' achievement of learning outcomes as described in the syllabus. It is the ongoing process of identifying, gathering and interpreting information about students' achievement of the learning outcomes. A student's achievement in each subject at the end of Grade 10 will be assessed against the broad learning outcomes.

**Internal assessment**

During the course of each unit students must complete the tasks specified for the unit. Teachers will expand each task and provide clear guidelines to students for how the task will be completed and how the criteria will be applied. The assessment tasks and criteria in each unit ensure that there is a common focus for internal assessment in the subject across schools while allowing for flexibility in the design of tasks. A variety of tasks are specified to give students the opportunity to demonstrate all the broad learning outcomes in different ways and to improve the validity and reliability of the assessment.

**Performance standards**

Student achievement is recorded and reported against standards. Teachers must use the performance standards or marking guides provided in each unit of the subject *Teacher Guide* when making a decision about the achievement of students in relation to the unit learning outcomes. The performance standards describe the level at which the student has to be working to achieve a particular standard or mark.

Students should always have access to a copy of the assessment criteria and the performance standards so that they know what it is they have to know and be able to do to get a good mark in a particular task. The performance standards help teachers in their marking and help students improve their performance in the future. Performance standards are useful when providing feedback to students and parents as they explain what it is the student needs to do to improve.

**Recording and reporting**

When recording and reporting student achievement teachers must record the achievement of the students in each unit and then, at the end of the year make a final judgement about the overall achievement, or progress towards achievement, of the broad learning outcomes. To help teachers do this, descriptions of the levels of achievement of the broad learning outcomes are provided in the Broad Learning Outcome Performance Standards in the subject *Teacher Guide*.

When reporting to parents, the school will determine the method of recording and reporting. In an outcomes based system, student results should be reported as levels of achievement rather than marks.

**Assessment for the School Certificate**

A student's overall achievement in each subject will be both internally and externally assessed. The mark awarded to each student for the School

Certificate will be a combination of the internal assessment mark provided by the school and the examination mark.

The internal assessment marks provide a summation of each student's achievements in Grades 9 and 10. Assessment is continuous and is criterion based. Assessment tasks are described in detail and are mandatory to ensure consistency across PNG for the awarding of the School Certificate. Teachers must make sure that students are given the assessment criteria and clear instructions for completion of tasks, and that tasks are scheduled to ensure time to provide appropriate feedback to enhance students learning.

There will be a national examination at the end of grade 10 for all subjects. The external examination provides a measure of student achievement of those aspects of the broad learning outcomes that can be reliably measured in an examination setting. Questions for the external examination in subjects will be developed using the learning outcomes, knowledge and skills in the core units. The first examination of the new curriculum will take place in 2009.

Candidates will be awarded a School Certificate only if they meet all requirements for internal and external assessment. Eligibility rules for the award of the School certificate are specified in *Grade 10 Assessment, Examination and Certification Handbook*.

### **School developed units and courses**

**School developed units** may be written to replace option units or extension units in any subject, but schools cannot replace core units with school developed units. School developed units should be based on student interest or teacher expertise. Units must be consistent with the broad learning outcomes and assessment requirements of the subject. Schools can develop a unit using the framework unit learning outcomes and assessment outlined in the subject syllabus or develop their own unit to teach any aspects of the subject that are relevant to their community and students. School developed units that are not based on the unit framework in the syllabus must be approved by CDD.

**School developed courses** may be written and accredited for the two remaining periods a week for either one term (Short School Developed Course) or for one year (School Developed Course). The School Developed Courses will not be externally examined but students who successfully

study an accredited course will have their achievement reported on the School Certificate.

Examples of such courses are:

- an introductory Language course such as Bahasa Indonesian
- a vocational education course such as Tourism Studies or Catering
- a religious education course
- a music course such as School Band or Guitar.

School developed units and courses will be **accredited** by the Department of Education and approved for use for a period of three years.

#### **The process for approval and accreditation of school developed units and courses**

1. School determines a local need for a school developed course which will fit within the National Curriculum learning areas or,
2. School determines a local need for a school developed unit which is not available in the Lower Secondary syllabuses.
3. School contacts CDD and discusses proposal with appropriate subject Curriculum Officer to ensure that:
  - a. proposed unit or course is not available through options within existing syllabuses
  - b. proposed course or unit has not been written by another school
  - c. proposal fits CDD requirements
  - d. proposal likely to be supported by CDD and SBOS.
4. The school writes the course/unit according to DOE guidelines and uses the template provided by CDD.
5. Support of the Board of Governors of the school is obtained.
6. The school submits the school developed course/unit before June for implementation in the following year.
7. The Secondary Accreditation panel meets and checks the course/unit against the set criteria within six weeks of receiving the documentation from the school. The course or unit is considered and either recommended for approval or refusal.
8. Final approval of the course/unit is given by the Secondary Board of Studies.

The school is notified of the Secondary Board of Studies' decision within seven days of the meeting by phone/fax/email and a signed letter.

For further information see Appendices 3 and 4.

## Section 6: Managing curriculum change

### The changes

- New syllabuses and teacher guides
- Revised and/or updated subject content
- New subjects or subject names (eg Personal Development, Computing, Business Studies)
- New ways of planning and programming
- New assessment policies and practice
- Teaching that focuses on the application of knowledge and development of skills
- Different timetabling and subject requirements

### Change management

Introducing a change as important as implementing the new lower secondary curriculum is complex. A great deal of research has been undertaken on change management. Listed below are some findings you should take into account as you undertake the implementation of this important change.

- Change is a complex process that requires thoughtful planning.
- All change creates feeling of anxiety in the people who have to implement the change. Everyone needs support when they become anxious or worried by the change process.
- The change process is unpredictable even if it has been planned carefully. Everyone must be willing to respond in a flexible manner if things do not go according to plan.
- Things sometimes get worse before they get better. Because change involves unlearning old ways and methods and learning new ways of doing things teaching practices may get worse for a short period of time.
- Effective and long lasting change takes time and persistence. Do not give up! Keep learning!

Curriculum change is not just about learning materials. It involves changes in teachers' practices or behaviour and changes in teachers' beliefs and understanding. It takes time for the teachers to change their teaching practices by introducing new activities, and to change their skills, behaviours, beliefs, and understandings.

Teachers will not change overnight as a result of having the documents on hand. **Implementing changes such as these is a process that will take time.**

## The professional learning team

A number of people in each school have been trained to help schools/teachers manage the change process. They are known as the professional learning team and may include key people such as the Principal/Head Teacher, deputies, subject heads and the inservice coordinator and teachers committed to moving reform forward (ideally 4-7 members).

The professional learning team is responsible for:

- Sharing their learning with their colleagues
- Making the transition from old to new approaches as smooth as possible by planning small and realistic steps
- Supporting teachers with professional assistance
- Coordinating and conducting school inservice programs on a regular basis
- Monitoring and evaluating progress and liaising with SI
- Conducting awareness to stakeholders, (parents, BOG, student etc)
- Organising assistance from professional learning teams of nearby schools, elders, inspectors, district officers, PIC's etc
- Carrying out action research for school improvement.

## School based inservice

Changing the current teacher dominated instruction in PNG classrooms is the most critical challenge to successful implementation. Outcomes approaches to planning, programming, teaching, assessing and reporting are different from what teachers have been used to. Teachers are now required to adopt a student-centred teaching pedagogy, with clearly articulated criterion referenced standards and explicitly stated learning outcomes.

Teachers should be encouraged by their Head Teachers to develop learning communities where there is a professional exchange of ideas and experiences. Teachers must start by identifying and using the resource materials and knowledge within their schools and sharing their knowledge and expertise with colleagues. Such collegiality is critical to the success of curriculum reform and effective professional development. It also underpins the longer term goals of schools being semi-autonomous and

self reliant, recognising and using their internal expertise wherever possible.

International research and experience shows that repetition, practice, ongoing support and consolidation are required for sustainable changes to be made to teaching methods. School based inservice is an organised and scheduled method of providing such support and consolidation.

School based inservice needs to be carefully planned. It is currently about 40 minutes (1 period) in duration. However it can be scheduled outside the school's timetable and it is recommended that sessions be at least one hour to ensure time to absorb and consolidate new learning and to complete specific learning activities. The inservice plan should include information regarding the target group, type of inservice activity, cost, venue, resources, data, facilitator etc.

**It is not enough however to draw up an inservice plan. The plan must be implemented, monitored and reviewed. Inservice must take place regularly.**

School based inservice could include staff meetings that involve guest speakers and professional discussions; observations and demonstrations of student-centred teaching strategies; shared planning and programming sessions; small group activities selected from inservice materials; presentations and activities on specific topics. Inservice activities could be conducted by a variety of resource personnel including teachers within the school, community members, staff from other schools with successful programs eg IEA schools; teachers and assessors from local primary schools; inspectors; lecturers from teacher education institutions.

## **Section 7: Implementing the Curriculum**

### **Essential requirements**

It is essential that each teacher has a copy of the relevant syllabus and teacher guide. Print copies of these will be supplied to school on the basis of the number of grade 9 and 10 classes in the school. Schools will also receive an electronic master copy of a range of documents and can print additional copies of these as required.

The following pages outline the essential requirements of each subject in the curriculum. Schools must be able to meet these requirements to offer optional subjects such as Agriculture which require specific resources.

## AGRICULTURE requirements

All units in agriculture require students to develop knowledge and skills by completing practical activities and projects. **Schools must have sufficient land to grow crops and/or raise animals.** Agriculture cannot be taught from the blackboard.

There are four core units and several option units in Agriculture. All students must complete the four core units in sequence from Grade 9 to 10. Students must study a minimum of four option units. Schools may use the options in the syllabus or develop their own option units to suit the local context using the framework in the syllabus.

Each grade has two core units, which must be taught in sequence. Core Unit 9.1 must come before Core Unit 9.2 and Core Unit 10.1 comes before Core Unit 10.2. There are a number of option units which students can choose from. Certain of the option units relate more closely to one or other of the core units. Schools should do a core unit and a related option unit concurrently over two terms, to allow time for students to grow the plants/crops or raise the animals being studied.

Using this model a Grade 9 program might look as follows:

Term 1 and 2	Term 3 and 4
Core unit 9.1 and choice of option units 9.3; 9.4; 9.6; or school option.	Core unit 9.2 and choice of option units 9.5; 9.7; 9.8 or school option

Similarly the grade 10 program might also be as follows:

Term 1 and 2	Term 3 and 4
Core unit 10.1 and choice of option units 10.3; 10.4; or school option.	Core unit 10.2 and choice of option units 10.5; 10.6 or school option.

Given the heavy emphasis on practical (applied) learning in agriculture it would be helpful if schools could program at least one double period per week in this subject.

<b>Essential resources/equipment for Agriculture units</b>	
All units that involve soil testing and crop production or forestry (agriculture & horticulture)	Land for gardens or nursery; soil samples; seeds and/or seedlings; agricultural plants; tools and machinery for planting, tilling and harvesting crops; fertilisers; weed and pest control products;
All units that involve livestock production	Land to run the livestock; food and shelter for the livestock; fencing materials; machinery and equipment to feed and care for livestock
Specialist options eg worm farming, aquaculture, farm technology	Worms and soil beds; ponds or tanks; fish or fingerlings; aquatic herbs and/or weeds; equipment and resources to construct simple farm tools

## ARTS requirements

There are four core units in *Grade 9* which all students must complete. There are also four optional enrichment units in *Grade 9*. It is recommended that students study some of the optional enrichment units in *Grade 9* to provide a wider, richer experience of the Arts.

There are three core units in *Grade 10* which all students must complete and a choice of options of which two must be studied. School-developed options can be designed using the unit framework in the syllabus. School-developed units that are not based on the framework unit must be approved by CDD.

Gr	Weeks	Term	Unit	Essential resources for activities and assessment
9	10	1 or 2	Performing Arts 1 and optional enrichment	Musical instruments, sound recordings, tape or CD player, videos of or access to dance groups, examples of western notation, movement charts
9	10	1 or 2	Visual Arts 1 and optional enrichment	Paint, brushes, glue, paper, printing inks, examples of graphic designs, cutting implements
9	10	3 or 4	Performing Arts 2 and optional enrichment	Musical instruments, tape or CD player, videos of or access to dance groups, contemporary music recordings
9	10	3 or 4	Visual Arts 2 and optional enrichment	Carving implements, fabric, fibres, wax, wood offcuts and traditional craft supplies
10	5 5	1 or 2	Performing Arts 3 and Option A,B,C or D	PNG music recordings, musical instruments, tape or CD player, contemporary music recordings
10	5 5	1 or 2	Visual Arts 3 and Option A,B,C or D	Design samples eg logos, brochures, letterheads, lettering guides
10	10	3	Integrated unit	
10	5	4	Option A, B, C or D	
			Option Unit A Ceramics	Clay, cutting & shaping implements, kiln for firing, pottery samples
			Option Unit B Arts sales & marketing	Samples of art works
			Option Unit C PNG artists	Arts show catalogues, profiles of artists and musicians, newspaper articles
			Option Unit D – school developed unit	Material for selected units

Students are taught primarily through activities, but teachers must provide background information and model techniques and processes where possible.

There are many arts text books available that provide details of art and craft techniques, materials and activities.

## **BUSINESS STUDIES requirements**

Business Studies enables students to study a wide range of concepts and to develop knowledge and skills for the world of business, both formal and informal.

There are four core units in *Grade 9* and five core units in *Grade 10*. All students in *Grade 9* must complete the four (4) core units and choose two (2) units from the list of options available. All students in *Grade 10* must complete the five (5) core units and complete one unit from the options list.

Teachers must teach 9.1 in *Grade 9* term 1, 9.2 in term 2 and 10.1 in *Grade 10* term 1. Schools have the flexibility to sequence *Grade 9* core units 3 and 4 and *Grade 10* core units 2, 3, 4 and 5 during the year in the order that best suits their needs. *Grade 10* units 10.2 and 10.3 can be taught concurrently over fifteen (15) weeks.

Schools may select the options available in the syllabus or develop their own options such as Rural Technology and Enterprise; Tourism Studies; Improving Your Business etc. School-developed options must be approved by CDD.

Grade	Length (weeks)	Term	Unit	Resources
9	10	1	9.1 Satisfying needs and wants	Appropriate Commerce or Business Studies text books (Teachers must ensure that they are not passing on outdated information and/or data)  Newspapers, magazines, telephone directories  Basic office equipment
	5	Any	9.2 Being a wise and responsible consumer	
	5		Option	
	5	Any	9.3 Business communication	
	5		Option	
	10	Any	9.4 My small business project	
10	5	1	10.1 Marketing and distribution	Personnel from provincial offices such as IRC, SBDC, ICC, IPA, commercial banks  Small business operators
	5		Option	
	10	Any	10.2 Starting a small business enterprise	
	5	Any	10.3 Keeping accounts for my business	
	5	Any	10.4 Preparing for the workplace	
	5	Any	10.5 Laws and business regulations in PNG	
9 or 10	5	Any	OPTIONS Business Calculations Taxation Computer Applications for Business The Business of Tourism	Personnel and information from IRC offices  Computers and business software  Brochures or information booklets from TPA, hotels, guest houses, airlines etc

## DESIGN AND TECHNOLOGY requirements

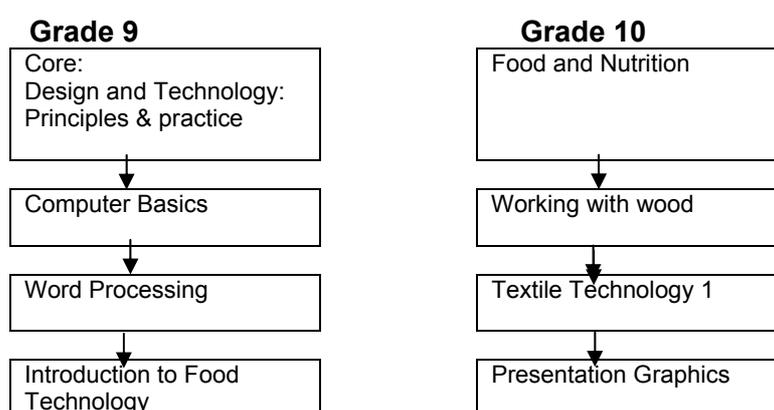
There are four subjects in this subject field: Design and Technology; Practical Skills; Home Economics and Computing. Students may study any two of the subjects but may not study any unit within these subjects more than once.

Any student - male or female - is entitled to study any of the Design and Technology subjects.

**School must ensure they have the essential resources/equipment before offering a unit.** All units in this subject field require students to develop knowledge and skills by completing practical projects using the design process.

### *Subject: Design and Technology*

Design and Technology is a general subject that enables students to develop a range of skills and basic content knowledge from each of the subjects in the Design and Technology field. This subject consists of a core unit and any six units from the Practical Skills, Home Economics or Computing subjects that are of interest, provided the school has the resources to teach the unit. Each unit must be taught in ten weeks. For example



If students decide to study some of the Computing units, they must do the core units before they study the options.

### *Subject: Practical Skills*

Practical Skills is designed for those students who have a specific interest in developing skills in and gaining knowledge about various trade and industry technologies. This subject comprises two core units in Grade 9 and one core unit in Grade 10. Core unit 9.1: Technical Drawing must be

completed in Grade 9 Term 1, and core unit 9.2: Working with Wood in Grade 9 Term 2. Core unit 10.1: Building Construction must be taught in Grade 10 Term 1.

Students must complete two option units in Grade 9 and two in Grade 10. Schools may select from the option units described in the syllabus or develop their own option units to meet the required learning outcomes, using the framework provided in the syllabus.

<b>Essential resources/equipment for Practical Skills units</b>	
Technical Drawing (Core)	Set squares, graph papers, compasses and other drawing equipment, visual resources, examples of orthographic and other specialist drawings
Working with Wood (Core), and any Timber technologies	Timber; cutting, planing and sawing tools; hammers; nails and other fasteners; safety equipment; posters
Village technologies	Timber, cane, bamboo and fibres; cutting and fastening equipment; paint or colouring materials
Building Construction (Core)	Examples of building plans; timber; cutting, planing and sawing tools; hammers; nails and other fasteners; safety equipment; posters
Metal, Concrete, Electrical, Integrated etc	Metal; assorted wires and cabling; batteries and dry cells; circuit boards; cement and sand; cutting and smoothing tools; safety equipment; posters
Welding	Oxy torch, flux, welding rod; safety equipment such as welding shield, goggles, protective clothing

***Subject: Home Economics***

Home Economics is designed for those students who have a specific interest in developing skills in and knowledge about techniques and technologies applicable to the home environment and food, hospitality and fashion industries. To study Home Economics students must complete the two core units for the Food Technology component and one core unit for the Fibres and Fabrics component. Students must also complete four options units which can be selected from the syllabus or developed by the school, using the framework provided in the syllabus.

The Home Economics units can be taught in any order - the two core Food Technologies units and options can be taught in Grade 9 or 10. The core Fibres and Fabrics unit and options can be taught in Grade 9 or 10.

<b>Essential resources/equipment for Home Economics units</b>	
Fibres and Fabrics (Core) and sewing options	Fabric pieces, fabric samples, sewing machines, sewing equipment such as scissors, needles, cottons, pins, tape measures; magazines; patterns; fasteners such as buttons, zips; decorative items
Introduction to Food Technology (Core), Food and Nutrition (Core), and food preparation options	Stoves, cook tops and ovens; kitchen equipment such as pots, pans, cutlery, crockery; serving equipment; measuring equipment; recipes

***Subject: Computing***

This is a practical subject. Students must have the opportunity to use computers and a range of software application programs.

In Grade 9 Computing students must complete the three core units (Computer Basics; Word Processing; Presentation Graphics) before selecting an option unit. Keyboarding is integrated into all Grade 9 core units.

Computer Basics 1 assumes that students have no previous computing experience. This unit is to be completed before any other computer unit (except Keyboarding) is taken. Students with previous computing experience may complete this unit in a very short time and progress to other computing units. Word Processing 1 has Computer Basics 1 as a pre-requisite. Presentation Graphics 1 and any option unit have both Word Processing 1 and Computer Basics 1 as pre-requisites.

Keyboarding can be undertaken without completing any other unit. It consists of formal training in keyboarding using one of the software packages available. Students could use computers outside the classroom (eg Library computers). Keyboarding is a good link to further vocational studies for students leaving school in year 10.

All Grade 10 units are options. Schools may also use Grade 10 to reinforce or expand on the learning in the Grade 9 core units. Schools may develop their own option units for Grade 10. School-developed options must be approved by CDD.

<b>Essential resources/equipment for Computing units</b>
Computers (enough for no more than 3 students to a computer), peripheral devices, supporting hardware such as printers, application software, visual resources

## ENGLISH requirements

The core components of English are the three strands: **Speaking and Listening, Reading and Viewing** and **Writing**. These strands must be emphasised in all English lessons.

The teaching of new **grammar** points and application of previous grammar learning is essential. The teaching of grammar should be text based. This means that grammar topics come from the context of the texts in use and are not taught in isolation.

There are no option units in English. All units are to be covered. However the teacher is able to choose text types to be covered from the list in each unit. The teacher selects texts that are readily available at the schools or in the community. Newspapers are a recommended source of various text types.

Grade 10 units build on the learning in Grade 9.

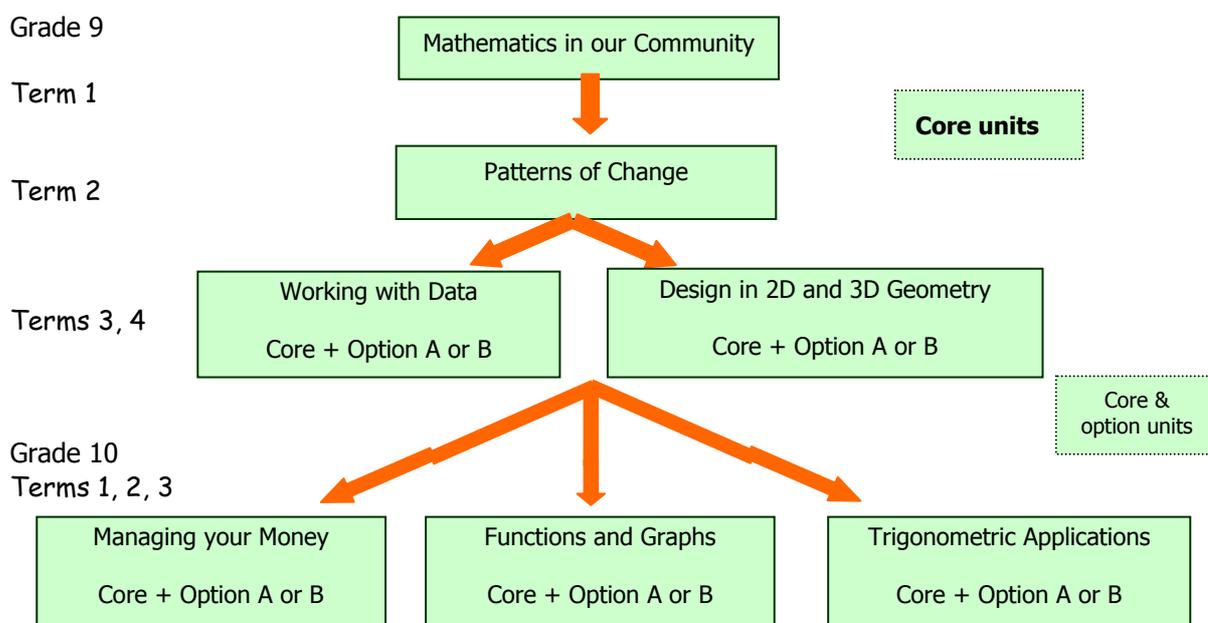
If resources such as novels, play scripts etc are limited, units can be taught in different order for different classes.

	Unit		Requirements
<b>Grade 9</b>	9.1 Home and Leisure	Term 1 10 weeks	<b>Text types</b> (at least 6 from the following list) Personal letters, holiday brochures, posters and signs, computer games and programs, newspapers and magazines, advertisements and classifieds, radio and television programs, song lyrics, timetables, instructions and labels, recipes
	9.2 The World of Work	Term 2 10 weeks	<b>Text types</b> (at least 5 from the following list) Diaries and journals, invitations, notes and instructions, business letters eg complaints, information, invitation, messages, speeches, catalogues, job descriptions, classifieds, workplace documents such as quotes or invoices.
	9.3 Stories from Papua New Guinea and the world.	Term 3 10 weeks	<b>Text types</b> (at least 5 from the following list) Traditional stories legends and myths from Papua New Guinea; novels and short stories – Papua New Guinean and others; narrative films and DVDs; short plays or scripts; feature articles; video clips; poems, cartoons and picture stories; narrative songs and ballads.
	9.4 Persuading and Informing	Term 4 10 weeks	<b>Text types</b> (at least 6 from the following list) Debates; radio – talkback, news; diaries; autobiographies, biographies and other non-fictional books; reports; advertisements – print and radio; newspapers – news and feature articles; magazines; documentaries; cartoons and comics (political and social comment).
<b>Grade 10</b>	10.1 The Home and Society	Term 1 10 weeks	<b>Text types</b> (at least 6 from the following list) Book and film reviews; song lyrics; personal and specialised recounts; films; short stories; information sources such as instructions, labels, captions, pamphlets and brochures, posters, leaflets.; video clips; television programs such as lifestyle and travel programs
	10.2 The World of Work	Term 2 10 weeks	<b>Text types</b> (at least 6 from the following list) Media news reports; business letters – employees, clients, letters of application; advertisements and classifieds; resumes/CVs; reports; notes and summaries including graphs/tables/diagrams/concept maps; public addresses; instruction manuals; questionnaires and forms
	10.3 Papua New Guinea and World Literature	Term 3 10 weeks	<b>Text types</b> (at least 5 from the following list) Traditional stories, legends and myths; novels and short stories; biographies and autobiographies; narrative films; lyric poems including haiku and odes; ballad; street theatre; radio plays.
	10.4 Persuading and Informing	Term 4 5 weeks	<b>Text types</b> (at least 4 from the following list) Speeches - public speaking; newspapers –editorials, letters, feature articles; advertisements – magazines and television; documentaries; special reports – crime, social issues; news reports – print, television, radio; discussions.

## MATHEMATICS requirements

Mathematics is one of the three compulsory subjects in Grades 9 & 10, along with English and Personal Development. Like all subjects Mathematics is allocated 5 periods per week.

### Unit Sequence and structure (10 weeks per unit)



In Grade 9 the Mathematics in our Community unit should be taught first, followed by the Patterns of Change unit. Schools may program the remaining units as they see fit. In Grade 10 there is no recommended order for the three units.

All students must complete all the core units and one of the option components each term within the core-option units. To meet local needs and resources teachers may choose to teach more than one unit at a time, mixing and matching the material from two or more units.

Option A is designed for the more able students, particularly those planning to continue with Mathematics in Grades 11 and 12.

#### List of essential resources

- The current books - Secondary School Mathematics 9A, 9B, 10A, 10B.
- Teacher Resource Book Grade 9 and 10 - Number, Statistics (a section on Probability in this resource book), Shape and Space, Problem Solving, Algebra, SSM 9 Problem Solving Answers, SSM 10 Problem Solving Answers,
- Text books that have exercises on Probability and Plane Table Surveying.

## **PERSONAL DEVELOPMENT requirements**

Personal Development is one of the three compulsory subjects in Grades 9 & 10, along with English and Mathematics. Like all subjects, Personal Development is allocated 5 periods per week.

Personal Development has two components - a personal development component (3 periods per week) and a sport and fitness component (2 periods per week). In each term, a Personal Development unit is taught alongside a Sport and Fitness unit. The content of the Personal Development unit is prescribed, but schools can choose which sport or fitness activity they wish to offer in each term.

There are four core Personal Development units in Grade 9. All schools must teach the unit 'Who am I?' first. Schools can then choose the order in which they teach the other three Grade 9 units.

There are three core units in Grade 10. The Grade 10 units can be taught in any order. Sports Administration is an option unit in Grade 10 that runs for 20 periods. If a school chooses this unit, it would be offered for one period a week for two terms along side a sport unit that also runs for one period a week for two terms.

Teaching sport and fitness does not involve sending students outside to play a game. The sport and fitness units must be structured to teach students skills and rules and to allow students to practise and apply these.

	Length (periods)	Term	Unit	Resources
<b>Grade 9</b>	30	1	9.1 Who am I?	Rules, space and equipment for selected activity eg balls, nets, bats
	20		Sport & Fitness unit	
	30	Any term	9.2 Fitness and Me	Fitness testing equipment
	20		Sport & Fitness unit	
	30	Any term	9.3 Health	First aid supplies
	20		Sport & Fitness unit	
<b>Grade 10</b>	30	Any term	10.1 Reproductive and Sexual Health	HIV/AIDS and STI materials, contraceptive examples
	20		Sport & Fitness unit	
	30	Any term	10.2 Family and Relationships	
	20		Sport & Fitness unit	
	30	Any term	10.3 Universal Values	
	20		Sport & Fitness unit	
	20		Option: Sports Administration	

Text books that deal with health, fitness, and family and other relationships are useful but teachers must ensure that they are not passing on outdated information and/or data. The Health Department and other government departments, NGOs and sporting bodies are useful sources of information as are the daily newspapers.

## SCIENCE requirements

Science is both an academic and practical subject and students must be given opportunities to conduct experiments and undertake hands-on activities. Although it is not necessary to have a laboratory schools must have access to a suitable room and all the basic equipment necessary to complete activities in each unit.

There are twelve units in this syllabus; seven Grade 9 units and five Grade 10 units. All units are core units and must be studied consecutively except those noted below. Schools may develop their own option unit for the end of Grade 10.

In Grade 9 students begin with the unit *9.2: Working Scientifically* and finish with unit 9.1: Indigenous knowledge and practices. The rationale behind this is that students coming from different primary schools may have different science content knowledge and it may be asking too much from students to compare and contrast contemporary science with that of traditional knowledge.

*Unit 10.1: Working Scientifically through projects and investigations* is studied at the end of Grade 10 with the understanding that by then students will be able to carry out meaningful projects and make better use of the scientific skills used in other units.

The number of weeks given are only the suggested time frame for each unit. Teachers may reduce or increase time for each unit depending on the prior knowledge and skills of their students.

Grade 9 Core Units		Grade 10 Core Units	
9.1 Indigenous (local) knowledge and practices	4-5 weeks	10.1 Working scientifically through projects and investigations	5-6 weeks
9.2 Working scientifically	5-6 weeks	10.2 Microbiology	4-5 weeks
9.3 Ecology	4-5 weeks	10.3 Chemical reactions	5-6 weeks
9.4 Our body	5-6 weeks	10.4 Light	6-7 weeks
9.5 Atoms and The Periodic Table	4-5 weeks	10.5 Communication	5-6 weeks
9.6 Electricity	5-6 weeks	10.6 school based unit	
9.7 Earth and atmosphere	5-6 weeks		

**Essential resources for activities and assessment**

Human torso  
Standard laboratory equipment  
Glassware eg beakers  
Rock and mineral samples kit  
Large or medium size skeleton  
Weather instruments kit  
Planetary kit  
Gas and water supplies  
Standard microscope and accessories - prepared slides  
Standard measuring instruments (rulers-balances and scales)  
Periodic Table Charts (1x wall and class set x A4)

Light and electricity kits  
Water quality test kit  
Soil test kit  
Eye ball model  
Geological maps  
Safety charts (wall)  
Standard chemicals  
AC/DC

## SOCIAL SCIENCE requirements

Social Science has four (4) core units in Grade 9 which students must complete. Three of these units have extensions which are available for students who complete the core before 10 weeks. These extensions can be changed by the teacher/school.

There are three core units in Grade 10 which students must complete. Two of the units have extensions. An option is provided in the syllabus for students/schools to study/teach for the first 3 weeks of term 4 if they want to. Suggested activities in this option unit can be used in other units.

Grade	Length (weeks)	Term	Unit	Resources
9	10	1	9.1 Places in the Pacific region <i>Extension: Climate and its effects</i>	Maps, atlases, blank maps, current text books & others like telephone directory Visits to local area
	10	2 or 3 or 4	9.2 Population change, resources and migration <i>Extension: Land, law and people in PNG</i>	News articles from newspapers, magazines, etc Current student textbooks
	10	2 or 3 or 4	9.3 Investigating Papua New Guinea history	Evidence such as artefacts, museums, community people, stories, war relics, cultural sites, videos/films
	10	2 or 3 or 4	9.4 Civics and Citizenship <i>Extension: Comparative study of systems of government</i>	Current student textbooks, newspapers, material from Electoral Commission, Transparency International
10	10	1 or 2 or 3	10.1 Resource development and management	News articles on resource development & management, information from resources companies and government departments Current student textbooks
	10	1 or 2 or 3	10.2 Environment change, pollution and solutions <i>Extension: Global environmental change</i>	News articles, information from government departments, NGOs etc Current student textbooks
	10	1 or 2 or 3	10.3 Papua New Guinea and the global community <i>Extension: International relationships in action</i>	Use everyday examples of interest to teenagers eg music, food, clothes Current student textbooks
	5	4	Option: Think globally, act locally	

Teachers must collect news articles and use current events at the time of teaching. Current student textbooks are still useful but teachers must ensure that they are not passing outdated information and/or data. Government departments and statutory or other organizations are useful sources of information. The telephone directory has information on natural disasters and other important issues of the moment eg elections

in the 2006 directory. Teachers should build up their resources over time.

### **Staffing new and existing subjects**

The new curriculum has three compulsory subjects (English, Mathematics and Personal Development) and a time allocation of five periods per week for all subjects.

Staffing Personal Development will be a problem in schools for a number of years until enough new graduates come through the system or Lahara/short courses are offered by the teacher education providers.

Most school will have too many English teachers and not enough teachers for subjects such as Arts, Design and Technology and Business Studies. In order to staff the full range of subjects it is recommended that an audit be conducted of the existing staff in each school to ascertain teachers' training, second or minor subject, past experience, interests, hobbies and skills. Teachers can then volunteer or be requested to take on a subject outside their current practice.

Teachers taking on new roles can be supported through

- training by and assistance from an experienced teacher of the subject
- team teaching particular units within the new subject
- only being assigned one or two classes in the new subject and still having at least one class in their area of expertise
- assistance from community members/volunteers with special skills eg music, carving
- opportunities to share planning and teaching ideas with colleagues from nearby schools.

It is essential that Principals/BOGs liaise with provincial education officials to recruit and appoint teachers based on specific school needs. BOGs may also be able to advertise and secure temporary teaching positions to cater for the shortfall in staffing.

### **Staffing and scheduling Personal Development**

Personal Development has a number of components which could easily be taught by different teachers. The two periods each week within the PD unit allocated to sport and fitness should be taught by PE specialists with some assistance from teachers with skills and knowledge of particular sports and/or fitness activities. Units 9.3 and 10.1 dealing with health,

diseases and reproduction could be taught, for example, by Science and Guidance teachers. Units 9.4 and 10.3 dealing with identity, values and traditions could be taught, for example, by a Social Science specialist.

<b>Sample PD program for school with three grade nine classes</b>				
	<b>Term 1</b>	<b>Term 2</b>	<b>Term 3</b>	<b>Term 4</b>
Class 9A	Unit 9.1 (any)	Unit 9.2 (PE)	Unit 9.4 (Soc Sc)	Unit 9.3 (Sc)
Class 9B	Unit 9.1 (any)	Unit 9.3(Sc)	Unit 9.2 (PE)	Unit 9.4 (Soc Sc)
Class 9C	Unit 9.1 (any)	Unit 9.4(Soc Sc)	Unit 9.3 (Sc)	Unit 9.2 (PE)

## Choices and options

The reform curriculum involves three levels of choice for schools and/or students.

### 1. School choices

School administrators and the community must study the requirements of the subjects (staff, facilities and resources) and decide how many of the optional subjects fields or subjects within the fields, can be realistically offered by the school. All schools must offer Science and, ideally, all optional subjects.

### 2. Student choices

Students must select four optional subjects best suited to their skills and needs from the range offered by the school. Students should be assisted in their choices with detailed subject/course information provided by the school; realistic advice from counsellors, teachers and parents based on their strengths and weaknesses; and results from the scholastic aptitude test (if available).

### 3. Choices within subjects

Teachers must decide which of the option units within subjects they can best teach and meets the needs of their students.

Schools must decide when a school-developed option would be more appropriate.

## Meeting agency requirements

The reform curriculum has been designed to meet the requirements of agency schools, especially in terms of teaching Religious Education. The curriculum provides for one period a week for Religious Instruction and two periods a week that can be allocated for specific school needs.

Additional lessons could be negotiated from Personal Development or Guidance where appropriate. For example PD Units 9.1 and 9.4 deal with relationships and aspects of spirituality.

Examples of time allocations for agency schools											
Eng	Ma	PD	Sc	SS	Ag	DT	Guid	RI	CRE	Lib	Total
5	5	5	5	5	5	5	1	1	2	1	40

Examples of time allocations for non-agency schools											
Eng	Ma	PD	B St	SS	Ag	DT	Guid	R/I	Lib		
6	6	5	5	5	5	5	1	1	1		40

## Catering for the needs of all students

Students in any school have a range of abilities, interests and skills and teachers must make every effort to cater for the learning needs of all students: girls and boys; gifted students; slow learners; and students

with disabilities. This can be done by making use of different groupings in the classroom and providing a variety of activities.

All subjects in the reform curriculum are available for both girls and boys.

## Timetabling

All subjects must be timetabled for five (5) forty minute periods per week or equivalent (200 minutes).

The timetable must include the three single period subjects - Guidance, RI and Library & Research Skills.

Schools must decide how to allocate the remaining two periods a week. Options include

- meeting agency requirements,
- adding them to practical subjects such as D&T and Agriculture to foster school self-sufficiency,
- adding them to English and Maths to improve literacy and numeracy skills of students,
- adding them to different subjects each term or half year in rotation
- using them for an approved school-developed course (see Section 5).

It is recommended that English, Mathematics and Personal Development be taught through the week and that all subjects be allocated at least **one double period** per week to allow time for the completion of major activities.

In planning the timetable consideration should be given to the possibility of team teaching, for example timetabling two or more classes in the same subject together to enable greater utilisation of the expertise of different teachers.

The timetable should be constantly reviewed to suit the school size in terms of student enrolment and student/teacher ratios.

There are many different approaches to timetabling. The following are examples of Grade 9 and 10 school timetables and one teacher timetable.

<b>Grade 9</b>				
<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
Assembly	English	Science/Bus St	Maths	D & Tech
English	Maths	Science/Bus St	Science/Bus St	D & Tech
Maths	Maths	Social Sc	Personal Dev	English
Science/Bus St	D & Tech	English	Social Sc	Social Sc
Personal Dev	D & Tech	English	Social Sc	Agric/Arts
Social Sc	Agric/Arts	Agric/Arts	D & Tech	Personal Dev
Agric/Arts	Personal Dev	Maths	????	Science/Bus St
Agric/Arts	Personal Dev	Guidance	RI	Library Skills

<b>Grade 10</b>				
<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
Assembly	Maths	D & Tech	Social Sc	Science/Bus St
Maths	English	D & Tech	Social Sc	Science/Bus St
Agric/Arts	English	Personal Dev	Science/Bus St	Maths
English	Personal Dev	Maths	D & Tech	Personal Dev
Social Sc	Personal Dev	Maths	D & Tech	English
Personal Dev	D & Tech	Science/Bus St	English	Agric/Arts
Science/Bus St	Agric/Arts	Social Sc	Agric/Arts	Social Sc
Guidance	RI	Library Skills	Agric/Arts	???

<b>English/Social Science teacher (23 periods)</b>				
<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
Assembly	Gr 9 Eng		Gr 10 Soc Sc	
Gr 9 Eng	Gr 10 Eng		Gr 10 Soc Sc	
	Gr 10 Eng	Gr 9 Soc Sc		Gr 9 Eng
Gr 10 Eng		Gr 9 Eng	Gr 9 Soc Sc	Gr 9 Soc Sc
Gr 10 Soc Sc		Gr 9 Eng	Gr 9 Soc Sc	Gr 10 Eng
Gr 9 Soc Sc			Gr 10 Eng	
		Gr 10 Soc Sc		Gr 10 Soc Sc
		Gr 10 Lib Skills		Gr 9 Lib Skills

### Sequencing within subjects

Each subject has different requirements (see subject pages earlier in this section). In some subjects the order of sequence of units is fixed. In other subjects teachers can decide the sequence of some units.

Where there is a scarcity of equipment, space and resources, it is recommended that individual classes follow a different sequence of units (see sample PD sequence on page 44).

<b>Sample Arts program for school with four Grade nine classes</b>				
	<b>Term 1</b>	<b>Term 2</b>	<b>Term 3</b>	<b>Term 4</b>
Class 9A	Performing Arts 1	Performing Arts 2	Visual Arts 1	Visual Arts 2
Class 9B	Visual Arts 1	Performing Arts 1	Performing Arts 2	Visual Arts 2
Class 9C	Performing Arts 1	Performing Arts 2	Visual Arts 1	Visual Arts 2
Class 9D	Visual Arts 1	Visual Arts 2	Performing Arts 1	Performing Arts 2

### Managing assessment when units are sequenced differently

Assessment tasks for each unit are described in the syllabus. To minimise student cheating when classes are studying units in a different sequence teachers must develop an item bank of test questions or slightly

different task requirements and instructions. For example multiple choice questions could contain different distracters.

**Special requirements: Sports and fitness program**

A two period a week sport and fitness program is a requirement of Personal Development. The program is assessable so it is not appropriate to just send students outside to play the same few games.

A variety of sports and fitness activities must be carefully programmed to ensure progressive skills development and knowledge of rules and regulations. The program can be taught through PD periods timetabled at different times of the week or through a weekly sports afternoon scheduled and administered by a sports coordinator.

It is recommended that the program include inter house and inter school carnivals and/or a round robin competition in locations where two or more schools are close together. In boarding schools the sports and fitness program could be timetabled before school, after school or at weekends.

## Section 8: Curriculum Resources

The reform curriculum and outcomes approach requires teachers to use a range of resources to enhance learning opportunities for students.

**Current curriculum materials including syllabuses, teacher guides, text books, worksheets should not be discarded. They are still valuable resources.**

Schools will have to ensure that:

- Appropriate resources are purchased, acquired or developed to support new subjects on offer
- Additional resources are purchased, acquired or developed to support subjects that have been neglected in the past
- Subjects are given an equitable share of the school resource budget
- Effective systems are established for the management, security and storage of resources
- The library is resourced and functioning
- Facilities such as science laboratories, art rooms, kitchens, workshops are revitalised if necessary, starting with a clean up and basic repairs.

**Schools could consider asking parents/students to provide some of their own resources such as drawing equipment for Practical Skills or Arts, or small digging tools for Agriculture, or a calculator for Maths.**

### Budgeting

- The first step in resourcing the new curriculum is to do a comprehensive audit of what is already in the school.
- The list must then be matched with the essential requirements for each of the subjects and options offered by the school to determine what else is required.
- The third step is to identify priorities and rationalise subject allocations using a collaborative decision-making process.

**For the next 2-3 years more funds will need to be allocated to subjects that have been neglected in the past, and to Personal Development as a new compulsory subject.**

Schools should seriously consider using at least 30% of the funding available for curriculum materials/equipment and building up the school library. Heads of departments should use allocated funds early in the year before they are absorbed by other school needs.

## Text books

New text books written specifically for the reform curriculum will not be available for several years.

Text books already in schools for most subjects are still appropriate but teachers will have to select the chapter/section/activities applicable for the unit being studied, rather than working systematically through the text book.

Text books for some subjects, such as Social Science, Business Studies and English, may contain some content that is obviously out of date or incorrect. Teachers can supplement these with newspaper/magazine clippings or notes taken from television programs. Students are far more responsive to material that reflects their interests and experiences, or material that deals with current issues, for example, advertisements for products in today's stores, not something that was advertised ten years ago.

There are many excellent text books on the market but they are very expensive. Teachers should make every attempt to see a sample of any book before ordering to ensure value for money. For example a text book on resource management may only contain one chapter that is relevant for units in the curriculum.

Teachers should also consider buying text books that can be used for more than one subject. For example a *Geography* text book from overseas may contain material that can be used in Social Science, Science and Agriculture.

English teachers should maintain a sufficient supply of dictionaries and a least a class set of different text types such as novels and drama scripts.

## School developed resources

There are many ways schools can build up a supply of resources without relying exclusively on expensive store-bought materials. Examples include:

- Working in consultation with the community to collect and use materials found in the environment for subjects such as Arts, Science, Design and Technology
- Creating cheaper versions of charts/posters and models by copying from books and other sources. Some of these can be done by students as class activities and then used as resources the following year.
- Identifying people in the community who are willing to volunteer their time, knowledge and skills to help with projects in subjects such as Agriculture, Business Studies, Arts, Design and Technology

- Creating unit resource booklets by collecting and collating material from different text books and other sources.
- Using the school as a basis for activities, for example, keeping practical rooms clean and organised, making curtains etc as an ongoing Home Economics activity; making or repairing school furniture as Practical Skills activities; decorating classrooms with paintings, murals as Arts activities; growing food crops to supplement food supplies, or making decorative gardens as an Agriculture activity; making musical instruments, simple tools etc for use the following year.

## **Section 9: Planning & Programming**

### **Collaborative planning**

The subject teacher guide describes the planning and programming steps for each unit using an outcomes approach. Implementing these steps in schools with more than one class in each grade is best done collaboratively to ensure;

- sharing of ideas, knowledge and skills by both experienced and less experienced teachers
- equitable use of scarce resources
- consistent approaches to assessment and recording
- development of a broader range of student-centred learning activities.

Subject heads and grade coordinators are responsible for ensuring that all NDOE curriculum requirements are met. They must assist subject teachers to interpret the syllabus and teacher guide and develop suitable year and unit programs. The teacher guide provides examples of unit plans.

**Same subject/grade teachers should meet regularly to**

- **plan/design unit programs**
- **monitor progress in units currently being taught**
- **develop, implement, mark and moderate assessment tasks**
- **identify/develop appropriate resources**
- **evaluate completed units.**

### **Team Teaching**

Team teaching involves two or more teachers teaching the same class for the same subject. It is a good way to maximise the specific expertise of teachers and to maximise effective use of resources. It is a valuable approach for modelling, sharing and learning from others, and for making decisions about student progress.

Some subjects lend themselves more easily to a team teaching approach than others. In the new curriculum Personal Development is one such subject. The different strands in PD require quite different teacher knowledge and skills, making it appropriate to use one teacher to teach the same unit to different classes in different terms.

Arts and Design & Technology also lend themselves to a team teaching approach. For example one Arts teacher may have strengths in music

while another has strengths in visual arts. These strengths are best utilised by having the teachers teach appropriate units to different classes at different times of the year.

### **Integration**

Subjects, or units/topics within subject may be integrated, especially in smaller schools. For example a project such as growing market vegetables in Agriculture could be integrated with the small business unit in Business Studies, the advertising topic in English and a Maths application activity such as calculating profit and loss.

Integration requires careful planning to ensure that all the learning outcomes of the separate subjects are still met, so not all lessons can be integrated. (Upper primary teachers may be able to assist with planning integrated programs).

### **Skills development and practical activities**

All subjects in the reform curriculum require students to be actively involved in learning. This means teachers must provide opportunities for students to develop and practise skills and apply their learning in a range of activities and situations.

Every lesson must include student-centred activities. Teachers must plan some activities which can be completed in a single lesson and some which may take several lessons and out of class time to complete. This means that unit plans must be flexible and include sufficient time for activities to be completed.

Information about teaching a range of skills for each subject can be found in the teacher guides. The teacher guides also provide examples of student-centred activities in each unit.

Unit activities and projects should be relevant to local needs and make use of local resources and personnel.

Unit activities and projects become more meaningful for students if they are consulted during the planning and development process.

## **Section 10: Guidance and Counselling**

### **Guidance and counselling services**

The guidance and counselling services in the schools must assist students to cope with developmental and career concerns both inside and outside of school.

Generally, the development tasks of adolescence are concerned with the achievement of independence. This means that secondary school students will be concerned with developing skills to help them relate to other people, learning to accept responsibility for themselves and working towards economic self-reliance, whether this be in formal paid employment or in the non-formal sector, all leading to the eventual achievement of independence.

Guidance and counselling programs in schools must help students;

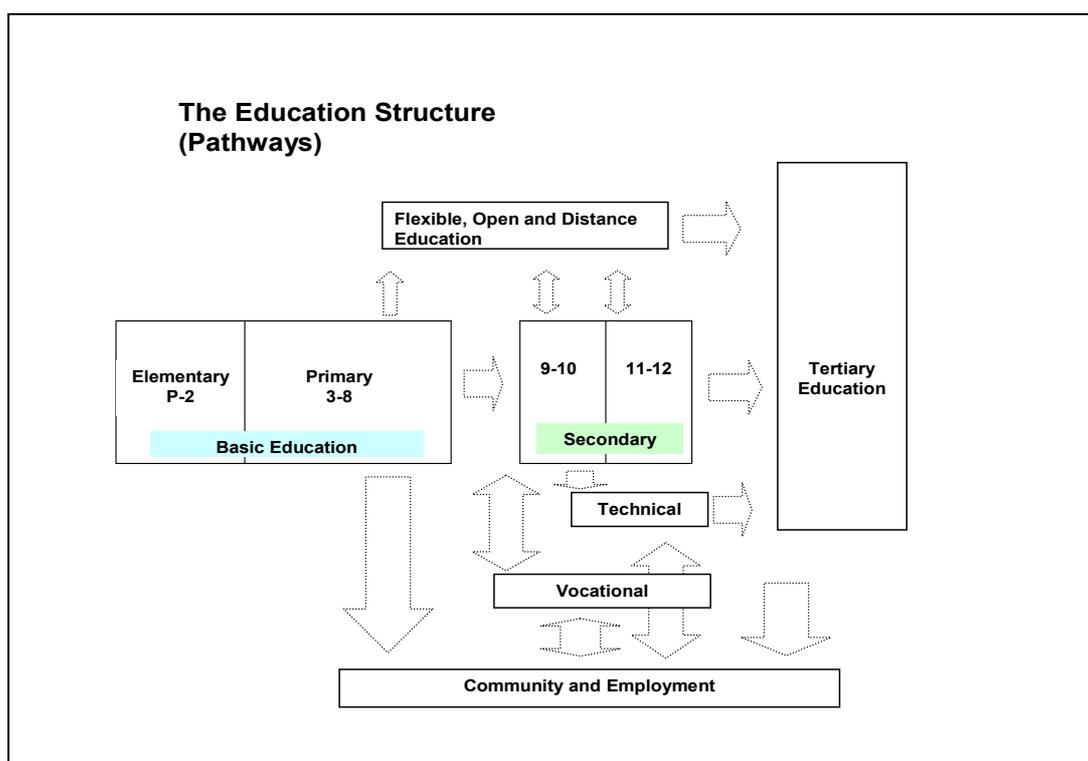
- optimise their capabilities and make educational progress in the school.
- make realistic career decisions based on understanding of themselves and their knowledge of the world of work.
- resolve concerns about relationships with peers, teachers, family, community and the school.

All students of high school age experience similar problems about growing up. Guidance and counselling responses to student problems will vary from preventive measures such as lessons on school rules and punishments through to direct support of individuals by way of one to one counselling.

**All teachers are responsible for providing timely information and guidance/advice to students/parents, not just guidance officers.**

## Pathways for students

Students at different levels of education plan their next move with the help of the teachers, parents, school counsellors and guidance officers. Students should be provided with the necessary information and guidelines to assist them make informed choices and decisions about their future. They should be provided with information on further education and training, job opportunities in the formal sector and village-based self-employment or non-formal sector options.



## HIV/AIDS

The National Education Plan 2005-2014 acknowledges HIV/AIDS as 'one of the greatest challenges to the health and future of the nation.' The HIV/AIDS Policy for the National Education System of Papua New Guinea has been developed in the context of data which estimates close to 70,000 people are currently infected with HIV. The policy lists a number of objectives as its response aimed at reducing the impact of HIV/AIDS at all levels of the national education system. Schools must ensure that:

1. Students acquire the knowledge and information and develop appropriate life skills to be free of HIV infection all their lives.
2. Schools are positive learning environments where all infected and affected students can access information, care, counselling and support.
3. All members of the school community, including BOMs, are positive and proactive in the prevention of HIV.

The issue of HIV/AIDS is addressed in a number of syllabuses either directly as a topic in a unit or indirectly as the basis for discussion and investigation. Schools can also access the peer educators program.

Schools can utilise the services of the following organisations to conduct proactive awareness in the school and local community:

- National AIDS Council
- Provincial AIDS Council
- Health Department
- Non-Government Organisations working in the health sector, for example, Anglicare.

Schools are the main source of information for the community.

### **Aptitude Test**

Scholastic aptitude testing (including a verbal reasoning test, a non-verbal reasoning test and a numerical reasoning test) is available in Grade 9 and vocational aptitude testing in Grade 11. These scholastic aptitude tests provide information about a student's relative position in the national cohort, and will have some predictive validity for Grade 10 certificate results. By comparing a student's aptitude test results with his or her current classroom performance, under-achievers and potentially gifted students can be identified and provided with appropriate advice/guidance. Students who are working to the best of their ability can also be identified and affirmed.

However to be useful in helping students select appropriate subjects, the test must be administered and scored early in term 1, Grade 9.

### **Support Services**

Support services available to students and parents include:

- Access to full time counsellors who provide guidance on educational, vocational, personal and social issues
- Guidance teachers and other school personnel
- Consultancy and resource assistance such as pastoral care, career education, personal development and study skills programs.

## Section 11: Glossary

<b>Assessment</b>	the ongoing process of identifying, gathering and interpreting information about progress from students' demonstration of the intended learning outcomes for their level of schooling.
<b>Assessment criteria:</b>	statements that are used to judge the quality of student performance. They are the conditions set to demonstrate what has been achieved, or the qualities that must be met by performances/ products for work to be deemed successful.
<b>Assessment methods:</b>	major categories into which assessment tasks (and tools) fit. The broadest categories are observation, tests and analysis of products and processes. These broad categories can be further divided into portfolios, performances and oral/verbal responses, products, projects, written responses, examinations, self and peer assessment.
<b>Assessment tasks:</b>	activities the students actually do/complete to be measured or assessed.
<b>Criterion-referenced assessment:</b>	uses a number of indices to produce a profile of the achievement of each student against a set of specified criteria or performance standards.
<b>Curriculum:</b>	The subjects that are included in a course of study or taught in a school.
<b>Formative assessment:</b>	observations which allow one to determine the degree to which students know or are able to do a given learning task, and which identifies the part of the task that the student does not know or is unable to do.
<b>Learning outcome</b>	a statement that identifies the knowledge, skills, attitudes and values all students should demonstrate at a particular level of education.
<b>Lifelong learning:</b>	a continuous learning process that takes place at all levels - formal, non-formal and informal throughout life.
<b>Local curriculum:</b>	course of study developed to meet local needs.
<b>Integration</b>	A strategy that requires teachers to form linkages across subjects.
<b>Norm-referenced assessment:</b>	comparison of one student's performance with the performance of other students. Usually the larger group or "norm group" is a national sample representing a wide and diverse cross-section of students. Students, schools, districts, or even states, are then compared or rank-ordered in relation to the norm group. The purpose of a norm-referenced assessment is usually to sort students and not to measure achievement towards specific goals or standards.

<b>Pathways:</b>	Subject and/or unit and option choices made by schools/students.
<b>Performance standards:</b>	'descriptors' which signify the extent to which the criteria have been met, enabling the teacher to give an appropriate grade. The 'descriptors' provide the key features of performance for each level of achievement.
<b>Reporting</b>	communicating clearly to students, parents and guardians, teachers and others, the information gained from assessing students' learning.
<b>Summative assessment:</b>	Evaluation at the conclusion of a unit or units of instruction or an activity or plan to determine or judge student skills and knowledge or effectiveness of a plan or activity.
<b>Syllabus:</b>	An outline of units/topics covered in a subject, for example Grade 9 English.

## **Appendix 1: Frequently asked questions**

### **Education Reform**

**Why have we changed the education system? What was wrong with the old one? Is the reform just another foreign idea?**

Before the reform, the Papua New Guinean curriculum was based mainly on foreign Western beliefs and ideas mainly to produce Papua New Guineans to administer the country and achieve academic success. It was recognized that this system needed to change in order to provide a useful education for all citizens of Papua New Guinea. The National Research Institute (NRI) review of the elementary, primary and lower secondary curriculum recommended that a new curriculum was needed that was relevant for PNG and comparable with developments in other countries.

**Who will benefit from the reform?**

The reform was undertaken to increase access and participation at all levels of education. Enrolments have increased by over 60% since the reform was introduced in 1995.

The education reform redirects the school curriculum towards education for integral human development (IHD) rather than for meeting workforce needs only. The reform curriculum prepares the majority of school leavers (up to 85%) to live in their communities and conduct community-based subsistence and small-scale commercial enterprises, while at the same time supports the other 15% of students who will find paid formal employment or enter tertiary education upon leaving school.

**Will the change improve written and spoken English?**

The language policy recommends that students begin their schooling using their vernacular language and gradually progress to using English as their main language. Vernacular maintenance is still important in secondary schools. There are no negative effects for students who are bilingual or multilingual. Children who develop proficiency in using their vernacular language to communicate, to gain information, to solve problems, and to think can easily learn to use a second language in similar ways. Overall, continued first-language development is related to superior scholastic achievement. Everything acquired in the first language (academic skills, literacy development, concept formation, subject knowledge, and learning strategies) will transfer to the other language/s. On cognitive and academic measures, children who have lost their first language do not score as well as children who have maintained or expanded their first

language as they acquire another language. When the first language continues to be supported, introducing a second language after two-three years of schooling will ensure full cognitive growth in the first language, which will support full cognitive growth in the second language.

## **Outcomes approach to education**

### **What is Outcomes Based Education?**

"Outcome-Based Education (OBE) means clearly focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing the curriculum, instruction, and assessment to make sure this learning actually happens." (Spady, 1994:p.1) It is the forerunner of and succeeded in the US by Standards based education reform which is based on similar beliefs.

### **If it is true that OBE has been rejected in Australia and USA, why is it been introduced in PNG?**

OBE has not been rejected in Australia etc. It has been interpreted and implemented in different ways in different states and in other parts of the world. Papua New Guinea has developed its own version of outcomes based education, a version with a focus on what students know and can do at the end of a learning period, rather than a focus on what the teacher intends to teach. Papua New Guinea chose *an outcomes approach* to education reform to improve the standard of learning by teachers having a clear purpose and focus and students knowing what they have to know or be able to do-*ie the students have the same clear purpose as the teacher.*

### **What is an outcomes approach?**

An outcomes approach identifies the knowledge, skills, attitudes and values that all students should achieve or demonstrate at a particular grade in a particular subject (the learning outcomes).

Learning outcomes provide teachers with a much clearer focus on what students should learn. They also give teachers greater flexibility to decide what is the most appropriate way of achieving the learning outcomes and meeting the needs of their students by developing programs to suit local content and involve the community.

The outcomes approach promotes greater accountability in terms of student achievement because the learning outcomes for each grade are public knowledge - available to teachers, students, parent and the community. It is not the hours of instruction, buildings, equipment or support services that are the most important aspect of the education process but rather, *what students know and can do as they progress through each grade.*

**How is PNG implementing an outcomes approach to education?**

PNG has defined the learning outcomes for all subjects in the curriculum. These are clearly stated in each syllabus. Knowledge, skills and attitudes and values inherent in the learning outcomes are also described. Planning and programming starts with learning outcomes, then moves to assessment to teaching strategies to resources etc. Teachers may vary the planning order but consistency between learning outcomes, content, teaching strategies and assessment is essential.

**In what way is the reform curriculum different from the old curriculum?**

The old curriculum focused, to a large extent, on remembering facts and figures (content knowledge) some of which were not particularly relevant to PNG. The old curriculum was more teacher-centred. The new curriculum is more student-centred.

Students must be able to do more than simply recall on demand large amounts of information - the simplest of declarative knowledge. Successful learners can apply what they have learnt in new and different situations, and are able to analyse, interpret, evaluate and synthesise information - what we identify as critical thinking skills.

Schools and teachers can now use local and PNG examples to focus on development of understanding, skills and attitudes relevant to PNG. This means that there can be many different learning contexts but only one set of learning outcomes for each grade.

**Where else has Outcomes-based Education been practised and been successful?**

Nearly all US states and public school districts today have curriculum frameworks, learning outcomes, standards, and goals characteristic of OBE. The main practitioners include Arizona, Washington and Massachusetts. Other countries using OBE include South Africa, Vietnam, New Zealand, United Kingdom and Australia.

**What is the difference between objectives and learning outcomes?**

Objectives as used in the old curriculum are goals to be taught and are very broad and loose and are often independently determined by the teacher. Objectives describe intentions and put teachers as central to the education process. Learning outcomes are statements of what is expected that a student will know and be able to DO as a result of a learning activity. Learning outcomes are clear, observable demonstrations of student learning that occur at or after the end of a significant set of learning experiences. Learning outcomes describe the end points of learning for the student and put students as central to the education process.

**What is the difference between the current syllabuses and the new syllabuses?**

The new lower secondary syllabuses contain a subject rationale; curriculum principles; subject aims; and broad learning outcomes to be

achieved by the end of *Grade 10*. Each syllabus contains a number of structured units for *Grades 9 & 10*. Each unit lists the specific *learning outcomes* for the unit, the *content* that will assist students achieve the learning outcomes and the *assessment* requirements for the unit.

## **Learning and teaching**

### **Does the new teaching approach mean that teachers do not actually teach knowledge, skills and attitudes?**

Some people think that an outcomes approach means that the teacher does not actually “teach” the students any knowledge skills or attitudes. Some people believe wrongly that student centred teaching means that the teacher has less responsibility to teach the students and they will simply learn from each other. The teacher still decides the best ways (including traditional approaches) and the most appropriate content and learning and teaching activities to help students learn and demonstrate their learning, but the teacher also monitors learning and ensures students are directly involved in learning through meaningful activities.

### **How will classrooms be different?**

The classrooms will be different in the following ways. The teacher will act more as a facilitator of learning as well as an imparter of knowledge and the learning will:

- have a clearer purpose
- be more interactive - between teacher and students, between students
- be in the local context more than before
- will be more closely monitored and acted upon by the teacher.

Students will be able to help each other develop skills and attitudes because they are all on the same path, but some students are further ahead so can help those who are behind. Classrooms will have the noise of learning. Learning will often be shared and explanations will use local experience to develop deep concepts and understanding.

### **Will academically able students be disadvantaged? Will teachers give more time to weaker students?**

One of the implications of OBE is that teachers are prompted to think about the individual needs of all students and give opportunities for them to achieve at a variety of levels. Thus, in theory, weaker students are given work within their grasp and exceptionally strong students are extended.

**Outcomes based approach calls for students to achieve knowledge and skills at a certain level. If these skills are not achieved, what measures can be taken before they move onto the next level?**

An outcome-focused approach accepts that learning progresses along a broadly identifiable developmental continuum. All students can learn and succeed, but not all in the same time or in the same way. Some achieve the learning outcomes sooner and others later. However, most students can achieve high standards if they are given appropriate opportunities. Traditional ways of organising schools do not make it easy for teachers to provide expanded opportunities for all students but now teachers can use student centred strategies such as individual assistance, group work and pairing to help students at least partially achieve the learning outcomes.

**What happens if students do not achieve their learning outcomes for the year?**

Some students may not achieve all the learning outcomes and will be reported as not meeting the required standards for that particular outcome, but it is likely that most students will achieve most/some learning outcomes. Some students will achieve all learning outcomes. Such information will be important for the student, parents and for the next (grade) teacher to know.

**Are students fully aware of syllabus learning outcomes and how they can be assisted to achieve them?**

Syllabuses and teacher guides are public documents which students and their parents can access. Learning outcomes charts should be displayed in classrooms and teachers will make clear to students at the beginning of each unit the learning outcomes they will be working towards. Teachers will also provide students with detailed information about assessment requirements, criteria and performance standards.

**What does the 'designing down' approach to programming mean?**

Planning and programming by designing down means that the starting point for planning, programming and assessing must be the learning outcomes - the desired end results. All decisions on inputs and outputs are then traced back from the learning outcomes. The achievement of the outcome is demonstrated by the skills, knowledge and attitudes gained by the student. The syllabuses and/or teacher guides describe some ways in which students can demonstrate the achievement of learning outcomes.

The unit learning outcomes are the starting points for programming. Next the teacher thinks about the best ways to monitor the learning that may be occurring (assessment strategies). This is followed by the teacher thinking about the best learning and teaching strategies to facilitate learning. Lastly the teacher thinks about the most appropriate content (K, S, A) to facilitate learning. Then the teacher aligns them for consistency with the learning outcomes. This is the thinking process that is unique to the 'designing down' approach.

**How is this new programming approach different from the old approach?**

The old approach was content based, and teacher centred. Some of that content was important but much was not relevant to PNG. The new approach requires all learning outcomes presented in the syllabuses to be taught, across the grade levels. The content is seen as the vehicle for students to learn and demonstrate the learning of outcomes and is not an end in itself.

**What happens if a teacher cannot teach all the learning outcomes?**

All learning outcomes are mandatory (must be covered). Teachers cannot pick and choose. When a teacher is unable to teach all the learning outcomes students may miss out on the opportunities to learn and demonstrate their learning in that area. Students may also receive poorer internal and external assessment results. Teachers must develop programs that cover all learning outcomes. If a teacher is uncertain about topic content and skills development the teacher must consult with colleagues and/or develop strategies to ensure students do not miss out on essential learning.

**What is inclusive education and how can it be supported in schools?**

Inclusive education assumes all children are entitled to learn to the best of their ability regardless of gender, intellectual or cultural or economic

background. It is best supported by ensuring all children know the purpose and intention of lessons. Inclusive education means not only equal opportunities for learning but also for achieving success

## **Assessment**

### **How do we assess and record using the new curriculum?**

Teachers must use a range of assessment methods (like observation of student performance, concept maps, self and peer assessment, and written tests and examinations that match your teaching methods. For example, in a practical subject, observation would be the most appropriate assessment method, not a written test.

Recording - achievements can occur at various levels such as the unit itself, the strands, sub strands and sub strands within the unit and the learning outcomes within that unit. The more information that is recorded, the better chance students/parents have to understand their weaknesses and strengths.

### **Will all subjects be nationally/externally examined? How will the external examinations be managed?**

There will be a national examination at the end of grade 10 for all subjects. The external examination provides a measure of student achievement of those aspects of the broad learning outcomes that can be reliably measured in an examination setting. Questions for the external examination in subjects will be developed using the learning outcomes, knowledge and skills in the core units. Exams won't look the same for all subjects and some may be shorter than others.

The first examination of the new curriculum will take place in 2009.

### **Will marking be objective or subjective?**

Students will be assessed for each unit using formal and informal assessment such as observation of performance, projects, self and peer assessment, portfolios, written tests and examinations. Students will be marked according to the criteria for each task and teachers will judge achievement against performance standards described in the teacher guide. This will make the marking far more objective. Teachers will provide clear instructions for each assessment task and the criteria that will be used so that students know exactly what they have to do. These school based assessment tasks will count towards the final mark for the school certificate.

**How much weighting will internal & external assessments have?**

The weightings for internal and external assessment will vary, depending on the nature of the subject. For example subjects with a focus on projects or the making of products will have a higher weighting for internal assessment.

**How many subjects are required for selection to grade 11?**

Students must do seven (7) subjects. All seven subjects are counted towards selection.

**How many subjects must a student pass to be given a year 10 certificate?**

Students have to complete all the assessment requirements, both internal and external for the seven subjects they study during Grades 9 and 10.

**Will school based results be moderated?**

Yes. They will be statistically moderated against the examination results. The rank order of students within a school will not change however.

**How will we know if the reform curriculum is improving the quality of teaching and learning in PNG schools?**

This knowledge can be obtained by measuring student performance at regular intervals against expected curriculum standards, written in the reform curriculum. If student performance is seen to rise over time, as the reform curriculum is progressively implemented, this is evidence that the reform curriculum is having a beneficial effect on the quality of teaching and learning.

**What is the difference between assessment for learning and assessment of learning?**

*Assessment for* learning is assessment that occurs as a regular part of teaching and learning. The information gained from assessment activities is used to improve the teaching and learning process.

*Assessment of* learning is assessment for accountability purposes, to determine a student's level of performance on a specific task or at the conclusion of a unit of teaching and learning. The information gained from this kind of assessment is often used in reporting.

**Parents/guardians**

**How can parents/guardians support their children?**

Parents/guardians can support their children by asking, "What was the teacher looking for?" and "why was the teacher looking for this"? The parent is now in exactly the same position as the student in the class and can help their children by asking these questions. When parents ask questions they are conducting their own assessments and can work out where they as parents can help their child. Learning is a partnership and collaboration between parents, children and teachers will improve the learning.

Parents can also support their children by talking to their children and/or the teacher, by looking through work samples or student portfolios. Syllabuses are public documents which parents can acquire or borrow to inform themselves.

### **How will parents know if their child is learning at school?**

In many ways - apart from being happy and wanting to go to school, students who are learning are purposeful learners because they know what is expected of them. Teachers are also more focussed on what is expected of their students. They are likely to be monitoring student progress through observation and other means. They are also likely to be reporting learning in more meaningful ways than before.

## **Teachers**

### **Will teachers' workloads increase?**

There is always more work involved initially when we change the way we do things. Many teachers already use an outcomes approach when teaching because they plan their lessons and units around developing student's skills or understandings rather than covering a content area. Many teachers already use an outcomes approach when teaching because they require students to demonstrate what they know and can do and they provide opportunities for students to demonstrate learning outcomes through active involvement in a range of settings. Many teachers already use an outcomes approach when teaching because they include learning experiences involving higher order thinking skills such as decision making, problem solving, and interpreting. These teachers will not notice a big difference in their workload.

**Will teachers be provided with opportunities for inservice or further training?**

The types of in-service activities that can be made available to teachers are constrained by funding issues. Face-to-face workshops and in-service activities are very expensive and may not be sustainable in the longer term.

In-service materials have been developed that can be used for school or cluster-based activities. In-service works best at the school level where teachers can practice what they learnt. Principals/Head Teachers have an important responsibility in this regard.

There are many resource people in the provinces who can assist with training. These include inspectors and others who have been trained as facilitators and assessors.

**Will teachers' pay increase?**

Teachers' pay will not increase directly as a result of the reform.

**Will teachers have the capacity and energy to change?**

All change creates feeling of anxiety in the people who have to implement the change. Everyone needs support when they become anxious or worried by the change process. It is important to remember that effective and long lasting change takes time and persistence. Teachers must be encouraged to see that learning new things is exciting and stimulating.

**How will better teaching training practices impact on curriculum implementation?**

Beginning and practising teachers learn much from observing role models and having opportunities to practise what they are learning. Teacher education programs at the universities and PTCs are changing to reflect the new focus on student centred learning. Experienced teachers can learn about the new approaches to teaching, learning and assessing from students coming to schools for teaching practice.

**Resources**

**Who is funding the new curriculum materials?**

Production and distribution of the new syllabuses, teacher guides and support materials for the elementary, primary and lower secondary

curriculum has been largely funded by AusAID through the Curriculum Reform Implementation Project (CRIP).

**Will teachers have sufficient resources, including new textbooks?**

Schools will be supplied with print and electronic versions of the new syllabuses, teacher guides, *Implementation Handbook* and support materials.

Text books already in schools for most subjects are still appropriate but teachers will have to select the chapter/section/activities applicable for the unit being studied, rather than working systematically through the text book. Teachers/schools will have to supplement text books with other resources such as newspaper/magazine clippings or notes taken from television programs. Because the new curriculum is student centred, schools will not be able to offer some subjects or options if the essential resources are not available.

New text books written specifically for the reform curriculum may not be available for several years.

**Can PNG sustain the reform curriculum when donor agencies leave?**

The biggest cost for the DoE is the printing and distribution of curriculum materials. Because all the new materials have been provided through donor funding, for the next few years the DoE will only have to fund supplies for new schools.

Another major cost is teacher training and inservice. By adopting the school/cluster-based model of inservice recommended in the *2007-2014 National Teacher Inservice Plan*, the updating of teacher knowledge and skills should be sustainable.

**How can schools facilities such as libraries be utilised to support an outcomes approach to education?**

Libraries are a collection of resources to assist learning. Skills of using libraries are not an end in itself but a means of accessing a resource (eg, book). Student-centred learning implies greater use of such facilities, if available. Libraries can instil in students the value of texts as a way of providing specific information. Libraries are then an important centre for resource - based learning. Libraries are also important for developing an enjoyment of reading for relaxation as well as research.

### **How can provincial education authorities be fully engaged with change in the education reform?**

Provincial education authorities must be committed to:

- improving the standard of learning in schools in the province;
- monitoring changes and improvement in the province.
- adjusting priorities including funding to improve learning and measure the output in education.

### **Lower Secondary Curriculum**

#### **Why aren't all subjects compulsory?**

If all subjects were compulsory there would be no flexibility. The lower secondary curriculum is designed to cater for the needs of all students. This means recognising that students have different interests, aptitudes and strengths.

#### **Why are English, Mathematics and PD compulsory?**

These subjects are compulsory because of the need to raise national literacy and numeracy standards. Literacy and numeracy skills are necessary to achieve in all other subjects. Personal Development is compulsory because it encourages students to become responsible decision-makers and contributes to their understanding of major social issues.

#### **Why have the core subjects gone?**

Having a core implies a hierarchy of subjects. The new curriculum values all subjects equally. Students/schools determine what is important to them.

**How many learning outcomes will there be in each syllabus?**

Each syllabus contains four-six (4-6) broad learning outcomes which guide learning for both Grades 9 and 10. Units within each syllabus generally have two-four (2-4) unit learning outcomes which focus on more specific knowledge, skills and attitudes leading to the achievement of the broad learning outcomes.

**What is a strand?**

A strand describes a dimension of a subject. It is a broad, organising structure that defines a way of viewing learning in the subject. Strands together determine the scope of the subject. Strands are arbitrary, that is, a focus on different strands can steer a subject in different directions.

**Why does the syllabus have units? How long is a unit? Do units have to be taught in a particular order?**

Units are a way of clearly organising subject content, activities and assessment to ensure that all schools teach and assess the same things at the same standard. Units generally take five weeks or one term to complete. Each subject has specific requirements about the order in which units are taught. Some subjects have both core and option units. The core units contain the essential learning needed to progress in that subject.

**Can I teach a unit in my school that is not in the Syllabus?**

Yes, these are known as school developed units (SDUs). The syllabuses contain some suggestions for SDUs, but schools are free to use the guidelines to develop their own units and have them accredited by the Curriculum Development Division (CDD).

**What is enterprise in education?**

Enterprise in education is developing and using skills learned through the study of different subjects to be self reliant at a school and/or individual level, for example selling vegetables grown for an Agriculture project or selling furniture made in Practical Skills.

**Will agency schools still be able to provide 4 periods a week of Religious Education?**

Agency schools will be able to provide 3 periods a week directly, one RI and two "spare" periods a week. The other period can come indirectly through issues and topics covered in Personal Development and other

subjects. Agency schools can write a short course for the 2 spare periods and have it accredited by the DoE. It will then be included on the *Grade 10 School Certificate*. The student will be shown as having completed the RI course.

**How will morals, ethics and values be covered?**

Ethics, moral and values are covered directly in the compulsory Personal Development syllabus. They are also covered in the broad learning outcomes of subjects such as Business Studies and in discussion/writing activities in subjects such as Social Science and English.

**Will physical education and sports still be possible?**

Physical education and sports are a compulsory component of Personal Development. Schools must schedule two periods a week for these activities and development and implement a comprehensive sports and fitness program.

**Is the Grade 11 and 12 curriculum going to be redeveloped?**

A review of the Grade 11 and 12 curriculum has been undertaken and the recommendations will be used to guide the development of a curriculum framework and the writing of new syllabuses during 2007-8.

**Will the subjects and requirements for university entrance be the same as now?**

This will not be known until the recommendations of the review have been made public and all stakeholders have been consulted about the new upper secondary curriculum framework.

**Practical Skills has units called Timber technologies 1, 2, 3, 4 and 5. What does this mean?**

This means that students can do five terms of timber technologies. Students could complete one long project taking five terms, for example designing and making a table and four chairs; or five small projects of a term each.

The same applies for Food Technologies and Textile Technologies in Home Economics.

**Can students pick and choose units from the Design and Technology syllabus?**

Design and Technology enables students to choose a variety of units from the Design and Technology Subject Field syllabuses that are of interest to them. If a student decides to study some of the Computing units, he/she must do the core units before studying the options.

**Can schools teach Music, Dance and Drama as separate subjects?**

Dance, Drama, Music and Visual Arts are all part of the Arts syllabus and cannot be taught separately unless they have been developed and accredited as school developed units or courses. However a school can focus more strongly on any of these areas through the extension and option units.

**How will a school teach Personal Development without trained PD teachers?**

There are a number of ways schools can manage this issue. Schools can utilise the skills of PE and Guidance teachers, and train and support other teachers who are interested in teaching PD. Schools can use a team teaching approach. Eventually schools will be able to recruit newly trained teachers with a PD background.

**How does a school get a course accredited?**

Information about having SDUs or courses accredited is provided in the appendix of this Handbook. Schools can also seek information about the process and requirements from CDD. Schools have to fill in a template and write the unit or course according to the guidelines. Then the unit or course must be sent in to CDD by June the year before the course is to be taught. Units and courses will be accredited for a period of three years.

## Appendix 2: Resources available in the provinces

1. Secondary Inspectors are your first point of contact. These inspectors have attended several training workshops and are well placed to provide strategic assistance and/or advice.
2. ECBP Regional Inservice Support Advisers (RISAs) can assist with the implementation and evaluation of cluster-based in-service activities. They also provide strategic planning support and advice to curriculum change in-service teams in provinces to ensure effective use of resources. To contact your RISA call the ECBP office on 3255455 for details.
3. PNGEI-endorsed external assessors have been trained up as external assessors of primary school teachers upgrading their qualification. The teachers they assess study in-service units based on grades 3-8 reform curriculum. The assessors are also skilled in facilitating workshops on the outcomes approach and related issues.
4. Some staff of Primary Teachers' Colleges (Holy Trinity, Gaulim, Balob, Madang, PNGEI, Sonoma) are trained assessors and are able to assist with the outcomes approach and related issues.
5. Eight primary in-service units for grades 3-8 have been distributed to primary schools. These units contain self-paced learning material on a range of pedagogical issues which are also applicable in the secondary situation. Feel free to copy relevant parts and use them for professional development in your schools.
  - Unit 1: Philosophy of Curriculum Reform
  - Unit 2: Curriculum Reform: Culture and Community
  - Unit 3: Curriculum Reform: Language and PD
  - Unit 4: Curriculum Reform: Mathematics and Science
  - Unit 5: Outcomes Based Planning and Programming
  - Unit 6: Learning and Teaching for Outcomes
  - Unit 7: Assessing and Reporting Achievement of Outcomes
  - Unit 8: Bridging to English
  - Unit 9: Vernacular Literacies
6. Three Collegial Curriculum leadership Program in-service units for principals/head teachers and school leaders. These units contain self-paced learning material on a range of pedagogical issues which are also applicable in the secondary situation. Feel free to copy relevant parts and use them for professional development in your schools.
  - Unit 1: Effective School Management
  - Unit 2: Understanding an Outcomes-based Approach to Education
  - Unit 3: Leading and Managing Curriculum Change
7. Website: [www.pngcurriculumreform.ac.pg](http://www.pngcurriculumreform.ac.pg). This website contains all the curriculum and support materials published with the support of the Curriculum Reform Implementation project (CRIP).

8. Some primary schools are already implementing reform curriculum; secondary schools may wish to collaborate with them. Teachers and parents from these schools may be able to assist.

9. International schools are another resource. Many have a secondary component. They are already implementing outcomes-based curriculum. Secondary schools may wish to collaborate with these schools and see outcomes-based education in action.

10. The University of Goroka and Pacific Adventist University are the providers of secondary teacher education. Some lecturers at the universities are particularly knowledgeable about the outcomes approach, student centred learning and teaching strategies and assessment. Contact the Dean of Education at either institution for information about preservice, inservice and upgrade programs.

## Appendix 3: Accreditation of School Developed Units

### Introduction

The Secondary Board of Studies has developed a process to accredit school developed units that can be taught as part of a nationally prescribed syllabus. Schools can develop a number of units that fit within existing subjects to meet their local needs which may take the place of option or extension units.

School developed units should be written so that they closely follow the guidelines and requirements in this accreditation document.

### Step one

- School determines a local need for a school developed unit which will fit within an existing nationally prescribed lower secondary syllabus.
- School rings CDD and discusses proposal with appropriate subject Curriculum Officer to:
  - ensure that proposed unit is not available within the existing syllabus
  - proposal fits CDD requirements
  - proposal likely to be supported by CDD and SBOS
- Teachers from the school write the unit according to DOE guidelines
- The unit is support by the Board of Governors of the School
- The school submits the school developed unit in June for approval for the following year, to the Superintendent Curriculum Unit.

### Step two

- The Secondary Accreditation panel checks the unit against the set criteria.
- Approval in principle is given for implementation the following year.
- Final approval is given by the Secondary Board of Studies.

### Tracking the document

- Superintendent Curriculum Unit receives the submission from the school
- Document forwarded to the Subject Curriculum Officer
- Curriculum Officer contacts the school to let the school know that the document has been received, and alerts the school if there is a problem
- Curriculum Officer attempts to resolve any problems
- The Secondary Accreditation panel meets
- Curriculum Officer writes a letter to the school, to be signed by the Superintendent Curriculum Unit, to inform the school about the decision of the panel
- The unit is presented to the Secondary Board of Studies with a report from the panel
- Chairman of Secondary Board of Studies signs the letter to the school regarding the decision of the Board.
- Unit is accredited for a period of three years.

Accreditation of School Developed Units

**Membership of the secondary accreditation panel**

- Principal Curriculum Officer -Secondary
- Senior Curriculum Officer -Secondary
- Curriculum Officer - Subject
- Secondary Inspector
- Subject Specialist.

The following forms must be completed by the school, and forwarded to the Curriculum Development Unit by June, in the year before the unit is to be offered, for approval by the Superintendent, Curriculum Unit.

The completed forms must be sent to:

Superintendent, Curriculum Unit.  
PO Box 446  
Waigani NCD

Phone: 324 6400

Fax: 325 5902

## Proposal for accreditation of school developed unit

Please fill in all spaces:

1. Full name of school or organization proposing the unit:

--

2. Contact name, address and details:

Name:	
Position:	
Address:	
Telephone:	Fax:
Email:	

3. Name and signature of Head Teacher

Name:
Signature:
Date:

4. Key members of staff responsible for the organization, management and teaching of the unit:

Name:	Name:	Name:
Position:	Position:	Position:
Responsibility:	Responsibility:	Responsibility:

Accreditation of School Developed Units

5. Outline the school's arrangements for quality assurance and quality control of this unit. Include the process for selecting and training teachers to teach the unit, and how the school proposes monitoring the teaching of the unit.

6. Confirm that the school/organization will maintain, over time, representative samples of students work in order to monitor provision and standards.

Samples of student work will be kept each year for the three year accreditation period of the unit	YES/NO
Assessment plan has been submitted	YES / NO
The school/organisation has the necessary resources to teach the unit	YES / NO
The Board of Governors supports the teaching of this unit in the school	YES / NO

**Signed** \_\_\_\_\_

**Date** \_\_\_\_\_

## HOW TO WRITE A UNIT

<b>Title of unit</b>
<b>Description of unit</b>
<b>Unit learning outcomes</b> 1. 2. 3.
<b>Content</b> Topics ..... Sub-topics  (Content)  (Skills)  (Values)  (Processes)
<b>Assessment</b>  Assessment Tasks  Assessment Criteria

Description of the unit must outline the broad content of the unit, other units it might relate to and the strand emphasis.

Unit learning outcomes must state what the student will know and be able to do at the end of the unit. They must be able to be assessed, link to the broad learning outcomes of the subject and provide evidence of achievement of the broad learning outcomes

The content of the course is divided into topics and sub-topics. The topic specifies the broad content, skill, values and processes and the sub-topics provide the detail of what the student will learn (knowledge), the skills they will use, processes they will use and important values they will learn. The topics and sub-topics should be listed in dot point form. The teacher develops and designs units of work. The content enables the teacher to develop and design quality learning experiences.

At least two different assessment tasks must be used.

Assessment criteria and rubric give descriptions of the nature and level of judgement. A rubric is a scoring guide used to assess a student's performance based on a range of performance criteria instead of a single score. Any specifications or conditions must be included

Accreditation of School Developed Units

Please complete the following or reproduce the template and complete

<p><b>Unit Title</b>.....</p> <p><b>Description of Unit</b></p>
<p><b>Broad Learning Outcomes from Syllabus linked to this unit</b></p>
<p><b>Unit Learning Outcomes:</b></p> <ol style="list-style-type: none"><li>1.</li><li>2.</li><li>3.</li></ol>
<p><b>Content (Knowledge, Skills, Processes, Values)</b></p>
<p><b>Assessment</b></p> <p>Assessment task one</p> <p><i>Assessment criteria</i></p> <p>Assessment task one will be assessed on the extent to which students can:</p> <p>Assessment task two</p> <p><i>Assessment criteria</i></p> <p>Assessment task two will be assessed on the extent to which students can:</p> <p><b>Total marks - 100 (for a ten week unit), 50 for a five week unit</b></p>

Accreditation of School Developed Units

Performance standards for assessment task one				
Total marks - ##				
Criteria				
Marks	Very High Achievement	High Achievement	Satisfactory Achievement	Low Achievement
	#--# marks	#--# marks	#--# marks	Under # marks
	#--# marks	#--# marks	#--# marks	Under # marks
	#--# marks	#--# marks	#--# marks	Under # marks

Accreditation of School Developed Units

Performance standards for assessment task two				
Total marks - ##				
Criteria				
Marks	Very High Achievement	High Achievement	Satisfactory Achievement	Low Achievement
	##--# marks	##--# marks	##--# marks	Under # marks
	##--# marks	##--# marks	##--# marks	Under # marks
	##--# marks	##--# marks	##--# marks	Under # marks

Accreditation of School Developed Units

**Assessment plan**

When will the assessment take place?

How will the teacher monitor assessment standards?

**Evaluation:**

Process for evaluation of the unit..

What methods will be used to evaluate how well the unit, teachers and other contributors, the assessment methods and tasks, and the teaching materials and resources have combined to support student learning and student achievement of the unit outcomes?

**Checklist to be completed by the school and submitted with proposal**

<p>Has the PROPOSAL FOR ACCREDITATION OF SCHOOL DEVELOPED UNIT been fully completed?</p> <p>Is this unit available in any of the Lower Secondary syllabuses?</p> <p>Can it be taught as a generic unit in Arts, Design and Technology or Agriculture?</p> <p>Does your school have qualified teachers to teach this unit?</p> <p>Does your school have the necessary resources to teach this unit?</p> <p>Does the Board of Governors support the teaching of this unit at this school?</p> <p>Are there quality assurance processes in place?</p> <p>Has the Deputy Principal Academic approved the assessment plan?</p>	<p>YES</p>	<p>NO</p>
<p><b>LEARNING OUTCOMES</b></p> <p>Are the learning outcomes (2-4) for the unit clear and specific?</p> <p>Are they clearly linked with the broad learning outcomes for the subject?</p> <p>Do they indicate what students should be able to do and know at the end of the unit?</p> <p>Are they achievable within the time constraints?</p> <p>Will students be able to present evidence to indicate the extent to which they have achieved the outcomes?</p>	<p>YES</p>	<p>NO</p>
<p><b>UNITS</b></p> <p>Do the topics relate to the learning outcomes?</p> <p>Is there an appropriate range of learning activities?</p> <p>Can the topics be covered in the indicated time?</p> <p>Do the topics cater for a diverse range of students?</p> <p>Are the knowledge, skills and attitudes that students must accomplish clearly indicated?</p>	<p>YES</p>	<p>NO</p>

Accreditation of School Developed Units

<b>ASSESSMENT CRITERIA</b>	YES	NO
<p>Do the assessment criteria relate to the learning outcomes?</p> <p>Are they clear and easily understood?</p> <p>Do they describe what outcome or part of the outcome is being assessed?</p> <p>Do the assessment criteria describe the nature and level of judgement that the teacher will use?</p> <p>Are students able to address all assessment criteria?</p> <p>Are they related to the purpose of the assessment task?</p> <p>Have the assessment criteria been weighted so that the weighting reflects the level of difficulty and complexity.</p> <p>Does the total weighting for the unit equal 100 marks?</p>		
<b>ASSESSMENT TASKS</b>	YES	NO
<p>Are the assessment tasks appropriate to the unit?</p> <p>Are they practical assessment tasks?</p> <p>Are there at least two different assessment methods ?</p> <p>Is it clear how learning will be assessed?</p> <p>Is the task related to the strands and learning outcomes?</p> <p>Is there a suitable range of tasks?</p> <p>Is there a suitable range of parts of a task to allow all students opportunity to show their learning?</p>		

## Appendix 4: Accreditation of School Developed Courses

### Introduction

The Secondary Board of Studies has approved a process to accredit school developed courses. Schools can develop courses to meet their local needs when nationally prescribed syllabuses are not available. Courses are accredited for three years and can be written for the two spare periods per week. Examples of courses which could be written are Vocational Education courses, a language course such as Bahasa Indonesian or a Religious Instruction course.

School developed courses must be written so that they closely follow the guidelines and requirements in this accreditation document.

### Step one

- School determines a local need for a school developed course which will fit within the nationally prescribed learning areas
- School rings CDD and discusses proposal with appropriate subject Curriculum Officer to:
  - ensure that proposed course is not available already through options within existing syllabuses
  - proposal fits CDD requirements
  - proposal likely to be supported by CDD and SBOS
- Teachers from the school write the course according to DOE guidelines
- The course has the support of the Board of Governors
- The school submits the school developed course in June for approval for the following year, to the Superintendent Curriculum Unit.

### Step two

- The Secondary Accreditation panel checks the course against the set criteria.
- Approval in principle is given for implementation the following year.
- Final approval is given by the Secondary Board of Studies.

### Tracking the document

- Superintendent Curriculum Unit receives the submission from the school
- Documents forwarded to the Subject Curriculum Officer
- Curriculum Officer contacts the school to let the school know that the document has been received, and alerts the school if there is a problem
- Curriculum Officer attempts to resolve any problems
- The Secondary Accreditation panel meets
- Curriculum Officer writes a letter to the school, to be signed by the Superintendent Curriculum Unit, to inform the school about the decision of the panel
- The course is presented to the Secondary Board of Studies with a report from the panel

## Accreditation of School Developed Courses

- Chairman of Secondary Board of Studies signs the letter to the school regarding the decision of the Board.
- Course is accredited for a period of three years.

### **Membership of the secondary accreditation panel**

- Superintendent, Curriculum
- Principal Curriculum Officer -Secondary
- Senior Curriculum Officer -Secondary
- Curriculum Officer - Subject
- Secondary Inspector
- Subject Specialist.

The following forms must be completed by the school, and forwarded to the Curriculum Development Unit by June, in the year before the course is to be offered, for approval by the Superintendent, Curriculum Unit.

The completed forms must be sent to:

Superintendent, Curriculum Unit.  
PO Box 446  
Waigani NCD

Phone: 324 6400

Fax: 325 5902

## Proposal for accreditation of school developed course

Please fill in all spaces:

1. Full name of school or organization proposing the course:

--

2. Contact name, address and details:

Name:	
Position:	
Address:	
Telephone:	Fax:
Email:	

3. Name and signature of Head Teacher/Principal

Name:
Signature:
Date:

4. Key members of staff responsible for the organization, management and teaching of the course:

Name:	Name:	Name:
Position:	Position:	Position:
Responsibility:	Responsibility:	Responsibility:

Accreditation of School Developed Courses

5. Outline the school's arrangements for quality assurance and quality control of this course. Include the process for selecting and training teachers to teach the course, and how the school proposes monitoring the teaching of the course.

6. Confirm that the school/organization will maintain, over time, representative samples of students work in order to monitor provision and standards.

Samples of student work will be kept each year for the three year accreditation period of the course.	YES/NO
Assessment plan has been submitted.	YES / NO
The school/organisation has the necessary resources to teach the course.	YES / NO
The Board of Governors supports the teaching of this course in the school.	YES / NO

**Signed** \_\_\_\_\_

**Date** \_\_\_\_\_

## **HOW TO WRITE A COURSE**

School developed courses can be written for nationally prescribed subject fields. They can be one or two years long and must be written for the two spare periods a week.

The school developed course will consist of:

- Rationale
- Introduction
- Broad learning outcomes ( approximately four - six)
- Five or ten week units which have specific learning outcomes which must link to, or be the same as, the broad learning outcomes
- Assessment tasks for each unit (one or two tasks)
- Assessment criteria for each task.

Schools must use the National Curriculum Statement as their guide for writing the course.

## **WRITING THE UNITS FOR THE COURSE**

All units in the course must be written following the process described and using the templates provided in Appendix 3: Accreditation of School Developed Units.

**Checklist to be completed by the school and submitted with proposal**

<p>Has the PROPOSAL FOR ACCREDITATION OF SCHOOL DEVELOPED COURSE been fully completed?</p> <p>Is this course available in any of the Lower Secondary syllabuses or subject fields?</p> <p>Can the course be taught as generic units in Arts, Design and Technology or Agriculture?</p> <p>Does your school have qualified teachers to teach this course?</p> <p>Does your school have the necessary resources to teach this course?</p> <p>Does the Board of Governors support the teaching of this course at this school?</p> <p>Are there quality assurance processes in place?</p> <p>Has the Deputy Principal Academic approved the assessment plan?</p>	<p>YES</p>	<p>NO</p>
<p><b>LEARNING OUTCOMES</b></p> <p>Are the broad learning outcomes (4-6) for the course clear and specific?</p> <p>Do they indicate what students should be able to do and know at the end of the course?</p> <p>Are the unit learning outcomes (2-3) clearly linked with the broad learning outcomes for the course?</p> <p>Are they achievable within the time constraints?</p> <p>Will students be able to present evidence to indicate the extent to which they have achieved the outcomes?</p>	<p>YES</p>	<p>NO</p>

Accreditation of School Developed Courses

<b>COURSES</b>	YES	NO
<p>Do the units and unit topics relate to the learning outcomes?</p> <p>Is there an appropriate range of learning activities?</p> <p>Can the topics be covered in the indicated time?</p> <p>Do the topics cater for a diverse range of students?</p> <p>Are the knowledge, skills and attitudes that students must accomplish clearly indicated?</p>		
<p><b>ASSESSMENT CRITERIA</b></p> <p>Do the assessment criteria relate to the unit learning outcomes?</p> <p>Are they clear and easily understood?</p> <p>Do they describe what outcome or part of the outcome is being assessed?</p> <p>Do the assessment criteria describe the nature and level of judgement that the teacher will use?</p> <p>Are students able to address all assessment criteria?</p> <p>Are they related to the purpose of the assessment task?</p> <p>Have the assessment criteria been weighted so that the weighting reflects the level of difficulty and complexity?</p>	YES	NO
<p><b>ASSESSMENT TASKS</b></p> <p>Are the assessment tasks appropriate to the course?</p> <p>Are they practical assessment tasks?</p> <p>Are there at least two different assessment methods?</p> <p>Is it clear how learning will be assessed?</p> <p>Is the task related to the learning outcomes?</p> <p>Is there a suitable range of tasks throughout the course?</p> <p>Is there a suitable range of parts of a task to allow all students the opportunity to show their learning?</p>	YES	NO