Making a Living
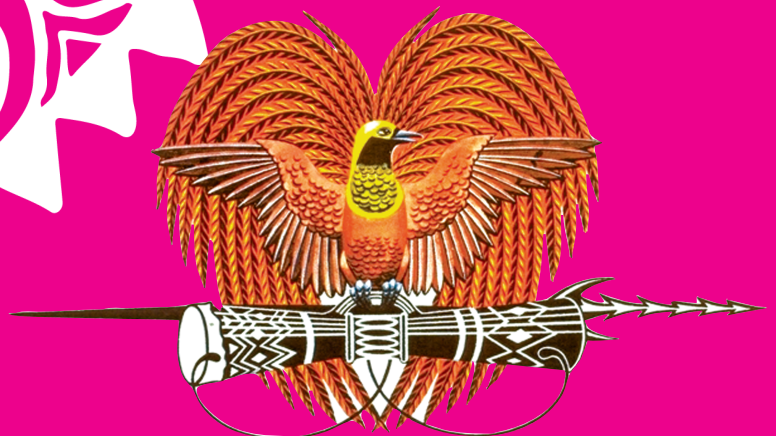
Syllabus

Grades 6, 7 & 8

Standards Based

Papua New Guinea
Department of Education
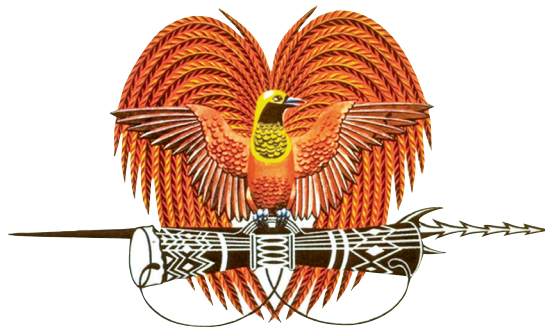
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Acknowledgements

Contents

Acronyms

AAL	Assessment *As* Learning
AFL	Assessment *For* Learning
AOL	Assessment *Of* Learning
BEBoS	Basic Education Board of Studies
CDD	Curriculum Development Division
CP	Curriculum Panel
ESD	Education for sustainable Development
IHD	Integral Human Development
MAL	Making a Living
NDoE	National Department of Education
OBC	Outcome Base Curriculum
OBE	Outcome Base Education
SAC	Syllabus Advisory Committee
SBC	Standards Based Curriculum
SBE	Standards Based Education
SCG	Subject Curriculum Group
STEAM	Science, Technology, Engineering, Arts and Mathematics
STEM	Science Technology, Engineering and Mathematics

Secretary's Message

The development of grades 6, 7 and 8 Making a Living Syllabus is in response to the government's decision to abolish outcomes-based curriculum and replace it with standards-based curriculum.

The content of the curriculum has been rewritten and aligned with standards based curriculum principles and practices. The curriculum will provide all students the opportunity to learn, master and apply practical, creative, innovative and entrepreneurial skills to live and work in diverse contexts. Students will acquire fundamental knowledge, skills, values and attitudes to prepare them for high school and to effectively respond to the demands of the 21st century.

Making a Living is an important life skills subject and therefore, it is important for teachers to be creative, innovative, and motivated when teaching it. The realigned curriculum addresses integrated farming, business environment and practices, and technology, which are the basis for vocational and technical skills development. The subject skills and processes utilize the inquiry and experiential approaches where students will be encouraged to investigate, plan, design, create, implement and manage their resources, and be creative in what they produce. Lessons are linked to real life situations and sustainable living.

Teachers should use the syllabus in conjunction with the teacher guides and other relevant resources to plan, teach and assess students' mastery of content, proficiency levels, and their progress towards meeting the content standards.

I commend and approve this Making a Living Syllabus for grades 6,7 and 8 to be used in all schools throughout Papua New Guinea.

....
DR. UKE W. KOMBRA, PhD
Secretary for Education

Introduction

The introduction of standards-based education in Papua New Guinea is an important government intervention for raising education standards. All aspects of the education system, including curriculum development, teacher training, student and teacher performance, monitoring, school management, and leadership, will be reformed and realigned to enable all students to achieve high and comparable academic standards.

The senior primary Making a Living curriculum has been revised to address current and emerging issues relating to effective resource management, financial literacy and technology for sustainable development as well as address and bridge the knowledge and skills gaps between senior primary and secondary school. Some content and concepts have been realigned, repositioned and incorporated to cater for progressive learning by grades and levels. The new strands - Crop and Livestock Farming, Business Environment and Practices and Basic Technology captured in this realigned curriculum encompass studies of many of the processes that are necessary for Agriculture, Business Studies and Technology subjects in grades 9 and 10 at the secondary school level.

This syllabus describes the national expectations of what students must know and be able to do in Making a Living in grades 6, 7 and 8.

Aims and Goals

Ultimate Aim

Integral human development is the ultimate aim of education in Papua New Guinea (PNG).

- Integral in the sense that all aspects of a person are important and needs to be fully developed.
- Human in the sense that social relationships are basic for humanity and should be the building blocks.
- Every individual has the potential to grow in the knowledge, wisdom, understanding, skill and goodness.

Goals

(1) Every person will be dynamically involved in the process of freeing himself or herself from every form of domination and oppression so that each individual will have the opportunity to develop as an integrated person in relationship with others. This means that the national curriculum must integrate and maximise socialisation, participation, liberation and equality;

(2) Awareness of human potential and the willingness to develop this potential so that each individual can solve his or her own problems, contribute to the common good of society and maintain, promote and improve learning and living; and

(3) Awareness of the goodness and the dignity of every person. It calls for the promotion of self and mutual respect for self, a sense of self-worth, self-discipline and a sense of responsibility for one self and others.

The process of integral human development calls for a national curriculum, which helps individuals to:

- identify their basic human needs;

- analyse situations in terms of these needs;

- see these needs in the contexts of spiritual and social values of the community; and

- take responsible action in co-operation with others.

Overarching Curriculum Principles

Curriculum principles identify, describe and focus attention on the important concerns that must be addressed when developing the curriculum at all levels of schooling. They are based on significant cultural, social and educational values and beliefs.

Relevance

The national curriculum should be relevant to the social, spiritual and resource development needs of a community. This can be achieved by integrating teaching and learning situations that reflect the knowledge, skills, attitudes and spiritual values needed for integral human development. A relevant national curriculum will prepare students for productive community living, integrate academic and practical education, and will provide ways to paid and unpaid employment.

Most people in Papua New Guinea work in the informal economy. Students who leave at the end of grade 8, 10 or 12 will need to find work in the informal economy. These students, however, will not only need to be skilled to work in the informal economy, but they will also need to be prepared to work in the formal economy and undertake formal education if there are opportunities. All students will need applied and academic skills and knowledge. All students will need to know how to adapt new technologies and knowledge appropriately to their environment.

The national curriculum will enable teachers to support students learning by encouraging teaching in real-life contexts. This means relating the skills and knowledge of subjects to real life situations. For example, mathematics can be used to study how to run a business, or appropriate technology can be applied to improve water supplies. People from the community could also be brought into the classroom to help teach a topic and support students undertaking useful projects in the community.

Multiculturalism

Papua New Guinea is blessed and fortunate to have so many languages and cultures. The diversity of our cultures is the source of our knowledge, skills, attitudes and values. As a multicultural society, we must protect, promote and respect our many cultures and languages. There are many people from our own ethnic groupings and from other countries with their own cultures, living and working together in Papua New Guinea. This is the most multicultural country in the world. We must ensure that we promote and share our cultures with the rest of the world.

Ethics, Morals, and Values

Papua New Guinea is striving to create a society in line with democratic liberal traditions. The citizens of Papua New Guinea should recognise appropriate social relationships based on sound human and religious ethics, morals and values. These are required for interaction with families, villages, and other economic groups and people from other provinces and nations. The process of socialisation requires a belief in the ethics, morals and values of the Melanesian extended family, dialogue with and respect for others and a willingness to conserve and promote those aspects of our traditions, which are consistent with integral human development. Socialisation also requires an awareness of the interdependence of individuals, societies and nations in the modern world. It requires involvement with family, school, church, community and the world beyond.

The Right to Healthy Living

The health status of Papua New Guinea is very low. All citizens have a right to a healthy life such as clean water, a nutritious diet, improved sanitation, appropriate and better local health services. Students need to learn attitudes; skills and knowledge that will help them become productive, healthy and contented citizens of Papua New Guinea. They need to be given a set of skills that will enable them to improve their own and their community's health in order to improve the health status of Papua New Guinea. The national curriculum will ensure that students have the opportunity to learn about healthy living.

Nation Building and National Unity

Our nation is young and there is still a great deal of nation building to be done. Students need to be given the skills to undertake this task and participate in nationally organised events. The National Curriculum should enable them to understand how Papua New Guinean societies work and how they can be a useful part of these societies. Students should learn that they have a place in Papua New Guinea and that Papua New Guinea has a place in the world as a whole. They will be able to help Papua New Guinea develop a national identity as one nation if they learn to:

- work together with tolerance;
- respect one another, their different traditional ways and resolve problems peacefully;
- respect and act in the spirit of the National Constitution;
- recognise their capabilities and develop their own talents;
- participate in the development of the national community; and
- protect and safeguard the national wealth and resources and consider how they will contribute to national revenues.

Education for Sustainable Development

PNG National curriculum focuses on Education for Sustainable Development (ESD) as an integral part of learning in the 21st century, ensuring learners are equipped to participate in and contribute to their own society and the wider world. Education for Sustainable Development (ESD) is much more than teaching content related knowledge and skills; it is also about teaching new ways of thinking about and perceiving the realities of our world and the possibilities for change. It is an approach to teaching and learning based on the ideals and principles that support sustainability of human rights, sustainable livelihoods, peace, environmental protection, health, biological and landscape diversity, climate change, gender equality, and protection of indigenous cultures.

Education for Sustainable Development (ESD) prepares students to be actively involved in creating a sustainable future by engaging them in solutions-based design and action that integrate knowledge across different disciplines and that consider diverse social, economic, and cultural perspectives. These skills and approaches also position students to perform more successfully across the school curriculum and prepare them for careers, higher education and citizenship in a twenty-first century world.

Gender Equity and Social Inclusion

Gender equity means equally valuing both the differences and the similarities between boys and girls and the varying roles they play. It does not mean that girls become the same as boys. It means that having the ability to access rights or opportunities does not depend on being male or female.

Integrating this critical understanding into our school culture, teaching/learning and assessment strategies and operational planning within the school and the community will help us to understand the differences between boys and girls and to develop different treatments to achieve more equal results regardless of gender.

Social Inclusion means ensuring that people who might be excluded socially because of their gender, age, status, clan, descent, disability, ethnic background, HIV or other health status, migrant status, religion, sexual orientation, social status, where they live or other social identity, have equal conditions for realising their full human rights and potential to contribute to national, political, economic, social and cultural development and to benefit from the results.

The Department of Education Gender Equality in Education Policy, 2003 recommends that no students in the education system of Papua New Guinea will be disadvantaged on the basis of gender. To implement the policy, teachers have the responsibility to use and promote gender equality practices in their classrooms and with the wider community. In a gender inclusive environment student:

- Should be involved in all activities through formal and structured learning settings
- Should participate in a curriculum that is inclusive and caters for both gender equality and social issues that enhances learning
- Share and equally participate in activities, involving all students
- Show respect for other peers and their contributions in the learning environment
- Are exposed to a safe, challenging learning environment which is socially and culturally supportive
- Pursue programs that recognize the contributions to society of both women and men.

Approaches used in Making a Living lessons should reflect a balance of gender roles and responsibilities. It is important to provide fair and equal access to resources, participation and teaching time to promote gender equity for girls and boys.

Teachers are responsible for ensuring that what is taught and learnt contributes in a positive way to the lives of both girls and boys, and all students should have equal access to the knowledge and skills that schools provide. Teachers are encouraged to have equal expectations of girls and boys and to treat them equally.

Inclusive Curriculum

The Department of Education is committed to 'support the delivery of inclusive education in all schools by providing support and services to all learners, and by taking appropriate steps to make education available, accessible and adaptable to all learners.' An inclusive curriculum is acknowledged to be the most important factor in achieving inclusive education. In planning and teaching the school curriculum, teachers are therefore required to give due regard to the following principles:

The national content standards describe what all students should know (content) and be able to do (how well students must learn what is set out in the content standards) at the primary school level. Teachers should plan, teach, and assess students' mastery of the required knowledge, skills, values, and attitudes in ways that suit student interests and abilities, and enable all students to make the required progress towards the attainment of content standards. This means exercising flexibility and drawing from curricular for earlier or later class levels to provide learning opportunities that allow students to make progress and experience success. The degree of differentiation exercised will depend on students' proficiency levels and status of progress towards the attainment of content standards. The following will help students meet grade or school level expectations;

- varied approaches to teaching, learning, and assessment should be planned to allow all students to participate fully and effectively. Justification of what to be delivered to the students should take on the diverse cultures, beliefs, strengths, experiences and interests that exist in any classroom and these influence the way students learn;

- continuous formative evaluation must be used to shape instruction, thus maximizing students' opportunities for achieving success. Assessment strategies must be appropriate to the way the curriculum is designed and delivered; and

- suitable technology should be used in instruction to facilitate learning and enhance success.

Curriculum options in Making a Living should be broad enough for students to have equal opportunities to reach their maximum potential. All learners should have equitable access to and participation in all aspects of the teaching and learning process, regardless of location, gender, ethnicity, religion, ability, disability and socioeconomic circumstances.

To be inclusive, teachers will need to ensure that all girls and boys have equal opportunity to participate in all learning activities. Teaching practices, including classroom organization and management, should ensure that girls and boys are supported to achieve high academic standards.

Student-Centred Learning

Student-centred learning recognises the fact that no two classes are alike and no two children are the same with respect to their needs. A teacher who uses a student-centred approach will endeavour to create a classroom environment that will motivate students to discover new skills and knowledge. In such an environment, the teacher might focus on teaching students how to learn and help them discover relevant information themselves. It is essential to teach students how to learn independently while at the same time teaching them the essential knowledge, skills, values and attitudes. A student-centred classroom will usually involve students working together in small groups or independently using activity centres set up in the classroom while the teacher works more closely with one or two students or completing various learning activities.

The national curriculum describes what is expected of all students in terms of what they should learn and do at the end of each grade or cluster for all subjects. A student-centred approach allows teachers to be more flexible in determining the most effective ways to help all students achieve the intended learning outcomes.

Lifelong Learning

School is an important part of a student's education but learning continues throughout life. The initial experience that students have with the school curriculum is critical in encouraging them to continue learning throughout their lives. Going to school should be an enjoyable and satisfying experience for the students and should prepare them for life after school. Students know many things when they come to school. They will learn many things outside of school and continue to learn after they leave school. The national curriculum should permit students to learn and become proficient in lifelong learning skills.

When students are learning new, unfamiliar things, teachers should relate the new things to what students already know and can do. This important learning will continue throughout life as students increasingly take responsibility for their own learning.

Language Development Across the Curriculum

The national curriculum will provide opportunities for language development across the curriculum. Language development across the curriculum should be encouraged because all subject areas provide meaningful contexts for purposeful learning. Specific subjects have different language requirements such as the vocabulary and language features of science and the written and oral genres to narrate, explain, persuade, report, and discuss the particular content of various subjects. The conventions and differences must be explicitly taught in relevant contexts across the curriculum.

Standards Based Curriculum Principles

The principles of the Standards Based Curriculum (SBC) include the following;

- setting of high academic standards and a careful and continuous assessment and reporting of students' performance against these standards, will motivate students to perform at a much higher level;
- standards allow every student, every parent, and every teacher to share in common expectations of what students should know, understand, and be able to do;
- students will learn more when more is expected of them in school and at home;
- setting of clear, measurable, and attainable standards is the key to attaining high academic standards and hence the attainment of the desired quality of education;
- all children are capable of learning and achieving high academic standards, regardless of their backgrounds; and
- students can learn in their own ways and at their own rates.

Rationale, Aim and Goals and Guiding Principles of Making A Living

Papua New Guinea, like many other countries in the world, is making an effort to boost student achievement in literacy, numeracy and life skills. Making a Living as a life skill subject aims to promote life skills education as a pathway for preparing students to live and work in a variety of contexts.

Effective management of resources, financial literacy and technology are critically important for Papua New Guineans to effectively participate productively in this increasingly competitive and technologically globalised society. Making a Living is an important course of study under the key learning area of Business and Technology since the course is underpinned by many aspects of everyday life integrated in the strands of Crops and Livestock Farming, Business Environment and Practices and Technology.

This essential subject is the core for linking learning and living and sustaining life overtime. Understanding and knowing about the Making a Living concept, having the ability to manage their resources, designing and creating products and being financially literate are very important for personal and collective sustainability.

The overarching goal is for students to enjoy and value Making a Living subject as an important life skill subject.

Ultimate Aim

The overall aim of Making a Living is to nurture students to effectively manage their resources, design and create products, participate in business and economic activities, and communicate their creativity using different modes of communication.

Goals

Students will be able to:

(1) develop basic knowledge, skills, values and attitudes required to make sound and informed decisions related to the organization and management of resources and human potential in order to satisfy individual needs and meet local and global demands
(2) acquire and master essential preparedness skills required for more complex economic and technological knowledge and skills, and the application of these in real life situations
(3) acquire technical knowledge and skills that will enable them to become creative, innovative and productive citizens capable of creating and promoting a sustainable way of living
(4) calculate and manage income gained from small scale informal and formal businesses and appreciate the importance of budgeting and saving of income;
(5) acquire and apply experiential learning through technical skills in real life entrepreneurial and sustainable living situations
(6) investigate, design, create and market products to meet human needs
(7) identify and apply safety rules and techniques to manage available resource to improve quality of life
(8) apply basic computing skills across all strands to enhance the learning of Making a Living content for meeting the digital community demands
(9) appreciate and value crop and animal farming as an essential and relevant part of life
(10) develop and show commitment and determination when undertaking practical projects

(11) recognize and appreciate that technical skills and processes learnt can enhance their potential and ability to respond to human needs and live productive lives

(12) recognize and appreciate that technical skills and processes learnt can enhance their potential and ability to respond to human needs and live productive lives.

Guiding Principles

Making a Living guiding principles identify, describe and focus attention on the important concerns that must be addressed when developing and implementing the Senior Primary Making a Living course of study. They are based on significant cultural, social and education values, beliefs and norms. The guiding principles also assist in identifying the knowledge, skills, values, and attitudes explicitly stated in the content standards.

• Making a Living curriculum acknowledges and encourages traditional methods of cultivating food crops, crop and animal farming systems, managing resources and designing and creating items as a way of maintaining our cultural heritage to compliment our way of life today. Traditionally in Papua New Guinea, knowledge, skills, values and attitudes were acquired informally through observations, imitations and hands on experiences. In the same way, participating in traditional cooking and food preservation, agriculture and hand crafts in Making a Living subject promotes cultural practices and values.

• By actively participating in creating products, students can express their cultural ways of doing things and, at the same time, develop their talents and abilities to promote their culture. The communities in turn, can support this learning through various school projects and activities through the sharing of resources, demonstrations, sharing of knowledge, and facilitating various learning activities such as computer classes, sewing and creating hand crafts.

• Engagement of students in practical activities will link their head, heart and hands (knowledge, skills, values and attitudes) thus, enabling them to;

  - work in creative, innovative, and enterprising ways to produce products that meet human needs in a variety of contexts;
  - work in diverse range of learning and work environments;
  - develop necessary skills and knowledge to generate and maintain an income;
  - become active and productive members of the community;
  - implement specific techniques and processes to manage personal lives;
  - undertake practical and real life projects that focus on developing economic independence;
  - work towards improving personal quality of life and compete with the world in terms of latest technology;
  - live entrepreneurial lives enabled by basic technology skills, knowledge, values, and attitudes;
  - use fundamental technical and vocational skills to meet family, community, country and the world's demands; and
  - engage in practical skills related work that will improve personal standard of living as well as contribute to community and national economic development.

Content Overview

Content overview provides a description of what students will learn in each grade. Content for Making a Living course is organised around three strands. Each of the three strands focuses on a particular aspect of Making a Living. Essential knowledge, skills, values and attitudes that all students are expected to learn, master and demonstrate proficiency are described under each of these strands. Each strand is further organised into units to allow content standards and benchmarks to be written and implemented.

Table of Strands and Units

Strands and units for grades 6, 7, and 8 are outlined in the table below:

Strands	Units
Crop and Livestock Farming	• Crop farming • Livestock farming • Land and water resource management
Business Environment and Practices	• Satisfying needs and wants • Starting a business and record keeping • Business communication services
Basic Technology	• Introduction to resistant materials • Home management • Media and communication

Essential Knowledge, Skills, Values and Attitudes

Students' level of proficiency and progression towards the attainment of content standards will depend on their mastery and application of essential knowledge, skills, values, and attitudes in real life or related situations. Provided here are examples of different types of knowledge, processes, skills, values, and attitudes that all students are expected to learn, master and demonstrate proficiency as they progress through the grades. These are expanded and deepened in scope and the level of difficulty and complexity are increased to enable students to study in-depth the subject content as they progress from one grade to the next.

These knowledge, skills, values and attitudes have been integrated into the content standards and benchmarks. They will also be integrated in the performance standards. Teachers are expected to plan and teach these essential knowledge, skills, values and attitudes in their lessons, and assess students' performance and proficiency and progression towards the attainment of content standards.

Types of Knowledge

There are different types of knowledge. These include:

• Public and private (privileged) knowledge • Specialised knowledge • Good and bad knowledge • Concepts, processes, ideas, skills, values, attitudes • Theory and practice • Fiction and non-fiction • Traditional, modern, and postmodern knowledge	• Subject and discipline-based knowledge • Lived experiences • Evidence and assumptions • Ethics and Morals • Belief systems • Facts and opinions • Wisdom • Research evidence and findings • Solutions to problems

Types of Processes

There are different types of processes. These include:

- Problem-solving
- Logical reasoning
- Decision-making
- Reflection
- Cyclic processes
- Mapping (*e.g.* concept mapping)
- Modelling
- Simulating.

Types of Skills

There are different types of skills. These include:

Cognitive (Thinking) Skills

Thinking skills can be categorized into critical thinking and creative thinking skills.

Critical Thinking Skills

A person who thinks critically always evaluates an idea in a systematic manner before accepting or rejecting it. Critical thinking skills include:

- Attributing
- Comparing and contrasting
- Grouping and classifying
- Sequencing
- Prioritising
- Analysing
- Detecting bias
- Evaluating
- Meta-cognition (Thinking about thinking)
- Making informed conclusions.

Creative Thinking Skills

A person who thinks creatively has a high level of imagination, able to generate original and innovative ideas, and able to modify ideas and products. Creative thinking skills

include:

- Generating ideas
- Deconstruction and reconstruction
- Relating
- Making inferences
- Predicting
- Making generalisations
- Visualizing
- Synthesising
- Making hypothesis
- Making analogies
- Invention
- Transformation
- Modelling
- Simulating.

Reasoning Skills

Reason is a skill used in making a logical, just, and rational judgement.

Decision-Making Skills

Decision-making skills involves selection of the best solution from various alternatives based on specific criteria and evidence to achieve a specific aim.

Problem Solving Skills

Problem solving skills involve finding solutions to challenges or unfamiliar situations or unanticipated difficulties in a systematic manner.

High Level Thinking Skills

High level thinking skills include analysis, synthesis, and evaluation skills.

Analysis Skills – Analysis skills involve examining in detail and breaking down information into parts by identifying motives or causes, underlying assumptions, hidden messages; making inferences and finding evidence to support generalisations, claims, and conclusions.

Synthesis Skills – Synthesis skills involve changing or creating something new, compiling information together in a different way by combining elements in a new pattern proposing alternative solutions.

Evaluation Skills – Evaluation skills involve justifying and presenting and defending opinions by making judgements about information, validity of ideas or quality of work based on set criteria.

Types of Values

Personal Values (Importance, worth, usefulness) Core Values • Sanctity of life • Truth • Aesthetics • Honesty • Human • Dignity • Rationality • Creativity • Courage • Liberty • Affectively • Individuality	Sustaining Values • Self-esteem • Self-reflection • Self-discipline • Self-cultivation • Principal morality • Self-determination • Openness • Independence • Simplicity • Integrity • Enterprise • Sensitivity • Modesty • Perseverance
Social Values Core Values • Equality • Kindness • Benevolence • Love • Freedom • Common good • Mutuality • Justice • Trust • Interdependence • Sustainability • Betterment of human kind • Empowerment	Sustaining Values • Plurality • Due process of law • Democracy • Freedom and liberty • Common will • Patriotism • Tolerance • Gender equity and social inclusion • Equal opportunities • Culture and civilisation • Heritage • Human rights and responsibilities • Rationality • Sense of belonging • Solidarity • Peace and harmony • Safe and peaceful communities

Types of Attitudes

Attitudes (Ways of thinking and behaving, points of view) • Optimistic • Participatory • Critical • Creative • Appreciative • Empathetic • Caring and concern • Positive • Confident • Cooperative	• Responsible • Adaptable to change • Open-minded • Diligent • With a desire to learn • With respect for self, life, equality and excellence, evidence, fair play, rule of law, different ways of life, beliefs and

Content Standards, Benchmarks, and Evidence Outcomes

Content standards, benchmarks, and evidence outcomes are all curriculum standards and have specific curriculum purposes. The curriculum standards are interconnected and enable the intended learning outcomes to be attained.

Content Standards

Content Standards are broadly stated expectations of what students should know, (content) understand, and be able to do (how well students must apply what they have learnt) in particular subjects, grade level, or school level. For example, Pupils will be able to interact and convey simple messages using comprehensible language.

Benchmarks

They are specifications of content standards or more detailed descriptions of a specific level of performance expected of students at particular ages, grades, or levels of development. For example, grade 6 students will meet the above standard when they ask and answer questions about routine matters using comprehensible language. Benchmarks focus on the essential knowledge, skills, values and attitudes that all students are expected to learn, master and demonstrate competency using various representations in real life situation.

Evidence Outcomes

Evidence outcomes are indicators that indicate students' progress towards meeting an expectation at the mastery level. They measure students' mastery and application of knowledge, skills, values, and attitudes at grade and cluster levels.

Content Standards and Benchmarks Coding

The following is the coding system used to code the content standards and benchmarks. They not only make it easier to interpret and understand the relationship between these two standards but also help with planning lessons and assessing and reporting of students' performance in relation to a content standard.

Grade:	Grade is indicated by the first number (*for example, 6*)
Strand:	Strand is indicated by the second number (*for example, 6.1*).
Content Standard:	Content Standard is indicated by the third number (*for example 6.1.1*)
Benchmark:	Benchmark is indicated by the fourth number (*for example, 6.1.1.1*)
Thus, the code will read as **Content Standard 6.1.1. and Benchmark as 6.1.1.1**	

Grade 6 Strands and Units

Strand 1: Crop and Livestock Farming

Rationale

The majority of students will not make it to higher education thus, it is important that they are equipped with relevant life skills that they can use to make a living and further their own and their family's development. The study of crop and livestock farming will equip students with readiness knowledge, skills, values and attitudes that they can use to farm, produce, and market a variety of crops and livestock. These knowledge and skill sets can empower students to create and foster sustainable livelihoods, contribute to community and national development, and enable them to use other pathways to pursue and achieve their personal goals.

In addition, studying of crop and livestock farming will enable students to understand their importance not only as income earning ventures but also as means for sustaining oneself. It will help them to promote food and animal production using different animal and crop farming practices and techniques, and manage their resources well for their benefit and the benefit of the communities they live in.

What grade 6 students will learn in crop and livestock farming is built on what they had learnt in grade 5 Social Science and Arts but with an increase in the level of difficulty and complexity in both the content and the learning activities. Students are expected to learn the basic skills, knowledge, attitudes and values which are essential for crops and livestock farming, crop cultivation, and the use of traditional and modern technology in farming. In addition, students will learn about soil formation and its importance to plant growth inclusive of fresh water and marine resource management practices. What they learn should prepare them for grades 7 and subsequent grades.

Evidence Outcomes

At the end of grade 6, all students can;

- examine and evaluate cultural and nutritional value of crops and livestock;
- distinguish different types of crops, livestock and marine resource farming methods and practices;
- compare and contrast cultural and nutritional value of crops and their benefits;
- analyse different farming and livestock farming systems and evaluate their benefits;
- identify and examine crop cultivation practices;
- investigate traditional and modern technology used in crop and livestock farming and draw appropriate conclusions;
- investigate how soil is formed and its importance to plant growth;
- analyse aquatic farming practices used in different livestock farming; and
- examine the different types of marine resources and their benefits.

Unit 1 : Crop Farming

Crop farming and production are essential for sustaining human livelihoods. It is therefore important for students to learn about the different cultivation practices, farming systems, and technology used in crop farming and production in both the traditional and the modern contexts, and their consequences.

Content Standards	Benchmarks
6.1.1. Students will be able to investigate the cultural and nutritional value of crops, crop farming systems and practices, and their benefits to mankind.	**6.1.1.1.** Use basic research skills to investigate the types of food crops grown and consumed in different parts of the country. **6.1.1.2.** Compare and contrast cultural and nutritional values of crops. **6.1.1.3.** Examine crop farming systems and practices, and evaluate their benefits to people.

Content Standards	Benchmarks
6.1.2. Students will be able to examine traditional and modern technologies used in crop cultivation and evaluate their benefits to societies.	**6.1.2.1.** Identify and profile different types of traditional and modern technology used in crop cultivation. **6.1.2.2.** Examine traditional and modern technologies used in crop cultivation and evaluate their benefits. **6.1.2.3.** Use basic research skills to inquire about the use and the impact of traditional and modern crop cultivation technology, and draw appropriate conclusions.

Unit 2 : Livestock Farming

Livestock production is important for meeting a variety of human needs. It is important for students to learn about the types of livestock categories and rearing systems and the benefits of raising farm animals so that they can make informed decisions about whether or not to pursue this as an option for sustainable living.

Content Standards	Benchmarks
6.1.3. Students will be able to examine the nutrition and economic value of raising farm animals, and evaluate their benefits to society.	**6.1.3.1.** Identify and categorise farm animals according to their nutrition and economic value. **6.1.3.2.** Compare and contrast the economic and nutritional benefits of farm animals to society. **6.1.3.3.** Use basic research skills to inquire about and draw conclusions about the nutritional and economic value of farm animals. **6.1.3.4.** Evaluate the benefits of nutrition and economic value of farm animals to society.
6.1.4. Students will be able to identify and analyse the different livestock management systems and practices used in livestock farming.	**6.1.4.1.** Identify and critique the different types of management systems used in livestock raising such as free range, semi-intensive, and intensive. **6.1.4.2.** Discuss the advantages and the disadvantages of livestock management practices and systems. **6.1.4.3.** Examine general care and hygiene of selected farm animals.

Unit 3: Land and Water Resource Management

Land and water support the growth of a variety of plant and animal life. They are important enablers of life. Land and water are used for a variety of purposes by all living things, human beings in particular. It is therefore important for students to examine and appreciate how these resources are formed, support plant and aquatic life, and how they are managed and exploited, and the consequences.

Content Standards	Benchmarks
6.1.5. Students will be able to explain the process of soil formation, examine its uses, and highlight the reasons that support its importance to plant growth.	**6.1.5.1.** Explain the process of soil formation and discuss its importance to plant growth.
	6.1.5.2. Examine the uses of each type of soil formation (*e.g.* arable, savannah, rocky, water logged, ice, dry, and mountainous land).
	6.1.5.3. Highlight the reasons for the importance of land in supporting plant growth.
	6.1.5.4. Describe and distinguish different soil characteristics and use these to evaluate the suitability of soil for gardening.
6.1.6. Students will be able to identify and investigate the different aquatic farming methods, and analyse the cultivation and management practices.	**6.1.6.1.** Distinguish and examine different types of salt water and fresh water farming methods.
	6.1.6.2. Analyse the different aquatic farming and management practices (for example conservation in salt water and fresh water farming) and substantiate their use.
	6.1.6.3. Investigate the different aquatic farming methods and draw conclusions about their suitability, sustainability, effectiveness, efficiency, and output.
	6.1.6.4. Use basic research skills to inquire about, draw relevant conclusions, and make suggestions for improving the output of a local aquatic farming project.

Strand 2: Business Environment and Practices

Rationale

Creating and fostering an environment conducive for businesses to grow and thrive is important for the survival and sustainability of businesses in a highly competitive business environment. Entrepreneurs require essential business knowledge, skills, values and attitudes to help them create and manage their businesses and ensure that the intended results are achieved. They need to understand and use the enablers of business to grow and sustain their businesses.

Students need to learn not only the principles of business but also about its enablers such as business communication, financial management, and general business management practices. The business knowledge, skills, values, and attitudes they acquire can prepare them for advanced study or to pursue a career in business. They should be aware of factors that contribute to sustainable and unsustainable business environments in both subsistence and cash economies. Having this knowledge, will enable them to participate meaningfully and benefit from economic activities.

In Grade 6, students are expected to use the skills of investigation, planning, and designing to identify changes from subsistence farming to cash economy. The key skills of business practices will be mastered when they apply marketing and communication skills in projects. What grade 6 students will learn in this strand reinforces what they had learnt in grade 5 but at a much higher level of complexity and difficulty in both the content and the learning activities. What they learn should prepare them for grade 7 and subsequent grades.

Evidence Outcomes

At the end of grade 6, all students can:

- investigate and explain the importance of advertisements and insurance to business;
- examine the reasons for fluctuations in the prices of goods and services;
- discuss the importance of keeping records of cash and credit sales;
- investigate the functions of private telecommunication companies, draw conclusions about their benefits to business, and suggest improvements;
- evaluate changes from subsistence living to cash society in terms of satisfying needs and wants;
- explain the basic procedures for establishing a retail outlet; and
- investigate the functions of postal services, draw conclusions about their benefits to the business, and suggest improvements.

Unit 1: Satisfying Needs and Wants

Needs and wants are satisfied in a variety of ways and dictated by different contexts and circumstances. Needs and wants emanate from scarcity. It is important for students to understand these concepts as they are fundamental to understanding economics and business principles and practices.

Content Standards	Benchmarks
6.2.1. Students will be able to investigate and highlight the different ways wants and needs are met through subsistence and cash economies.	**6.2.1.1.** Use basic research skills to inquire and report on how needs and wants are met from one's participation in both subsistence and cash economies.
	6.2.1.2. Critically reflect on the advantages and the disadvantages of the cash economy in meeting needs and wants.
	6.2.1.3. Discuss and compare the advantages and the disadvantages of subsistence economy and cash economies in meeting needs and wants.

Unit 2: Starting a Business and Record Keeping

It is important for students to learn about how prices of goods are calculated and business records are kept in formal and informal business contexts. This is because these skills are important for conducting and sustaining businesses. Businesses can't grow and make a profit if there are knowledge gaps or if bad practices are employed.

Content Standards	Benchmarks
6.2.2. Students will be able to determine and evaluate pricing and record keeping management practices in terms of their effectiveness, accountability, pricing formula, and profit margins.	**6.2.2.1.** Determine and analyse pricing and record keeping management practices in terms of their effectiveness, accountability, pricing formula, and profit margins.
	6.2.2.2. Use basic research skills to investigate a pricing and record keeping practice employed by one successful and one unsuccessful business, draw appropriate conclusions, and make suggestions for improvements.
	6.2.2.3. Explain the process for determining and controlling the prices of goods and services.
	6.2.2.4. Examine the role of Independent Competition and Consumer Commission relating to the pricing of goods and services in Papua New Guinea.

Unit 3: Business Communication Services

Business communication is critical to the growth and sustainability of businesses. Businesses use these services for a variety of purposes. It is important for students to explain the various purposes and functions of communication services and evaluate their benefits to business.

Content Standards	Benchmarks
6.2.3. Students will be able to explore the basics of business communication services and how they contribute to the success of business operations in the formal and informal business sectors.	**6.2.3.1.** Evaluate different means of communication used in the formal and informal business sectors.
	6.2.3.2. Examine how communication services contribute to the successes of business operations in the formal and informal business sectors.
	6.2.3.3. Identify and discuss basic government communication services as a means of communication in business.

Strand 3: Basic Technology

Rationale

Basic Technology embodies the perceptions of technology from times as earliest when, humans have interpreted, shaped and altered their environments in an attempt to improve the quality of their lives. In the process, technologies have evolved and been developed to the extent that, today, they have an impact on most aspects of our daily lives. Products of technology include artifacts, processes, systems, services and environments. These products make up the designed world. Technology has been developed through working and building with materials and tools and has been an integral part of society. Studying of Basic Technology will enable students to develop and use creative and innovative skills to design and create products for a variety of purposes. Students will learn fundamental design and technology concepts, ideas, principles, and processes and use these to explore and explain how technology has impacted and shaped the natural world, and people's lives.

In Grade 6, safety practices, materials, tools and processes are explored and applied appropriately to design solutions to problems. Students will identify constraints, priorities, and appropriate technologies that can be used to solve problems and achieve the desired end products.

Evidence Outcomes

At the end of grade 6, all students can:

- investigate and apply safety practices when working and handling tools in workshops;
- investigate and discuss factors that affect the production of design;
- explore and demonstrate safety measures and hygienic practices within the home;
- identify and describe the management of different home resources;
- investigate and apply safety standards when dealing with media and digital devices; and;
- explore and describe functions and components of computer hardware.

Unit 1: Introduction to Resistant Materials

Designing of products begins with an idea which then leads to the production of actual products. The idea and the ensuing product are linked to and designed to address a particular problem. To do this effectively, requires an understanding of the problem identification and solution design processes as well as the required safety practices and rules. Learning and mastery of these process, relevant skills and safety practices will allow students to create and design technological solutions to solve problems. Students will learn to use creative and critical skills to critically reflect, evaluate, analyse and innovate when designing various products.

Content Standards	Benchmarks
6.3.1. Students will be able to identify and assess safety practices and rules that are observed when working with tools, and examine the consequences for non compliance.	**6.3.1.1.** Identify and examine safety practices and rules to consider when using tools (for example, carpentry tools).
	6.3.1.2. Discuss different protective clothing and gear that is used when working with tools.
	6.3.1.3. Examine the consequences of violating the required safety rules and lack of compliance with acceptable practices.

Content Standards	Benchmarks
6.3.2. Students will be able to evaluate the factors that affect the design and production of design ideas, and suggest ways of addressing them to improve the design and production processes.	**6.3.2.1.** Identify and analyse the factors that affect the design and the production of design ideas.
	6.3.2.2. Use the information from the analysis of factors and suggest ways of addressing these to improve the design ideas and production processes.
	6.3.2.3. Apply creative and critical thinking skills to solve the problems affecting the design process.

Unit 2: Home Management

Home management covers actions that are necessary for caring of homes we live in, and to keep all the systems within the home under control and functioning properly. These actions include planning and organization of available resources to ensure the home is functioning well. Aspects of textiles, food and nutrition, and home decorations are taught to develop students' resource management skills.

Content Standards	Benchmarks
6.3.3. Students will be able to identify and justify the safety and hygienic practices that are observed within the home.	**6.3.3.1.** Outline the process of dealing with problems created by lack of hygiene and safety practices at home.
	6.3.3.2. Examine the consequences of not using proper hygiene and safety practices at home.
	6.3.3.3. Outline the process of dealing with problems created by lack of hygiene and safety practices at home.
6.3.4. Students will be able to reflect on the need for effective resource management at home and assess its benefits to the household.	**6.3.4.1.** Identify and analyse the factors that contribute to effective resource management at home.
	6.3.4.2. Examine how resources are managed at home and assess the benefits to the household.
	6.3.4.3. Compare and contrast homes with poor and good resource management practices, and propose measures for improvement.

Unit 3: Media and Communication

Media and communication focuses on the concept of technology literacy. Today's society is shaped by the fast growth and development of information technology resulting in dependency on the knowledge and competence of Information Technology (IT) specialists. Students must be technologically literate to effectively use different technology, including Information and Communications Technology (ICT), and appreciate the importance of abiding by the rules and the required standards when using technology.

Content Standards	Benchmarks
6.3.5. Students will be able to identify and probe safety standards and ethics relating to media and technology.	**6.3.5.1.** Determine media, technology, and communication safety standards and ethics, and discuss the benefits.
	6.3.5.2. Examine safety standards and ethics used in media and technology.
	6.3.5.3. Analyse the consequences of violating media and technology safety standards and ethics.
6.3.6. Students will be able to demonstrate awareness of the basic functions and components of computers.	**6.3.6.1.** Discuss the function of computers, their purposes, and who uses them.
	6.3.6.2. Identify and examine the different components of a computer and their purposes.

Grade 7 Strands and Units

Strand 1: Crop and Livestock Farming

Rationale

The majority of students will not make it to higher education thus, it is important that they are equipped with relevant life skills that they can use to make a living and further their own and their family's development. The study of crop and livestock farming will equip students with readiness knowledge, skills, values and attitudes that they can use to farm, produce, and market a variety of crops and livestock. These knowledge and skill sets can empower students to create and foster sustainable livelihoods, contribute to community and national development, and enable them to use other pathways to pursue and achieve their personal goals.

In addition, studying of crop and livestock farming will enable students to understand their importance not only as income earning ventures but also as means for sustaining oneself. It will help them to promote food and animal production using different animal and crop farming practices and techniques, and manage their resources well for their benefit and the benefit of the communities they live in.

What grade 7 students will learn is built on what they had learnt in grade 6 but at a more advanced and complex level. Students are expected to learn the essential skills, knowledge, values and attitudes of tree cropping techniques and the management practices of selected tree crops. The key concepts for this grade include the types of introduced farm animal species and their anatomy, properties of selected soil types, and land and forest management practices. What students learn in grade 7 should prepare them for grade 8 and subsequent grades.

Evidence Outcomes

At the end of grade 7, all students can:

- examine farming and management practices of selected crops, livestock and marine resources;
- distinguish types of soil, soil uses and their importance to crop and livestock farming;
- use basic research skills to investigate the different tree cropping techniques and the processing of selected tree crops;
- identify and illustrate crop requirements of selected tree crops;
- investigate and discuss factors affecting soil formation and properties of selected soil types;
- identify and illustrate types of farm animals and their anatomy;
- investigate and present findings on types of introduced farm animal species and their importance;
- compare sustainable practices involved in land and water resource management; and
- develop an awareness of sustainable land and forest management practices.

Unit 1: Crop Farming

It is important for students to appreciate that production can be increased using improved cultivation practices and tree cropping techniques. Learning and mastery of these concepts and skills will prepare students to use proper cultivation practices and crop propagation to increase both the number of crops and quantity and quality of the outputs.

Content Standards	Benchmarks
7.1.1. Students will be able to analyse the different tree cropping techniques and associated management practices.	**7.1.1.1.** Examine cultivation practices of different types of tree crops **7.1.1.2.** Analyse the different tree cropping techniques (for example, plant propagation) and evaluate their management.
7.1.2. Students will be able to examine the requirements for crop farming, including land management and plant propagation techniques.	**7.1.2.1.** Classify different requirements of crop farming in terms of their importance. **7.1.2.2.** Examine the different requirements for crop farming. **7.1.2.3.** Investigate and ascertain the different types of land that are suitable for crop farming. **7.1.2.4.** Discuss the importance of plant nurseries in crop plant propagation. **7.1.2.5.** Use basic research skills to investigate the use of Special Agriculture Business Leases (SABL) for crop farming and draw conclusions about its impact on people and communities. **7.1.2.6.** Examine how plantations are managed to ensure that they meet production expectations.

Unit 2: Livestock Farming

By learning about the different types of domestic and farm animals and their differences as well as the different livestock rearing and management practices will help students to use appropriate criteria to select and breed animals that would provide the best products and increase the output from their farms.

Content Standard	Benchmarks
7.1.3. Students will be able to determine the types of domestic and farm animals, and distinguish selected farm animals by their anatomies.	**7.1.3.1.** Compare and contrast the general features of domestic and farm animals such as chickens, pigs, goats, cattle, and guinea pigs **7.1.3.2.** Recognize and illustrate the external and internal anatomy of selected farm and domestic animals. **7.1.3.3.** Compare and contrast the reproductive system and gestation period of selected farm and domestic animal.
7.1.4. Students will be able to identify and analyse the different types of introduced animal rearing and management practices associated with livestock production.	**7.1.4.1.** Identify and analyse the different introduced animal rearing and management practices. **7.1.4.2.** Examine the economic benefits of management practices applied in selected animal rearing. **7.1.4.3.** Evaluate the benefits and the drawbacks of introduced animal rearing and management practices.

Unit 3: Land and Water Resource Management

Students need to appreciate and explain the relationship between soil formation, land and environment management practices, including sustainability and conservation practices and their impact plant on growth. The study of this unit will enable students to learn and use practices that will help improve the quality of soil and improve and sustain quality of plant life.

Content Standards	Benchmarks
7.1.5. Students will be able to identify and investigate the factors affecting soil formation and plant growth.	**7.1.5.1.** Identify and investigate the factors that affect soil formation and plant growth.
	7.1.5.2. Examine different ways of improving soil fertility and making soil conducive for cultivating crops.
	7.1.5.3. Discuss the importance of soil formation in relation to the health of plants and how much they can produce.
7.1.6. Students will be able to elaborate on the importance of land management, forest conservation, and land sustainability management practices.	**7.1.6.1.** Examine various strategies used to manage land and conserve the forest.
	7.1.6.2. Investigate strategies and programs targeted at forest conservation and draw conclusions regarding their effectiveness to conserve and sustain the forest.
	7.1.6.3. Evaluate the different land and forest sustainability strategies and practices, and suggest ways of improving these strategies and practices.

Strand 2: Business Environment and Practices

Rationale

The creation, promotion, and sustainability of enabling business environments and the use of best practice are essential prerequisites for the creation and sustainability of businesses. Successful businesses are driven by these as well as other enablers such as business communication services and effective management practices, including financial management. The acquisition and competency in these fundamental business concepts is critical for preparing students for careers that involve the creation and ownership of private as well as public business enterprises.

What grade 7 students will learn in business environment and practices is built on what they had learnt in grade 6 but with an increase in the level of difficulty and complexity in both the content and the learning activities. Students in this grade are expected to expand the skills of investigation in planning and designing a budget. They will acquire essential marketing and consumer knowledge, skills, values and attitudes needed to operate a business on a small scale. What they learn should prepare them for grade 8 and subsequent grades.

Evidence Outcomes

At the end of grade 7, all students can:

- identify and examine the enablers (e.g. enabling business environment, effective communication services, and best management practices) of businesses;
- evaluate the importance of effective money management and record keeping; and
- research and discuss the functions of telecommunication services and benefits to business operations in a business environment.

Unit 1: Satisfying Needs and Wants

Businesses have a variety of needs. If these needs are not met, businesses may not prosper and realize their potential. Their viability will be threatened which may lead to their demise. It is important that students learn to effectively identify the needs of businesses and how these needs can be met to ensure the sustainability and profitability of businesses.

Content Standard	Benchmarks
7.2.1. Students will be able to identify different business needs and explain how these needs can be met.	**7.2.1.1.** Identify different business needs.
	7.2.1.2. Explain how business needs can be met.
	7.2.1.3. Use basic research skills to investigate the process of identifying and meeting business needs.

Unit 2: Start a Business and Record Keeping

Small businesses provide more realistic opportunities for individuals, particularly those wishing to start small and gradually expand their businesses. Despite this, all businesses, regardless of size, face similar changes. They need to be properly managed using proven and best practices such as record keeping to have any hope of achieving their goals. Record keeping is an essential element of business management. Students need to understand the rationale as well as best practices of record keeping, and appreciate their importance in the overall management of business.

Content Standards	Benchmarks
7.2.2. Students will be able to examine how small scale business operations are managed and recognise the importance of keeping records.	**7.2.2.1.** Examine how small scale businesses operate and are managed in the formal and informal sectors.
	7.2.2.2. Identify and discuss the types of records kept by a small scale business activity, and analyse the reasons for keeping these records.
	7.2.2.3. Research and established small scale business in the community and discuss how it is managed.

Unit 3: Business Communication Services

Business communication services are important enablers of business. Students need to explore their benefits to business and understand how they enable businesses to operate and achieve their intended results.

Content Standards	Benchmarks
7.2.3. Students will be able to identify and assess the benefits of postal and telecommunication services to the successes of business operations.	**7.2.3.1.** Use basic research skills to investigate the different types of benefits postal and telecommunication services provide for businesses, and draw conclusions on their reliability, effectiveness, and costs.
	7.2.3.2. Discuss how the provision of telecommunication services contribution to the success of business operations
	7.2.3.3. Examine the role Postal Services play in the success or failure of business operations.

Strand 3: Basic Technology

Rationale

What grade 7 students will learn about basic technology is built on the fundamental concepts, processes, and skills related to the invention and application of technology to solve problems and enhance people's lives. Humans have interpreted, shaped and altered their environments using technology in an attempt to improve the quality of their lives. In the process, technologies have evolved to the extent that, today, they have an impact on most aspects of our daily lives. Products of technology include artifacts, processes, systems, services and environments. These products make up the designed world. Technology has been developed through working and building with materials and tools and has been an integral part of society. Studying Basic Technology develops creative and innovative skills of students, enabling them to design and create their own products for survival.

What grade 7 students will learn in basic technology farming reinforces on what they had learnt in grade 6 but at a much higher level of difficulty and complexity in both the content and the learning activities. Safety practices, materials, tools and processes are explored, communicated and applied appropriately to design solutions to problems. Students will consider options and can identify constraints, priorities, and appropriate technologies to experiment with different ways to achieve the end products. What they learn should prepare them for grades 8 and subsequent grades.

Evidence Outcomes

At the end of grade 7, all students can:
- investigate and apply safety measures when dealing with resistant materials in designing and tool handling situations;
- identify and outline factors affecting the design and production of design ideas and solutions;
- investigate and apply safety and hygienic standards when dealing with food and clothing;
- explore and implement home design techniques with available resources and;
- identify and apply safety standards when dealing with media and digital devices.

Unit 1: Introduction to Resistant Materials

Safety is paramount when working with technology such as resistant materials and in the design of production ideas and solutions. Thus, it is necessary for students to learn and appreciate the importance of safety rules and standards, and the creation and sustainability of safe work environments as important perquisites for handling technology in the work place and preventing work related accidents. Specifically, students will learn about product design ideas and solutions to enable them to create products that meet a variety of needs.

Content Standard	Benchmarks
7.3.1. Students will be able to examine and appreciate the importance of safety standards when working with wood, metals, and plastics.	**7.3.1.1.** Identify and define basic safety standards when working with wood, metals, and plastics.
	7.3.1.2. Evaluate the basic safety standards in terms of their effective and compliance in preventing accidents resulting from work associated with wood, metals, and plastics.
	7.3.1.3. Examine ways of improving the wood, metals, and plastics work safety standards to avoid workplace accidents.

Content Standard	Benchmarks
7.3.2. Students will be able to analyse the factors that influence design decisions relating to production design ideas and solutions.	**7.3.2.1.** Analyse the factors that influence creative designs and the functional modelling of products.
	7.3.2.2. Identify and analyse factors affecting the design and production of solutions, and make a report.
	7.3.2.3. Apply decisions making skills in the designing of a production solution.

Unit 2: Home Management

Concepts and skills learnt in topic one are expended allowing students to learn and reinforce these concepts and skills in relevant contexts. This is important not only for students to appreciate how these are applied in real life situations but also to see if these concepts and skills can be used to manage various contexts.

Content Standards	Benchmarks
7.3.3. Students will be able to identify and demonstrate safety and hygiene standards in the home when dealing with food and clothing	**7.3.3.** Students will be able to identify and demonstrate safety and hygiene standards in the home when dealing with food and clothing
	7.3.3.1. Discuss safety standards, including food and kitchen hygiene when preparing food, and in the handling of clothing.
	7.3.3.2. Identify safety standards when using equipment in the home.
	7.3.3.3. Create plans to manage, maintain, and store equipment and clothing in the home.
7.3.4. Students will be able to plan, organise and design improvement features of a home using available resources.	**7.3.4.1.** Use planning, organising, and designing processes to organise and improve a home.
	7.3.4.2. Identify and describe the factors that influence the development of a plan for arranging and decorating a home.
	7.3.4.3. Examine factors that influence decisions about home maintenance using available resources.

Unit 3: Media and Communication

Learning about safety standards and the required ethics for using the media, digital devices and technology will enable students to handle technology with care and in a responsible manner. It will also enhance their understanding of different technology, such as computers, and their components and functions.

Content Standards	Benchmarks
7.3.5. Students will be able to comprehend and apply safety standards and ethics when using the media, digital devices, and technology.	**7.3.5.1.** Examine the importance of comprehending and applying safety standards when utilizing computers and other digital devices.
	7.3.5.2. Give reasons for abiding by basic ethics when using digital devices and digital applications in the media.
7.3.6. Students will be able to establish that computers have a variety of purposes and functions	**7.3.6.1.** Identify the range of functions and purposes of computers and explain their uses.
	7.3.6.2. Examine the different purposes of owning and using computers.
	7.3.6.3. Analyse the use of computers by data processing and management organisations.

Grade 8 Strands and Units

Strand 1: Crop and Livestock Farming

Rationale

The majority of students will not make it to higher education thus, it is important that they are equipped with relevant life skills that they can use to make a living and further their own and their family's development. The study of crop and livestock farming will equip students with readiness knowledge, skills, values and attitudes that they can use to farm, produce, and market a variety of crops and livestock. These knowledge and skill sets can empower students to create and foster sustainable livelihoods, contribute to community and national development, and enable them to use other pathways to pursue and achieve their personal goals.

In addition, studying of crop and livestock farming will enable students to understand their importance not only as income earning ventures but also as means for sustaining oneself. It will help them to promote food and animal production using different animal and crop farming practices and techniques, and manage their resources well for their benefit and the benefit of the communities they live in.

What grade 8 students will learn in crop and livestock farming will reinforce what they had learnt in grade 7 but with an increase in the level of difficulty and complexity in both the content and the learning activities. In Grade 8, students are expected to learn the essential skills, knowledge, attitudes and values used in harvesting and processing stages of selected commodity crops, crop management, pest control and different soil management practices for certain soil types. The key concepts learnt in Grade 6, 7 and 8 are further applied in integrated crop and livestock projects. What they learn should prepare them for grade 9 and subsequent grades.

Evidence Outcomes.

At the end of grade 8, the students can:

- investigate the harvesting and processing stages of selected commodity crops;
- investigate the application of crop management techniques and pest control measures for quality crop production; and
- explore the application of different soil management practices for certain soil types.

Unit 1: Crop Farming

The quality of crop production depends on how crops are managed. Mechanisms such as pest control can help to control pests and create a healthy environment for crops to grow and produce quality outputs. Level of income depends on how crops are managed from planting to marketing. Students need to learn these concepts and processes to help them advocate for and practice good crop management.

Content Standards	Benchmarks
8.1.1. Students will be able to identify common commodity crops and illustrate their harvesting and processing processes, and examine their economical values.	**8.1.1.1.** Identify and illustrate the harvesting and processing processes for commodity crops such as coffee, cocoa, and oil palm. **8.1.1.2.** Analyse harvesting and processing processes of commodity crops and draw appropriate conclusions. **8.1.1.3.** Evaluate the factors affecting the yield of commodity crops and their value. **8.1.1.4.** Compare and contrast the economic value of commodity crops to the local and national economy.
8.1.2. Students will be able to evaluate the crop management practices and pest control measures associated with quality crop production.	**8.1.2.1.** Establish and evaluate the different crop management techniques and methods (transplanting, watering, weeding, pruning, thinning) for quality production. **8.1.2.2.** Investigate the different types of crop diseases, their causes (for example, by pests), and how these are eradicated and prevented to ensure quality harvest. **8.1.2.3.** Examine the methods of controlling pests and diseases. (traditional, artificial, and biological methods), and suggest ways for improving these methods.

Unit 2: Livestock Farming

Proper planning is important for ensuring that livestock farming projects are properly established, implemented, and managed to achieve the indented results. Students should learn about project management, including planning, designing, implementing, evaluating, and monitoring skills, to help them establish viable livestock and other farming projects.

Content Standards	Benchmarks
8.1.3. Students will be able to identify and explain the different livestock project management processes and the prerequisite conditions for increasing production and income.	**8.1.3.1.** Gather information and plan for the type of livestock project to be implemented. **8.1.3.2.** Consider and describe how the project is going to be managed in order to generate the desired income. **8.1.3.3.** List and prioritise the types of resources that will be used to start up and sustain the project in terms of their costs, nutritional value, and availability locally. **8.1.3.4.** Determine and explain how livestock is going to be cared for using local resources to ensure their health and increased productivity.

Unit 3: Land and Water Resource Management

Effective soil management and sustainability practices that support integrated crop and livestock farming and land conservation should be taken into account when designing crop and livestock projects. Students need to be made aware of the relationship between effective soil management and crop and livestock farming so that they take these into account when thinking about and planning to use different farming methods, including integrated crop and livestock farming.

Content Standards	Benchmarks
8.1.4. Students will be able to explain the different soil management and sustainability practices.	**8.1.4.1.** Identify and classify the different soil management and sustainability practices.
	8.1.4.2. Evaluate the effectiveness of different soil management and sustainability practices, and propose ways for improving these practices.
	8.1.4.3. Use basic research skills to investigate and report on one case or example of soil management and sustainability.
8.1.5. Students will be able to distinguish and appraise integrated farming methods and management practices of crops and livestock and evaluate their impact on land conservation.	**8.5.1.1.** Distinguish the different types of integrated farming methods and management systems of crops and livestock in terms of their impact on land conservation.
	8.1.5.2. Appraise the processes involved in integrated farming in terms of their integration of land conservation strategies and consequences on land conservation.
	8.1.5.3. Select one type of integrated farming system and investigate how it operates, its approaches for conserving the land, draw appropriate conclusions, and suggest ways for improvement.

Strand 2: Business Environment and Practices

Rationale

Creating and fostering an environment conducive for businesses to grow and thrive is important for the survival and sustainability of businesses in a highly competitive business environment. Entrepreneurs require essential business knowledge, skills, values and attitudes to help them create and manage their businesses and ensure that the intended results are achieved. They need to understand and use the enablers of business to grow and sustain their businesses.

Students need to learn not only the principles of business but also about its enablers such as business communication, financial management, and general business management practices. The business knowledge, skills, values, and attitudes they acquire can prepare them for advanced study or to pursue a career in business. They should be aware of factors that contribute to sustainable and unsustainable business environments in both subsistence and cash economies. Having this knowledge, will enable them to participate meaningfully and benefit from economic activities.

What grade 8 students will learn in business environment and practices will reinforce what they had learnt in grade 7 but with an increase in the level of difficulty and complexity in both the content and the learning activities. Students will apply marketing strategies to promote the sale of goods and services. Furthermore, students will learn about government laws, consumer rights, responsibilities, and the importance of keeping records of cash and credit sales. What they learn should prepare them for grade 9 and subsequent grades.

Evidence Outcomes

At the end of grade 8, all students can:

- investigate and draw appropriate conclusions on the importance of advertisements and insurance laws to business;
- explain why price of goods fluctuate;
- explain the importance of keeping records of cash and credit sales and;
- examine private telecommunication companies' functions and analyse their benefits to business.

Unit 1: Satisfying Needs and Wants

Calculation of prices of goods and services is an important business skill. Prices of goods and services, inclusive of mark ups need to be determined before sales could be made. When goods and services are sold, proper credit and sales purchases records should be kept to keep track of daily sales and income. Students need to learn and become proficient in these important business skills to prepare them not only for careers in business but also for other careers that require these skills.

Content Standards	Benchmarks
8.2.1. Students will be able to recognize and discuss the importance of creating an enabling business environment for people's needs and wants to be satisfied.	**8.2.1.1.** Identify and discuss the importance of creating an enabling environment for businesses to operate and effectively meet people's wants and needs.
	8.2.1.2. Define and discuss examples of insurance, advertising, law, policy, and regulation.
	8.2.1.3. Identify and explain the importance of different business environment enabling factors (advertising, insurance, laws and regulations, policies, business and trade relationships, etc.).
	8.2.1.4. Discuss the types of advertising and their benefits to business.
	8.2.1.5. Evaluate the different types of insurance policies available to businesses in terms of their benefits.
	8.2.1.6. Discuss the importance of government laws in creating an enabling business environment, and its effect on meeting people's wants and needs.

Unit 2: Starting a Business and Record Keeping

Students need to learn about the business communication services provided by private communications companies and their impact on business. There is a mutually beneficial relationship between the business communication service providers and businesses. Thus, it is in the interest of both parties that this relationship is promoted and protected. It is important for students to learn about this relationship and its consequences on both parties and stakeholders.

Content Standard	Benchmarks
8.2.2. Students will be able to explain and examine the different ways small scale business owners calculate their prices and keep records of both cash and credit sales and purchases.	**8.2.2.1.** Find out and explain how small scale business owners calculate their prices.
	8.2.2.2. Evaluate the different methods small business owners keep records of their cash and credit sales, and purchases, and suggest ways for improvement.

Unit 3: Business Communication Services

Students need to learn about the business communication services provided by private communications companies and their impact on business. There is a mutually beneficial relationship between the business communication service providers and businesses. Thus, it is in the interest of both parties that this relationship is promoted and protected. It is important for students to learn about this relationship and its consequences on both parties and stakeholders.

Content Standards	Benchmarks
8.2.3. Students will be able to examine the different types of communication services provided by private communications companies and their impact on the success of business operations.	**8.2.3.1.** Identify and explain the different types of communication services provided by private business companies to assist business operations. **8.2.3.2.** Examine the impact of the communication services provided by private communications companies on the success of business operations. **8.2.3.3.** Research a case relating to how a private communication company provides communication services to a business, draw appropriate conclusions, and suggest ways for improvement.

Strand 3: Basic Technology

Rationale

What grade 8 students will learn about basic technology is built on the fundamental concepts, processes, and skills related to the invention and application of technology to solve problems and enhance people's lives. Humans have interpreted, shaped and altered their environments using technology in an attempt to improve the quality of their lives. In the process, technologies have evolved to the extent that, today, they have an impact on most aspects of our daily lives. Products of technology include artifacts, processes, systems, services and environments. These products make up the designed world. Technology has been developed through working and building with materials and tools and has been an integral part of society. Studying Basic Technology develops creative and innovative skills of students, enabling them to design and create their own products for survival.

What grade 8 students will learn in basic technology will reinforce what they had learnt in grade 7 but with an increase in the level of difficulty and complexity in both the content and the learning activities. Students will learn how to translate safety practices, materials, tools, and processes into the design and the assembling of products. They will apply techniques and equipment, manage time and resources, and employ quality control monitoring skills to ensure that products are of the desired quality and are user-friendly and safe for human consumption. What they learn should prepare them for grade 9 and subsequent grades.

Evidence Outcomes

At the end of grade 8, all students can:

- identify and communicate the benefits of technology to people of different contexts.
- analyse properties of different materials and describe how they are manipulated to create solutions.
- identify and demonstrate home designing and decorations with basic cookery and textiles.
- apply knowledge of organizing a home in practical food preparations and basic garment production.
- apply basic computing applications to create and design solutions.
- demonstrate ICT knowledge through problem solving and media communication in practical situations.

Unit 1: Introduction to Resistant Materials

Students need to examine and explain the impact of technology on society in order to appreciate how technology contributes to changing people's lives and the environment in which they live. This includes how wood, metal and plastics are used to produce a variety of products that are required to address identified needs.

Content Standards	Benchmarks
8.3.1. Students will be able to explain basic technology and examine its impact on societies.	8.3.1.1. Explain basic technology and examine its impact in societies.
	8.3.1.2. Identify products produced using basic technology and evaluate them in terms of their quality, durability, and meeting of society needs.
	8.3.1.3. Examine the operations of businesses that use basic wood, metal, and plastic technology to produce their products to meet society's needs and wants.

Content Standards	Benchmarks
8.3.2. Students will be able to identify and compare the properties and the products produced from wood, metal, and plastics, and assess how wood, metal, and plastics are applied to create solutions.	**8.3.2.1.** List and compare the properties of wood, metals, and plastics. **8.3.2.2.** Categorise and compare products made from wood, metals, and plastics in terms of their quality, durability, affordability, marketability, and in meeting consumer needs. **8.3.2.3.** Apply the design process to create a product that meet a particular need using appropriate basic tools.

Unit 2: Home Management

There are design requirements and processes involved in home decoration, food handling, and basic garment construction. These requirements and processes should be adhered to when decorating homes, handling food, and constructing garments. Students need to learn and master these requirements and processes so that they adhere to these when decorating homes, preparing and handling food, and constructing garments.

Content Standard	Benchmarks
8.3.3. Students will be able to examine home design and decorations and the basics of cookery and textiles.	**8.3.3.1.** Define and explain various aspects of home design and interior decorations. **8.3.3.2.** Analyse the reasons for applying proper food preparation and cooking techniques, and using appropriate cookery equipment in the kitchen. **8.3.3.3.** Apply the design process to create a product that meets a particular need using appropriate basic tools. **8.3.3.4.** Research the processes involved in producing fabrics and transforming them to meet consumer needs.
8.3.4. Students will be able to explain how homes are designed and organised, food is prepared and served, and basic garments are made.	**8.3.4.1.** Explain the process of designing, organising and decorating a home. **8.3.4.2.** Examine the importance of resources such as time and equipment in planning and implementing household tasks. **8.3.4.3.** Discuss the processes for planning, preparing, and serving food. **8.3.4.4.** Recognise and demonstrate basic table manners and safe food and cutlery handling practices. **8.3.4.5.** Explain and evaluate the process of making garments and suggest ways of improving it to allow for innovation.

Unit 3: Media and Communication

Digital devices and information communications technology are increasingly being used to design and create solutions to solve problems. The use of these technologies is governed by ethics. Students should learn both the ethics and the ethical practices that apply to the use of digital devices and information communications technology when devising solutions to address identified needs.

Content Standards	Benchmarks
8.3.5. Students will be able to explain the usage of basic digital devices including computer applications to design and create solutions.	**8.3.5.1.** Distinguish how digital devices are used by individuals, groups, and organisations for different purposes.
	8.3.5.2. Classify the various types of digital devices such as computers according to physical size, functionality, and purpose.
	8.3.5.3. Identify and use basic digital devices such as basic computer applications to create solutions.
8.3.6. Students will be able to evaluate the use of information Communications Technology (ICT) in communication and problem solving and its ethics.	**8.3.6.1.** Examine the role and application of ICT in communication and problem solving.
	8.3.6.2. Evaluate the use of ICT to create and communicate basic solutions, and create products such as photographs and designs.
	8.3.6.3. Examine basic ethics when using digital devices and digital applications in ICT, communication and problem solving.

Assessment, Monitoring, and Reporting

The relationship between content standards, benchmarks and performance standards is that they all define students' expected level of proficiency or education quality but at different levels of schooling. Content standards describe the national expectations that all Papua New Guinean children are expected to meet while benchmarks describe the grade-level expectation that all students in a particular grade must meet before proceeding to the next grade. Conversely, performance standards describe students' level of proficiency in a specific knowledge, skill, value or attitude taught in a lesson and measure students' progress towards meeting grade-level expectations and the content standards. Effective instruction and assessment is aligned to performance standards, grade-level expectations, and national content standards.

What is Assessment?

The term "assessment" is generally used to refer to all activities that teachers use to assess students' mastery of what is learned, and to measure and monitor students' progress towards meeting grade-level expectations and the content standards. Assessment is an on-going process of gathering and interpreting information about students' performance and progress towards meeting grade-level expectations as well as the achievement of the content standards described in the subject syllabuses. Data should also be used to help and guide students who are yet to meet grade-level and national expectations to make the required progress towards meeting these expectations.

What is Standards Based Assessment?

In standards based curriculum, assessment is used to assess students' level of competency or proficiency of a specific knowledge, skill, value, or attitude taught using a set of performance standards (indicators or descriptors) and measuring, monitoring, evaluating, and reporting their progress towards meeting grade-level and national expectations. Assessment is viewed not only as a measurement activity that is performed after a course or a curriculum topic has been taught (summative), but more importantly, as a continuous process (formative) that provides students' performance data to teachers and students regarding their progress towards achieving the intended standards. Timely and ongoing assessment of student's learning and mastery of what is learned are key to the learning process and the attainment of the desired learning outcomes. Throughout the year, teachers will be assessing students' performance and progress towards meeting each grade-level benchmark (expectation) and each content standard (national expectation), and using the data to identify areas where a student or a group of students need more attention, and monitor their progress towards meeting the required standards.

Purpose of Assessment

The primary purpose of assessment is to improve students' learning and teachers' teaching. The purposes of assessment are to;

- improve students' learning, levels of proficiency, and progress towards meeting the expected standards;
- provide data that teachers, schools and Department of Education can use to make informed decisions about how to improve the quality of teaching and learning in the education system;
- inform teachers about the progress of students towards meeting grade-level and national expectations (standards) and enable them to adjust their lesson planning, instruction, and assessment to improve student learning and proficiency levels;
- inform parents and guardians about their children's achievements and status of progress towards meeting national standards; and what needs to be done to close the gaps and enable the children to make the progress required to meet these standards, and
- provide information for schools and systems about teaching strategies, resource allocations and curriculum; and other educational institutions, employers and the community about the achievements of students in general or of particular students.

Whatever its purpose, assessment is seen as an integral part of the teaching and learning program rather than a separate process.

Types of Assessment

The following types of assessment have been adopted to assess and monitor students' achievement of the education standards:

- Assessment *for* learning
- Assessment *of* learning
- Assessment *as* learning

Assessment *for* and assessment *of* learning are also known as *formative and summative assessments.*

Assessment *for* Learning

Assessment *for* learning, also known as classroom assessment is different. It is an ongoing process that arises out of the interaction between teaching and learning. It is not used to evaluate learning but to help learners learn better. It does so by helping both students and teachers to understand:

- the performance standards, grade-level benchmarks and content standards that students are expected to meet to achieve the desired level of proficiency or quality of education;
- where each learner is in relation to the national curriculum standards;
- where they need to be and;
- what they need to do to make progress towards meeting the expected standards.

Assessment *of* Learning

Assessment *of* learning is the use of a task or an activity to measure, record, and report on a student's level of achievement in regards to specific learning expectations such as unit tests and end of term or year exams. It is normally referred to as Summative Assessment.

Assessment *as* Learning

Assessment *as* learning is the use of an assessment task or an activity by the teacher in his/her everyday teaching. This strategy provides students with opportunities to understand what they have learnt or is having difficulties with. Self and peer assessments allow students to reflect on their own learning and identify areas of strength and weakness. These tasks offer students the chance to set their own personal goals to improve their own learning.

Diagnostic Assessment

Apart from these three main types of assessment, teachers are expected to do the diagnostic test/assessment to identify strengths and weaknesses in students. This can be done before any teaching and learning of a new content and for new entry levels for students. Diagnostic assessment is a form of pre-assessment that allows a teacher to determine students' individual strengths, weaknesses, knowledge, and skills prior to instruction. It is primarily used to diagnose student difficulties and to guide curriculum and lesson planning.

Assessment Methods

These are some methods that teachers can use to assess students' performance:

- Observing students during the lesson
- Conferencing with students
- Student's Portfolio
- Tests
- Assignments (projects/reports/quizzes/presentations/practical work samples).

Recording and Reporting

Recording.

Teachers must keep accurate records of students' performance and achievements. They must report these achievements in fair and accurate ways to parents, guardians, teachers and students. Examples of recording methods include:

- anecdotal notes in a journal or diary
- check-lists
- portfolios of students' work
- progressive records
- work samples with comments written by the teacher.

Reporting

Reporting is communicating clearly to students, parents, guardians, teachers and others the information gained from assessing students' learning.
Students' reports should be based on assessment information collected from ongoing assessments. Schools will decide on how best the reports will be presented to suit the needs of their communities. Methods will include interviews and written reports. Written reports should include;

- a written record of progress made towards meeting grade-level expectations and the attainment of content standards by each student since the previous report;
- a written record of each student's learning and mastery problems and what needs to be done to make the required progress towards meeting grade-level benchmarks and national content standards and;
- information about students' attitudes, values and general behaviour.

Monitoring and Evaluation

Assessment information should be used to make judgments about students' achievements and progress towards meeting national standards. Assessment data can be used to inform decision makers about:

- the effectiveness of teaching, learning and assessment programs;
- suitability of available resources
- the degree of community participation in schools
- trends in students' achievement at grade and national levels
- the contribution of the education systems to the future development of the nation.

Monitoring

Data from performance assessment should be used to monitor and report on students' performance towards meeting grade-level and national expectations. Performance standards or indicators should be used to report and keep a tab on each students' progress towards meeting the expected level of proficiency or competency. Teachers should develop a clear and measurable set of performance standards or indicators to monitor and report on students' progress and achievements on a regular basis.

Evaluation

Evaluation is part of the process of continuously raising standards of student achievement. Assessment information used for evaluation purposes should be used in ethical and constructive ways.

Teachers will use assessment information to evaluate the effectiveness of their teaching and learning, and make improvements to their teaching practices in order to improve student learning outcomes. Evaluation tools such as written records, questionnaires, logs and diaries, submissions or records of meetings and discussion with general staff members, teaching staff, parents and other community members should be used to evaluate students and teachers' competency levels, and make-informed decisions about how these could be improved.

Glossary

Word	Definition
Assessment	Activities teachers use to help students learn and to measure and monitor their progress towards the attainment of expected levels of proficiency.
Assessment *As/In* Learning	Assessment is used to help students understand and reflect on what they have learnt or are having difficulties with, identify areas of strengths and weaknesses, and set clear, measurable, and attainable personal goals to improve their own learning.
Assessment *For* Learning	A common form of assessment. It is an ongoing process that arises out of the interaction between teaching and learning. Also referred to as formative assessment
Assessment *Of* Learning	Provides a summary of students learning over a given period of time and is generally carried out at the end of a course of study. Also referred to as summative assessment.
Assessment Strategies	Different ways or approaches of assessing students work.
Assessment Tasks	On-going test of knowledge, skills and attitudes/values gained throughout the particular unit or topic.
Performance Assessment	A form of assessment that is focused on measuring students' mastery of knowledge, skills, values and attitudes taught and learnt in each lesson.
Benchmark	Benchmarks are more detailed descriptions of a specific level of performance expected of students at particular ages, grades, school levels or levels of development. They are the specific components of the knowledge, process, skill, concept, principle, or idea identified by a content standard.
Content Standards	Content Standards are broadly stated expectations of what (content) students should know. They describe the knowledge, skills, values, and attitudes that students should attain.
Evidence Outcomes	Evidence outcomes are indicators that indicate students' mastery of essential knowledge, skills, values and attitudes at the end of each grade or school level.
Standard	A standard is a level of quality or achievement, especially a level that is thought to be acceptable. It is something used to measure or estimate the quality or degree of something, for example, how good a piece of work is.
Standard Based Curriculum	Describes what all students should know and be able to do at the end of a grade or school level. The main idea behind standards based curriculum is standards.
Standards Based Education	An academic program in which clearly defined academic content and benchmarks are aligned. It spells out what schools and communities need to do to ensure achievement of expectations. The main idea behind standards based education is standards.
Standards Based Education Assessment	Is a learning system and is systematic and ongoing process of collecting and interpreting information about students' achievements.

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